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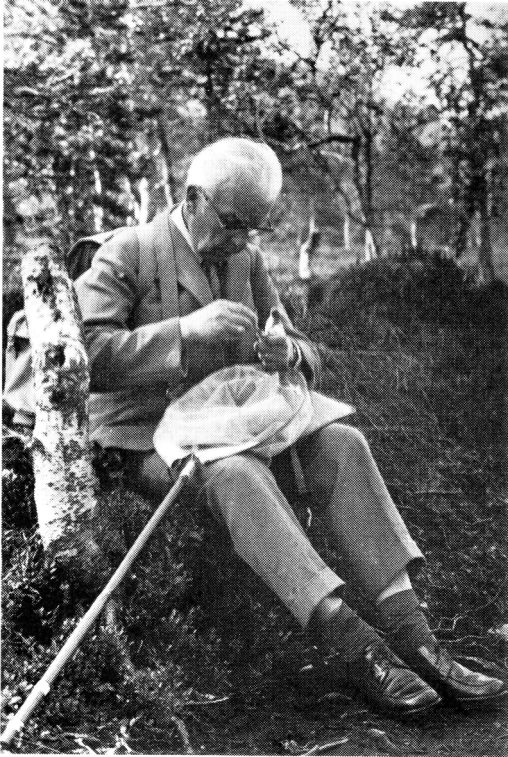
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Fauna (Norsk Zoologisk Forening) har fra nå gått ut av Norsk Zoologisk Tidsskriftsentral. **Avtalen om gjensidig reduserte abonnementspriser på foreningenes tidsskrifter vil for fremtiden derfor bare gjelde mellom Norsk Entomologisk Forening og Norsk Ornitologisk Forening.**

Prof.emer. Hans Kauri — 75 år



Den 30. mai 1981 fylte Prof.emer. fil.dr. Hans Kauri 75 år. Professor Kauri sluttet i 1976 som professor ved Zoologisk museum, Univ. i Bergen og Roald Larsen hadde i NET Vol. 23 1976 en utførlig omtale av professor Kauris store vitenskapelige innsats som fra 1963 ble gjort ved Zoologisk museum. Forfatteren sluttet med å ønske mange år videre med fordypning i egen forskning.

Heldigvis kan vi ved 75 års dagen i år si at disse gode ønskene er blitt innfridd. Professor Kauri har i årene som nå har gått, hatt sin arbeidsplass ved Zoologisk museum og har fortsatt sitt vitenskapelige arbeid og sin vitenskapelige produksjon. I tillegg har han også vært medlem av flere komiteer for bedømmelse av vitenskapelige stillinger, og skrevet en rekke artikler om populære emner.

Professor Kauris innsats for norsk entomologi

ble utførlig omtalt da han sluttet som professor og skal ikke i detalj omtales her. Men her skal trekkes frem den fremtredende rolle han har spilt i utforskningen av en rekke evertebratgrupper i Norge, både ved egen forskning og som veileder for yngre forskere. Han har også vært aktiv på det organisatoriske plan som formann i Norsk Entomologisk Forening og som redaktør for foreningens tidsskrift.

Ved den milepæl som en 75 års-dag er, har redaksjonen av *Fauna Norvegica*, serie B, ønsket å tilegne et hefte til professor Kauri.

I denne forbindelse er det laget følgende oversikt for å vise professor Kauris vitenskapelige arbeider. Dessverre er listen mangelfull for årene før 1946. Derfor skal det nevnes at professor Kauris magisteravhandling omhandlet Odonata. Da han flyktet fra Estland måtte han forlate en ferdig doktoravhandling om Øsels arachnoider, et arbeid som hadde tatt mange år.

Fil.dr. Kjell Ander, Linköbing og bibliotekar assistent Ulla Holmberg, Lund har vært så vennlig å gi opplysninger om noen av arbeidene, og de takkes herved.

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Lita Greve

Terrestrial invertebrates of the Faroe Islands: III. Beetles (Coleoptera): Check-list, distribution, and habitats

SVEN-AXEL BENGTON

Bengtson, S.-A. 1981. Terrestrial invertebrates of the Faroe Islands: III. Beetles (Coleoptera): Check-list, distribution, and habitats. *Fauna norv. Ser. B.* 28, 52–82.

During the summers of 1978–1979 beetles were collected in 111 localities on 17 of the Faroe Islands. A total of 101 species were recorded, 16 of which for the first time in the Faroes: viz. Hydrophilidae: *Helophorus flavipes* (Fabricius), Staphylinidae: *Proteinus brachypterus* (Fabricius), *Olophrum fuscum* (Gravenhorst), *Lesteva monticola* Kieswetter, *L. heeri* Fauvel, *Lathrobium brunnipes* (Fabricius), *Xantholinus linearis* (Olivier), *Quedius boopoides* Munster, *Myllaena brevicornis* Matthews, *Mycetoporus rufescens* Stephens, *Atheta harwoodi* Williams, *A. luridipennis* Mannerheim, Curculionidae: *Otiorrhynchus singularis* L., *Micreclus ericae* Gyllenhal, *Rhinoncus pericarpus* L., and *Sitona puncticollis* Stephens. The total coleopterous fauna now comprises at least 168 species of which 98% occur in Scotland, 79% in Shetland, 90% in Western Norway, and 52% in Iceland. About one-fourth of the species appear to be widely distributed and common within the Faroes. Many species have wide ecological amplitudes. Differences in species richness between habitats are discussed. Faroese distribution maps for all 101 species found are presented.

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INTRODUCTION

The Faroe Islands consist of 18 small islands situated in the North Atlantic (approx. 62°N) about 675 km W of Norway, 300 km NW of Shetland, and 450 km SE of Iceland. The climate is Atlantic with frequent and strong winds, much rainfall, mild winters, and cool summers. The mean temperatures of the warmest (August) and coldest (February) months are 11.1 and 4.1 °C, respectively. The landscape is greatly affected by farming and sheep-grazing, and the vegetation is dominated by grass heaths. Natural shrubs or woods are completely absent. The biota is almost entirely West European.

In the summers of 1978 and 1979 a Swedish-Norwegian team made a survey of certain terrestrial invertebrates on the islands in order to apply modern theories on island ecological biogeography, and to assess human influence on the present-day terrestrial fauna (see Bengtson & Hauge 1979). For various reasons (sampling methods, taxonomy etc.) attention was focussed on the taxa Coleoptera, Araneae, Lumbricidae, and terrestrial Gastropoda. Here we describe the faunistic results concerning the beetles.

Previously West (1930) has treated Coleoptera in the series «The Zoology of The Faroes», basing his large paper on the extensive collec-

tions made by Danish zoologists in 1924–1928 and published records. West's list included some 156 species (some of which are doubtful; see below) to which our survey added only 16 (possibly 17) but greatly increased our knowledge of the inter-island distribution of many species. This paper is one in a series presenting the faunistic results of our field-work, accounts of the spiders and opilionids have already appeared (Bengtson & Hauge 1979 and Kauri 1980) and is followed by reports on the lumbricids (Enckell & Rundgren in prep.), terrestrial gastropods (Solhøy 1981), and possibly a few more taxa. These purely faunistic papers will form the basis for forthcoming ecological papers.

MATERIAL AND METHODS

The islands in the Faroe group range in size from 374 km² (Streymoy) to 0.8 km² (Litla Dimun) and we worked on 17 of them, i.e. on all but the smallest, and uninhabited Litla Dimun (Fig. 1). Since the field-work has previously been described in detail by Bengtson & Hauge (1979; especially in Appendix I) only pertinent information concerning Coleoptera will be briefly outlined here. We collected in 111 localities

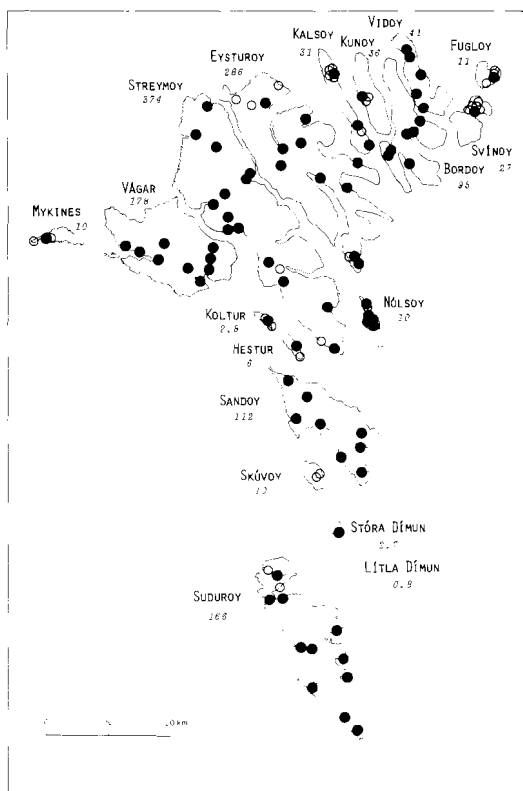


Fig. 1. Map of the Faroes with names of the islands and sizes in km². The island group is situated approximately at 62° N and 7° W.

(Bengtson & Hauge *op.cit.*: Fig. 2) in July and first half of August 1978 and in the first half of August 1979. In most of the localities we employed pitfall trapping, sieving of foena, and hand-collecting. The pitfalls yielded the largest collections and were particularly effective in capturing ground beetles (Carabidae), whereas sieving, as expected, proved indispensable for securing the smaller species, especially the rove beetles (Staphylinidae). Collecting by hand mainly yielded large species of various taxa but was important when investigating microhabitats unsuitable for pitfalls or sieving (e.g. cliffs). The main shortcomings of the field-work were the restricted seasonal coverage and the lack, or underrepresentation, of some habitat types. For instance, few localities covered typical sea-shore habitats (might have yielded *Bembidion*-species and some rove beetles), high mountain-sites (> 400 m), and freshwater localities (we certainly missed several species of Dytiscidae). Nor did we collect

in houses and barns which might have produced some synanthropic species. The possible effects of our limited seasonal coverage is difficult to assess. We found about 55% of the species listed by West (1930), who included material collected at all times of the year, but most of the missing species were very rare (occasional?) or occurred in habitats mainly overlooked by us (see above). On the other hand West (*op.cit.*) listed only about 83% of the species found by us, despite his far more extensive seasonal and habitat coverage.

The collecting localities were assigned to one of 9 different habitat categories (see Bengtson & Hauge 1979: Appendix I). The main division was between «infields» and «outfields». The in-field localities are the fenced-off areas surrounding settlements and include the cultivated fields (hay-making and crops). We have sub-divided the infield into the outskirts (G), and the near proximity of settlements (H) where the vegetation is often very rich (gardens, wastelands etc). The outfields are open to sheep-grazing and have been classified as grass heaths (F), dwarf shrub heaths (B), mountain sites (A), lowland bogs (E), sand dunes (I), plantations with various species of exotic trees (C), and cliffs, shelves and crevices (D). The two latter types (C and D) are usually inaccessible to the sheep and have a luxuriant vegetation making them comparable with settlement sites (H). The number of localities in each habitat type is given in Tab. 1.

The total material consists of 18,835 individuals mostly Carabidae (60%) and Staphylinidae (32%), and was identified by Kjell Einar Erikstad (most of the Carabidae) and Arne Fjellberg (the rest). The collections are preserved at the Zoological Museum, University of Bergen.

SYNOPSIS OF THE SPECIES

The following list comprises all species of beetles known to have been found in the Faroes. Our field-work in 1978–1979 yielded 101 species (see Tab. 1), including at least 16 which have never before been recorded in the islands *viz.* one Hydrophilid beetle *Helophorus flavipes* (Fabricius), 11 species of staphylinid beetles *Proteinus brachypterus* (Fabricius), *Olophrum fuscum* (Gravenhorst), *Lesteva monticola* (Kieswetter), *L. heeri* (Fauvel), *Lathrobium brunripes* (Fabricius), *Xantholinus linearis* (Olivier), *Quedius boopoides* Munster, *Myllaena brevicornis* Matthews, *Mycetoporus rufescens* Stephens, *Atheta harwoodi* Williams, and *A. luridipennis* Mannerheim, and 4 species of Curculionid beetles

Table 1. List of species of Coleoptera (N = 101) collected in 1978—1979 in the Faroes. The table gives: number of islands in (n = 17), number of localities (in = 111), total number of individuals, and number of localities in different habitats. The abbreviations for habitats are: (A) mountain sites, (B) dwarf shrub heaths, (C) plantations, (D) cliffs, shelves, and crevices, (E) lowland bogs, (F) grass heaths, (G) infields: outskirts, (H) infields: settlement, and (I) sand dunes. For further information concerning the habitats (number of localities, vegetation etc) see Bengtson & Hauge (1979: Appendix I) and the text.

Species	Number of			Habitat (no. of locs)								
	Islands	Locs	Inds	A (4)	B (10)	C (4)	D (3)	E (3)	F (31)	G (34)	H (21)	I (1)
<i>Quedius</i> sp.	9	13	60	2	-	-	1	-	6	3	1	-
<i>Tachinus signatus</i> Gr.	16	47	4061	-	1	2	-	-	4	22	18	-
<i>T. laticollis</i> Gr.	1	3	11	-	-	-	-	-	-	2	1	-
<i>Hypocyrtus laevisculus</i> Mnh.	5	5	8	-	-	-	-	-	2	2	1	-
<i>Mylaena brevicornis</i> Matth.	1	2	2	-	-	1	-	-	-	-	1	-
<i>Anischa analis</i> Gr.	9	22	138	-	2	1	1	-	1	14	3	-
<i>Spalia circumcellaris</i> Gr.	7	12	50	-	-	-	-	-	2	7	3	-
<i>Micopterus rufescens</i> Steph.	1	1	1	-	-	-	1	-	-	-	-	-
<i>Atalia puncticollis</i> Sharp.	1	1	1	-	-	-	-	-	1	-	-	-
<i>Atheta gregaria</i> Er.	5	7	13	-	-	-	-	-	-	3	4	-
<i>A. melanocera</i> Thom.	3	4	6	-	-	-	-	-	2	1	1	-
<i>A. islandica</i> Kr.	9	13	53	2	-	-	2	1	5	2	1	-
<i>A. excellens</i> Kr.	10	19	42	1	2	-	1	-	9	4	2	-
<i>A. amicola</i> Steph.	1	1	1	-	-	-	-	-	-	-	1	-
<i>A. nigricornis</i> Thom.	1	1	3	-	-	-	-	-	-	1	-	-
<i>A. trinotata</i> Kr.	2	2	15	-	-	-	-	-	-	-	2	-
<i>A. graminicola</i> Gr.	3	5	82	1	-	-	-	-	2	1	1	-
<i>A. vestita</i> Gr.	3	3	8	-	-	-	-	-	1	-	1	1
<i>A. atramentaria</i> Gyll.	10	18	34	1	1	-	1	-	3	10	2	-
<i>A. celata</i> Er.	2	2	2	-	-	-	-	-	-	-	1	1
<i>A. fungi</i> Gr.	3	4	8	-	-	1	-	-	-	1	2	-
<i>A. hamwoodi</i> Will.	1	1	1	-	-	-	-	-	-	-	1	-
<i>A. luridipennis</i> Mnh.	2	2	2	-	-	-	-	-	-	-	2	-
<i>Atheta</i> sp.	7	12	16	-	-	1	1	-	2	6	2	-
<i>Ovalea picata</i> Steph.	7	12	53	-	-	-	-	-	-	5	7	-
<i>Oxyptera haemorrhhoa</i> Mnh.	3	3	8	-	-	-	-	-	-	1	1	1
<i>Aleochara sparsa</i> Heer.	2	2	2	-	-	-	-	-	-	1	1	-
<i>Hypolithus riparius</i> F.	16	51	285	-	5	2	2	-	16	17	9	-
<i>Etodes minuta</i> L.	3	4	6	-	-	-	-	-	1	1	2	-
<i>Symphlocaria semistriata</i> F.	9	14	50	-	-	-	-	-	1	8	5	-
<i>Byrrhus fasciatus</i> Forst.	2	3	5	1	-	-	-	-	2	-	-	-
<i>Atomaria apicalis</i> Er.	2	2	30	-	-	-	-	-	-	-	2	-
<i>Atomaria</i> sp.	3	3	5	-	-	-	-	-	-	1	2	-
<i>Cryptophagus scanicus</i> L.	6	7	247	-	-	1	-	-	-	1	5	-
<i>C. distinguendus</i> Sturm	1	1	1	-	-	-	-	-	-	1	-	-
<i>C. pilosus</i> Gyll.	1	1	62	-	-	-	-	-	-	-	1	-
<i>Lathridius minutus</i> L.	6	6	77	-	-	-	-	-	-	2	4	-
<i>Anobium punctatum</i> De G.	1	1	1	-	-	-	-	-	1	-	-	-
<i>Chrysolina staphylea</i> L.	6	9	22	-	1	-	-	-	4	3	1	-
<i>Ociorrhynchus arcticus</i> O. Fabr.	15	33	102	1	5	-	2	-	7	11	6	1
<i>O. dubius</i> Ström	11	17	23	1	2	3	2	-	4	3	2	-
<i>O. singularis</i> L.	2	2	10	-	-	1	-	-	-	-	1	-
<i>Byrrhotus squamosus</i> Germ.	9	14	20	-	1	-	-	-	-	9	4	-
<i>Tropiphorus obtusus</i> Bonnd.	6	9	12	-	1	-	-	-	1	5	2	-
<i>Macrelus ericae</i> Gyll.	2	2	3	-	2	-	-	-	-	-	-	-
<i>Rhinoneus pericarpus</i> L.	3	4	5	-	-	-	-	-	-	3	1	-
<i>S. tona puncticollis</i> Steph.	1	1	2	-	-	-	-	-	-	1	-	-
<i>Cutorrhynchus contractus</i> Mrsh.	3	3	3	1	-	-	-	-	-	2	-	-
<i>Ailon haematodes</i> Kirb.	3	5	7	-	-	-	-	-	-	4	1	-

Species	Number of			Habitat (no. of locs)								
	Islands	Locs	Inds	A (4)	B (10)	C (4)	D (3)	E (3)	F (31)	G (34)	H (21)	I (1)
<i>Carabus problematicus</i> Hbst.	7	17	56	-	5	-	-	-	4	5	3	-
<i>Nebria: gyllenhalii</i> Schh.	16	82	2990	3	5	2	2	2	20	27	20	1
<i>N. salina</i> Fairm.	16	91	908	2	8	3	2	2	27	27	20	-
<i>Notiophilus aquaticus</i> L.	2	3	4	-	-	-	-	-	3	-	-	-
<i>N. biguttatus</i> F.	15	53	198	3	8	2	1	1	26	8	4	-
<i>Loricera pilicornis</i> F.	13	40	168	-	-	2	-	1	71	21	9	-
<i>Patrobus septentrionis</i> Dej.	16	92	3323	2	8	3	3	3	26	29	18	-
<i>P. assimilis</i> Chaud.	8	39	355	1	6	-	1	2	10	14	5	-
<i>P. atrorufus</i> Ström	6	9	300	-	-	1	-	-	-	4	4	-
<i>Trechus obtusus</i> Er.	17	80	1254	2	7	3	1	2	19	27	19	-
<i>T. fulvus</i> Dej.	1	1	1	-	-	-	-	-	-	1	-	-
<i>Pterostichus adstrictus</i> Esch.	7	19	109	-	5	-	-	2	5	6	1	-
<i>P. nigrita</i> F.	8	23	64	-	5	-	-	2	5	10	1	-
<i>P. diligens</i> Sturm	3	5	33	-	2	-	-	-	1	1	1	-
<i>Calathus fuscipes</i> Goeze	13	48	901	-	7	1	1	-	5	19	14	1
<i>C. melanocephalus</i> L.	15	36	455	1	1	-	1	-	7	14	12	-
<i>Amara aulica</i> Panz.	7	23	167	-	-	1	-	-	-	14	8	-
<i>Trichocellus placidus</i> Gyll.	1	1	1	-	-	-	-	-	1	-	-	-
<i>Hydroporus</i> sp.	2	2	6	-	-	-	-	-	1	-	1	-
<i>Agabus solieri</i> Aubé	2	2	2	-	-	1	-	-	-	1	-	-
<i>Helophorus aquaticus</i> L.	2	2	3	-	-	-	-	-	-	2	-	-
<i>H. brevipalpis</i> Bed.	5	8	17	-	-	-	-	-	-	4	4	-
<i>H. flavipes</i> F.	6	8	29	-	-	-	2	-	1	5	-	-
<i>Anacaena globulus</i> Payk.	11	14	27	-	1	2	1	-	5	3	2	-
<i>Megasternum obscurum</i> Mrsh.	15	42	288	-	-	3	-	-	3	18	18	-
<i>Catops fuliginosus</i> Er.	4	4	7	-	-	-	-	-	-	1	3	-
<i>Hydnobius</i> sp.	1	2	21	-	-	-	-	-	1	1	-	-
<i>Stenichnus collaris</i> Müll.	5	5	7	-	-	-	1	-	-	4	-	-
<i>Acrotrichis</i> sp.	12	27	171	-	-	3	2	-	-	13	9	-
<i>Proteinus brachypterus</i> F.	3	3	4	-	-	1	-	-	-	-	2	-
<i>Omalium rivulare</i> Payk.	11	23	137	-	-	1	1	-	1	9	11	-
<i>O. excavatum</i> Steph.	9	12	27	-	-	-	-	-	-	2	10	-
<i>O. caesum</i> Gr.	1	1	1	-	-	-	-	-	-	1	-	-
<i>Eucneaeosum brachypterus</i> Gr.	15	36	113	3	6	2	1	1	14	6	3	-
<i>Olophrum fuscum</i> Gr.	6	7	187	-	-	-	-	-	-	4	3	-
<i>Xylodromus depressus</i> Gr.	1	1	1	-	-	-	-	-	-	1	-	-
<i>X. concinnus</i> Mrsh.	1	1	1	-	-	-	-	-	-	-	1	-
<i>Lesteva longelyrata</i> Goeze	14	34	111	1	3	1	2	2	13	6	6	-
<i>L. monticola</i> Kiesw.	1	1	2	-	-	1	-	-	-	-	-	-
<i>L. heeri</i> Fauv.	3	3	3	-	-	-	-	-	2	1	-	-
<i>Micralymma marinum</i> Ström	1	1	1	-	-	-	-	-	-	1	-	-
<i>Stenus impressus</i> Germ.	12	27	47	-	4	4	2	-	6	5	6	-
<i>S. nitidisculus</i> Steph.	6	9	10	1	1	-	1	-	2	2	2	-
<i>S. brunneipes</i> Steph.	7	15	27	-	-	-	1	-	3	6	5	-
<i>Lathrobium fulvipenne</i> Gr.	2	2	2	-	-	-	-	-	-	1	1	-
<i>L. brunneipes</i> F.	1	1	1	-	-	-	-	-	-	1	-	-
<i>Xantholinus linearis</i> Ol.	1	1	3	-	-	-	-	-	-	1	-	-
<i>Othius punctulatus</i> Goeze	8	12	15	1	-	-	2	-	1	5	3	-
<i>O. angustus</i> Steph.	15	60	260	1	4	1	1	1	14	24	14	-
<i>O. myrmecophilus</i> Kiesw.	15	44	98	2	-	2	1	1	14	13	11	-
<i>Philonthus fimetarius</i> Gr.	4	5	8	-	-	-	-	-	-	2	3	-
<i>P. cephalotes</i> Gr.	4	5	6	-	-	-	-	-	-	4	1	-
<i>P. marginatus</i> Ström	1	1	3	-	-	-	-	-	-	1	-	-
<i>Quedius curtipes</i> Bernh.	11	33	73	1	5	1	1	-	7	13	5	-
<i>Q. macron</i> Linc Mrsh.	9	15	63	-	-	-	-	-	1	4	10	-
<i>Q. umbrinus</i> Er.	11	28	52	-	3	2	-	-	6	12	5	-
<i>Q. nitipennis</i> Steph.	9	28	46	-	5	1	1	1	7	9	4	-
<i>Q. boopoides</i> Munst.	4	11	35	-	2	-	1	-	8	-	-	-

Otiorrhynchus singularis L., *Micrelus ericae* Gyllenhal, *Rhinoncus pericarpus* L., and *Sitona puncticollis* Stephens. To this list may be added the staphylinid beetle *Quedius curtipennis* Bernhauer which we found to be fairly widely distributed, whereas we failed to obtain any *Quedius fuliginosus* Gravenhorst which is previously reported to occur «in almost all the isles of the Faroe group and to be common» (West 1930). For the time being I regard the two species as synonymous. West (1930), on the basis of the extensive Danish collections from 1924–1928 and previous published records, compiled a list of 156 species including some determined to genus only. However, 5 species (*viz.* *Hydnobius punctatus* Sturm, *Philonthus politus* L. (*aeneus* Rossi), *Tachinus pallipes* Gravenhorst, *Atheta debilis* Erichson, and *Otiorrhynchus rugifrons* Gyllenhal) are questionable for one reason or another (see below) and in need of confirmation. Another species (*Calathus micropterus* Duftschmid) is only found subfossil. With the addition of *Catops (Sciodrepa) watsoni* (Spence) (Walker 1938) and *Otiorrhynchus rugosostriatus* Goeze (Larson & Gígja 1959) and our abovementioned 16 species the total number of species on the Faroe list now stands at 168, not including the doubtful species and those only identified to genus.

For each species is given the localities (the numbers refer to those in the Appendix I published by Bengtson & Hauge (1979)) and islands on which it was collected in 1978–1979. Habitat preferences, as found by us, are briefly described (see also information in Tab. 1). Habitat and community structure of carabid beetles have been described and discussed in a previous paper (Bengtson 1980). As to previous records I mainly refer to West (1930) but only in a very condensed form and particularly emphasising information on status and occurrence in islands where we did *not* find the species. For details West's original paper should be consulted. It should be pointed out that I have not revised any of the previous records, and although I have tried to modernize the nomenclature the synonyms of West, and other commonly used synonyms, have often been entered in brackets. For each species I also state the occurrence in the neighbouring areas *viz.* the Scottish mainland (Sc), Shetland (Sh), Iceland (I), and Western Norway (WN) defined as the counties Rogaland, Hordaland, and Sogn og Fjordane. For Scotland I have relied on a number of sources, for Shetland mainly on the list given by Bacchus in Berry & Johnston (1980), for Iceland on Larsson & Gígja (1959), Lindroth *et al.* (1973), Sigurjónsdóttir

(1974), and unpublished data based on large and only partly worked-up collections made by myself and co-workers in the 1970's. Information on Western Norway is taken from «Catalogus Coleopterorum Fennoscandiae et Daniae» (ed. Lindroth 1960).

The Appendix contains maps giving the distribution in the Faroes for all species recorded in 1978–1979. Previously published records were entered on the maps (using different symbols) whenever they substantiated the picture.

Family Carabidae

Carabus problematicus Herbst.

Found in 17 localities (locs 5, 6, 7, 13, 14, 17, 27, 30, 46, 47, 68, 69, 76, 101, 105, 106, 109) on Streymoy, Vágar, Mykines, Eysturoy, Bordoy, Vidoy, and Svinoy. Previously recorded in several localities including on Suduroy (West 1930). Prefers dwarf shrub (*Calluna*) heaths but is found also in infield and outfield grassland sites. Occurs in Sc, Sh, I, and WN. For a discussion on the sub-specific rank of the North Atlantic populations see Lindroth (1968).

Nebria gyllenhalii Schönherr.

Found in 82 localities (locs 1, 3, 4, 6, 7, 8, 9, 10, 11, 17, 18, 21, 22, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 48, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 73, 74, 75, 76, 78, 79, 81, 82, 83, 84, 87, 90, 91, 93, 94, 95, 96, 97, 98, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111) on all islands except on Skúvoy. Found in all types of habitats though particularly abundant in infields around settlements and on the sand dunes on Sandoy. Occurs in Sc, Sh, I, and WN.

Nebria salina Fairmaire & Laboulbène (= *N. iberica* Oliviera).

Found in 91 localities (locs 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 36, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 64, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75, 76, 78, 79, 81, 82, 84, 87, 89, 90, 92, 93, 94, 95, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110) on all islands except on Stóra Dimun. Found in all types of habitats though particularly abundant in the plantations. Occurs in Sc, Sh, and WN.

Notiophilus aquaticus (L.)

Found in 3 localities on Streymoy (locs 1 and 28 on wet grass heath and grazed grassland, respectively) and Eysturoy (loc. 9 on wet grass heath). Previously recorded in 2 localities (West 1930) and evidently not common in the Faroes. Occurs in Sc, Sh, I, and WN.

Notiophilus biguttatus (Fabricius).

Found in 53 localities (locs 1, 2, 3, 4, 5, 7, 9, 10, 13, 16, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 34, 38, 39, 41, 42, 47, 51, 52, 53, 54, 57, 61, 63, 65, 70, 73, 76, 78, 79, 84, 85, 92, 94, 95, 100,

- 101, 102, 105, 106, 108, 111) on all islands except on Hestur and Kunoy. Found in all sorts of habitats but highest abundances recorded in fell-field sites and on cliffs and shelves among rich vegetation. Frequently found in outfield grassland. Occurs in Sc, Sh, I, and WN.
- Loricera pilicornis* (Fabricius).
Found in 40 localities (locs 1, 3, 12, 14, 17, 18, 27, 29, 33, 36, 43, 44, 46, 48, 49, 50, 51, 52, 53, 55, 58, 59, 60, 61, 62, 64, 69, 70, 73, 79, 82, 87, 90, 93, 94, 95, 101, 102, 103, 110) on all islands except on Skúvoy, Stóra Dimun, Hestur, and Nólsoy. Mostly found in infield localities but also in plantations and outfield grassland. Occurs in Sc, Sh, and WN.
- Patrobis septentrionis* (Dejean).
Found in 92 localities (locs 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 73, 75, 81, 82, 83, 84, 86, 87, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 101, 102, 104, 105, 106, 108, 109, 110, 111) on all islands except on Skúvoy. Common in all habitats. Occurs in Sc, Sh, I, and WN.
- Patrobis assimilis* Chaudoir.
Found in 39 localities (locs 1, 2, 4, 5, 6, 10, 12, 13, 14, 16, 17, 18, 20, 21, 22, 23, 27, 28, 30, 32, 33, 34, 36, 38, 39, 41, 42, 44, 49, 50, 52, 65, 66, 67, 69, 87, 90, 106, 108) on Suduroy, Sandoy, Streymoy, Nólsoy, Vágar, Eysturoy, Bordoy, and Kunoy. Found in a variety of habitats with a slight preference for dwarf shrub heaths and outfield grassland. Occurs in Sc, Sh, and WN.
- Patrobis atrorufus* (Strom) (= *P. excavatus* Paykull).
Found in 9 localities (locs 3, 8, 26, 35, 51, 68, 69, 90, 107) on Sandoy, Nólsoy, Streymoy, Vágar, Eysturoy, and Bordoy. Previously recorded in several localities including on Suduroy (West 1930). Found in infield localities and particularly abundant in plantations. Occurs in Sc, Sh, I, and WN.
- Trechus obtusus* Erichson (= *T. quadristriatus* Schrank).
Found in 80 localities (locs 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 73, 79, 81, 82, 84, 87, 89, 90, 91, 92, 94, 95, 98, 99, 101, 102, 104, 106, 108, 110, 111) and on all islands. Commonly met with in all habitats. Occurs in Sc, Sh, I, and WN.
- Trechus fulvus* Dejean.
Found in one locality on Suduroy (loc. 58 on a grass-herb patch near shore). Previously recorded in about 6 localities including on Vágar, Nólsoy, and Streymoy (West 1930). Evidently not common in the Faroes. Occurs in Sc, Sh, I, and WN.
- Bembidion bipunctatum* (L.).
Previously found in 4 localities on Sandoy, Vágar, Streymoy, and Eysturoy (West 1930). Occurs in Sc, I, and WN.
- Bembidion geniculatum* Heer (= *B. redtenbacheri* K. Daniel).
Previously recorded in 5 localities on Suduroy, Sandoy, and Streymoy (West 1930). Occurs in Sc.
- Bembidion bruxellense* Wesmael (= *B. rupestre* L.)
Previously found in at least 3 localities on Suduroy and Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Pterostichus adstrictus* Eschscholtz.
Found in 19 localities (locs 2, 5, 12, 14, 16, 17, 20, 27, 30, 33, 39, 42, 45, 46, 47, 49, 65, 84, 109) on Sandoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, and Vidoy. Previously recorded in many localities including on Suduroy and Nólsoy (West 1930). Found in many different habitats but apparently favouring outfield grassland and dwarf shrub heaths but also found in infields and on wet and boggy ground. Occurs in Sc, Sh, I, and WN.
- Pterostichus nigrita* (Paykull).
Found in 23 localities (locs 4, 5, 12, 13, 14, 20, 29, 30, 36, 38, 42, 44, 45, 48, 49, 52, 53, 61, 65, 69, 95, 96, 106) on Suduroy, Sandoy, Koltur, Vágar, Streymoy, Eysturoy, Bordoy, and Vidoy. Previously recorded in several localities including as subfossil on Streymoy (West 1930). Found in different habitats though mostly in infield grassland and in moist sites. Occurs in Sc, Sh, I, and WN.
- Pterostichus diligens* (Sturm).
Found in 5 localities (locs 16, 17, 18, 23, 30) on Streymoy, Nólsoy, and Eysturoy. Previously recorded on a few localities including on Suduroy (West 1930). Found in outfield and infield grassland as well as in shrub heaths; the highest abundance was recorded on a very wet and boggy grassland (loc. 23) on Nólsoy. Occurs in Sc, Sh, I, and WN.
- Pterostichus strenuus* (Panzer).
Previously found in one locality on Streymoy (West 1930). Occurs in Sc, Sh, and WN.
- Calathus fuscipes* (Goeze).
Found in 48 localities (locs 3, 4, 11, 13, 14, 16, 17, 18, 26, 29, 30, 32, 33, 35, 36, 37, 39, 41, 42, 45, 46, 47, 49, 50, 52, 55, 56, 57, 58, 59, 60, 61, 62, 65, 68, 73, 75, 76, 81, 87, 89, 90, 101, 104, 105, 106, 107, 111) on all islands except on Skúvoy, Koltur, Hestur, and Kalsoy. Common in several different habitats, especially in infields around settlements but also found on sand dunes and dwarf shrub heaths. Occurs in Sc, Sh, and WN.
- Calathus melanocephalus* (L.).
Found in 36 localities (locs 3, 11, 14, 16, 18, 21, 22, 25, 26, 29, 32, 33, 34, 36, 39, 42, 43, 46, 47, 52, 55, 58, 59, 60, 61, 73, 81, 84, 94, 95, 98, 99, 101, 102, 104, 111) on all islands except on Bordoy and Kunoy. Previously regarded as «common in all the islands» (West 1930). Found in a variety of habitats but mostly in infield localities, though also reaching a high abundance on fell-fields. Occurs in Sc, Sh, I, and WN.

Calathus micropterus Duftschmid.

Previously found as subfossil on Streymoy (West 1930). In all probability extinct in the Faroes. Occurs in Sc and WN.

Olisthopus rotundatus (Paykull).

Previously found in one locality (22 specimens) on Suduroy (West 1930). Occurs in Sc, Sh, and WN.

Amara aulica (Panzer).

Found in 23 localities (locs 6, 11, 26, 27, 29, 32, 35, 41, 42, 51, 52, 55, 58, 59, 60, 61, 62, 66, 67, 68, 69, 90, 101) on Suduroy, Sandoy, Nólsoy, Vágar, Mykines, Streymoy, and Eysturoy. Apparently absent in the northern islands. Found exclusively in infields except for one plantation site. Occurs in Sc, Sh, and WN.

Harpalus quadripunctatus Dejean.

Previously recorded on Suduroy (?) and Sandoy but evidently rare or occasional (West 1930). Occurs in Sc, Sh, and WN.

Dicheirotichus gustavi Crotch (= *D. pubescens* Paykull).

Previously found on Nólsoy and Mykines (West 1930). Occurs in Sc, Sh, and WN.

Trichocellus (Dicheirotichus) cognatus (Gyllenhal).

Previously found in several localities on Suduroy, Sandoy, Nólsoy, Vágar, Mykines, and Streymoy and considered rare in the Faroes (West 1930). Occurs in Sc, Sh, I, and WN.

Trichocellus (Dicheirotichus) placidus (Gyllenhal).

Found in one locality on Suduroy (loc. 53 on grass heath near a brook). Previously recorded once on Suduroy and Streymoy, respectively (West 1930). Occurs in Sc and WN.

Family Haliplidae

Haliplus fulvus Fabricius).

Previously found on a few localities on Suduroy, Sandoy, and Eysturoy (West 1930). Occurs in Sc, Sh, I, and WN.

Family Dytiscidae

Hydroporus griseostriatus (De Geer).

Previously found in a few localities on Vágar, Streymoy, Bordoy, and Vidoy (West 1930). Occurs in Sc and Sh.

Hydroporus erythrocephalus (L.).

Previously found several times on Suduroy and on Vidoy (West 1930). Occurs in Sc, Sh, and WN.

Hydroporus palustris (L.).

Previously found once on Eysturoy and Bordoy, respectively (West 1930). Occurs in Sc, Sh, and WN.

Hydroporus pubescens (Gyllenhal).

Previously found «in almost all the isles . . . appears to be the commonest species of the genus» (West 1930). Occurs in Sc, Sh, and WN.

Hydroporus nigrita (Fabricius).

Previously found once on Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.

Hydroporus memnonius Nicolai.

Previously found once on Streymoy (West 1930). Occurs in Sc, Sh, and WN.

Hydroporus sp.

Found in 2 localities on Suduroy (loc. 53 on grass heath near brook) and Streymoy (loc. 41 in rich herbage near shore).

Agabus solieri Aubé (= *A. bipustulatus* Sharp).

Found in 2 localities on Suduroy (loc. 62 in rich meadow) and Streymoy (loc. 51 in plantation). Previously stated to be «widely distributed all over the Faroe and very common» (West 1930). Occurs in Sc, Sh, I, and WN.

Family Hydrophilidae

Helophorus aquaticus (L.).

Found in 2 localities on Stóra Dimun (loc. 111 in rich grassland) and Svinoy (loc. 8C in grass meadow along ditches). Previously found in 3 localities on Suduroy, Koltur, and Streymoy (West 1930). Occurs in Sc, Sh, and WN.

Helophorus guttulus brevipalpis Bedel.

Found in 8 localities (locs 3, 27, 35, 41, 43, 44, 94, 107) on Sandoy, Koltur, Streymoy, Eysturoy, and Bordoy. Previously found in 4 places including on Nólsoy (West 1930). Only found in infield localities. Occurs in Sc, Sh, and WN.

Helophorus flavipes (Fabricius).

Found in 8 localities (locs 33, 35, 53, 56, 79, 95, 97, 111) on Suduroy, Sandoy, Stóra Dimun, Koltur, Hestur, and Svinoy. Apparently not very common and mainly confined to the southern islands. All individuals were found in grassland (in- and outfield) and in rich vegetation on cliffs and shelves. Occurs in Sc, Sh, and WN.

Helophorus viridicollis Stephens.

Previously found in several localities on Suduroy, Sandoy, Koltur, and Streymoy, though apparently not in the northern islands (West 1930). Occurs in Sc and Sh.

Anacaena globulus (Paykull).

Found in 14 localities (locs 20, 23, 33, 49, 52, 53, 56, 64, 65, 81, 89, 93, 95, 110) on Suduroy, Sandoy, Nólsoy, Koltur, Vágar, Streymoy, Eysturoy, Bordoy, Kálsoy, Kunoy, and Svinoy. Usually in small numbers but in a variety of habitats including in- and outfield grassland, shrub heaths, plantations and on cliffs and shelves. Occurs in Sc, Sh, and WN.

Ceryon litoralis (Gyllenhal).

Previously found twice, but in large numbers, on Suduroy and Sandoy (West 1930). Occurs in Sc, Sh, I, and WN.

Ceryon haemorrhoidalis (Fabricius)

Previously recorded «in most of the isles . . . often abundant» (West 1930). Occurs in Sc, Sh, and WN.

Ceryon marinus Thomson.

Previously recorded once Suduroy (West 1930). Occurs in Sc, Sh, and WN.

Megasternum boletophagum obscurum (Marsham).

Found in 42 localities (locs 8, 11, 17, 26, 27, 29, 32, 33, 35, 36, 42, 43, 44, 51, 52, 55, 58, 60, 61, 62, 64, 66, 67, 68, 73, 80, 81, 83, 84, 85, 87, 91, 93, 94, 95, 97, 98, 101, 104, 110, 111) on all islands except on Skúvoy and Bordoy. Previously recorded on «most of the isles» and found as subfossil on Streymoy (West 1930). Almost entirely restricted to infields, though also found in 3 plantations and 3 outfield sites. Occurs in Sc, Sh, and WN.

Family Silphidae

Catops fuliginosus Erichson (= *C. borealis* Kroegerus).

Found in 4 localities on Nólsoy (loc. 26 in grass meadow with *Rumex*), Vágur (loc. 11 in wasteland vegetation on sand), Eysturoy (loc. 43 on rich grassland), and Kalsoy (loc. 91 in grass meadow). Previously found in 5 localities including 3 on Streymoy (West 1930). Occurs in Sc, I, and WN.

Catops (Sciodrepa) watsoni (Spence).

Previously found once on Mykines (Walker 1938). Occurs in Sc, Sh, and WN.

Family Leiodidae

Hydnobius punctatus (Sturm).

Previously recorded once on Suduroy, although the specimen (a female) is damaged and the identification is somewhat uncertain (West 1930). Occurs in Sc and Sh.

Hydnobius septentrionalis Thomson.

Previously found once on sand dunes on Sandoy (West 1930). Occurs in northern Scandinavia.

Hydnobius sp.

Found in 2 localities on Suduroy (loc. 58, 19 specimens among grass and herbs on sand near shore and loc. 64, 2 specimens on heavily grazed grassland).

Family Scydmaenidae

Stenichnus collaris (Müller & Kuntze).

Found in 5 localities (locs 42, 52, 66, 79, 105) on Suduroy, Vágur, Streymoy, Vidoy, and Svinoy. Four of the sites were on outskirts of infields and one in rich vegetation on cliffs and shelves. Previously found once (West 1930). Occurs in Sc, Sh, I, and WN.

Family Ptiliidae

Acrotrichis atomaria De Geer.

Previously recorded in 3 localities on Suduroy and Streymoy (West 1930). Occurs in Sc, I, and WN.

Acrotrichis sp.

Found in 27 localities (locs 27, 33, 41, 43, 44, 51, 52, 56, 61, 62, 66, 67, 73, 80, 82, 83, 85, 87, 90, 91, 93, 97, 98, 104, 105, 107, 110) on Suduroy, Sandoy, Vágur, Hestur, Streymoy, Eysturoy, Bordoy, Kalsoy, Kunoy, Vidoy, Svinoy, and Fugloy. Found among rich vegetation i.e. infields, plantations, and on cliffs and shelves.

Family Staphylinidae

Proteinus brachypterus (Fabricius).

Found in 3 localities on Hestur (loc. 98 among grass and herbs within settlement), Streymoy (loc. 51 in *Larix* and *Sorbus* plantation), and Eysturoy (loc. 44 among wasteland vegetation in village). Occurs in Sc and WN.

Anthobium minutum (Fabricius).

Previously found once on Streymoy (West 1930). Occurs in Sc and WN.

Omalium rivulare (Paykull).

Found in 23 localities (locs 11, 17, 18, 22, 26, 29, 32, 33, 35, 39, 43, 44, 51, 58, 66, 67, 68, 74, 81, 91, 93, 98, 107) on Suduroy, Sandoy, Nólsoy, Hestur, Vágur, Streymoy, Eysturoy, Bordoy, Kalsoy, Svinoy, and Fugloy. Previously stated to be «distributed in nearly all the isles . . . very common» (West 1930). Found in infield sites and only once in outfield grass heath, once in a plantation, and once on cliffs and shelves. Occurs in Sc, Sh, I, and WN.

Omalium excavatum Stephens.

Found in 12 localities (locs 3, 11, 17, 26, 27, 32, 55, 60, 68, 87, 91, 98) on Suduroy, Sandoy, Nólsoy, Hestur, Vágur, Streymoy, Eysturoy, Kalsoy, and Kunoy. Previously found only in two places including on Koltur. Apparently fairly common although mostly in small numbers. Only encountered in infields and mainly close to settlements. Occurs in Sc, Sh, I, and WN.

Omalium caesum Gravenhorst.

Found in one locality on Stóra Dímun (loc. 111 on rich grassland). Previously found in two localities on Nólsoy and Streymoy (West 1930). Occurs in Sc and WN.

Omalium laeviusculum Gyllenhal.

Previously found in 3 localities on Streymoy, Eysturoy, and Bordoy (West 1930). Occurs in Sc, Sh, I, and WN.

Omalium riparium Thomson.

Previously found in 2 sites on Suduroy and Sandoy (West 1930). Occurs in Sc, Sh, I, and WN.

Eucnecosum (Arpedium) brachypterus (Gravenhorst).

Found in 36 localities (locs 1, 2, 5, 7, 9, 12, 14, 19, 21, 22, 24, 27, 31, 33, 34, 45, 47, 52, 53, 63, 65, 74, 78, 83, 84, 85, 88, 89, 91, 92, 94, 95, 98, 102, 106, 108) on all islands except on Stóra Dímun and Skúvoy. Previously only recorded in very few places and considered rare in the Faroes (West 1930). Although widely distributed the species is usually met with in small numbers. Found

- in all sorts of habitats and *not* particularly bound to infields; relatively often found in outfields grass heaths, on fell-fields, and in dwarf shrub heaths. Occurs in Sc, Sh, and WN.
- Olophrum fuscum* (Gravenhorst).
Found in 7 localities (locs 27, 83, 91, 97, 101, 107, 111) on Stóra Dimun, Hestur, Mykines, Streymoy, Bordoy, and Kalsoy. Found exclusively in infield sites and 175 of the 187 specimens were obtained on the rich grassland site on Stóra Dimun (loc. 111), possibly indicating that it is «autumn» species since the pitfall trapping extended into October which was much later than for the other sites. Occurs in Sc, Sh, and WN.
- Xylodromus depressus* (Gravenhorst). Found in one locality on Eysturoy (loc. 43 on rich grassland near shore). Previously recorded from a few places including on Suduroy, Sandoy, and Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Xylodromus concinnus* (Marsham).
Found in one locality on Nólsoy (loc. 26 on grass meadow with *Rumex*). Previously recorded on «isles north of Suduroy» though only Streymoy specified (West 1930). Occurs in Sc, Sh, I, and WN.
- Lesteva longelytrata* (Goeze). Found in 34 localities (locs 1, 2, 4, 5, 6, 7, 9, 10, 12, 16, 17, 19, 22, 24, 26, 28, 34, 35, 38, 44, 50, 53, 63, 64, 67, 71, 85, 92, 93, 94, 97, 100, 101, 111) on all islands except on Kunoy, Vidoy, and Svinoy. Widely distributed but not very numerous. Found in a variety of habitats mostly in outfield grass heaths. Occurs in Sc, Sh, I, and WN.
- Lesteva monticola* Kiesenwetter.
Found in one locality on Streymoy (loc. 51 in mixed *Larix* and *Sorbus* plantation). Occurs in Sc, Sh, and WN.
- Lesteva heeri* Fauvel.
Found in 3 localities on Suduroy (loc. 53 on grass heath near brook), Nólsoy (loc. 24 on grass heath with *Nardus*), and Hestur (loc. 97 on rich meadow around abandoned farmstead). Occurs in Sc and Sh.
- Micralymma marinum* (Ström).
Found in one locality on Suduroy (loc. 58 among grass and herbs on sand near shore). Previously found in one place on Sandoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Stenus impressus* German.
Found in 27 localities (locs 2, 10, 14, 19, 22, 41, 51, 53, 56, 65, 76, 83, 84, 85, 87, 88, 89, 90, 91, 92, 93, 97, 98, 101, 108, 110, 111) on Suduroy, Stóra Dimun, Nólsoy, Hestur, Vágur, Mykines, Streymoy, Eysturoy, Bordoy, Kalsoy, Kunoy, and Svinoy. Previously only found in 3 localities and considered very local (West 1930). Found in many different habitats from shrub heaths and outfield grass heaths to infields and plantations; always in small numbers. Occurs in Sc, Sh, I, and WN.
- Stenus nitidisculus* Stephens.
Found in 9 localities (locs 7, 10, 19, 34, 35, 52, 56, 91, 94) on Suduroy, Sandoy, Koltur, Vágur, Eysturoy, and Kalsoy. Previously recorded in 4 places including on Streymoy and Nólsoy. Found in many different habitats ranging from fell-fields to rich infield sites. Occurs in Sc, Sh, and WN.
- Stenus clavicornis* (Scopoli).
Previously found in one locality on Suduroy (West 1930). Occurs in Sc, Sh, and WN.
- Stenus brunnipennis* Stephens.
Found in 15 localities (locs 19, 27, 32, 33, 41, 42, 44, 47, 52, 54, 56, 60, 62, 66, 107) on Suduroy, Sandoy, Vágur, Streymoy, Eysturoy, Bordoy, and Vidoy. Previously found in 3 places (West 1930). Mostly found in infields but a few records from outfield grass heath. Occurs in Sc, Sh, and WN.
- Oxytelus (Anotylus) inustus* Gravenhorst.
Previously reported from Suduroy (West 1930). Occurs in the British Isles and on the Continent of Europe.
- Lathrobium fulvipenne* (Gravenhorst).
Found in 2 localities on Suduroy (loc. 55 in grass and herbage) and Eysturoy (loc. 43 in rich grassland); both sites near shore. Previously found in 5 places including on Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Lathrobium brunnipennis* (Fabricius).
Found in one locality on Vágur (loc. 10 on rich grass heath). Occurs in Sc, Sh, and WN.
- Xantholinus linearis* (Olivier).
Found in one locality on Suduroy (loc. 62 on rich grass-herb meadow). Occurs in Sc, Sh, and WN.
- Othius punctulatus* (Goeze).
Found in 12 localities (locs 8, 22, 27, 28, 34, 53, 55, 59, 61, 67, 98, 111) on Suduroy, Stóra Dimun, Sandoy, Nólsoy, Vágur, Hestur, Streymoy, and Eysturoy. Previously reported from very few places and apparently not very common and not found on the northern islands. Almost entirely restricted to infield sites and cliffs and shelves and only once recorded in outfield grassland. Occurs in Sc, Sh, and WN.
- Othius angustus* (Stephens) (= *O. melanocephalus* Gravenhorst).
Found in 60 localities (locs 3, 8, 9, 11, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 34, 36, 38, 41, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 73, 81, 82, 83, 87, 93, 97, 98, 101, 102, 104, 105, 108, 111) on all islands except on Skúvoy and Koltur. Apparently one of the most widely distributed and commonest rove beetles. Found in all sorts of habitats. Occurs in Sc, Sh, I, and WN.
- Othius myrmecophilus* Kiesenwetter.
Found in 44 localities (locs 1, 5, 10, 12, 14, 21, 22, 23, 24, 27, 28, 33, 34, 35, 36, 41, 42, 44, 46, 47, 48, 51, 52, 53, 55, 57, 59, 61, 63, 66, 73, 78, 83, 84, 87, 91, 93, 94, 95, 98, 101, 102, 104) on all islands except on Stóra Dimun and Skúvoy. Previously recorded only in about 10 places (West 1930) but apparently almost as common and widely distributed as *O. angustus*. Found in a variety of habitats and relatively more often encountered in

- outfield localities than *O. angustus*. Occurs in Sc, Sh, and WN.
- Philonthus fimetarius* (Gravenhorst).
Found in 5 localities (locs 43, 55, 67, 68, 98) on Suduroy, Hestur, Vágar, and Eysturoy. Previously found in 6 places including on Sandoy, Nólsoy, and Streymoy (West 1930). Only found in infield sites, and apparently not very common and absent from the northern islands. Occurs in Sc, Sh, and WN.
- Philonthus cephalotes* (Gravenhorst).
Found in 5 localities (locs 29, 35, 43, 55, 58) on Suduroy, Sandoy, Streymoy, and Eysturoy. Previously only one specimen found on Streymoy (West 1930). Apparently not common and confined to infield sites; mostly on the outskirts. Occurs in Sc, Sh, I, and WN.
- Philonthus marginatus* (Ström).
Found in one locality on Streymoy (loc. 3 on heavily grazed grassland). Previously found in 4 localities including on Suduroy and Sandoy (West 1930). Occurs in Sc, Sh, and Wn.
- Philonthus chalceus* Stephens.
Previously recorded once on Streymoy (West 1930). Occurs in Sc, Sh, and WN.
- Philonthus politus* (L.) (= *P. aeneus* Rossi).
Previously reported once from Streymoy (West 1930) but seems to require confirmation. Occurs in Sc, Sh, I, and WN.
- Creophilus maxillosus* (L.).
Previously found on Suduroy and Sandoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Quedius curtipennis* Bernhauer (= *Q. fuliginosus* Gravenhorst).
Found in 33 localities (locs 5, 6, 8, 10, 14, 22, 25, 27, 28, 29, 30, 34, 41, 42, 45, 46, 47, 48, 50, 51, 61, 62, 65, 66, 68, 69, 76, 84, 91, 92, 106, 107, 111) on Suduroy, Stóra Dimun, Sandoy, Nólsoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, Vidoy, and Svinoy. Since *curtipennis* and *fuliginosus* are considered synonymous it is previously found in almost all the isles (West 1930). Found in several different habitats from fell-fields and shrub heaths to in- and outfield grasslands. Occurs in Sc, Sh, and WN.
- Quedius mesomelinus* (Marsham).
Found in 15 localities (locs 8, 11, 18, 26, 41, 43, 55, 58, 61, 64, 68, 73, 81, 98, 99) on Suduroy, Skúvoy, Nólsoy, Hestur, Vágar, Streymoy, Eysturoy, Svinoy, and Fugloy. Previously recorded in several places «in the islands north of Suduroy» without further details (West 1930). Almost exclusively found in infield localities. Occurs in Sc, Sh, I, and WN.
- Quedius umbrinus* Erichson. Found in 28 localities (locs 2, 3, 4, 6, 9, 14, 27, 28, 29, 32, 33, 48, 51, 52, 53, 58, 59, 60, 62, 73, 76, 84, 88, 91, 92, 107, 110, 111) on Suduroy, Stóra Dimun, Sandoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, Kunoy, Svinoy, and Fugloy. Previously found in several localities including on Vidoy (West 1930). Mostly found in infields and grassland but also in plantations and dwarf shrub heaths. Occurs in Sc, Sh, I, and WN.
- Quedius nitipennis* (Stephens) (= *Q. attenuatus* Gyllenhal).
Found in 28 localities (locs 5, 6, 10, 13, 16, 18, 26, 27, 28, 29, 30; 41, 43, 45, 50, 52, 53, 56, 64, 65, 66, 67, 87, 89, 92, 105, 107, 109) on Suduroy, Nólsoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, Kunoy, and Vidoy. Previously recorded in «nearly all the isles» and common (West 1930). Found in all sorts of habitats. Occurs in Sc, Sh, and WN.
- Quedius boops* (Gravenhorst).
Previously found once (2 specimens) on Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Quedius boopoides* Munster.
Found in 11 localities (locs 1, 2, 5, 9, 10, 16, 21, 22, 23, 24, 28) on Nólsoy, Vágar, Streymoy, and Eysturoy. Mostly found in outfield grass heath but also in shrub heath and on cliffs and shelves. Occurs in the British Isles and much of Fennoscandia, including WN.
- Quedius fulvicollis* (Stephens).
Previously found on «Suderoy and other parts of the Faroes» (West 1930). Occurs in Sc, Sh, I, and WN.
- Quedius* sp.
Found in 13 localities (locs 1, 19, 22, 24, 34, 42, 44, 53, 63, 78, 97, 102, 111) on Suduroy, Stóra Dimun, Sandoy, Nólsoy, Hestur, Mykines, Streymoy, Eysturoy, and Svinoy. Mostly on grass heaths and in infields.
- Tachyporus atriceps* Stephens.
Previously found on Suduroy (West 1930). Occurs in Sc, Sh, and WN.
- Tachinus pallipes* Gravenhorst.
Previously reported from Nólsoy and the northern islands but a confirmation is desirable (West 1930). Occurs in Sc and Fennoscandia.
- Tachinus signatus* Gravenhorst (= *T. rufipes* De Geer).
Found in 47 localities (locs 3, 11, 14, 25, 26, 27, 29, 32, 33, 35, 36, 41, 43, 44, 45, 48, 49, 50, 51, 52, 55, 58, 59, 60, 61, 62, 64, 66, 67, 73, 81, 82, 87, 90, 91, 93, 94, 95, 98, 101, 103, 104, 107, 110, 111) on all islands except on Skúvoy. Previously reported from most of the islands but considered not to be numerous (West 1930). In our material by far the most numerous member of the family (68% of all rove beetles). Predominantly found in infield localities and only occasionally in outfields (grass heaths and shrub heaths) and plantations. Occurs in Sc, Sh, and WN.
- Tachinus laticollis* Gravenhorst.
Found in 3 localities on Suduroy (locs 59, 60, 62; all rich infield meadows). Previously recorded twice on Suduroy (West 1930). Occurs in Sc, Sh, and WN.
- Hypocyptus laeviusculus* (Mannerheim).
Found in 5 localities (locs 17, 21, 36, 52, 95) on Suduroy, Sandoy, Nólsoy, Koltur, and Eysturoy. Previously found once (1 specimen) on Sandoy,

- (West 1930). Confined to infields and grass heaths. Occurs in Sc, Sh, and WN.
- Myllaena brevicornis* (Matthews).
Found in 2 localities on Kalsoy (loc. 85 in a coniferous plantation and loc. 93 on a grass meadow). Occurs in Sc, Sh, and WN.
- Amischa (Atheta) analis* Gravenhorst.
Found in 22 localities (locs 3, 14, 17, 32, 33, 36, 42, 43, 45, 46, 50, 51, 52, 56, 59, 60, 61, 65, 66, 74, 83, 92) on Suduroy, Sandoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, Vidoy, and Fugloy. Previously found in 4 places (West 1930). Found in many different habitats though mostly on the outskirts of infields. Usually in small numbers except on the rich grass meadow at loc. 42 (69 of the 138 specimens collected). Occurs in Sc, Sh, I, and WN.
- Sipalia circellaris* (Gravenhorst).
Found in 12 localities (locs 3, 17, 21, 26, 33, 42, 43, 52, 55, 74, 83, 84) on Suduroy, Sandoy, Nólsoy, Streymoy, Eysturoy, Kalsoy, and Fugloy. Previously found in two places (West 1930). Mostly in infields habitats and only twice on grass heaths. Neither very common nor numerous. Occurs in Sc, Sh, I, and WN.
- Mycetoporus rufescens* Stephens.
Found in one locality on Nólsoy (loc. 22 on cliffs and shelves). Occurs on the British Isles and in WN.
- Autalia puncticollis* Sharp.
Found in one locality on Streymoy (loc. 28 on heavily grazed grassland). Previously recorded in several places including on Suduroy, Sandoy, Vágar, and Vidoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Atheta (Aloconata) gregaria* (Erichson).
Found in 7 localities (locs 3, 8, 26, 29, 32, 43, 60) on Suduroy, Sandoy, Nólsoy, Streymoy, and Eysturoy. Previously found in 4 localities including on Koltur and Fugloy (West 1930). Found only in infield localities. Occurs in Sc, Sh, and WN.
- Atheta (Hygroecia) melanocera* (Thomson). Found in 4 localities on Suduroy (loc. 53 on grass heath near brook and loc. 55 among grass and herbage), Sandoy (loc. 35 among grass and herbage on sandy ground) and Vágar (loc. 10 on rich grass heath). Previously recorded in about 6 places including on Koltur and Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.
- Atheta (Hygroecia) elongatula* (Gravenhorst).
Previously found once (1 specimen) on Suduroy (West 1930). Occurs in Sc, Sh, and WN.
- Atheta (Dimetrota) islandica* (Kraatz).
Found in 13 localities (locs 9, 12, 22, 23, 24, 27, 34, 53, 58, 63, 71, 77, 93) on Suduroy, Sandoy, Nólsoy, Vágar, Streymoy, Eysturoy, Kalsoy, Svinoy, and Fugloy. Previously found in two localities on Streymoy (West 1930). Found in a variety of habitats ranging from fell-fields to infields. Occurs in Sc, Sh, I, and northern Scandinavia.
- Atheta (Hygroecia) debilis* (Erichson).
Previously reported once (1 female) on Eysturoy
- but the determination is not absolutely certain (West 1930) and a confirmation needed. Occurs in the British Isles, Sh, and WN.
- Atheta (Bessobia) excellens* (Kraatz).
Found in 19 localities (locs 5, 9, 13, 16, 21, 22, 34, 39, 42, 54, 61, 63, 64, 82, 91, 104, 105, 108, 111) on Suduroy, Stóra Dimun, Sandoy, Nólsoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, and Vidoy. Previously recorded from 6 places (West 1930). One of the most widely distributed species of the genus and found in many different habitats; mostly in grass heaths. Occurs in Sc, Sh, I, and WN.
- Atheta (Traumoecia) angusticollis* Thomson.
Previously found once (or twice) on Vágar (West 1930). Occurs in Sc and WN.
- Atheta (Hygroecia) palustris* Kiesenwetter.
Previously found once on Suduroy (West 1930). Occurs in Sc and WN.
- Atheta (Microdota) amicula* (Stephens).
Found in one locality on Vágar (loc. 11 among wasteland vegetation on sandy ground). Previously found in about 6 places including on Suduroy, Sandoy, Streymoy, Koltur, and Svinoy. Apparently not common. Occurs in Sc, Sh, I, and WN.
- Atheta (s.str.) nigricornis* Thomson.
Found in one locality on Eysturoy (loc. 43 on rich grassland near shore). Previously recorded in one locality on Streymoy (West 1930). Occurs in Sc and WN.
- Atheta (s.str.) coriaria* (Kraatz).
Previously found once on Suduroy (West 1930). Occurs in Sc and Scandinavia.
- Atheta crassicornis* (Fabricius).
Previously found once on Suduroy (West 1930). Occurs in Sc and WN.
- Atheta (s.str.) trinotata* (Kraatz).
Found in 2 localities on Sandoy (loc. 32 in rich herbage) and Nólsoy (loc. 26, 14 specimen on grass meadow with *Rumex*). Previously found in 4 sites including on Koltur and Streymoy. Occurs in Sc, Sh, I, and WN.
- Atheta (s.str.) graminicola* (Gravenhorst).
Found in 5 localities (locs 9, 19, 26, 27, 31) on Nólsoy, Streymoy, and Eysturoy. Previously recorded once on Streymoy (West 1930). Found in infields, grass heaths and on fell-field. Occurs in Sc, Sh, I, and WN.
- Atheta (Thinobaena) vestita* (Gravenhorst).
Found in 3 localities on Suduroy (loc. 64 on heavily grazed grassland), Sandoy (loc. 37 on sand dunes), and Eysturoy (loc. 44 among wasteland vegetation near shore). Previously found in 4 places including on Koltur and Streymoy. Occurs in Sc, Sh, I, and WN.
- Atheta (Dimetrota) atramentaria* (Gyllenhal).
Found in 18 localities (locs 3, 14, 18, 22, 28, 34, 42, 43, 47, 50, 55, 57, 61, 66, 68, 82, 106, 111) on Suduroy, Stóra Dimun, Sandoy, Nólsoy, Vágar, Streymoy, Eysturoy, Bordoy, Kalsoy, and Vidoy. Previously found in a few places on five of the is-

lands (West 1930). Apparently one of the most widely distributed and commonest members of the genus. Predominantly found on the outskirts of infields but occurs in a variety of other habitats as well. Occurs in Sc, Sh, I, and WN.

Atheta (s. str.) setigera Sharp.

Previously recorded once on Suduroy (West 1930). Occurs in Sc and WN.

Atheta (Acrotona) parvula Mannerheim.

Previously recorded once on Suduroy (West 1930). Occurs in Sc and WN.

Atheta (Datomicra) celata (Erichson) (= *A. arenicola* Thomson).

Found in 2 localities on Suduroy (loc. 55 among grass and herbage near shore) and Sandoy (loc. 37 on sand dunes). Previously found in some 5 places including on Koltur, Vágar, Streymoy, and Svinoy (West 1930). Occurs in Sc, Sh, I, and WN.

Atheta (Acrotona) fungi (Gravenhorst).

Found in 4 localities on Suduroy (loc. 59 in rich grass meadow and loc. 60 among rich herbage), Streymoy (loc. 51 in mixed *Larix* and *Sorbus* plantation), and Vidoy (loc. 104 in rich grass meadow near shore). Previously found once on Suduroy (West 1930). Occurs in Sc, Sh, I, and WN.

Atheta (s. str.) harwoodi Williams. Found in one locality on Suduroy (loc. 60 among rich herbage). Occurs in Sc, Sh, and WN.

Atheta (Hygroecia) luridipennis Mannerheim.

Found in 2 localities, on Hestur (loc. 98 in grass and herbs around abandoned farm) and Suduroy (loc. 55 among grass and herbage). Occurs in Sc, I, and WN.

Atheta sp.

Found in 12 localities (locs 9, 35, 41, 49, 52, 53, 56, 61, 67, 68, 83, 110) on Suduroy, Sandoy, Vágar, Streymoy, Eysturoy, Bordoy, and Kalsoy.

Ocalea picata (Stephens).

Found in 12 localities (locs 11, 17, 29, 35, 41, 55, 67, 68, 82, 90, 91, 99) on Suduroy, Skúvoy, Sandoy, Vágar, Streymoy, Eysturoy, and Kalsoy. Previously found in 5 places including on Bordoy (West 1930). All records from infields localities. Occurs in Sc, Sh, I, and WN.

Oxypoda haemorrhhoa (Mannerheim).

Found in 3 localities on Suduroy (loc. 58 in a patch of grass and herbs on sandy ground near shore), Sandoy (loc. 37 on sand dunes), and Vágar (loc. 11 among wasteland vegetation on sand shore). Previously known from a sandy area on Sandoy and from Nólsoy (West 1930). Occurs in Sc, Sh, I, and WN.

Aleochara sparsa Heer.

Found in 2 localities on Sandoy (loc. 35 among rich grass and herbage) and Vágar (loc. 68 in rich vegetation near water). Previously recorded from 5 places including on Suduroy, Koltur, and Streymoy. Appear not to be common and even absent from the northern islands. Occurs in Sc, Sh, I, and WN.

Aleochara lanuginosa Gravenhorst.

Previously known from 6 localities on Suduroy,

Sandoy, and Streymoy (West 1930). Occurs in Sc, Sh, and WN.

Aleochara obscurella Gravenhorst.

Previously recorded once on Sandoy (West 1930). Occurs in Sc, Sh, and WN.

Family Cantharidae

Malthodes atomus (?) Thomson.

Previously found in 3 places on Suduroy and Streymoy, but since only females were collected the identity of the species (but *not* genus) is uncertain (West 1930). Occurs in Sc, Sh, I, and WN.

Family Elateridae

Hypolihus (Cryptohypnus) riparius (Fabricius).

Found in 51 localities (locs 3, 5, 6, 9, 10, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 32, 36, 39, 42, 43, 45, 46, 47, 50, 51, 52, 56, 57, 58, 59, 60, 61, 64, 65, 68, 73, 74, 75, 76, 84, 87, 89, 95, 99, 101, 102, 104, 105, 106, 108, 111) on all islands except on Hestur. Previously stated to be widely distributed and very common (West 1930). Found in infields, grass heaths as well as plantations and shrub heaths. Occurs in Sc, Sh, I, and WN.

Family Helodidae

Elodes (Helodes) minuta (L.).

Found in 4 localities on Sandoy (loc. 32 in a rich herb meadow near water), Streymoy (loc. 1 on wet grass heath and loc. 29 on grass-herb meadow), and Kalsoy (loc. 91 on grass meadow). Previously found in at least 6 localities including on Suduroy and on Hestur (West 1930). Occurs in Sc, Sh, and WN.

Family Dermestidae

Dermestes lardarius (L.).

Previously found once on Streymoy (West 1930). Occurs in Sc, I, and WN.

Attagenus pellio (L.).

Previously found once on Suduroy (West 1930). Occurs in Sc and WN.

Anthrenus verbasci (L.).

Previously found once on Sandoy (West 1930). Occurs in the British Isles.

Family Byrrhidae

Simplocaria semistriata (Fabricius).

Found in 14 localities (locs 3, 11, 20, 29, 52, 59, 60, 61, 62, 73, 83, 94, 97, 111) on Suduroy, Stóra Dimun, Koltur, Hestur, Vágar, Streymoy, Eysturoy, Kalsoy, and Fugloy. Previously found in 6 places including on Sandoy (West 1930). Almost exclusively found in infield sites and only one record from grass heath. Occurs in Sc, Sh, and WN.

Cytilus sericeus (Forster).

Previously recorded in 2 localities on Suduroy and Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.

Byrrhus fasciatus (Forster).

Found in 3 localities on Streymoy (loc. 31 on a fell-field on 600 m a.s.l.) and Eysturoy (loc. 9 on wet and patchy grass heath and loc. 19. on grassland). Previously found once on Suduroy (West 1930). Occurs in Sh, Sc, I, and WN.

Family Cryptophagidae

Atomaria apicalis Erichson.

Found in 2 localities on Sandoy (loc. 32 one individual among rich herbage) and Nólsoy (loc. 26, 29 individuals in grass meadow with *Rumex*). Previously found in 5 places including on Suduroy, Koltur, Streymoy, and Eysturoy. Occurs in Sc, Sh, I, and WN.

Atomaria nigripennis (Paykull).

Previously recorded once on Streymoy (West 1930). Occurs in Sc, I, and WN.

Atomaria ruficornis (Marsham).

Previously found twice on Sandoy and Streymoy (West 1930). Occurs in Sc, Sh, and WN.

Atomaria sp.

Found in 3 localities on Streymoy (loc. 41), Eysturoy (loc. 54), and Kunoy (loc. 87).

Cryptophagus scanicus (L.).

Found in 7 localities (locs 11, 26, 32, 67, 98, 101, 110) on Sandoy, Nólsoy, Hestur, Vágur, Mykines, and Streymoy. Previously regarded as occurring in nearly all the isles and to be very common (West 1930). In present study found only in infield sites and in one plantation and usually in small numbers (total 247 specimens) except in the *Rumex*-dominated grass meadow on Nólsoy (loc. 26, 239 specimens). Occurs in Sc, Sh, I, and WN.

Cryptophagus sagineus Sturm.

Previously found once on Suduroy (West 1930). Occurs in Sc, Sh, and WN.

Cryptophagus dentatus (Herbst).

Previously found twice on Suduroy and Streymoy (West 1930). Occurs in Sc, Sh, and Scandinavia.

Cryptophagus distinguendus (Sturm).

Found in one locality on Kalsoy (loc. 83 in grass meadow). Previously recorded once on Streymoy (West 1930). Occurs in Sc, I, and WN.

Cryptophagus pilosus Gyllenhal.

Found in one locality on Nólsoy (loc. 26 grass meadow with plenty of *Rumex*; 62 individuals; cf. *Atomaria apicalis* and *Cryptophagus scanicus*). Occurs in Sc, Sh, I, and WN.

Family Lathridiidae

Lathridius (Enicmus) minutus (L.).

Found in 6 localities (locs 26, 32, 41, 43, 52, 94) on Suduroy, Sandoy, Nólsoy, Koltur, Streymoy, and Eysturoy. Previously stated to be «distributed

in almost all the isles» (West 1930). Only found in infield sites and usually in small numbers but 68 of 77 specimens were obtained from the *Rumex*-rich meadow on Nólsoy (loc. 26). Occurs in Sc, I, and WN.

Family Coccinellidae

Coccinella septempunctata (L.).

Previously encountered once on Streymoy (West 1930). Occurs in Sc, I, and WN.

Family Anobiidae

Anobium punctatum (De Geer) (= *A. striatum* Olivier).

Found in one locality on Kalsoy (loc. 92 on grass heath). Previously recorded once on Suduroy (West 1930). Occurs in Sc, Sh, I, and WN.

Ernobius mollis (L.).

Previously found in 5 places on Suduroy, Streymoy, and Bordoy (West 1930). Occurs in Sc, I, and WN.

Sitodrepa panicea (L.).

Previously found once on board a vessel from Streymoy to Suduroy (West 1930). Occurs in Sc, I, and WN.

Family Ptinidae

Niptus unicolor Piller.

Previously found in 3 localities on Suduroy, Vágur, and Streymoy (West 1930). Occurs in Sc, I, and WN.

Ptinus fur (L.).

Previously recorded twice on Suduroy and Streymoy (West 1930). Occurs in Sc, I, and WN.

Ptinus tectus Boieldieu.

Previously recorded at least twice on Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.

Family Tenebrionidae

Tribolium confusum Duval. Previously recorded once (1 specimen) on Streymoy (West 1930). Occurs in Sc, I, and WN.

Family Scarabaeidae

Aphodius ater (De Geer).

Previously found once (in large numbers) on Suduroy (West 1930). Occurs in Sc, Sh, and WN.

Aphodius foetidus (Fabricius).

Previously found once on Suduroy (West 1930). Occurs in Sc and WN.

Aphodius lapponum Gyllenhal.

Previously found in about 4 places on Suduroy, Streymoy and Eysturoy (West 1930). Occurs in Sc, Sh, I, and WN.

Family Cerambycidae

Gracilia minuta (Fabricius).

Previously recorded once on Suduroy (West 1930). Occurs in the British Isles.

Callidium violaceum (L.).

Previously found in 3 localities (West 1930). Occurs in Sc, Sh, I, and WN.

Family Chrysomelidae

Chrysolina (Chrysomela) staphylea (L.).

Found in 9 localities (locs 6, 9, 21, 27, 28, 47, 65, 66, 87) on Nólsoy, Vágar, Streymoy, Eysturoy, Kunoy, and Vidoy. Previously found in at least 5 places including on Suduroy, Sandoy, and Bordoy (West 1930). Found in infields and outfield grass heaths and once on dwarf shrub heath. Also recorded on Midalfelli (550–600 m a.s.l.) on Eysturoy in June 1977 (coll. T. Solhøy). Occurs in Sc, Sh, I, and WN.

Family Curculionidae

Otiorrhynchus arcticus (Fabricius).

Found in 33 localities (locs 7, 9, 11, 18, 25, 30, 35, 36, 37, 39, 45, 46, 47, 56, 58, 59, 64, 65, 67, 70, 71, 73, 76, 78, 83, 93, 95, 96, 97, 99, 101, 104, 111) on all islands except on Bordoy and Kunoy. Previously stated to occur in almost all the isles without further details (West 1930). Found in most sorts of habitats ranging from sand dunes, shrubs heaths to rich infield sites. Occurs in Sc, Sh, I, and WN.

Otiorrhynchus dubius Ström (= *nodosus* auctt.).

Found in 17 localities (locs 5, 6, 21, 22, 28, 36, 51, 55, 71, 76, 77, 84, 85, 88, 97, 107, 110) on Suduroy Sandoy, Nólsoy, Hestur, Streymoy, Eysturoy, Bordoy, Kalsoy, Kunoy, Svínoy, and Fugloy. Previously recorded only from 3 places and assumed to be rare (West 1930). Found in all habitats except wetlands and sand dunes. Occurs in Sc, Sh, I, and WN.

Otiorrhynchus rugifrons Gyllenhal.

Previously reported once from Bordoy but entered on the Faroese list with doubts (West 1930). Lindroth (1931:231) assumed the record to be a confusion with *O. dubius*. The species should therefore possibly be deleted from the list; at least a confirmation is needed. Occurs in Sc, I, and WN.

Otiorrhynchus atroapterus (De Geer).

Previously found once on sand dunes on Sandoy (West 1930). Occurs in Sc, Sh, and WN.

Otiorrhynchus rugosostriatus (Goeze) (= *O. scabrosus* Marsham).

Previously recorded once from the Faroes without any details as to locality except that it occurred as a pest in a nursery (Larsson & Gígia 1959:194). This species does not occur in any of the neighbouring areas except possibly once in Iceland (Larsson & Gígia *Op.cit.*). Occurs in the British Isles and in Continental Europe.

Otiorrhynchus singularis (L.).

Found in 2 localities on Vágar (loc. 68 among wasteland vegetation in village) and Streymoy (loc. 51 in mixed *Larix* and *Sorbus* plantation). Occurs in Sc, Sh, and WN.

Barynotus squamosus German.

Found in 14 localities (locs 11, 18, 27, 33, 36, 42, 45, 52, 59, 67, 75, 81, 87, 91) on Suduroy, Sandoy, Vágar, Streymoy, Eysturoy, Kalsoy, Kunoy, Vidoy, and Svínoy. Previously found in 4 places (West 1930). All but one record from infield localities. Occurs in Sc, Sh, I, and WN.

Tropiphorus obtusus (Bonsdorff).

Found in 9 localities (locs 7, 19, 27, 33, 36, 42, 46, 94, 101) on Koltur, Mykines, Sandoy, Streymoy, Eysturoy, and Vidoy. Previously found in 3 localities including on Suduroy and considered to be restricted to this island and the southern parts of Streymoy (West 1930). Although it clearly has a much wider distribution in the Faroes it is only met with in small numbers and mostly in infield sites. Occurs in Sc, Sh, I, and WN.

Pissodes pini (L.).

Previously found once (1 specimen) on Suduroy (West 1930). Occurs in Sc, I, and WN.

Micrelus ericae (Gyllenhal).

Found in 2 localities on Vágar (loc. 13 on *Calluna* heath) and Svínoy (loc. 76 among tall *Calluna*). Occurs in Sc, Sh, and WN.

Rhinoncus pericarpus (L.).

Found in 4 localities on Sandoy (locs 32 and 36 on rich grass-herb meadows), Streymoy (loc. 42 on grass herb meadow), and Eysturoy (loc. 43 in rich grassland). All sites near water. Occurs in Sc, Sh, I, and WN.

Rhinoncus inconspicuum Herbst (= *R. gramineus* Fabricius).

Previously found once on Streymoy (West 1930). Occurs in Sc and Scandinavia.

Notaris aethiops (Fabricius).

Previously found once on Sandoy (West 1930). Occurs in Sc and Scandinavia.

Sitona puncticollis Stephens).

Found in one locality on Streymoy (loc. 3 on heavily grazed grassland). Occurs in Sc and Sh.

Ceutorrhynchus contractus (Marsham).

Found in 3 localities on Suduroy (loc. 61 on rich grass meadow), Sandoy (loc. 34 on wet fell-field ground), and Vágar (loc. 66 among grass and herbs). Previously recorded twice including on Streymoy (West 1930). Occurs in Sc, Sh, I, and WN.

Apion aethiops Herbst.

Previously found twice on Sandoy and Koltur (West 1930). Occurs in Sc and Sh.

Apion haematodes Kirby (= *A. frumentarium* (Paykull) and West's (1930) *A. cruentatum* Walton).

Found in 5 localities (locs 32, 33, 59, 61, 97) on Suduroy, Sandoy, and Hestur. Previously found in about 7 places including on Koltur and Streymoy (West 1930). Apparently not very common and restricted to the southern parts of the island

group. In the present study only found in infields (4 on the outskirts and one close to settlements). The «species» occurs in Sc, Sh, I, and WN.

DISCUSSION

Comparison with neighbouring areas

The coleopterous fauna of the Faroes is entirely West European and effectively all its species occur in the British Isles and/or in the western parts of Scandinavia; areas from which the Faroese beetles are traditionally thought to have immigrated (West 1930). The number of species is, of course, much lower than that found on the British mainly or Western Norway. At present at least 168 identified species have been recorded in the Faroes. This is about half the number of

species found in Shetland (340 species) and about 80% of the number in Iceland (214 species). A comparison between the Faroes and Shetland seems particularly relevant since the two island groups are of almost the same size (1,400 km²). There are probably several reasons for the great difference in species richness, one being that Shetland is situated much closer to a mainland species pool which presumably favours colonization of new species. Iceland is about 75 times larger in size but situated more distantly from mainland areas and further north. The taxonomic composition (by family) of the coleopterous faunas of Shetland, Faroes, and Iceland is very similar (Tab. 2). Within all three areas rove beetles, ground beetles, and weevils dominate (in descending order) in terms of species rich-

Table 2. Comparing the taxonomic composition (number of species in each family) of the Coleoptera of Shetland, Faroes, and Iceland.

Family	Shetland ¹	Faroes ²	Iceland ³
Carabidae	55 (16.2%)	26 (15.4%)	22 (10.3%)
Halipidae	3	1	1
Dytischidae	27 (7.9%)	7 (4.1%)	4 (1.4%)
Hydrophilidae	15 (4.4%)	9 (5.3%)	3 (1.4%)
Silphidae	3	2	1
Leiodidae	6	1	—
Scydmaenidae	1	1	1
Ptiliidae	4	1	1
Staphylinidae	128 (37.7%)	73 (43.2%)	62 (29.0%)
Cantharidae	1	?	2
Elateridae	4	1	2
Helodidae	—	1	—
Dermestidae	—	3	2
Byrrhidae	4	3	2
Cryptophagidae	16 (4.7%)	8 (4.7%)	13 (6.1%)
Lathridiidae	7	1	5
Coccinellidae	2	1	8
Anobiidae	1	3	3
Ptinidae	4	3	—
Tenebrionidae	—	1	9
Scarabaeidae	9	3	3
Cerambycidae	—	2	17
Chrysomelidae	7 (2.1%)	1 (0.6%)	4 (1.9%)
Curculionidae	31 (9.1%)	16 (9.5%)	18 (8.4%)
Others ⁴	12 (3.5%)	—	18 (8.4%)
Total	340	168	214

¹ According to Bacchus' list in Berry & Johnston (1980).

² Omitting 5 doubtful species (see introduction to the synopsis of species) the apparently extinct *Calathus micropterus*, species only identified to genus, and regarding *Quedius curtipennis* and *Q. fuliginosus* as synonyms.

³ According to Larsson & Gigja (1959), Lindroth *et al.* (1973), Sigurjónsdóttir (1974), and Bengtson *et al.* (unpubl.).

⁴ For Shetland the families Gyrinidae, Pselaphidae, Geotrupidae, Clambidae, Scirtidae, Dryopidae, and Nitidulidae and for Iceland Pselaphidae, Nitidulidae, Ostomidae, Monotomidae, Cucujidae, Mycetophagidae, Colydiidae, Endomychidae, Cleridae, Lyctidae, Anthicidae, Bruchidae, Brentidae, and Ipidae.

ness, but for most taxa the number of species usually decreases from south to north. The high proportion of carnivorous species relative to herbivores is characteristic for many island coleopterous faunas (e.g. Becker 1975). Shetland has 7 and Iceland 14 families not found in the Faroes. At least in the case of Iceland this may be explained by a higher habitat diversity and a far more intensive collecting, especially in and around habitation where accidental introductions are most likely to be discovered.

Tab. 3 gives the number of species of Faroese beetles *not* recorded in the neighbouring areas. Only 4 and 17 species are not found in Scotland and Western Norway, respectively i.e. 97.6% of the Faroese species occur in Scotland and 89.9% in Western Norway. Of the Faroese species 78.7% have been found in Shetland but only 51.5% in Iceland. Thus, proceeding from Shetland to the Faroes there is a marked drop in species richness but in terms of species composition the two faunas have a great affinity. Comparing the Faroes with Iceland shows that the number of species is somewhat higher in the latter area, but only about half the number of Faroese species have extended their ranges to include Iceland. As to the origin of the Faroese coleopterous fauna I will in this context not go

into any lengthy discussion West (1930) concluded that «the greater part of the present coleopterous fauna of the Faroes have had conditions for surviving the glacial period» referring to the latest glacial period. Currently there is no strong evidence for faunal survival in glacial refugia in the Faroes. Assuming that the entire fauna is of post-glacial origin leaves us with the problem of identifying routes of immigration. The present distribution of the species involved does not give us any definite answers. Western Norway and Scotland are the nearest main species pools from which the Faroese beetles could have emigrated. Only 5 of the 17 Faroese species not found in Western Norway are also absent from Norway as a whole (*viz.* *Bembidion geniculatum*, *Lesteva heeri*, *Oxytelus inustus*, *Anthrenus verbasci*, and *Gracilia minuta*; the two latter are, however, introduced in Scandinavia), and may therefore have reached the Faroes from the British Isles. Three Faroese species not recorded in Scotland (*viz.* *Oxytelus inustus*, *Gracilia minuta*, and *Otiorrhynchus rugosostriatus*) occur further south on the British Isles, whereas a fourth species, *Hydrobius septentrionalis* appears to be absent. Thus, the vast majority of Faroese beetles may have arrived from either Scotland or Scandinavia, or both.

Table 3. Number of Faroese Coleoptera *not* recorded in Scotland (Sc), Shetland (Sh), Iceland (I), Western Norway (WN), and in combinations of these neighbouring areas, assumed to be the most likely sources from which the Faroese beetles originated.

Family	(N)	Number of Faroese beetles <i>not</i> found in							
		Sh	I	WN	Sh + I	Sh + I + WN	I + WN	Sc + Sh + WN	Sc + Sh + I + WN
Carabidae	(12)	1	9	—	1	—	—	—	—
Dytischidae	(5)	—	4	—	—	—	1	—	—
Hydrophilidae	(8)	—	7	—	—	—	1	—	—
Silphidae	(2)	1	1	—	—	—	—	—	—
Leiodidae	(2)	—	—	—	—	—	1	—	1
Ptiliidae	(1)	1	—	—	—	—	—	—	—
Staphylinidae	(40)	1	25	1	10	1	1	—	1
Scarabaeidae	(2)	—	1	—	1	—	—	—	—
Helodidae	(1)	—	1	—	—	—	—	—	—
Dermestidae	(3)	1	—	—	1	1	—	—	—
Byrrhidae	(1)	—	1	—	—	—	—	—	—
Cryptophagidae	(5)	2	2	—	—	—	1	—	—
Coccinellidae	(1)	1	—	—	—	—	—	—	—
Anobiidae	(2)	2	2	—	—	—	—	—	—
Ptinidae	(2)	2	—	—	—	—	—	—	—
Tenebrionidae	(1)	1	—	—	—	—	—	—	—
Cerambycidae	(1)	—	—	—	—	—	—	—	1
Curculionidae	(9)	1	3	—	—	2	2	1	—
Total	(98)	14	54	1	13	4	7	1	3

Distribution within the Faroes

About one-tenth (16) of the Faroese beetle species have a wide distribution in the Faroes and occur in at least 13 of the 18 islands (*viz. Nebria gyllenhali, Nebria salina, Notiophilus biguttatus, Loricera pilicornis, Patrobus septentrionis, Trechus obtusus, Calathus fuscipes, Calathus melanocephalus, Megasternum obscurum, Hypolithus riparius, Otiorrhynchus arcticus, Eucnecosum brachypterum, Lesteva longelytrata, Othius angustus, Othius myrmecophilus, and Tachinus signatus*). Another four species (*viz. Hydroporus pubescens, Agabus solieri, Cercyon haemorrhoidalis, and Cryptophagus scanicus*) are reported to be widely distributed in almost all the islands (West 1930). Presumably the numbers of species occurring in about two-thirds (i.e. 12) of the islands may be in order of 40 since, in addition to the species mentioned above, 11 species have been found in 10–12 islands and 20 species in 7–9 islands all 11 of the latter are staphylinid beetles, a taxa which is probably less well known than many others. A large proportion of the species appear to be rare or accidental; about 48 (28%) have only been recorded once and 17 (10%) twice.

Species which are common, or moderately common, usually occur in all parts of the Faroes (see distribution maps in the Appendix). This is perhaps not surprising considering the relatively short distance between the southernmost and northernmost points of the Faroes (approx. 120 km) and the small differences in climate and topography. The northern islands are generally more mountainous and have a higher precipitation than the islands further south and Suduroy, and especially Sandoy, have a slightly warmer and sunnier climate favouring agricultural activities. This may partly explain why some of the less common or rare species often have a southern distribution in the Faroes (e.g. *Apion haematodes, Hypocyptus laeviusculus, Tachinus laticollis, Atheta melanocera, Helophorus flavipes*). There are no species which have a distinctly northern distribution within the Faroes.

Comparison of habitats

The comparison of the taxonomic composition (by family) and number of species in different habitats presented in Tab. 4 is based on the information contained in Tab. 1. The largest total number of species was found in the infield localities (84 species on the outskirts and 81 species around the settlements). This was not unexpect-

ted since: (a) the number of infield localities was large and (b) the number of niches and amount of organic matter is presumably much larger in infields than in other habitats. The grass heaths, represented by about the same number of sites as any of the two infield categories, supported a total of 58 species which is about 65–70% of the number found in the infields. The lower number of staphylinid beetles accounted for much of the difference between infields and grass heaths, presumably because the latter have less foerna. The proportion of carabid beetles was higher and the proportions of cryptophagids and curculionids lower in the grass heaths than in the infields. The number of species was about the same (33–34) in dwarf shrub heaths, plantations, and on cliffs shelves and in crevices but the proportion of carabids decreased and staphylinids increased successively (Tab. 4). The lowest numbers of species were found in the mountain sites (23), on lowland bogs (13), and on sand dunes (6). However, it should be kept in mind that for these habitats only relatively few localities were surveyed. The proportion of carabid beetles varied between 68% (lowland bogs) and 35% (shrubs heaths) to 19% (infields), although the number of species did not vary markedly (cf. Bengtson 1980). The proportion of staphylinid beetles was about 50% in most habitats and the lowest values were found on dwarf shrub heaths (41%) and on lowland bogs (31%). In all habitats carnivorous beetles made up at least 80% of the number of coleopterous species.

The common and most «typical» species (here defined as those found in at least half the number of sites surveyed) in the different habitats were:

In mountain sites: *Nebria gyllenhali, N. salina, Notiophilus biguttatus, Trechus obtusus, Patrobus septentrionis, Eucnecosum brachypterum, Othius myrmecophilus, and Atheta islandica*.

In dwarf shrub heaths: *Carabus problematicus, Nebria gyllenhali, N. salina, Notiophilus biguttatus, Trechus obtusus, Patrobus septentrionis, P. assimilis, Pterostichus adstrictus, P. nigrita, Calathus fuscipes, Eucnecosum brachypterum, Quedius curtippennis, Q. nitipennis, Hypolithus riparius, and Otiorrhynchus arcticus*.

In plantations: *Nebria gyllenhali, N. salina, Notiophilus biguttatus, Loricera pilicornis, Trechus obtusus, Patrobus septentrionis, Anacaena globulus, Megasternum obscurum, Acrotichis sp., Eucnecosum brachypterum, Stenus impressus, Othius myrmecophilus, Quedius umbrinus,*

Table 4. Taxonomic composition of Faroese Coleoptera in different habitats: (A) mountain sites, (B) dwarf shrub heaths, (C) plantations, (D) cliffs, shelves, and crevices, (E) lowland bogs, (F) grass heath, (G) outskirts of infields, (H) infield around settlements, and (I) sand dunes. Note the large differences in the number of localities in different habitats.

Habitat	Number of Carabid- locs surveyed	Carabi- dae	Hydro- philidae	Staphyli- nidae	Crypto- phagidae	Curculio- nidae	Others	Total
A	4	7 (30)	0	12 (52)	0	3 (13)	1 (4)	23
B	10	12 (35)	1 (3)	14 (41)	0	5 (15)	2 (6)	34
C	4	9 (27)	2 (6)	16 (49)	1 (3)	2 (6)	3 (9)	33
D	3	8 (24)	2 (6)	19 (56)	0	2 (6)	3 (9)	34
E	3	9 (69)	0	4 (31)	0	0	0	13
F	31	15 (26)	3 (5)	29 (50)	0	3 (5)	8 (14)	58
G	34	16 (19)	5 (6)	42 (59)	3 (4)	8 (10)	10 (12)	84
H	21	15 (19)	3 (4)	44 (54)	4 (5)	7 (9)	8 (10)	81
I	1	2 (33)	0	3 (50)	0	1 (17)	0	6

Tachinus signatus, *Hypolithus riparius*, and *Otiorrhynchus dubius*.

On cliffs, shelves and in crevices: *Nebria gyllenhali*, *N. salina*, *Patrobus septentrionis*, *Helophorus flavipes*, *Acrotrichis* sp., *Lesteva longelytrata*, *Stenus impressus*, *Othius punctulatus*, *Atheta islandica*, *Hypolithus riparius*, *Otiorrhynchus arcticus*, and *O. dubius*.

In lowland bogs: *Trechus obtusus*, *Patrobus septentrionis*, *P. assimilis*, *Pterostichus adstrictus*, *P. nigrita*, *Lesteva longelytrata*.

In grass heaths: *Nebria gyllenhali*, *N. salina*, *Notiophilus biguttatus*, *Trechus obtusus*, *Patrobus septentrionis*, *Eucnecusum brachypterum*, *Lesteva longelytrata*, *Othius angustus*, *O. myrmecophilus*, and *Hypolithus riparius*.

On the outskirts of infields: *Nebria gyllenhali*, *N. salina*, *Loricera pilicornis*, *Trechus obtusus*, *Patrobus septentrionis*, *Calathus fuscipes*, *C. melanocephalus*, *P. assimilis*, *Amara aulica*, *Megasternum obscurum*, *Othius angustus*, *Tachinus signatus*, *Amischa analis*, and *Hypolithus riparius*.

Around settlements in infields: *Nebria gyllenhali*, *N. salina*, *Trechus obtusus*, *Patrobus septentrionis*, *Calathus fuscipes*, *C. melanocephalus*, *Loricera pilicornis*, *Amara aulica*, *Megasternum obscurum*, *Acrotrichis* sp., *Omalium rivulare*, *O. excavatum*, *Othius angustus*, *O. myrmecophilus*, *Quedius mesomelinus*, *Tachinus signatus*, and *Hypolithus riparius*.

On the only sand dune locality the following 6 species were found: *Nebria gyllenhali*, *Calathus fuscipes*, *Atheta vestita*, *A. arenicola*, *Oxy-poda haemorrhoea*, and *Otiorrhynchus arcticus*.

As can be seen from the above lists many of the carabid beetles have broad habitat niches (see Bengtson (1980) and are not confined to any

particular habitat(s). Many of the other species show low constancies in most habitats and are possibly more specific in their choice of habitat. However, it should be kept in mind that carabid beetles are much easier to collect than most other taxa and, for many species, more intensified sampling would undoubtedly have increased the number of localities.

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Drs. A. Fjellberg, Oslo, and K.-E. Erikstad, Bergen, carried out the tedious taxonomic work and Dr. Dorete Bloch Danielsen and Mr. J.K. Bærentsen, Tórshavn, assisted in various ways during the fieldwork. I am also grateful to Stödi-sútbúgvingin (Academia Færoensis) for providing laboratory facilities and the Royal Danish Navy for helicopter support to reach some of the sampling sites.

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Received 15 Dec. 1980.

CORRECTIONS

In a previous paper (*Fauna norv. Ser. B.* 26: 59—83 (1979)) we claimed that 67 species of spiders (Araneae) have hitherto been recorded in the Faroe Islands, although we listed only 65 species. The following two species were left out by mistake.

Walckenaera obtusa Blackwall. Previously found once on Streymoy (Bgd 1928). Occurs in Sc and WN.

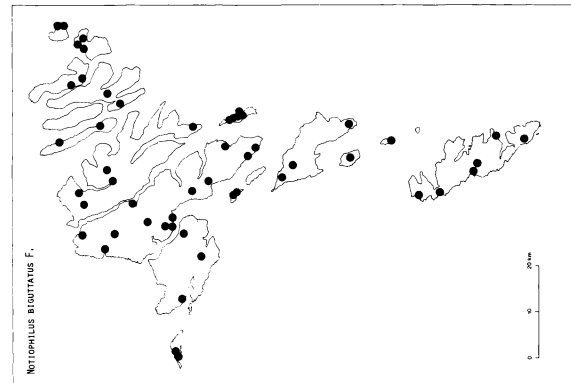
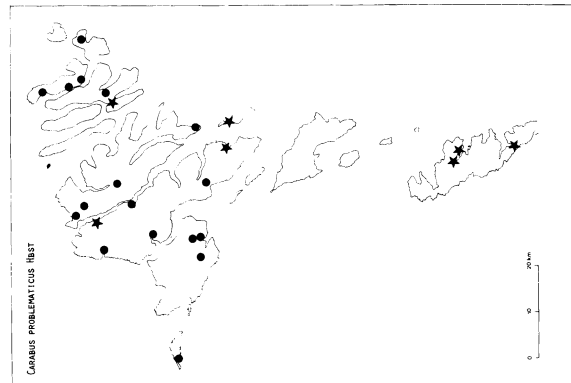
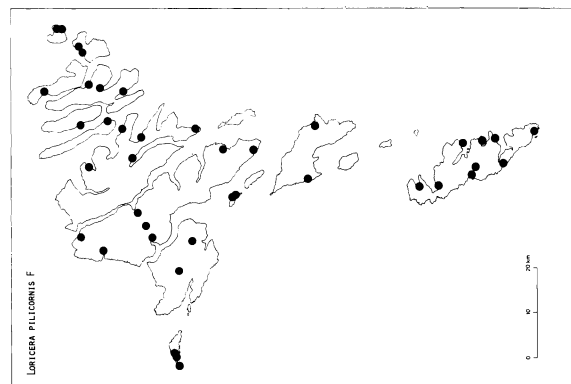
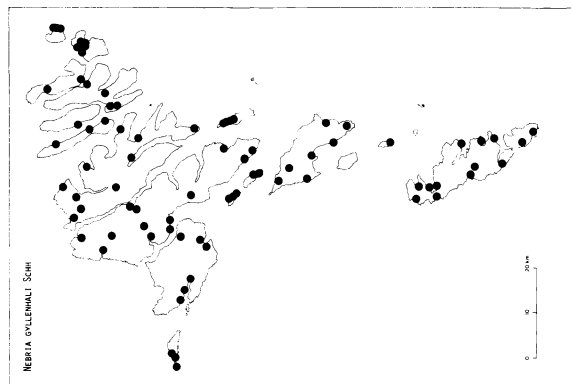
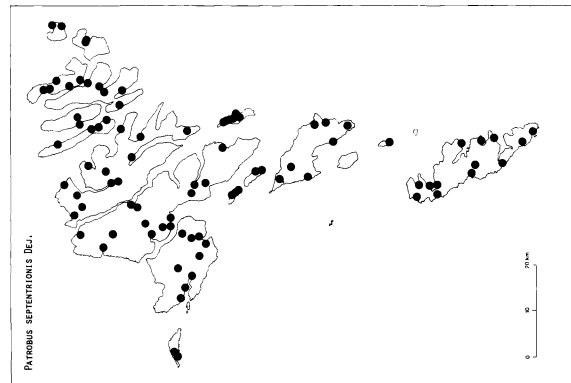
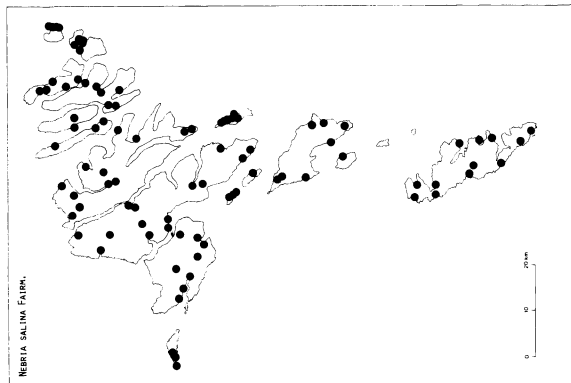
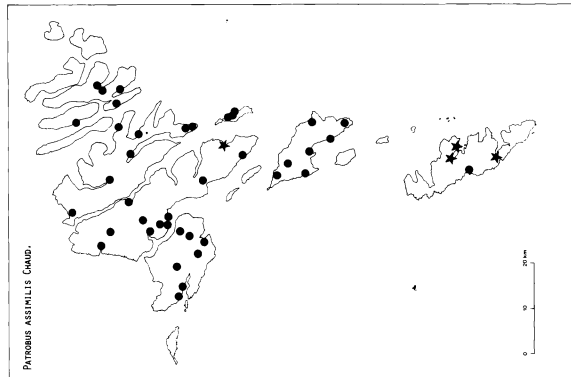
Porrhomma montanum (Jackson). Previously found once on Streymoy (Bgd 1928). Occurs in Sc, Sh, I, and WN.

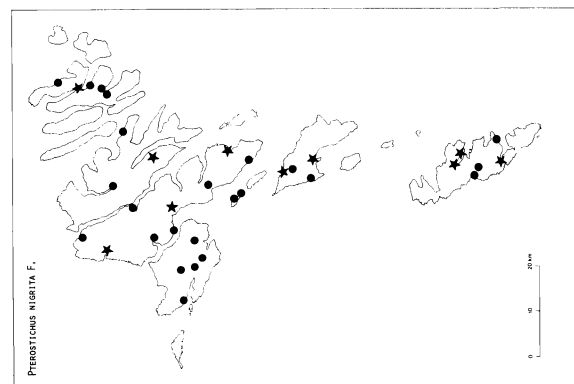
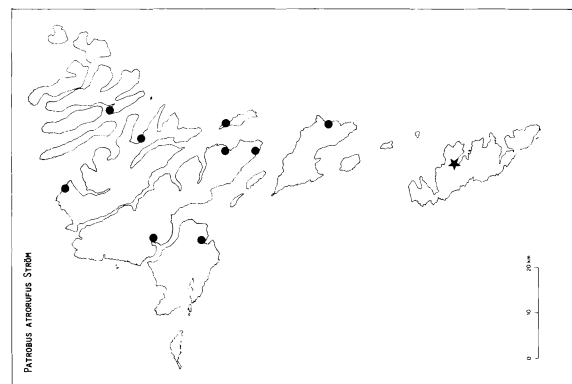
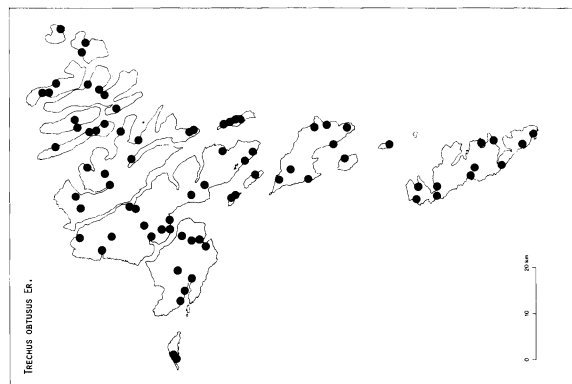
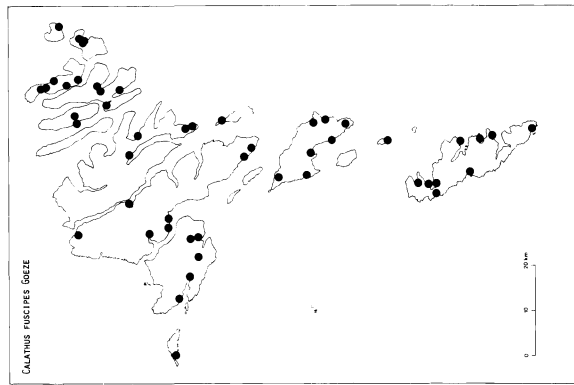
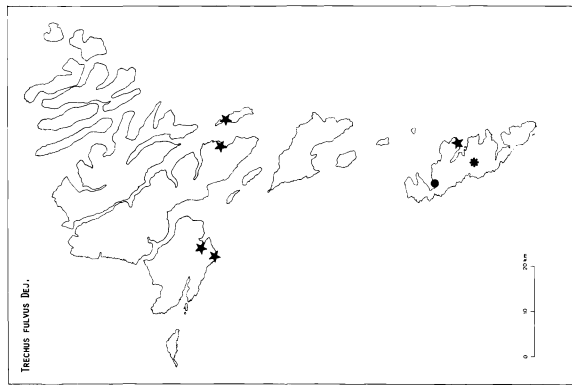
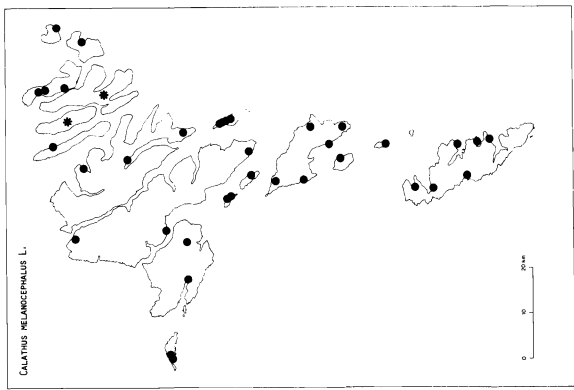
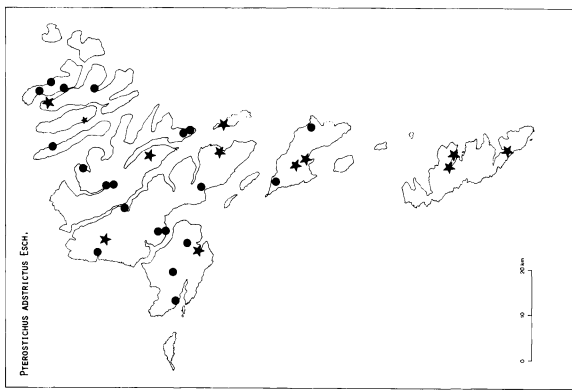
Furthermore, we wish to draw attention to a footnote (added in proof) in Ashmole's paper (1979:92), stating that Dr. Åke Holm believes that Faroese specimens of *Centromerita bicolor* (Blackwall) should be referred to as *Centromerita concinna* (Thorell).

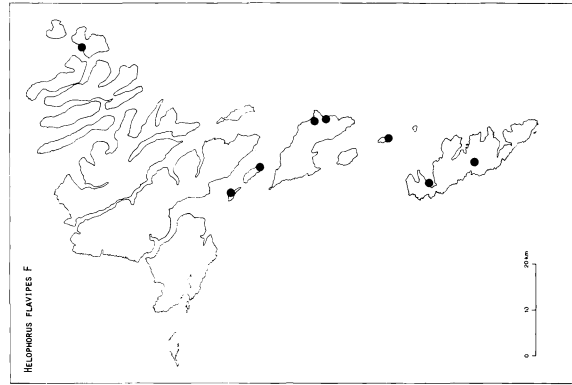
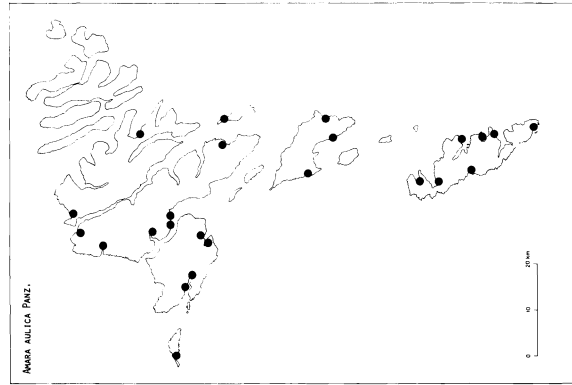
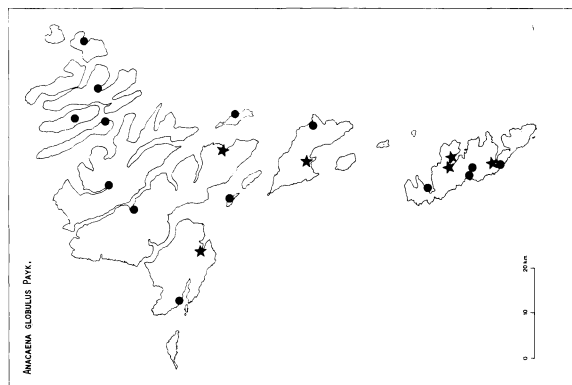
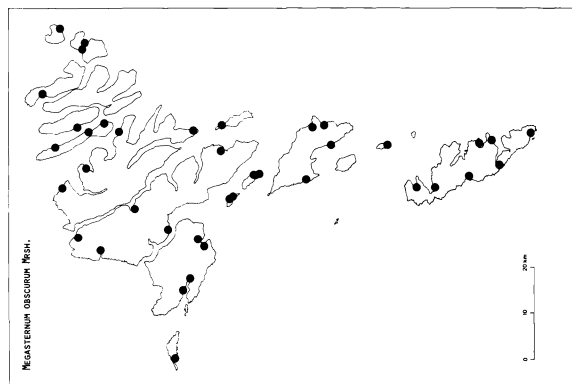
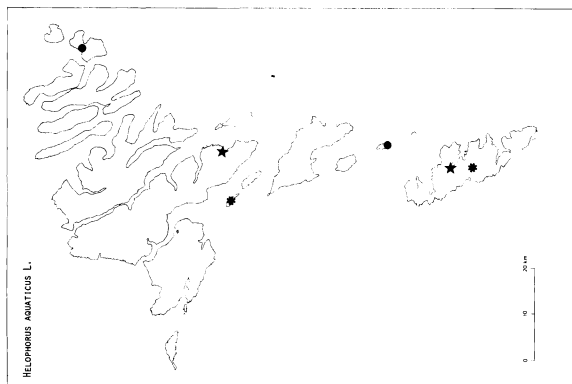
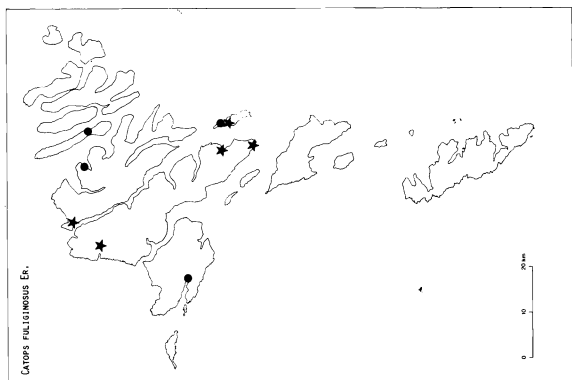
S.-A. Bengtson & E. Hauge

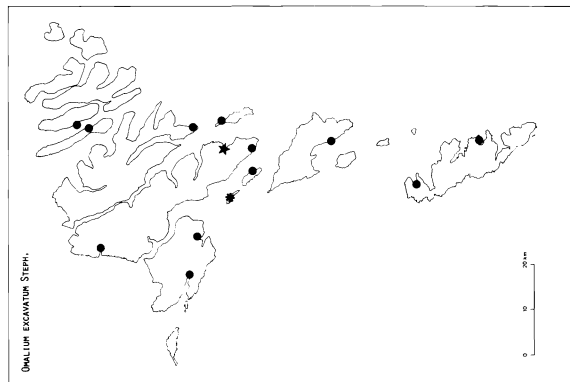
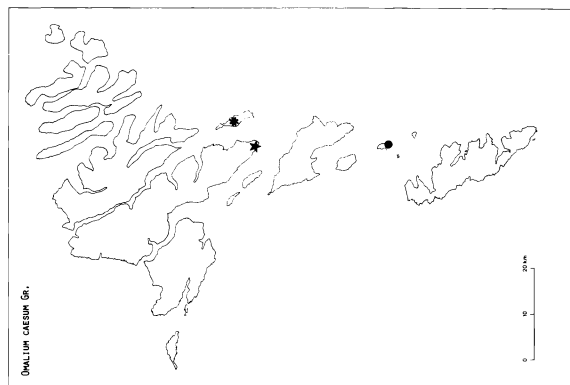
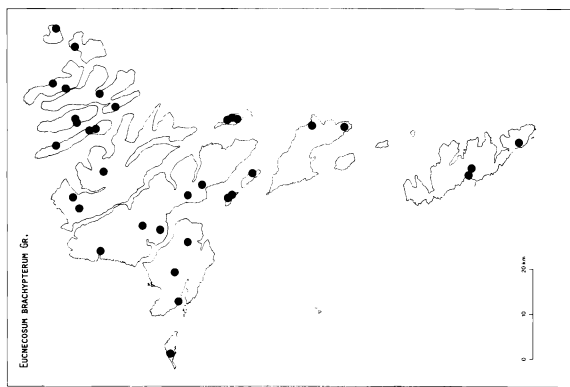
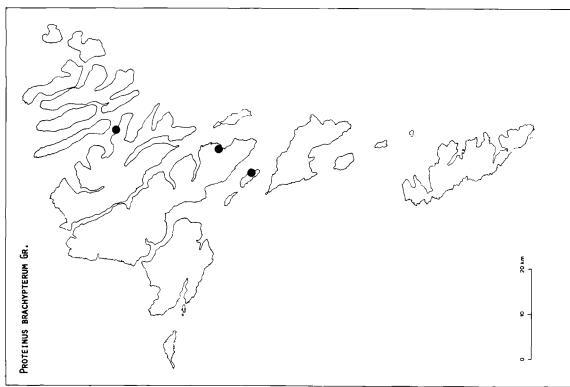
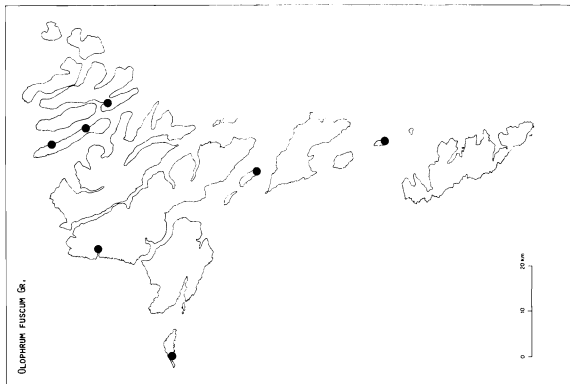
APPENDIX

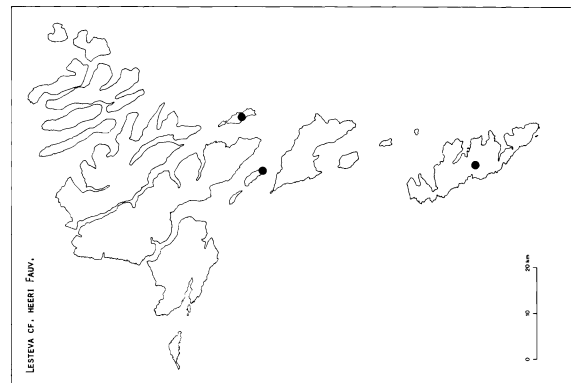
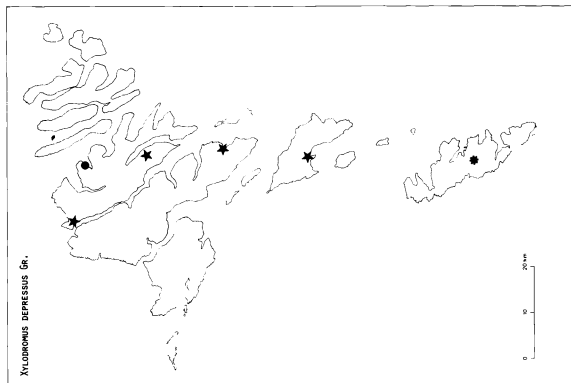
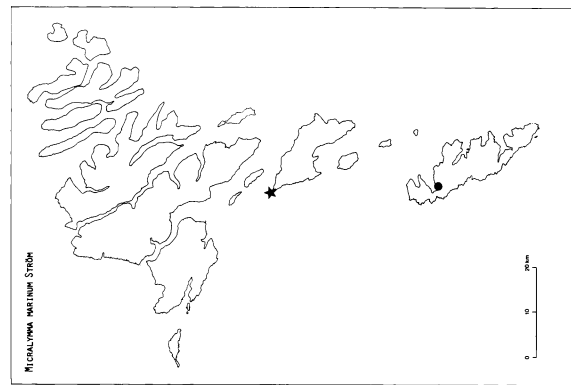
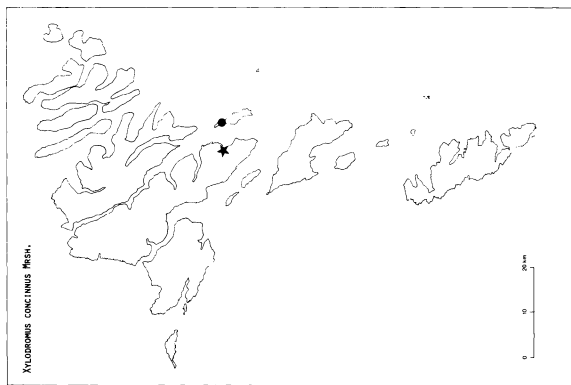
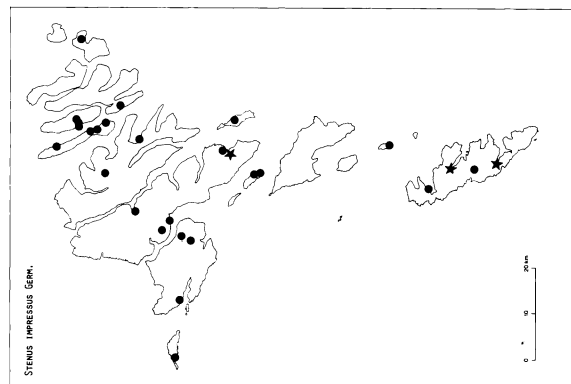
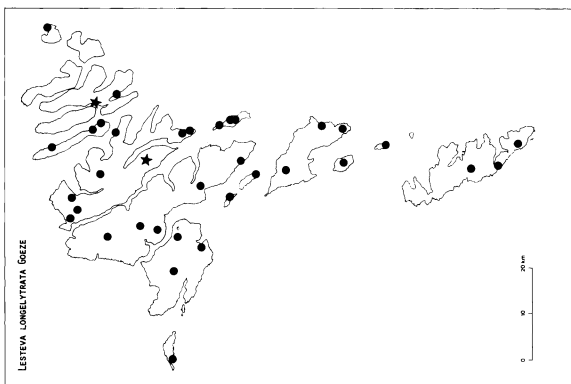
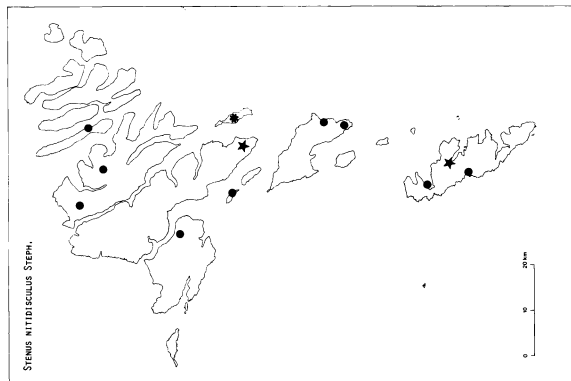
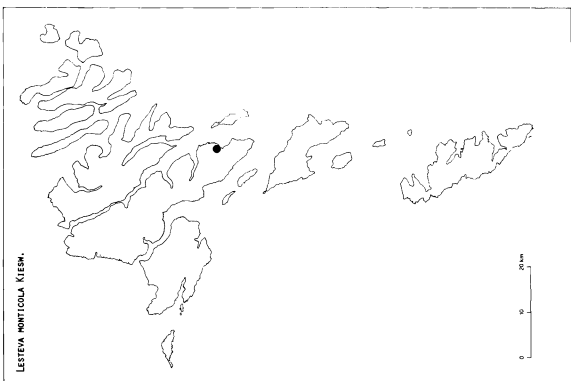
Maps showing the distribution of 101 species (and 3 identified to genus) of beetles (Coleoptera) recorded in 1978—1979 in the Faroes. Black circles denote records from the present study, stars refer to previously published records (mainly from West (1930)), and asterisks refer to previous records, where only the name of the island is known. Previous records have been entered on the maps only when they markedly supplement our data. For information on position of, sampling efforts at, and vegetation of localities surveyed see Bengtson & Hauge (1979: Fig. 2 and Appendix I). The distribution maps are presented in the same order as the species appear in the synopsis.

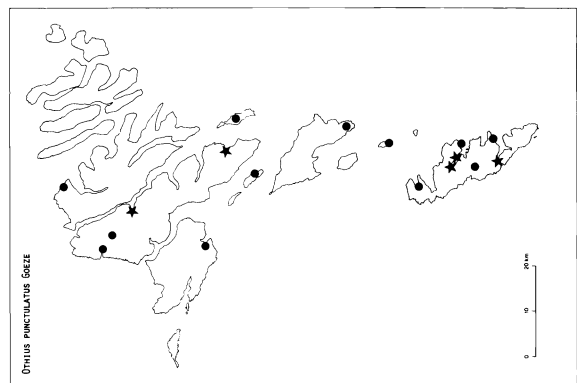
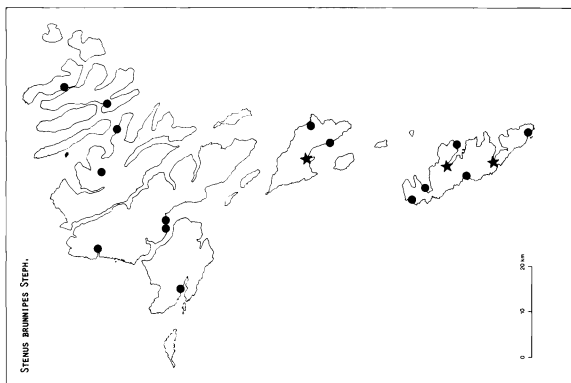
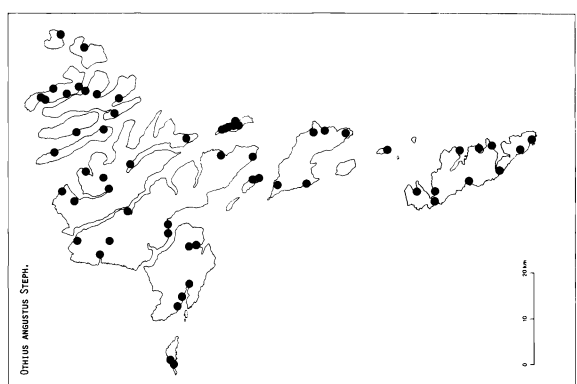
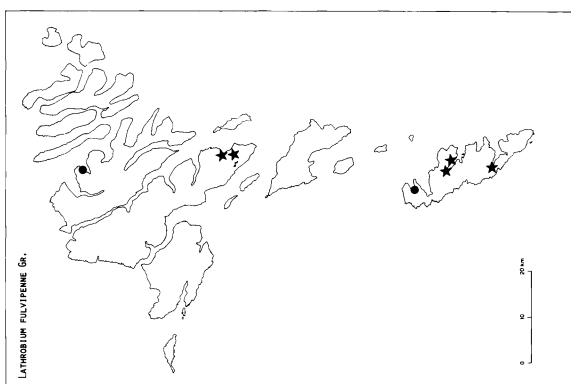
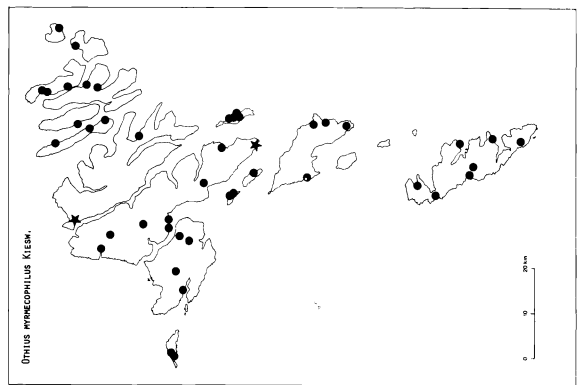
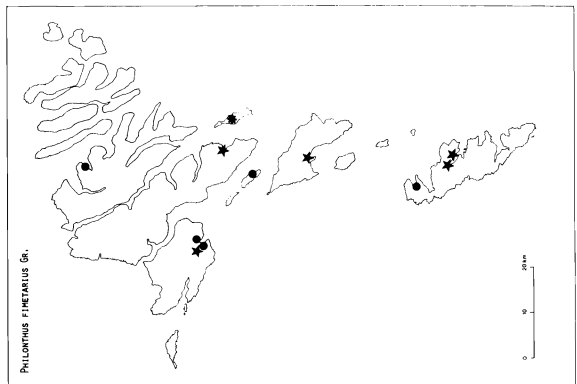
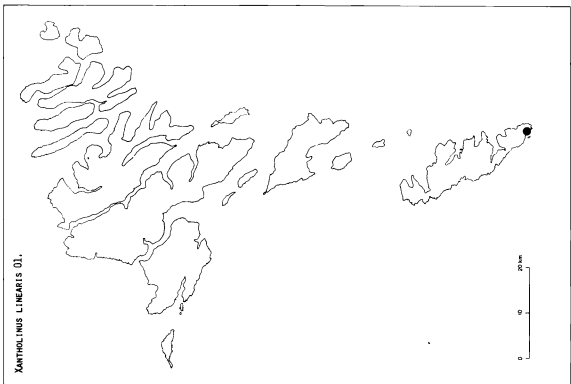


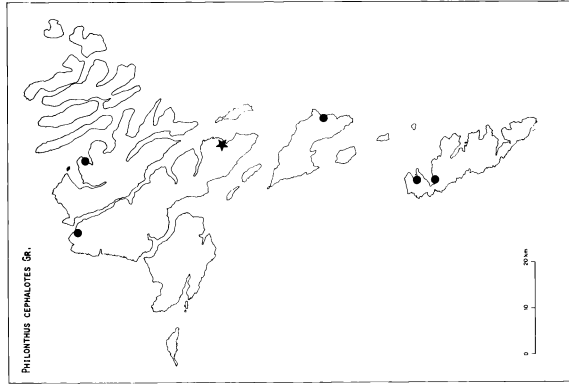
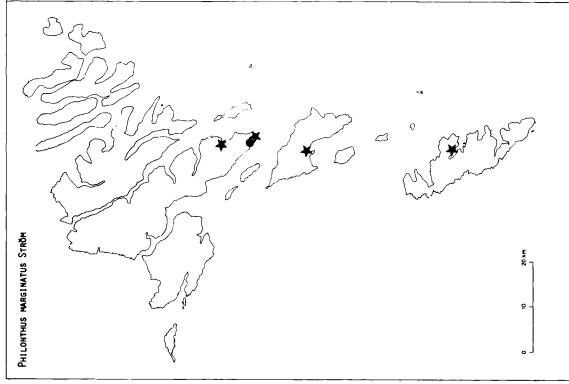
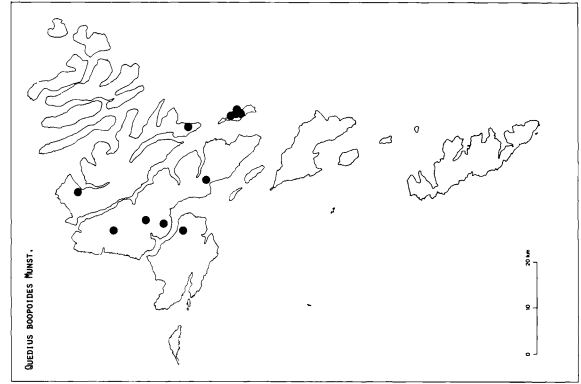
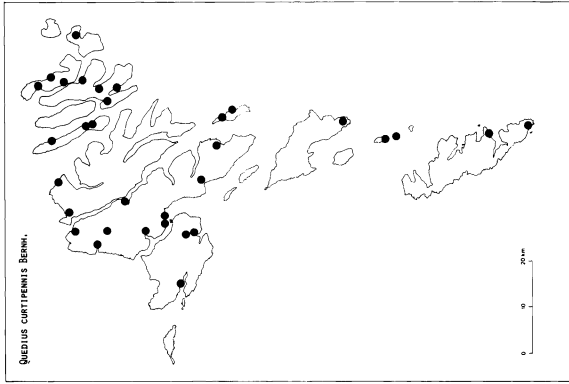
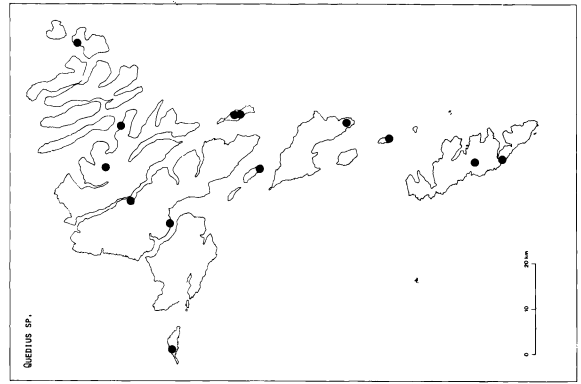
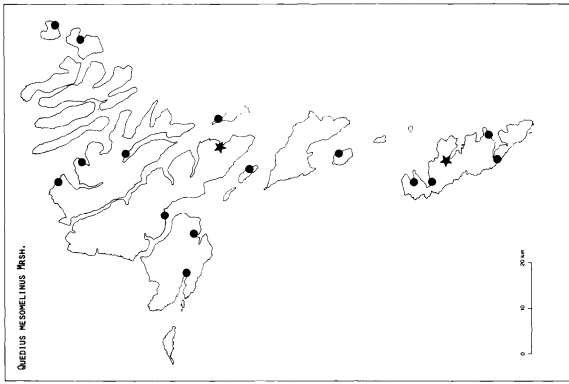




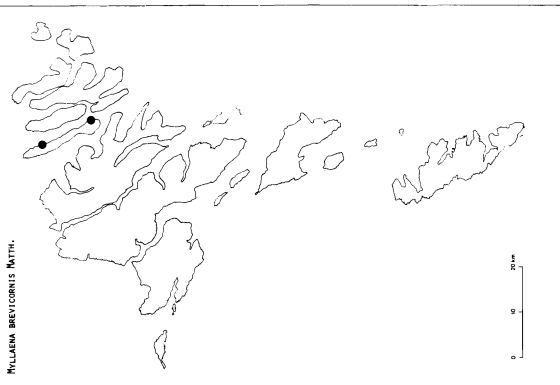








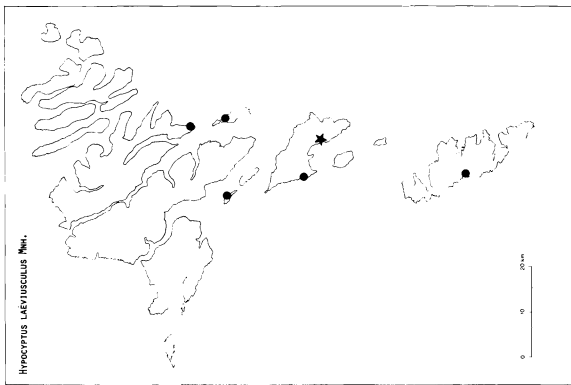
MULLATA BEVIGONIS MATTH.



ANALIA PUNCTICOLLIS SHARP.



HYPOSPIDUS LARYSCOLLIS MATH.



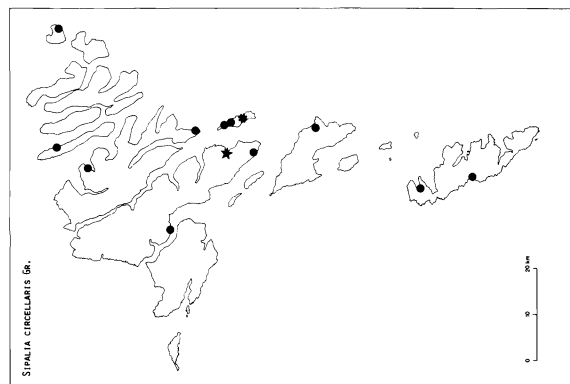
PECTONORUS RUPESCENS STEPH.



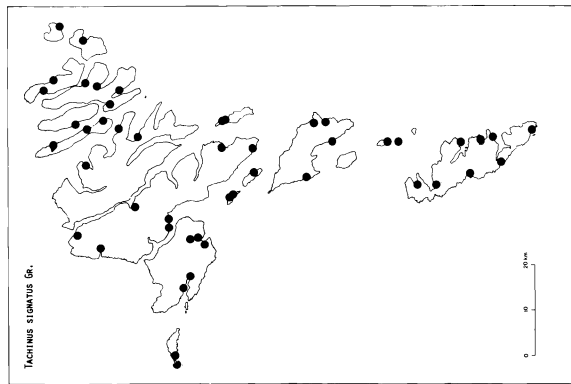
TACHINUS LATICOOLLIS GR.



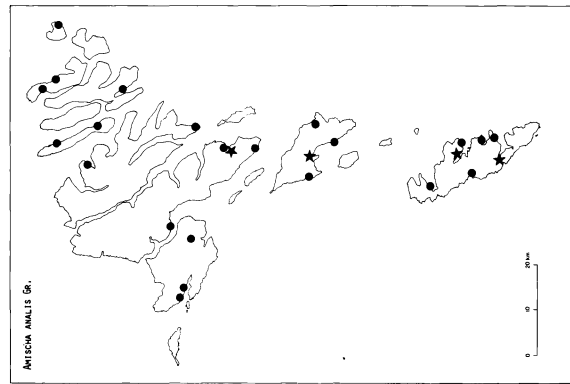
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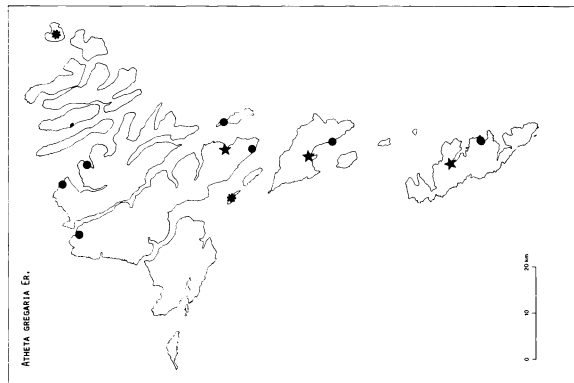
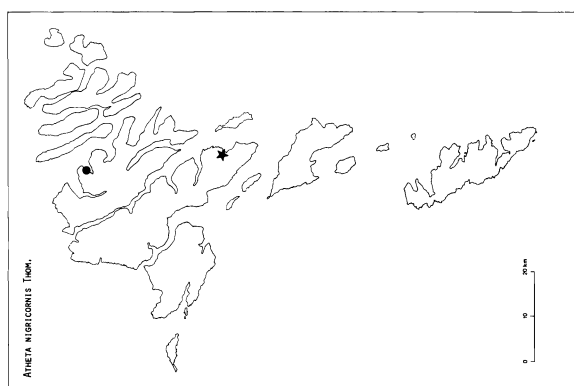
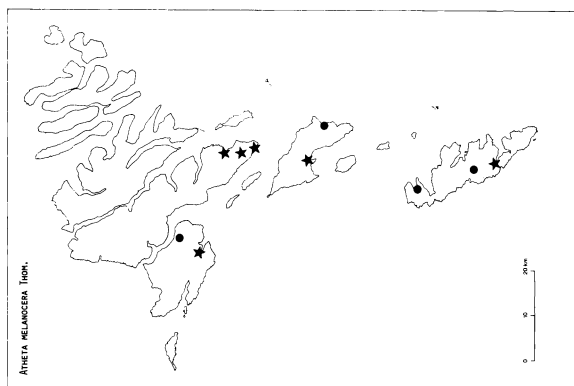
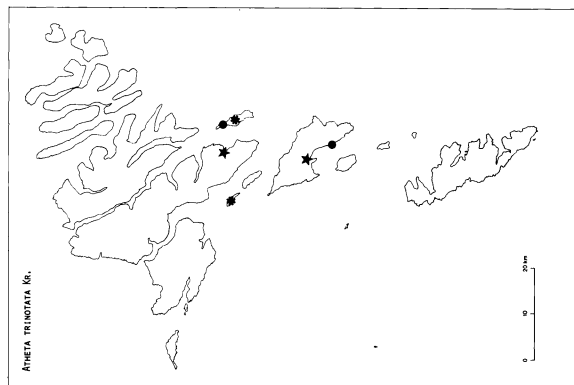
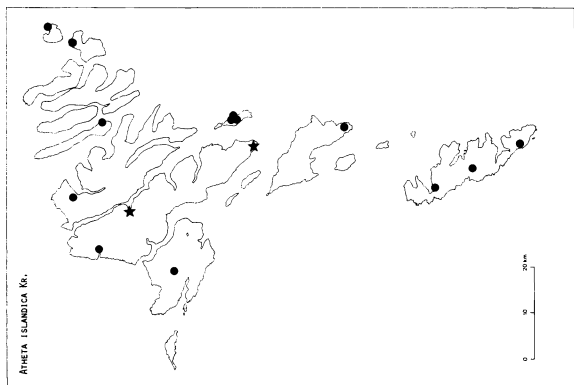
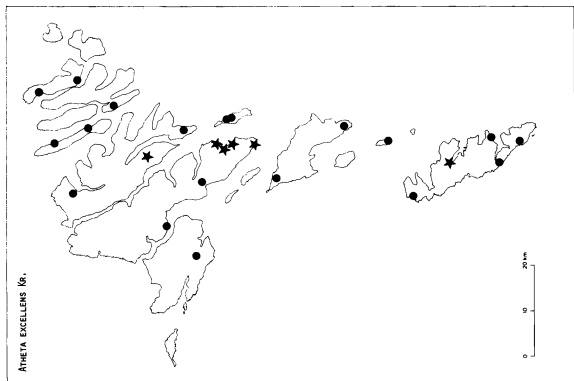


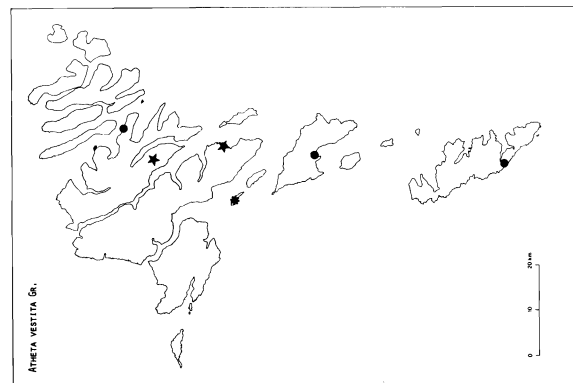
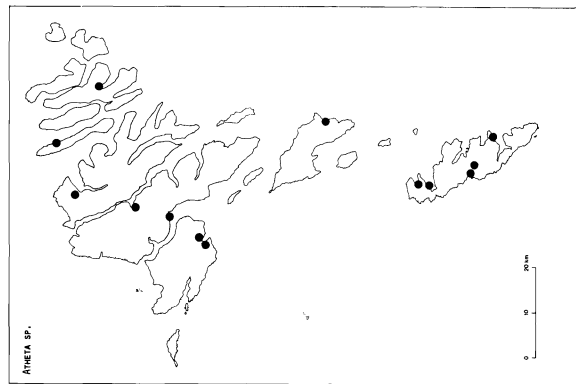
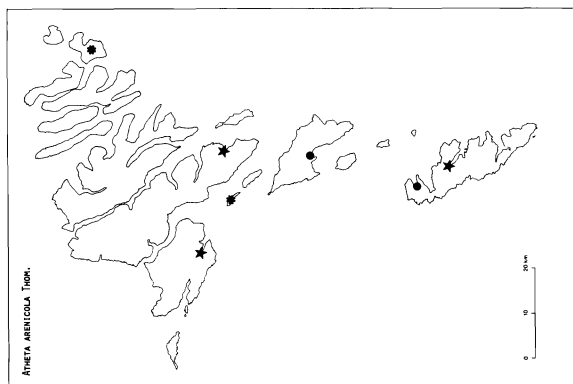
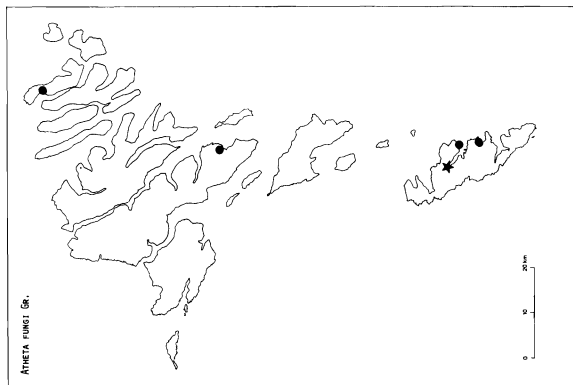
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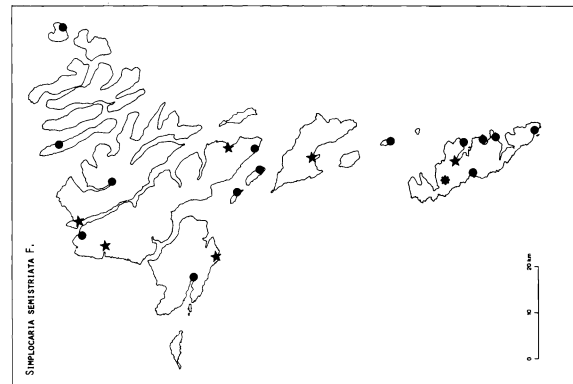
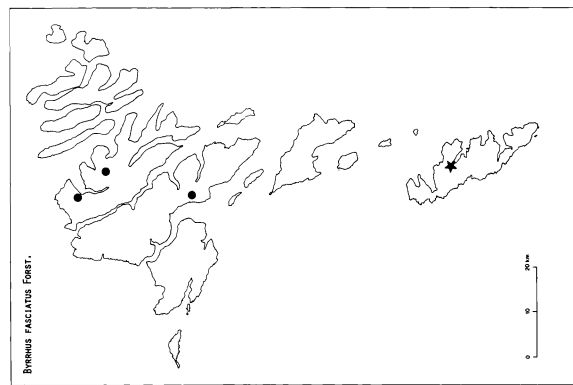
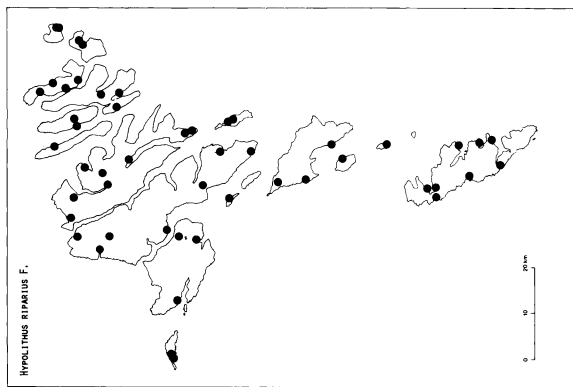
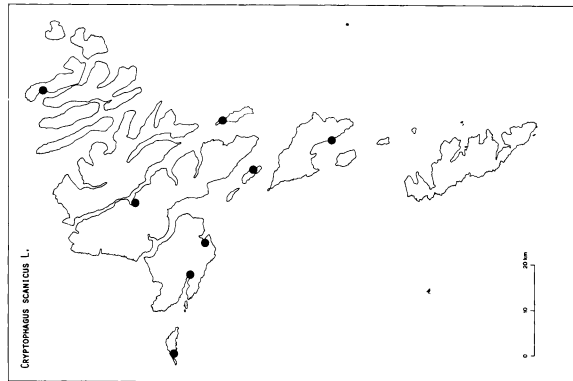
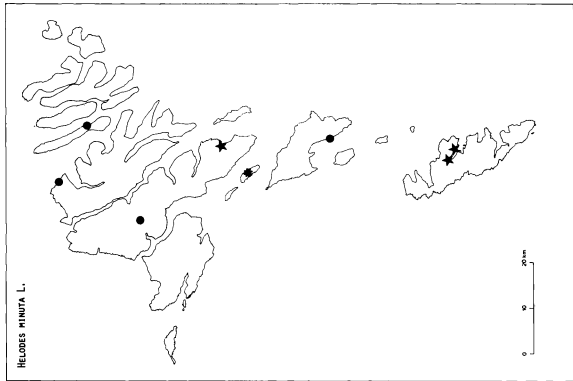


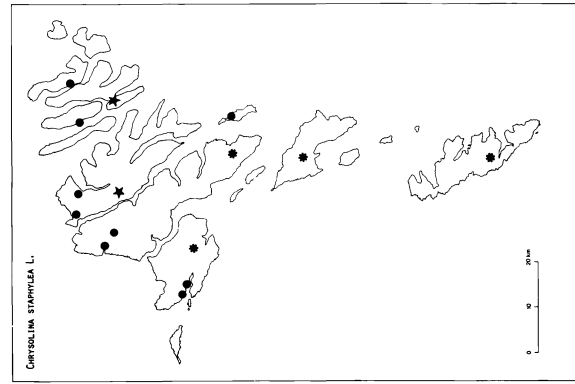
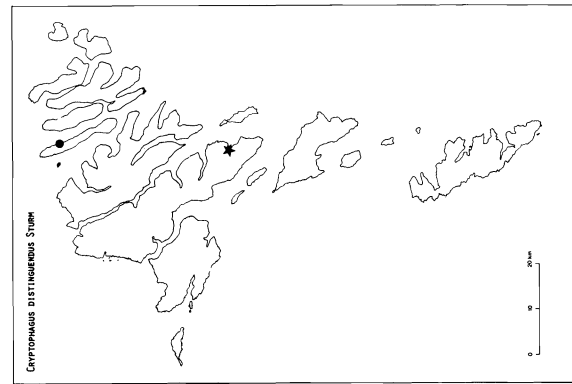
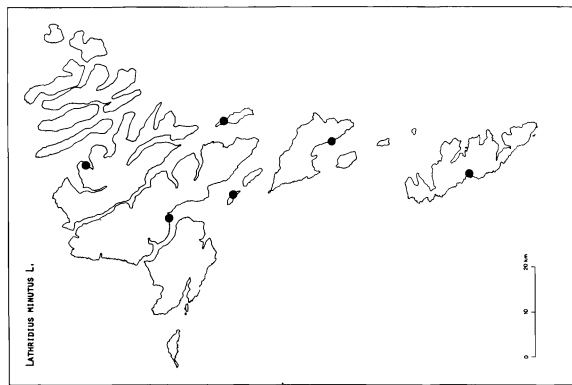
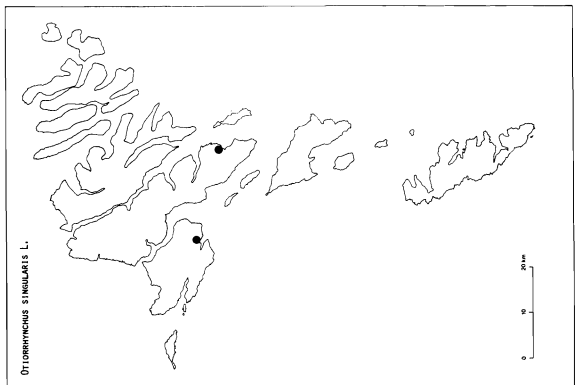
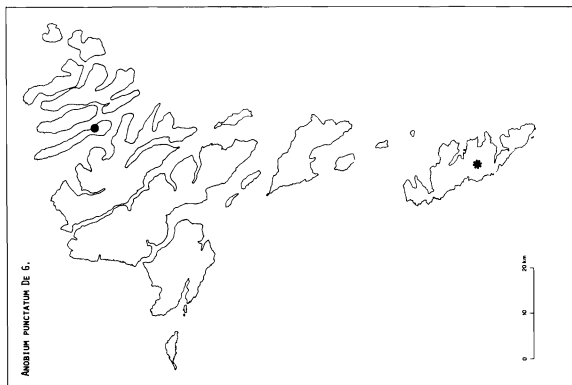
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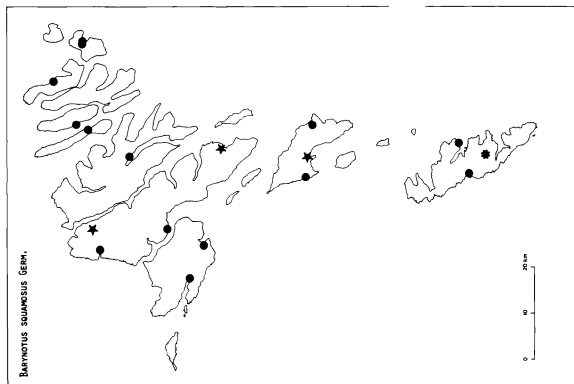
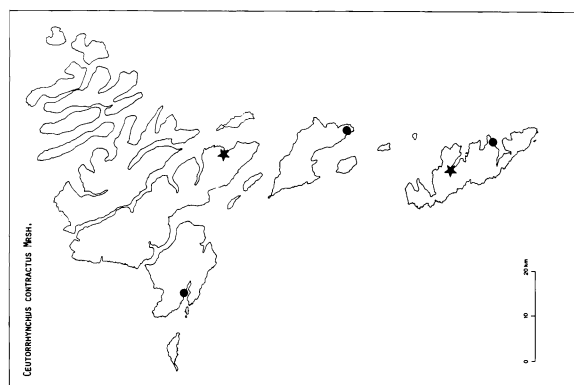
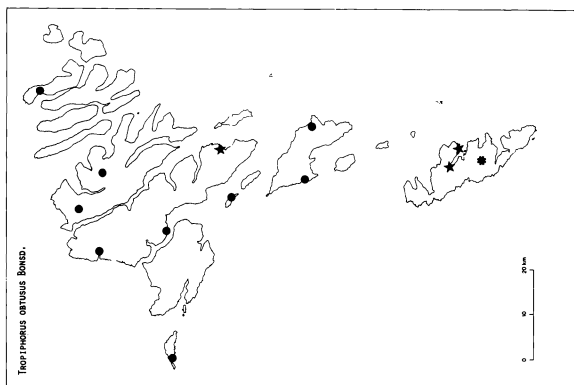
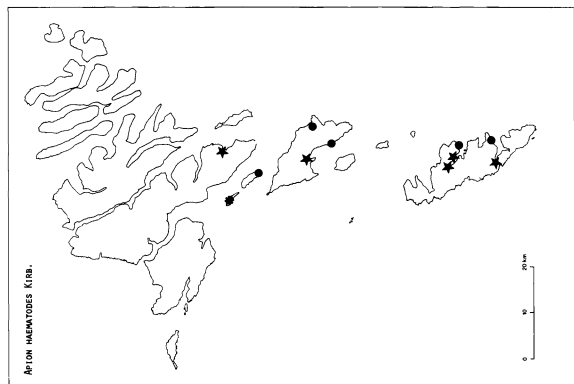
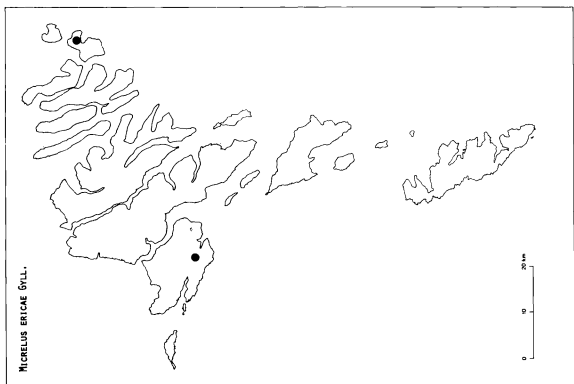
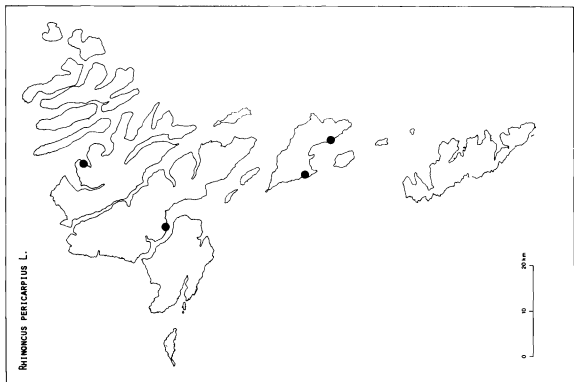












The Chalcid fauna of the Jostedalen (Hym. Chalcidoidea)

STEVE COMPTON

Compton, S. 1981. The chalcid fauna of the Jostedalen (Hym., Chalcidoidea). *Fauna norv. Ser. B.* 28, 83–89.

A total of 175 species of Chalcidoid Hymenoptera (excluding Mymaridae and Eulophidae, Tetrastichinae) were collected in the Jostedalen during July and August 1979 as part of the Hull University Biological Expedition to Norway. Of these 124 have been identified and are listed with location and date of capture. Fifteen further species, found elsewhere in Norway, but not in the Jostedalen area are also listed.

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This survey of the chalcid fauna of the Jostedalen was carried out during the 1979 Hull University Biological Expedition to Norway.

Insects were collected by sweeping during July and August 1979 in the Jostedal Valley, Inner Sogn, Norway, by myself and other members of the expedition. It has proved possible to identify most of the species obtained except for the Mymaridae and Tetrastichinae. Of those which could not be determined, several may represent species as yet undescribed.

The species obtained from the Jostedalen are listed in Table 1, with their abbreviated locality and date of capture. The locality abbreviations are explained in Table 2. Nomenclature, where possible, follows Fitton *et al* (1978) and Bouček and Askew (1968). Species marked with an asterisk (*) represent probable new records for Fennoscandia.

Several rare or otherwise interesting species were present, including *Thektogaster subvirescens* (Zetterstedt), known previously only from two nineteenth-century records from Lapland (Graham 1969). *Elachertus longipetiolus* Bouček and *Pediobius coxalis* Bouček are species new to the Western European fauna. Similarly, a single female of a species of *Trjapitzinellus* Viggiani collected at Myklemyr on 11th August is the first record of this genus from North Western Europe. *Diglyphus begini* (Ashmead) was abundant in the Jostedalen at lower altitudes. This well-known North American species (Gordh and Hendrickson 1979) is probably widespread in Western Europe, but its identity here has only recently been established (Z. Bouček, personal communication).

To allow future comparison of the Jostedalen chalcid fauna with others elsewhere, Table 3

Table 1. Chalcids collected in the Jostedalen during July and August 1979. (For explanation of locality abbreviations see Table 3. Species marked with an asterisk are probably new records for Fennoscandia).

EURYTOMIDAE

<i>Tetramesa petiolata</i> (Walker)	G	16.vii	1m		
<i>Eurytoma</i> (Bruchophagus)					
<i>platyptera</i> (Walker)	L	4.viii	8f	3m	

TORYMIDAE

<i>Megastigmus aculeatus</i> (Swederus)	G	16.vii	1f		
<i>Megastigmus bipunctatus</i>					
(Swederus)	NF	6.viii	1f,	VDM	11.viii 2f 4m
<i>Torymus</i> (Lioterphus) <i>fuscicornis</i>					
(Walker)	L	24.vii	2f,	NG	19.vii 1f

Table I (cont'd.)

PERILAMPIDAE

Perilampus tristis Mayr VDM 11.viii 1f

PTEROMALIDAE

<i>Cea pulicaris</i> Walker	SD	22.vii	2m					
<i>Spalangia erythromera</i> Förster	VDM	11.viii	5f	1m				
<i>Asaphes suspensus</i> (Nees)	G	19.vii	2f	1m				
<i>Asaphes vulgaris</i> Walker	G	16.vii	2f					
<i>Chrysolampus thenae</i> (Walker)	G	16.vii	1m					
<i>Panstenon oxylus</i> (Walker)	SD	22.vii	2f					
* <i>Sphegigaster nigricornis</i> (Nees)	G	19.vii	1f					
<i>Sphegigaster pallicornis</i> (Spinola)	NF	6.viii	1f					
<i>Cyrtogaster vulgaris</i> Walker	F	24.vii	3f		L	4.viii	1f	
	NF	6.viii	2f					
<i>Toxuma acilius</i> (Walker)	NG	19.vii	1f					
<i>Halticoptera brevicornis</i> Thomson	F	24.vii	18f	19m, FB	22.vii	2f	3m	
	G	19.vii	2f	6m, L	24.vii	1m		
	L	4.viii	3m	NF	6.viii	1f	5m	
	NG	19.vii	2m	VDM	11.viii	3f	1m	
<i>Halticoptera circulus</i> (Walker)	F	24.vii	1f	FB	22.vii	1m		
	L	4.viii	1m	LD	16.vii	1m		
	NF	6.viii	1f	1m NG	19.vii	1m		
<i>Merismus lasthenes</i> (Walker)	F	24.vii	4f	2m, G	19.vii	1m		
<i>Merismus nitidus</i> (Walker)	VDM	11.viii	1m					
<i>Nodisoplata diffinis</i> (Walker)	ND	16.vii	1f	ND	17.vii	1f		
	SD	22.vii	6f	3m				
<i>Seladerma geniculatum</i> (Zetterstedt)	F	24.vii	1m					
* <i>Seladerma scoticum</i> (Walker)	FB	22.vii	1f	G	16.vii	1f		
<i>Thektogaster subvirescens</i> (Zetterstedt)	NF	6.viii	1f					
<i>Sphaeripalpus viridis</i> Förster	F	24.vii	1f	VD	28.vii	1m		
	VDM	11.viii	1m					
* <i>Stictomischus groschkei</i> Delucchi	F	24.vii	1f	G	19.vii	2f		
	SD	22.vii	2f	VDM	11.viii	1f		
<i>Stictomischus obscurus</i> (Walker)	FB	22.vii	1f	VDM	11.viii	1f		
<i>Stictomischus tumidus</i> (Walker)	L	4.viii	1f	VDM	11.viii	1m		
<i>Miscogaster hortensis</i> Walker	G	16.vii	5f	1m NG	19.vii	1f		
	VD	28.vii	1f					
<i>Miscogaster maculata</i> Walker	F	24.vii	1f					
* <i>Lamprotatus similimus</i> Delucchi	FS	13.vii	3f	ND	17.vii	1f		
	SD	22.vii	6f	7m VSD	19.vii	10f	1m	
<i>Lamprotatus splendens</i> Westwood	FB	22.vii	1f	LD	16.vii	1f		
	VD	28.vii	1f					
* <i>Skeloceras novickyi</i> Delucchi	NF	6.viii	1f	SD	22.vii	1f		
	VDM	11.viii	2f					
<i>Skeloceras socium</i> (Zetterstedt)	G	19.vii	1f	1m				
<i>Semiotellus diversus</i> (Walker)	F	24.vii	1f					

Table I (cont'd.)

Semiotellus mundus (Walker)	F 24.vii	2f		G 19.vii	1f
	VDM 11.viii	1f			
*Gastrancistrus amaboeus Walker	NG 19.vii	1f			
Gastrancistrus compressus Walker	NF 6.viii	1m		G 19.vii	1f 1m
*Gastrancistrus crassus Walker	F 24.vii	2f		G 19.vii	5f
	S 31.vii	1f			
*Gastrancistrus dispar Graham	NF 6.viii	1f			
*Gastrancistrus fumipennis Walker	G 16.vii	1f			
Gastrancistrus glabellus (Nees)	FB 22.vii	2f	1m,	G 19.vii	2f
	VDM 11.viii	1m			
Gastrancistrus hamillus Walker	ND 16.vii	1f		NF 6.viii	2f
Gastrancistrus puncticollis (Thomson)	G 19.vii	1f			
Ecrizotes monticola Förster	F 24.vii	2f		L 4.viii	1f
	NF 6.viii	1f			
*Pirene conjungens Graham	VDM 11.viii	2f			
Pirene varicornis Haliday	F 24.vii	6f	1m,	FB 22.vii	1f
	NF 6.viii	1f		NG 19.vii	2f
	VDM 11.viii	1f			
Habritys brevicornis (Ratzeburg)	VDM 11.viii	1f			
Psilocera atra (Walker)	G 16.vii	1f			
Spintherus dubius (Nees)	G 16.vii	1f		19.vii	1f
Holcaeus compressus (Walker)	NG 19.vii	5f			
Eulonchetron torymoides (Thomson)	F 24.vii	1f			
*Stenomalina epistena (Walker)	L 4.viii	1f			
Stenomalina illudens (Walker)	G 19.vii	1m		VDM 11.viii	1f
*Chlorocytus formosus (Walker)	G 19.vii	1f			
Chlorocytus spicatus (Walker)	F 24.vii	1f		G 16.vii	3f
Psilonotus achaeus Walker	NF 6.viii	1f			
Psilonotus adamas Walker	L 4.viii	2m			
Mesopolobus incultus (Walker)	G 19.vii	1f			
Pegopus inornatus (Walker)	L 24.vii	1f		L 4.viii	1f
	LD 16.vii	1f		VDM 11.viii	4f
Trichomalus helvipes (Walker)	F 24.vii	1f		G 16.vii	2f
Trichomalus inops (Walker)	F 24.vii	1f		FB 22.vii	2f
	G 16.vii	1f		G 19.vii	2f
	L 24.vii	1f		NF 6.viii	1f
Trichomalus nanus (Walker)	NF 6.viii	4f		VDM 11.viii	1f
	VSD 19.vii	2f			
Trichomalus perfectus (Walker)	VDM 11.viii	1m			
Trichomalus rufinus (Walker)	F 24.vii	1f		L 4.viii	1f
Diglochis sylvicola (Walker)	HS 5.viii	1m			
Cœlopiisthia extenta (Walker)	NF 6.viii	1f		SKD 25.vii	1f

ENCYRTIDAE

Doliphoceras belibus (Walker)	F 24.vii	1f
Ginsiana carpetana (Mercet)	G 19.vii	1f
Prionomitus tiliaris (Dalman)	VDM 11.viii	2f

Table I (cont'd.)

APHELINIDAE

Aphelinus abdominalis Dalman	VDM 11.viii	1f		
Aphelinus chaonia Walker	F 24.vii	1f	VDM 11.viii	4f
Aphelinus varipes (Förster)	G 16.vii	2f		

TETRACAMPIDAE

Platynocheilus cuprifrons (Nees)	FB 6.viii	1m		
Foersterella flavipes (Förster)	VDM 11.viii	1f		

EULOPHIDAE

Euplectrus bicolor (Swederus)	VDM 11.viii	1f		
Elachertus artaeus (Walker)	G 19.vii	1m	L 24.vii	1f
	ND 16.vii	1f	1m, ND 17.vii	1f
	VDM 11.viii	1f		
Elachertus inunctus (Nees)	NF 6.viii	1f		
*Elachertus longipetiolus Bouček	VDM 11.viii	1f		
Cirrospilus vittatus Walker	G 19.vii	1f		
Sympiesis acalle (Walker)	NF 6.viii	1f	VDM 11.viii	1f
Sympiesis notata (Zetterstedt)	VDM 11.viii	1m		
Sympiesis xanthostoma (Nees)	VDM 11.viii	1m		
Hemiptarsenus dropion (Walker)	NG 19.vii	1m		
Dicladocerus westwoodii Westwood	VDM 11.viii	2f		
*Pnigalio agraulis (Walker)	ND 16.vii	7f	SD 22.vii	1f
	VDM 11.viii	1f		
Pnigalio longulus (Zetterstedt)	ND 17.vii	1f		
Pnigalio pectinicornis (Linnaeus)	L 4.viii	1f	G 19.vii	1f
	NF 6.viii	1f		
Pnigalio soemius (Walker)	L 4.viii	1f	SD 22.vii	2f 3m
Pnigalio tridentatus (Thomson)	VDM 11.viii	1f		
Eulophus larvarum (Linnaeus)	VDM 11.viii	1f		
Necremnus artynes (Walker)	G 19.vii	1m		
Necremnus cosconius (Walker)	G 19.vii	2m		
Diglyphus chabrias (Walker)	G 19.vii	1f	VDM 11.viii	2f
*Diglyphus begini (Ashmead)	FS 13.vii	1f	G 19.vii	2f
	LD 16.vii	1f	1m, NF 6.viii	8m
	VDM 11.viii	7f	2m	
Euderus albitarsis (Zetterstedt)	G 19.vii	2f	VDM 11.viii	1f
Euderus viridis Thomson	F 24.vii	1f		
Entedon diotimus Walker	F 24.vii	1f	G 16.vii	2f 1m
	G 19.vii	3f	3m, L 4.viii	1f
*Entedon fufius Walker	G 19.vii	1f		
Pediobius acantha (Walker)	G 19.vii	1f	L 4.viii	1f
	NF 6.viii	1f	VD 28.vii	1f
	VDM 11.viii	2f	1m	
Pediobius alcaeus (Walker)	VDM 11.viii	1f	1m	
*Pediobius coxalis Bouček	VDM 11.viii	1f		
Pediobius epigonus (Walker)	F 24.vii	1f	NF 6.viii	1f
	NG 19.vii	1m		

Table I (cont'd.)

EULOPHIDAE (cont'd.)

Pediobius eubius (Walker)	G 19.vii	1f	1m,	NG 19.vii	1f	
	VD 28.vii	1m		VDM 11.viii	6f	1m
Pediobius saulius (Walker)	ND 17.vii	1f				
Chrysocharis liriomyzae Delucchi	G 19.vii	2m				
Chrysocharis phryne (Walker)	ND 16.vii	3f		SD 22.vii	2f	
	VDM 11.viii	1f				
Chrysocharis prodice (Walker)	G 19.vii	1f		HS 23.vii	2f	
	L 24.vii	1f		NG 19.vii	2f	1m
	VD 28.vii	2f		VDM 11.vii	2f	
Chrysocharis pubicornis (Zetterstedt)	F 24.vii	1f		FB 22.vii	1f	1m
	L 4.viii	1m		ND 16.vii	1f	1m
	NF 6.viii	2f	1m,	SD 22.vii	2f	1m
	VD 28.vii	2f		VDM 22.viii	2f	3m
*Chrysocharis truncatula Graham	NG 19.vii	1f				
Achrysocharoides niveipes (Thomson)	L 24.vii	2f		NG 19.vii	1f	
Chrysonotomyia formosa (Westwood)	FS 13.vii	1f		NF 6.viii	1f	
	SD 22.vii	1f	1m			
*Asecodes coronis (Walker)	VDM 11.viii	1f				
*Asecodes mento (Walker)	F 24.vii	12f		G 16.vii	14f	1m
	G 19.vii	9f	2m,	HS 23.vii	1f	
	L 4.viii	1f		ND 17.vii	2f	
	NG 19.vii	4f	3m,	VD 28.vii	2f	
	VDM 11.viii	2f	3m			
*Omphale acamas (Walker)	F 24.vii	1f		FB 22.vii	1f	
	GD 11.viii	1f		ND 5.viii	1f	
	VD 28.vii	2f		VDM 11.viii	1f	
*Omphale betulicola Graham	VDM 11.viii	2f				
*Omphale coilus (Walker)	F 24.vii	1f		FB 22.vii	1f	
	LD 16.vii	1f		NF 6.viii	1f	
	VD 28.vii	10f		VDM 11.viii	10f	
*Omphale phaola (Walker)	SD 22.vii	49f				
*Omphale rubigus (Walker)	F 24.vii	1f		G 19.vii	1f	
Omphale salicis Haliday	F 24.vii	8f		FB 22.vii	3f	1m
	G 19.vii	3f		L 4.viii	3f	
	NF 6.viii	1f	1m,	VDM 11.viii	8f	6m
Omphale theana (Walker)	F 24.vii	1f		L 4.viii	2f	
	NF 6.viii	4f		VDM 11.viii	2f	
Ionympha carne (Walker)	VDM 11.viii	1f				
Ceraninus menes (Walker)	VDM 11.viii	1f				
*Ceraninus pacuvius (Walker)	SD 22.vii	1m				

m = male

f = female

Table 2. Details of localities presented in abbreviated form in Tables 1 and 4.

Abbreviation (Jostedal Area, Table I)	Locality
F	Fossen (MP)925
FB	Fåberg (MP1139)
FS	Fåbergstølen (MP1343)
G	Gaupne (MP0809)
GD	Geisdalen
HS	Haugafjellstølen (MP0736)
L	Leirdal (MP0517)
LD	Leirdalen Dam (MP0417)
ND	Nigardalen
NF	Nigard to Fåberg Road
NG	Gaupne to Leirmo Road
S	Snötun (MP0635)
SD	Stordalen
SKD	Skåldalen
VD	Vigdalen
VDM	Myklemyr and Vigdalen hair-pins
VSD	Vassdalen
(Elsewhere in Norway, Table IV)	
H	Hafslo MN0399)
K	Kaupanger
O	Oslo
B	Paradis, Bergen

Table 3. Summary of the Chalcid fauna collected in the Jostedal during July and August 1979.

Family	Sub-Family	Genera	Species	Specimens	
Eurytomidae		2	7	22	
Torymidae		3	10	68	
Perilampidae		1	1	1	
Pteromalidae	— Ceinae	1	1	2	
	— Spalangiinae	1	1	6	
	— Asaphinae	1	2	5	
	— Chrysolampinae	1	1	1	
	— Panstenoninae	1	1	2	
	— Miscogasterinae	17	40	228	
	— Pteromalinae	17	37	105	
		—	39	—	349
Encyrtidae		9	16	23	
Aphelinidae		2	4	9	
Tetracampidae		2	2	2	
Eulophidae	— Eulophinae	10	20	65	
	— Tetrastichinae	1	—	375	
	— Euderinae	1	2	7	
	— Entedontinae	9	29	293	
		—	21	—	740
Trichogrammatidae		1	1	1	
Mymaridae		—	—	38	

*Total Eulophidae excluding Tetrastichinae.

Table 4. Chalcids collected in Norway outside the Jostedal area, 1979. (For explanation of locality abbreviations see Table 2. Species marked with an asterisk are probably new records for Fennoscandia).

<i>Syntomopus oviceps</i> Thomson	H	3.viii	1 m
* <i>Seladerma caledonicum</i> Graham	B	11.vii	1 f
<i>Seladerma sabbas</i> (Walker)	B	11.vii	1 f
<i>Seladerma tarsale</i> (Walker)	B	10.vii	1 f; B 11.vii 2 f
<i>Homoporus luniger</i> (Nees)	K	27.vii	1 f, 1 m
<i>Pteromalus puparum</i> (Linnaeus)	H	3.viii	1 m
* <i>Chlorocyclus deschampsiae</i> Graham	H	3.viii	1 f
<i>Elachertus isadus</i> (Walker)	O	16.viii	1 f
<i>Hemiptarsenus unguicellus</i> (Zetterstedt)	B	11.vii	2 m
<i>Entedon hercyna</i> Walker	B	11.vii	2 f
<i>Chrysocharis melaenis</i> (Walker)	B	11.vii	1 f
* <i>Chrysocharis polyzo</i> (Walker)	B	11.vii	1 f
* <i>Chrysocharis submutica</i> Graham	B	11.vii	1 f
<i>Omphale lugens</i> (Nees)	B	10.vii	6 f; B 11.vii 1 f
* <i>Ionympha ochus</i> (Walker)	B	11.vii	1 f; K 27.vii 1 m

M = male

f = female

contains a summary of all species and specimens obtained including those for which identification is not complete. Bouček (1977) has suggested that in Europe the number of chalcid species to be found in an area approximates to the number of plant species growing there. This sample of around two hundred species would be only a small part of the total fauna predicted on this basis for the Jostedal area, but nonetheless provides an indication of the relative importance of particular families and sub-families in terms of abundance of genera, species and individuals. For example, *Miscogasterinae* and *Entedontinae* are groups especially well represented in the Jostedal area.

Several chalcid species obtained *en route* to and from the Jostedal area were not found in the valley itself. These are listed in Table 4 with locality abbreviations explained in Table 2.

ACKNOWLEDGEMENTS

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The migrant moth *Spodoptera exigua* (Hübner) (Lepidoptera, Noctuidae) recorded in Norway

LEIF AARVIK

Aarvik, L. 1981. The migrant moth *Spodoptera exigua* (Hübner) (Lepidoptera, Noctuidae) recorded in Norway. *Fauna norv. Ser. B*, 28, 90–92.

A capture of *Spodoptera exigua* (Hübner) at Siljan TEy in August 1964 is recorded. The 1964 invasion to north Europe is reviewed and possible immigration routes to Norway are discussed. Notes on diagnostic characters, distribution, and biology are given.

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INTRODUCTION

Among Lepidoptera several migrant species are known. In the family Noctuidae the pest species *Mythimna unipuncta* (Haworth) is well known. Another migrant noctuid is *Autographa gamma* (L.), which is often seen in great numbers in Scandinavia.

One of the most remarkable moth immigrations to north Europe was the invasion of *Spodoptera exigua* (Hübner) to Finland and neighbouring countries in 1964. This invasion was analysed by Mikkola & Salmensuu (1965), and the arrival route to Finland was traced.

When examining unidentified Lepidoptera in the collection of Alf & Sigurd Bakke, I discovered two females of *Spodoptera exigua*. They had been captured in a light trap at Siljan TEy (EIS 18) on 15 August 1964, Alf Bakke leg. This is the first capture of the species in Norway.

The arrival route of the 1964 immigration to Finland, Sweden, and Denmark

The course of the swarm has been thoroughly described by Mikkola & Salmensuu (1965). Here a brief review only is presented.

Because of intense collecting activity with light traps in Finland in August 1964 it was possible to obtain information on the invasion. Specimens captured in other countries were also attracted to light. Meteorological data as well as reports of the species from the USSR indicated that the swarm originated from an area in the direction of Kazakstan. The swarm reached southeast Finland on 6 August, and at that time it probably consisted of several hundred million individuals. During three days it passed Finland, decreasing all the time. So far the swarm had

followed a warm wind from southeast. On 7 August the wind turned, and the swarm continued in a southwestern direction. Two specimens were caught in Riga on 8 August. The swarm passed southeast Sweden and reached Denmark on 10 August when one specimen was caught in Copenhagen and four ones were caught in Bornholm.

The first Swedish records do not fit in with the advance schedule reviewed above. Two specimens were trapped in Södermanland near Nyköping on the night 6–7 August, when the van of the swarm still was in Finland 400 km. away. A third early specimen was captured in Öland the following night. This group of moths is believed to have advanced to Sweden in the upper atmospheric strata rather than having flown exceptionally through the day.

Altogether 1365 specimens were captured in Finland from 5 August to 12 September. The northernmost locality was Utajärvi in Ostrobothnia borealis southern part.

In Sweden 19 specimens were caught between 6 August and 1 September in seven provinces from Västmanland and Uppland southwards to Skåne (Nordström et al. 1969).

In Denmark 41 specimens were caught between 10 and 28 August. Records were made in Bornholm, Møn, Falster, Zealand, and Jutland (Kaaber & Norgaard 1965).

The arrival route to Norway

Obviously there are two alternatives as to the moths' arrival route: Either they have come from the east having crossed central Sweden and the Oslofjord area, or they have come from the south, from northern Jutland. These alternatives are indicated on the map (Fig. 1).

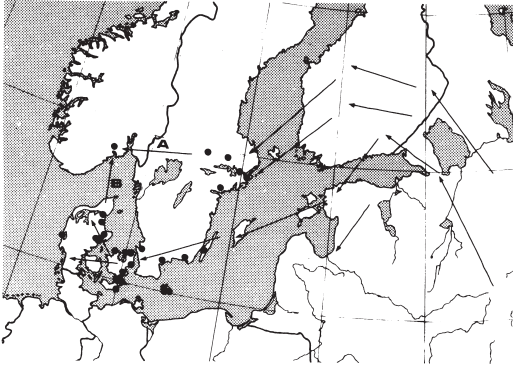


Fig. 1. The invasion of *Spodoptera exigua* to north Europa in August 1964. Records made in Denmark, Norway, and Sweden are indicated by black dots. A and B are possible immigration routes to Norway. Modified after Mikkola & Salmensuu (1965) and Nordström et al. (1969).

On 12 August there was an easterly and northeasterly breeze over southern Scandinavia. During the next day this breeze subsided, and 14 August was calm. On the night 14–15 August a southern and southwesterly breeze extending to southeastern Norway appeared.

Judging from the Finnish observations *S. exigua* demands temperatures higher than 10°C for flying. The night temperatures of the period 11–15 August in the area under consideration were higher than 10°C except for the night 13–14 August.

As to the possible arrival route through central Sweden, there is no geographical barrier which could have hindered the moths. In addition the weather conditions in the actual period were favourable except for one night. The lack of records in the region between the Norwegian and Swedish localities may be explained by absence of collectors.

Several *S. exigua* were captured in Jutland on 13 August. Two of them were caught at Mou in the northern part of the peninsula. As there was a southern and southwesterly breeze the night 14–15 August, it does not seem unlikely that moths have continued with the flow northwards from Jutland. The distance across Skagerrak from Skagen to Siljan is approximately 170 km.

It is difficult to determine with certainty which of the two alternative routes the moths have used. In fact moths may have come to Norway both ways. The low collecting activity in Norway at that time gives us very little informa-

tion. Whereas in Finland at least hundred moth lamps were in use every night throughout August 1964, certainly not more than five were in use in Norway. As a consequence we have no means to establish whether Norway was invaded by one or more wave of this moth, or if just a few individuals reached us.

When considering both the meteorological data and the records of *S. exigua* in Denmark and Sweden, I conclude that the moths could have reached Norway both from Sweden and Denmark.

Diagnostic characters of *Spodoptera exigua*

S. exigua shows some resemblance with *Cara-drina clavipalpis* (Scopoli). According to K. Mikkola (pers. comm.) it can be recognized by the following characters: Forewings light yellowish grey. Orbicular and reniform stigma more or

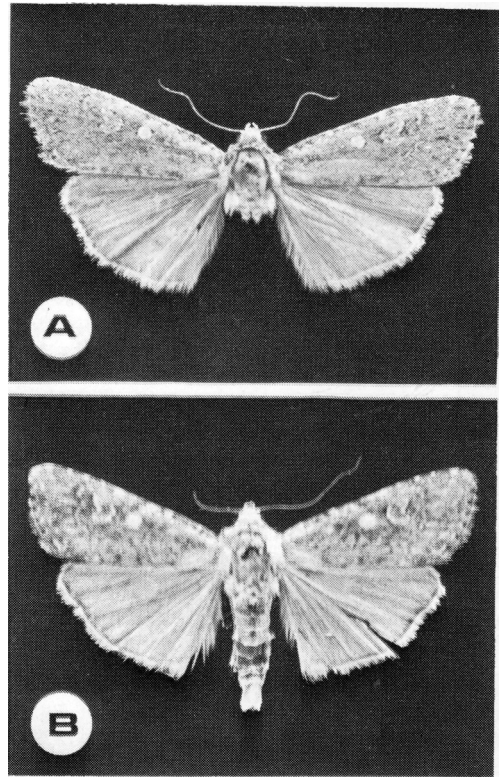


Fig. 2. *Spodoptera exigua*. Expanse of the species 25–30 mm. A: Female from Siljan, Norway. B: Male from Djeddah, Saudi-Arabia.

less filled with yellow. The former has a characteristic reddish brown dot in the middle. Hindwings silky, translucent, with veins and terminal line dark.

Distribution of *Spodoptera exigua*

The distribution of *S. exigua* is almost cosmopolitan. It occurs in Europe, Australia, tropical and subtropical Asia, the whole of Africa, and large parts of America (Mikkola & Salmensuu 1965).

The first record in north Europe was made in Bornholm in 1924, the second at Fanø, Denmark in 1947. Danish records were also made in 1952, 1960, and in 1962 when 60 specimens were captured in Zealand. The first Fennoscandian specimens were recorded in Finland 1958 (two specimens) and 1959 (one specimen) (Mikkola & Salmensuu 1965). In Denmark *S. exigua* was also captured in the years 1966, 1967, 1968, 1969, 1972, 1974, and 1975 (K. Larsen pers. comm.). In Sweden *S. exigua* was captured in Gotland in 1969 and 1972 (L. Imby pers. comm.), and in 1972 further specimens were recorded in south Finland (Mikkola & Jalas 1979).

Biology of *Spodoptera exigua*

According to Mikkola & Salmensuu (1965) the larva of *S. exigua* is highly polyphagous. They mention cotton, maize, cereals, plants of the fa-

mily Solanaceae, the tea plant, and grape-vine. The species develops very quickly. Development indoors from the egg to the imago stage took little more than a month (Mikkola & Salmensuu 1965).

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I wish to express my gratitude to L. Imby, K. Larsen, and K. Mikkola for valuable information, to G. Wiig for taking the photographs, and to A. Moene and J.-E. Johnsen for providing the meteorological data. Finally I am indebted to Dr. A. Bakke for loan of material and for valuable comments on the manuscript.

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The species of the subgenus *Tipula* L. (Dipt., Tipulidae) in Norway

TROND HOFVANG

Hofsvang, T. 1981. The species of the subgenus *Tipula* L. (Dipt., Tipulidae) in Norway. *Fauna norv. Ser. B.* 28, 93–95.

The distribution of the two Norwegian species, *Tipula (Tipula) paludosa* Meigen 1830 and *Tipula (Tipula) czizeki* de Jong 1925, is presented. Some comments are given upon the larvae of the two species as agricultural pests.

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INTRODUCTION

Larvae of Tipulidae can be serious agricultural pests feeding on roots and undergrown stems of different crops, such as cereals, root crops and vegetables. On warm, damp nights larvae can be found on the surface, destroying leaves and cutting off plants at soil level. Injuries are frequent when arable crops are planted on old pastures of leys which have been ploughed in. The most serious pest species are found within the subgenus *Tipula* L.

Only three of the ten European species of the subgenus *Tipula* occur in the north-western part of Europe (Den Hollander 1975). The three species are *Tipula (Tipula) paludosa* Meigen 1830, *Tipula (Tipula) oleracea* L. 1758, and *Tipula (Tipula) czizeki* de Jong 1925.

T. oleracea has been reported as far north as Skåne in Southern Sweden (Tjeder 1953, 1955, pers. comm.). *T. paludosa* and *T. czizeki* are distributed north to Lule Lappmark in Sweden (Tjeder 1955, 1975, Tobias 1975). The present study summarizes the hitherto known distribution of *T. paludosa* and *T. czizeki* in Norway. *T. oleracea* has not been recorded from Norway.

MATERIAL AND METHODS

Adult specimens of *T. paludosa* and *T. czizeki* from the zoological museums in Norway are included. Additional records published by Lackshewitz (1935) and Tjeder (1965) are given. Specimens have also been collected by T. Edland, R. Mehl, G. Taksdal and the author from different parts of the country. To study the flight periods more closely, specimens of the two spe-

cies were especially looked for and collected during the years 1975–1980 in the Oslo–Ås area.

RESULTS

Fig. 1 shows the records of adult *T. paludosa* and *T. czizeki* from Norway on EIS-maps (cf. Økland 1977). During the years 1975–1980 adults of *T. paludosa* were captured during the period 24 July–27 August in the Oslo–Ås area (EIS 28). The total material presented in Fig. 1 was recorded between 10 July and 4 September.

T. czizeki has a late appearance as imago and has probably been overlooked. This is the possible explanation of the scarce material of this species (Fig. 1). The collecting dates of the total material of *T. czizeki* from Norway are between 29 August and 7 October.

When one is aware of this species, a distinct, but short flight period can be observed each year. In the Oslo–Ås area adults were found 18 September–7 October 1979 and 19 September–23 September 1980 in rather large amounts on lawns.

DISCUSSION

T. paludosa has a flight period in late July and in August in Norway. The flight periods in other parts of western Europe are from early August to the middle of September, sometimes extended to early October (Robertson 1939, Maercks 1951, Laughlin 1967, Den Hollander 1975). In England northern populations of *T. paludosa* in areas with relatively cold wet climate have an

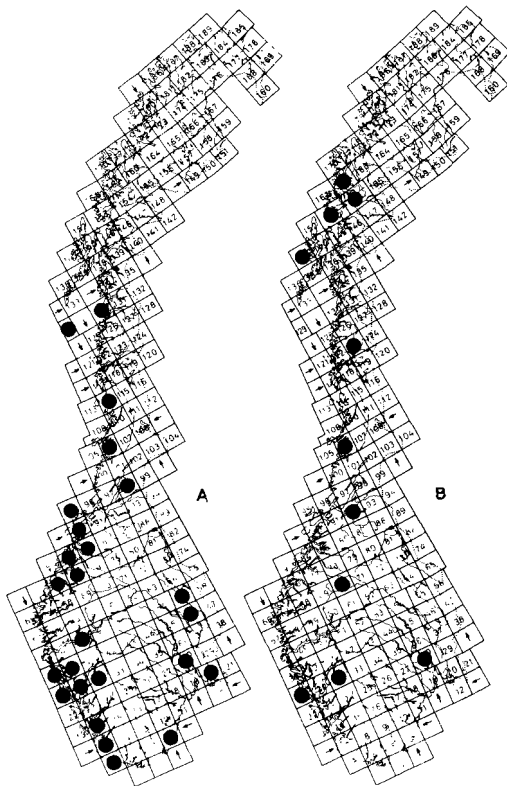


Fig. 1. Records of adult *Tipula* (*Tipula*) *paludosa* Meigen, 1830 (A) and *Tipula* (*Tipula*) *czizeki* de Jong, 1925 (B) from Norway.

earlier flight season, more like the Norwegian records, as a result of a shortening of prepupal/pupal period (Coulson 1962, Meats 1975).

The reports of the Government Entomologists W.M. Schøyen (1891–1913) and T.H. Schøyen (1914–1941) and inquiries to the Norwegian Plant Protection Institute (1947–1980) show that the most serious injuries of tipulid larvae, occur in the coastal areas of South Norway, especially along the western coast. Eggs and first larval instar of *T. paludosa* are susceptible to desiccation (Maercks 1939, Coulson 1962, Milne et al. 1965). In Germany the injuries are severe in the north-western part with a more coastal climate (Maercks 1939, 1941a). The western part of South and Mid-Sweden have a similar climate condition, and the most serious attacks by tipulid larvae on crops occur here (Borg 1964).

The injuries on crops by tipulid larvae in Norway are reported from May and June, and they

are most probably caused by last instar larvae of *T. paludosa* prior to pupation in July. *T. paludosa* overwinters in the third larval stage, although some second instar larvae are present in the population during the winter (Coulson 1962, Laughlin 1967). When the soil temperature rises in the spring, the fourth instar larvae have a burst of feeding and increase the mean weight by 200–300% and reach a peak weight of 300–500 mg (Laughlin 1967).

The larvae of the different species of the subgenus *Tipula* are difficult to separate (Theowald 1967). The second Norwegian species of this subgenus, *T. czizeki*, spends the winter in the egg stage (Sellke 1936, Maercks 1941b), and has a very late flight season. The last instar larvae of *T. czizeki* most likely occur in late July and August in Norway and are therefore not responsible for the reported injuries. In Sweden only *T. paludosa* has been reported as an agricultural pest species (Borg 1964). However, one cannot disregard that fullgrown larvae of *T. czizeki* might do some damage locally by feeding on roots in late summer.

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The genus *Opomyza* (Fallén) (Dip., Opomyzidae) in Norway

LITA GREVE

Greve, L. 1981. The genus *Opomyza* (Fallén) Dipt., Opomyzidae in Norway. *Fauna norv. Ser. B.* 28, 96—99.

Material of the genus *Opomyza* (Fallén) in Museum of Zoology, Univ. Bergen; Museum of Zoology, Univ. Oslo and Royal Society of Sciences, The Museum, Trondheim has been examined and revised. It includes 107 specimens belonging to 6 species. A key to the six *Opomyza* species known presently in Norway is given, viz. *O. florum* (Fabricius, 1794), *O. germinationis* (L., 1761), *O. lineatopunctata* von Roser, 1840, *O. petrei* Mesnil, 1934, *O. punctata* Haliday, 1833 and *O. punctella* Fallén, 1820. *O. lineatopunctata* von Roser and *O. petrei* Mesnil are reported from Norway for the first time. Lists of records are given. The distribution of the species are mapped in the terms of the 50 km squares of the European Invertebrate system for Norway.

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INTRODUCTION

The family Opomyzidae belongs to the group Schizophora in the suborder Cyclorrhapha. Many of species has wing spots, but not all. The Opomyzidae are rather small flies with a body length of approximately 2.5—4 mm. The head is more or less rounded with one pair of orbital bristles on frons. In some species a prominent peristomal bristle is present which can be mistaken for a vibrissa. In the genus *Opomyza* the arista is pubescent, in other Opomyzidae, it can have longer dorsal hairs. Pre- and post-sutural dorsoventral bristles are present, 1 + 2 in some species, 1 + 3 in others. The wings are relatively long and more or less narrow. The subcosta is partly melted together with radius 1. There is a «break» in the costa shortly before the end of the subcosta. The scutellum has 2 basal bristles, and 2 lateral bristles. The legs are lacking dorsal preapical bristles on the tibia, the middle tibiae has a long ventral spur. The male genitalia show systematic characters.

The larvae live in the shoots of Gramineae and also in cereals, hence the Norwegian name «Gressfluer», (Grassflies).

Earlier records used the name Opomyzidae on several genera now placed in other families. Siebke (1877) lists three species of *Opomyza* from Norway, viz. *O. germinationis* (L.), *O. florum* (Fabr.) and *O. punctella* Fallén.

In the list of localities Løken's (1973) modifications of Strand's (1943) system has been used.

In the maps EIS squares are used. For material in the different museums the following abbreviations has been used: DKNVS (Royal Norwegian Society of Sciences, The Museum, Trondheim), ZMO (Museum of Zoology, Oslo), ZMB (Museum of Zoology, Bergen).

KEY TO THE GENERA OF OPOMYZIDAE IN SCANDINAVIA

1. Postvertical bristles present. Large eyes, formed like a square. Dark wings with white spots. Hitherto not found in Norway. . . . *Anomalochaeta* Frey, 1921.
2. Without postvertical bristles. Either hyaline wings or wings with dark spots. Rounded eyes 2.
3. Wings with prominent hind corners. Arista pubescent. The four bristles on scutellum are of the same size *Opomyza* Fallén 1820.
Wings without prominent hind corner, usually more narrow than in *Opomyza*. Arista with longer dorsal hairs in many species, but not all. The lateral bristles on scutellum shorter and not so prominent as the dorsal ones *Geomyza* Fallén 1810.

Key to the species of *Opomyza* Fallén recorded from Norway

This key covers the six species which hitherto have been found in Scandinavia. A seventh species *O. nigrivertris* Loew 1865 has been found in Finland. For the identification of this species see Hackman (1959).

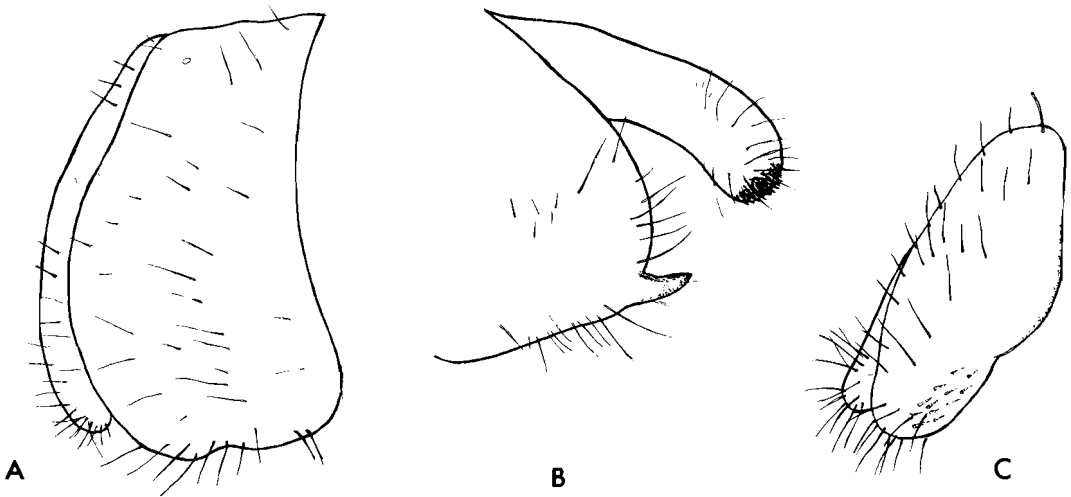


Fig. 1 Male hypopygium and part of cerci seen in profile (A) and from behind (obliquely upwards) (B) *O. petrei* Mesnil, 1934.

Male hypopygium and part of cerci (C) *O. lineatopunctata* (V. Roser 1834).

O. nigriventris is easterly in distribution in Finland, and reported as rare.

1. The costal margin of the wings infuscated from the end of subcosta and all the way to the wing tip 2.
- The costal margin dark only at the wing tip, not all along the margin 3.
2. Abdomen dark, brownish grey. Yellow spots laterally near the border of the tergites. Some specimens lack yellow spots all together. *Opomyza germinationis* L., 1761).
- The abdomen yellow with the following dark markings: Dorsally a narrow median line; laterally dark borders of the tergites in contrast to the yellow colour *O. petrei* Mesnil, 1934.
3. Thorax with a dark median line dorsally. Third rib with separate dark spots. Occasionally an extra crossrib in the basal cell. Yellow abdomen. *O. lineatopunctata* von Roser, 1840.
- Without dark median line on thorax 4.
4. Wings with an extra crossrib in the basal cell. This rib is always clouded. In some specimens the cross-rib is not very distinct. *O. punctella* Fallén, 1820.
- Without extra-crossrib in basal cell. 5.
5. Third rib without separate clouded spots, sometimes infuscated. *O. florum* (Fabricius, 1794)
- Third rib with separate clouded spots *O. punctata* Haliday, 1833.

REMARKS

The male genitalia of *O. germinationis* and *O. petrei* is very similar. (See Fig. 1 A and B). The hypopygium is of the same form in the two species, but with lower numbers of hairs in *O. petrei* especially near the prominent tooth (1 B) on the lower end. On the mesolobes of *O. petrei* there are numerous small black spines (Fig. 1 B), lacking in *O. germinationis*. However, the difference in colour of the abdomen serves to separate the species. I have seen only two males of *O. petrei*. One specimen (drawn) lacked the two large setae found on the top of the hypopygium, probably broken off. The other had the two setae intact. Compared to setae in males of *O. germinationis* they are distinctly stronger and longer at least in this specimen.

Fig. 1 C shows a lateral view of the hypopygium of *O. lineatopunctata*. The form is somewhat like that of *O. punctata*. *O. lineatopunctata* lacks the prominent hook found in *O. germinationis* and *O. petrei* shown in Fig. 1 B. Both setae on the top of the hypopygium was broken, one, however, is stippled on the Fig. 1 C drawn from another specimen.

SYSTEMATIC LIST

1. *Opomyza florum* (Fabricius, 1794)

New and revised records:

Ak: Oslo, Tøien EIS 28 1 ♂ leg. H. Siebke 27 July 1847 (ZMO No. 6603), 1 ♀ 28 July 1847 (ZMO No. 6602), 1 ♂ 5 Sept. 1849 (ZMO No. 6600), 1 ♀ 29 July 1851 (ZMO No. 6601). VE: Sandefjord, Sandefjord EIS 19 1 ♀ leg. H. Siebke (ZMO No. 6616). TEI: Kviteseid, Triset EIS 17 1 ♀ 2 July 1975 leg. L. Greve (ZMB). STi: Dovre EIS 79 1 ♂ leg. H. Siebke (ZMO No. 6614).

The male labelled «Dovre» was according to Siebke (1877) taken at: STi: Oppdal Drivstuen.

Unverified records: MRy: Vestnes, Vestnes (Siebke, H., 1877). One specimen is present in DKNVS without any data. (See also under *O. punctata*.)

2. *Opomyza germinationis* (L., 1761)

New and revised records:

Ak: Oslo, Oslo EIS 28 1 ♂, 1 ♀ leg. H. Siebke (ZMO Nos. 6594, 6595), 1 ♂ leg. L.M. Esmark (ZMO Nos. 6597). VE: Larvik, Laurvik (= Larvik) EIS 19 1 ♀ leg. H. Siebke (ZMO No. 6596). Bv: Hol, Ustaoset EIS 42 1 ♀ 3 July 1980 leg. L. Greve (ZMB). Ry: Hå, Brusand EIS 3 1 ♀ 4 Aug. 1960; Tysvær, Kårstø EIS 22 8 ♂ 6 ♀ 13 July 1981, 1 ♂ 3 ♀ 14 July 1981 leg. L. Greve (ZMB). HOy: Bergen, Bergen EIS 39 1 ♀ 27 June 1874 leg. Schneider (ZMO No. 6598); Bergen (Åsane), Vollane EIS 39 1 ♀ 10 July 1972, 1 ♀ 6 July 1981 leg. L. Greve; Os, Søfteland EIS 31 1 ♂ 25 Sept. 1966 leg. A. Løken; Telleviki EIS 31 3 ♂ 1 ♀ 3 Aug. 1980 leg. Arild Fjeldså; Haus, Kleppe EIS 40 1 ♂ 1 ♀ 11 July 1956 leg. Godskeleiren; Sund, Telavåg EIS 30 1 ♂ 17 July 1953 leg. A. Løken; Meland, Brakstad EIS 39 1 ♂ 7 July, 1 ♂ 1 ♀ 8 July 1967, 1 ♀ 24 Aug. 1968 leg. L. Greve, Fana, Espeland, (Institute of Marine Biology) EIS 30 1 ♀ 26 June 1951, 1 ♀ 27 June 1951 leg. A. Løken, 5 ♂ 7 ♀ (Inst. of Marine Biology) leg. A. Tjønneland, Askøy, Herdla, N. Valen EIS 39 3 ♀ 26 June 1980 leg. Arild Fjeldså (ZMB). HOi: Strandebar, Bakke EIS 31 1 ♂ 10 July 1974 leg. L. Greve; Jondal, Tørrvikbygd EIS 31 1 ♀ 13 July 1971, 1 ♂ 19 July 1971 leg. H.R. Skjoldal; Kvinnherad, Rosendal EIS 31 1 ♀ 13 June 1965 leg. student excursion; 4 ♂ 1 ♀ 26 Aug. 1968 leg. student excursion. Kvam, Ålvik EIS 41 1 ♂ 18 July 1964 leg. A. Løken (ZMB); SFi: Jølster, Skei EIS 59 1 ♀ 25 July 1974 leg. L. Greve (ZMB). MRy: Smøla, Smøla EIS 90 1 ♀ leg. H. Siebke (ZMO No. 6593). Vestnes, Vestnes EIS 77 1 ♀ leg. H. Siebke (ZMO No. 6599).

Unverified records: *O. germinationis* also is published by Siebke from Ø: Halden, Fredrikshald, VE: Stavern, Stavern; Sandefjord, Sandefjord and MRy: Ørskog (Siebke, H., 1877).

Based on the material in this survey *O. germinationis* seems to be common in southern Norway. At least this is proved for western Norway.

The locality from Ustaoset was at 1000 masl in a vegetation of rich grass meadow and herbage. Other specimens from Vollane, Åsane, and Brakstad, Meland are from gardens. The locality at Herdla is a bare grass meadow near the sea and likewise the locality at Telavåg represents the outermost islands on sea west of Bergen.

3. *Opomyza lineatopunctata* von Roser, 1840.

New records:

AAy: Landvik, Skiftenes UTM 32 MK 702747 EIS 6 2 ♂ 1 ♀ 6 Aug. 1971 leg. E. Oug. (ZMB). HOy: Bergen, Helleneset EIS 39 1 ♀ 1 Aug. 1980 leg. A. Fjeldså (ZMB). *O. lineatopunctata* is reported from Norway for the first time. The species has hitherto not been found in Fennoscandia. It has been reported from England (Collin, 1945). Fig. 1 C male genitalia.

4. *Opomyza petrei* Mesnil, 1934.

New records:

Ry: Tysvær, Kårstø EIS 22 1 ♂ 13 July 1981, 1 ♀ 14 July 1981 leg. L. Greve (ZMB). HOy: Askøy, Herdla EIS 39 1 ♂ 29 July 1935 leg. N. Knaben (ZMB). HOi: Strandebar, Bakke EIS 31 1 ♀ 10 July 1974 leg. L. Greve (ZMB).

O. petrei is reported from Norway for the first time. The species has been reported from Denmark and Southern Sweden (Andersson, 1962) and England (Collin, 1945), but not from Finland (Hackman, 1980). *O. petrei* can be distinguished both by the genitalia (Fig. 1 AB) of the male and the colour of the abdomen which is strikingly different from *O. germinationis* which has the same wing colouring. One female was caught together with *O. germinationis* in a garden at Bakke. Both species also occurred together at Kårstø.

5. *Opomyza punctata* Haliday, 1833.

New and revised records:

Ak: Oslo, Tøien EIS 28 1 ♂ 1 ♀ leg. H. Siebke (ZMO Nos. 6604, 6605). HOi: Eidfjord, Simadalen EIS 41 3 ♀ 10 Aug. 1981 leg. L. Greve (ZMB). SFi: Aurland, Aurland EIS 51 2 ♂ 23 July 1981 leg. L. Greve (ZMB); Lærdal, Lærdalsøyri EIS 51 1 ♀ 24 July 1981 leg. L. Greve (ZMB).

Two specimens from Ak had been determined as *O. florum* (Fabr.). Hackman (1959) remarks as to the slight difference in the male genitalia of *O. florum* and *O. punctata*. The difference used in previous keys (Collin, 1945, Hackman, 1959 and Czerny 1928) is that in *O. punctata* the last part of the cubital wing has dark, small spots or clouds. However, in *O. florum* some individuals also have very weak infuscation. A revision based on a larger material should be made. Andersson (1962) reports *O. punctata* from southern Sweden and Denmark.

Siebke (1877) probably refers to these two specimens as *var. b.* Zett. under *O. punctella* Fall. Thus reported as *O. punctata* Haliday for the first time from Norway in this survey.

6. *Opomyza punctella* Fallén, 1820.

New and revised records:

Ak: Oslo, Tøien EIS 28 1 ♂ 24 Aug. 1847 leg. H.

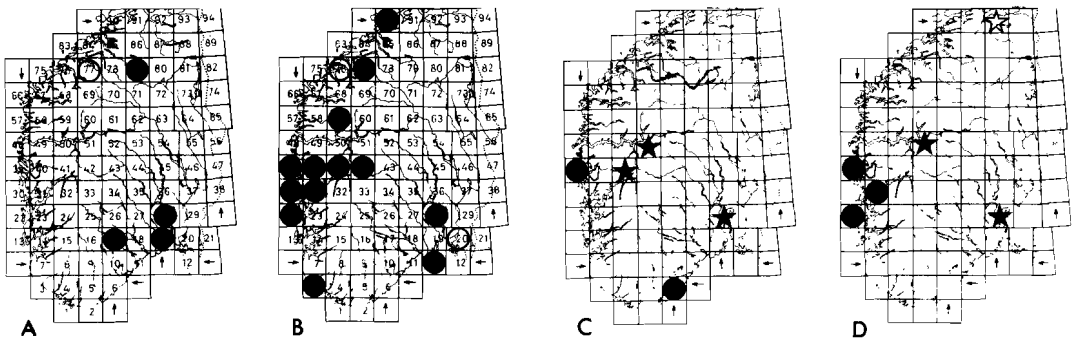


Fig. 2. Records of *Opomyza* Fallén from Norway. — A) *O. florum* (Fabr., 1794) — closed circles verified records, open circle unverified record. B) *O. germinationis* (L., 1761) — closed circles verified records, open circles unverified records. C) *O. lineatopunctata*

von Roser, 1840 — closed circles. *O. punctata* Haliday, 1833 — closed stars. D) *O. petrei* Mesnil, 1934 — closed circles. *O. punctella* Fallén, 1820 — closed stars verified records, open star unverified record.

Siebke (ZMO No. 6611), 2♂♂ 30 Aug. 1849 leg. H. Siebke (ZMO Nos. 6609, 6610), 1♂ 31 Aug. 1849 leg. H. Siebke (ZMO No. 6608), 3♂♂ 1♀ leg. H. Siebke (ZMO Nos. 6606, 6612, 6613, 6607), 1♀ Oslo leg. Esmark (ZMO No. 6615). SFi: Aurland, near Tero EIS 51 1♀ 21 July 1981, 3♂♂ 2♀♀ 25 July 1981 leg. L. Greve (ZMB). Unverified records: Storm (1896) mentions *O. punctella* from STy; Rissa, Stadsbygd. It is not present in the collections of DKNVS.

Geographical distribution

None of the six species mentioned above have been found north of southern Trøndelag province. However, the material is small and very surely not representative for the whole country. (See Fig. 2 A—D).

Hackman (1959) in his survey of the Finnish material of Opomyzidae reports no finds from the northernmost parts. He mentions *O. florum*, *O. punctella*, and *O. punctata* as fairly widespread in central and southern Finland. *O. germinationis* has only been found at Åland and seems to be westernly in distribution. Andersson's (1962) distributional survey reports these species as found in central and southern parts of Sweden. In Sweden, however, *O. germinationis* is referred to as common which supports my view that it might be the most common species in Norway. It is found in the mountainous parts up to 1000 masl at Ustaoset.

O. petrei is not uncommon in southern Sweden, but few specimens of this species and *O. lineatopunctata* have been found.

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Three species of Sciomyzidae (Dipt.) new to Norway, with a note on *Ectinocera borealis* Zetterstedt 1838

LITA GREVE AND RUDOLF ROZKOŠNÝ

Greve, L. & Rozkošný, R. 1981. Three species of Sciomyzidae (Dipt.) new to Norway, with a note on *Ectinocera borealis* Zetterstedt 1838. *Fauna norv. Ser. B.* 28, 100–101.

The following species are reported new to Norway: *Pherbellia rozkosnyi* Verbeke, *Pteromicra angustipennis* (Staeger) and *Tetanocera ornatifrons* Frey. *Ectinocera borealis* Zetterstedt is reported for the first time from Norway since 1846. *Pherbellia scutellaris* (von Roser) must be excluded from the Norwegian fauna.

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THE SPECIES

Ectinocera borealis Zett. 1838.

A female was collected by Tore R. Nielsen on 16. July 1966 at Vårstigen, Oppdal, southern Trøndelag at 780 masl. The locality was mountainous birch (*Betula pubescens*) forest near the old road through the forest.

E. borealis was described on material from southern Trøndelag in 1838. The locality was Drivstuen (= Drivstua) in the Drivdal valley eight or nine kilometers from the recent locality. Later the species was recorded from northern Trøndelag by Zetterstedt under the name *Tetanocera sciomyzina* Zett. according to Dahl (1965). Since then, no material has been found (Knutson & Berg, 1971). Thus the reported specimen is the first confirmation of this species from Norway in more than 130 years.

E. borealis is distributed from northernmost Fennoscandia southwards to the Alps (Schweizerland, Italy and Austria).

Pherbellia rozkosnyi Verbeke, 1967.

One male was collected by N. Knaben at Seim, Granvin, inner Hordaland on 1. June 1936. Another male was collected in Måbodalen, Eidfjord, inner Hordaland by Tore R. Nielsen on 6. July 1968 at 340 masl. The last locality was a stony hillside with profuse vegetation of grass, *Geranium silvaticum*, *Valeriana* sp., *Filipendula ulmaria*, *Galium boreale*, *G. verum*, *Hieracium* sp., *Hypericum* sp., *Urtica dioica*, *Trifolium pratense*, *Vicia cracca*, *Lotus corniculatus* with some groups of deciduous trees mainly *Alnus incana*, *Betula pubescens* and *Sorbus aucuparia*. A third male is present in the Zoological Museum, Oslo labelled «Tøien 1845 S».

P. rozkosnyi was separated from the closely related *P. scutellaris* (von Roser) chiefly on

the base of differently shaped male genitalia (see Verbeke, 1967). Especially the posterior surstyli are almost plane, beaving a long slender apex in *P. rozkosnyi*. So far the species is known to occur in Denmark, Germany, Italy and Czechoslovakia, recently it was also found in southern Sweden and Finland. In Knutson & Berg (1971) the species was mis-determined as *P. scutellaris* (von Roser). *P. scutellaris* (von Roser) must be left out from the Norwegian list of *Sciomyzidae* species for the time being.

Pteromicra angustipennis (Staeger, 1845).

One male was collected at Fauske, Fauske, Nordland on 27. June 1956 by H. Andersson. The specimen is deposited at the Zoological Institute, Lunds University, Sweden. The locality was a *Eriophorum* bog. This is the same locality where R. Dahl collected a specimen of *P. glabricula* (Fallén) on the same day, mentioned by Knutson & Berg (1971). However, a misdetermination of the latter specimen seems to be hardly possible because both authors knew results of a revision for the genus *Pteromicra* (cf. Rozkošný and Knutson, 1970) where *P. angustipennis* (Staeger) was resurrected from the synonymy. Moreover, the true *P. glabricula* is not too rare, but largely distributed all over Scandinavia so that its incidence together with *P. angustipennis* at Fauske is not surprising. Another specimen of *P. angustipennis*, female, is present in the Zoological Museum in Helsingfors taken at Fokstua, Dovre, northern Oppland by W. Hellén.

P. angustipennis is presented here as new to Norway. It is distributed in the Holarctic region, ranging in the Palaearctic from Swedish Lapland to France and Hungary, eastwards to Mongolia and the Kurile Islands.

Tetanocera ornatifrons Frey, 1924.

One male, was caught on 13. July in Leirdalen, Lom, northern Oppland. The collector was Tore R. Nielsen. The locality was scattered mountainous birch forest (*Betula pubescens*) with some grass bogs in between. The locality was situated approximately at 1000 masl. Another specimen, a female, was caught in Finmark, near Gargia in Alta (UTM: 34 WEC 965468) on 2. July 1979 by L. Greve. A sweep-net was used and the locality was a mingled forest of *Betula pubescens* and *Pinus silvestris* with some *Juniper communis* and *Salix* ssp.

T. ornatifrons is reported for the first time from Norway. It occurs in northern Sweden and Finland, but also is found at several localities on the Kola peninsula, in the USSR and western and eastern Sibiria.

Unless otherwise stated, specimens mentioned in this article are deposited in Museum of Zoology, University of Bergen.

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Recent records of Tachinidae and Rhinophoridae (Dipt.) from Norway

KNUT ROGNES

Rognes, K. 1981. Recent records of Tachinidae and Rhinophoridae (Dipt.) from Norway. *Fauna norv. Ser. B.* 28, 102—114.

Detailed records are given for 91 species of tachinid and rhinophorid flies, of which 31 seem previously not recorded from Norway. *Phebellia glaucooides* Herting, 1961 is reported from Scandinavia possibly for the first time.

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INTRODUCTION

Below are given detailed records for 91 species of tachinid and rhinophorid flies recently captured in Norway. Thirty-one species seem not to have been reported from the country previously, a fact indicative of the level of attention the groups in question have received in the past. One species is probably new to Scandinavia. All specimens are in my private collection except for a few which are deposited in Museum of Zoology, Bergen (ZMB below) or in other private collections. Identifications mostly follow the works of Stein (1924), Lundbeck (1927), Mesnil (1944—1975), Ringdahl (1945b), Emden (1954) and Herting (1961b). Other works used are cited under each species. Some of my identifications have been verified by Benno Herting, Ludwigsburg, and Stig Andersen, Copenhagen, (B.H.) and (S.A.), respectively, below. The latter also has identified some of the *Siphona* species. The nomenclature within the subfamilies Tachininae and Goniinae follows Mesnil (1944—1975). Spelling of names, sequence of species treated and their subfamilial arrangement largely follow Crosskey (1975) and Pont (1975). Non-British species are inserted at the appropriate place. For information on host relations of the early developmental stages the reader is referred to Mesnil (1944—1975), Herting (1960, 1961b) and Crosskey (1977). For most species references are given to recent taxonomic treatment, modern revisions, sources of listed synonyms, and sources of other information of taxonomic or nomenclatural importance which I have been able to trace. Next follow sources of previous records from Norway, including the names under which they have been published. I have refrained from citing the localities, partly to save

space and partly because many records are unreliable and in need of revision. The presentation of the new faunistic data largely follows previous papers (e.g. Rognes 1980).²

SYSTEMATIC LIST

TACHINIDAE

Subfamily Phasiinae

Alophora pusilla (Meigen, 1824).

Taxonomy: Draber-Moňko 1965.

Previous records: *Phasia pusilla* Meig. — Siebke 1877: 92; *Hyalomyia pusilla* Meig. — Ringdahl 1944b: 7; *Parallophora pusilla* Meig. — Ringdahl 1952: 142—143 No. 230.

Material: — Telemark: TEi: Hjartdal, Gvammen, EIS 26, 1 ♂ 12 July 1976, T. Nielsen, (S.A.).

The terminalia have been dissected and agree with Draber-Moňko's figures (1965: 95).

Gymnosoma globosum (Fabricius, 1775)

Material: — Aust-Agder: AAy: Tromøy, Lovstad, EIS 6, 1 ♂ 31 July 1974, T. Nielsen, (S.A.).

New to Norway.

Gymnosoma rotundatum (L.)

Taxonomy: Rohdendorf 1947; Mesnil 1952 x.

Previous records: *Gymnosoma rotundata* Lin. — Siebke 1977: 91; Bidentkap 1892: 236; *Gymnosoma rotundatum* L. — Ringdahl 1944b: 7; Ringdahl 1952: 142—143 No. 235.

Material: — Telemark: TEi: Seljord, Seljord, EIS 17, 1 ♂ 2 ♀ 26 July 1976, T. Nielsen, (S.A.). — Aust-Agder: AAi: Evje og Hornnes, Bjorå, EIS 5, 3 ♂ 19 June 1977, S. Svendsen; AAy: Risør, Øysang, EIS 11, 1 ♀ 27 June 1975, T. Nielsen. — Vest-Agder: VAY: Kristiansand, Stangenes, EIS 2, 1 ♀ 13 June 1976, J.R. Svendsen; Mandal, Skogs-fjord, EIS 2, 1 ♀ 6 Aug. 1976, T. Nielsen.

Cylindromyia brassicaria (Fabricius, 1775)

Previous records: *Ocyptera brassicaria* Fabr. —

Zetterstedt 1849: 3257; Siebke 1877: 91; Bidentkap 1892: 236; Ringdahl 1944b: 7; Ringdahl 1952: 142—143 No. 243.

Material: — Akershus: AK: Bærum, Steinshøgda, EIS 28, 1♂ 29 July 1977, (S.A.). — Buskerud: Bø: Kongsberg, Komnes, EIS 19, 1♂ 6 Aug. 1979; Hvitvingfoss, EIS 19, 1♂ 6 Aug. 1979. — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1♀ 26 July 1979, K. & A. & Ø. & T. Rognes.

Cylindromyia interrupta (Meigen, 1824)

Previous records: *Ocyptera interrupta* Meig. — Ringdahl 1944b: 7; Ringdahl 1952: 142—143 No. 245.

Material: — Akershus: AK: Bærum, Øverland, EIS 28, 1♀ 23 June 1979. — Oppland; On: Fron, Vinstra, EIS 62, 1♂ 10 June 1979, S. Svendsen. — Telemark: TEi: Hjartdal, Gvammen, EIS 26, 1♂ 12 July 1976, T. Nielsen, (S.A.).

Cylindromyia pusilla (Meigen, 1824)

Previous records: *Ocyptera pusilla* Meig. — Ringdahl 1944b: 7; Ringdahl 1952: 142—143 No. 246.

Material: — Telemark: TEi: Kviteseid, Kviteseid gml kirke, EIS 17, 1♀ 25 June 1980; Skredtveit, EIS 17, 1♂ 5 July 1980; Vrådal (Nordbø), EIS 17, 1♂ 6 July 1980.

Phania thoracica (Meigen, 1824)

Previous records: *Phania thoracica* Meig. — Siebke 1877: 90; *Weberia thoracica* Meig. — Ringdahl 1952: 142—143 No. 249.

Material: — Vest-Agder: VAY: Kristiansand, Hamresanden, EIS 2, 1♂ 25 July 1977, T. Nielsen.

- The middle tibiae have a *v* seta in apical half (cf. Stein 1924; Lundbeck 1927: 118).

Subfamily Dexiinae

Billaea triangulifera (Zetterstedt, 1844)

Previous records: *Billaea triangulifera* Zett. — Ringdahl 1954: 49.

- Material: — Buskerud: Bø: Flesberg, Belgen, EIS 27, 1♂ 27 July 1979; Øvre Eiker, Burud, EIS 27, 1♂ 1 Aug. 1979; Lier, Lahell, EIS 28, 1♂ 2 Aug. 1979; Hurum, Kongsdelene, EIS 28, 1♂ 2 Aug. 1979; Kongsberg, Komnes, EIS 19, 1♀ 6 Aug. 1979. — Telemark: TEi: Seljord, Nes, EIS 17, 1♂ 6 July 1980. — Aust-Agder: AAY: Fjære, Fjære kirke, EIS 6, 1♂ 27 June 1979, A. & K. Rognes.

Dinera ferina (Fallén, 1816)

Taxonomy: Herting 1974: 39, 40; Herting 1976: 10.

Previous records: *Myiocera ferina* Fall. — Ringdahl 1944a: 80; Ringdahl 1944b: 9.

Material: — Vest-Agder: VAY: Flekkefjord, Hidra, EIS 4, 1♂ 18 July 1980, K. Dahl, priv. coll.; Lyngdal, Lyngdal, EIS 1, 1♂ 7 Aug. 1979, L.M. Ramsland, priv. coll. — Hordaland: HOY: Bergen (Fana), Stend, EIS 30, 1♀ 25 July 1980.

Trixa caerulescens Meigen, 1824

Taxonomy: Herting 1962: 84; Herting 1972: 4.

Previous records: *Trixa limbata* Zetterstedt 1838: 630; Siebke 1877: 90 (synonym according to Lundbeck 1927: 417—418 and Ringdahl 1945a: 30); *Trixa alpina* Meig. — Ringdahl 1944b: 10; *Trixa alpina* Zett. (sic) (author's name corrected by Ringdahl 1953) — Ringdahl 1952: 142—143 No. 225.

Material: — Oppland: Os: Gausdal, Svatsum 600 m a.s.l., EIS 53, 2♂♂ 1♀ 5 July 1978, T. Nielsen. — Telemark: TEi: Kviteseid, Lislestøl (Vråvatn), EIS 17, 3♂♂ 24 June 1980; Skredi 400 m a.s.l., EIS 17, 1♂ 1♀ 3 July 1980; Skredi 400—750 m a.s.l., EIS 17, 1♂ 3 July 1980. — Rogaland: Ry: Sandnes, Eltravåg, EIS 7, 3♂♂ 3 June 1978, (S.A.). — Møre og Romsdal: MRi: Sunndal, Nes, EIS 85, 1♂ 1—15 July 1964, R. Mehl, priv. coll.. — Nordland: Nsi: Rana, Virvassdalen, EIS 124, 2♂♂ 24 July 1978, (S.A.).

Trixa variegata Meigen, 1824

Taxonomy: Herting 1972: 4.

Previous records: *Trixa oestroidea* R.D. — Ringdahl 1944b: 10; Ringdahl 1952: 142—143 No. 224.

Material: — Aust-Agder: AAi: Bygland, Longe-rak, EIS 9, 1♂ 4 Aug. 1979, M. Aardal, priv. coll.. — Vest-Agder: VAY: Flekkefjord, Hidra (Litjern), EIS 4, 1♂ July 1979, A.J. Nielsen, priv. coll.. — Hordaland: HOY: Bergen, Kobbeltveit (Isdalen), EIS 40, 3♂♂ 28 July 1980.

Subfamily Tachininae

Voria ruralis (Fallén, 1810)

Taxonomy: Crosskey 1973: 163—164 (lectotype designation); Mesnil 1974: 1262.

Previous records: *Tachina ruralis* Fall. — Siebke 1877: 81; *Plagia ruralis* Fall. — Strand 1914: 324; *Voria ruralis* Fall. — Ringdahl 1944b: 11; Ringdahl 1952: 138—139 No 145.

Material: — Akershus: AK: Bærum, Nordby gård, EIS 28, 1♀ 22 June 1979; Øverland, EIS 28, 1♂ 1♀ 23 June 1979; Oslo, Sørkedalen, EIS 36, 2♂♂ 22 June 1979. — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 2♀♀ 1 Aug. 1979; Ulleland, EIS 28, 2♂♂ 1♀ 5 Aug. 1979. — Vestfold: VE: Hof, Thorrud, EIS 28, 2♂♂ 1♀ 28 July 1979. — Telemark: TEi: Seljord, 3 km SØ Seljord sentrum, EIS 17, 1♂ 29 June 1980; Ulvenes, EIS 17, 1♂ 6 July 1980; Kviteseid, Kviteseid gml. kirke, EIS 17, 1♂ 25 June 1980; Kviteseid, EIS 17, 1♂ 29 June 1980; Kvitund skole, EIS 17, 1♀ 29 June 1980; Tokke, Dalen, EIS 16, 2♀♀ 1 July 1980. — Rogaland: Ry: Stavanger, Krossberg, EIS 7, 1♂ 19 Aug. 1980; 1♂ 24 Aug. 1980.

Athrycia curvinervis (Zetterstedt, 1844)

Taxonomy: Herting 1973: 11; Mesnil 1974: 1264.

Previous records: *Tachina ruficornis* Zett. — Siebke 1877: 81; *Tachina curvinervis* Zett. — Siebke 1877: 88; *Plagia curvinervis* Zett. — Bidentkap 1898: 149. Ringdahl (1945a) erroneously sy-

- nonymized *curvinervis* with *trepida* Meigen, 1824 (Herting 1962: 85), for which reason it is listed under that name in his (1952) catalogue (see below).
- Material: — Vestfold: VE: Hof, Thorrud, EIS 28, 4 ♀♀ 28 July 1979. — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1 ♀ 26 July 1979.
- Athrycia trepida* (Meigen, 1824)
- Taxonomy: Herting 1973: 11; Mesnil 1974: 1265. Previous records: *Tachina subcincta* Zetterstedt 1844: 1026; Siebke 1877: 82; *Voria trepida* Meig. — Ringdahl 1944a: 81; Ringdahl 1952: 138—139 No. 146. Note that Ringdahl erroneously included *curvinervis* Zett. within his concept of *trepida* (Ringdahl 1945a: 27, 29; Herting 1962: 85).
- Material: — Telemark: TEi: Tokke, Dalen, EIS 16, 1 ♀ 1 July 1980.
- Ramonda spathulata* (Fallén, 1820)
- Taxonomy: Mesnil 1974: 1300.
- Material: — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 1 ♂ 18 July 1980, T. Nielsen. — Rogaland: Ry: Stavanger, Madaliala, EIS 7, 1 ♂ 24 May 1980; Godalen, EIS 7, 1 ♂ 1 June 1980. New to Norway.
- Aphelogaster alpina* (Villeneuve, 1910)
- Taxonomy: Mesnil 1974: 1291.
- Material: — Oppland: Os: Ringebu, Ringebu stavkirke, EIS 63, 1 ♂ 9 July 1978, T. Nielsen, (S.A.). New to Norway.
- Phyllomya volvulus* (Fabricius, 1794)
- Taxonomy: Mesnil 1975: 1353.
- Previous records: *Musca volvulus* Fabr. — Zetterstedt 1838: 653; *Dexia volvulus* Fabr. — Zetterstedt 1844: 1272; Siebke 1877: 93; *Phyllomya volvulus* Fabr. — Ringdahl 1944a: 81; Ringdahl 1944b: 11; Ringdahl 1952: 138—139 No. 171.
- Material: — Akershus: AK: Eidsvoll, Eidsvoll, EIS 36, 1 ♀ 4 Aug. 1979. — Buskerud: Bø: Hurum, Kongsdelene, EIS 28, 1 ♀ 2 Aug. 1979; Drammen, Drammen, EIS 28, 1 ♀ 31 July 1979; Øvre Eiker, Burud, EIS 27, 2 ♀♀ 1 Aug. 1979; Kongsberg, Hvitvingfoss, EIS 19, 1 ♂ 6 Aug. 1979; Komnes, EIS 19, 1 ♀ 6 Aug. 1979; Kongsberg, EIS 27, 1 ♂ 28 July 1979. — Telemark: TEi: Bø, Bø, EIS 18, 3 ♀♀ 25 July 1979; Øvrebo, EIS 17, 1 ♀ 25 July 1979; 3 ♂♂ 6 July 1980; Hjartdal, Øverbø, EIS 26, 1 ♂ 12 July 1976, T. Nielsen, (S.A.); Seljord, Ulvenes, EIS 17, 1 ♂ 1 ♀ 25 July 1979; Fyresdal, Aslestad — Slystøyl 650 m a.s.l., EIS 16, 3 ♂♂ 7 July 1980. — Hordaland: HØy: Bergen (Fana), Fantoft, EIS 30, 1 ♀ 27 July 1980; Fjøsanger, EIS 30, 4 ♂♂ 1 ♀ 22 July 1980; Grønnestølen, EIS 30, 3 ♀♀ 19 July 1980.
- Eriothrix rufomaculatus* (Degeer, 1776)
- Taxonomy: Mesnil 1975: 1322.
- Previous records: *Tachina lateralis* Fall. (sic) — Siebke 1877: 88. Siebke refers to Zetterstedt 1844: 1188 where *lateralis* Fallén, 1810 = *lateralis* Fabricius, 1781 is treated (cf. also Lundbeck 1927: 525). *T. lateralis* Fallén, 1816 = *nigripes* Fabricius, 1794 (*Thelaira*), however (cf. Mesnil 1975: 1339); *Olivieria lateralis* Fabr. — Bidenkap 1898: 149; Bidenkap 1901: 55; *Eriothrix rufomaculatus* Deg. — Ringdahl 1944a: 81; Ringdahl 1944b: 11; Ringdahl 1952: 140—141 No. 198; Ardö 1957: 162.
- Material: — Buskerud: Bø: Kongsberg, Gran, EIS 18, 1 ♀ 6 Aug. 1979. — Telemark: TEi: Notodden, Elgsjø, EIS 27, 1 ♀ 15 July 1978, T. Nielsen. — Vest-Agder: VAY: Vennesla, Eikeland, EIS 5, 1 ♂ 21 Aug. 1975, S. Svendsen; Lindenes, Jørgenstad, EIS 1, 1 ♂ 21 July 1977, T. Nielsen; 1 ♂ 20 July 1979, T. Nielsen; 1 ♂ 16 July 1980, T. Nielsen. — Rogaland Ry: Lund, Moi, EIS 4, 1 ♂ 23 June 1978; Refsland, EIS 3, 3 ♂♂ 17 July 1977; Eigersund, Eigersund, EIS 3, 1 ♂ 29 July 1979, L.M. Ramsland, priv.coll.; Klepp, Øksnevad, EIS 7, 1 ♂ 1 Aug. 1979, T. Nielsen; 1 ♀ 1 Sept. 1979; Sandnes, Bogafjell, EIS 7, 1 ♀ 26. Aug. 1979; Sola, Sola, EIS 7, 1 ♂ 2 ♀♀ 25 Aug. 1979; Stavanger, Krossberg, EIS 7, 1 ♂ 15 July 1977; 1 ♀ 13 Aug. 1977; 1 ♀ 9 Aug. 1978; 3 ♂♂ 2 Sept. 1979; Revheim, EIS 7, 1 ♀ 11 Aug. 1977; Sunde, EIS 7, 8 ♀♀ 7 Aug. 1978, (S.A.); 1 ♂ 17 July 1979; 1 ♀ 1—15 Aug. 1979; 1 ♂ 12 July 1980; Tjensvoll, EIS 7, 1 ♂ 13 July 1977, (S.A.); 1 ♀ 10 Aug. 1977; 1 ♂ 11 Aug. 1977; Ullandhaug, EIS 7, 4 ♂♂ 8 Aug. 1978; 5 ♂♂ 2 ♀♀ 10 Aug. 1978; 1 ♀ 26 Aug. 1979; Randaberg, Børaunen, EIS 7, 1 ♀ 3 Sept. 1977. — Hordaland: HØy: Bergen (Fana), Storetveit, EIS 30, 1 ♂ 1 ♀ 18 July 1980; Rådal — Stend, EIS 30, 1 ♀ 25 July 1980. — Møre og Romsdal: MRi: Rauma, Lerheim, EIS 77, 1 ♀ 29 July 1978.
- Campylocheta praecox* (Meigen, 1824)
- Taxonomy: Mesnil 1974: 1254.
- Material: — Vest-Agder: VAY: Flekkefjord, Rasvåg, EIS 4, 1 ♂ 10—11 May 1979. — Rogaland: Ry: Stavanger, Ullandhaug, EIS 7, 1 ♂ 18 April 1979.
- New to Norway.
- Thelaira nigripes* (Fabricius, 1794)
- Taxonomy: Mesnil 1975: 1339. Mesnil (1975: 1337f) has recently shown that three species, viz. *leucozona* Panzer, 1809, *nigripes* Fabricius, 1794 and *solivaga* Harris, 1776, exist within the genus *Thelaira* Robineau-Desvoidy, 1830 in Europe instead of one as previously believed.
- Previous records: *Dexia leucozona* Panz. — Siebke 1877: 93; *Thelaira leucozona* Panz. — Bidenkap 1892: 237; *Thelaira nigripes* Fabr. — Ringdahl 1944b: 11; Ringdahl 1952: 140—141 No. 207. According to Mesnil (*l.c.*) the true *leucozona* is a more southern species in Europe. I therefore assume that *nigripes* is the species referred to by Siebke and Bidenkap. It is possible that *solivaga* also will be found among the above records (see below).
- Material: — Telemark: TEy: Bamble, Bamble, EIS 11, 3 ♂♂ 27 July 1979, Ø. Rognes. — Rogaland: Ry: Sandnes, Lura, EIS 7, 2 ♂♂ 19 July 1979.
- Thelaira solivaga* (Harris, 1776)
- Taxonomy: Mesnil 1975: 1340.

Material: — Telemark: TEi: Kviteseid, Kvitsund skole, EIS 17, 1♂ 29 June 1980; Kviteseid, EIS 17, 1♀ 29 June 1980.

New to Norway. Mesnil (*l.c.*) reports the species from «Skandinavién». It is not listed by Hackman (1980) from Finland.

My specimens have 1 or 2 *pd* setae on the middle tibiae, and in the male the hind fifth or sixth of the fourth tergite is black as in the British specimens cited by Mesnil (*l.c.*). The basal bands of dusting on the intermediate abdominal segments of the female are not interrupted at the midline, i.e. opposite to the condition in my (Danish) female specimens of *T. nigripes*.

Dexiosoma caninum (Fabricius, 1781)

Taxonomy: Mesnil 1974: 1233.

Previous records: *Dexia canina* Fabr. — Zetterstedt 1849: 3263; Siebke 1877: 92; Bidentkap 1892: 237; *Dexiosoma caninum* Fabr. — Ringdahl 1944b: 9; Ringdahl 1952: 140–141 No. 211.

Material: — Akershus: AK: Bærum, Fossum, EIS 28, 1♂ 3 Aug. 1979; Nordby gård, EIS 28, 1♀ 3 Aug. 1979. — Buskerud: Bø: Drammen, Drammen, EIS 28, 9♂♂ 4♀♀ 31 July 1979; Øvre Eiker, Burud, EIS 27, 1♂ 1♀ 1 Aug. 1979. — Telemark: Tokke, Dalen, EIS 16, 2♂♂ 30 June 1980; 2♂♂ 1♀ 1 July 1980. — Vest-Agder: VAY: Lindesnes, Gåsestein, EIS 1, 1♀ 22 July 1980, T. Nielsen. — Hordaland: HOY: Bergen (Fana), Trollhaugen, EIS 30, 1♀ 21 July 1980; Fjøsanger, EIS 30, 1♂ 22 July 1980; Fantoft, EIS 30, 2♂♂ 1♀ 24 July 1980; 2♂♂ 2♀♀ 27 July 1980; Stend (Mjølkevika), EIS 30, 2♂♂ 25 July 1980.

Cleonice callida (Meigen, 1824)

Taxonomy: Ringdahl 1934: 270; Ringdahl 1945a: 29; Mesnil 1972: 1090.

Previous records: *Tachina rotundicornis* Zetterstedt 1838: 641 (described from a female specimen taken by Boheman in the Dovre mountains, Norway); Zetterstedt 1844: 1156; Siebke 1877: 87; *Steiniella callida* Meig. — Ringdahl 1944a: 81; Ringdahl 1944b: 11; Ringdahl 1952: 138–139 No. 167.

Material: — Telemark: TEi: Kviteseid, Skredi, EIS 17, 1♀ 22 June 1980, (B.H.).

The specimen has only one lateral scutellar seta on each side, i.e. a total of 3 pairs of marginal scutellar setae. It was caught on leaves of *Populus tremula*.

Pelatachina tibialis (Fallén, 1810)

Taxonomy: Mesnil 1973: 1113.

Previous records: *Tachina tibialis* Fall. — Siebke 1877: 82; *Pelatachina tibialis* Fall. — Ringdahl 1944a: 81; Ringdahl 1944b: 11; Ringdahl 1952: 138–139 No. 169.

Material: — Akershus: AK: Bærum, Steinhøgda, EIS 28 1♀ 25 June 1979, A. & K. Rognes. — Rogaland: Ry: Stavanger, Byhaugen, EIS 7, 1♀ 9 June 1979; Tjensvoll, EIS 7, 1♀ 19 June 1979. — Finnmark: Fi: Alta, Øvre Alta, EIS 173, 1♀ 20 July 1978, (S.A.).

The record from Øvre Alta (69°55'N) is probably the northernmost from Scandinavia.

Zophomyia temula (Scopoli, 1763)

Taxonomy: Mesnil 1972: 1083.

Previous records: *Tachina tremula* Lin. — Siebke 1877: 87; *Zophomyia temula* Scop. — Ringdahl 1952: 138–139 No. 170.

Material: — Østfold: Ø: Fredrikstad, Øra, EIS 20, 2♂♂ 24 June 1979. — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 1♂ 1♀ 20 July 1979, T. Nielsen.

Pseudopachystylum goniaeoides (Zetterstedt, 1838)

Taxonomy: Mesnil 1972: 1088.

Material: — Buskerud: Bø: Ringerike, Løvliia 570 m a.s.l., EIS 36, 1♀ 31 July 1977, (S.A.); Flesberg, Belgen, EIS 27, 1♂ 27 July 1979. — Telemark: TEi: Fyresdal, Aslestad — Slystøyl 650 m a.s.l., EIS 16, 1♀ 7 July 1980.

New to Norway.

Leskia aurea (Fallén, 1820)

Taxonomy: Mesnil 1973: 1129.

Previous records: *Tachina aurea* Fall. — Siebke 1877: 89; *Leskia aurea* Fall. — Ringdahl 1952: 140–141 No. 206.

Material: — Telemark: TEi: Seljord, Seljord, EIS 17, 1♀ 26 July 1976, T. Nielsen, (S.A.).

Lypha dubia (Fallén, 1810)

Taxonomy: Mesnil 1971: 1000.

Previous records: *Tachina dubia* Fall. — Siebke 1877: 85; *Exorista dubia* Fall. — Bidentkap 1898: 149; *Lypha dubia* Fall. — Ringdahl 1944a: 80; Ringdahl 1944b: 10; Ringdahl 1952: 136–137 No. 90; *Tachina umbrinervis* Zetterstedt, 1844: 1146 (described from a female specimen taken at Nord-Trøndelag: NTi: Verdalen, Garnes 30 June 1840); Siebke 1877: 86.

Material: — Vest-Agder: VAY: Kristiansand, Stangenes, EIS 2, 2♂♂ 3 May 1980, S. Svendsen; 1♂ 1♀ 4 May 1980, S. Svendsen; 1♂ 6 May 1980, S. Svendsen; Flekkefjord, Rasvåg (Hidra), EIS 4, 26♂♂ 2♀♀ 1♂ 1♀ (in cop.) 4 May 1979; 5♂♂ 1♀ 10–11 May 1979. — Rogaland: Ry: Stavanger, Byhaugen, EIS 7, 4♂♂ 29 April 1978; 3♀♀ 9 June 1979; Godalen, EIS 7, 1♀ 1 June 1980; 1♀ 3 June 1980; Krossberg, EIS 7, 1♀ 24 April 1977; 1♂ 30 April 1977; 8♂♂ 1 May 1977, (S.A.); 1♀ 14 May 1978; 1♂ 1♀ 27 May 1978, (S.A.); 2♂♂ 24 April 1979; 4♂♂ 2♀♀ 28 April 1979; 10♂♂ 1 May 1979; 3♂♂ 3♀♀ 24 May 1979; 4♂♂ 1 May 1980; 5♂♂ 2♀♀ 11 May 1980; Ullandhaug, EIS 7, 1♂ 18 April 1979; 1♂ 1 May 1979; 4♂♂ 20 April 1980; 1♂ 24 April 1980; 1♀ 22 May 1980.

Lypha ruficauda (Zetterstedt, 1838)

Taxonomy: Mesnil 1971: 1001.

Previous records: *Tachina ruficauda* Zetterstedt 1838: 643; Zetterstedt 1844: 1111; Siebke 1877: 85; *Eversmannia ruficauda* Zett. — Ringdahl 1944a: 80; Ringdahl 1944b: 10; *Micronychia ruficauda* Zett. — Ringdahl 1952: 136–137 No. 91; *Tachina maculipennis* Zetterstedt, 1844: 1092 (described from a single male specimen captured

- «ad diversorium Thynæs prope urbem Levanger in paroecia Skogn» (Nord-Trøndelag: NTi: Levanger) 4 July 1840); Siebke 1877: 84.
 Material: — Hordaland: HOi: Eidfjord, Måbødalen 270 m a.s.l., EIS 33?, 1 ♂ 1 ♀, K.E. Jørstad et al., ZMB.
 The specimens are on a single pin. In the female, which is lacking the abdomen, the prosternum has three or four hairs on each side.
- Linnaemya vulpina* (Fallén, 1810)
 Taxonomy: Herting 1961: 10f; Mesnil 1971: 1016.
 Previous records: *Tachina vulpina* Fall. — Siebke 1877: 84; *Micropalpus vulpinus* Fall. — Ringdahl 1944b: 10; *Linnaemyia vulpina* Fall. — Ringdahl 1952: 136—137 No. 94.
 Material: — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 1 ♀ 20 July 1979, T. Nielsen.
- Hyalurgus lucidus* (Meigen, 1824)
 Taxonomy: Mesnil 1972: 1073.
 Material: — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 2 ♂♂ July 1976, T. Nielsen, (S.A.).
 New to Norway.
- Gynnochetia viridis* (Fallén, 1810)
 Taxonomy: Mesnil 1972: 1079.
 Material: — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 1 ♀ 4 June 1979, T. Nielsen. — Rogaland: Ry: Sandnes, Melsheia, EIS 7, 1 ♂ 27 May 1978, J. Nystrøm, (S.A.); Stavanger, Ullandhaug, EIS 7, 1 ♂ 24 May 1979, J.H. Larsen; 2 ♂♂ 1 ♀ 12 May 1980.
 New to Norway.
- Appendicia truncata* (Zetterstedt, 1838)
 Taxonomy: Mesnil 1972: 1051.
 Previous records: *Tachina truncata* Zett. — Zetterstedt 1844: 1090; Siebke 1877: 84; *Ernestia truncata* Zett. — Ringdahl 1944a: 81; Forsslund 1951: 201; Ringdahl 1952: 138—139 No. 165.
 Material: — Hordaland: HOi: Odda, Grytingstøl (Valldalen) 800 m a.s.l., EIS 24, 2 ♂♂ 22 July 1979.
- Eurithia caesia* (Fallén, 1810)
 Taxonomy: Mesnil 1972: 1057; Herting 1975b: 5.
 Previous records: *Tachina caesia* Fall. — Zetterstedt 1844: 1115; Siebke 1877: 85; *Nemoraea caesia* Fall. — Bidenkap 1898: 149; *Ernestia caesia* Fall. — Ringdahl 1952: 138—139 No. 159.
 Material: — Telemark: TEi: Seljord, Ulvenes, EIS 17, 1 ♀ 25 July 1979; Seljord, 3 km SØ Seljord sentrum, EIS 17, 1 ♂ 29 June 1980; Kviteseid, Lislestøl (Vråvatn), EIS 17, 1 ♂ 1 ♀ 24 June 1980; Tokke, Dalen, EIS 16, 1 ♀ 1 July 1980; Lårdal, EIS 17, 1 ♀ 1 July 1980; 1 ♂ 4 July 1980.
- Eurithia connivens* (Zetterstedt, 1844)
 Taxonomy: Mesnil 1972: 1059.
 Previous records: *Tachina connivens* Zett. — Siebke 1877: 89; *Ernestia connivens* Zett. — Ringdahl 1944b: 11; Ringdahl 1952: 138—139 No. 163.
 Material: — Vestfold: VE: Hof, Thorrud, EIS 28, 2 ♂♂ 1 ♀ 28 July 1979. — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1 ♀ 26 July 1979.
- Eurithia vivida* (Zetterstedt, 1838)
 Taxonomy: Mesnil 1972: 1066.
 Previous records: *Tachina vivida* Zett. — Siebke 1877: 84; *Nemoraea vivida* Zett. — Bidenkap 1898: 149; *Ernestia vivida* Zett. — Ringdahl 1944b: 11; Ringdahl 1952: 138—139 No. 162.
 Material: — Telemark: TEi: Seljord, Ulvenes, EIS 17, 1 ♀ 25 July 1979.
 The hosts of this species are unknown (Herting 1960: 113; Mesnil 1972: 1067). Siebke (*l.c.*) reports to have bred his specimens from *Arctia caja* L. (Lep., Arctiidae) («E pupa *Bomb. cajae* exclusiva»). His identification, however, requires confirmation.
- Nowickia marklini* (Zetterstedt, 1838)
 Taxonomy: Mesnil 1970: 929.
 Previous records: *Echinomyia Marklini* Zett. — Zetterstedt 1849: 3215; Siebke 1877: 81; Bidenkap 1901: 55; Ringdahl 1944a: 80; Ringdahl 1944b: 10; Ringdahl 1952: 136—137 No. 102.
 Material: — Oppdal: On: Dovre, Hjerkin, EIS, 71, 1 ♀ 15 July 1978, S. Svendsen. — Finnmark: Fi: Alta, Grønnåsen (Gargia), EIS 165, 1 ♀ 30 June 1979, T. Nielsen.
- Tachina fera* (L.)
 Taxonomy: Mesnil 1966: 912.
 Previous records: *Echinomyia fera* Lin. — Siebke 1877: 81; Bidenkap 1898: 149; Bidenkap 1901: 54—55; Strand 1900: 69; Ringdahl 1944a: 80; Ringdahl 1944b: 10; Ringdahl 1952: 136—137 No. 100.
 Material: — Akershus: AK: Ås, Holstad, EIS 28, 1 ♂ 17 July 1970, T. Nielsen; Bærum, Steinsøgda, EIS 28, 3 ♂♂ 29 July 1977, (S.A.). — Buskerud: Bø: Ringerike, Løvli, EIS 36, 1 ♀ 31 July 1977, (S.A.); Øvre Eiker, Burud, EIS 27, 1 ♀ 1 Aug. 1979. — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 2 ♂♂ 26 July 1979; Seljord, To, EIS 17, 1 ♂ 24 July 1979; Kviteseid, Vrådal, EIS 17, 1 ♂ 1 ♀ 9 July 1980, (on *Calluna vulgaris* flowers). — Vest-Agder: VAY: Lindesnes, Jørgenstad, EIS 1, 1 ♀ 8 Aug. 1978, T. Nielsen; 1 ♂ 20 July 1979, T. Nielsen; Flekkefjord, Hidra (Litjern), EIS 4, 3 ♂♂ 1 ♀ July 1979, A.J. Nielsen, priv.coll. — Rogaland: Ry: Bjerkreim, Eik (Ørsdalen), EIS 7, 1 ♂ 31 Aug. 1979. — Hordaland: HOy: Bergen, Kobbeltveit (Isdalen), EIS 40, 1 ♂ 28 July 1980. — Sogn og Fjordane: SFy: Flora, Florø, EIS 57, 1 ♂ 10 July 1979, L.G. Waage. — Møre og Romsdal: MRi: Surnadal, Strengen — Kvanne, 1 ♂ 6 Aug. 1961, R. Mehl, priv.coll.
- Tachina grossa* (L.)
 Taxonomy: Mesnil 1966: 913.
 Previous records: *Echinomyia grossa* Lin. — Siebke 1877: 81; Bidenkap 1898: 149; Ringdahl 1944b: 10; Ringdahl 1952: 136—137 No. 99.
 Material: — Rogaland: Ry: Sandnes, Usken (Bispeuren), EIS 7, 1 ♂ 10 July 1980, P.A. Hoel, priv. coll.; Ri: Hjelmeland, Fister, EIS 14, 1 ♀

July—Aug. 1979, S. Bråten, priv. coll. — Hordaland: HOy: Bergen, Askøy, EIS 30, 1 ♀ July 1896, O.J. Lie-Pettersen, ZMB.

Tachina vernalis (Robineau-Desvoidy, 1830)

Taxonomy: Mesnil 1966: 924; Herting 1974: 3; Crosskey 1975: 99; Mesnil 1975: 1400. There is some disagreement as to whether *vernalis* or *magnicornis* Zetterstedt, 1844 is the correct name for this species. I follow the latest opinion of Mesnil cited above.

Previous records: *Echinomyia magnicornis* Zett. — Strand 1914: 324; Ringdahl 1952: 136—137 No. 101.

Material: — Akershus: AK: Bærum, Steinhøgda, EIS 28, 8 ♂♂ 29 July 1977, (S.A.). — Oppland: On: Fron, Kvam, EIS 62, 1 ♂ 22 July 1979, S. Svendsen. — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1 ♂ 1 Aug. 1979; Kongsberg, Efteløt, EIS 27, 1 ♀ 6 Aug. 1979; Gran, EIS 18, 1 ♀ 6 Aug. 1979; Hvitvingfoss, EIS 19, 1 ♀ 6 Aug. 1979. — Vestfold: VE: Hof, Thorrud, EIS 28, 1 ♀ 28 July 1979. — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 3 ♂♂ 26 July 1979; Bø, Øvrebø, EIS 17, 1 ♂ 25 July 1979; Seljord, Seljord, EIS 17, 1 ♂ 26 July 1976, T. Nielsen; Ulvenes, EIS 17, 4 ♂♂ 1 ♀ 25 July 1979. — Aust-Agder: AAY: Grimstad, Metveit, EIS 6, 2 ♀♀ 25 July 1976, T. Nielsen. (S.A.). AAI: Åmli, Bjorevja, EIS 10, 1 ♂ 11 July 1980, T. & K. Rognes.

None of my male specimens have 2 proclinate orbital setae, most have only one, a few none at all (cf. Mesnil 1966: 925). The claws of the front tarsi are much longer than the last tarsal segment.

Triarthria spinipennis (Meigen, 1824)

Taxonomy: Mesnil 1973: 1215; Crosskey 1974; Mesnil 1975: 1401.

Material: — Telemark: TEi: Vinje, Rauland 700 m a.s.l., EIS 25, 1 ♂ 19 June 1977, (S.A.). — Vest-Agder: VAY: Flekkefjord, Råsvåg (Hidra), EIS 4, 2 ♂♂ 24 June 1978, (S.A.).

The specimen from Rauland lacks the *prst ia* on both sides. It has 3 + 3 *dc*, however, and the pattern of pollinosity before the suture is as described by Emden (1954). New to Norway.

Subfamily Goniinae

Actia pilipennis (Fallén, 1810)

Taxonomy: Mesnil 1963: 826; Crosskey 1974: 283—284, 302—303 (lectotype designation).

Material: — Hordaland: HOy: Bergen (Fana), Fjøsanger, EIS 30, 1 ♂ 28 July 1980.

New to Norway.

Siphona confusa Mesnil, 1961

Taxonomy: Mesnil 1964: 859.

Material: — Telemark: TEi: Tokke, Dalen, EIS 16, 1 ♀ 30 June 1980, (S.A.).

Stig Andersen, Copenhagen, (in litt. 14 Oct. 1980) also reports to have seen material from this country.

New to Norway.

Siphona flavifrons (Staeger in Zetterstedt, 1849)

Taxonomy: Mesnil 1965: 865.

Material: — Aust-Agder: AAY: Birkenes, Åmli, EIS 6, 1 ♂ 25 July 1976, T. Nielsen, (S. Andersen det.).

Stig Andersen, Copenhagen, (*l.c.*) also reports to have seen material from this country.

New to Norway.

Siphona geniculata (Degeer, 1776)

Taxonomy: Mesnil 1965: 866.

Previous records: *Siphona geniculata* DeGeer — Zetterstedt 1838: 620; Zetterstedt 1844: 989; Siebke 1877: 80; Bidentkap 1901: 54; *Bucentes geniculata* Deg. — Ringdahl 1952: 138—139 No. 139.

Material: — Rogaland: Ry: Stavanger, Byhaugen, EIS 7, 12 ♀♀ 6 Sept. 1980, (S.A.); Krossberg, EIS 7, 1 ♀ 1 Oct. 1978, (S.A.); 3 ♀♀ 19 Aug. 1980, (S.A.); Sunde (indoors), EIS 7, 1 ♀ 10 Sept. 1980, (S.A.); Ullandhaug, EIS 7, 1 ♂ 5 June 1980, (S. Andersen det.) 1 ♂ 3 ♀♀ 7 Sept. 1980, (S.A.). Two of the females from Byhaugen lack the median marginal setae of second tergite.

Siphona setosa Mesnil, 1960

Taxonomy: Mesnil 1965: 876.

Material: — Telemark: TEi: Tokke, Åmdalsverk, EIS 16, 1 ♀ 1 July 1980, (S.A.).

Stig Andersen, Copenhagen, (*l.c.*) also reports to have seen material from this country.

New to Norway.

Belida angelicae (Meigen, 1824)

Taxonomy: Lundbeck 1927: 296, 297; Ringdahl 1945a: 28; Mesnil 1962: 749; Herting 1974: 33; Mesnil 1975: 1398.

Previous records: *Tachina futilis* Zett. — Siebke 1877: 82 (synonym according to Lundbeck and Ringdahl, not mentioned by Mesnil); *Sarcophaga albiceps* Meig. — Bidentkap 1901: 58 (misidentification revised by Ringdahl 1944b); *Lydella angelicae* Meig. — Ringdahl 1944a: 80; Ringdahl 1944b: 9; *Aporotachina angelicae* Meig. — Ringdahl 1952: 132—133 No. 11.

Material: — Akershus: AK: Bærum, Steinhøgda, EIS 28, 1 ♂ 29 July 1977, (S.A.). — Buskerud: Bø: Ringerike, Løvli 570 m a.s.l., EIS 36, 1 ♂ 31 July 1977, (S.A.). — Telemark: TEi: Kviteseid, Skredveit, EIS 17, 1 ♀ 23 June 1980; Skredi, EIS 17, 1 ♀ 8 July 1980.

Blondelia nigripes (Fallén, 1820)

Taxonomy: Mesnil 1962: 755.

Previous records: *Tachina nigripes* Fall. — Zetterstedt 1838: 636—637; Zetterstedt 1844: 1059; Siebke 1877: 82; *Blondelia nigripes* Fall. — Ringdahl 1952: 132—133 No. 7.

Material: — Telemark: TEi: Seljord, Ulvenes, EIS 17, 13 ♂♂ 2 ♀♀ 25 July 1979.

All the specimens were captured on *Angelica* flowers.

Medina collaris (Fallén, 1820)

Taxonomy: Mesnil 1962: 727.

Previous records: *Tachina collaris* Fall. — Zetterstedt 1838: 637; Zetterstedt 1844: 1072; Siebke

- 1877: 83; *Degeeria collaris* Fall. — Ringdahl 1944b: 11; *Medina collaris* Fall. — Ringdahl 1952: 136—137 No. 117.
- Material: — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1 ♀ 26 July 1979; Seljord, Ulvenes, EIS 17, 1 ♂ 6 July 1980; Kviteseid, Kviteseid, EIS 17, 1 ♀ 29 June 1980. — Rogaland: Ry: Stavanger, Ullandhaug, EIS 7, 1 ♀ 10 June 1979.
- Medina separata* (Meigen, 1824)
- Taxonomy: Herting 1966: 2; Herting 1971: 4; Herting 1972: 12.
- Material: — Vest-Agder: VAY: Lindesnes, Gåsestein, EIS 1, 1 ♀ 22 July 1980, T. Nielsen. — Hordaland: HØy: Bergen (Fana), Fantoft, EIS 30, 1 ♂ 27 July 1980; Fjøsanger, EIS 30, 5 ♀ ♀ 22 July 1980; Grønnestølen, EIS 30, 1 ♂ 19 July 1980; Stend (Mjølkvik), EIS 30, 1 ♀ 25 July 1980. All the specimens from Hordaland have been examined by B. Herting.
- In Scandinavia this species has been reported from Southern Sweden (Ringdahl leg.) by Herting (1971). Hackman (1980) does not report it from Finland.
- New to Norway.
- Meigenia mutabilis* (Fallén, 1810)
- Taxonomy: Mesnil 1962: 707; Ringdahl 1945a: 27, 29; Mesnil 1967x: 44; Herting 1972: 4; Mesnil 1975: 1398.
- Previous records: *Tachina mutabilis* Fall. — Zetterstedt 1844: 1059—1061 (var. b); Siebke 1877: 82—83; *Meigenia mutabilis* Fall. — Ringdahl 1944a: 80; Ringdahl 1944b: 9; Ringdahl 1952: 132—133 No. 1; *Meigenia bisignata* Meig. — Bidentkap 1898: 149; *Tachina discolor* Zett. — Siebke 1877: 83 (synonym according to Ringdahl 1945a: 27 and Mesnil 1967x: 44); *Tachina pygmaea* Zetterstedt 1838: 641 (synonym according to Zetterstedt 1844: 1060 and Ringdahl 1945a: 29).
- Material: — Akershus: AK: Bærum, Nordby gård, EIS 28, 1 ♂ 21 June 1979; Steinshøgda, EIS 28, 1 ♂ 29 July 1977, (S.A.); Oslo, Bygdøy, EIS 28, 1 ♂ 25 June 1979, A. & K. Rognes; Sogsvatn, EIS 28, 2 ♂ 21 June 1979. — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1 ♂ 1 Aug. 1979; Ulleland, EIS 28, 1 ♀ 5 Aug. 1979; Kongsberg, Kongsberg, EIS 27, 1 ♂ 28 July 1979. — Vestfold: VE: Hof, Thorrud, EIS 28, 1 ♂ 28 July 1979. — Telemark: TEi: Tokke, Dalen, EIS 16, 1 ♂ 30 June 1980; Lårdal, EIS 17, 2 ♀ ♀ 4 July 1980. — Hordaland: HØy: Bergen, Svartediket, EIS 39, 2 ♂ 28 July 1980; Stend, EIS 30, 2 ♂ 25 July 1980. — Sogn og Fjordane: SFi: Stryn, Innvik, EIS 68, 2 ♂ 30 July 1978, (S.A.).
- Oswaldia muscaria* (Fallén, 1810)
- Taxonomy: Mesnil 1962: 763.
- Previous records: *Degeeria muscaria* Fall. — Schøyen 1889: 7; *Oswaldia muscaria* Fall. — Ringdahl 1952: 136—137 No. 113; Herting 1962: 81. *Vibrissina sordidisquama* Zett. — Ringdahl 1944a: 80.
- Material: — Akershus: AK: Oslo, Sørkedalen, EIS 36, 1 ♀ 22 June 1979. — Telemark: TEi: Kvite-
- seid, Skredi, EIS 17, 1 ♀ 8 July 1980; Tokke, Dalen, EIS 16, 1 ♀ 1 July 1980. — Vest-Agder: VAY: Flekkefjord, Kvellandstrand, EIS 4, 4 ♂ 1 ♀ 3 June 1979; Rasvåg (Hidra), EIS 4, 13 ♂ 4 June 1979. — Sogn og Fjordane: SFi: Stryn, Innvik, EIS 68, 1 ♀ 30 July 1978, (S.A.).
- Exorista rustica* (Fallén, 1810)
- Taxonomy: Mesnil 1960: 569; Mesnil 1975: 1396. For treatment of related species see Herting 1967: 2f; Mesnil 1970x: 112—115; Herting 1971: 1; Herting 1972: 10, 14; Herting 1975b: 1.
- Previous records: *Tachina rustica* Fall. — Ringdahl 1944a: 80; Ringdahl 1944b: 10; Ringdahl 1952: 134—135 No. 73.
- Material: — Akershus: AK: Bærum, Øverland, EIS 28, 1 ♂ 23 June 1979.
- The terminalia and fifth sternite have been examined.
- Phorocera obscura* (Fallén, 1810)
- Taxonomy: Emden 1954: 73, foot-note (lectotype designation); Mesnil 1960: 641; Crosskey 1974: 301.
- Previous records: *Phorocera obscura* Fall. — Ringdahl 1952: 134—135 No. 78. *assimilis* Fall. of Siebke 1877: 89 and Bidentkap 1898: 149 may contain some *obscura*.
- Material: — Vest-Agder: VAY: Flekkefjord, Kvellandstrand, EIS 4, 1 ♂ 1 ♀ 3 June 1979. — Rogaland: Ry: Sola, Haga (Hansaberget), EIS 7, 1 ♂ 7 June 1980.
- Timavia amoena* (Meigen, 1824)
- Taxonomy: Mesnil 1949: 74; Mesnil 1963x: 4—5; Herting 1974: 8; Mesnil 1975: 1389.
- Previous records: *Winthemia amoena* Meig. — Ringdahl 1944b: 10; *Chaetolyga amoena* Meig. — Ringdahl 1952: 134—135 No. 64.
- Material: — Aust-Agder: AAi: Evje og Hornnes, Hornnes, EIS 5, 1 ♀ 28 June 1978, (S.A.). — Rogaland: Ry: Sandnes, Stølsvik, EIS 7, 1 ♂ 11 June 1980.
- Winthemia erythrura* (Meigen, 1838)
- Taxonomy: Stein 1924: 60; Mesnil 1949: 91.
- Material: — Østfold: Ø: Fredrikstad, Øra, EIS 20, 2 ♂ 24 June 1979, A. Rognes. — Akershus: AK: Bærum, Øverland, EIS 28, 4 ♂ 23 June 1979.
- B. Herting has seen all my specimens. He expresses some doubt as to the status of this species, but says that «at least your smaller specimens with darker mesonotum are determinable as *erythrura*» (Herting in litt. 18 Sept. 1980). He is then referring to 3 small males from Øverland.
- Important characteristics of my specimens are: Frons at narrowest point 0.225—0.246 (mean 0.237) of head width, anterior two thirds of parafrontals and upper two thirds of parafacials with golden yellow pollinosity, uppermost parts of occiput with yellow or yellow-white hairs. Third tergite with 4—6 marginal setae. Fifth tergite on ventral side of abdomen with a black basal band occupying one fourth to one half of the length of the tergite. Fifth sternite with black lobes. Other-

- wise the abdomen has much less yellow colour than my specimens of *W. quadripustulata* (see below).
- Hackman (1980) reports *erythrura* from Finland. I have not been able to trace further records from Scandinavia.
- New to Norway.
- Winthemia quadripustulata* (Fabricius, 1794)
 Taxonomy: Mesnil 1949: 93.
 Previous records: *Tachina 4-pustulata* Fabr. — Zetterstedt 1838: 644; Zetterstedt 1844: 1104; Zetterstedt 1849: 3243; Siebke 1877: 85; *Nemoraea 4-pustulata* Fabr. — Bidenkap 1898: 149; *Winthemia quadripustulata* Fabr. — Ringdahl 1944a: 80; Ringdahl 1944b: 10; Ringdahl 1952: 134—135 No. 60.
 Material: — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1♂ 1 Aug. 1979. — Vestfold: VE: Hof, Thorrud, EIS 28, 3♂♂ 28 July 1979. — Telemark: TEi: Seljord, To, EIS 17, 1♂ 24 July 1979. My specimens differ from the *erythrura* specimens cited above in the following characters: Frons at narrowest 0.197—0.215 (mean 0.205) of head width, parafrontals and parafacials with pure white pollinosity, occiput with white hairs (one specimen with slightly yellowish hairs in the uppermost part). Third tergite with 2—3 marginal setae (one specimen with 6). Fifth tergite on ventral side of abdomen yellow. Fifth sternite with yellow lobes.
- Erycilla ferruginea* (Meigen, 1824)
 Taxonomy: Mesnil 1955: 440 (as *Erycina rutila* Meig.); Mesnil 1957x: 20, foot-note; Herting 1968: 1—3; Herting 1971: 8; Herting 1972: 6, 12; Mesnil 1975: 1394.
 Previous records: *Ceromasia ferruginea* Meig. — Ringdahl 1954: 49.
 Material: — Hordaland: HOy: Bergen (Fana), Fjøsanger, EIS 30, 1♂ 22 July 1980, (B.H.).
- Aplomya confinis* (Fallén, 1820)
 Taxonomy: Mesnil 1954: 330; Herting 1974: 12.
 Previous records: *Tachina confinis* Fall. — Zetterstedt 1838: 644; Zetterstedt 1844: 1141; Siebke 1877: 86; *Exorista confinis* Fall. — Ringdahl 1952: 132—133 No. 24.
 Material: — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1♂ 1 Aug. 1979.
- Bothria subalpina* Villeneuve, 1910
 Taxonomy: Mesnil 1954: 336.
 Material: — Vest-Agder: VAY: Vennesla, Eike-land, EIS 5, 1♂ 12 April 1976, S. Svendsen.
 Previously recorded from Sweden (Ringdahl 1937, 1952; Herting 1962) and Finland (Hackman 1980) as far as Scandinavia is concerned.
 New to Norway.
- Brachicheta strigata* (Meigen, 1824)
 Taxonomy: Mesnil 1956: 499.
 Material: — Rogaland: Ry: Klepp, Orresanden, EIS 7, 1♂ 1 May 1978, (S.A.).
 Found on dry open heath-land behind sand dunes along coast of Jæren.
 New to Norway.
- Cyzenis albicans* (Fallén, 1810)
 Taxonomy: Mesnil 1954: 338.
 Previous records: *Tachina albicans* Fall. — Siebke 1877: 86; *Cyzenis albicans* Fall. — Ringdahl 1944b: 9; Ringdahl 1952: 132—133 No. 5.
 Material: — Vest-Agder: VAY: Flekkefjord, Rasvåg, EIS 4, 2♂♂ 4 May 1979; 14♂♂ 10—11 May 1979. — Rogaland: Ry: Sandnes, Dale, EIS 7, 4♂♂ 1♀ 15 May 1980; Sola, Haga (Hansaberget), EIS 7, 5♀♀ 7 June 1980; Stavanger, Byhaugen, EIS 7, 3♀♀ 9 June 1979; Madlalia, EIS 7, 1♀ 24 May 1980; Mosvannsparken, EIS 7, 1♂ 5 May 1980, Students leg.
- Frontina laeta* (Meigen, 1824)
 Taxonomy: Mesnil 1954: 343.
 Previous records: *Tachina laetabilis* Zett. — Siebke 1877: 88; *Frontina laeta* Meig. — Ringdahl 1952: 134—135 No. 50.
 Material: — Telemark: TEi: Seljord, Seljord, EIS 17, 1♂ 26 July 1976, T. Nielsen, (S.A.); Ulvenes, EIS 17, 3♂♂ 25 July 1979.
- Gonia ornata* Meigen, 1826.
 Taxonomy: Mesnil 1956: 527; Herting 1963: 106—107.
 Previous records: *Gonia lateralis* Zell. — Siebke 1877: 89 (synonym according to Lundbeck 1927: 393); *Gonia ornata* Meig. — Ringdahl 1944b: 10; Ringdahl 1952: 134—135 No. 81.
 Material: — Rogaland: Ry: Klepp, Boresanden, EIS 7, 6♂♂ 1♀ 20 May 1979; 11♂♂ 1 May 1980; Orresanden, EIS 7, 10♂♂ 1♀ 1 May 1978, (S.A.); 1♂ 6 May 1978, (S.A.); Selesanden, EIS 7, 1♀ 20 May 1978, (S.A.); Sandnes, Myklebostad, EIS 7, 1♂ 26 May 1979; 1♀ 26 May 1979, Å. Vignes; Randaberg, Sandestranden, EIS 7, 1♀ 1 June 1978, (S.A.).
 All specimens except the two from Sandnes were caught on or behind the large sand dunes bordering the coast along the northern part of Jæren.
- Gonia picea* (Robineau-Desvoidy, 1830)
 Taxonomy: Mesnil 1956: 528 (as *sicula*); Herting 1974: 20; Herting 1975a: 4.
 Previous records: *Gonia fasciata* Meig. — Siebke 1877: 89; Ringdahl 1952: 134—135 No. 82.
 Material: — Rogaland: Ry: Sandnes, Foss-Eike-land, EIS 7, 1♂ 28 May 1979, T. Figved; Stavanger, Krossberg, EIS 7, 1♂ 19 May 1979, T. Nybø; Stokkavatr, EIS 7, 1♀ 12 May 1980, L.G. Waage; Vindafjord, Vormestrand, EIS 14, 1♂ 1 May 1980, L.G. Waage.
- Onychogonia flaviceps* (Zetterstedt, 1838)
 Taxonomy: Mesnil 1956: 539 (as *interrupta*); Herting 1973: 7—9; Mesnil 1975: 1395; Herting 1975a: 10.
 Previous records: *Gonia flaviceps* Zetterstedt, 1838: 632 (described from a single male captured between Kautokeino and Alta in Finnmark, Northern Norway, 14 Aug. 1821) (Mesnil (1956: 542) erroneously refers the type locality to Sweden); Zetterstedt 1844: 1196; Siebke 1877: 90; Bidenkap 1901: 57.
 Material: — Oppland: Os: Gausdal, Svatum 600

- m a.s.l., EIS 53, 1♂ 5 July 1978, T. Nielsen, (S.A.).
The abdomen is all black without red lateral markings.
- Myxexoristops blondeli* (Robineau-Desvoidy, 1830)
Taxonomy: Mesnil 1955: 446; Herting 1964: 59—65; Mesnil 1975: 1394.
Previous records: *Tachina arctica* Zetterstedt, 1838: 645 (described from a single male captured at the mountain Skaaddavara close to Alta, Finnmark, Northern Norway 7 Aug. 1821); Zetterstedt 1844: 1187; Siebke 1877: 88; *Exorista arctica* Zett. — Bidenkap 1901: 57. *M. blondeli* is listed in Ringdahl's (1952) catalogue under the name *Zenillia porcula* Zett. (cf. Herting 1962: 83), but is not recorded from Norway. This is probably due to the fact that Ringdahl (1945a: 27) (cf. Herting 1964: 60) erroneously synonymized *arctica* with *mitis* Meigen, 1824. The latter species is recorded from Norway (Ringdahl 1952: 132—133 No. 19). Note that Ringdahl (1934: 267) correctly synonymized *arctica* with *pexops* Brauer & Bergens-tamm, 1891 (= *blondeli*).
Material: — Telemark: TEi: Fyresdal, Aslestad — Slystøl 650 m a.s.l., EIS 16, 1♂ 7 July 1980, (B.H.).
The cerci agree with the figure given by Herting (1964: 60, fig. 1 a).
- Myxexoristops stolidi* (Stein, 1924)
Taxonomy: Mesnil 1955: 446; Herting 1964: 59—65; Mesnil 1975: 1394.
Material: — Telemark: TEi: Tokke, Dalen, EIS 16, 1♂ 1 July 1980, (B.H.).
This species seem not to have been recorded from Scandinavia before, not even by Hackman (1980), but this is probably due to it having been regarded in the past as identical to *M. blondeli* (see above).
New to Norway.
- Ocytata pallipes* (Fallén, 1820)
Taxonomy: Mesnil 1952: 241; Herting 1974: 17.
Previous records: *Tachina pallipes* Fall. — Siebke 1977: 89; *Rhacodineura pallipes* Fall. — Ringdahl 1952: 136—137 No. 87.
Material: — Vest-Agder: VAY: Flekkefjord, Rasvåg (Hidra), EIS 4, 1♂ 24 June 1978, (S.A.). — Rogaland: Ry: Lund, Moi, EIS 4, 1♂ 23 June 1978, (S.A.); Sola, Gimra, EIS 7, 1♀ 19 July 1979.
- Platymya fimbriata* (Meigen, 1824)
Taxonomy: Mesnil 1954: 373 (as *nemestrina*); Herting 1972: 10.
Previous records: *Exorista fimbriata* Meig. — Schøyen 1889: 7; Ringdahl 1944b: 9; *Tachina hyalinipennis* Zetterstedt, 1838: 645 (misspelled *hyalinipennis* by later authors, even Zetterstedt) (described from specimens captured at Dovre mountains, Norway, by Boheman); *Tachina hvalipennis* Zetterstedt 1844: 1145; Siebke 1877: 86; *Tachina tricingulata* Zetterstedt, 1838: 646 (synonym according to Ringdahl 1934: 271; 1945a: 29); Zetterstedt 1844: 1146; Siebke 1877: 86; *Nemoraea 3-cingulata* Zett. — Bidenkap 1898: 149.
- Material: — Rogaland: Ry: Stavanger, Ullandhaug, EIS 7, 1♂ 1♀ 10 Aug. 1978, (S.A.).
- Cadurciella tritaeniata* (Rondani, 1859)
Taxonomy: Mesnil 1955: 426; Herting 1969: 202.
Material: — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1♀ 26 July 1979, K. & A. & Ø. & T. Rognes, (B.H.); Kviteseid, Lundeberg (Vråvatn), EIS 17, 1♀ 26 June 1980, (B.H.).
The specimens from Lundeberg were caught on *Vaccinium myrtillus* and *V. uliginosum*. New to Norway.
- Carcelia atricosta* Herting, 1961
Taxonomy: Herting 1961a: 7; Mesnil 1975: 1388; Herting 1977: 5.
Material: — Telemark: TEy: Nome, Vårbu, EIS 18, 1♂ 7 Aug. 1979, (B.H.).
Mesnil (*l.c.*) regards this species as very close to the Nearctic *Carcelia perplexa* Sellers, 1943. Herting (in litt. 14 Sept. 1979) reports to have seen material (unpublished) from Skåne and Småland in Sweden.
New to Norway.
- Eucarcelia pollinosa* (Mesnil, 1941)
Taxonomy: Mesnil 1944: 35 (as *obesa*); Ringdahl 1934: 269; Ringdahl 1937: 38; Ringdahl 1945a: 28; Mesnil 1963x: 3; Mesnil 1975: 1388. I follow Mesnil (1963x: 4; 1975: 1388) in using the name *Eucarcelia* Baranov, 1934 instead of *Senometopia* Macquart, 1834 (cf. Crosskey 1973: 147; 1975: 103; Herting 1974: 7).
Previous records: *Carcelia rutilla* B. & B. — Ringdahl 1944b: 10; Ringdahl 1952: 134—135 No. 70.
Material: — Akershus: AK: Bærum, Fossum, EIS 28, 2♀ 3 Aug. 1979. — Vestfold: VE: Hof, Thorrud, EIS 28, 1♀ 28 July 1979. — Buskerud: Bø: Øvre Eiker, Ulleland, EIS 28, 1♀ 5 Aug. 1979; Flesberg, Belgen, EIS 27, 1♀ 27 July 1979; Hvila, EIS 27, 11♂♂ 1♀ 27 July 1979; Kongsberg, Skollenberg, EIS 27, 1♂ 1♀ 5 Aug. 1979. — Telemark: TEy: Nome, Vårbu, EIS 18, 1♂ 2♀ 7 Aug. 1979, (B.H.). TEi: Sauherad, Nordagutu, EIS 18, 1♀ 26 July 1979, K. & A. & Ø. & T. Rognes; Seljord, Ulvenes, EIS 17, 7♂♂ 2♀ 25 July 1979; Kviteseid, Skredi, EIS 17, 1♂ 2 July 1980; 2♂♂ 8 July 1980; Tokke, Dalen, EIS 16, 1♀ 30 June 1980.
Almost all my specimens have been caught on leaves of *Populus tremula*.
- Drino lota* (Meigen, 1824)
Taxonomy: Mesnil 1951: 164.
Material: — Telemark: TEi: Sauherad, Nordagutu, EIS 18, 1♀ 26 July 1979, K. & A. & Ø. & T. Rognes.
New to Norway.
- Drino vicina* (Zetterstedt, 1848)
Taxonomy: Mesnil 1951: 166; Herting 1961a: 6; Mesnil 1975: 1391.
Material: — Oppland: Os: Ringeby, Ringeby stavkirke, EIS 63, 1♀ 9 July 1978, T. Nielsen, (S.A.).
New to Norway.

Epicamponera succincta (Meigen, 1824)

Taxonomy: Mesnil 1954: 318.

Material: — Akershus: AK: Bærum, Nordby, EIS 28, 1 ♀ 21 June 1979, (B.H.).

The record from Finland by Hedström (1964: 84) is probably the first from Scandinavia. The species is listed by Hackman (1980), but not by Lundbeck (1927) or Ringdahl (1952).

New to Norway.

Huebneria affinis (Fallén, 1810)

Taxonomy: Mesnil 1954: 391.

Previous records: *Tachina affinis* Fall. — Siebke 1877: 85; *Exorista affinis* Fall. — Ringdahl 1944b: 10; Ringdahl 1952: 132—133 No. 25.

Material: — Vest-Agder: VAY: Lindesnes, Lindesnes, EIS 1, 1 ♂ 20 July 1980, T. Nielsen; Flekkefjord, Lauvnes (Hydra), EIS 4, 1 ♂ 4 June 1979.

Lydella stibulans (Meigen, 1824)

Taxonomy: Mesnil 1955: 436; Herting 1959: 425—429; Mesnil 1975: 1393.

Material: — Østfold: Ø: Fredrikstad, Øra, EIS 20, 1 ♀ 24 June 1979, (B.H.).

Known from Denmark (Lundbeck 1927: 301), Sweden (Ringdahl 1952: 132—133 No. 10) and Finland (Hackman 1980) as far as Scandinavia is concerned.

New to Norway.

Nilea hortulana (Meigen, 1924)

Taxonomy: Mesnil 1954: 382; Herting 1972: 8. On the limits of *Nilea* Robineau-Desvoidy, 1863 see Mesnil 1975: 1386.

Material: — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1 ♀ 1 Aug. 1979, (B.H.).

As regards Scandinavia reported from Denmark (Lundbeck 1927: 314), Sweden (Ringdahl 1952: 132—133 No. 21; Herting 1962: 82) and Finland (Hackman 1980).

New to Norway.

Nilea innoxia Robineau-Desvoidy, 1863

Taxonomy: Mesnil 1954: 365; Herting 1974: 8.

Material: — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1 ♀ 1 Aug. 1979, (B.H.). — Telemark: TEi: Seljord, Ulvenes, EIS 17, 1 ♀ 25 July 1979, (B.H.).

In Scandinavia reported only from Sweden (Ringdahl 1952: 132—133 No. 29, as *lethifera* Pand.).

New to Norway.

Nilea rufiscutellaris (Zetterstedt, 1859)

Taxonomy: Ringdahl 1945a: 29, 33; Mesnil 1954: 366 (as *temeraria* Robineau-Desvoidy, 1863); Herting 1973: 4; Herting 1974: 15; Mesnil 1975: 1393.

Material: — Telemark: TEi: Tokke, Dalen, EIS 16, 1 ♀ 1 July 1980, (B.H.).

In Scandinavia reported from Sweden (Zetterstedt 1859: 6115, *Tachina*: Ringdahl 1945b: 198, *Pales*: Ringdahl 1952: 132—133 No. 39; Herting 1962: 82, as *temeraria*; Herting 1973: 4) and Denmark (Lundbeck 1927: 343, as *Zenillia Böttcheri* Ville-neuve, 1919).

New to Norway.

Phebellia glauca (Meigen, 1824)

Taxonomy: Mesnil 1955: 464. As for the taxonomy of the genus *Phebellia* Robineau-Desvoidy, 1846, see Herting 1961a: 1—6; Mesnil 1970x: 111; Herting 1973: 4; Herting 1974: 8; Herting 1977: 2.

Previous records: *Exorista glauca* Meig. — Ringdahl 1952: 132—133 No. 16. See below.

Material: — Telemark: TEi: Seljord, Ulvenes, EIS 17, 1 ♀ 25 July 1979, (B.H.).

I have not been able to trace any further records from Norway, so Ringdahl's reasons for recording the species from this country are not clear. However, among the names cited erroneously (cf. Herting 1961a; 1977) as synonyms to *glauca* by Ringdahl (1945a: 29), namely *strigifrons* Zetterstedt, 1838: 645 and *stulta* Zetterstedt, 1844: 1109, the former was based on a single male captured at Alteidet (Troms: TRi: Kvænangen), Northern Norway. This record is repeated by Zetterstedt (1844: 1136) and Siebke (1877: 86). *stulta* is not reported from Norway. Ringdahl's (1952) record may therefore have been based on the specimen from Alteidet only, in which case the above record from Telemark is the first one from Norway.

Phebellia glaucoides Herting, 1961

Taxonomy: Herting 1961a: 1—2, 6; Mesnil 1975: 1394.

Material: — Buskerud: Bø: Øvre Eiker, Burud, EIS 27, 1 ♂ 1 Aug. 1979, (B.H.).

The terminalia agree with the figure published by Herting (1961a: 2, fig. 1). Mesnil (*l.c.*) supposes *P. glaucoides* to be identical with the Nearctic *P. imitator* Sellers, 1943. First Scandinavian record.

Phryxe magnicornis (Zetterstedt, 1838)

Taxonomy: Mesnil 1954: 405 (as *longicauda* Wainwright, 1940); Herting 1973: 4; Mesnil 1975: 1393.

Previous records: *Tachina magnicornis* Zetterstedt, 1838: 644 (type locality Dovre, Norway); Zetterstedt 1844: 1141; Siebke 1877: 86; Strand 1903: 7.

Material: — Hordaland: HOy: Bergen (Fana), Fjøsanger, EIS 30, 1 ♂ 1 ♀ 22 July 1980.

The genitalia of the male agree with the figure in Mesnil (1954: 404, fig. 40). In Scandinavia reported from Sweden (Zetterstedt *l.c.*: Herting 1962: 82, as *longicauda*), but not from Finland (Hackman 1980).

Phryxe vulgaris (Fallén, 1810)

Taxonomy: Mesnil 1955: 419.

Previous records: *Tachina vulgaris* Fall. — Zetterstedt 1838: 644; Zetterstedt 1844: 1139; Siebke 1877: 86; *Exorista vulgaris* Fall. — Bidenkap 1898: 149; *Phryxe vulgaris* Fall. — Ringdahl 1944b: 10; Ringdahl 1952: 132—133 No. 35; *Tachina mobilis* Zett. — Siebke 1877: 87 (synonym according to Ringdahl 1934: 269; 1945a: 28).

Material: — Akershus: AK: Oslo, Sørkedalen, EIS 36, 1 ♀ 22 June 1979. — Buskerud: Bø: Øvre Ei-

ker, Burud, EIS 27, 1 ♂ 1 ♀ 1 Aug. 1979. — Hordaland: HOy: Bergen (Askøy), Kleppesto, EIS 30, 1 ♂ 20 Sept. 1936, N. Knaben, ZMB. The male from Burud has been dissected and its terminalia agree with the figure in Mesnil (1954: 404, fig. 38).

Tlephusa cincinna (Rondani, 1859)

Taxonomy: Ringdahl 1934: 268; Mesnil 1954: 328 (as *diligens* Zett.); Herting 1969: 192; Herting 1974: 9.

Previous records: *Exorista diligens* Zett. — Ringdahl 1944a: 80; Ringdahl 1944b: 9; *Exorista honesta* R.-D. — Ringdahl 1952: 132—133 No. 17. Material: — Telemark: TEi: Seljord, To, EIS 17, 1 ♂ 24 July 1979.

This species has for a long time been known under the name *diligens* Zett. However, B. Herting informs me (in litt. 4 May 1981) that none of the two female syntypes of *Tachina diligens* Zetterstedt, 1844: 1122—1123, which he has recently examined, belong to the species so named by Ringdahl and Mesnil. The latter species therefore must retain the name *cincinna* Rondani, 1859. Siebke (1877: 85) only cites the data of the *diligens* syntype captured in Norway.

RHINOPHORIDAE

Phyto cingulata (Zetterstedt, 1844)

Taxonomy: Herting 1961b: 16.

Material: — Østfold: Ø: Kråkerøy; Glombo, EIS 20 1 ♀ 24 June 1979.
New to Norway.

Tricogena rubricosa (Meigen, 1824)

Taxonomy: Herting 1961b: 20.

Previous records: *Frauenfeldia trilineata* Meig. — Ringdahl 1944b: 9; Ringdahl 1952: 144—145 No. 269.

Material: — Rogaland: Ry: Klepp, Øksnevad, EIS 7, 1 ♂ 1 Aug. 1979, T. Nielsen.

Stevenia atramentaria (Meigen, 1824)

Taxonomy: Herting 1961b: 23; Herting 1974: 33; Crosskey 1977: 49.

Material: — Akershus: AK: Bærum, Nordby gård, EIS 28, 1 ♂ 21 June 1979; Øverland, EIS 28, 11 ♂♂ 5 ♀♀ 23 June 1979; Oslo, Sørkedalen, EIS 36, 1 ♂ 1 ♀ 22 June 1979.

All my specimens have well developed external vertical setae (*vie*). Many males are without an *av* seta on the middle tibia (asymmetrically developed in one specimen). The anterior half of the orbit has small proclinate setulae in varying number outside the frontal setae. The abdomen is black.
New to Norway.

Stevenia umbratica (Fallén, 1820)

Taxonomy: Herting 1961b: 27.

Previous records: *Rhinophora umbratica* Fall. — Siebke 1877: 91; *Stevenia umbratica* Fall. — Ringdahl 1952: 144—145 No. 263.

Material: — Vest-Agder: VAY: Flekkefjord, Rasvåg (Hidra), EIS 4, 1 ♂ 24 June 1978.

Paykullia maculata (Fallén, 1820)

Taxonomy: Herting 1961b: 29; Herting 1974: 31.

Material: — Rogaland: Ry: Sola, 200 m south of Hafsrjord bru, EIS 7, 1 ♂ 13 July 1980; Stavanger, Sunde, EIS 7, 1 ♀ 15 July 1979; 1 ♀ 5 Sept. 1979, A. Rognes.

The male has two pairs of rather distinct *prst* *acr*, one half and one third as long as the neighbouring *prst* *dc*, respectively. Only two humeral setae are present, the male has a weak third one on the left humeral callus.

New to Norway.

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Short communications

FIRST RECORD OF *NEMOURA AVICULARIS* MORTON, 1894 (PLEC.,: NEMOURIDAE) IN WESTERN NORWAY¹

LEIF MAGNUS SÆTTEM

A total of 285 nymphs and 372 (213 ♂♂, 159 ♀♀) adults of *N. avicularis* were collected from Myrkdalsvatn, a lake in western Norway. It has not previously been recorded from western Norway. In Myrkdalsvatn it had a univoltine life cycle with emergence at the end of May and the beginning of June, shortly after ice break. Autumn was the main nymphal growth period. Other plecopteran species found are mentioned.

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Previous studies (Lillehammer 1974) have indicated that the distribution of *Nemoura avicularis* Morton was restricted to the eastern parts of Southern Norway. Previously it has been found further west than Østre Slidre, Svenkerud in Hallingdal, Seljord in Telemark and Byglandsfjord in Aust-Agder (Lillehammer 1974). In Norway *N. avicularis* has been found in small and large streams, rivers and lakes from coastal areas up to the low-alpine belt. It occurs at low current velocities and shows a significant preference for unstable substrata and large quantities of allochthonous matter (Lillehammer 1978). The life cycle of *N. avicularis* has been described as univoltine emerging in the spring (Brinck 1949, Brittain 1973, Lillehammer 1978).

During 1977 and 1978 I investigated the littoral fauna of the lake Myrkdalsvatn (60°49'N, 6°28'E, UTM: 626447). It has a surface area of 1,66 km², a maximum depth of 107 m and forms a part of the Voss River System, western Norway. It is situated 25 km north of Voss at 230 m a.s.l. The lake is oligotrophic (pH 18:7–20 uS/cm, Ca⁺⁺: 0.7–1.1 mg/l, pH: 5.9–6.4) and dimictic with a maximum surface temperature of about 20°C in July. It is ice-covered from late November to mid May. Due to rapid, usually short term, water level fluctuations the littoral zone is stony with very little vegetation. A significant part of the organic matter occurring in the lake is of terrestrial ori-

gin. Further limnological data are given by Faafeng et al. (1977).

The investigation was carried out during the ice free period. Monthly samples of nymphs at 15 localities around the lake were taken using the kick method and by picking up stones from the bottom (Brittain and Lillehammer 1978). In addition, shore emergence traps (box-type, 1 m³) (Davies 1950) were emptied daily.

The benthic samples contained 285 nymphs and the traps caught 372 (213 ♂♂, 159 ♀♀) adults of *N. avicularis*. In Myrkdalsvatn *N. avicularis* had a one year life cycle with the main growth period during the autumn. Emergence commenced just after ice break during the latter part of May and continued until 19 June (1977) and 20 June (1978) with a peak at the end of May and beginning of June. *N. avicularis* was numerically the dominant species of Plecoptera in the lake. Other stone fly species recorded were: benthic samples- *Nemoura cinerea* (Retzius), *Nemurella picteti* Klapélek, *Leuctra* sp., *Capnia* sp.; emergence traps- *N. cinerea*, *Siphonoperla burmeisteri* (Pictet), *Brachyptera risi* (Morton), *Amphinemura sulcicollis* (Stephens), *Protonemura meyeri* (Pictet), *Capnia pygmaea* Zetterstedt, *Leuctra fusca* (L.) and *L. nigra* (Olivier).

With this new record of *N. avicularis*, two species of the genus *Nemoura*, *N. avicularis* and *N. cinerea*, have been recorded from Western Norway.

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RHICOPHAGUS PERFORATUS ERICHSON (COL., RHISOPHAGIDAE) NEW TO NORWAY

PREBEN S. OTTESEN

Rhizophagus perforatus Erichson is reported new to Norway. One specimen was found under a rotten log on brick-mixed garden soil in the urban area of Kampen, Oslo on 16 April 1979.

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The fourteen Fennoscandian members of the beetle family Rhizophagidae are usually found under bark where they feed on mould or sap. Exceptions are the two closely related species *Rhizophagus parallelocollis* Gyllenhal and *R. perforatus* Erichson which are mostly subterranean. The former is known as the «graveyard beetle» as it frequently is found in buried coffins or swarming over the graveyards (Peacock 1977). It is apparently common in Oslo where I have taken several specimens in pit-fall traps in a graveyard close to downtown.

In a garden partly destroyed by bricks, wooden materials and inorganic garbage from a torn-down house in the urban area of Kampen, Oslo, a specimen of *R. perforatus* was found on the underside of a piece of rotten log on 16 April 1979. There was still some winter ice underneath the log, and the beetle may thus have been at its overwintering site. The species has previously not been reported found in Norway (Silfverberg 1979). The specimen is deposited in the author's collection.

R. perforatus is considered rare in Fennoscandia and Denmark. Most records are from Sweden where it occurs north to ca. 62° latitude. The records closest to Oslo are from the regions of Dalsland and Dalarna (Lindroth 1960) which both border to Norway.

According to Peacock (1977) the species is found in exposed or buried decaying vegetable matter, in fungi, mouldy bones, moles' nests,

buried mouldy carcasses and sometimes under the bark of deciduous trees. It is often found together with *R. parallelocollis*.

Unless they emerge to the surface, subterranean beetles are rarely taken by the coleopterologists' conventional collecting methods, and many species may prove to be more numerous than the few records indicate. Baranowski (1978) reported an original and highly successful method for collecting *R. perforatus*: Potatoes were buried 10—40 cm below the ground and covered with soil and bricks. After some months large numbers of the beetle were found in the potatoes. By using this same method *R. perforatus* may be discovered to be more common than formerly assumed.

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A RECORD OF XYLEBORUS DISPAR F. (COL., SCOLYTIDAE) IN WESTERN NORWAY

KÅRE HESJEDAL

A female specimen of *Xyleborus dispar* Fabricius was collected in primo July, 1979, in Etne, Hordaland, EIS 23. This is the first record of the species in Western Norway.

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Xyleborus dispar Fabricius is distributed throughout the eastern and south-eastern parts of Norway. According to the private archive of the late Andreas Strand, records are reported

from the provinces of Østfold, Vestfold, Akershus, Hedemark, Oppland, Buskerud, Telemark, Aust-Agder and Vest-Agder. No records, however, have been reported from the western part of Norway.

In primo July, 1979, one single female of *X. dispar* was trapped in a pitfall trap for ground beetles in a strawberry field in Etne, Hordaland, EIS 23. This was a rather unexpected locality for trapping this species, which are associated with weakened, deciduous trees.

In East Norway the populations of *X. dispar* were high in 1978 due to the many weakened trees after the dry summers of 1975–77 (Edland 1979). The males of this species cannot fly. Accordingly the mating has to take place before the females leave their adolescence tree, which also are their hibernating site. The females can probably migrate over a long distance to lay their eggs (Edland 1979).

The question arises if the species has become established in Western Norway as a result of the population growth in the eastern part of the country.

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BILLEN *OEDEMERA FEMORATA* SCOPOLI FUNNET I SUNNDALEN PÅ NORDMØRE, MRI

ALF HARALD DRAGSETH OG ODDVAR HANSSSEN

The beetle *Oedemera femorata* Scopoli is reported found in Norway for the first time. Two specimens were found in Sunndalen, Møre og Romsdal province 7 June 1979, and one specimen 12.5 km from the first place 25 July 1980. This location is a long distance away from the nearest locality where the species previously has been found, Bohuslän in Swe-

den, indicating that the specimens found represent a relict population.

Alf Harald Dragseth, Hoelsandvegen, 6600 Sunndalsøra: Oddvar Hanssen, Langslågt, 8, 6600 Sunndalsøra.

I Fennoskandia er *Oedemera femorata* Scopoli hittil kjent fra Danmark (untatt Bornholm), Syd-Sverige nord til og med Bohuslän og Östergötland, og fra Finland hvor arten finnes syd for 64°N (Lindroth 1960).

Imago er oppgitt å ha tilhold på skjermplanter, hvor den spiser pollen (Hansen & Larson 1945).

Den 7. juni 1979 ble to eksemplarer (1 ♂ 9 mm og 1 ♀ 8 mm) av denne art funnet ved Hoel i Sunndalen på Nordmøre (UTM 32V MQ823478). Den 25. juli 1980 ble ett eksemplar (1 ♀ 9 mm) funnet på Litle-Fale i Sunndalen (UTM 32V MQ937441). Dette individet satt på en blomst av kvann (*Angélica archangélica*) i åpen krattskog av gråor (*Alnus incána*). Sistnevnte funnsted ligger 12,5 km unna stedet der arten først ble funnet.

Disse funnene er gjort langt fra artens nærmeste tidligere kjente funnsted, som er Bohuslän. Da arten ikke er registrert i Oslofjordområdet, som er relativt godt undersøkt, er det liten sannsynlighet for at den er oversett og har en kontinuerlig utbredelse langs kysten opp til Nordmøre. Det kan således være snakk om en reliktpopulasjon fra en varmeperiode i postglacial tid.

Til tross for sin nordlige beliggenhet har Sunndalen både gunstig klima og vegetasjon som kan gi grunnlag for varmekjære insekter.

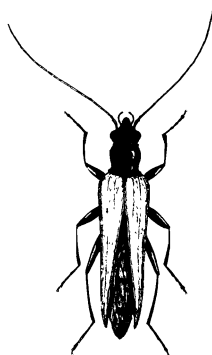


Fig. 1. *Oedemera femorata* har gule hårete dekkvinger, men er ellers svart med et blågrønt metalliskjær. Tegningen viser en hunn; hannen har til forskjell fortykkede baklår. Eksemplarene fra Sunndal målte 8–9 mm, og litteraturen oppgir 8–10 mm (Hansen & Larson 1945).

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PSEUDOVESPULA OMISSA (BISCHOFF, 1931) (HYM., VESPIDAE) RECORDED FROM NORWAY

KNUT ROGNES AND KLAUS MOHN

The cuckoo-wasp, *Pseudovespula omissa* (Bischoff, 1931), which usurpates the nest of *Dolichovespula sylvestris* (Scopoli, 1763), is recorded from Norway for the first time. The locality, where a single female specimen was found, is situated in a suburban area of the small town of Sandnes, in the northern part of Jæren, a farmland district in the south-western part of Norway.

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Løken (1964, 1978) has published records of social wasps from Norway. Within the subfamily Vespinae (sensu Blüthgen 1961) ten species have been recorded up to now. Among these are two inquilines, viz. *Vespula austriaca* (Panzer, 1799), which usurpates the nest of *Paravespula rufa* (L.), and *Pseudovespula adulterina* (Buysson, 1905), which parasitizes *Dolichovespula saxonica* (Fabricius, 1793) and possibly also *D. norwegica* (Fabricius, 1781) (Blüthgen 1961; Løken 1964, 1978). The third known inquiline from Europe, *Pseudovespula omissa* (Bischoff, 1931), which occupies the nest of *D. sylvestris* (Scopoli, 1763), has hitherto been recorded from Finland (Blüthgen 1961: 43), Denmark, and Skåne in Sweden (Erlandsson 1971), as far as Scandinavia is concerned.

We hereby publish the first record of *P. omissa* from Norway.

ROGALAND: Ry: Sandnes, Stangeland, EIS 7, 1 ♀ 1 Aug. 1979, Klaus Mohn leg. UTM reference: 32V LL 108 282.

The specimen was identified by one of us (K.R.) with the aid of Blüthgen's keys and is deposited at the Museum of Zoology, Bergen.

The specimen was found creeping slowly on

the ground among low vegetation on a sunny, moderately warm day, and could be picked with the hands. The wings are slightly worn. The locality is situated in a suburban area which is surrounded by open cultivated farmland and which neighbours the small town of Sandnes in the northern part of Jæren, south-western Norway. *D. sylvestris*, its host, is common in this part of the country (see e.g. Løken 1964: 203—204).

The female of *P. omissa* closely resembles that of *D. sylvestris*, especially as regards the colour of the clypeus, which is all yellow with a central black spot. However, like the other cuckoo-wasps, it has the lower corners of clypeus acute and distinctly projecting, the genae broader, the teeth at the inner margin of the mandibles stronger, and viewed in profile the sixth tergite is distinctly convex, the sixth sternite concave for the whole of its length and the sting curved ventrally. In addition, the yellow pronotal bands are broadened on the external side and the sixth sternite black on basal half.

In Løken's (1964) key, the female of *P. omissa* will run to *P. adulterina* (couplet 4), from which it can safely be distinguished by the mostly yellow hairs on clypeus, rather closely set in the middle apically. In *P. adulterina* the clypeus has only black hairs which are evenly distributed. As regards identification of the male sex, which we have not seen, the reader is referred to Blüthgen (1961).

ACKNOWLEDGEMENT

We are indebted to Astrid Løken, Zoological Institute, Blindern, Oslo (formerly Museum of Zoology, Bergen) for having verified the identification of the specimen.

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Received 8 Sept. 1980.

**A RECENT RECORD OF *LUCILIA*
BUFONIVORA MONIEZ, 1876 FROM
NORWAY (DIPT., CALLIPHORIDAE)**

KNUT ROGNES

24 specimens of *Lucilia bufonivora* Moniez, 1876 have recently been captured in Telemark, Southern Norway.

Knut Rognes, Havørnbrautene 7a, N-4040 Madla, Norway.

The only known captures of *Lucilia bufonivora* Moniez, 1876 in Norway were made about 130 years ago by H. Siebke (Rognes 1980). The following record of this species is therefore of some interest.

TELEMARK: TEi: Tokke, Dalen, EIS 16, 30 June 3 ♂♂ 3 ♀♀; 1 July 1980 15 ♂♂ 3 ♀♀.

The specimens were caught by the author at low vegetation, mostly ferns, in the border-zone between a small forest, consisting mainly of *Alnus* sp. and *Populus tremula*, and an untended lawn some 100 m from the bus station in the centre of the small city of Dalen. Some *Rana* specimens were observed in the area. The locality is not far from the Tokke river and the western end of the lake Bandak (72 m a.s.l.).

The male and female frons measured at the

narrowest point are 0.09–0.11 (mean 0.10) and 0.27–0.31 (mean 0.30) times head width, respectively. In all the specimens the distance in front of the suture between the acrostichal rows of setae is distinctly less than the distance between acrostichal and dorsocentral rows, as was also the case with the two male specimens on which the description in my key (Rognes 1980) was based.

One male has 3 *post acr* on the right side, but the most anterior one is situated as far behind the suture as the front one normally does in this species. One female also has 3 *post acr* on the right side, but the front one, which is close to the suture, is rather weak. In four males the beret is naked, and in one male the prosternum is devoid of hairs, which is quite abnormal for a *Lucilia* species. The male terminalia agree with the figures by Lehrer (1972).

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Book review

Day, R.A. 1979. How to Write and Publish a Scientific Paper. Philadelphia, ISI Press xi + 160 pp., 10 figs., 11 tab., \$8.95 (paperback), \$15,— (hardbound).

Writing good scientific papers is an art you either have from birth or you must learn it step by step. This process of learning is illustrated excellently in this little guidebook.

The book is divided into 26 short and easily read chapters. The first chapter defines what a scientific paper really is. The next 13 chapters deal thoroughly with all parts of a paper, e.g. the title, the name(s) of the author(s), the author's addresses, the abstract, the introduction, material and methods, the results, the discussion, acknowledgements, references, design of tables and illustrations and typing the manuscript. The following three chapters deal with the

process of sending the manuscript to the editor, how to deal with editors and printers. Next chapter describes how you order your reprints and how you use them. The three following chapters deal with writing review papers, conference reports and thesis. Ethics, rights and permissions are the topics of the next three chapters. The last chapter is the authors personal view on writing scientific papers, as well as a summary of the book. The book contains three appendages of abbreviations: titles of journals, in table headings and general accepted ones. Two appendages deal with linguistic errors and words which should be avoided, and another with the SI-system of units. An index of contents as well as a reference list also are included.

The book is well written in a clear and concise English. The text contains numerous examples of various errors to avoid.

With the aid of this book every student of science will easily convert new laboratory findings to a scientific paper. For already established authors of science this book will be an excellent reference book.

U. Carlberg

ANNOUNCEMENT

PIFON, a new Permanent International File of Naturalists

An internationale register of naturalists, their interests, collections, and exchange desires called PIFON, an acronym for «Permanent International File of Naturalists» now contains data on over 10.000 persons representing every country in the world.

In addition to the file, which is used to compile new editions of the *Naturalists' Directory*, a complete set of the 43 editions of the Directory and its Supplements, is available. The first edition of the Directory was published in 1877 and has been issued on the average of every two years since. Thus, the PIFON file is the world's most complete listing of naturalists, past and present. This wealth of data is available for the use of any person registered in PIFON.

A permanent file is needed to record the rapid change of addresses, additions, deletions, and interest revisions among those listed in the Directory, as well as a list of the naturalists who wish to be recorded but not included in the editions of the Directory. Numerous new registrations are being added daily providing a constantly up-dated source of information.

A unique coding system enables the compilers of the Directory to provide accurate lists of naturalists by speciality in the most up to date form possibly. In addition, due to the spontaneous registration in PIFON, current data is available for use with computer speed and accuracy.

The great increase in the number of naturalists in the world in recent years, along with the greatly inflated printing and postage costs, have caused the publisher of the Directory to divide each edition into six parts, and to reach naturalists through notices in various publications in order to obtain registrations for PIFON.

To be registered in PIFON it is only necessary to send the following to the editor, in block letters or typed: 1) Name (last or family name underlined; include Dr., Prof., Mr., Mrs., etc.); 2) mailing address; 3) phone number; 4) group of *main* interest, area of specialization (e.g. family group, name, etc.) and kind of interest (e.g., collecting, exchanging, systematics, ecology, etc.); 5) geographical area of *greatest* interest; 6) short statement giving interest details (not over 25 words); 7) if a taxonomist, list groups willing to identify for others; 8) signature and date. These data will be coded and entered into the file. *No person is listed unless these data are supplied by that person.* The right to edit all listings published in the Directory is reserved.

The first part of the new 44th edition of the *Naturalists' Directory* is entitled «The Naturalists' Directory of Insect Collectors and Identifiers (International)». This part includes persons interested in insects, spiders, and other terrestrial invertebrates. The deadline for the receipt of new listings is *OCTOBER 1981*. Hundreds of listings are now in the PIFON file.

The additional parts will list plant collectors and identifiers, bird watchers, field biologists (including those interested in vertebrates other than birds, non-insect aquatic animals, mollusks, ecologists, conservationists, etc.), and rock, mineral, and fossil collectors. The final part will consist of subject, geographical, and name indexes for the entire edition.

Each part of the Directory is compiled from data obtained from PIFON and contains an alphabetical list of names, addresses, interest statements, and code numbers for data retrieval. Societies and their publications, and annotated lists of new books are added as appropriate for the subject of each part. These completely self contained parts are cross indexed in the final section for those using the complete edition.

The purpose of PIFON and these directories remains unchanged in the 104 year history, namely, in the words of its founder, Samuel Cassino; «To further international exchange of natural history specimens and information». Each person, amateur or professional, who responds to this request for registration will be entered in PIFON. Persons already listed are urged to send in any address changes and confirmation of present listing. To purge the file of incorrect addresses, deceased persons, or incorrect interest statements due to change in interest, users are requested to send corrections when they are noted.

The Directories are sold by the publisher, Flora and Fauna Publications, by subscription only. Separate parts may be subscribed to, or the entire edition may be obtained at a reduced rate. Only a small back stock is maintained for libraries.

The wealth of data in the PIFON file is open for the use of persons registered in PIFON. Information about specialists listed in out of print editions as well as those not yet printed in the Directories but coded in PIFON may be requested. Search for suitable listing will be made upon request and a photocopy of the file on a specific subject will be mailed to the person requesting the information. These data of course have considerable historical value as well. The only charge (to those registered) is \$ 1.00 (payment by draft or US or foreign postage) to cover the mailing costs.

For sale notices are not accepted for listings, but classified and display ad space is available at the end of each part.

Send registrations and/or requests for further information to the editor, Dr. Ross H. Arnett, Jr., Oxy-copsis Pond Research Station, 90 Wallace Road, Kinderhook, NY 12106 USA.

Announcing a new series published by the Norwegian Entomological Society in association with the Royal Norwegian Society of Sciences and Letters, the Museum, Trondheim.

A new series, *Insecta Norvegia*, publishing catalogues, and distribution maps will appear as required at irregular intervals. The series can be regarded as a supplement to *Fauna norvegica ser. B*, Norwegian Journal of Entomology. The editor is: John O. Solem, DKNVS Museet, Erling Skakkes gt. 47B, 7000 Trondheim. The series is distributed by the Norwegian Entomological Society through the secretary: Trond Hofsvang, Postboks 70, 1432 Ås-NLH. The first issue has been distributed for free to all members of the society:

Refset, D. 1980. Atlas of the Coleoptera of Norway. 1. Silphidae, Catopidae, Colonidae, Leptinidae. *Insecta Norv. 1*, 1—44.

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FAUNA NORVEGICA Ser. B. publishes papers in English, occasionally in Norwegian and German with an extensive English abstract. When preparing manuscripts for submission, authors should consult current copies of Fauna norvegica and follow its style as closely as possible. Manuscripts not conforming to the guide to authors will be returned for revision.

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

Only Latin names should be underlined. Other underlinings should be left to the editor. Approximate position of figures and tables in the text should be indicated in the margin. All acknowledgements should be given under a single heading at the end of the text, but before the references.

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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. *Ryacophila 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:

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Book:

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Fittkau, E.J. 1962. Die Tanypodinae (Diptera, Chironomidae). Die Tribus Anatopyniini, Macropeloni und Pentaneurini. *Abh. Larvalsyst. Insekten* 6, 453 pp.

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The **Third European Congress of Lepidopterology** will be held in Churchill College, Cambridge 13–16 April 1982.

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with

Conservation of the Lepidoptera

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