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Norwegian Species of *Sylvicola* Harris, 1776 (Diptera: Anisopodidae).

GEIR E. E. SØLI

Søli, G. E. E. 1992. Norwegian species of *Sylvicola* Harris, 1776 (Diptera: Anisopodidae). *Fauna norv. Ser. B* 39: 49—54.

Four species of *Sylvicola* are recorded from Norway, *S. cinctus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763), *S. zetterstedti* (Edwards, 1923) and *S. punctatus* (Fabricius, 1787). A key for the identification of the species, both males and females, is given. The Norwegian distribution is commented on; *S. cinctus* is by far the most common species in Norway, but all species seem to be widely distributed.

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INTRODUCTION

The family Anisopodidae consists of six genera, *Sylvicola* Harris, *Olbiogaster* Osten-Sacken, *Lobogaster* Philippi, *Carreraia* Corrêa, *Mycetobia* Meigen and *Mesochria* Enderlein. Traditionally the family has been divided into two subfamilies, Anisopodinae and Mycetobiinae, of which Mycetobiinae is made up of *Mesochria* and *Mycetobia*. These subfamilies have also been raised to family level (e.g. Soós & Papp 1986, 1988), but their taxonomical position are still unsatisfactory outlined (Peterson 1981).

Only three genera have been recorded from the palaeartic region, viz. *Mycetobia*, *Sylvicola* and *Olbiogaster*. Of these, *Olbiogaster*, is recorded from Japan only (Krivosheina 1986). Species of *Mycetobia* and *Sylvicola* have been recorded from all parts of Fennoscandia (e.g. Søli 1992).

Five species of *Sylvicola* Harris, 1776 occur in Northern Europe, *S. cinctus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763), *S. zetterstedti* (Edwards, 1923), *S. punctatus* (Fabricius, 1787) and *S. fuscatus* (Fabricius,

1787). In addition *S. limpida* (Edwards, 1923) has been recorded from Central Europe (Krivosheina 1986). All five North European species have been recorded from Sweden (Wahlgren 1905, Tjeder 1954, Andersson 1967) and Finland (Hackman 1980), while only three species from Denmark (Pedersen 1968) (Tab. 1). Of these, *S. zetterstedti* has not been recorded outside Great Britain and Scandinavia (Krivosheina 1986). Little attention has been offered these flies in Norway. The first and only survey on Norwegian species, is that given by Siebek (1877). Since then only a few records have been published from Norway (Lindner 1930, Davies 1955).

European species of *Sylvicola* are recognized as medium sized nematocera, 4—7 mm long with spotted wings and a relatively stout body and a blunt abdomen. They have a roundish head with large eyes and rather compact 16-segmented antennae. Pratt & Pratt (1980) gives the following characters for differentiating *Sylvicola* from other ne-

Table 1. The fennoscandian distribution of *Sylvicola* spp.

	<i>S. cinctus</i>	<i>S. fenestralis</i>	<i>S. zetterstedti</i>	<i>S. punctatus</i>	<i>S. fuscatus</i>
SWEDEN	x	x	x	x	x
DENMARK	x	x		x	
FINLAND	x	x	x	x	x
NORWAY	x	x	x	x	

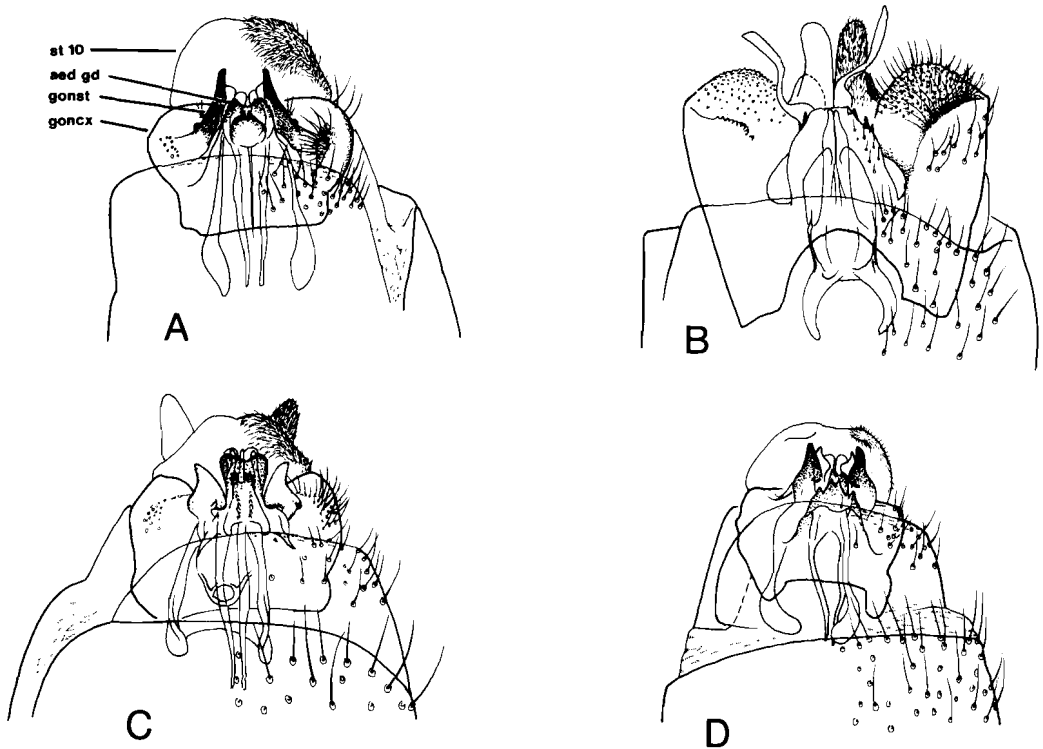


Fig. 1. Male genitalia of Norwegian *Sylvicola*-species. A: *S. fenestralis* (Scopoli), B: *S. punctatus* (Fabricius), C: *S. zetterstedti* (Edwards), D: *S. cinctus* (Fabricius).

Abbreviations: aedg gd, aedeagal guide; gonst, gonostyli; goncx, gonocoxite; st10, sternum 10.

matocera: «Three ocelli, mesoscutum without V-shaped transverse suture, wings with three branches of R and three branches of M reaching margin, discal cell present, Cul and I A present, wing membrane with numerous microtrichia, and hind tibia with a comb of short spinules on the posterodorsal surface.»

The larva has a well developed head capsule and moves in a serpentine manner. The larval stages of *Sylvicola* have been thoroughly studied by, among others Keilin & Tate (1940). Pupation takes place in the larval habitat without the formation of a cocoon. Early stages are found in moist to wet decaying and fermenting organic matter, and may cause damage to vegetables and fruits not stored in an appropriate manner. Hancock (1990) reports larvae of *S. cinctus* feeding on a decaying carcass of a sheep. Intestinal and urogenital myiasis are documented in the literature (e.g. Peterson 1981); and the collection of the Museum of Zoology, Bergen,

contains one larva found in the faeces of a young child.

Adult flies are frequently found indoors, which is also indicated by their Norwegian name «vindusmygg», meaning «window gnats». Adult males can often be seen swarming in small groups.

METHODS

Identification may cause some problems, and misidentified specimens are frequent in collections. Several keys are using the colouration of femora and thorax for separating the three species, *S. cinctus*, *S. fenestralis* and *S. zetterstedti* (e.g. Freeman 1950), but a reliable identification can only be made by studying the genitalia. For this, I have added an illustrated key. Males can easily be identified by external characters alone; females, however, must be slightly dissected for a certain identification. This can be done by carefully lifting up the hypopygnal valve. Only speci-

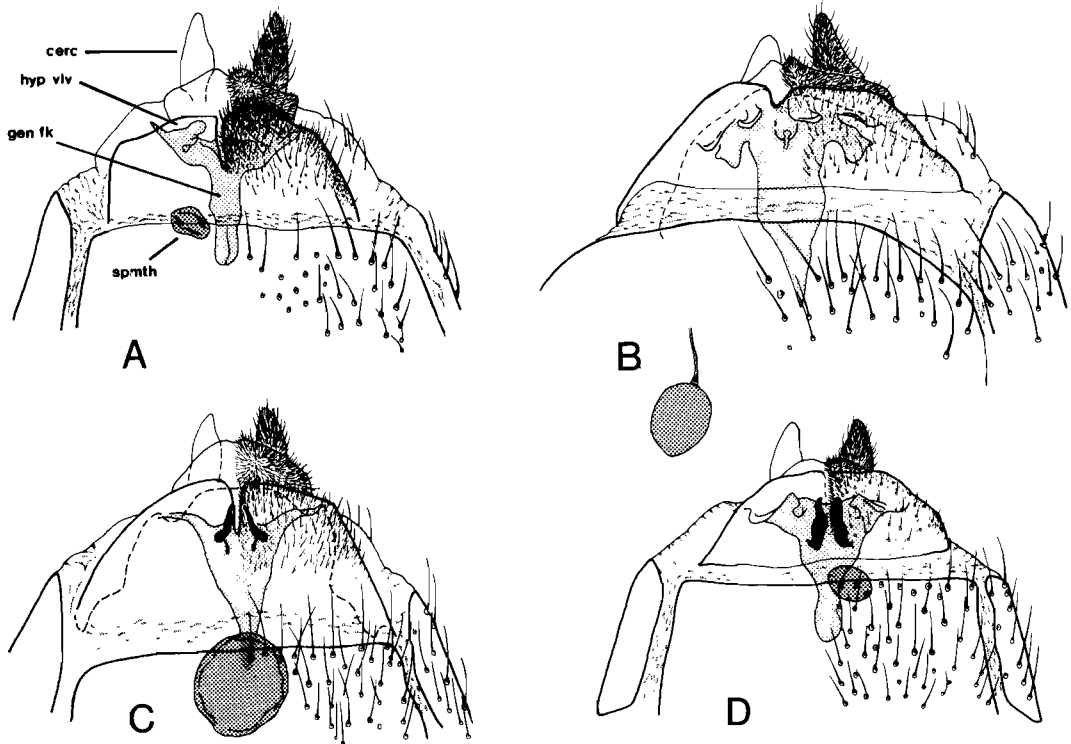


Fig. 2. Female genitalia of Norwegian *Sylvicola*-species. A: *S. fenestralis* (Scopoli), B: *S. punctatus* (Fabricius), C: *S. zetterstedti* (Edwards), D: *S. cinctus* (Fabricius).

Abbreviations: cerc, cerci; hyp vlv, hypopygial valve; gen fk, genital fork; spnth, spermatheca.

mens stored in alcohol, or other fluids, can be treated in this way. For dry specimens, the abdomen must be softened in 8% potassium-hydroxide and neutralized in acetic acid. It can then be stored in glycerol in corked micro vials, and pinned to the needle.

KEY TO NORWEGIAN SPECIES OF *SYLVICOLA*:

(The terminology used is in accordance with Peterson (1980)).

1. Cell M1 pointed at base; hind margin of gonocoxite deeply concave ventrally, terminal part broad and strongly setose; Sternum 10 with two small lobes (Fig. 1b); Vaginal valve thick, pillow-like; genital fork pointed (Fig. 2b)

Subgenus *Anisopus* Meigen (1 sp.)
punctatus (Fabricius, 1787)

(*S. fuscatus* (Fabricius, 1775) would run to here, but can, according to Pratt & Pratt (1980), be recognized by a dark marking in Cell R5 behind the stigmal spot. Males can be

identified by two fingerlike lobes near apex of the gonocoxite.)

- Cell M1 truncate at base; hind margin of gonocoxite straight or nearly so; gonostyli clawlike or rodlike; Sternum 10 broad; Vaginal valve not pillow-like

Subgenus *Sylvicola* Harris (3 spp.) 2

2. Males 3
- Females 5

3. Eyes almost touching, approximately one facet width apart; gonostyli nearly triangular with a broad rounded base; aedeagal guide prominent and extending below apex of gonostyli (Fig. 1c)

zetterstedti (Edwards, 1923)

- Eyes widely apart; gonostyli slender, not with rounded base; eadeagal guide with apex notched and not extending below apex of gonostyli 4

4. Gonostyli long and slender, with basal tooth; aedeagal guide broad and strongly sclerotized (Fig. 1a)

fenestralis (Scopoli, 1763)

- Gonostyli more blunt, without basal tooth;

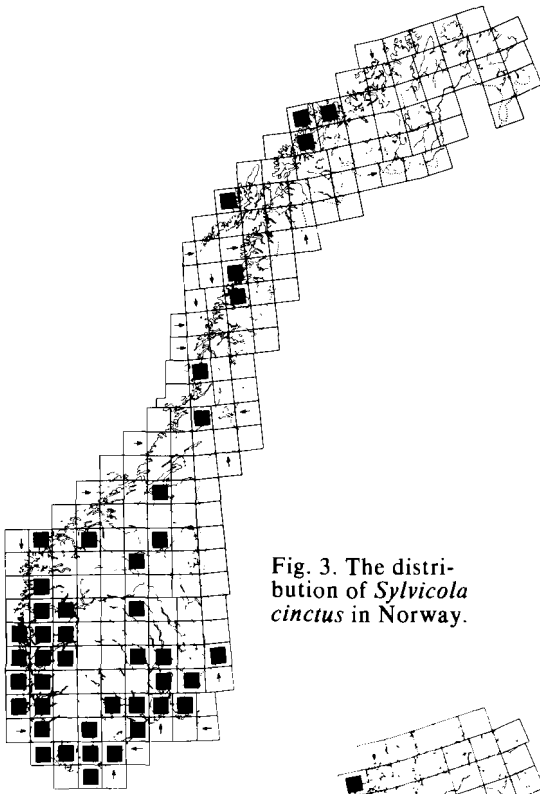


Fig. 3. The distribution of *Sylvicola cinctus* in Norway.

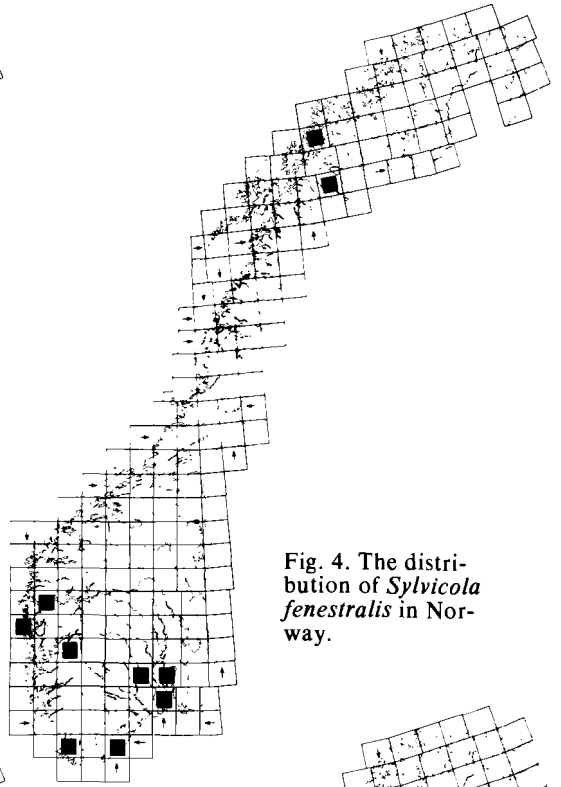


Fig. 4. The distribution of *Sylvicola fenestralis* in Norway.

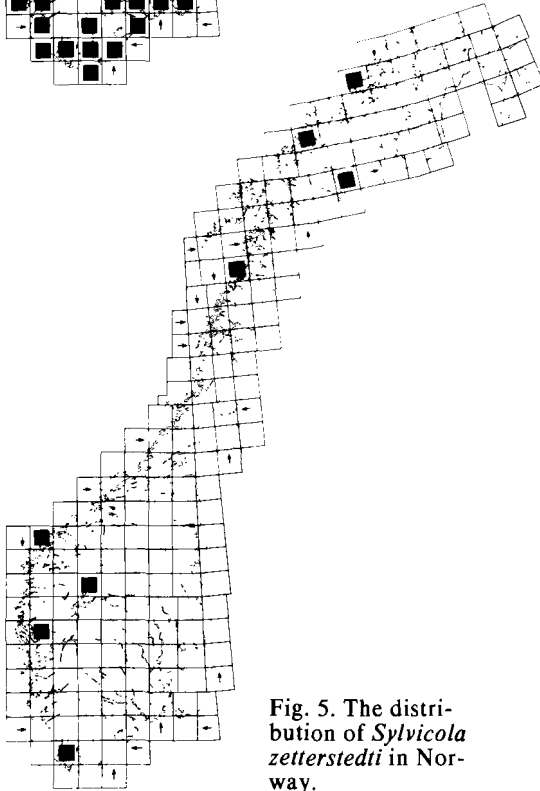


Fig. 5. The distribution of *Sylvicola zetterstedti* in Norway.

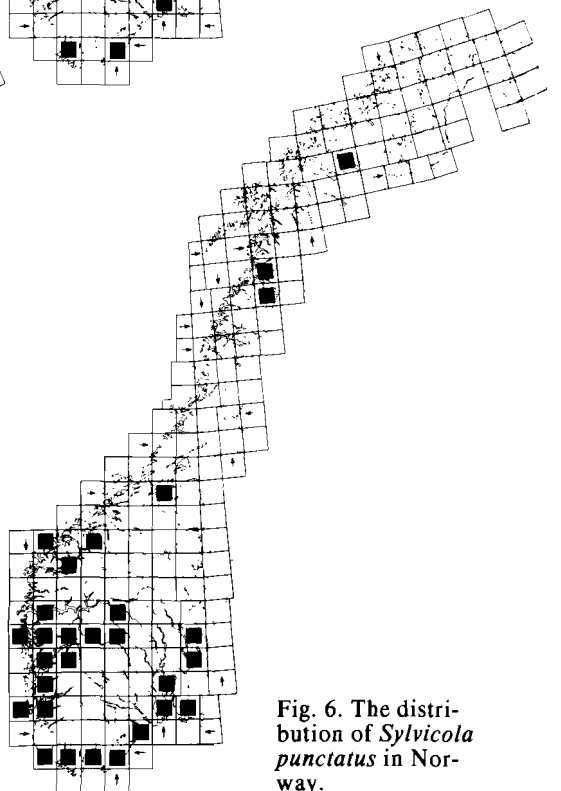


Fig. 6. The distribution of *Sylvicola punctatus* in Norway.

aedaegal guide narrow, median part with lateral tooth, not strongly sclerotized (Fig. 1d)
cinctus (Fabricius, 1787)

5. Genital fork Y-shaped, without sclerotized rods; spermatheca small (Fig. 2a)

fenestralis (Scopoli, 1763)

- Genital fork more or less V-shaped with two sclerotized rods; spermatheca small or large (Fig. 2c, d) 6

6. Sclerotized rods on genital fork converging towards apex; hind margin of genital fork obscure; spermatheca large (nearly twice as broad as stem of genital fork) (Fig. 2c)

zetterstedti (Edwards, 1923)

- Sclerotized rods on genital fork parallel; hind margin of genital fork distinct; spermatheca small (not broader than the stem of the genital fork) (Fig. 2d)

cinctus (Fabricius, 1787)

NORWEGIAN RECORDS

The material comprises nearly 1300 specimens of 4 species. Collections from Museum of Zoology, Bergen (ZMB) and Tromsø Museum, University of Tromsø (TM) have been revised. A high number of specimens have been added to the collection of Bergen from light trap, malaise trap and sweep net catches from different parts of the country.

Except for *S. zetterstedti*, localities are given as municipalities within each biogeographical province. These provinces are used according to Strand's system as revised by Økland (1981).

Sylvicola cinctus (Fabricius, 1787)

Ø: Moss, Hvaler, Spydeberg, Rakkestad; AK: Vestby, Ås, Frogn, Nesodden; HES: Eidskog; OS: Lunner; ON: Vågå; BØ: Kongsberg, Krødsherad, Nedre Eiker; VE: Nøtterøy, Tjøme; TEY: Porsgrunn; TEI: Kviteseid; AAY: Arendal; AAI: Bygland; VAY: Mandal, Flekkefjord, Søgne, Marnardal; RY: Eigersund, Bjerkreim, Tysvær, Karmøy; RI: Forsand, Hjelmeland; HOY: Bergen, Sveio, Tysnes, Fusa, Stord, Samnanger, Os, Sund, Askøy, Osterøy, Øygarden, Lindås; HOI: Kvinnherad, Ullensvang, Eidfjord, Ulvik, Granvin, Kvam; SFY: Gulen, Høyanger, Naustdal; SFI: Leikanger; MRY: Molde, Hareid; STI: Trondheim, Oppdal; NTI: Stjørdal, Høylandet; NSY: Bodø, Sønna; NNV: Øksnes; TRY: Tromsø, Karlsøy, Skjervøy.

Material: 337 males, 617 females.

Distribution: all parts of the country, north to Karlsøy, Troms (Fig. 3).

Collecting period: April—December.

Sylvicola fenestralis (Scopoli, 1763)

AK: Oslo, Vestby, Frogn; BØ: Kongsberg; VE: Tjøme, Larvik; AAY: Lillesand; VAY: Flekkefjord; HOY: Bergen, Askøy, Øygarden; HOI: Ullensvang; SFY: Gulen, Høyanger; TRI: Målselv, Balsfjord.

Materials: 11 males, 26 females.

Distribution: Southern Norway, Troms (Fig. 4).
Collecting period: June—August, October—December.

Sylvicola zetterstedti (Edwards, 1923)

VAY: Flekkefjord, Gyland, 21.06.—6.07.1982 (1 f (ZMB 15103)); HOY: Samnanger, Tysse, 21.—28.09.1980 (1 f) leg. T. Andersen; Børdal, 10.10.1982 (1 m) leg. T. Andersen; SFI: Luster, Jostedalen, Sprongdalen, 23.06.1988 (1 m 2 ff) leg. G. Søli; MRY: Hareid, Hareidlandet, 1-20.05.1990 (1 f) leg. J. Korsnes; NSY: Bodø, Kronli, Urskar, 15.07.1984 (3 ff) leg. A. Fjeldså; TRY: Tromsø, Tromsø, 30.08.1922 (1 f (TM)), 26.06.1926 (1 m (TM)), 8.09.1934 (1 m (TM)), 0.08.1941 (1 m (TM)) leg. T. Soot-Ryen; TRI: Målselv, Dividalen, L. Jerta, 24.06.1986 (1 m (TM)) leg. Fjellberg & Midtgaard; FV: Hasvik, Sørvær, 16.06.1986 (1 m) leg. G. Søli.

Material: 7 males 10 females.

Distribution: Scattered records north to Sørøya, Finnmark (Fig. 5).

Collecting period: June—July, September—October.

Sylvicola punctatus (Fabricius, 1787)

Ø: Halden; AK: Vestby, Ås, Nesodden, Nannestad; HES: Ringsaker; ON: Vestre Slidre; BØ: Nedre Eiker; BV: Hemsedal; TEY: Porsgrunn; AAY: Arendal; VAY: Marnardal; VAI: Kvinnesdal; RY: Hå, Tysvær, Karmøy; HOY: Bergen, Sveio, Samnanger, Osterøy, Lindås; HOI: Kvinnherad, Eidfjord, Ulvik, Voss; SFY: Høyanger; SFI: Aurland, Luster, Stryn; MRY: Molde, Hareid; NTI: Stjørdal; NSI: Saltdal; NNØ: Sørfold; TRI: Storfjord.

Material: 146 males, 131 females.

Distribution: All parts of the country north to Storfjord, Troms (Fig. 6).

Collecting period: May—October.

DISCUSSION

All four species of *Sylvicola* recorded in Norway seem to be widely distributed. However, *S. cinctus* and *S. punctatus* are by far the most common species in all parts of the country. Gaps in the distribution of these two species, as indicated in Fig. 3 and 6, must, most probably, be sought in the want of collecting. *S. zetterstedti* appears to be quite rare in Norway, and most specimens have been

found in northern Norway, and in mountainous areas in southern Norway.

S. fuscatus has so far not been recorded from Norway. The species may, however, well be found in eastern part of Northern Norway as it has been recorded from Lycksele Lappmark, Sweden (Anderson 1967).

ACKNOWLEDGEMENT

I am indebted to Lita Greve, Museum of Zoology, University of Bergen, and to Arne Fjellberg, Tromsø Museum, University of Tromsø for loan of museum material. My sincere thanks to all those who have supported me with material from malaise and light trap catches.

SAMMENDRAG

Norske arter av *Sylvicola* Harris, 1776 (Diptera: Anisopodidae).

4 arter av slekten *Sylvicola* er kjent fra Norge, *S. cinctus* (Fabricius, 1787), *S. fenestralis* (Scopoli, 1763), *S. zetterstedti* (Edwards, 1923) og *S. punctatus* (Fabricius, 1787). Av disse er *S. cinctus* den vanligste arten i Norge, men alle synes å ha en vid utbredelse. I artikkelen finnes en bestemmelsesnøkkel for de norske artene, både hanner og hunner.

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Received 15 May 1991.

Contribution to the knowledge of the Norwegian Lepidoptera IV. The Norwegian species of *Pammene* Hübner (Tortricidae)

LEIF AARVIK

Aarvik, L. 1992. Contribution to the knowledge of the Norwegian Lepidoptera IV. The Norwegian species of *Pammene* Hübner (Tortricidae). *Fauna norv. Ser. B* 39: 55–61.

New distributional records of the tortricid genus *Pammene* Hübner are listed. *P. insulana* (Guenée, 1845); *P. ignorata* Kuznetsov, 1968 and *P. suspectana* (Lienig & Zeller, 1846) are new to Norway. *Pammene agnotana* Rebel, 1914 is deleted from the Norwegian list. EIS-grid maps are given for all species.

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INTRODUCTION

Leaf roller moths of the genus *Pammene* Hübner generally are rare in collections. The adult moths mostly fly round the tops of the host trees, and are seldom attracted to light. As a result the distribution of most species is poorly known. However, recent collecting with the pheromones, indicated that several species are more common than previously though.

The genus *Pammene* is characteristic by the presence of long pencils of hair-scales on tergite 6 in males. Some species also have pencils on tergite 7 and even on tergite 8.

The palearctic species were monographed by Danilevsky & Kuznetsov (1968) in their monumental work on the tribe Laspeyresini (= Grapholitini) of the USSR. They divided the genus into two subgenera, *Eucelis* Hübner and *Pammene* s.str. The latter is defined by a venational character: Males have Sc and R in the hindwing fused in spical half. Subgenus *Eucelis* is small, and most subsequent authors have placed its members in *Cydia* Hübner, 1825. But the presence of hair-scales on the male abdomen shows that this is incorrect. Our single member of the subgenus *Eucelis*, viz. *gallicana* Guenée, 1845, has pencils of hair-scales on tergite 6 and is definitely a *Pammene* species.

The taxonomy and nomenclature of many N. European species were confused until Wolff (1965, 1968) clarified the problems. All our species can be identified by means of the excellent genitalia figures given by Kuz-

netsov (1989). The British species are figured in colour by Bradley et al. (1979). For information on distribution outside Scandinavia and biology, the works by Bradley et al. (1979), Palm (1982) and Kuznetsov (1989) can be consulted.

For the present study I have examined the collections of the Zoological museums in Oslo and Bergen; Statens Plantevern, Ås; Norsk institutt for skogforskning, Ås; as well as several private collections. An important part of the material was collected by Prof. Alf Bakke and Torgeir Edland in sticky traps fitted with pheromones. The moths obtained by this method usually were so damaged that they could only be identified by their genitalia. The genitalia slides which were prepared from this material are deposited in the author's collection.

A species deleted from the Norwegian list

Pammene agnotana Rebel, 1914 was reported new to Norway by Opheim (1977). The record was based on a specimen collected by Eivind Palm at TEI, Bø: Blåsjø on 17 Jun. 1976. On my request Palm kindly sent me the specimen for examination. It turned out to be a worn specimen of *Cydia strobilella* (Linnaeus, 1758).

List of records

In the present account records which are new to the faunal districts, as defined by Økland (1981), are listed.

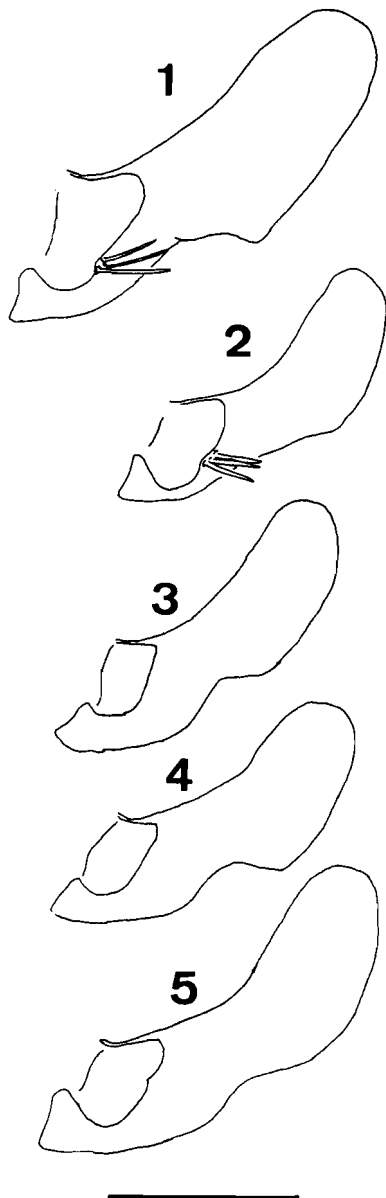


Fig. 1—5. Male valva of *Pammene* Hb. — 1. *P. insulana* Gn. Genital prep. 1335 L. Aarvik. — 2. *P. ignorata* Kuzn. Genital prep. 1373 L. Aarvik. — 3. *P. clanculana* Tgstr. Genital prep. 534 L. Aarvik. — 4. *P. clanculana* Tgstr. Genital prep. 557 L. Aarvik. — 5. *P. obscurana* Sph. Genital prep. 1056 L. Aarvik. — Scale 0,5 mm.

The following abbreviations are used:

ABa	=	Alf Bakke
KBe	=	Kai Berggren
LAA	=	Leif Aarvik
NISK	=	Norsk institutt for skogforskning
NKn	=	Nils Knaben
TEd	=	Torgeir Edland
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SSv	=	Svein Svendsen
ZMB	=	Zoologisk museum Bergen
ZMO	=	Zoologisk museum Oslo

Pammene gallicana (Guenée, 1845) Map: Fig. 6

Previous records: RY, HOY (Opheim 1976).
New records: VAY, Farsund: Nordhassel ♂ 20 Jul. 1980 LAa leg. & coll.; Lindesnes: Lindesnes ♂ 20 Jul. 1980 T. Nielsen leg. SSv coll.; Kristiansand: Flekkerøy ♂ 21 Jul. 1983 KBe leg. & coll..

Pammene fasciana (Linnaeus, 1761) Map: Fig. 7

Previous records: Ø, VE, VAY (Opheim 1976).

Pammene splendidulana (Guenée, 1845) Map: Fig. 8

Previous records: Ø, Sarpsborg 21 May 1920 E. Barca leg.; AK, Ås: Årungen ex *Salix* 15 March 1960 S. Tvermyr leg. (Barca 1922, Opheim 1976, 1981)

New records: AK, Bærum: Ostøya ♀ 31 May 1986 LAa leg. & coll.; VE, Tjøme: Moutmarka ♂ 29 May 1982 KBe leg. & coll.; Larvik: Rakke 5 ex 25 May 1987 LAa leg. & coll.; AAY, Grimstad: Sæveli ♀ 26 May 1987 KBe leg. & coll.

Note: The only known food plant is *Quercus*. I suspect that the specimen from Årungen is mislabelled.

Pammene insulana (Guenée, 1845) Map: Fig. 9

New to Norway: Ø, Råde: Tomb 2 ♂ 1—13 Jun. 1980 TEd leg. genital slides in coll. LAa; AK, Frogn: Håøya ♂ 19—26 Jun. 1983 LAa leg. & coll.; Ås: Herumhagen 2 ♂ 3—10 Jun. 1980 TEd leg. genital slides in coll. LAa; Kroer ♂ May—Jun. 1984 ABa leg. genital slide in coll. LAa; HES, Eidskog: Helgesjøen 2 ♂ May—Jun. 1984 ABa leg. Genital slides

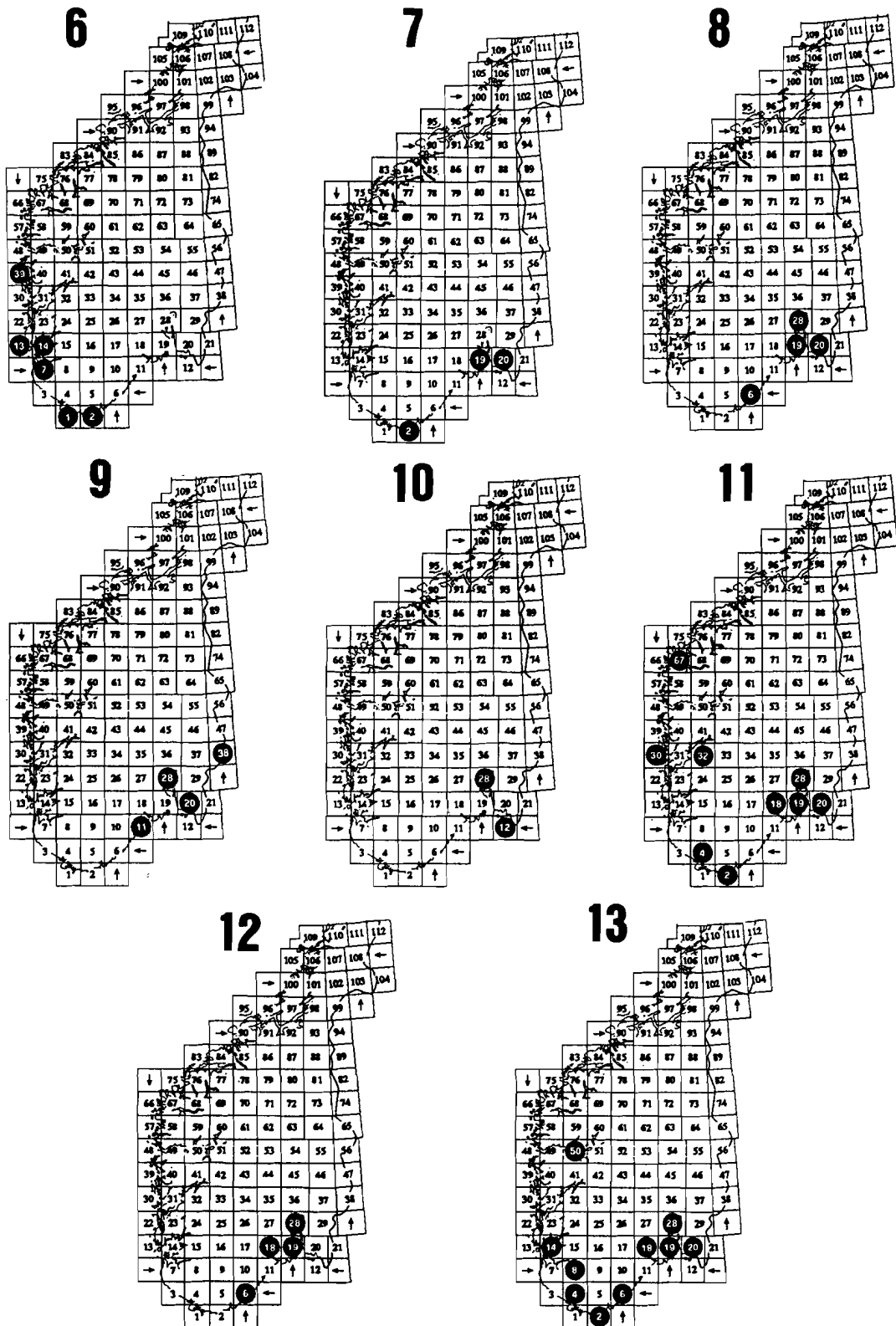


Fig. 6—13. Distribution of *Pammene* species in Norway shown on EIS-maps. — 6. *P. gallicana* Gn. — 7. *P. fasciana* L. — 8. *P. splendidulana* Gn. — 9. *P. insulana* Gn. — 10. *P. ignorata* Kuzn. — 11. *P. argyrana* Hb. — 12. *P. suspectana* Lien. & Zell. — 13. *P. albuginana* Gn.

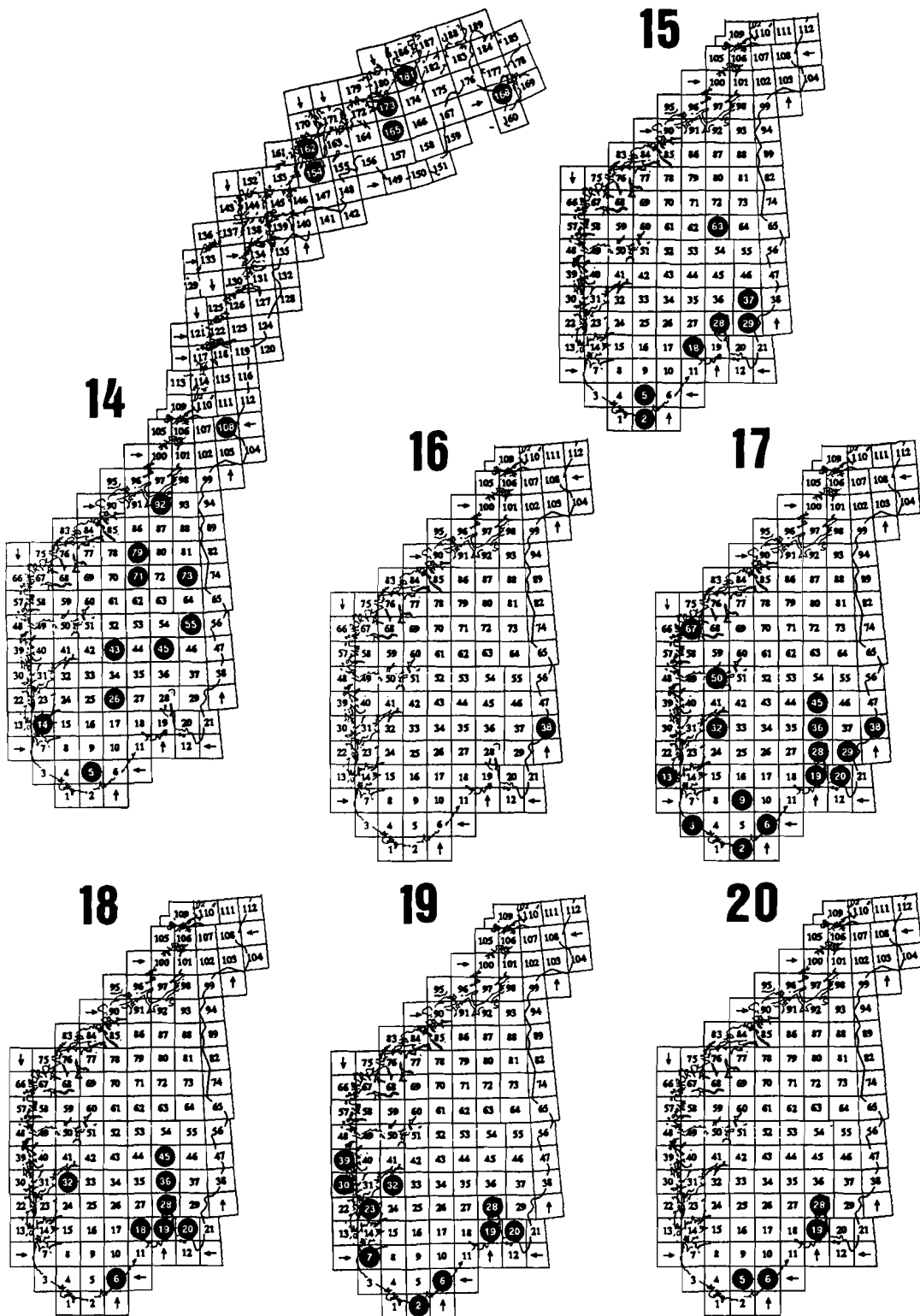


Fig. 14—20. Distribution of *Pammene* species in Norway shown on EIS-maps. — 14. *P. clanculana* Tgrstr. — 15. *P. obscurana* Stph. — 16. *P. luedersiana* Sorh. — 17. *P. rhediella* C1. — 18. *P. populana* F. — 19. *P. regiana* Zell. — 20. *P. oxshenheimeriana* Lien. & Zell.

in coll. LAa; AAY, Tvedestrand: Laget ♀ 21 Jun. 1928 NKn leg. ZMB coll.

In Sweden *P. insulana* has been collected in six provinces north to Norrbotten (Svensson et al. 1987). It is also known from S. Finland, but not from Denmark. Otherwise from W. Europe eastwards to the Far East of the USSR and NE. China (Kuznetsov 1989). Not in Britain. Food plants are trees of Betulaceae and also galls of oak (Kuznetsov 1989).

Male valva on fig. 1.

Pammene ignorata Kuznetsov, 1968 Map: Fig. 10

New to Norway: Ø. Halden: Osdalen ♂ 29 Jun. 1987 SSv leg. & coll.; AK, Oslo: Ullern ♂ March 1989 ex *Ulmus glabra* ABA leg. SAB coll.; Ås: Kroer 2 ♂ May—Jun. 1984 ABA leg. genital slides in coll. LAs; Nordby ♂ 31 May 1985 LAa leg. & coll.

P. ignorata is known from twelve Swedish provinces north to Hälsingland (Svensson et al. 1987), from S. Finland and Denmark. Otherwise in the USSR eastwards to the southern part of the Far East (Kuznetsov 1989).

The species' biology has not been known, and the present record of a reared specimen from *Ulmus glabra* is the first indication of its food plant.

Note: *P. ignorata* Kuznetsov, *P. insulana* Guenée and the C. European *P. gallicolana* Lien. & Zell. are very close. *P. ignorata* was confused with *gallicolana* until Wolff (1968) differentiated the two species. The male genitalia are somewhat variable in the group. Kuznetsov (1989) stated that the number of strong spines on the sacculus of the valva are 2—3 in *insulana* and 4—6 in *ignorata*. However, in the Norwegian material I have examined, the number of spines overlaps in the two species. The outline of the valvae of *insulana* and *ignorata* are shown on figure 1 and 2 respectively.

Pammene argyrana (Hübner, 1799) Map: Fig. 11

Previous record: Ø. Sarpsborg 1920—1922 E. Barca leg. (Barca 1922, Opheim 1976).

New records: AK, Asker: Sem 2 ♂ Jun. 1987; Frogn: Hallangen ♂ 28 May 1988; Ås: Nordby 5 ♂ 31 May 1985; VE, Larvik: Rakke 7 ♂ 25—26 May 1987 LAa leg. & coll.; Tjøme: Mostrand 1 ♂, ♀ 18 May 1976 T. An-

dersen leg. ZMB coll.; TEY, Nome: Helgja ♂ 1—10 Jun. 1980 TED leg. genital slide in coll. LAa; VAY, Kristiansand: Stangenes leg 26 Jun. 1976 SSv leg. & coll.; Flekkefjord: Nuland ♂ 30 May—3 Jun. 1978; Øvre Sandmark ♂ 30 May—3 Jun. 1978; VAI, Kvinesdal: Lindland ♂ 30 May—3 Jun. 1978 TED leg. genital slides in coll. LAa; HOY, Bergen: Ådlandsskifte ♀ 23 May 1939 NKn leg. ZMB coll.; HOI, Ullensvang: Kolgrevene ♀ 3 Jun. 1975 ex *Malus* TED leg. SP coll.; SFY Gløppen: Apalset ♂ 1—10 Jun. 1980 TED leg. genital slide in coll. LAa.

Pammene suspectana (Lienig & Zeller, 1846) Map: Fig. 12

New to Norway: AK, Ås: Ås 6 ♂ 15—29 May 1990 SAB leg. & coll.; VE, Våle: Langøya ♀ ultimo Jun. 1987 L. O. Hansen leg. & coll., TEI, Sauherad: Sauherad prestegard 2 ♂ 15—25 Jun. 1978; AAY, Grimstad: Landvik ♂ 1—10 Jun. 1980 TED leg. genital slides in coll. LAa.; Tromøy: Hefte ♂ 24 May 1990 SAB leg. & coll. In Sweden *P. suspectana* has been recorded in Skåne and Östergötland only (Svensson et al. 1987). There are single records from various parts of S. and C. Europe and also NW. Africa (Kuznetsov 1989). The species is rare everywhere it occurs.

According to Kuznetsov (1989) the larva lives under the bark of ash.

Pammene albugina (Guenée, 1845) Map: Fig. 13

Previous records: VE, Tjøme: Mostrand 25 May 1974 A. Fjeldså leg.; VAY, Kristiansand: Stangenes 25 Jun. 1976 KBe leg. (Opheim 1976, 1979).

New records: Ø, Råde: Tomb ♂ 20 Jun. 1980; AK, Ås: Ås 2 ♂ 10—30 Jun. 1980; TEY, Nome: Helgja ♂ 1—10 Jun. 1980; TEI, Sauherad: Sauherad prestegard ♂ 15—25 Jun. 1980 TED leg. genital slides in coll. LAa; AAY, Grimstad: Sæveli ♂ 26 May 1987 KBe leg. & coll.; Tromøy: Bjelland 3 ♂ 5—6 Jun. 1990 SAB leg. & coll.; VAI, Kvinesdal: Ytre Egeland ♂ 1—10 Jun. 1980; Sirdal: Tonstad ♂ 25—29 May 1980; SFI, Leikanger: Njøs ♂ 10—20 Jun. 1980 TED leg. genital slides in coll. LAa.

Pammene clanculana (Tengström, 1869) Map: Fig. 14

Previous records: HES, HEN, ON, BV, STI, TRY, TRI, FV (as Fi), FN (Opheim 1976, Aarvik et al. 1988).

New records: OS, Gjøvik: Skumsjøen ♀ 17 Jun. 1973 SAB leg. & coll. (previous record from OS is based on a misidentified specimen of *P. obscurana*); TEI, Tinn: Gausta ♀ 5 Jul. 1983 F. Midtgaard leg. NISK coll.; VAY, Songdalen: Finsland 4 ex 3 Jun. 1980 SSV leg. & coll.; RI, Hjelmeland: Tuntland 2 ♂ 10—20 Jun. 1980 TED leg. genital slides in coll. LAa; NTI, Lierne: Limannvika ♀ 13 Jun. 1986 SAB leg. & coll.; FØ, Sør-Varanger: Hesseng 1 ex 4 Jul. 1990 Ø. Berg leg. ZMO coll.

Note: The male genitalia are somewhat variable. Fig. 3—4.

Pammene obscurana (Stephens, 1834) Map: Fig. 15

Previous records: AK, HES, TEI, VAY (Opheim 1976, 1978).

New records: OS, Ringeby: Ringeby ♀ 30 Jun. 1877 W.

M. Schøyen leg. ZMO coll. (misidentified as *clanculana* Tgstr.); AAY, Iveland: Vatne-straum ♂ 25 Jun. 1977 KBe leg. & coll.

Note: *P. obscurana* and *P. clanculana* are easily confused. Males of *P. obscurana* are characteristic in having a distinct patch of black specialized scales on the costa of the hindwing. The outline of the valva of the male genitalia is shown in fig. 5.

Pammene luedersiana (Sorhagen, 1885) Map: Fig. 16

Sole record: HES, Eidskog: Helgesjøen 15 May 1976 SAB leg. (Aarvik 1980).

Pammene rhediella (Clerck, 1759) Map: Fig. 17

Previous records: Ø, AK, BØ, VAY (Opheim 1976).

New records: HES, Eidskog: Helgesjøen 2 ♂ May—Jun. 1984 ABA leg. genital slides in coll. LAa; OS, Gran: Røykenvik ♂ 1—10 Jun. 1980 TED leg. genital slide in coll. LAa; VE, Larvik: Rakke ♀ 26 May 1987 LAa leg. & coll.; AAY, Tromøy: Bjelland 4 ♂ 23 May 1989 SAB leg. & coll.; AAI, Åmli: Tovdal, Dale ♂ 16 Jun. 1990 KBe leg. & coll.; RY; Eigersund: Helleland 1 ex 24 May 1959 ABA

leg. NISK coll.; HOI, Ullensvang: Ullensvang forsøksgard 1 ex 3 Jun. 1975; SFI, Leikanger: Tretteteig 1 ex (larva) 28 Aug. 1979; Vik: Vangsnes 1 ex 23 May 1964 TED leg. SP coll.; SFY, Vereide: Gloppen ♀ 3 Jun. 1989 J. Anonby leg. ZMO coll.

Pammene populana (Fabricius, 1787) Map: Fig. 18

Previous records: Ø, AK, HES, OS, BØ, VE (Opheim 1976).

New records: TEI, Sauherad prestegard ♂ 9 Aug. 1976 TED leg. SP coll.; AAY, Lillesand: Flørnes ♂ Aug. 1984 KBe leg. & coll.; Tromøy: Bjelland 4 ♂ 28 Jul. 1988 LAa leg. & coll.; HOI, Ullensvang: Kvennauga ♂, ♀ 26 May 1962 TED leg. SP coll.

Pammene regiana (Zeller, 1849) Map: Fig. 19

Previous records: BØ, VE, AAY, RY, HOY (Hansen 1985, Opheim 1958, 1976, 1983).

New records: Ø, Onsøy: Hankø ♀ 2 May 1985 ex *Acer pseudoplatanus*; AK Ås: Ås 8 ex 18 Apr. 1982 ex *Acer pseudoplatanus* LAa leg. & coll.; VAY, Kristiansand: Gimle ♀ May 1982; Odderøya 3 ex May 1982 ex *Acer pseudoplatanus* KBe leg. & coll.; HOI, Ullensvang: Ullensvang forsøksgard ♂ Jun. 1980 TED leg. genital slide in coll. LAa.

Pammene ochsenheimeriana (Lienig & Zeller, 1846) Map: Fig. 20

Previous record: VE, Borre: Bastøy 9 Jun. 1974 A. Fjeldså leg. (Opheim 1976).

New records: AK, Ås: Ås ♂ 18 Jun. 1989 LAa leg. & coll.; BØ, Lier: Toverud 1 ex 15 Jun. 1984 SSV leg. & coll.; AAY, Tromøy: Bjelland ♀ 25 Jun. 1986 SAB leg. & coll.; VAI, Audnedal: Sveindal 1 ex 23 Jun. 1976 SSV leg. & coll.

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SAMMENDRAG

Bidrag til kunnskapen om norske Lepidoptera IV. De norske arter av *Pammene* Hübner (Tortricidae)

Nye funn av tortricideslekten *Pammene* Hübner er rapportert. *P. insulana* (Guenu, 1845), *P. ignorata* Kuznetsov, 1968 og *P. suspectana* (Lienig & Zelhe, 1846) er nye for Norge. *Pammene agnotana* Rebel, 1914 er slettet fra den norske listen av arter. EIS-ruetenett er laget for alle arter.

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Some aquatic Coleoptera from Inner Hordaland, Norway

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Forty-eight species of water beetle were recorded from 24 sites in Inner Hordaland. Seventeen species appeared to be new for the area. Some aspects of the fauna are discussed.

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INTRODUCTION

The aquatic Coleoptera fauna of southern Norway is imperfectly known. Lindroth (1960) recorded 26 species of Hydradephaga and 14 hydrophiloid species. Additional recording by Strand (1970) and Fjellberg (1972), plus a few extra records in the revised catalogues in Holmen (1987) and Hansen (1987) have brought these totals to 34 and 17 respectively. No members of the Noteridae, Hydraenidae, Dryopidae and Elmidae have been recorded from the area.

THE SURVEY

Twenty-four wetland sites in Inner Hordaland were surveyed for aquatic Coleoptera in July 1990. The survey coincided with rapid snow-melt and water was running too fast in most rivers and streams to permit sampling. The survey was therefore largely confined to stagnant water sites in bogs and lakes. Forty-eight species were recorded of which several species were newly recorded for the area. The average number of species per site was 6.5 with a mode of four species. Two sites had relatively high numbers of species. The Skutlestjörn (LN 638229) was a small lake 340 metres above sea level. It had an extensive mesotrophic mire in its edge, with masses of rotting vegetation as well as mossy pools at pH 6.4. Nineteen species were found here. A series of pools in an old slate quarry near Flatlandsmo (LN 668209), 240 metres above sea level, produced 21 species. These pools, with pH ranging from 5.0 to 5.7, were in part

shade and some were very deep with rafts of *Sphagnum* and bog bean (*Menyanthes trifoliata* L.) in the edge.

NOTES ON INDIVIDUAL SPECIES

In the following notes, grid references (for UTM Zone 32V) are given for all sites except for the two prolific ones already mentioned above. Some information is included from a few sites in the neighbouring district of Inner Sogn og Fjordane for the sake of comparison.

Gyrinus minutus Fab. was found in small numbers in the edge of a partly shaded, large pond near Flatlandsmo.

G. opacus Sahlberg was common in open water in the same pond and was abundant on open water in bright sunlight in a small, exposed lake, the Valbergstjörn (LN 572267) on Hangur mountain. Whilst this may be commonly observed behaviour in Scandinavia, in Scotland this species is usually confined to the edges of wind-eroded lochans in peat bogs and is rarely seen on open water.

H. ruficollis (DeGeer). The only record for this species was based on males found in the Vangsvatnet (LN 587233) at Voss.

H. wehnckeii Gerhardt was common in the Skutlestjörn and the Myrkdalsvatnet at Ulvundsöyni (LN 639435).

Hydroporus incognitus Sharp was in woodland pools at Svivet (LN 544273), Flat-

landsmo and near Reime (LN 751285), and in more open water at Dalsmyri (LN 548285), Skutlestjörn and Tjörnaráni (LN 847198). In Scotland this species also occupies a great range of marshy habitats though it is generally most abundant in woodland pools.

H. longicornis Sharp occurred in flushed woodland pools above the Netlavatnet (LN 634329) and in a boggy stream near Moo (LN 694192). The habitats closely resemble those of southern England and northern Britain respectively.

H. morio Aubé was found only in a pool about a metre across in woodland near Reime (LN 751285). This is apparently its typical habitat in Scandinavia. In northern Scotland it is never found in shaded habitats, being confined to small pools on open ground.

H. nigellus Mannerheim, though common above the tree-line in the neighbouring area of Inner Sogn og Fjordane, was represented by only a single teneral specimen taken in a boggy area beside a lake at Ornaberget (LN 865316). This was probably the species recorded from Inner Hordaland by Strand (1970) and Fjellberg (1972) as *H. tartaricus* LeConte, the Nearctic status of which was established by Nilsson (1983).

H. striola Gyllenhal. A single male was found amongst grass on the exposed, wave-washed shore of the Myrkdalsvatnet at Ulvundsøyri (LN 639435).

H. umbrosus Gyllenhal. Two specimens were found in Moss at the edge of the large pond near Flatlandsmo.

Oreodytes alpinus (Paykull). This species was recently discovered in lochs in northern Scotland (Foster & Spirit 1986) and the primary purpose of this survey was to compare the habitats for this species in Norway with those in Scotland. *O. alpinus* was found at three sites, in Hordaland at Vosso on the inflow to the Vangsvatnet (LN 587232), only 50 metres above sea level, in the Myrkdalsvatnet (LN 639435) at 230 m, and, within Inner Sogn og Fjordane, in the Ovrsvatnet (LN 663632) at 929 m. The pH of the two Hordaland sites was 6.4 and that of the Ovrsvatnet was 7.3. In Scotland the lochs occu-

ried by *O. alpinus* are mainly on low ground on sandstones with pH of 6.5 or more. The beetles are usually confined to areas with little or no vegetation on unstable beds of sand. In the Norwegian sites the beetles were found on a much greater variety of substrata but these were typically unvegetated. Both Norwegian and Scottish samples showed signs of presumed protandry. A sample from Myrkdalsvatnet comprised 17 males and one female.

Potamonectes griseostriatus multilineatus Falk. Brinck (1943) separated three Scandinavian forms of *griseostriatus* of which the subspecies *multilineatus* was the most widely distributed. This form was found in the Vikafjellet lake (LN 615560) at 910 m and at lower altitudes at Movatnet near Moo (LN 694192) in a river's edge, in the Espelandsvatnet (LN 793192) and in the Valbergstjörn (LN 572267).

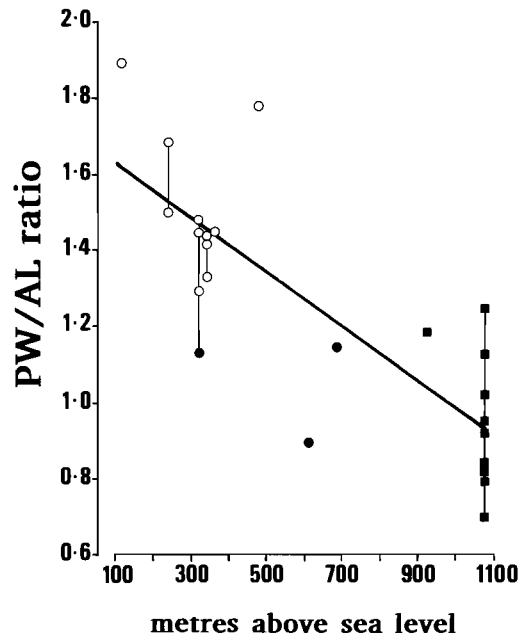


Fig. 1. Variation in the ratio of penis width to accessory process length (PW/AL of Nilsson 1983) in Norwegian *Agabus congener* and *lapponicus*, related to altitude. Circles indicate specimens from Inner Hordaland and squares specimens from Inner Sogn og Fjordane. Open symbols indicate presumed *congener* and closed ones *lapponicus*. The vertical lines join specimens from the same site. The fitted regression line is highly significant ($t = -6.4$, d.f. = 22, $P < 0.001$).

Table 1. Water beetles recorded in Inner Hordaland in July 1990. New records are asterisked.

GYRINIDAE

**Gyrinus minutus* Fab.

G. opacus Sahlberg

HALIPLIDAE

Haliplus fulvus (Fab.)

**H. ruficollis* (DeGeer)

**H. wehnckeii* Gerhardt

DYTISCIDAE

**Hydroporus incognitus* Sharp

**H. longicornis* Sharp

H. melanarius Sturm

H. memnonius Nicolai

**H. morio* Aubé

H. nigrita Fab.

H. nigellus Mannerheim

H. obscurus Sturm

H. palustris L.

**H. striola* Gyllenhal

H. tristis Paykull

**H. umbrosus* Gyllenhal

Oreodytes alpinus (Paykull)

Potamonectes griseostriatus multilineatus (Falkenström)

Platambus maculatus L.

Agabus arcticus Paykull

A. bipustulatus L.

A. congener Thunberg

A. guttatus Paykull

A. lapponicus (Thomson)

**A. sturmii* Gyllenhal

Ilybius aenescens Thomson

**I. crassus* Thomson

I. fuliginosus Fab.

Rhantus suturellus Harris

Colymbetes dolabratus Paykull

**C. paykulli* Erichson

Acilius sulcatus L.

Dytiscus lapponicus L.

D. marginalis L.

HYDRAENIDAE

**Hydraena britteni* Joy

**Limnebius truncatellus* (Thunberg)

HELOPHORIDAE

**Helophorus aequalis* Thomson

**H. brevivalpis* Bedel

H. flavipes Fab.

H. glacialis Villa

HYDROPHILIDAE

Megasternum obscurum (Marshall)

Anacaena globulus (Paykull)

A. lutescens Stephens

**Hydrobius fuscipes* (L.)

subrotundus Stephens

**Enochrus affinis* (Thunberg)

CHRYSOMELIDAE

Plateumaris discolor Panzer

A. congener Thunberg and *A. lapponicus* Thomson. Swedish populations of these species were differentiated by Nilsson (1987), mainly using a ratio of two measurements of the penis apex. A study of 24 males from 10 sites in Inner Hordaland and Inner Sogn og Fjordane indicated that both taxa occur in the area (Fig. 1). Specimens from above the tree-line in Inner Sogn og Fjordane were all *lapponicus*. Three specimens referable to *lapponicus* were detected in Inner Hordaland, one with several *congener* in the Skutlestjørn at 340 metres altitude, one in a lake on Mjölfell (LN 841310) at 610 metres, and one in a pool in a bog at Skutskardtjørn (LN 573259).

A. sturmii Gyllenhal. This species was found in the marshy edge of the Netlavatnet (LN 634329), in boggy woodland pools at Svivet (LN 544273) and in the Skutlestjørn.

Ilybius aenescens Thomson. This was the commonest of the largest dytiscid species, being found at eight sites. Other small *Ilybius* species could not be found in the area.

I. crassus Thomson. This species was abundant in the raft of *Sphagnum* and *Menyanthes trifoliata* in the edge of a partly shaded and deep quarry pool at Flatlandsmo.

Colymbetes dolabratus Paykull. Three females were taken in a small lake still covered with ice on Vikafjellet (LN 615560).

C. paykulli Erichson. Three males of this species were found in a small, shaded quarry pool with rushes at Flatlandsmo.

Dytiscus lapponicus L. Two males and some last instar larvae were found among floating islands of bog vegetation in the Skutskardtjørn (LN 573259).

D. marginalis L. Single males were taken in a bog pool on the Hellemyri (LN 549284) and in the Skutlestjørn.

Hydraena britteni Joy. This species was common among rotting vegetation around the edge of the Skutlestjørn. It also occurred with *Hydroporus longicornis*, a typical com-

bination in southern England, in woodland pools by the Netlavatnet (LN 634329).

Limnebius truncatellus (Thunberg). There were three Hordaland sites for this species, one being in temporary pools at Dalsmyri (LN 548285).

Helophorus aequalis Thomson. With five sites this was clearly a common species in the area. It was abundant in some temporary pools beside the Vangsvatnet at Voss (LN 589234) where a few specimens of *H. brevipalpis* Bedel, also new for Inner Hordaland, were found.

Megasternum obscurum (Marsham). Several specimens were found in a lake at Tjörnaråni near Ulvik (LN 847198). Previous Inner Hordland records by Fjellberg (1972) were overlooked by Hansen (1987).

A. lutescens Stephens. The species was separated from *limbata* (Fab.) by van Berge Henegouwen (1986); he recorded both species from southern Sweden. Hansen (1987) subsequently indicated that most Scandinavian material of *limbata* s.lat. in museum collections was *lutescens*. In the north of its range *lutescens* appears to exist solely as a dark parthenogenetic form (van Berge Henegouwen, 1986) with a distinctive genotype (Shaarawi & Angus 1991). Six dark females were found, four at Netlavatnet (LN 634329), one at Svivet (LN 544273), and another at Flatlandsmo.

Hydrobius fuscipes (L.). This species was found at only two sites, near Flatlandsmo and the Skutlestjörn.

Enochrus affinis (Thunberg) occurred at Flatlandsmo in shallow puddles on a bog's surface, in the Skutlestjörn and near Ulvik in a large peat pool (LN 834197).

DISCUSSION

Of the 48 species recorded from Inner Hordaland seventeen appeared to be new for the recording area. These included some extremely common species of water beetle in northern and western Europe, e.g. *Haliplus ruficollis*, as well as some rarer species, e.g. *Ilybius crassus*. Members of the Hydraenidae were

recorded from the area for the first time. The area appears to be relatively poor in water beetle species, for example lacking species characteristic of northern forest pools and rich ponds. Most species were found in very similar habitats to those in which they occur in the British Isles though two species, *Gyrinus opacus* and *Hydroporus morio*, differed in that they occurred in shaded habitats.

The specific statuses of *Agabus congener* and *A. lapponicus* appear to have been resolved by allozyme electrophoresis (Nilsson, Stille and Douwes 1988). Nilsson originally (1987) identified aedeagal characteristics that differentiate most specimens of this species-pair. It was possible to use the main parameter, a ratio of two measurements of the aedeagal tip, to establish that both forms occur in Inner Hordaland. However, regression analysis, based on only 24 specimens, indicated that altitude accounted for 63% of the variation in this ratio, with a highly significant, negative linear regression (Aedeagal Ratio = 1.7 — 0.0007 metres above sea level, $P < 0.001$). This relationship did not appear to be based simply on a line joining two extreme populations but appeared to describe continuous variation over a large altitudinal range. It is important to point out that the measurements made for the present set of Norwegian specimens were not carried out as accurately as in Nilsson's study. The aedeagi were not mounted on slides and there was therefore likely to be a greater margin of error in measuring distances on the curved aedeagi mounted dry on cards.

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SAMMENDRAG

Akvatiske biller fra indre Hordaland

48 vannbillearter ble funnet da 24 lokaliteter ble undersøkt i indre Hordaland. 17 arter er nye for området. Noen synspunkter på billefaunaen blir diskutert.

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Sciomyzidae (Diptera) from the island Ostøya in the Oslofjord

LITA GREVE AND FRED MIDTGAARD

Greve, L. & Midtgaard, F. 1992. Sciomyzidae (Diptera) from the island Ostøya in the Oslofjord. *Fauna norv. Ser. B* 39: 69–71.

Ten species of Sciomyzidae (Diptera) were collected at the island Ostøya in the inner Oslofjord in 1983 and 1984. *Pedlinoptera fuscipennis* (Meigen 1830), *Pherbellia annulipes* (Zetterstedt 1846), *P. scutellaris* (Roser 1840) and *Sciomyza simplex* Fallén 1820 are all reported from Norway for the second time. Additional distributional records are given for some of the other six species.

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The fly family Sciomyzidae was comprehensively surveyed by Rozkošný (1984) who reported 46 species from Norway. Greve & Økland (1989) gave data on the distribution of twentyone species of which three were reported new to the country and Greve (1991 A, 1991 B) reported two additional species as new to Norway. So far fiftyone species of Sciomyzidae has been reported from Norway.

The material presented here includes 74 specimens belonging to 10 species.

One of us (FM) collected insects on Ostøya in the summers of 1983 and 1984. A detailed description of the collection sites and the methods was presented in Greve & Midtgaard (1986), and will therefore not be repeated here.

The biogeographical regions follows Strand's system as revised by Økland (1981). Here Ostøya is in 0219 Bærum community. Abbreviations in the lists: m = male; f = female.

THE MATERIAL

Sub.fam. Phaeomyiinae

1. *Pedlinoptera fuscipennis* (Meigen 1830)

MF A 24 July—12 Aug. 1984 1 m.

This is the second record of *Pedlinoptera fuscipennis* from Norway; *P. fuscipennis* has earlier only been reported from TEI Kviteseid (Greve & Økland 1989). *P. fuscipennis*

has a distinctly southern distribution in Fennoscandia and Denmark (Rozkošný 1984). The biology is virtually unknown and adults have been collected along edges of mesic forests from June to middle of August.

Sub.fam Sciomyzidae

2. *Pherbellia annulipes* (Zetterstedt 1840)

MF A 24 July—12 Aug. 1984 1 m.

This is the second record from Norway; *P. annulipes* has earlier only been recorded from VE Tønsberg (Rozkošný 1984). *P. annulipes* has a southern distribution in Scandinavia and is hitherto not recorded from Finland. In Sweden it is known northwards to Østergötland (Rozkošný 1984). Ostøya is thus representing the northernmost record in Europe. The adults prefer open deciduous woods.

3. *Pherbella dubia* (Fallén 1820)

MF C 10 June—1 July 1984 2 m 1 f.

P. dubia is common and widespread in Norway. Adults seem to prefer mesic woods.

4. *Pherbellia scutellaris* (Roser, 1840)

MF A 24 July—12 Aug. 1984 1 m.

This is the second record from Norway; *P. scutellaris* has earlier only been recorded from HOY Tysnes, Ånuglo (Greve 1991 B). *P. scutellaris* has a distinctly southern dis-

tribution in Scandinavia and it has not been reported from Finland (Rozkošný, 1984).

The adults are found in deciduous and also coniferous woods. *P. scutellaris* is easily confused with *P. rozkosnyi* and reliable differences is only found in the male genitalia (Rozkošný, 1984).

5. *Sciomyza simplex* Fallén 1820
MF A 30 May—10 June 1984 1 m

This is the second record from Norway; *S. simplex* has earlier only been reported from VE Borre (Knutson & Berg 1971). *S. simplex* is widespread in Fennoscandia and Denmark and should be expected to occur in more localities in Norway. *S. simplex* is also known from Great British (Kloet & Hincks 1976). Adults have been collected along margins of ponds and in open marshes.

6. *Coremacera marginata* (Fabricius 1775)
3 July 1953 1 m netted; MF A 24 July—12 August 1984 1 m.

C. marginata has been recorded from AK, RY, HØY and NTI. In Zoological Museum, University of Bergen there is also material from: VE 0905 Tønsberg, Slottsfjellet 18 July 1982 1 f, 0923 Tjøme, Kjære 5 July 1965 1 f, Mostrand 12—25 July 1982 1 f, 4—11 Aug. 1984 1 m, 8—26 July 1985 1 m. TEY 1005 Porsgrunn, Brevik, Dammane 31 July 1983 1 m 1 f, 10 July 1985 1 f, Lange-sund Ø, Steinvika 12 July 1986 1 m, Sandøy Ø 10 July 1986 2 m 1 f.

NTI represents the northernmost record in Fennoscandia. Adults have been collected in shrubby woods, in old meadows at edges of woods often on calcareous soil (Rozkošný 1984).

7. *Elgiva cucularia* (L. 1767)
MF C Collecting period: May, June and July 2 mm 4 ff.

See also Greve & Økland (1989). Adults are not rare in SE Norway near ponds and in marshes.

8. *Euthycera chaerophylli* (Fabricius, 1798)
MF A Collecting period June, July and August 5 mm 3 ff.

E. chaerophylli has earlier been reported from Ø, Ak, OS, VE and RY. In Zoological Museum, University of Bergen there is additional material from: HES 0312 Ringsaker,

Helgøya, Eiksåsen MF July 1990 1 f, Aug. 1990 1 m 1 f; 0320 Eidskog, Nystuen 25 June—16 Aug. 1990 5 m 1 f. HEN 0429 Rena, Åmot 17 July 1987 1 m. BØ 0727 Røyken, Hyggen, Kinnartangen 17 July 1984 1 f; 0728 Hurum, Tofte MF 17 June—17 July 1985 3 m 1 f, 8. Aug.—1 Sept. 1985 3 m 2 f. BV 0817 Gol, Engane 16—30 Aug. 1982 2 f. TEY 1005 Porsgrunn, Brevik, Dammane 31 July 1983 1 m. TEI 1126 Tinn, Håkonnes, Mæl 10 June 1983 1 f. AAY 1235 Iveland, Grosås MF 21 July—6 Aug. 1982 1 m 1 f. VAY 1404 Gausdal, near Gyland MF 6—15 July 1982 1 f, 21 July—6 Aug. 1982 1 f.

E. chaerophylli is not rare in SE Norway. Outside this area it is only found in Rogaland province (Rozkošný, 1984). In Sweden, however, it is known from most of the country north to Ly.Lpm. Adults are known from damp localities, woods and marshes.

9. *Renocera pallida* (Fallén 1820)
MFC 12—30 May 1984 1 m 1 f, 30 May—10 June 1 m 1 f.

See also Greve & Økland (1989). *R. pallida* has been recorded from southern Norway north to NTI (Greve & Økland 1989). Adult flies have mostly been collected in marshes.

10. *Trypetoptera punctulata* (Scopoli 1763)
26 June 1983 netted 3 m 3 f: 3 July 1983 netted 1 m.

T. punctulata is widely distributed and common species. In Norway it has been recorded north to Troms province. Adults have been collected in various habitats.

The ten species of Sciomyzidae reported from the island Ostøya comprise around 20% of the total number of species hitherto reported from Norway viz. (51). The total number of species of Sciomyzidae known from Norway is low compared with neighbouring Sweden (78 spp.) and Finland (71 spp.), however, ten species is an impressive number from a limited area like Ostøya. More species can also be expected to occur on Ostøya like some of the common species in the genus *Tetanocera*.

It is interesting that Ostøya harbours species with a distinct southern distribution in Fennoscandia like *Pedlinoptera fuscipennis*, *Pherbellia annulipes* and *P. scutellaris*, *P. fuscipennis* and *P. scutellaris* must be considered rare in Fennoscandia and Denmark.

Surveys of several invertebrate groups on Ostøya (Aarvik & Midtgaard 1986, Greve & Midtgaard 1985, 1986, 1987, Hauge & Midtgaard 1986, Midtgaard 1987, Midtgaard & Aarvik 1984, Jonassen 1988) showed a similar picture, and new species has been described from the island (Grootaert & Jonassen 1991). These investigations show that Ostøya is quite unique faunistically. The localities on the island must be considered among the last remnants of similar faunistically rich areas which have been destroyed by the urbanization of areas in the Oslo vicinity.

SAMMENDRAG

Sciomyzidae fra Ostøya i Oslofjorden

Ti arter Sciomyzidae (Diptera) ble innsamlet på Ostøya i indre Oslofjord i årene 1983 og 1984. *Pedlinoptera fuscipennis* (Meigen 1830), *Pherbellia annulipes* (Zetterstedt 1846), *P. scutellaris* (Roser 1840) and *Sciomyza simolex* Fallén 1820 blir alle rapportert fra Norge for annen gang. Noen ekstra lokalitetsopplysninger gies for noen av de resterende seks artene.

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Further Empidoidea (Dipt.) new to the Norwegian fauna

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Jonassen, T. 1992. Further Empidoidea (Dipt.) new to the Norwegian fauna. *Fauna norv. Ser. B* 39: 73—75.

Thirteen species of Empidoidea (viz. Hybotidae, Empididae and Dolichopodidae) are reported from Norway probably for the first time. In addition, the Norwegian occurrence of *Rhamphomyia lamellata* Collin (Empididae) and *Hydrophorus altivagus* Aldrich (Dolichopodidae) is commented on.

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INTRODUCTION

The present paper adds 13 species to the Norwegian fauna of Empidoidea (families Hybotidae, Empididae and Dolichopodidae), bringing the total number of Norwegian species in this superfamily up to 465. Of these, 122 species are Hybotidae, 163 Empididae, and 178 Dolichopodidae. In addition, the small families Atelestidae and Microphoridae are represented by one species each.

Furthermore, this paper also comments on two interesting species that were recently presented as Norwegian in a faunistic list by Hansen & Bergsmark (1990), namely *Rhamphomyia lamellata* Collin, 1926 (Empididae) and *Hydrophorus altivagus* Aldrich, 1911 (Dolichopodidae).

When nothing else is mentioned, the material has been collected by the author, and is deposited in the author's collection or in the Museum of Zoology, Bergen (ZMB).

The family concept follows Chvála (1983), while the geographical division of the districts follows Økland (1981).

SYSTEMATIC LIST

HYBOTIDAE

Platypalpus australominutus Grootaert, 1989
RY, Finnøy: Kyrkjøy, EIS14, 21—31 August 1990 (Malaise trap), 2 ♂♂. A recently described species (Grootaert 1989), which, owing to its very close resemblance to *P. minutus* Meigen, may well have been overlooked. *P. australominutus* is also reported from Belgium, the Netherlands, Great

Britain, France and Germany (Grootaert 1989).

P. vividus (Meigen, 1838)

BØ, Hurum: Verket, Verksøya, EIS28, 18 June 1989, 1 ♂ leg. L. O. Hansen. According to Chvála (1975 — is *P. albisetoides* Chvála, 1973) a rare species in Fennoscandia with only 4 specimens previously known — one from Sweden, and 3 from Finland.

Stilpon nubilus Collin, 1926

VE, Tjøme: Mostrand, EIS19, 10—20 July 1985, 1 ♂ leg. T. Andersen (ZMB — M. Chvála det.); RY, Finnøy: Kyrkjøy, EIS14, 1 July 1986, 1 ♀; 6 July 1986, 2 ♀♀; 11 July 1986, 1 ♀. This is a species which favours coastal vegetation. The Tjøme specimen was captured in Phragmites in a yellow water trap, while the Kyrkjøy specimens were sweep-netted among the low vegetation of a salt marsh. The description of *S. nubilus* in Chvála (1975), is actually a mix-up of two distinct species, with the figured genitalia belonging to a recently described species, *S. subnubilus* Chvála, 1988. While some of the Danish specimens of *S. nubilus* seem to refer to *S. subnubilus*, there appear to be no records of this latter species in Swedish or Norwegian collections.

Stilpon lunatus (Walker, 1851)

VE, Tjøme: Hønø, EIS19, 23 August 1980, 2 ♂♂, 2 ♀♀ leg. A. Fjeldså (ZMB). The genitalia of one of the males have been dissected. They agree entirely with the figures given by Collin (1961). A third species of *Stilpon* has also been found at

Tjøme, namely *S. graminum* (Fallén, 1815). This is a new record for VE.

EMPIDIDAE

Rhamphomyia (*Pararhamphomyia*) *albitarsis* Collin, 1926

RY, Finnøy: Kyrkjøy, EIS14, 10 May 1990, 1 ♂; MRY, Hareid: Hareidlandet v/Kråkholen, EIS75, 20 May—10 June 1990, 1 ♂ (Malaise trap), leg. J. Korsnes (ZMB). The Kyrkjøy specimen was sweep-netted from a patch of *Ranunculus acris* in a cow pasture. It was very immature when captured, thus seemingly having developed in that particular habitat. Previously recorded from Great Britain and Czechoslovakia only (Chvála & Wagner 1989).

R. (Holoclera) lamellata Collin, 1926

BØ, Nedre Eiker: Mjøndalen, Miletjern, EIS28, medio July 1988, 1 ♂ leg. D. W. B. Johansen. This specimen has formerly been listed in a faunistic study by Hansen & Bergsmark (1990). *R. lamellata* has previously been considered as belonging to the central and southern parts of Europe, reaching the Middle East (Barták 1982). It is therefore surprising to find it this far north. New to Scandinavia.

Empis (*Coptophlebia*) *albinervis* Meigen, 1822

AK, Bærum: Ostøya, EIS28, 10 June—1 July 1984, 1 ♂ (Malaise trap A); 1—24 July 1984, 3 ♂♂, 1 ♀ (Malaise trap B) (ZMB), 1 ♂ (Malaise trap C); 24 July—12 August 1984, 4 ♀♀ (Malaise trap A), 1 ♂, 1 ♀ (Malaise trap B); 12 August—1 September 1984, 1 ♀ (Malaise trap A); BØ, Røyken: Hyggen, Kinnartangen, EIS28, medio June 1989, 1 ♂; ultimo June 1989, 1 ♂; primo July 1989, 1 ♂, 1 ♀; medio July 1989, 1 ♂. All specimens from Kinnartangen are leg. L. O. Hansen, while all the Ostøy specimens are leg. F. Midtgaard. This seems to be first records of *E. albinervis* from Fennoscandia. It probably occurs in Denmark, although these records have not been confirmed with certainty (Chvála in litt.).

Hilara albiventris v. Roser, 1840

BØ, Røyken: Hyggen, EIS28, primo July 1989, 1 ♀ leg. L. O. Hansen. Although only one female of this species is available, it is, owing to its characteristic combination of deep black frons, yellowish pleura

and yellow banded abdomen, distinctive enough to confirm its occurrence in Norway. New to Scandinavia. A closely related species, *H. cingulata*, also occurs in Norway. It was not listed as Norwegian by Chvála & Wagner (1989), but Frey (1914) reports a specimen from RY, Strand: Tau. I have not seen this specimen, but there is a possibility that this record is based on a misinterpretation. I have, however, some specimens of *H. cingulata* in my collection from BØ, and it is reported from the same district by Hansen & Bergsmark (1990).

Hilara morata Collin, 1927

This species has been taken in abundance at BØ, Røyken: Hyggen, EIS28, ultimo June and primo July 1989, leg. L. O. Hansen. These are the first records from Scandinavia. The same samples also include some specimens of a closely related species, seemingly undescribed. The genus is, however, badly in need of a revision.

Hemerodromia baetica Collin, 1927

SFI, Hornindal: Kjøs bru, EIS68, 10 July 1989, 2 ♂♂, 1 ♀; MRY, Hareid: Hareidlandet v/Kråkholen, EIS75, 10 June—16 July 1990, 2 ♀♀ (Malaise trap), leg. J. Korsnes (ZMB). New to Scandinavia.

Dolichocephala thomasi Wagner, 1983

MRY, Hareid: Hareidlandet v/Kråkholen, EIS75, 10 June—16 July 1990, 1 ♂, 1 ♀ (Malaise trap), leg. J. Korsnes. The *D. ocellata* (Costa) of Collin (1961) and other previous authors, has subsequently (Wagner 1983) been proved to be a species group consisting of *D. ocellata*, *D. thomasi* and *D. austriaca* Vaillant, 1968. The latter seems to be distributed exclusively in the Alps, while *D. ocellata* probably is a Mediterranean species. Thus, any European records of «*D. ocellata*» outside of this area should be re-examined, as *D. thomasi* seems to be the only of these three species occurring north of the Alps. *D. thomasi* has previously been confirmed from Germany and Poland only (Niesiowski 1990). A female from RY, Sandnes: Sviland, EIS 14, and another female from NTI, Høylandet: Skiftesåa, EIS107, can probably also be referred to this species.

DOLICHOPODIDAE

Dolichopus signifer Haliday, 1838

BØ, Hurum: Mølen, EIS19, 12—14 July

1989, 2 ♀♀; 2—4 July 1990, 1 ♂, 2 ♀♀; Ramvikholmen, EIS19, 12 August 1990, 1 ♀; VE, Våle: Langøya, EIS19, 11 August 1990, 1 ♂, 1 ♀; RY, Finnøy: Kyrkjøy, EIS14, 18 June 1989, 1 ♀; 9 June 1990, 1 ♀. All the specimens from BØ and VE are leg. L. O. Hansen. The Kyrkjøy specimens were netted at or near water-filled hollows and crevices in seaside cliffs.

Hydrophorus altivagus Aldrich, 1911

BØ, Nedre Eiker: Mjøndalen, Miletjern, EIS28, medio July 1988, 1 ♂ leg. D. W. B. Johansen. This specimen has formerly been listed in a faunistic study by Hansen & Bergsmark (1990). This is a species with a holarctic distribution which, prior to the revision by Hurley (1985), was known in Europe under the name of *H. wahlgreni* Frey, 1915.

Medetera parenti Stackelberg, 1925

AK, Frogn: Håøya, EIS28, 22 July—18 August 1984, 2 ♂♂ (Malaise trap A); Bærum: Ostøya, EIS28, 1—24 July 1984, 2 ♂♂ (Malaise trap B), all leg. F. Midtgaard. All of these specimens have kindly been verified by Jonathan Cole, England.

Argyra elongata (Zetterstedt, 1843)

RY, Finnøy: Kyrkjøy, EIS14, 18 June—2 July 1989, 1 ♂ (Malaise trap).

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SAMMENDRAG

Nye arter for Norge av Empidoidea

Tretten arter av Empidoidea (d. e. familiene Hybotidae, Empididae og Dolichopodidae) blir rapportert som nye for norsk fauna: *Platypalpus australominutus*, *P. vividus*, *Stilpon nubilus*, *S. lunatus* (Hybotidae), *Rhamphomyia albitarsis*, *Empis albinervis*, *Hilara albiventris*, *H. morata*, *Hemerodromia baetica*, *Dolichocephala thomasi* (Empididae), *Dolichopus signifer*, *Medetera parenti* og *Argyra elongata* (Dolichopodidae). Sju av disse er også nye for Skandinavia. Funnet av disse artene fører antallet av norske Empidoidea

opp i 465 arter, fordelt på 122 Hybotidae, 163 Empididae, 178 Dolichopodidae, 1 Atelestidae og 1 Microphoridae.

I tillegg blir det gitt utfyllende kommentarer og opplysninger om to interessante arter, *Rhamphomyia lamellata* og *Hydrophorus altivagus*, fra Miletjern, Mjøndalen. Disse er tidligere rapportert som nye for Norge i en faunistisk rapport av Hansen og Bergsmark (1990).

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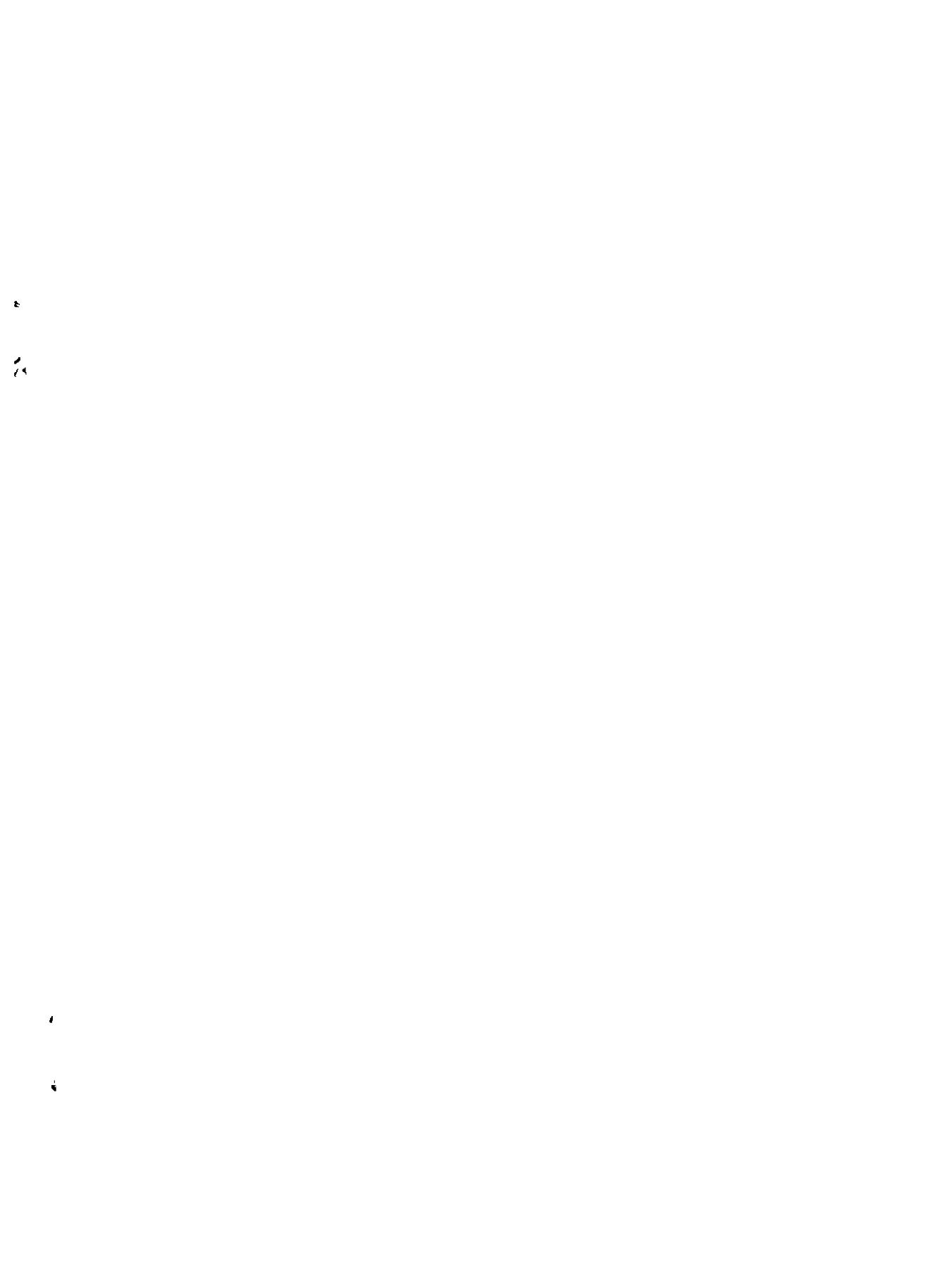
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A check list of Norwegian Tipulidae (Diptera)

TROND HOFVANG

Hofsvang, T. 1992. A check list of Norwegian Tipulidae (Diptera). *Fauna norv. Ser. B* 39: 77—79.

A check list of 93 species of Tipulidae recorded from Norway is presented.

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INTRODUCTION

Tipuloidea consists of the three families Tipulidae, Limoniidae and Cylindrotomidae. A check list of Norwegian Tipulidae has never been published. Most of the 93 species reported from Norway, have been collected or checked in Norwegian museums by the author. A few species, marked with no. 1—16, are taken from the literature.

pratensis (L., 1758)
quadrifaria (Meigen, 1804)
scurra (Meigen, 1818)
submaculosa Edwards, 1928 4)
tenuipes (Riedel, 1910)

Nigrotipula Hutson et Vane-Wright, 1969

nigra (L., 1758)

THE CHECK LIST

Family Tipulidae

Angarotipula Savchenko, 1961
tumidicornis (Lundström, 1907) 1)
Ctenophora Meigen, 1803
Subgenus *Ctenophora* Meigen 1803
flaveolata (Fabricius, 1794)
guttata Meigen, 1818 2)
pectinicornis (L., 1758)
Dictenidia Brullé, 1833
bimaculata (L., 1761)
Dolichozepe Curtis, 1825
Subgenus *Dolichozepe* Curtis, 1825
albipes (Strøm, 1768)
Nephrotoma Meigen, 1803
aculeata (Loew, 1871)
analis (Schummel, 1833)
appendiculata (Pierre, 1919)
cornicina (L., 1758)
crocata (L., 1758)
dorsalis (Fabricius, 1782)
flavescens (L., 1758)
lundbecki (Nielsen, 1907)
lunulicornis (Schummel, 1833) 3)

Phoroctenia Coquillett, 1910
vittata (Meigen, 1830)

Prinocera Loew, 1844
pubescens Loew, 1844 5)
serricornis (Zetterstedt, 1838)
subserricornis (Zetterstedt, 1851)
turcica (Fabricius, 1787)

Tanyptera Latreille, 1804
subgenus *Tanyptera* Latreille, 1804
atrata (L., 1758)
nigricornis (Meigen, 1818)

Tipula L., 1758
subgenus *Acutipula* Alexander, 1924

fulvipennis De Geer, 1776
maxima Poda, 1761
vittata Meigen, 1804
subgenus *Arctotipula* Alexander, 1933

salicetorum Siebke, 1870
subgenus *Beringotipula* Savchenko, 1961

unca Wiedemann, 1817
subgenus *Dendrotipula* Savchenko, 1964

flavolineata Meigen, 1804

subgenus *Lindnerina* Mannheims, 1965

subexcisa Lundström, 1907 6)

subgenus *Lunatipula* Edwards, 1931

affinis Schummel, 1833 7)

alpina Loew, 1873
circumdata Siebke, 1863
fascipennis Meigen, 1818
laetabilis Zetterstedt, 1838
limitata Schummel, 1833
livida van der Wulp, 1858 8)
lunata L., 1758
seline Meigen, 1830
trispinosa Lundström, 1907 9)
vernalis Meigen, 1804

subgenus *Mediotipula* Pierre, 1924

siebkei Zetterstedt, 1852

subgenus *Odonatisca* Savchenko, 1964

nodicornis Meigen, 1818

subgenus *Platytipula* Matsumura, 1916

luteipennis Meigen, 1830
melanoceros Schummel, 1833

subgenus *Pterelachisus* Rondani, 1842

cinereocincta Lundström, 1907 10)
crassicornis Zetterstedt, 1838 11)
irrorata Macquart, 1826
kaisilai Mannheims, 1954 12)
laetibasis Alexander, 1934 13)
luridorostris Schummel, 1833
middendorffi Lackschewitz, 1936
pabulina Meigen, 1818
pseudoirrorata Goetghebuer in Goetghebuer and Tonnoir, 1921
submarmorata Schummel, 1833
truncorum Meigen, 1830
varipennis Meigen, 1818

subgenus *Savtshenkia* Alexander, 1966

alpium Bergroth, 1888
benesignata Mannheims, 1954
confusa van der Wulp, 1887
gimmerthali Lackschewitz, 1925
grisescens Zetterstedt, 1851
invenusta Riedel, 1919
limbata Zetterstedt, 1838
obsoleta Meigen, 1818
pagana Meigen, 1818 14)
rufina Meigen, 1818
signata Staeger, 1840
staegeri Nielsen, 1922
subnodicornis Zetterstedt, 1838

subgenus *Schummelia* Edwards, 1931

variicornis Schummel, 1833

subgenus *Tipula* L., 1758

paludosa Meigen, 1830
subcunctans Alexander, 1921

subgenus *Vestiplex* Bezzi, 1924

excisa Schummel, 1833
hortorum L., 1758
laccata Lundström et Frey, 1916
monatana verberneae Mannheims et Theowald, 1959
nubeculosa Meigen, 1804
pallidicosta Pierre, 1924
scripta Meigen, 1830

subgenus *Yamatotipula* Matsumura, 1916

coerulescens Lackschewitz, 1923
couckei Tonnoir in Goetghebuer et Tonnoir, 1921
lateralis Meigen, 1804
marginella Theowald, 1980 15)
moesta Riedel, 1919 16)
montium Egger, 1863
pierrei Tonnoir in Goetghebuer and Tonnoir, 1921
pruinosa Wiedemann, 1817

ANNONTATIONS

- 1) Lackschewitz (1935)
- 2) Siebke (1877), Lackschewitz (1933)
- 3) Oosterbroek (1979)
- 4) Tjeder (1965)
- 5) Mannheims (1952), Tjeder (1965)
- 6) Lackschewitz (1935), Tjeder (1965)
- 7) Lackschewitz (1935)
- 8) Tjeder (1955)
- 9) Lackschewitz (1935)
- 10) Lackschewitz (1935)
- 11) Tjeder (1965)
- 12) Oosterbroek, pers. comm.
- 13) Mannheims & Nielsen (1953)
- 14) Siebke (1877), Lackschewitz (1933)
- 15) Siebke (1877), Lackschewitz (1933)
- 16) Mannheims (1952, 1972)

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46.

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Leucophenga quinquemaculata Strobl (Diptera, Drosophilidae) from Norway

GERHARD BÄCHLI AND KARL H. THUNES

Bächli, G., & Thunes, K. H. 1992. *Leucophenga quinquemaculata* Strobl (Diptera, Drosophilidae) from Norway. *Fauna norv. Ser. B* 39: 81—84.

Large numbers of the rare species *Leucophenga quinquemaculata* Strobl have been reared from sporophores of *Piptoporus betulinus* (Bull. ex Fr.) Karst. found near Bergen, Norway. This is the second fungus species known to be used as breeding site for *L. quinquemaculata*.

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INTRODUCTION

Specimens of the drosophilid species *Leucophenga quinquemaculata* Strobl are considered to be rare and have hitherto been collected at few localities only: in Austria at the Rottenmann mountain, Styria (Strobl 1893, 1894, Basden 1961) at the Almsee near Salzburg (Bächli 1988), at Oberlaussa, Upper Austria (Franz 1989) and at Schlins, Vorarlberg (unpublished); in northern Italy at Macugnaga (Oldenberg 1914); in Finland at Hattula (Frey 1929) and Helsing (unpublished); in northwestern Russia (Shtakel'berg 1930, 1988; Papp 1979; Gornostayev 1989); in South Poland near Habelschwerdt = Bystrzyca (Duda 1934/35); in Switzerland at Seelisberg UR, Faido TI and Bex VD (Bächli 1975; Bächli & Burla 1985); in Czechoslovakia at Hluboká nad Vltavou, southern Bohemia (Máca & Laštovka 1985) and at Horní Lomna, Moravia-Silesia (Máca 1991); in Romania at Gura Zlata in the Retezat Mts. (Máca 1987) and at Băile Herkulane (unpublished); in Norway at AK: Frogn, Håøya (Bächli 1986) and in Sweden at Bölsö, Småland (unpublished). The species is also mentioned from Far-East Russia (Shtakel'berg 1988) and South Korea (Lee 1964, 1966, 1970; Lee & Kim 1987), but all these records may be misidentifications (Bächli & Rocha Pité 1982).

The species has obviously a wide distribution, covering the Alps and Carpathians of Central and Southeast Europe as well as

Scandinavia; all localities outside of Scandinavia are in mountain regions but not necessarily in higher altitudes. One could consider this as an example of the boreo-alpine distribution type; we think that the distribution of *L. quinquemaculata* is most probably dependent on some ecological factors found in Scandinavia as well as in these mountains.

Unfortunately, there are very few ecological data known; the species is usually not well attracted to the common fermenting fruit baits. It has been reared from unknown fungi of the Petrozavodsk region, Karelia (Papp 1979), giving the first evidence that it is a fungus breeding species, and collected from sporophores of *Fomes fomentarius* (L. ex Fr.) Kickx in Czechoslovakia (Máca & Laštovka 1985) and Romania (Máca 1987). Our paper adds an additional breeding site.

STUDY AREA AND METHODS

Sporophores of *Piptoporus betulinus* (Bull. ex Fr.) Karst. and *Fomes fomentarius* (L. ex Fr.) Kickx were collected from tree trunks, of *Betula pubescens* Ehrh. at four localities near Bergen (Fig. 1, Table I).

Locality 1, HOY; Os; Hovdane; St. 1 is an oceanic pine forest with *B. pubescens* as the additional most conspicuous tree species. Locality 2, HOY; Os; Åsen; St. 2 is also an oceanic pine forest, but *B. pubescens* and *Quercus robur* L. frequently scattered throughout the locality. Locality 3, HOY; Lindås; Vollom is

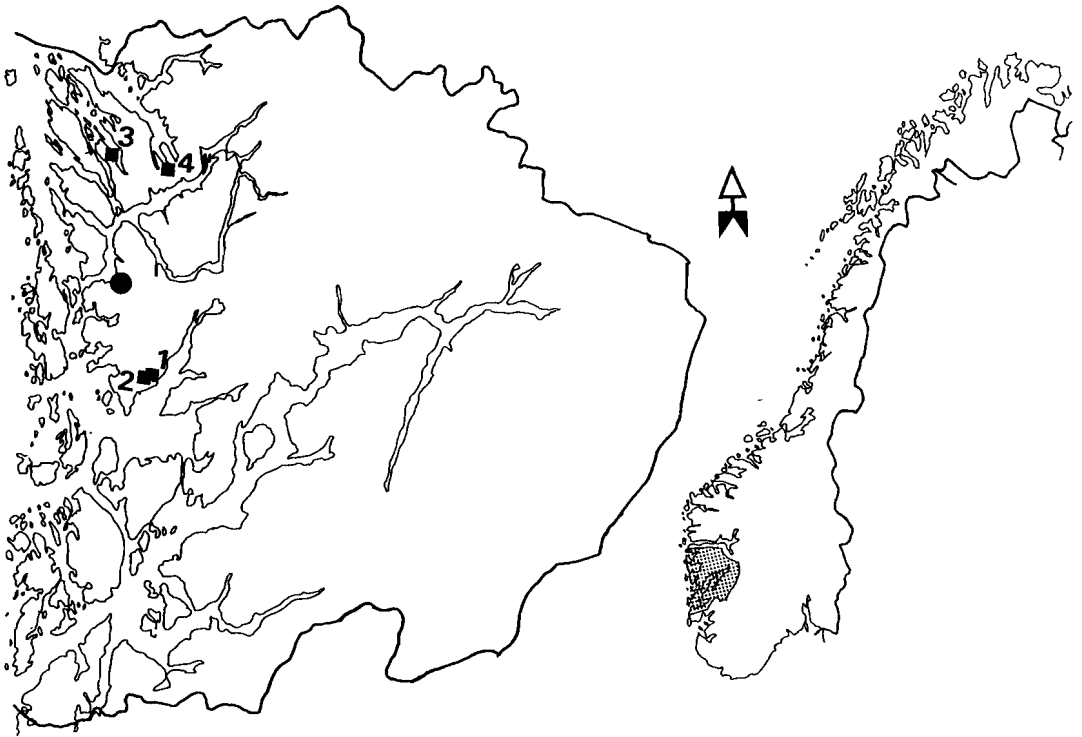


Fig. 1. Sampling areas in Hordaland County in western Norway. Numbers refer to locality numbers mentioned in Table I. The ● represents the city of Bergen.

a deciduous beech forest. Locality 4, HOY; Lindås; Heltveit is a deciduous forest in a steep slope. *Corylus avellana* L., *B. pubescens*, *Sorbus aucuparia* L., *Ulmus glabra* Huds., *Alnus incana* (L.), *A. glutinosa* (L.), *Fraxinus excelsior* L. and *Prunus padus* L. form the major tree — flora.

All sporophores were collected on birch (*B. pubescens*) and each sporophore was assigned to a successional stage according to an extended version of Graves' (1956) classification: Stage II is divided into IIA and IIB where IIA shows no or minor attack by in-

sects. Stage IIB shows major attack by insects. Stage III is divided into IIIA and IIIB where stage IIIA shows tissue breakdown, but no or minor attack. Stage IIIB shows major attack. Stage IVA is dry, decaying and may be considerably hollowed out by insects. Stage IVB is wet, and hence it is more rapidly decaying.

The sporophores were put in plastic funnels on which the large opening was covered with tulle. Series of funnels were arranged on wooden benches specially constructed for this purpose. Collecting jars containing a 50/50 mixture of aethyleneglycol and water were put under each funnel. The benches were placed outside in order to achieve environmental conditions close to natural for the sporophore fauna.

Table I. Localities where the Drosophilidae were found. Codes refer to sample numbers.

CODE	LOC. No.	LOCALITY Name	SITE	UTM 32 V	ALTITUDE meters
005	3	HOY, Lindås	Vollom	KN 932 287	10-25
134	2	HOY, Os	Åsen, St2	LM 051 851	125
147	1	HOY, Os	Hovdane, St1	LM 061 851	125
191	4	HOY, Lindås	Heltveit	LN 053 280	50-100

RESULTS AND DISCUSSION

The following species of Drosophilidae were reared from *P. betulinus*: *Scaptomyza grami-*

Table II. Rearing results for drosophilid flies from *Piptoporus betulinus* (Bull. ex Fr.) Karst. For further explanation see text.

CODE	COLLECTING DATE	AGE	STAGE	EMERGENCE PERIOD	<i>S. graminum</i>		<i>D. fenestrarum</i>		<i>L. quinque maculata</i>	
					♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
005	4. March 1991	1	IIA	4-28 March.91		1				
134	24. May 1991	2	IVB	24. May-8. June.91			1			
147 a	8. June 1991	1	IIIB	6-23 July.91						4
147 b	8. June 1991	1	IIIB	23. July-3. Aug.91					10	12
191 a	6. July 1991	1	IVA	6-23. July.91					27	49
191 b	6. July 1991	1	IVA	23. July-3. Aug.91					25	24
191 c	6. July 1991	1	IVA	3-17. Aug.91					9	6

num Fallén, *Drosophila fenestrarum* Fallén and *Leucophenga quinque maculata* Strobl. Habitat data and emergence period for these three species are summarized in Table II.

The number of specimens of *L. quinque maculata* is the highest ever found. All earlier records of this species do not mention more than a few flies. Even the rearing records from Karelia (Papp 1979) are restricted to 8 males and 3 females. Unfortunately, it is unknown from which species of fungi these flies were reared.

The species has already been collected by net sweeping around *Fomes fomentarius* (Máca & Laštovka 1985; Máca 1987). This may give a hint that additional species of polypores are suitable as breeding sites. However, *P. betulinus* and *F. fomentarius* were collected in about the same numbers by the second author, drosophilids were never found in the latter species.

In general, there is no aberrant sex-ratio except in the sample No. 191a in which females are obviously more abundant, as it has been found for flies reared in Karelia (Papp 1979) and collected by net sweeping (Máca 1991).

All specimens of both sexes are rather pale in the abdominal pattern and in the wing spots, indicating that the flies were juvenile and were killed soon after the emergence. This kind of colour variation has been discussed by Duda (1934/35) and Máca (1991) who has attributed it to sexual dimorphism.

S. graminum is previously known as a leaf miner and *D. fenestrarum* breeds in decaying plants. There is thus no evidence that these species have a strong affiliation with polypores. We think that *S. graminum* may have

been pupating (or overwintering) in the spore layer of the polypore. *D. fenestrarum* was reared from a polypore in stage IVB, which may represent a type of habitat not very different from decaying plants.

ACKNOWLEDGEMENT

Thanks are due to Dr. E. Willassen for commenting upon the manuscript, and to L. Greve Jensen for sending material for identification.

SAMMENDRAG

Leucophenga quinque maculata Strobl (Diptera, Drosophilidae) fra Norge.

Et stort antall av den antatt sjeldne arten *Leucophenga quinque maculata* Strobl er klekket fra fruktlegemer av knivkjuke (*Piptoporus betulinus* (Bull. ex Fr.) Karst.), funnet ved Bergen. Den er tidligere trodd å være en kjukelevende art, men den er aldri funnet i større antall før nå. Knivkjuke er den andre kjukearten hvor *L. quinque maculata* er klekket fra.

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The genus *Keroplatus* Bosc, 1792 — an interesting addition to the Norwegian fauna (Diptera: Keroplatidae)

BJØRN ØKLAND AND GEIR SØLI

Økland, B. & Søli, G. E. E. 1992. The genus *Keroplatus* Bosc, 1792 - an interesting addition to the Norwegian fauna (Diptera, Keroplatidae). *Fauna norv. Ser. B* 39: 85—88.

The genus *Keroplatus* is reported new to Norway, based on 5 finds from southern Norway in the period 1982—1991. The specimens belong to the species *K. testaceus* Dalman, 1818 and *K. dispar* Dufour, 1839. Notes on taxonomy, biology and distribution are given. *Keroplatus* species seem to be closely associated with virgin forests. As these forests are vanishing in Norway, both species should be regarded as vulnerable.

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INTRODUCTION

Keroplatus species are noteworthy fungus-gnats in several ways. They are unusually large, with long and strongly compressed antennae. At first sight, they may look like crane flies or wasps. Their larvae spin webs, in which they trap fungal spores and carnivorous preys. Luminous larvae and pupae have been documented in several species (first time by Wahlberg 1849). Despite their conspicuous appearance, no *Keroplatus* species have so far been published from Norway (Krivoshina and Mamaev 1988, Krogerus 1960, Siebke 1877, SootRyen 1942, Lundström 1914). During an extensive study of an old spruce forest in Akershus, SE Norway, during 1991, one single female was collected in a window trap. In addition, four specimens are kept in the collection of Zoological museum Bergen — all collected in southern Norway. The collections in the zoological museums of Oslo, Trondheim and Tromsø do not comprise any additional specimens.

SYSTEMATICS

Keroplatidae is treated as an independent family under the superfamily Sciaroidea (Andersson 1991) of the superfamily Myce-

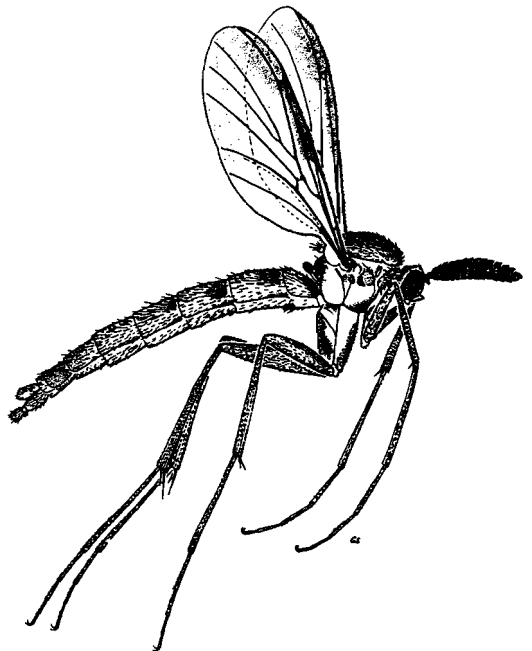


Fig. 1. *Keroplatus testaceus*, male. Drawn after a specimen stored in alcohol.

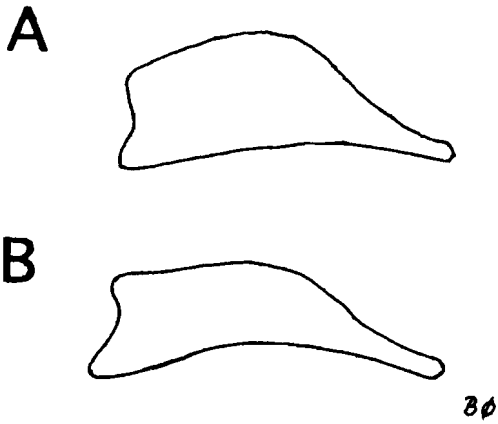


Fig. 2. Female cerci in (A) *Keroplatus testaceus* and (B) *Keroplatus dispar*.

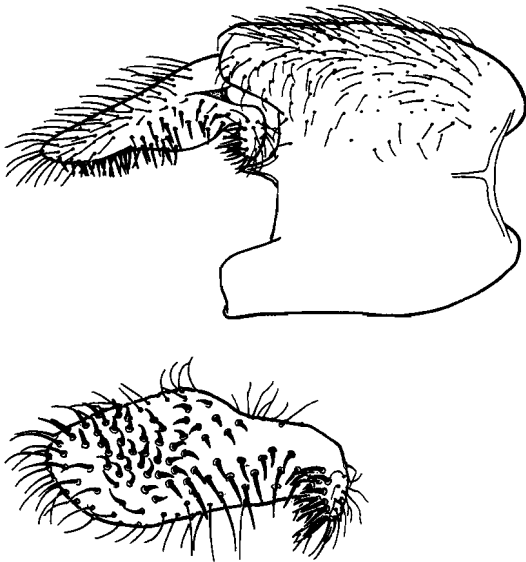


Fig. 3. Male genitalia of *Keroplatus testaceus*. A. Right gonostylus, internal view. B. Gonocoxite, ventral view (right gonostylus removed).

tophilidea (Matile 1990), but is frequently considered a subfamily, Keroplatinae, in the family Mycetophilidae (e.g. Hutson, Ackland and Kidd 1980, Wood and Borkent 1989). Present descriptions of Keroplatidae include 80 genera and 800 species from all zoogeographical regions (Matile 1990).

Keroplatidae is divided into three subfamilies, of which two are represented in Europe, Macrocerinae and Keroplatinae. The latter includes the genus *Keroplatus*. In this revision of the *Keroplatus*, Matile (1986) gives an overview of the long and confusing history with respect to the systematic naming of these species. Four species have been recorded from Europe, *tipuloides* Bosc, 1792, *testaceus* Dalman, 1818, *dispar* Dufour, 1839, and *reamurii* Dufour, 1839.

IDENTIFICATION

Among the fungus gnats, the family Keroplatidae can be characterized by wing venation (see Fig. 1): Posterior fork and stem of median fork are connected by a cross-vein well beyond the basal portion of the wing; radius 4 is absent or less than half the length of radius 5; subcosta long; media and radius are fused for a short distance (Hutson et al. 1980, Vockeroth 1981).

The genus *Keroplatus* is easily recognized by the huge, flattened antennae and the reduced palps (Fig. 1). In his world revision of Keroplatidae, Matile keys out ten species of *Keroplatus* in the Holarctic region (Matile 1990), and this key was used in the identification of the present material.

Two closely related species were recognized, *K. testaceus* and *K. dispar*. They do not differ notably in body size nor in wing length; but, intraspecific variation was observed (Table 1). The two species may be identified by characters in the wing venation. In *K. testaceus*, subcosta ends near apex of the radius-media fusion, while it ends distinctly

Table 1. Some measurements of the Norwegian specimens of *Keroplatus*.

Species	Sex	N	Body Length	Wing Length
<i>Keroplatus testaceus</i>	female	2	9.0–13.7 mm	6.8–9.4 mm
<i>Keroplatus testaceus</i>	male	1	11.0 mm	6.6 mm
<i>Keroplatus dispar</i>	female	2	11.9–14.5 mm	8.2–9.5 mm

beyond this point in *K. dispar*. However, according to Matile (1990) genitalia should be studied to accomplish a certain identification. In females of *K. dispar*, the cerci are widest at its base, while in *K. testaceus*, they are wider near its middle (Fig. 2). In males, the ventral lobe of the gonostylus is more pronounced in *K. testaceus* than in *K. dispar* (Fig. 3).

A third species, *K. tipuloides* (Syn: *K. seioides* Wahlberg, 1839), is likely to occur in Norway, but is still not recorded. Its wings are more clouded with a distinct clear spot at apex.

NORWEGIAN RECORDS

Keroplatus testaceus Dalman, 1818

Syn: *Keroplatus winnertzi* Landrock, 1925.
TEY: Porsgrunn, Brevik, Dammane, EIS 11, 11—20 July 1988, 1 female, leg. G. Søli (Malaise trap); Gravastranda, EIS 18, 19 Sept. 1988, 1 male, leg. G. Søli (Malaise trap); HOY: Samnanger, Ådland, EIS 31, 17 July—13 Aug. 1982, 1 female, leg. A. J. Nilssen/L. Greve (Malaise trap).

Keroplatus dispar Dufour, 1839

AK: Rælingen, Tappenberg, EIS 29, July 1991, 1 female, leg. B. Økland/S. Hågvar (window trap). HOY: Samnanger, Ådland, EIS 31, 17 July—13 Aug. 1982, 1 female, leg. A. J. Nilssen/L. Greve (Malaise trap).

BIOLOGY

All known larvae of Keroplatidae, except in the genus *Planarivora*, spin webs for capturing small animals or spores. Generally, these webs are constructed under dead, decomposing wood, and most often under resipunate or bracket Polypores (Matile 1990). Probably, both the larvae and the adults of most Keroplatidae are nocturnal. They are fragile, slow flying, short lived, and have little capacity for chance dispersal (Matile 1990). Larvae in three *Platyura* species (Keroplatidae) have been observed killing their prey in their web with small drops containing oxalic acid (Mansbridge 1933). The larvae of another fascinating Keroplatidae species, *Arachnocampa luminosa* (Skuse, 1890), construct webs on the walls in caves in New Zealand. The larvae are luminous, and the light from colonies of the larvae is supposed to attract preys into their webs (Oldroyd 1966).

Within the genus *Keroplatus*, the biology

is best studied in *K. tipuloides*. The larvae of this species produce irregular mucilaginous webs under bracket-fungi, and feed primarily on fungus spores (Santini 1982). The species is reported to live solely under the carpophores of *Fomes fomentarius* (Fr.) Kickx (Polyporaceae) (Santini 1982, Ståhls and Kaila 1990). Both larvae and pupae are reported to be luminous (Wahlberg 1849, Santini 1982). There are few documentations on biology from the three other European *Keroplatus* species. Luminous larva is documented from *K. reamurii*, spinning larvae are studied in *K. testaceus*, and *K. dispar* is found under a polypore under a fallen tree-branch (Matile 1986).

The specimen of *K. dispar* from Akershus was trapped under a sporulating carpophore of *Fomitopsis pinicola* (Fr.) Karst. in an old spruce forest with a high density of dead wood and polypores. The two specimens of *K. testaceus* from Telemark were both collected in a rather undisturbed mixed forest dominated by deciduous trees.

DISTRIBUTION AND CONSERVATION EVALUATION

In Fennoscandia both *K. tipuloides* and *K. testaceus* have been recorded from Sweden and Finland (Hackman 1980, Matile 1986), while *K. dispar* from Sweden only (Krivoshina and Mamaev, 1988, Matile 1986).

K. tipuloides is regarded as an endangered species in Finland (Väisänen 1982, Anonymous 1985) and as a vulnerable species in Sweden (Anderson et al. 1987). In Finland, no records of this species were made between 1960 and 1989 despite comprehensive collection of more than 100 000 fungus gnats by Hackman and Tuomikoski in the 1960s (Väisänen 1982). *K. tipuloides* was rediscovered 1989 (Ståhls and Kaila 1990). The decline of this species in Finland, is explained by the disappearance of old deciduous trees with polypores, as a consequence of silvicultural practices (Ståhls and Kaila 1990).

On the British Isles, the only *Keroplatus* species, *K. testaceus*, is listed as «rare» in the «British Red Data Book» (Shirt 1987).

The Norwegian fauna of fungus gnats is poorly documented. However, due to their striking appearance, one should expect specimens of *Keroplatus* to be represented in museum collections if they were common. Hence, the two species here recorded must be

considered rare in Norway. Both species show strong affinity to fungi in undisturbed forests. Since modern forestry has degraded most virgin forests in Norway, and very few remaining areas have been protected, the two species should at least be regarded as vulnerable. There are good reasons to pay attention to these species in order to achieve more information about their biology, distribution and relation to forest practices.

ACKNOWLEDGEMENTS

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SAMMENDRAG

Slekten *Keroplatus* Bosc — et interessant tillegg til den norske fauna (Diptera: Keroplatidae)

Slekten *Keroplatus* rapporteres for første gang fra Norge, basert på 5 funn i Sør-Norge i perioden 1982—91. Individene tilhører artene *K. testaceus* Dalman, 1818 og *K. dispar* Dufour, 1839. Artenes systematikk, biologi og utbredelse er kort kommentert. Begge artene er sannsynligvis avhengige av uberørt skog for å overleve. Dette er naturtyper som står i fare for å forsvinne, og av den grunn bør artene betraktes som «sårbare» i Norge.

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Short communications

NEOTTIOPHILUM PRAEUSTUM (MEIGEN, 1826) (DIPTERA, NEOTTIOPHILIDAE) NEW TO NORWAY

LITA GREVE & THOR JAN OLSEN

The fly *Neottiophilum praeustum* (Meigen, 1826) is reported new to Norway. A female was netted near Tunevann, Tune in Østfold, SE Norway on 16 June 1991.

Lita Greve, Museum of Zoology, University of Bergen, Muséplass 3, N-5007 Bergen. Thor Jan Olsen, Box 1062 Valaskjold, N-1701 Sarpsborg.

The fly *Neottiophilum praeustum* (Meigen 1826) belongs to the family Neottiophilidae which numbers only two rare species in Europe. *Actenoptera hilarella* (Zetterstedt, 1847), the other species in the family Neottiophilidae, has been recorded from Northern Oppland province in Norway (Soós 1984). There is an additional specimen in Zoological Museum, University of Bergen, collected from HOY Bergen, Isdalen on June 14 1970 by Tore Randulf Nielsen and determined by R. Rozkosný.

Neottiophilidae look very similar to flies in the family Dryomyzidae, but the Neottiophilidae flies lack preapical setae on the tibia of the last pair of legs, and they have well developed vibrissae in contrast to the Dryomyzidae.

N. praeustum is a large fly with a bodylength around 8—9 mm. The black mid-frontal stripe on the frons is characteristic. The frons is otherwise brown. The wings have marked spots on both the anterior and the posterior cross-ribs, most of the subcostal cell is dark and there is a large spot at the wing tip. The species should be easy to identify even in the field on account of the size and the wing-marks, and has probably not been overlooked on account of the size and the wing-marks. It should not easily be overlooked and therefore the assumption of Czerny (1930) that it is a rare species is probably correct.

The female was netted on 16 June 1991 by TJO near the Tune lake on a meadow with herbage and bushes.

According to Soós (1984) *N. praeustum* is distributed in Europe north of the Mediterranean.

ACKNOWLEDGEMENTS

We are very grateful to Dr. Hugo Andersson, Lund, Sweden, Dr. A. Albrechts, Helsingfors, Finland and Dr. L. Lyneborg, Copenhagen, Denmark for information.

SAMMENDRAG

Neottiophilum praeustum (Meigen, 1826) som tilhører fluefamilien Neottiophilidae er her rapportert for første gang fra Norge. En hunn ble tatt i hov den 16 Juni 1991 nær Tunevann, Tune i Østfold.

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TRE COLEOPTERA NYE FOR NORGE

FRODE ØDEGAARD

Three Coleoptera species *Leiodes hybrida* (Erichson, 1845) (Leiodidae), *Baeocrara japonica* (Matthews, 1884), (Ptiliidae) and *Hypocaccus rugiceps* (Duftschmid, 1805), (Histeridae), are recorded for the first time in Norway. Remarks on ecology and distribution are given.

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Leiodes hybrida (Erichson, 1845), (Leiodidae) Fire ♂♂ og to ♀♀ av *Leiodes hybrida* (Erichson) ble funnet i AK, Sørum: Sørumsand, EIS: 29 (Asak grustak), den 17. august 1988. Arten ble funnet under en nokså stor stein blant røtter av tiriltunge (*Lotus corniculatus* L.) nede i grustaket. Løsmassene var stort sett av sandfraksjon. Carabiden *Bembidion nigricornis* Gyllenhal, ble forøvrig funnet i nærheten.

L. hybrida er ellers kjent fra seks regioner sørøst i Sverige (Lundberg 1986, 1988), og tre regioner sør i Finland (Lindroth 1960). Lokaliteten fra Norge representerer derfor det vestligste funn av arten i Skandinavia.

Slekten *Leiodes* Latreille har 29 arter i Skandinavia, hvorav 19 tidligere er kjent fra Norge (Silfverberg 1979, Bistrøm & Silfverberg 1983, 1985, 1988). Artene lever underjordisk av soppmycel (Hansen 1968) og er derfor vanskelige å finne ved konvensjonell innsamling. Artenes utbredelse er nok derfor også dårlig kartlagt.

L. hybrida er lett kjennelig på de tverr-rissede dekkvingene, størrelsen (2,5—3,0 mm) og de karakteristiske hannlige genitaliene.

Baeocrara japonica (Matthews, 1884), (Ptiliidae) Fire eksemplarer av ptiliiden *Baeocrara japonica* (Matthews) ble funnet i STI, Røros: Røros, EIS:

81 den 5. august 1989. Arten ble såldet fram fra en blandingskompost, som stort sett besto av halm og løv. Lokaliteten ligger i utkanten av en lavfuru-skog (*Cladonio-Pinetum*) i nærheten av kulturmark.

Følgende ptiliider ble funnet sammen med *B. japonica*: *Achrotrichis rugulosa* Rosskothén, *A. sericans* (Heer) *A. thoracica* (Waltl), *A. volans* (Motschulsky), *A. cognata* (Matthews), *Ptenidium pussillum* (Gyllenhal), *Ptilium multissimum* (Ljungh) og *Ptiliolum sahlbergi* (Flack). Ellers fantes også staphylinidene *Pseudomedon obscura* (Erichson), *Medon apicalis* (Kraatz) og scydmaeniden *Eutheia scydmaenoides* Stephens som alle tre er nye for STI.

B. japonica ble funnet ny for Europa i Finland i 1974 (Rutanan & Mouna 1977), og er senere også tatt i Sverige (Kronblad & Lundberg 1978, Palm 1979). Arten er beskrevet fra Japan og har hatt en rask og gåtefull ekspansjon mot vest, i likhet med andre kompostarter som *Lithocaris nigriceps* (Kraatz) og *Philonthus rectangulus* Sharp (Palm 1979). Røros-lokaliteten representerer således det vestligste funn av arten til nå.

Palm (1979) beskriver *B. japonica* fra eldre og sterkt løvinnblandete komposthauger der fuktigheten er bevart, noe som stemmer overens med Røros-lokaliteten.

Slekten *Baeocrara* Thomson inneholder ellers bare en norsk art. *B. japonica* skiller fra denne bl.a. ved at den er mindre og smalere, og har annerledes bygde genitalier (Rutanan & Mouna 1977).

Hypocaccus rugiceps (Duftschmid, 1805), (Histeridae)

Fire eksemplarer av *Hypocaccus rugiceps* (Duftschmid) ble funnet i VAY, Farsund: Lista, EIS: 1 (Lomsesanden), den 6. juni 1990. Arten ble tatt krypende på kvitdyne- og grådynepartiene av sanddynekompleksene på lokaliteten.

H. rugiceps ble funnet sammen med følgende andre Coleoptera: *Phylan gibbus* (Fabricius), *Crypticus guisguilius* (L.), *Aegialia arenaria* (Fabricius), *Otiorynchus atroapterus* (DeGeer) og *Philopodon plagiatus* (Schaller). Arten oppgis å leve av ekskrementer og åtsel i nærheten av vann på sandige lokaliteter. (Freude, Harde & Lohse 1971).

H. rugiceps er nærmest kjent fra Danmark og Sør-Sverige (Lindroth 1960). Arten er lett kjennelig på dekkvingenes to klare speilflekker, omgitt av tett rynket punktur.

TAKK

En stor takk til Mikael Sørensen som har kontrollbestemt min ptiliide-samling, og til Oddvar Hanssen for kommentarer til manuskriptet.

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MYCETOBIA GEMELLA MAMAEV, 1968 — FIRST RECORD OF MYCETOBIIINAE IN NORWAY (DIPTERA: ANISOPODIDAE)

GEIR E. E. SØLI

Mycetobia gemella Mamaev, 1968 is recorded from SE Norway. The specimen, a male, was collected in a malaise trap operated in Akershus (AK): Nannestad, Nordmoen in the period 25 June—24 July 1986. The Fennoscandian distribution of *Mycetobia* is commented on.

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The genus *Mycetobia* Meigen, 1818 is by most authors included in the family Anisopodidae. The

family has traditionally been divided into two subfamilies, Mycetobiinae and Anisopodinae, of which *Mycetobia* belongs to the former. Mycetobiinae consists of two genera only; the other being the afrotropical genus *Mecochria* Enderlein, 1910. Several authors have raised these subfamilies to family level (Mamaev & Krivosheina 1988), but the systematics is still not satisfactory outlined (Peterson 1981).

In the Holarctic, *Mycetobia* is represented by 7 species in the Palaearctic region and 1 species in the Nearctic region (Peterson 1981; Mamaev & Krivosheina 1988). From our neighbouring countries (see Petersen 1971, Hackman 1980), the genus is represented by 3 species in Denmark (*M. pallipes* Meigen, 1818, *M. obscura* Mamaev, 1968 and *M. gemella* Mamaev, 1968), 1 species in Finland (*M. pallipes*) and 2 species from Sweden (*M. pallipes* and *M. obscura*).

Several Norwegian females of *Mycetobia* are kept in the Museum of Zoology, Bergen, both from Western and Southeastern Norway. Unfortunately, it has not been possible to identify any of these specimens, as a reliable identification can only be made on characters in the male genitalia. Such keys are given by Mamaev (1968) and — for the Fennoscandian species — by Pedersen (1968, 1971). However, in material collected from SE Norway in 1986, I found one male and four females. The specimen showed up to be *M. gemella* Mamaev, 1968, was previously only recorded from N. Sjælland, Denmark, outside the European part of the U.S.S.R. The material was collected by means of malaise trap from Akershus (AK): Nannestad, Nordmoen (EIS:17) in the period 25 June—24 July 1986 (Leg. F. Midtgaard).

It seems reasonable to suppose that more species of *Mycetobia* occur in Norway, among them *M. pallipes*, the most widespread and common species in Europe.

ACKNOWLEDGEMENT

My sincere thanks to Fred Midtgaard for the opportunity to examine the material.

SAMMENDRAG

En hann av vindusmyggen *Mycetobia gemella* Mamaev, 1968 ble funnet i materiale samlet inn fra Akershus i 1986. Funnet er det første av underfamilien Mycetobiinae i Norge. Individet ble tatt i malaisefelle i perioden 25.06.—24.07.1986. Ialt 3 arter av slekten *Mycetobia* er kjent fra Fennoskandia.

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MAURBILLEN *OPILO DOMESTICUS* STURM (COL., CLERIDAE) FUNNET I NORGE

KARL ERIK ZACHARIASSEN

The Clerid beetle *Opilo domesticus* Sturm is reported found in Norway for the first time. Remains of an adult specimen were found in burrows of the House longhorn *Hylotrupes bajulus* L. in the wall of a boat house at Kammerfoss, Kragerø, on the 14 June 1970.

Karl Erik Zachariassen, Zoologisk institutt, Universitetet i Trondheim, AVH, 7055 Dragvoll, Norway.

Maurbillene av slekten *Opilo* er knyttet til gangene av trelevende insekter, særlig borebiller og trebukker. *Opilo mollis* L., som er funnet en rekke steder i det sydlige Norge (Lindroth 1960) holder til i tørre løvtrestammer, der den lever av insektlarver (Hansen & Larsson 1938). Den nærstående *Opilo domesticus* Sturm lever i planker og trevirke i hus, der den er oppgiitt av å leve av blant annet larvene til husbukken *Hylotrupes bajulus* L. (Harde 1984). *O. domesticus* er funnet i Danmark og Syd-Sverige (Lindroth 1960), men regnes som nokså sjelden (Hansen & Larsson 1938).

14.6.1970 fant forfatteren restene etter en imago av *Opilo* sp. i en larvegang etter husbukk i et båtnaust ved Kammerfoss ved Kragerø. Restene

omfattet bl.a. en uskudet dekkvinge. På grunnlag av dekkvingenes lange punktstriper, som når nesten helt til dekkvinge-spissen, er dyret bestemt til å være *O. domesticus*. De preparerte restene befinner seg i forfatterens samling.

Imago av *O. domesticus* er oppgitt å være nat-taktiv (Hansen & Larsson 1938) og lever et skjult liv. Dette er trolig bakgrunnen for at en så stor og iøyenfallende art har unngått samlernes oppmerk-somhet.

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HABROSYNE PYRITOIDES (HUFNAGEL, 1766) (LEP., DREPANIDAE) NEW TO NORWAY

PER TANGEN & LARS OVE HANSEN

Habrosyne pyritoides (Hufnagel, 1766) is reported new to Norway. One specimen was captured at a light-trap in Halden, Østfold (Ø), 20 July 1991 (EIS 20). The light-trap was situated in a mixed forest with deciduous trees and Scots pine. Remarks on ecology and distribution are given.

Per Tangen, N-9676 Gunnarnes, Norway. Lars Ove Hansen, Norwegian Forest Research Institute, Høgskoleveien 12, N1432 Ås, Norway.

During light-trap catches at Fredriksten Festning, Halden, Østfold (Ø, EIS 20), 20 July 1991, one specimen of *Habrosyne pyritoides* was captured (Leg.: Per Tangen). This species has not previously been reported from Norway. The moth was resting beside the light-trap, but had obviously been attracted to the light. Including the recently recorded *Drepana cultraria* (Fabricius, 1775) (Hansen & Dahl 1991), the number of Norwegian species of Drepanidae is now 15. Among the Fennoscandian and Danish species of this family, only *Drapana binaria* (Hufnagel, 1767) is still not reported from Norway.

The trap was operated in a forest mixed with

Scots pine (*Pinus silvestris*) and different deciduous trees (e.g. *Populus tremula*, *Fagus sylvatica*, *Betula* spp., *Quercus* spp., *Ulmus glabra*, *Fraxinus excelsior*). The two species of food-plants mentioned by Skou (1984) (i.e. *Rubus idaeus* and *R. fruticosus*), are both present in the area. The larva may be found from July to October, while the winter is spent as pupa between leaves spun together (Skou 1984).

Svensson et al. (1987) report *H. pyritoides* from nine Swedish regions, northernmost Bohuslän (Bo) in the west and Uppland (Up) in the east. In Denmark it is recorded in all regions (Schnack 1985). Furthermore, records are present from Finland, the Baltic countries, Poland, Germany, the Netherlands and the British isles (Skou 1984). From Western Europe and the Mediterranean the distribution reaches eastwards through Armenia, Ural and Amur, to Japan and Korea (Skou 1984).

H. pyritoides has been expected for a long time in Norway, so it is not remarkable that the species now is found in Halden, not far from the northwestern Swedish records (i.e. Bohuslän). The facts that the captured moth was newly hatched and that *H. pyritoides* is not known to migrate, may indicate that the species is resident in the area.

ACKNOWLEDGEMENTS

Thanks are due to Øistein Berg for comments to the manuscript.

SAMMENDRAG

Habrosyne pyritoides (Hufnagel, 1766) er rapportert ny for Norge. Ett eksemplar ble fanget ved lysfelle-fangst i Halden, Østfold (Ø), 20 July 1991 (EIS 20). Lysfella var plassert i blandingskog med forskjellige løvtrær og furu. Anmerkninger om økologi og utbredelse er gitt.

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**THE MOTH FLY *SYCORAX SILACEA*
HALIDAY IN CURTIS, 1839 (DIPT.,
PSYCHODIDAE: SYCORACINAE) TAKEN
IN WEST NORWAY**

TROND ANDERSEN

A species of the moth fly subfamily Sycoracinae is recorded for the first time in Norway. Ten males and one female of *Sycorax silacea* Haliday in Curtis, 1839 were netted on the island Ånuglo in the outer part of the Hardanger fjord in West Norway in early June 1990.

Trond Andersen, Zoological Museum, University of Bergen, Musépl. 3, N-5007 Bergen, Norway.

The subfamily Sycoracinae of the Psychodidae occur in all faunal regions except the Nearctic. In Europe the subfamily is represented with only 8 species, all belonging to the genus *Sycorax* (Wagner 1990). On the British Isles two species are recorded, the present one and *S. similis* (Müller, 1927), which is taken in Norfolk (Withers 1989). From Jutland in Denmark one other species, *S. feuerborni* Jung, 1954, is recorded in addition to the present one (Nielsen 1964).

Adult *Sycorax* are very small, with wing lengths between 1.5–2 mm. The wings are somewhat rounded and held horizontally over the abdomen. They can be separated from Psychodinae by lacking eye bridge and the characteristic wing venation (see e.g. Withers 1989). The females of several species appear to be bloodsuckers, primarily on amphibia (Desportes 1942). The larvae are aselliform and live on wet stones or in moss near cascades, springs and trickles (Jung 1958).

Sycorax silacea Haliday in Curtis, 1839 was netted on the island Ånuglo in the outer part of the Hardanger fjord in West Norway. HOY, Tysnes: Ånuglo (UTM: 32VLM171480) 7 June 1990, 10 ♂♂ 1 ♀. The bedrock of Ånuglo is strongly metamorphic, with shales and limestone bands. The island earlier had a luxurious vegetation; today it is partly planted with spruce (*Picea*). The specimens were netted in an area with large boulders and deciduous trees and shrubs, mainly hazel (*Corylus avellana*). There are several small trickles in the area, supporting e.g. the caddis fly *Beraea pullata* (Curtis, 1834). The area is damp and shady and the ground and boulders are heavily grown with mosses.

S. silacea is recorded from Skåne in Sweden (Nielsen 1965) and Jutland in Denmark (Nielsen 1964), but it is not listed for Finland (Hackman 1980). The range also covers Great Britain, Germany, France, Switzerland, Hungary, Italy, Rumania and Yugoslavia (Wagner 1990).

SAMMENDRAG

Sommerfuglmyggen *Sycorax silacea* Haliday in Curtis, 1839 ble tatt med hov på Ånuglo i ytre Hardangerfjord i juni 1990. Arten tilhører underfamilien Sycoracinae. Øvrige norske sommerfuglmygg tilhører underfamilien Psychodinae og *S. silacea* kan skilles fra disse på at den mangler øyebro og på utformingene av vingenervene. Den er liten, vingelengden er bare 1.5–2 mm og hunnene er rapportert å suge blod fra amfibier. Larvene ligner små isopoder og lever på våte stein eller i fuktig mose langs småbekker.

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**TRIAENODES UNANIMIS MCLACHLAN,
1877 (TRICH., LEPTOCERIDAE), A NEW
CADDIS FLY FOR NORWAY**

TROND ANDERSEN & GEIR E. E. SØLI

In 1983 and 1984 females of the caddis fly *Triadenodes unanims* McLachlan, 1877 were caught in light traps on the Eidanger peninsula in outer Telemark and near Nevlunghavn in Vestfold. The species is not previously recorded from Norway; nearest localities are situated in northeastern Germany and in northern Sweden.

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In 1983 one female of *Trienodes unanimitas* McLachlan, 1877 was taken in a light trap on the Eidanger peninsula near Porsgrunn (TEY, Porsgrunn: Gravastranda, UTM: 32VNL371500, EIS: 18, 11—16 Aug. 1983). The next year a second female was trapped in a light trap near Nevlunghavn in Vestfold (VE, Brunlanes: Nevlunghavn, UTM: 32VNL506378, EIS: 19, 6 Aug. 1984). Both localities were situated within 100 m of the sea shore. The only freshwater near the trapping sites were small, mostly slow flowing streams with sandy bottoms.

T. unanimitas has a northern Palaearctic distribution including Korea and Japan; *T. yamamotoi* Tsuda, 1942 from Japan was recently placed in synonymy with *T. unanimitas* by Kumanski (1991). In Europe the species has been taken in the north-eastern parts, including northeastern Germany and the Balticum (Botosaneanu & Malicky 1978). In Sweden the species is recorded from Dalarna, Medelpad, Ångermanland and Norrbotten (Gullefors 1988). In Finland it is more widely distributed (Nyborn 1960).

According to Botosaneanu & Malicky (1978) the species inhabits streams, small rivers and standing water. In northern Finland it has been recorded from a «very acid *Sphagnum* - swamp» (Tjeder 1937). In southern Finland it is common both in lakes and in ponds rich in humus (P. K. Bagge in lit.). The present specimens were both taken near small, slow flowing streams.

ACKNOWLEDGEMENTS

We are indebted to Prof. Pauli K. Bagge, University of Jyväskylä, for the gift of specimens from Finland.

SAMMENDRAG

Trienodes unanimitas McLachlan, 1877 er ikke tidligere rapportert fra Norge. I 1983 ble én hunn tatt i lysfelle på Eidangerhalvøya i Ytre Telemark. Året etter ble ytterligere én hunn tatt i lysfelle ved Nevlunghavn i Vestfold. Begge fellene var plassert nær kysten og på begge lokaliteter rant det små, sakteflytende bekker.

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Book reviews

Tre bøker om sommerfugler

EMMET, A. M. 1991 *The Scientific Names of the British Lepidoptera*. Harley Books, England. 288 pp. Innbundet £49.95, heftet £24.95.

EMMET, A. M. & Heath, J. 1991. *The Moths and Butterflies of Great Britain and Ireland. Volume 7, part 2 (Lasiocampidae to Thyatiridae)*. Harley Books, England. 398 pp. Innbundet £55.00 (heftet utgave bruker å komme noe senere til ca halv pris) SKOU, PEDER. Nordens Ugler. Danmarks Dyreliv Bind 5. Apollo Books, Stenstrup, 566 pp. Innbundet DKK 600,00 ink. porto fra forlaget med adresse Kirkeby Sand 19, DK-5771 Stenstrup Danmark.

Alle entomologer bruker Linnés to hundre år gamle kodeks for å entydig beskrive en art: det binominale system. Men stadig færre har noe annet enn en overfladisk kjennskap til de latinske eller latiniserte navn vi benytter til daglig. At *norvegicus* betyr at arten forbindes med Norge eller *vulgata* at navngiveren mente at den svært vanlig, er innlysende for de fleste. Man hva artsnavn flest betyr, forblir gjerne en gåte selv for spesialister på den aktuelle gruppen. Av norske taksonomiske bøker kjenner jeg bare to som inneholder en oversikt over betydningen til vitenskapelige navn og det er «Lids Flora» i ulike utgaver og Haftorns «Norges Fugler».

Sommerfuglsamlere og entomologer i England har hatt flere bøker med forklaringer på artsnavn. Siden 1959 har vi kunnet slå opp i R. D. Macleod «Key to the Names of British Butterflies and Moths.»

Den nå utgitte «The Scientific Names of the British Lepidoptera — Their History and meaning» av A. Maitland Emmet er en omfattende revisjon og videreføring av kunnskapen på dette området.

Emmets bok som har mer enn tre ganger så mange sider som Macleod, er delt i to hovedavsnitt; en historie om den vitenskapelige navngivning for sommerfugler og en systematisk gjennomgang av alle navn på britiske Lepidoptera.

I den historiske delen behandles tidligere litteratur om navneforklaringer, navnbruken før Linné, Linné og hans artsnavn, videreføring av Linnés navnetradisjon for arter, slektsnavn og navnbruken over slektsnivået. Et kort avsnitt omhandler problemet med forandring av vitenskapelige navn. Denne delen av boken anbefales til fullstendig gjennomlesning, også for entomologer som arbeider med andre grupper enn sommerfugler. Emmet gjengir på en grundig og overbevisende måte historien om hvordan de binominale navn kom i bruk og hvordan de nærmeste arvtakere

innen faget brakte det meste av Linnés ideer videre, men også hvordan noen av intensjonene ble borte underveis. Et eksempel på slike glemte tradisjoner er en praksis med «greske» slektsnavn og latinske artsnavn, hvor slekts og artsnavnet for minst en art i slekten kunne bety det samme.

Emmet har tilbrakt mange timer i universitetsbibliotek for å analysere originalbeskrivelser og søke etter forfatternes mening med de slekts- og artsnavn de har gitt. At det ikke alltid har vært lett, vises ved to lister i boken. Den ene listen inneholder ca 35 navn som Emmet ikke har klart å finne meningen med. Den andre listen inneholder over 300 navn som Emmet mener er feil forklart av Macleod!

At det ligger mange ulike tanker bak artsnavn som i dag kun assosieres med sommerfuglene som bærer dem, kan illustreres ved et tilfeldig eksempel. Nattdyene som vi på norsk kaller ordensbånd I er samlet i slekten *Catocala* som ifølge Emmet er fra gresk og betyr «kato; under» og «kalos; vakker», altså «vakkre undervinger».

Catocala nupta betyr *nupta* «brud». Dette får Emmet til å undres på om brudene i Sverige på attenhundretallet brukte sterkt fargete underskjørt. Linné og etterfølgende taksonomer har i hvertfall fulgt opp med de andre artsnavnene i denne slekten: *C. electa* «den forlovede», *C. elocata* «denprostituerte» *C. promissa* «den utlovede», *C. sponsa* «forloved eller brud» og *C. nymphagoga* «den som ledsager bruden». *C. fraxini* er, som en kjedelig motsetning, gitt navn etter asketreet som Linne feilaktig antok å være forplanten for larvene.

Boken anbefales for alle lepidopterologer, de fleste andre entomologer og også en del andre biologer.

Maitland Emmet er nå også redaktør for århundres store britiske sommerfuglverk: «The Moths and Butterflies of Great Britain and Ireland». De første planjene til dette verket fikk jeg se hos John Heath i Monks Wood for nesten tjue år siden. Nå er Heath død og Maitland Emmet står som hovedredaktør for det foreliggende volum 7, del 2. Fra før foreligger volum 1, 2, 7 del 1, 9 og 10, altså ca halve serien. Resten av dette århundret vil sannsynligvis være gått før serien blir avsluttet. Volum 7 skulle etter planen være et bind som dekket dagsommerfuglene og noen småfamilier. I følge redaktørene ble dagsommerfugldelen så omfattende at en deling i to bind var nødvendig. Del 2 dekker nå Bombycoidea og de to første familiene i Geometroidea, Drepanidae og Thyatiridae. De britiske artene i disse gruppene teller rundt tretti arter som er gjengitt på fire fargetavler utført av Richard Lewington. De fleste artene finnes også i Norge.

Den delen er vakker og grundig gjennomført, men i grunnen med litt for få arter til å lage et eget bind. Det har redaktørene nok også ment. I tillegg til den vanlige temadelen som kommer først i hvert bind, har de i dette bindet lagt inn en 240 siders

oversikt av Maitland Emmet som gir detaljerte opplysninger i tabellform for alle 2496 britiske arter av Lepidoptera. Tabellen inneholder vitenskapelig og engelsk trivial-navn, livshistorie med aktuelt stadium for arten i alle tolv måneder, britiske status, habitat (12 hovedtyper), utbredelse, flyvetid, forplante og andre bemerkninger. Tabellen er i virkeligheten en database som burde kunne nyttes også til å teste ulike problemstillinger i teoretisk økologi.

Bindet innledes forøvrig av to tema-artikler, en nyttig men nokså tørr artikkel av M. J. Scobel om klassifikasjon av Lepidoptera og en kort, men innskutt artikkel med 64 små fargebilder om hvilestillinger hos sommerfugler. Denne artikkelen er skrevet av M. W. F. Tweedie og — ja nettopp — A. Maitland Emmet. Alt i alt et omfattende bind, men kanskje litt få fargeplanser til denne prisen. Bindet vil bli kjøpt av de som ønsker hele serien og noen som vil bare vil ha data-tabellen.

«Nordens Ugler» er nattflybindet i serien «Danmarks Dyreliv», tidligere utgitt på forlaget Fauna Bøger i København, nå overtatt av Peder Skous forlag «Apollo Books». Tidligere har Skou utgitt «Nordens Målere» (1984) og Eivind Palm står for to småsommerfuglfamilier i bindene «Nordeuropas Pylalider» (1986) og «Nordeuropas Prydvinger» (1989). Tilsammen gir dette en nordisk sommerfuglserie som faunistisk ikke står tilbake for den tidligere anmeldte britiske serie. La oss håpe at resten av ordenen også blir dekket i fremtiden.

Nattflybindet følger i store trekk målerbindet. Artenes utbredelse er nå gitt på kart i stedet for tabell som for målerne. Kartene er imidlertid ikke vanlige prikk-kart, men skjematisk kart med en prikk for hvert faunaområde. Dette fungerer bra for de fleste områdene, men noen av de norske faunaområdene (f.eks. Sør-Trøndelag indre) er litt for heterogene til slik fremstilling. Men ellers er

kartene en kjærkommen oppdatering av et tretti år gammel kartverk. Kartene inneholder de fleste nyere nordgrenser i Norge og også en ny art for Norge; *Cerastis leucographa* fra Opdølstranda i Sunndalen hvor Sigurd Bakke og Oddvar Hanssen fanget et stort antall individer i en lysfelle i en sørvendt bratt li i 1988. Funnet er ikke publisert før, og den korte teksten i boken gir ingen kreditt til samlerne.

Vitenskapelige navn på sommerfugler er stadig gjenstand for revisjoner og hver ny generasjon av samlere må omskoleres en eller flere ganger til hva som er god latin. I denne boken legger en særlig merke til endringer innenfor våre fjell- og nordarter. Det «kjernenorske» dovrenattflyet *dovrensis* i slekten *Lasiestra* er redusert til en underart av den sirkumpolære *Lasionycta leucocycla*. Likeledes er *kongsvoldensis* forlenget blitt en underart, nå sist til arten *Xestia lorezi*. Videre er *Polia bohmanni* blitt til *Anartomina sedescens*. Slektene *Polia* og *Xestia* fremstår nå som oversiktlig grupperinger av mange nordlige arter.

Fargetavlene er fotografert av David Wilson og er utmerket i klarhet og farger. Danske dyr er brukt så fremt at arten er vanlig i Danmark. De få norske eksemplarene er fjellarter. For å belyse den geografiske variasjon skulle jeg ønske at noen flere av de avbildete dyrene var fra nordlige deler av Norden. Men dette er bare en liten innvending, Peder Skou gir gjennom artsomtalen som er delt i avsnitt om kjennetegn, utbredelse levested, flygetid og biologi en utmerket oversikt over artene i Norden. «Norden Ugler» er en bok som er verdt hver krone den koster og ikke bare en verdig erstatning for Hoffmeyers bok om de danske «ugler» men også en nyskapning på det nordiske området. Vi må håpe at Skou nå går løs på «Nordens spinnerne og svermere».

Kaare Aagaard

GUIDE TO AUTHORS

FAUNA NORVEGICA Ser. B publishes papers in English, occasionally in Norwegian, with an extensive English abstract. An extensive abstract in Norwegian is also required, after acknowledgements, when the paper is written in English. When preparing manuscripts for submission, authors should consult current copies of Fauna norvegica and follow its style as closely as possible. Manuscript not conforming to the guide to authors will be returned for revision.

Manuscripts should be submitted to the Editor-in-Chief. Send two copies. Separate sheets should be used for the following: 1) Title page, with author's name. 2) An abstract, with the name and full postal address of the author underneath. 3) Tables with their headings. 4) Legends to figures.

Dates should be referred to as 10-20 Aug. 1970.

Underline all generic and species names. Approximate position of figures and tables in the text should be indicated in the margin. All Acknowledgements should be given under a single heading in the end of the text, immediately before the references.

Figures and Tables. Send two copies. All illustrations should be identified lightly with the author's name and the figure number.

The placing of figures and tables should be indicated in the margin. If the article is in Norwegian, the figures and tables should have both Norwegian and English text. Write Table and Fig. both in running text and over/under tables and figures.

Take care that all text in the figures is *large enough* for a format of column or page width, c. 7 or 14 cm. Never let odd words or numbers go outside the breadth of other elements of the figure. Figures with cross-hatching (bar charts) must not be drawn so large that it is difficult to judge the result of a considerable size reduction. When a dense cross-hatching is greatly reduced it will coalesce and thereby lead to confusion with an entirely black area. Choose contrasting patterns. Authors with access to a machine able to type Latin species names in italics should utilize this in all tables instead of underlining. We will then be more free to photograph tables without the underlining of Latin names detracting from the appearance of the tables.

Nomenclature. The first time a binomen is used in the text the name of its author should be included. Author names should be written in full, except. L. for Linnaeus. Dates can be included when considered necessary, i.e. *Rhyacophila nubila* (Zetterstedt, 1840).

References. *In the text:* Black (1979), Black & Blue (1973:100), or «as noted by Green (1978) and Black (1979)». Multiple references should be given in chronological order, i.e. (Black & Blue 1973, Green 1976, 1979, Black 1978).

List of references are to be unnumbered and in international alphabetical order (i.e. Å = AA, Æ and Ä = Ae, Ø and Ö = Oe). Titles of journals should be abbreviated according to the World List of Scientific Periodicals. Do not refer to papers «in prep.» among the references.

Examples:

Journal:

Løken, A. 1962. Social wasps in Norway (Hymenoptera, Vespidae). Norsk ent. Tidsskr. 12: 191—218.

Book:

Mayr, E. 1913. Animal species and evolution. Harvard University Press. Cambridge, Mass.

Fittkau, E.J. 1962. Die Tanypodinae (Diptera, Chironomidae). Die Tribus Anatopyniini, Macropeloni und Pentaneurini. Abh. Larvalsyst. Insekten 453 pp.

Chapter:

Whitman, I. 1951. The arthropod vectors of yellow fever, pp. 229—298 in: Strode, K. (ed.) Yellow Fever. Mc. Graw - Hill, New York & London.

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