

# FAUNA NORVEGICA

No. 2  
1979

SER. B. VOL. 26 NO. 1  
Norwegian Journal of Entomology



PUBLISHED BY  
NORSK ZOOLOGISK TIDSSKRIFTSENTRAL  
OSLO

# Fauna Norvegica. Ser. B.

## Norwegian Journal of Entomology

### Norsk Entomologisk Forenings tidsskrift.

---

#### Appears with one volume (two issues) annually

Utkommer med to hefter pr. år (sommer og vinter).

#### Editor-in-Chief (Ansvarlig redaktør)

Ole A. Sæther, Zoologisk museum, Muséplass 3, 5014 Bergen/Univ.

#### Editorial Committee (Redaksjonskomité)

Arne Nilssen, Zoological Dept., Tromsø Museum, N-9000 Tromsø, John O. Solem, DKNVS Museet, Erling Skakkes gt. 47B, N-7000 Trondheim, Albert Lillehammer, Zoological Museum, Sars gt. 1, Oslo 5.

#### Subscription

Members of Norw. Ent. Soc. will receive the journal free. Membership fee N.kr. 50.- should be paid to the Treasurer of NEF: Tore R. Nielsen, Juvelveien 19 D, N-4300 Sandnes. Postgiro 5 44 09 20. Questions about membership should be directed to the Secretary of NEF, Trond Hofsvang, Zoologisk institutt, N-1432 Ås - NLH. Members of NZF and NOF receive the journal by paying N.kr. 35.-, non-members by paying N.kr. 55.- to: NZT, Zoological Museum, Sarsgt. 1, N-Oslo 5. Postgiro 2 34 83 65.

#### Abonnement

Medlemmer av Norsk Entomologisk Forening får tidsskriftet fritt tilsendt. Medlemskontingent kr. 50.- innbetales til kassereren i NEF: Tore Nielsen, Juvelveien 19 D, 4300 Sandnes. Postgiro 5 44 09 20. Medlemmer av Norsk Zoologisk Forening og Norsk Ornitologisk Forening mottar tidsskriftet ved å betale

kr. 35.-, dette gjelder også norske biblioteker. Andre må betale kr. 55.- Disse innbetalinger sendes til NZT, Zoologisk museum, Sarsgt. 1, Oslo 5. Postgiro 2 34 83 65.

**FAUNA NORVEGICA B** publishes original new information generally relevant to Norwegian entomology. The journal emphasizes papers which are mainly faunistical or zoogeographical in scope or content, including checklists, faunal lists, type catalogues and regional keys. Submissions must not have been previously published or copyrighted and must not be published subsequently except in abstract form or by written consent of the Editor-in-Chief.

#### NORSK ENTOMOLOGISK FORENING

ser sin oppgave i å fremme det entomologiske studium i Norge, og danne et bindeledd mellom de interesserte. Medlemskontingenten er for tiden kr. 50.- pr. år. Henvendelse om medlemskap i NEF sendes sekretæren: Trond Hofsvang, Zoologisk institutt, 1432 Ås-NLH. Medlemmer får tidsskriftet fritt tilsendt og kan abonnere på NZF's tidsskrift FAUNA (4 hefter pr. år) til redusert pris, for tiden kr. 45.-. Dessuten kan medlemmene abonnere til redusert pris på FAUNA NORVEGICA serie A (generell zoologi, 1 hefte pr. år) for kr. 15.- og på serie C (ornitologi, 2 hefter pr. år) for kr. 25.-. Disse innbetalinger sendes til NZT, Zoologisk museum, Sarsgt. 1, Oslo 5. Postgiro 2 34 83 65.

Trykket med bidrag fra Norges almenvitenskapelige forskningsråd. Opplag 800

---

Norsk zoologisk tidsskriftsentral (NZT) er et felles publiseringsorgan for NZF, NEF og NOF i samarbeid med de zoologiske avdelingene ved universitetsmuseene i Oslo, Bergen, Trondheim og Tromsø. Adresse: Zoologisk museum, Sarsgt. 1, Oslo 5. Postgiro 2 34 83 65.

#### Managing Editor (Administrerende redaktør)

Edvard K. Barth, Zoologisk museum, Sars gt. 1, Oslo 5.

#### Editorial Board (Redaksjonsråd)

Tor A. Bakke, Oslo, Svein Haftorn, Trondheim, Wim Vader, Tromsø, Rolf Vik, Oslo.

Kristiansen & Wøien, Oslo.

ISSN 0332-7698

---

The Editorial Board and the Publisher much regret the very delayed printing date of this issue. The next one (Vol. 26 No. 2) will appear in the first months of 1980.

# A Letter from the Editor

With the present issue a new periodical commences. However, in order to indicate that this is not entirely a new publication, but a continuation of the previous Norwegian Journal of Entomology (Norsk Entomologisk Tidsskrift) the volume numbering is retained and the old names will appear as sub-headings.

The change is not the result of a lack of manuscripts or interest in the old journal. On the contrary, following a period of 58 years as a journal, the periodical had obtained a high quality in as well content as layout. Particularly the last 12 years under the editorship of docent Lauritz Sømme has seen a great expansion in numbers of pages printed and in areas covered. As an acknowledgement of the great contribution made to the journal and to Norwegian entomology by Dr. Sømme one of his favourite research animals, the carabid *Pelophila borealis*, is retained as a frontispiece.

The expansion of the journal as well as the improvement of its layout contributed to the downfall of the journal. The expenses increased significantly. These were largely covered by contribution from the Norwegian Research Council (NAVF), and their recent policy has been to support internordic journals. With the erection of the new journal Holarctic Eco-

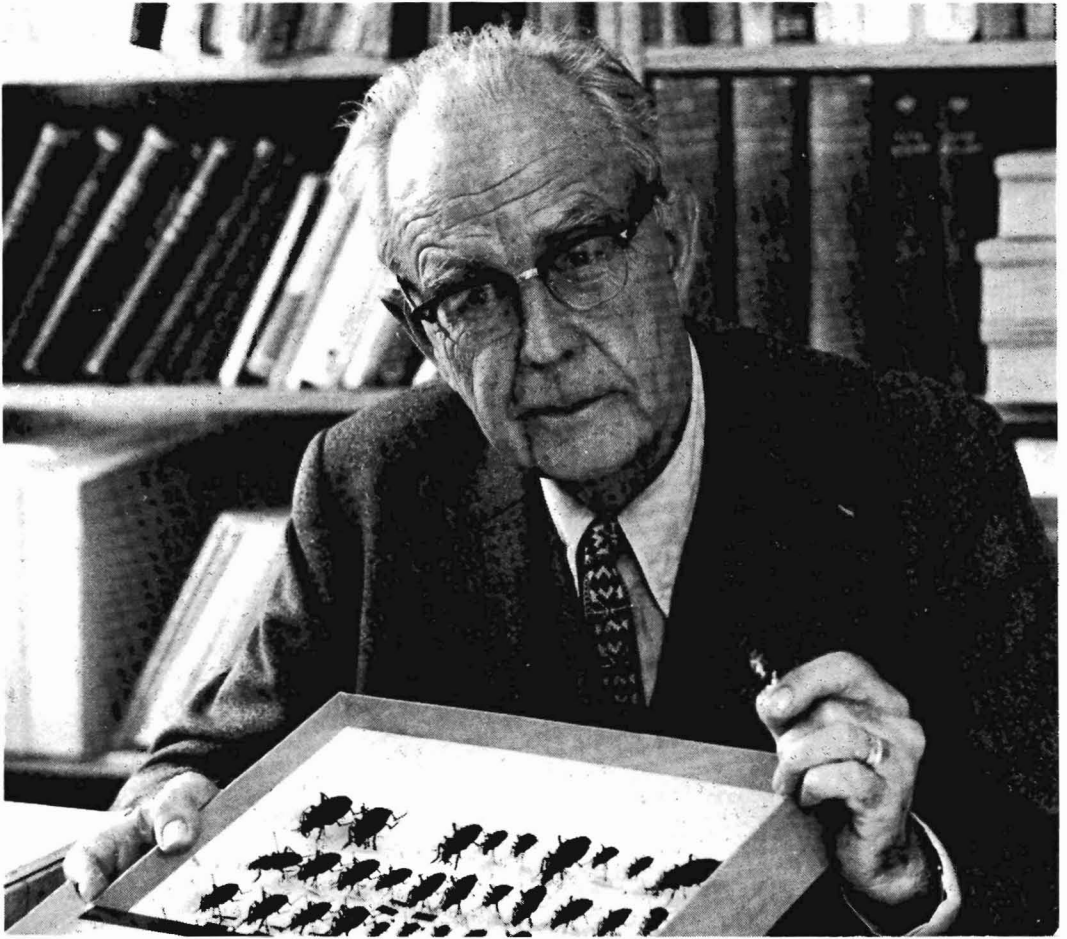
logy and the previous *Oikos* and *Entomologica Scandinavica* much of the need for publishing entomological papers in ecology and systematics would be covered. However, there still were no place, even on an interscandinavian basis, where to publish faunistical and zoogeographical papers. In order to satisfy this need a new larger faunistical journal, *Fauna Norvegica*, were created and divided into three parts or series (entomology series B, ornithology series C, and other groups series A.)

*Fauna Norvegica* ser. B will emphasize papers which are mainly faunistical and zoogeographical in scope or content, including checklists, faunal lists, type catalogues and regional keys.

It is obvious, however, that as well ecological information as some taxonomical details belong to the documentation data of faunistical papers. Otherwise these would be merely faunal lists.

It is a sad and strange coincidence that we in the first issue can give an obituary (written by prof. emerit. Hans Kauri) of the leading zoogeographer of Scandinavia for the last decades, Dr. Carl H. Lindroth. Let us hope that this new journal will get the honour of publishing articles of the same scope and vision as many of Dr. Lindroth's papers.

Ole A. Sæther  
Editor, *Fauna Norvegica* ser. B



**Carl H. Lindroth 1905 — 1979**

Carl H. Lindroth døde den 23. februar i Lund. Med hans bortgang har entomologisk og zoogeografisk forskning mistet en av sine forgrunnsfigurer. Han ble født i Lund i 1905, studerte zoologi i Stockholm og Uppsala, og disputerte for doktorgraden i Uppsala i 1932. Han tjenestegjorde som lektor i biologi, ble dosent ved Stockholms høgskole i 1947 og ble utnevnt til professor i entomologi i Lund i 1951.

Hans vitenskapelige produksjon er meget stor og omfatter over 160 arbeider. Noen av de viktigste skal nevnes her: Die Insektenfauna Islands und ihre Probleme, 1931 (doktoravhandling); Die Fennoskandischen Carabidae I-III, 1945-49; Inheritance of wing dimorphism in *Pterostichus anthracinus* Ill., 1946; The fauna history of Newfoundland, 1963; The faunal connections between Europe and North America, 1957; The ground-beetles of Canada and Alaska, 1961-69; Skaftafell, Iceland, a living glacial refugium, 1965; Surtsey, Iceland; the development of a new fauna; Terrestrial invertebrates, 1973.

Ett av Lindroths vitenskapelige hovedmål ble meget tidlig klarlagt. Allerede i sin avhandling over Islands fauna anser han overvintringsmulighetene for deler av faunaen under den siste istiden for å være et av de viktigste problemene, og i sin store monografi over fennoskandiske carabider (del 3, 1949) nevner han som arbeidets hovedspørsmål: «die postglaziale — und möglicherweise die glaziale — Geschichte der fennoskandischen Fauna». Ingen bedre enn Lindroth selv forsto hvor komplisert et slikt problem kan være, omfattende en hendelse som ligger tusener av år tilbake i tiden. Derfor anvendte han også hele den metodologiske apparatur som står til disposisjon for en biolog og zoogeograf for å samle og klarlegge bevis. Han hadde en klar målsetting og vek ikke unna hverken for anstrengelser eller meget tidskrevende oppgaver.

Det gjaldt først å renske opp i det taksonomiske feltet for å være sikker på å kunne arbeide med de virkelige enhetene — artene. Dette gjaldt mindre den nordeuropeiske, men først og fremst den nordamerikanske og kanadiske faunaen.

Dette store arbeidet munnet ut i en omfattende monografi over Canadas og Alaskas jordløpere i 6 bind, dertil et antall mere frittstående skrifter. Senere fortsatte han med kartleggingen av utbredelsen, artenes spredningsmekanismer og økologiske egenskaper.

Den økologiske siden av spørsmålet undersøkte han igjen på Island. I Skaftafell ble de lokalklimatiske forhold i nærheten av breen undersøkt, for på den måten å rekonstruere

landisens innvirkning på insektfaunaen i de nærliggende populasjonene (1965).

Det viktigste argumentet i diskusjonen om reflugetproblemet viste seg å være utbredelsen av de vingedimorfe carabideartene. Vingedimorfismen, kjent allerede av Paykull og Gyllendal, var genetisk bundet. Lindroth lykkedes i å klarlegge dens genetiske karakter (1946). Ved kartleggingen av disse artenes utbredelse kom det fram at hos visse arter hadde den ikke flygedyktige kortvingete formen spredd seg til områder der den mer lettsprede langvingete delen av populasjonen ikke hadde nådd fram. Et forhold som vanskelig lot seg forklare på annen måte enn at disse har overlevet nedisingen, eller en del av den perioden på selve stedet. En verdifull sammenfatning om dette problem er publisert i *Ambio*, 1972.

Lindroths forskning og vitenskapelige problemstilling ble hurtig utvidet. Problematikken om kolonisering av nye områder og faunainnvandringsproblem kom i forgrunnen. Han har ofret spesialstudier på disse problem i flere omganger, særlig i forbindelse med forskningsarbeidet på Newfoundland og Nord-Amerika. Ballastens betydning fra England ble oppdaget som en viktig faktor for overføringen av europeiske arter til Newfoundland og Nord-Amerika. Den nye vulkanøya Surtsey's kolonisering ble en velkommen anledning til å kunne følge opp innvandringen av dyre- og vekstarter fra begynnelsen av på en nydannet øy. I dette tilfelle utførte han et betydningsfullt eksperimentelt arbeid for å teste havstrømmenes og vindenes betydning, saltvannets innvirkning på landorganismenes overleving, avstandens rolle til basisområdet, samt artssammensetningen i basisområdet (1973).

Hans zoogeografiske undersøkelser som er nevnt ovenfor, ble ikke begrenset til Europa, men ble også utvidet til Nord-Amerika, Alaska, Kodiak og Aleutene. Dette gjaldt først og fremst den nearktiske faunas forbindelser til palearktis, Beringlandets rolle ved utveksling av faunakomponentene (1969), levninger fra den siste interglacialperiodens insektfauna m.m.

Selv om den faunahistoriske forskningen på denne måten liksom dannet et midtpunkt for hans vitenskapelige virksomhet, ble hans vitenskapelige palett av problemstillinger og forskningsresultat adskillig mer omfattende. Med et klart syn for taksonomiske problem har han utredet en lang rekke av mangfoldige spørsmål vedrørende sin egen spesialgruppe, Carabidae. Han appliserte økologisk, særskilt eksperimen-

tell metodikk i sine zoogeografiske studier og ble på den måten en av grunnleggerne av økologisk zoogeografi i Norden.

Med våken interesse fulgte han entomologiens utvikling forøvrig og sto i nær kontakt med kollegene på området. Om dette vitner den lange serien av artikler og biografier om nordiske entomologer. Han ble æres- og korresponderende medlem i en mengde lærde sammenslutninger verden over og fikk motta mange internasjonale utmerkelser.

Carl Lindroths vitenskapelige bane ble ikke den letteste. Etter doktordisputasen tjenesteg-

jorde han som gymnaslektor på ulike steder i 18 år. For hans forskning innebar dette nattarbeid og feriejobbing.

Som lærer var han inspirerende og avholdt. Hans lærebok i entomologi er en vakker gave til ettertidens studentgenerasjoner. Som populærvitenskapelig forfatter og foredragsholder var han alltid inspirerende og fengslende,

Med Carl Lindroths bortgang mistet fagkollegene en stimulerende rådgiver og venn. For hans venner er tapet smertelig.

*Hans Kauri*

# New records of Coleoptera in Norway

JOSTEIN ENGDAL AND KARL ERIK ZACHARIASSEN

Engdal, J. & K. E. Zachariassen 1979. New records of Coleoptera in Norway. *Fauna Norv. Ser. B*, Vol. 26, 5-7.

This paper presents a list of 65 records of Coleoptera not previously reported from the respective Norwegian districts. One of the species, *Masoreus wetterhalli* Gyllenhal, is new to Norway. The new records are the northernmost in Norway for 12 of the species.

J. Engdal and K. E. Zachariassen, University of Trondheim, Departement of zoology, Rosenborg, N - 7000 Trondheim, Norway.

## INTRODUCTION

In this paper 65 records of beetles are given. They all extend the distribution areas of respective species, according to Lindroth (1960) and later supplement lists. The records are mainly from the provinces of Møre og Romsdal and Sør-Trøndelag. The district abbreviations are according to Strand (1943). The records were made during the years 1972 - 1978, and the material is kept in collections of the authors. The list is not a result of a systematic collection within the areas, but represents more casual finds. The main methods used for collecting were sweep-netting and picking by hand.

## OBSERVATIONS

*Notiophilus palustris* Duftschmid TEi: Notodden, 30.8.76. One specimen found in country courtyard.

*Bembidion aeneum* German NTy: Ofstadsjøen, Vikna, 24.6.76. One specimen under plank at seashore.

*Bembidion bruxellense* Wesmael NTy: Rørvik, Vikna, 25.6.77. One specimen under stone on a gravelly grassfield near the seashore.

*Bembidion femoratum* Sturm. STy: Slettvik, Agdenes, 16.6.78. One specimen under stone.

\**Trechus micros* Herbst. STy: Rissa, 20.5.78. One specimen under stone at seashore.

*Dichirotrichus pubescens* v. Paykull. NTy: Rørvik, Vikna, 29.6.77. Several specimens under stones near the seashore.

*Masoreus wetterhalli* Gyllenhal VE: Stavern, 8.7.78. One specimen under plank on sandy shore.

*Lebia chlorocephala* Hoffmanssegg TEi: Notodden, 30.8.76. One specimen found in meadow field.

*Liodes picea* Panzer NTi: Binde, Snåsa, 1.9.77.

One specimen found in meadow field.

*Hister striola* C.R.Sahlberg STi: Lade, Trondheim, 15.5.77. One specimen in pit-fall trap.

\**Cantharis pellucida* Fabricius STi: Byneset, Trondheim, 20.5.74. One specimen caught with sweep-net in meadow.

*Xylobius corticalis* v. Paykull VAY: Søgne, 10.7.78. One specimen under bar on stem of oak, *Quercus* sp.

*Agrius viridis* L. MRi: Verma, 22.7.78. Five specimens caught with sweep-net in *Salix* sp.

*Pityophagus ferrugineus* L. STy: Slettvik, Agdenes, 16.6.78. Several specimens on ground under log of pine, *Pinus sylvestris*.

\**Silvanus bidentatus* Fabricius NTi: Nordli, Lierne, 24.6.78. One specimen on pile of planks at saw mill.

*Dendrophagus crenatus* v. Paykull STy: Rissa, 20.5.78. One specimen under bark on log of elm, *Ulmus glabra*.

*Cerylon histeroides* Fabricius STy: Rissa, 20.5.78. Two specimens under bark on log of elm, *Ulmus glabra*.

*Coccinella hieroglyphica* L. STy: Rissa, 20.5.78. One specimen caught in flight in sunshine.

*Paramysia oblongoguttata* L. STy: Rissa, 20.5.78. One specimen caught in flight in sunshine.

*Chilocorus bipustulatus* L. TEi: Notodden, 30.8.76. One specimen caught with sweep-net in aspen, *Populus tremulae*.

*Dorcatoma dresdensis* Herbst VAY: Borøy, Søgne, 9.7.78. One specimen caught in flight in the evening.

*Orchesia micans* Panzer VAY: Borøy, Søgne, 14.7.78. Several specimens found in tree brackets on a trunk.

*Bolitophagus reticulatus* L. NTi: Binde, Snåsa, 1.9.77. Several specimens found in tree brackets on birch.

- Aphodius nemoralis* Erichsson AAY: Laget, Risør, 20.7.78. Several specimens in excrements of elk, *Alces alces*.
- Trichius fasciatus* L. STy: Rissa, 20.6.74. One specimen caught on thistle, *Cirsium heterophyllum*.
- Cetonia aurata* L. STy: Rissa, 20.6.74. One specimen caught in flight in sunshine.
- Criocephalus rusticus* L. HEn: Åkrestømmen, 24.7.78. One specimen under plank at saw mill.
- Toxotus cursor* L. STy: Hambåra, Agdenes, 13.6.75. One specimen caught on *Hieracium* sp.
- Semanotus undatus* L. STi: Jonsvannet, 2.6.78. One specimen on pile of planks.
- \**Clytus arietis* L. STi: Byneset, Trondheim, 1.7.78. One specimen on trunk of deciduous tree.
- STy: Hambåra, Agdenes, 30.6.77. One specimen caught with sweep-net in meadow.
- \**Leitopus nebulosus* L. STi: Byneset, Trondheim, 3.7.78. One specimen on log of deciduous tree and one specimen hatched from the same log.
- Donacia aquatica* L. STy: Åfjord, 3.6.78. One specimen on *Salix* sp. on river bank.
- MRi: Verma, 27.7.78. One specimen caught with sweep-net in *Carex* sp. near river.
- Donacia vulgaris* Zschach. STi: Langtjørna, Femunden, 2.8.77. One specimen on floating water-vegetation.
- Platymaris discolor* Panzer STy: Hambåra, Agdenes, 15.6.74. One specimen on *Carex* sp. near water.
- MRi: Verma, 31.7.78. One specimen caught with sweep-net in *Carex* sp. near river.
- Platymaris sericea* L. MRi: Verma, 25.7.78. Four specimens caught with sweep-net in *Carex* sp. near river.
- Plytodecta pallidus* L. MRy: Molde, 3.8.76. One specimen caught with sweep-net in sallow, *Salix caprea*.
- Galerucella sagittariae* Gyllenhal STi: Jonsvannet, 7.6.78. Several specimens on water-vegetation.
- \**Lochmaea suturalis* Thomson STy: Hambåra, Agdenes, 13.6.75. One specimen caught with sweep-net in *Salix* sp.
- Apion curtirostre* Germar MRy: Molde, 4.8.76. Three specimens caught with sweep-net in meadow.
- Apion ervi* Kirby MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow.
- Apion facetum* Gyllenhal MRi: Verma, 24.7.78. One specimen caught with sweep-net in meadow.
- Apion loti* Kirby MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow.
- Apion simile* Kirby MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow.
- Apion virens* Herbst MRy: Molde, 4.8.76. Three specimens caught with sweep-net in meadow.
- \**Polydrosus cervinus* L. MRi: Verma, 22.7.78. One specimen caught with sweep-net in birch, *Betula pubescens*.
- Polydrosus mollis* Ström. STy: Rissa, 20.5.78. One specimen caught with sweep-net in birch, *Betula pubescens*.
- Polydrosus ruficornis* Bonsdorff MRy: Molde, 4.8.76. One specimen caught with sweep-net in deciduous forest.
- \**Baryptihes pellucidus* Boheman MRy: Molde, 3.8.76. One specimen caught with sweep-net in deciduous forest.
- Strophosomus melanogrammus* Forster STi: Lade, Trondheim, 15.6.72. One specimen in pitfall trap.
- \**Sitona puncticollis* Stephens MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow. Kortgård, 20.8.73.
- \**Sitona sulficrons* Thunberg MRy: Molde, 4.8.76. Two specimens caught with sweep-net in meadow.
- \**Sitona suturalis* Stephens MRy: Molde, 4.8.76. Two specimens caught with sweep-net in meadow.
- Dorytomus taeniatus* Fabricius STy: Rissa, 20.5.78. One specimen caught with sweep-net in sallow, *Salix caprea*.
- Ellescus bipunctatus* L. STy: Rissa, 20.5.78. One specimen on sallow, *Salix caprea*.
- Miccotrogus picirostris* Fabricius MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow.
- Pissodes gyllenhalii* Gyllenhal STy: Rissa, 20.5.78. One specimen on logs of spruce, *Picea abies*.
- STi: Jonsvannet, 7.6.78. One specimen on pile of planks.
- Hylobius piceus* DeGeer STy: Slettvik, Agdenes, 16.6.78. Several specimens on ground under log of pine, *Pinus sylvestris*.
- \**Liosoma deflexum* Panzer STi: Lade, Trondheim, 22.5.77. Two specimens caught in pitfall trap.
- Zacladus affinis* v. Paykull MRy: Molde, 4.8.76. One specimen caught with sweep-net in meadow.



*Cionus scrophulariae* L. STy: Hambåra, Agdenes, 15.6.74. One specimen caught with sweep-net in meadow.

*Scolytus ratzeburgi* E.W.Janson STi: Budal, 6.7.77. - 5.8.77. 21 specimens caught in swarm-traps.

\* Records representing the northernmost find of the species.

## DISCUSSION

Of the above mentioned records, 12 are the northernmost for the species in Norway. Most of these records represent extensions of the northern borders of the known areas of distribution of the different species along the coast from the province of Hordaland to the province of Sør-Trøndelag.

However, three of the species are found far outside their previously known areas of distribution, thus deserving further comments.

*Silvanus bidentatus* is previously recorded from the southern parts of Sweden and in Norway only from the province of Akershus. The specimen from Nordli was found in a saw mill, and has probably been transported with timber imported from Sweden.

*Leiopus nebulosus* is previously known from the districts around the Oslo fiord, and west to the province of Rogaland. It is possible that the species is distributed along the western coast of Norway, but that it has been overlooked. If not, the long distance between the previously known distribution area, and the locality of the present find, might indicate that Byneset supports a relict population from the post-glacial warm age.

Byneset and the adjacent northern parts of Gauldalen valley may support several relict spe-

cies. Dolmen et al. (1975) have investigated the distribution of Odonata. They have found a distribution for three species of damselflies similar to that found for *L. nebulosus*. Further investigations may reveal that more species with a predominantly southern distribution are established in this area.

*Sitona puncticollis* is up to now in Scandinavia known to about 60°N. The present collecting sites are situated considerably farther north (nearly 63°N). Since the species in Norway previously is known only from the Oslo area, it might have reached the western coast via the Gudbrandsdalen and Romsdalen valleys, or it might have been introduced by human activities.

*Masoreus wetterhalli* is a new species to Norway, and its record is published separately (Zachariassen 1979).

## REFERENCES

- Dolmen, D., Sæther, B. & Aagaard, K. 1975. Ferskvannsbioologiske undersøkelser av tjonner og evjer langs elvene i Gauldalen og Orkdalen, Sør-Trøndelag. *K. norske Vidensk. Selsk. Mus. Rapp. Zool. Ser* 1975 — 5, 47 pp.
- Lindroth, C. H. (ed.) 1960. *Catalogus Coleopterorum Fennoscandiae et Daniae*. Entomologiska sällsk., Lund.
- Strand, A. 1943. Inndeling av Norge til bruk ved faunistiske oppgaver. *Norsk ent. Tidsskr.* 6, 208 — 224.
- Zachariassen, K. E. 1979. *Masoreus wetterhalli* Gyll. (Col., Carabidae) ny art for Norge. *Fauna Norv. ser. B* 26.

Received 20 May 1979.

# Noen funn av Coleoptera fra Trøndelag og Møre

DAGFINN REFSETH

Refseth, D. 1979. Noen funn av Coleoptera fra Trøndelag og Møre. *Fauna Norv. Ser. B*, 26, 8-9.

Twenty-eight new records of Coleoptera are given from parts of the provinces of Møre og Romsdal, Sør-Trøndelag and Nord-Trøndelag, Central Norway. Most of the species also occur in neighbouring areas, but for *Trechus rivularis* Gyllenhal and *Choleva fagniezi* Jeannel the new finds represent a considerable extension of the distribution areas in Norway. For *T. rivularis* a possible connection with the Swedish population is indicated.

Dagfinn Refseth, Zoologisk Institutt, Universitetet i Trondheim, Rosenborg, N-7000 Trondheim.

I denne artikkelen presenteres 28 funn av biller som tidligere ikke er registrert i de respektive områdene i Møre og Romsdal, Sør-Trøndelag og Nord-Trøndelag (Lindroth 1960, Strand 1970, 1977, Zachariassen 1977). Funnene er gjort delvis ved tilfeldige innsamlinger og delvis ved systematiske fangster med fallfeller. Blant annet har Dag Dolmen stilt til disposisjon materiale innsamlet i forbindelse med IBP's inventeringer i edelløvsjoksglokalteter i Møre, Trøndelag og Nordland.

Materialet oppbevares delvis hos forfatteren, delvis ved DKNVS, Museet, Trondheim.

Områdebetegnelse er i henhold til Strand (1943), med senere korreksjoner av kommunegrensene.

*Carabus nemoralis* Müller. STy: Agdenes, juni 1975.

*Notiophilus biguttatus* Fabricius. MRy: Molde, Årø, 29 juli 1974.

*Blethisa multipunctata* L. STy: Agdenes, Lillevann, 8 juni 1975.

*Trechus rivularis* Gyllenhal. NTi: Snåsa, juli 1972 (Leg. D. Dolmen). To eksemplarer ble tatt i fallfeller på en fuktig skogsklokaltet med svartor (*Alnus glutinosa* (L.)). Arten er sterkt bundet til fuktige, gjerne myrlendte, løvskogsbiotoper og er i Norge tidligere bare funnet på noen få lokaliteter i Akershus (Lindroth 1945, 1960). Arten har et østlig utbredelsesmønster i Fennoskandia og forekommer i Sverige spredt opp til Norrbotten (Lindroth 1945). Flygevingene er hos de fleste individene reduserte, og selv om makroptere individer finnes, tyder den begrensede utbredelsen og artens stenotope karakter på at aktiv flyging spiller liten rolle ved spredning

(Lindroth 1945). Eksemplarene fra Snåsa mangler flygevinger, og funnet kan derfor neppe skyldes nylig innvandring fra øst. Men den relativt korte avstanden til nærmeste funnlokaltet i Sverige kan tyde på at forekomsten har sin opprinnelse i den svenske populasjonen.

*Trechus secalis* Paykull. MRi: Rindal, Dalsegg, juli 1972 (Leg. D. Dolmen).

*Patrobis assimilis* Chaudoir. NTi: Stod, 29 juni 1976.

*Harpalus quadripunctatus* Dejean. MRy: Molde, 29 juli 1975.

*Harpalus rufipes* DeGeer. MRy: Molde, Årø, 4 juli 1978.

*Amara apricaria* Paykull. MRy: Molde, Årø, 4 juli 1978.

*Amara aulica* Panzer. MRy: Molde, Årø, 4 august 1976.

*Amara bifrons* Gyllenhal. MRy: Molde, Årø, 4 juli 1978.

*Amara lunicollis* Schiødte. STy: Stadsbygd, 20 mai 1978.

*Amara nitida* Sturm. STy: Rissa, Ramsøy, 20 mai 1978.

*Pterostichus diligens* Sturm. MRy: Molde, Årø, 4 juli 1978.

*Agonum piceum* L. STy: Agdenes, Lillevann, 12 juni 1975.

*Necrophorus investigator* Zetterstedt. MRi: Rindal, Dalsegg, juli 1972 (Leg. D. Dolmen).

*Necrodes littoralis* L. STy: Agdenes, Selva, juni 1974.

*Choleva fagniezi* Jeannel. NTi: Stod, november 1977, STi: Brekken, 30 September 1978. Arten ble tatt i fallfeller i to forskjellige biotoper: glissen granskog (Stod) og subalpin bjørkeskog (Brekken). Den ble funnet første gang i

Norge i Hordaland i 1968 (Fjellberg 1970) og er senere rapportert fra Oppland (Strand 1977). I Sverige er den spredt utbredt til Hälsingland (Lindroth 1960). Arten er imidlertid neppe så sjelden som de spredte funnstedene tyder på. I likhet med andre *Choleva*-arter har den gjerne tilhold i smånagenganger (Hansen 1968) og kan derfor være vanskelig å registrere.

*Catops alpinus* Gyllenhal. MRi: Rindal, Dalsegg, juli 1972 (Leg. D. Dolmen)

*Catops coracinus* Kellner. MRi: Rindal, Dalsegg, juli 1972 (Leg. D. Dolmen)

*Catops nigrita* Erichson. MRi: Rindal, Dalsegg, juli 1972 (Leg. D. Dolmen)

*Megatoma undata* L. NTi: Stod, 8 mars 1977.

*Hippodamia septemmaculata* DeGeer. STy: Agdenes, 8 juni 1975.

*Rhagium mordax* DeGeer. STy: Rissa, Åsly, 20 mai 1978.

*Polygraphus poligraphus* L. STy: Stadsbygd, 20 mai 1978.

*Crypturgus pusillus* Gyllenhal. STy: Stadsbygd, 20 mai 1978.

*Dryocoetes autographus* Ratzeburg. STy: Stadsbygd, 20 mai 1978.

## REFERENCES

- Fjellberg, A. 1970. Six species of Coleoptera new to Norway. *Norsk ent. Tidsskr.* 17: 105-106.
- Hansen, V. 1968. Biller XXV. Ådselbiller, stumpbiller mm. *Danm. Fauna* 77.
- Lindroth, C. H. 1945. Die fennoskandischen Carabidae I-II. *K. Vet. Vitt. Samh. Hand. (6) B4*. Göteborg. pp 1-711, 1-279.
- (ed.) 1960. *Catalogus Coleopterorum Fennoscandiae et Daniae*. Ent. Sällsk., Lund.
- Strand, A. 1943. Inndeling av Norge til bruk ved faunistiske oppgaver. *Norsk ent. Tidsskr.* 6: 208-224.
- 1970. Additions and corrections to the Norwegian part of *Catalogus Coleopterorum Fennoscandiae et Daniae*. *Norsk ent. Tidsskr.* 17: 125-145.
- 1977. Additions and corrections to the Norwegian part of *Catalogus Coleopterorum Fennoscandiae et Daniae*. Second series. *Norw. J. Ent.* 24: 159-165.
- Zachariassen, K. E. 1977. Nye funn av Coleoptera i Norge. *Norw. J. Ent.* 24: 147-148.

Received 1 March 1979.

# Notes on the distribution of some Norwegian ant species (Hymenoptera, Formicidae).

PER SVEUM

Sveum, P. 1979. Notes on the distribution of some Norwegian ant species (Hymenoptera, Formicidae) *Fauna Norv. ser. B*. 26, 10-11.

New distributional records of eight species occurring in Norway are given. *Leptothorax muscorum* (Nylander), *Lasius niger* (L.), *L. flavus* Fabricius, *Formica sanguinea* Latreille, and *F. fusca* L. occur further north than recorded previously.

Per Sveum, Saupstadringen 65 B, N-7078 Saupstad, Norway.

Recent contributions to the ant fauna of Norway have been given by Collingwood (1974) and Sveum (1978). The species dealt with in the present paper have been collected by Dag Dolmen (DD), Bodil K. Pedersen (BKP) and the author (PS). The nomenclature used follows Collingwood (1974). The geographical division follows Strand (1943) with names and limits updated. Except when otherwise stated the species are not previously recorded from the provinces listed. The material have been deposited in the collection of The Royal Norwegian Society of Sciences and Letters, The Museum.

## *Myrmica rubra* (L.)

MRi: Rindal, Dalsegga 6 July 1971, DD.

## *Myrmica scabrinodis* Nylander

Nsi: Rana, Hammeren 6 Aug. 1975, PS. The only record of the species from Northern Norway is from Nsy: Bodø (Holgersen 1944) Sveum (1978) recorded it from: NTy: Leka. Although the author has collected several years in the province of Nordland, this is the only record of the species. The nest was not found. The distribution of the known records indicate that the species occurs at least as far north as Bodø, however it seems to be much less common in the north than in the south.

## *Myrmica lobicornis* Nylander

MRi: Eikesdal 16 July 1971, DD.

## *Leptothorax muscorum* (Nylander)

STi: Trondheim, Lade 7 May 1978, PS. Holgersen (1944) considered *L. muscorum* as a southern species, not exceeding its range north of the Dovre Mountains.

## *Lasius niger* (L.)

MRi: Rindal, Dalsegga 20 June 1972, DD; STi: Orkdal (date unknown), DD, Trondheim, inner city 7 May, PS; Frosta, Tautra 29

May 1978, BKP. The record at Frosta, Tautra represent the northernmost record from Norway. This is consistent with the assumption of Holgersen (1944), although he did not record the species north of the Dovre Mountains, or give any explanation of his assumption.

## *Lasius flavus* Fabricius

NTi: Steinkjer, Sparbu 21 May 1978, BKP. The northernmost previous record was Trondheim (Holgersen 1944). A single record from Fø: Polmark (Holgersen 1942) was later regarded as doubtful by the same author (Holgersen 1944). Accordingly the present record should be regarded as the northernmost observation from Norway. In Sweden the species is found all over the country except in the most northern parts (Douwes 1976).

## *Formica sanguinea* Latreille

STi: Trondheim, Steinan 14 May 1978, PS. This is the first record of the species north of the Dovre Mountains. Holgersen (1944) believed, without giving any arguments, that the species might be found as far north as Trøndelag. It is known that *F. sanguinea* might found its colonies by temporary social parasitism and that it is facultative dulotic. The present colony was a mixed colony between *F. sanguinea* and *F. lemni* Bondroit. I was not able to decide what kind of relation existed between the two species. *F. lemni* is distributed all over the country.

## *Formica fusca* L.

MRY: Tingvoll, Vulvik 14 July 1971, DD, Bøfjord, Kallset 22 June 1972, 10 Oct. 1972, DD. The species was previously known from the southeastern provinces and the western coast north to Sogn og Fjordane (SF) (Collingwood 1974). The present northernmost

Norwegian record, may indicate a southern and coastal distribution.

#### ACKNOWLEDGEMENTS

I wish to thank Mr. Dag Dolmen for permission to publish material collected by him when working for IBP, and Mrs. Bodil K. Pedersen who also contributed specimens.

#### REFERENCES

Collingwood, C.A. 1974. A revised list of Norwegian ants (Hymenoptera, Formicidae). *Norsk ent. Tidsskr.* 21, 31-35.

Douwes, P. 1976. Sveriges myror — illustrerande bestämningstabeller över arbetarna. *Entomologen* 5, 37-54.

Holgersen, H. 1942. Ants of Northern Norway. *Tromsø Mus. Årsh.* 63, 1-34.

Holgersen, H. 1944. Ants of Norway (Hymenoptera, Formicidae). *Nytt Mag. Naturv.* 84, 163-203.

Strand, A. 1943. Inndeling av Norge til bruk ved faunistiske oppgaver. *Norsk ent. Tidsskr.* 6, 208-224.

Sveum, P. 1978. On the biology of ants (Hym., Formicidae) in Trøndelag, Norway. *Norw. J. Ent.* 25, 153-155.

Received 20 March 1979.

# Some caddis flies (Trichoptera) in western Norway, and their arrival pattern in light traps.

TROND ANDERSEN

Andersen, T. 1979. Some caddis flies (Trichoptera) in western Norway, and their arrival pattern in light traps. *Fauna Norwegica, ser. B*, 26, 12-17.

Between 2 and 17 August 1972 3014 specimens of Trichoptera belonging to 42 species were collected in two light traps on Osterøy in western Norway. Four species, viz: *Oxyethira tristella* Klapálek, 1895, *Lype phacopa* (Stephens, 1836), *Glyptotaelius pellucidus* (Retzius, 1783), and *Phacopteryx brevipennis* (Curtis, 1834), are previously not recorded from western Norway and eight further species are new to outer Hordaland.

The traps were operated from 21.00 to 05.00 hrs every night, and emptied manually every hour. The limnephilids were trapped in greatest number between 23.00 and 03.00 hrs, while the non - limnephilids, as a group, were most abundant just after sunset and to some degree just before sunrise. However, in *Oxyethira flavicornis* (Pictet, 1834) and *Polycentropus flavomaculatus* (Pictet, 1834), the two most abundant non - limnephilids in the study, only one peak, before midnight, could be discerned.

Sex differences in the arrival pattern were found in one species, *Molannodes tinctoria* (Zetterstedt, 1840). The females of this species were trapped in greatest numbers just after sunset, while the males were mainly caught after midnight.

Trond Andersen, Museum of Zoology, N-5014 Bergen - University, Norway.

The arrival pattern of Trichoptera at artificial light have been studied, among others, by Brindle (1958) in England, Corbet and Tjønneland (1956) at Lake Victoria in Uganda, and by Nimmo (1966) near Montreal in Canada. They all found that most Trichoptera species showed a bimodal arrival pattern, generally with a strong peak at dusk and with a less pronounced peak at dawn.

The composition of the Trichoptera fauna in western Norway differs quite strongly from those studied in the investigations quoted above. Therefore the aim of the present investigation was twofold, both a study of the caddis flies fauna in western Norway and a study of the arrival pattern at artificial light of some of the species, that is whether their arrival pattern differed from the bimodal type mentioned above.

## METHODS AND MATERIAL

The sampling took place between 2 and 17 August 1972. I considered the beginning of August the most probable period to get adequate material both of limnephilids and non-limnephilids, two groups which may exhibit different arrival patterns. The material was collected in two light traps at the River Fitjo (60° 31' 44" N, 5° 32' 8" E) on Osterøy in Hordaland, western Norway. The slowly running river is about four meters

wide and half a meter deep at the trapping site. The bottom is covered with fine sand and some larger stones. Great areas are grown with *Equisetum fluviatile* L., *Sparganium angustifolium* Michx., *Potamogeton natans* L. and *Nuphar luteum* L.

The light traps used were Robinson traps fitted with mercury vapour bulbs (Philips HPL 125W). They were placed on the bank, approximately 100 m apart, and shone freely over the river. The traps were switched on at 21.00 hrs every evening and emptied manually every hour until 05.00 hrs in the morning. To minimize the bias of the changes in times of sunrise and sunset on the arrival patterns obtained, the sampling period was restricted to fourteen consecutive days. At the beginning of the experiment (August 2) sunset and sunrise occurred at approximately 21.05 hrs and 04.22 hrs, respectively, whereas corresponding times at the end of the experiment (August 17) were 20.25 hrs and 04.58 hrs.

A total of 3014 specimens belonging to 42 species were collected (Table I). Eighteen Limnephilidae species comprising 54,8% of the individuals were trapped. Seven species were taken in hundred specimens or more, viz.: *Limnephilus flavicornis* (Fabricius, 1787) (n = 693), *Stenophylax permistus* McLachlan, 1895 (n =

Table I. Trichoptera caught in 1-hr intervals in two light traps at Fitjo 2 — 17 August 1972.

Species	Hrs																
	21-22		22-23		23-24		00-01		01-02		02-03		03-04		04-05		
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	
<i>Rhyacophila nubila</i> (Zetterstedt, 1840)	9	7	9	2	6	3		6	1		1						
<i>Agapetus ochripes</i> Curtis, 1834			1				1				1						
<i>Oxyethira distinctella</i> McLachlan, 1880	1	1	1	1						1							1
<i>O. flavicornis</i> (Pictet, 1834)	55	63	80	106	30	34	17	41	7	23	4	2	2	5	1	1	
<i>O. frici</i> (Klapálek, 1891)	3	2		2						1							
<i>O. tristella</i> Klapálek, 1895			1														
<i>Hydroptila tineoides</i> Dalman, 1819				2				1									
<i>Wormaldia subnigra</i> McLachlan, 1865			1														
<i>Hydropsyche instabilis</i> (Curtis, 1834)			1			1		1									
<i>Plectrocnemia conspersa</i> (Curtis, 1834)	3	1	12		4	1	3	1									
<i>Polycentropus flavomaculatus</i> (Pictet, 1834)	13	37	68	37	61	33	35	18	9	5	8	5	5	3	2		
<i>P. irroratus</i> (Curtis, 1835)			1														
<i>Cyrnus flavidus</i> McLachlan, 1864					1		1										
<i>C. trimaculatus</i> (Curtis, 1834)	1						1										
<i>Lype phaeopa</i> (Stephens, 1836)														1			
<i>Tinodes waeneri</i> (Linnaeus, 1758)	4	11		10	7	3	6	2	1	3	1	2	3				
<i>Agrypnia varia</i> (Fabricius, 1793)		7	1	8	4	1	1		2		1		2				
<i>Apatania stigmatella</i> (Zetterstedt, 1840)			3		2		3										
<i>Limnephilus centralis</i> (Curtis, 1834)					1		2										
<i>L. coenosus</i> (Curtis, 1834)							2		6		5		1				
<i>L. extricatus</i> McLachlan, 1865	1	3	1	2		1	2	1	1	1	1	1	1	2			
<i>L. flavicornis</i> (Fabricius, 1787)	16	7	31	28	72	66	82	81	66	80	58	60	13	28	2	3	
<i>L. griseus</i> (Linnaeus, 1758)					1												
<i>L. incisus</i> Curtis, 1834					1								1				
<i>L. lunatus</i> Curtis, 1834			2	6	13	22	26	16	33	13	40	13	22	3	9	1	2
<i>L. marmoratus</i> Curtis, 1834			2		1		1		2			1					
<i>L. rhombicus</i> (Linnaeus, 1758)					1									1			
<i>L. sparsus</i> Curtis, 1834							1	1									
<i>L. vittatus</i> (Fabricius, 1798)	2	3		4	1		2		1	1			5	2			
<i>Glyphotaenius pellucidus</i> (Retzius, 1783)	3		2	1	19		16	3	15	2	5	1	3	2			1
<i>Phacopteryx brevipennis</i> (Curtis, 1834)	2	1	5				2						1				
<i>Rhadicleptus alpestris</i> (Kolenati, 1848)											1						
<i>Potamophylax cingulatus</i> (Stephens, 1837)	1		3		3	1	4		13	1	7		6	1			
<i>Stenophylax permistus</i> McLachlan, 1895	1	2	6	1	18	15	75	56	74	56	101	55	77	19	3	1	
<i>Micropterna sequax</i> McLachlan, 1875	1						2		1						1		
<i>Goera pilosa</i> (Fabricius, 1775)	1		2														
<i>Lepidostoma hirtum</i> (Fabricius, 1775)		2	1					1									
<i>Athripsodes alboguttatus</i> (Hagen, 1860)	8	41	3	21	3	8	3	4	1	2				2			4
<i>A. cinereus</i> (Curtis, 1834)				1				1						1			
<i>A. dissimilis</i> (Stephens, 1836)	5	7	1	2	4	5	2	13	1	8	2	3	2				2
<i>Oecetis lacustris</i> (Pictet, 1834)			2		1	1	2		1								
<i>Molannodes tinctoria</i> (Zetterstedt, 1840)	9	16	7	7	5	3	13	3	14	2	33	1	51	2	1	1	

560). *Oxyethira flavicornis* (Pictet, 1834) (n = 471), *Polycentropus flavomaculatus* (Pictet, 1834) (n = 339), *Limnephilus lunatus* Curtis, 1834 (n = 221), *Molannodes tincta* (Zetterstedt, 1840) (n = 168) and *Athripsodes alboguttatus* (Hagen, 1860) (n = 100).

## RESULTS

Four of the species are previously not recorded from western Norway. *Oxyethira tristella* Klápálek, 1895 has only been recorded from Halden in Østfold (Solem 1970). *Lype phaeopa* (Stephens, 1836) is recorded from Hedmark, Vestfold and inner Sør-Trøndelag, *Glyptotaelius pellucidus* (Retzius, 1783) from Akershus, Hedmark and Vestfold and *Phacopteryx brevipennis* (Curtis, 1834) from several counties in eastern Norway, from Trøndelag and northern Norway (Andersen 1975, Brekke 1946). In western Norway seven of the species, viz.: *Agapetus ochripes* Curtis, 1834, *Wormaldia subnigra* McLachlan, 1865, *Hydropsyche instabilis* (Curtis, 1834), *Limnephilus incisus* Curtis, 1834, *Athripsodes cinereus* (Curtis, 1834), *A. dissimilis* (Stephens, 1836) and *Oecetis lacustris* (Pictet, 1834) have previously only been recorded from Rogaland (Brekke 1946). The first record of *Oxyethira distinctella* McLachlan, 1880 in Norway was in

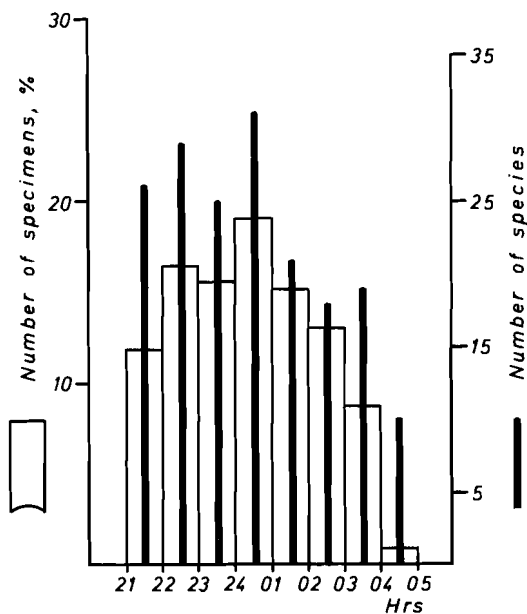


Fig. 1. Catches of Trichoptera in 1-hr intervals in two light traps at Fitjo 2 - 17 August 1972.

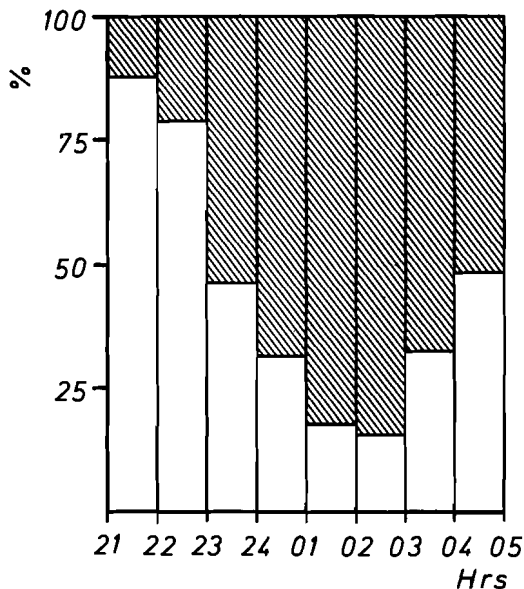


Fig. 2. The percentage of limnephilids (hatched) and non-limnephilids (white) in the catches at Fitjo 2 - 17 August 1972.

outer Møre and Romsdal (Brekke 1946). The finding on Osterøy is the second record of this species in Norway.

The quantity of the catches was influenced by prevailing weather conditions, particularly the night temperature (Andersen 1978). During several nights the temperature fell below 0°C and no or only a few specimens were caught. During the night between August 8 and 9 the temperature was high and rather stable all night (18.4°C at 21.00 hr and 15.7°C at 05.00 hr) and the catches this night amounted to 696 specimens.

The catches during the period studied have been pooled, and the number of species and specimens caught in the different 1-hr intervals are shown in Fig. 1. Maximum catches were obtained between 0.00 and 01.00 hrs. Another but smaller peak occurred between 22.00 and 23.00 hrs. A larger number of species was obtained between 03.00 and 04.00 hrs than during preceding and succeeding 1-hr intervals. The non-limnephilids were most abundant before midnight, between 21.00 and 23.00 hrs they made out more than 75% of the catches (Fig. 2). The limnephilids dominated during the rest of the night, exceeding 80% of the catches in the period 01.00 to 03.00 hrs. However, the propor-



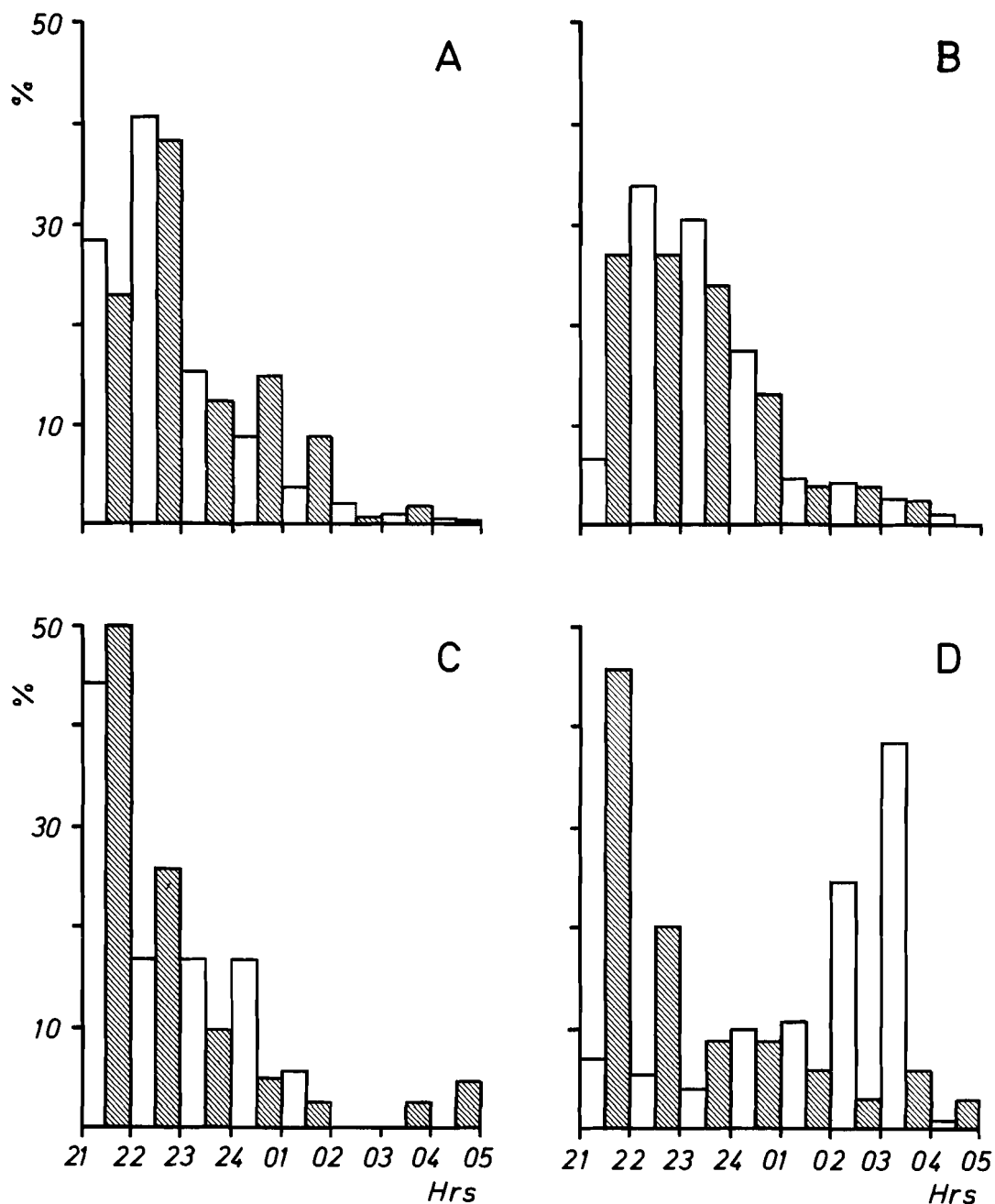


Fig. 3. Catches of dominant non-limnephilids in 1-hr intervals in two light traps at Fitjo 2 - 17 August 1972. Males (white) and females (hatched). A - *Oxyethira flavicornis* (Pictet, 1834) (n = 196 ♂♂, 275 ♀♀). B - *Polycentropus flavomaculatus* (Pictet,

1834) (n = 201 ♂♂, 138 ♀♀). C - *Athripsodes alboguttatus* (Hagen, 1860) (n = 18 ♂♂, 82 ♀♀). D - *Molannodes tincta* (Zetterstedt, 1840) (n = 133 ♂♂, 35 ♀♀).

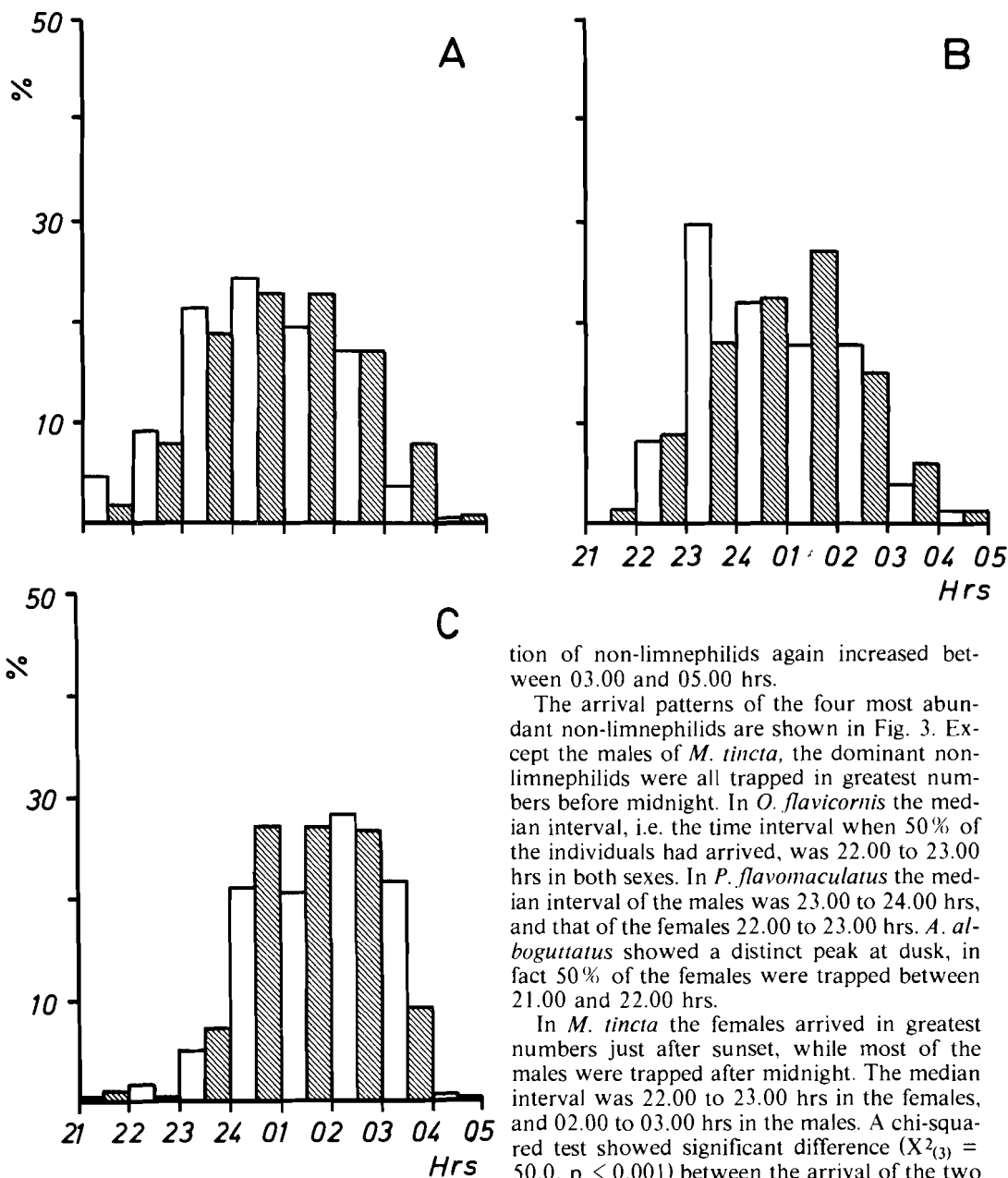


Fig. 4. Catches of dominant limnephilids in 1-hr intervals in two light traps at Fitjo 2 - 17 August 1972. Males (white) and females (hatched). A - *Limnephilus flavicornis* (Fabricius, 1787) (n = 340 ♂♂, 353 ♀♀). B - *Limnephilus lunatus* Curtis, 1834 (n = 74 ♂♂, 147 ♀♀). C - *Stenophylax permistus* McLachlan, 1895 (n = 355 ♂♂, 205 ♀♀).

tion of non-limnephilids again increased between 03.00 and 05.00 hrs.

The arrival patterns of the four most abundant non-limnephilids are shown in Fig. 3. Except the males of *M. tincta*, the dominant non-limnephilids were all trapped in greatest numbers before midnight. In *O. flavicornis* the median interval, i.e. the time interval when 50% of the individuals had arrived, was 22.00 to 23.00 hrs in both sexes. In *P. flavomaculatus* the median interval of the males was 23.00 to 24.00 hrs, and that of the females 22.00 to 23.00 hrs. *A. alboguttatus* showed a distinct peak at dusk, in fact 50% of the females were trapped between 21.00 and 22.00 hrs.

In *M. tincta* the females arrived in greatest numbers just after sunset, while most of the males were trapped after midnight. The median interval was 22.00 to 23.00 hrs in the females, and 02.00 to 03.00 hrs in the males. A chi-squared test showed significant difference ( $X^2_{(3)} = 50.0$ ,  $p < 0.001$ ) between the arrival of the two sexes in this species. It was necessary to pool the samples from 23.00 to 01.00 hrs and 01.00 to 05.00 hrs to get numbers large enough for the test. The arrival patterns of the other dominant species showed no significant sex differences.

The three dominant Limnephilidae species were all trapped in greatest numbers just after midnight (Fig. 4). In *L. flavicornis* and *L. lunatus*

the median interval of both sexes were 0.00 to 01.00 hrs. In *S. permistus* the median interval of the females was 01.00 to 02.00 hrs and that of the males 02.00 to 03.00 hrs.

## DISCUSSION

The arrival pattern of Trichoptera on Osterøy differs quite strongly from the bimodal pattern previously recorded by Brindle (1958), Corbet and Tjønneland (1956), and Nimmo (1966). On Osterøy Limnephilidae species made out nearly 55% of the material and the family strongly influenced the total arrival pattern. In the materials of Corbet and Tjønneland (1956), Nimmo (1966) and perhaps also Brindle (1958) limnephilids were poorly represented, and the maximum between 0.00 and 01.00 hrs found on Osterøy, therefore lacks in these studies.

Unlike the limnephilids, many non-limnephilids were observed flying during day time in the study area. *A. alboguttatus*, as well as other leptoceerids, swarmed regularly over the river, and *P. flavomaculatus* could be seen in numbers flying close to the water surface along the banks or between the plants in the river. The dusk peak shown by the non-limnephilids in the light trap catches probably reflects the end of the activity of mainly day-active species. As the daylight is falling the efficiency of the traps increases. At the same time the activity of the insects is decreasing resulting in the dusk peak in the arrival pattern of these diurnal species. The reversed conditions at dawn should have given a new peak. However, low morning temperatures during the sampling period certainly restricted the magnitude of the dawn peak. This peak was more strongly expressed in the materials of Corbet and Tjønneland (1956) and Nimmo (1966).

Sex difference in the arrival pattern was found in *M. tincta*, the males arriving later than the females. Similar patterns were found in three species by Corbet and Tjønneland (1956). In Trichoptera sex differences in the activity pattern is not uncommon. Swarms of caddis flies near the water during the day consist predominantly of males (Hickin 1967). On Osterøy *M. tincta* was seen swarming now and then, and from these swarms only males were collected.

The arrival pattern of an insect at light may differ from its real activity pattern as only the nocturnal aspect can be expressed. Müller and Ulfstrand (1970) showed that a Trichoptera species, *Philopotamus montanus* (Donovan, 1813), appeared to be day-active when collected in suction traps, but night-active in light traps. However, the arrival patterns of the dominant Limnephilidae species suggest that they to some degree reflects real activity patterns.

The use of light traps in faunistical or ecological investigations often rises the question to which extent the exact relative abundance of the species is reflected in the catches (Southwood 1975). Even though specimens resting near the trap during the night will be attracted to the trap, the extent to which a species actually is flying during the dark period of the night and hence is available for trapping have to be of importance for its representativity in the catches.

## REFERENCES

- Andersen, T. 1975. Caddis flies (Trichoptera) from Vestfold, south-eastern Norway. *Norw. J. Ent.* 22, 155-162.
- Andersen, T. 1978. Influence of temperature on the sex ratio of Trichoptera in light-trap catches in western Norway. *Norw. J. Ent.* 25, 149-151.
- Brekke, R. 1946. Norwegian caddis flies (Trichoptera). *Norsk ent. Tidsskr.* 7, 155-163.
- Brindle, A. 1958. Night activity of Trichoptera. *Entomologist's mon. Mag.* 94, 38-42.
- Corbet, P. S. & Tjønneland, A. 1956. The flight activity of twelve species of East African Trichoptera. *Univ. Bergen Arb., Naturv. r.* 1955 No 9, 1-49.
- Hickin, N. E. 1967. *Caddis larvae. Larvae of the British Trichoptera.* Hutchinson, London.
- Müller, K. & Ulfstrand, S. 1970. Die Tagesperiodik der Flugaktivität von *Philopotamus montanus* Don. und *Rhyacophila nubila* Zett. (Trichoptera). *Oikos suppl.* 13, 80-86.
- Nimmo, A. P. 1966. The arrival pattern of Trichoptera at artificial light near Montreal, Quebec. *Quaest. Ent.* 2, 217-242.
- Solem, J. O. 1970. Trichoptera new to Norway. *Norsk ent. Tidsskr.* 17, 93-95.
- Southwood, T. R. E. 1975. *Ecological methods with particular reference to the study of insect populations* (3 imp.). Chapman and Hall, London.

Received 25 May 1979.

# Seven species of Lepidoptera new to Norway.

LEIF AARVIK

Aarvik, L. 1979. Seven species of Lepidoptera new to Norway. *Fauna Norv. Ser. B*, 26, 18-20.

The following species are reported new to Norway:

*Elatobia fuliginosella* (Zeller), *Bucculatrix capreella* Krogerus, *Swammerdamia passerella* (Zetterstedt), *Celypha rosaceana* (Schläger), *C. rufana* (Scopoli), *Olethreutes dissolutana* (Stange), and *Cydia illutana* (Herrich-Schäffer). Remarks on diagnostic characters, distribution, and food plants are given.

Leif Aarvik, Gammelbruvegen 2, N-2400 Elverum, Norway.

The material, except when otherwise stated, were collected and identified by the author.

## Tineidae

*Elatobia fuliginosella* (Zeller)

4♂♂ 1♀, Vestad, Elverum HEs (EIS 55), 13-30 July 1978. One of the males was captured by Kai Berggren. All the males were attracted to light, whereas the female was netted in the evening.

*E. fuliginosella* differs from all known Norwegian species of the family by having grey hairs on the head. The forewings, too, are grey. The genitalia are figured by Hannemann (1977).

The distribution is holarctic, but the species is rarely encountered. In Sweden it has been recorded from the Stockholm area (Södermanland and Uppland) and Gotska Sandön (Svensson 1974b).

In Sweden the larva has been found once, under the bark of an old pine log (Svensson 1974b).

## Lyonetiidae

*Bucculatrix capreella* Krogerus

1♂, Vestad, Elverum HEs (EIS 55) 27 May 1978 and 1♀, same locality, 23 August 1978. The male was captured in a light trap. The female was found indoors on a window.

*B. capreella* is a polymorphic species, and it may resemble other species of the genus. The distinct genitalia are figured by Svensson (1971).

According to Svensson (1971) it has previously been recorded in Finland, Sweden and Scotland only. In Sweden it has been found in five provinces from Västergötland to Norrbotten (Benander 1953, Svensson 1974a, 1978).

The biology is not known.

## Yponomeutidae

*Swammerdamia passerella* (Zetterstedt)

1♂, Damtjern, Elverum HEs (EIS 55), 6 June 1977.

Some authors regard *S. passerella* as a form of *S. pyrella* (Villers). *S. pyrella* is distributed in south and central Europe extending as far north as Denmark and south Sweden. It feeds on *Crataegus*, *Prunus*, *Cerasus*, *Malus* and *Pyrus* (Hannemann 1977). *S. passerella* is distributed in Scotland, Fennoscandia, and the Baltic part of the USSR. It feeds exclusively on *Betula nana* L. (Hannemann 1977). The specimen from Elverum was captured in a bog with plenty of *Betula nana*.

Hannemann (1977) who figures the genitalia of *S. pyrella* states that there are minor differences between the two taxa in the male genitalia.

In Sweden *S. passerella* is recorded from eight provinces from Värmland to Lule Lappmark (Benander 1946, 1953, Svensson 1974a, 1978).

## Tortricidae

*Celypha rosaceana* (Schläger) synonym: *C. purpurana* (Haworth)

1♂, Bjelland, Tromøy AAY (EIS 6), 29 June 1970, Sigurd Bakke leg.

*C. rosaceana* often resembles *C. rufana* (Scopoli), but the two species can easily be separated by examination of their genitalia which are figured by Pierce & Metcalfe (1922). The genitalia of *C. rosaceana* show a remarkable similarity to those of *C. striana* (Denis & Schiffermüller). This species, however, is completely different externally.

*C. rosaceana* is often found on sea shores (Benander 1950), but it has also been taken in inland habitats. The locality at Tromøy is situated close to the sea.

The species has been found in the other Nordic countries. In Sweden it is recorded from fourteen provinces from Skåne to Norrbotten (Benander 1946, 1953, Svensson 1974a, 1977, 1978).

The larva feeds in roots of *Sonchus* and *Taraxacum* (Benander 1950).

#### *Celypha rufana* (Scopoli)

7♂♂ 1♀, Vestad, Elverum HES (EIS 55), 11-30 July 1978. One of the males was caught by Kai Berggren. Most specimens were captured in a light trap, but three of them were netted during day-time by sweeping low bushes of *Salix* sp. at the bank of the river Glomma.

*C. rufana* lacks the purplish tinge of the forewing which is usually found in *C. rosaceana*. The genitalia are illustrated by Pierce & Metcalfe (1922) and Bentinck & Diakonoff (1968).

According to Hackman (1944) the habitat of the species is sandy places.

Also this species is found in the other Nordic countries. In Sweden it has been recorded from thirteen provinces ranging from Skåne to Norrbotten (Benander 1946, 1953, Svensson 1974a, 1975, 1976, 1977). According to Svensson (pers. comm.) it is often quite common.

The larva feeds in roots of *Tanacetum*, *Artemisia*, *Sonchus*, and *Taraxacum* (Benander 1950, Bentinck & Diakonoff 1968).

#### *Olethreutes dissolutana* (Stange)

1♂, Langvatnet, Målselv TRi (EIS 154), 1 July 1973.

*O. dissolutana* resembles *O. concretana* (Wocke), but it has no plumbeous scales in the terminal part of the forewing. Hannemann (1961) figures the male genitalia.

Hannemann (1961) states that the habitat is pine forests where the larva feeds on moss on pine trunks. He also mentions *Polytrichum* as food plant of the species.

*O. dissolutana* has been recorded in the other Nordic countries. In Sweden it is scarce, being found in four provinces only, from Skåne to Norrbotten (Benander 1946, Svensson 1974a). In Finland it is apparently more common and has been taken up to Lapponia kemensis (Kyrki 1978).

#### *Cydia illutana* (Herrich-Schäffer)

This species is listed as Norwegian by Krogerus et al. (1971). However, it is deleted from the Norwegian list by Opheim (1976).

In the collection of Alf & Sigurd Bakke there is a male which belongs to this species. It was bred from spruce cones from Fåvang, Ringebu Os (EIS 63) in summer 1956. The specimen was dissected by the collector, Alf Bakke, and identified as *Laspeyresia illutana*. Later Harry Krogerus verified this identification (A. Bakke pers. comm.)

*C. illutana* is quite similar to the related *C. coniferana* (Saxen), but has shorter costal strigulae and smaller dorsal patch. The genitalia of these species are figured by Krogerus (1962) and Svensson (1978).

*C. illutana* is distributed in north and central Europe, but it is always rare. In Sweden only four specimens have been collected: The southernmost locality is in Blekinge and the northernmost in Norrbotten (Svensson 1978). The larva feeds in July-August in green spruce cones (Svensson 1978).

#### ACKNOWLEDGEMENTS

I wish to express my gratitude to Ingvar Svensson and Magne Opheim for valuable information and to Kai Berggren for his permission to publish some of his material. I am especially indebted to Dr. Alf Bakke for information on *Cydia illutana* and loan of material.

#### REFERENCES

- Benander, P. 1946. Förteckning över Sveriges småfjärilar. Cat. Ins. Suec. VI. *Opusc. ent. 11*: 1-82.
- Benander, P. 1950. Vecklarefjärilar. Tortricina. *Svensk Insektfauna 39*, 173 pp.
- Benander, P. 1953. Microlepidoptera. Cat. Ins. Suec. VI. Additamenta. *Opusc. ent. 18*: 89-101.
- Bentinck, G. A. & Diakonoff, A. 1968. De Nederlandse Bladrollers (Tortricidae). *Monogr. Ned. ent. Ver.* 3, 201 pp.
- Hackman, W. 1944. Om *Argyroproce rufana* Scop. och *purpurana* Haw. *Notul. ent.* 24, 108-109.
- Hannemann, H. J. 1961. Kleinschmetterlinge oder Microlepidoptera I. Die Wickler (s. str.) (Tortricidae). *Tierw. Dtl.* 48, 234 pp.
- Hannemann, H. J. 1977. Kleinschmetterlinge oder Microlepidoptera III. Federmotten (Pterophoridae), Gespinstmotten (Yponomeutidae), Echte Motten (Tineidae). *Tierw. Dtl.* 63, 275 pp.
- Krogerus, H. 1962. Die an Coniferen lebenden *Laspeyresia*-arten in Finnland (Lep., Tortricidae). *Notul. ent.* 42, 98-103.
- Krogerus, H., Opheim, M., von Schantz, M., Svensson, I & Wolff, N. L. 1971. *Catalogus Lepidopterorum Fenniae et Scandinaviae. Microlepidoptera*. 40 pp, Helsingin Hyönteisvaihtoyhdistys, Helsinki.

- Kyrki, J. 1978. Suomen pikkuperhosten levinneisyys. I. Luonnontieteellisten maakuntien lajisto (Lepidoptera: Micropterigidae — Pterophoridae). *Notul. ent.* 58, 37-67.
- Opheim, M. 1976. *The Lepidoptera of Norway. Check-list, Part II. Tortricoidea (second part)*. 31 pp. Norsk Lepidopterologisk Selskap, Trondheim.
- Pierce, F. N. & Metcalfe, J. W. 1922. *The genitalia of the group Tortricidae of the Lepidoptera of the British Islands*. 101 pp., Oundle, Northants.
- Svensson I. 1971. Scandinavian *Bucculatrix* Z. (Lep. Bucculatricidae). *Ent. Scand.* 2, 99-109.
- Svensson, I. 1974 a. Cat. Insect. Suec. VI. Addimenta II. *Ent. Tidsskr.* 95, 151-171.
- Svensson, I. 1974b. Anmärkningsvärda fynd av Microlepidoptera i Sverige 1973. *Ent. Tidsskr.* 95, 198-200.
- Svensson, I. 1975. Anmärkningsvärda fynd av Microlepidoptera i Sverige 1974. *Ent. Tidsskr.* 96, 139-146.
- Svensson, I. 1976. Anmärkningsvärda fynd av Microlepidoptera i Sverige 1975. *Ent. Tidsskr.* 97, 124-134.
- Svensson, I. 1977. Anmärkningsvärda fynd av Microlepidoptera i Sverige 1976. *Ent. Tidsskr.* 98, 37-43.
- Svensson, I. 1978. Anmärkningsvärda fynd av Microlepidoptera i Sverige 1977. *Ent. Tidsskr.* 99, 87-94.

Received 28 June 1979.

# Hoverflies (Diptera, Syrphidae) associated with Ramson *Allium ursinum* L.

TOR E R. NIELSEN

Nielsen, T. R. 1979: Hoverflies (Dipt., Syrphidae) associated with Ramson *Allium ursinum* L. *Fauna Norv. Ser. B* 26, 21-23.

Two species of Hoverflies associated with Ramson are reported from the Bergen area. *Portevinia maculata* (Fallén) 1817 is new to the Norwegian fauna, while *Cheilosia fasciata* Schiner & Egger 1853 has, according to older literature, been found in Oslo. A few observations on the biology of the species are given, and also a key to the adult insects.

Tore R. Nielsen, Juvélveien 19 D, N-4300 Sandnes, Norway.

Amongst Hoverflies the genus *Cheilosia* is known to have herbivorous larvae. Quite a few species have their larvae in the stems or roots of different herbs, a few have leaf-mining larvae, while others eat fresh or rotting tissues of mushrooms.

Within the old genus *Cheilosia* there are two Norwegian species which, in the larval stage, are associated with Ramson *Allium ursinum* L.: *Ch. fasciata* Schiner & Egger 1853 whose larvae are leaf-mining, and *Portevinia* (previously *Cheilosia*) *maculata* (Fallén) 1817, where the larvae are assumed to live in other parts of the host-plant.

Most of the *Cheilosia*-species are, as adult insects, shining black. The two species mentioned (along with a third Norwegian species, *Ch. semifasciata* Becker 1894, which mine on *Sedum rosea* (L.)) differ in having three pairs of greyish abdominal spots. The body-length of both species are 8.0-8.5 mm. The material, collected 1966-71, originates from six localities in the Bergen area, but the species will most probably be found in many other localities where Ramson is found.

## *Cheilosia fasciata* Schiner & Egger, 1853

Paradis, HOy: Bergen 19 May 1966 (1 ♂, 2 ♀ ♀); 12 May 1967 (1 ♂, 2 ♀ ♀); 28 April (1 ♂, 2 ♀ ♀), 30 April (4 ♂ ♂, 4 ♀ ♀), 1 May (9 ♂ ♂, 1 ♀), 4 May (2 ♂ ♂) and 22 May 1968 (1 ♀); 2 May (2 ♂ ♂) and 4 May 1969 (9 ♂ ♂, 2 ♀ ♀); 5 May (1 ♂), 10 May (9 ♂ ♂, 1 ♀) and 23 May 1970 (1 ♂, 1 ♀); 4 May (8 ♂ ♂, 5 ♀ ♀), 14 May (1 ♀, A. Fjellberg leg.) and 26 May 1971 (1 ♀). Isdalen, HOy: Bergen 12 May 1967 (1 ♀, A. Fjellberg leg.). Lii, Os, HOy: Os 4 May 1969 (1 ♂, 9 ♀ ♀, A. Fjellberg leg.).

This is the more slender of the two species. It differs from *Portevinia maculata* also in having hairy eyes (Fig. 1a). Other characters will appear from the key, Table 1.

*Cheilosia fasciata* has an early flight period. From the material above it seems that in western Norway it may be found from the end of April till the end of May. The localities at Paradis and in Isdalen have frequently been visited through several years, but it has not been possible to trace the species later than 26 May, and only one year as early as at the end of April. The length of the flight period seems to be about three weeks in years of normal weather conditions.

The species has been recorded in open and rather humid herb-fields (Ground Elder *Aegopodium podagraria*, Lady's Mantle *Alchemilla* sp. and Ramson) in the neighbourhood of rich, deciduous forests. The adult insects were most often seen flying around the Ramson plants, and here both of the sexes were often observed sunning on the leaves. Otherwise the females visited the flowers of Lesser Celandine *Ranunculus ficaria* L., and on sunny days some males might be seen hovering in low height above the ground vegetation.

Towards the end of the flight period the females could be seen creeping down on the underside of the Ramson leaves, where the yellowish-white eggs were deposited on the epidermis. Only one egg seemed to be laid on each leaf. After hatching, the larva gnawed through the epidermis and into the green, succulent tissues above. At first the mines were relatively narrow. Later they were expanded to large, airfilled sacs inside the leaves (Fig. 2). The larvae pupated in the soil, just below the surface.

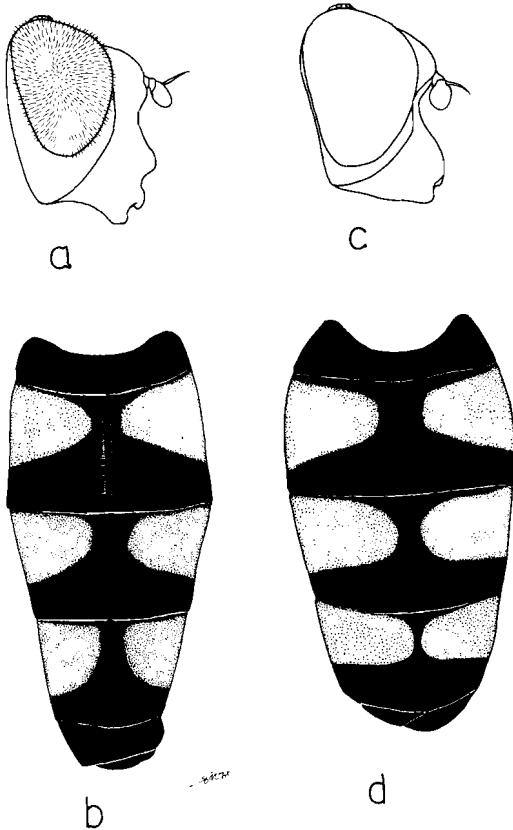


Fig. 1. a-b: Head and abdomen of *Cheilosia fasciata* Schiner & Egger, male.  
c-d: Head and abdomen of *Portevinia maculata* (Fallén), male.

According to Strand (1903) *Ch. fasciata* previously has been found in Oslo. This find, however, could not be verified due to lack of material.

**Portevinia maculata** (Fallén), 1817

Paradis, HOy: Bergen 11 June 1971 (10 ♂♂, 2 ♀♀). Hattvik, HOy: Os 2 June (21 ♂♂, A. Fjellberg leg.) and 3 June 1968 (26 ♂♂, 3 ♀♀); 8 June 1971 (8 ♂♂, 1 ♀). Haus, HOy: Osterøy 16 June 1968 (7 ♂♂, 1 ♀, A. Fjellberg leg.) and Samnanger, HOy: Samnanger 3 June 1968 (16 ♂♂, A. Fjellberg leg.).

*Portevinia maculata* seems, in the area in question, to be an early summer species, having a flight period a little later than the abovementioned species. The find localities have been rich, deciduous forests with Ramson as a dominant plant in the ground vegetation. The male specimens were often observed sunning on Ramson and fern leaves, while the females kept more out of sight in between the lowest vegetation.

The species is new to the Norwegian fauna.



Fig. 2. Mining larva of *Cheilosia fasciata* in leaf of Ramson. Paradis, Bergen May 1969.



Table 1. Determination key for *Cheilosia fasciata* Schiner & Egger and *Portevinia maculata* (Fallén).

1. Abdomen black with three pairs of greyish spots (spots often less distinct in the females) . . . . . 2
2. Eyes hairy . . . . . 3
- Eyes bare . . . . . 4
3. Antennae brownish-black. Face (Fig. 1a) just below antennae not much hollowed, lower part of face with protruding central prominence. Distance between lower margin of eye and lower margin of face relatively large (about 1/4 of height of head). Legs black, except for basal 1/3 — 1/2 of tibiae on all legs yellowish. Abdomen (Fig. 1b) with long, bristly hairs, in female at least along side-margins. Rather slender species *Cheilosia fasciata* \*
4. Third antennal joint orange. Face (Fig. 1c) just below antennae much hollowed, lower part of face evenly convex. Distance between lower margin of eye and lower margin of face short. Legs black, only basal ca. 1/10 of tibiae on all legs yellowish. Abdomen (Fig. 1d) with short, adpressed hairs. Greyish spots in female most readily seen from behind. Rather broad species *Portevinia maculata*

\* *Cheilosia semifasciata* has, like *Ch. fasciata*, hairy eyes. The male differs, however, from that species in having the abdominal spots more diffuse, and the longest hairs along the sides of tergite 3 distinctly shorter than the height of the abdominal spots. (In *Ch. fasciata* they are longer than the height of the spots).

The female *Ch. semifasciata* is glittering black, without abdominal spots.

## ACKNOWLEDGEMENTS

I wish to thank Cand. real. Arne Fjellberg for having contributed with material of both species concerned.

## REFERENCES

Strand, E. 1903. Norske lokaliteter for Diptera. *Forh. Christiania Vidensk. 3*, 3-11.

Received 25 March 1979.

# Spiders from Jan Mayen

SØREN TOFT

Toft, S. 1979. Spiders from Jan Mayen. *Fauna Norv. Ser. B.* 26, 24-25.

A collection of spiders from Jan Mayen, taken mainly by means of pitfall-traps in June — July 1972, contained five species, of which one, *Walckenaera clavicornis* (Emerton), is new to the island. *Collinsia holmgreni* (Thorell) is by far the dominant species. The fauna comprises three holarctic, and two palaeartic species.

Søren Toft, Zoological Laboratory, University of Aarhus, DK-8000 Aarhus C, Denmark.

The spider fauna of the Norwegian arctic island Jan Mayen has been dealt with in papers by Bristowe (1925, 1948), the latter of which summarizes all collections made up to then. Though a total of about 800 specimens have been collected, only four species are recorded, all belonging to the family Linyphiidae: *Collinsia holmgreni* (Thorell), *Erigone tirolensis* L. Koch, *Hilaira frigida* (Thorell) and *Meioneta nigripes* (Simon).

Through the courtesy of Professor Niels Haarløv, I have had the opportunity to examine a new collection, made by Klaus Vestergaard, in June — July 1972. Most of the spiders in this collection were taken by means of pitfall-traps, of which 30 were used for different periods in various localities. Besides this, 281 core samples were extracted with a Berlese - extractor, but only five of these each contained a single spider. As none of the previous collections have used pitfall traps, one would expect somewhat different species proportions in the present material, but this is only partly observable.

The collection comprised a total of 187 specimens, of which 182 were taken in pitfall traps; five species could be identified, i.e. the four species previously reported from Jan Mayen, and one species new to the island: *Walckenaera clavicornis* (Emerton). All five specimens from extraction samples were juvenile *C. holmgreni*. Details about localities, habitats etc. are given below. The material will be kept at the Zoological Museum, Copenhagen, Denmark.

*Walckenaera clavicornis* (Emerton)

Material: 1 ♂

Locality: Nordahl Grieg Lia.

Habitat: In moss (*Rhacomitrium*) on gravelly ground.

*Collinsia holmgreni* (Thorell)

Material: 76 ♀ ♀ 37 ♂ ♂ 43 juv. in pitfall traps, 5 juv. in core samples.

Localities: Nordahl Grieg Lia, Tornoe delta, Fishburndalen, Kreklinghaugen, Havhestberget, Wilczekdalen, Blyttberget, Kvalrossbukta, Sjuhollendarbukta, Borgdalen, Søyla, Libergsletta.

Habitats: The species is distributed all over the island, and seems to occur in nearly all available habitats. By far the greatest numbers were caught in stony areas devoid of vegetation (Wilczekdalen). Bristowe also found them under stones. However, in a Norwegian high mountain area, Hauge et al. (1978) caught the largest numbers in eutrophic meadow, but it was also abundant in snow-bed. Palmgren (1965, 1976) reports it to occur in mountaneous heathland in northern Finland.

*Erigone tirolensis* L. Koch

Material: 4 ♀ ♀ 7 ♂ ♂ 1 juv.

Localities: Fishburndalen, Havhestberget, Kvalrossbukta. Bristowe (1948) also mentions Sjuhollendarbukta.

Habitats: In the first mentioned locality the trap was situated in a rich vegetation dominated by *Sibbaldia*; the remaining localities were moss below bird cliffs. Hauge et al. (1978) report the species to be abundant in a wide variety of high mountain habitats. In Northern Finland it occurs from the timberline to the highest mountain tops (Palmgren 1965, 1976).

*Hilaira frigida* (Thorell)

Material: 1 ♀ 2 ♂ ♂ 1 juv.

Localities: Nordahl Grieg Lia, Sjuhollendarbukta.

Habitats: At both localities the traps were situated in moss. According to Bristowe (1948) it is abundant throughout the island. The species has two activity peaks, one in very early spring, the other in late autumn (Hauge et al. 1978),

which may explain the low numbers in the present collection. In Northern Finland it is a dominant species of mountain heaths (Palmgren 1965, 1975).

### *Meioneta nigripes* (Simon)

Material: 3 ♀♀ 6 ♂♂

Localities: Nordahl Grieg Lia, Wilczekdalen, Libergsletta, Fugleberget. Bristowe (1948) further mentions Fishburndalen and Bernakrater.

Habitats: The species has been taken in moss and stony areas without vegetation. This is in accordance with Hauge et al. (1978), who caught it exclusively in a pioneer ground habitat.

### DISCUSSION

The five species known from Jan Mayen are widely distributed in the Northatlantic area. They all occur in Iceland (Brændegaard 1958), East Greenland (Brændegaard 1946), Scotland (Locket & Millidge 1953) and Northern Scandinavia (Palmgren 1965, 1975, 1976). In the two latter areas they are restricted to high mountains. Holm (1967) characterizes *C. holmgreni*, *W. clavicornis* and *H. frigida* as holarctic, *M. nigripes* and *E. tirolensis* as palaeartic.

A fauna comprising only five species of spiders may seem extremely poor. However, this figure is probably not very far from the equilibrium number of species in the area. For comparison, 38 species are known from East Greenland (Holm 1967), 16 species from Spitsbergen (Holm 1937, Tambs-Lyche 1967), both with a much larger area, and five species have been recorded from Bear Island (Holm 1937). Thus, in view of the small area and great isolation of Jan Mayen only few more species can be expected. The faunal composition has remained stable through the last 50 years.

### ACKNOWLEDGEMENTS

I am greatly indebted to Professor Niels Haarløv and Dr. Klaus Vestergaard for having the opportunity to examine this collection, and for detailed information about the sampling sites.

### REFERENCES

- Bristowe, W. S. 1925. The Fauna of the Arctic Island of Jan Mayen and its probable Origin. *Ann. Mag. Nat. Hist. Ser. 9, 15*, 480-485.
- Bristowe, W. S. 1948. Spiders from the Arctic Island of Jan Mayen. *Proc. Zool. Soc. Lond. 118*, 223-225.
- Brændegaard, J. 1946. The spiders (Araneina) of East Greenland. *Medd. Grønland 121* (15), 1-128.
- Brændegaard, J. 1958. Araneida. *The Zoology of Iceland III 54*: 113 pp.
- Hauge, E., Hågvar, S. & Østbye, E. 1978. Pit-fall catches of surface-active arthropods in some high mountain habitats at Finse, south Norway. III. The species of Araneida. *Norw. J. Ent. 25*, 207-220.
- Holm, Å. 1937. Zur Kenntnis der Spinnenfauna Spitzbergens und der Bären Insel. *Ark. Zool. 29 A* (18), 1-13.
- Holm, Å. 1967. Spiders (Araneae) from West Greenland. *Medd. Grønland 184* (1), 1-99.
- Locket, G. H. & Millidge, A. F. 1953. *British Spiders II*. Ray Society, London.
- Palmgren, P. 1965. Die Spinnenfauna der Gegend von Kilpisjärvi in Lappland. *Acta zool. fenn. 110*, 1-70.
- Palmgren, P. 1975. Die Spinnenfauna Finnlands und Ostfennoskandiens. VI. Linyphiidae 1. *Fauna Fennica 28*. 102 pp.
- Palmgren, P. 1976. Die Spinnenfauna Finnlands und Ostfennoskandiens. VII. Linyphiidae 2. *Fauna Fennica 29*. 126 pp.
- Tambs-Lyche, H. 1967. Notes on the distribution of some Arctic Spiders. *Astarte 28*, 1-13.

Received 10 May 1979.

# Spiders from arctic Fennoscandia

N. PHILIP ASHMOLE AND BERNARD R. PLANTEROSE

Ashmole, N. P. & B. R. Planterose 1979. Spiders from arctic Fennoscandia. *Fauna Norv. Ser. B*, 26, 26-30.

Spider collections made in the Lofoten Islands in 1975 and in a number of localities in northern Norway and Sweden in 1977 are described. Altitudinal information is provided for all the montane records and details of the vegetation are given for many of the sites.

N. Philip Ashmole, Department of Zoology, University of Edinburgh.

Bernard R. Planterose, Department of Forestry and Natural Resources, University of Edinburgh.

## INTRODUCTION

A few intensive studies of spider communities have been made in particular localities in arctic Fennoscandia (e.g. Holm 1950, Palmgren 1965, Koponen 1976) but there is a paucity of distributional data. Recent contributions include a brief note by Cooke (1967) on collections from several parts of Norway; an account by Waaler (1970) of a collection from Sør-Varanger, North Norway; a description by Hauge (1971) of collections made by D.G. Goddard in 1969 in the Lyngen Peninsula and near Tromsø, North Norway; an account by Hauge (1977) of spiders from birch forests in the Skjomen fjord, northern Nordland, Norway; and a list published by Holm (1973) of spiders collected in the islands of northern Norway by a Swedish expedition in 1875.

The collections described here come from two sources. In the summer of 1975, in the course of a holiday in the Lofoten Islands, NPA spent short periods collecting in a number of localities. In the summer of 1977 BRP led an Edinburgh University expedition to northern Fennoscandia during which a number of spider collections were made, although the primary objective was ornithological.

Different approaches were used in the two years, and the data for the two are therefore presented in a somewhat different manner. On the Lofoten Islands in 1975 collections were made in a number of places by a single person, usually spending about 30 minutes at each site; altitudes were recorded and general notes were made on the habitats. These data are presented in the Systematic List.

During the 1977 expedition collections were made in well-defined areas that were investigated simultaneously by several people. Usually, a

1 sq. metre quadrat was searched intensively; within it, vegetation was uprooted, stones were carefully removed and any loose surface humic matter was sifted. At most sites, less intensive searches of the area within about 10 m round about the quadrat were also carried out. Estimates were made of the percentage contribution to the vegetation cover by the various species within each quadrat.

Since more habitat information is available for these sites they are described individually in the next section and a list of the spider species represented in each is provided. The number and sex of the specimens from these is indicated in the Systematic List but habitat information is not repeated: it can be found by referring to the relevant locality and elevation in the Description of Sites.

## DESCRIPTION OF SITES

### I. Lofoten Islands, Norway.

Over 20 sites were sampled, the southernmost on Værøy at 67°40'N. and the northernmost on Austvågøy at 68°16'N. Elevations ranged from sea level to 510 m.

### II. Ammarnäs, Sweden.

Four sites were sampled in the Vindalälven, just north of Ammarnäs at 66°05'N 10°E. Elevations ranged from 685 m to 880 m.

The lowest site, in the region known as Höbacken at 685 m, was studied for three man-hours on 30 June 1977. It was in open birch forest with a vegetation cover consisting of 40% *Juniperus communis*, 30% *Deschampsia flexuosa*, 10% *Vaccinium myrtillus*, 60% mosses and 1% lichens. The spider species represented were

*Pardosa lugubris* (Walckenaer) *Oreonetides vaginatus* (Thorell) and *Hilaira frigida* (Thorell).

Sampling at 780 m occupied 4 1/2 man-hours on 29 June and 2 July 1977. The site was just within birch at the tree-line and was dry, with 80% *Empetrum nigrum* agg., 10% lichens, 5% *Vaccinium* spp., 4% *Arctostaphylos uva-ursi* and 1% *Carex* spp. The first collection, made from the moist organic layer of the topsoil, contained only a subadult *Gnaphosa* sp. and juvenile *Pardosa* sp. The second collection was made on the surface and was dominated by juvenile lycosids: the only adults were *Pardosa hyperborea* (Thorell) and *Alopecosa aculeata* (Clerck).

One and a half man-hours were spent sampling at 810 m on 29 June 1977 at a site of a very different nature: a marshy hollow with a stream and willow scrub, just above the birch tree-line. Vegetation cover consisted of *Salix* sp. 20%, *Betula nana* 10%, *Molinia caerulea* 80%, *Sphagnum* sp. 10% and *Equisetum* sp. 0.5%. The spider sample was distinct from that at 780 m, and more diverse: *Pardosa amentata* (Clerck) was abundant and *Robertus scoticus* Jackson, *Hypomma bituberculatum* (Wider) and *Hilaira pervicax* Hull were also represented.

The highest site was at 880 m, where sampling was for 1 1/2 man-hours on 5 July 1977. This site was just above the dwarf birch/willow zone, close to a snow patch. Vegetation cover was not complete, with about 20% bare ground, *Vaccinium myrtillus* 20%, *Betula nana* 5%, *Empetrum nigrum* 2%, lichens 10% and dead grass 40%. The spiders included a number of *Pardosa*, but only one adult, which was *P. palustris* (L.); other species found were *Meioneta nigripes* (Simon), *Oreonetides vaginatus* and *Leptyphantès alacris* (Blackwall).

### III. Sareks National Park, Sweden.

Three samples were taken here, at 67°20'N., 17°50'E., the sites ranging in elevation from 815 m to 1650 m, all on the east facing slope of Sarvatjåkka, above Pierikjaure.

The lowest site, at 815 m, was sampled by quadrat on 20 July 1977, for 2 1/2 man-hours. There was scrubby vegetation with cover comprising *Empetrum nigrum* 60%, *Betula nana* 20% and *Salix* sp. (max. height 20 cm) 20%. The spider fauna was fairly diverse, many specimens being found under rocks. *Pardosa* spp. were the commonest forms, the only two adults being *P. eiseni*; another species was represented only by young individuals. Other species were

*Tiso aestivus* (L. Koch), *Oedothorax retusus* (Westring), *Trichopterna mengei* (Simon), *Xysticus cristatus* (Clerck) and *Rhaebothorax morulus* (O.P.-Cambridge).

The next site, at 1280 m, was also sampled for 2 1/2 man-hours on the same day. The sampling area was close to a melting snow-patch but was fairly dry and rocky with lichens; the other vegetation consisted mainly of *Betula nana* with some *Carex* sp. and *Deschampsia flexuosa*. Only two species of spider could be identified, and one of these, *Pardosa eiseni*, was represented only by immature individuals; the other was *Leptyphantès bergstroemi* Schenkel.

The highest site, at 1650 m, was sampled for 40 minutes on the same day. It was by a glacier on loose moraine, with scattered *Betula nana* and *Salix* sp. The six spiders collected were all *Pardosa*, and the three adults were *P. eiseni*.

### IV. Lyngen Peninsula, Norway.

Sampling was in the Lyngsdalen, 69°30'N., 20°E., around 300 m elevation between the snout of the Sydbreen glacier and the top of the birch zone. About 2 1/2 man-hours were spent collecting on 13 August 1977.

The substrate was mainly of rocks and boulders with patches of smaller gravel; there were scattered plants of *Salix* sp. and *Empetrum nigrum*. It was interesting to find *Araneus diadematus* Clerck abundant among the boulders within about 200 m of the glacier. Most of the other spiders were *Pardosa*; the only adults in the main collecting site, which was rocky, were *P. amentata* but all those in a braided river area with smaller stones a little lower down were *P. palustris*. In the rocky area there was also one *Erigone dentipalpis*.

Hauge (1971) described a larger collection from the Lyngen Peninsula made by Mr. D.G. Goddard. Precies localities were not given but it is evident that a much wider range of habitats was sampled than in 1977. One interesting record is of *Lycosa tarsalis* Thorell (= *Pardosa palustris* (L.)) «at moraine»; our record from a braided river close to a glacier confirms the association of this species with this kind of habitat.

### V. Sør-Varanger, Norway.

Collections were made at three sites in an area 27 km east of Kirkenes, at 69°45'N., 30°45'E. Elevations ranged from 220 m to 400 m.

The first site, 20 m from the south bank of Holmvatnet and at 220 m, was studied for just over 3 man-hours on 31 July 1977. The ground

surface was very dry, without rocks or stones. Vegetation consisted of *Empetrum nigrum* 60%, *Vaccinium myrtillus* 30%, *Betula nana* 10% and lichens 10%. In keeping with the open nature of the site and the absence of rocks, the spider fauna was dominated by lycosids. Several *Alopecosa* were obtained, but none was adult so the species cannot be determined. All the other identifiable spiders were *Pardosa palustris*. Several more *Pardosa* were collected en route to the next site, in areas where the vegetation was similar but rather more sparse than at the first site. These were mainly *P. palustris* but included one *P. eiseni*.

The next site was at 400 m, at the top of a hill south of Holmvatnet. Sampling occupied just over two man-hours on the same day. The ground was dry and rocky, with some patches of smaller stones and gravel; there were scattered plants of *Diapensia japonica*, *Empetrum nigrum*, *Vaccinium uliginosum*, *Betula nana* and lichens. The spiders fell into two groups. Those collected on the surface were almost all lycosids: as at the first site, *P. palustris* was most abundant, but here there was also one *P. eiseni*, subadult *Alopecosa* sp. and subadult *Tricca alpigena* (Doleschall); the only non-lycosid was *Xysticus albidus* Grese. The other spiders were collected under small stones and gravel; apart from one *Tiso aestivus*, they were all *Meioneta nigripes*.

The last sample, collected in 1 1/2 man-hours on the same day, was a little to the south of the hilltop at 370 m, in a wet gully with a small stream. The site was damp and mossy with *Empetrum nigrum* and patches of *Salix* sp. and *Betula nana*; part of the area was drier, with some *Vaccinium* spp. The spider fauna was similar to that in the previous site, with *Alopecosa* sp., *Pardosa palustris* and *P. eiseni*; in addition, however, there were two *P. amentata*, and among some big boulders were two *Araneus cornutus* Clerck.

## SYSTEMATIC LIST

### GNAPHOSIDAE

*Zelotes subterraneus* (C.L. Koch). Flakstadøya, Lofoten; west slopes of Fisken at 140 m; F; 30 June 75. Austvågøy, Lofoten; on moss near shore close to Svolveær; 25 June 75.

### CLUBIONIDAE

*Clubiona reclusa* O.P.- Cambridge. M, F, 23 and 26 June 75. Near Svolveær, Austvågøy, at 68°15'N.; heath near sea level.

### THOMISIDAE

*Oxyptila trux* (Blackwall). Flakstadøya, Lofoten; moorland at less than 30 m; 3 F; 27–29 June 75.

*Xysticus albidus* Grese. Sør-Varanger, Norway, 400 m; M; 31 July 77. This specimen was identified by Dr. Erling Hauge. The species has not previously been recorded from Norway.

*Xysticus cristatus* (Clerck). Sareks National Park, Sweden; 815 m; F; 20 July 77. Flakstadøya, Lofoten; rocky shore near Nusfjord; F; 27 June 75. Austvågøy, Lofoten; under rock on slopes of Rundfjell at 305 m; M; 26 June 75.

### LYCOSIDAE

*Alopecosa aculeata* (Clerck). Ammarnäs, Sweden, 810 m; M; 3 July 77. The identity of this specimen was kindly confirmed by Dr. Åke Holm.

*Alopecosa pulverulenta* (Clerck). Flakstadøya, Lofoten; M and F abundant on moorland at low altitude and recorded also on a steep slope at about 140 m; 27–30 June 75.

*Pardosa agricola* (Thorell). Austvågøy, Lofoten; on wet moss by the shore near Svolveær; M; 25 June 75.

*Pardosa amentata* (Clerck). Flakstadøya, Lofoten; on water by lake; M; 30 June 75. Ammarnäs, Sweden; 810 m; M and F abundant; 29 June 77. Lyngen Peninsula, Norway; c. 300 m; 3 F; 13 Aug. 77. Sør-Varanger, Norway; 370 m; 2 F; 31 July 77.

*Pardosa eiseni* (Thorell). Sareks National Park, Sweden; 815 m; 2 F; 20 July 77. Same area, but 1650 m; 2M, F; 20 July 77. Sør-Varanger, Norway; 220–400; 3M, 2F; 31 July 77.

*Pardosa hyperborea* (Thorell). Ammarnäs, Sweden at 780 m; 2 M, F; 2 July 77.

*Pardosa lugubris* (Walckenaer). Ammarnäs, Sweden; 685 m; 3 F; 30 June 77.

*Pardosa palustris* (L.). Ammarnäs, Sweden; 880 m; F; 5 July 77. Lyngen Peninsula, Norway; just below 300 m; 5 F; 13 Aug. 77. Sør-Varanger, Norway; 220–400 m; 9 F; 31 July 77.

*Pardosa sphagnicola* (F. Dahl). Flakstadøya, Lofoten; moorland at less than 30 m; 3 M; 27 June–2 July 75. Austvågøy, Lofoten; on wet moss near the shore and in a marsh, near Svolveær; M, 2 F; 25 June 75.

*Pirata piraticus* (Clerck). Austvågøy, Lofoten; in a ditch near Svolveær; M; 25 June 75.

*Tricca alpigena* (Doleschall). Sør-Varanger, Norway; 400 m; subadult F; 31 July 77.

*Xerolycosa nemoralis* (Westring). Flakstadøya, Lofoten, at 68°03'N.; on east slopes of Fisken at about 140 m; in area with scree of small stones; 2 M; 30 June 75.

### AGELENIDAE

*Cryphoea silvicola* (Koch). Værøy, Lofoten; among boulders near beach; F; 3 July 75. Austvågøy, Lofoten; birch/rowan wood at c. 50 m near Svolveær; F; 24 June 75.

## THERIDIIDAE

- Robertus arundineti* (O.P. Cambridge). Austvågøy, Lofoten; a marsh near Svolvær at 68°13'N.; F; 25 June 75. This may be the northernmost record for the species, although Palmgren (1974) indicates that it reaches the arctic circle in Finland.
- Robertus lividus* (Blackwall). Værøy, Lofoten; under rock in grass sward close to cliff top at c. 425 m; F; 3 July 75. Flakstadøya, Lofoten; moorland close to sea level and hillside at c. 160 m; 6 F; 27–28 June 75. Austvågøy, Lofoten; a marsh near Svolvær; F; 25 June 75.
- Robertus scoticus* Jackson. Ammarnäs, Sweden; 810 m; F; 29 June 77.
- Theridion bellicosum* Simon. Værøy, Lofoten; boulders near beach; F; 3 July 75. Austvågøy, Lofoten; birch/rowan wood at c. 50 m near Svolvær; F; 24 June 75.

## TETRAGNATHIDAE

- Meta merianae* (Scopoli). Moskenesøya, Lofoten; among boulders near sea level; F; 28 June 75. Flakstadøya, Lofoten at 68°06'N.; sheltered places in moorland below 30 m; M, F; 28–29 June 75.
- Tetragnatha extensa* (L.). Flakstadøya, Lofoten; moorland below 30 m; M; 2 July 75.

## ARANEIDAE

- Araneus cornutus* Clerck. Sør-Varanger, Norway; 370 m; 2 F; 31 July 77.
- Araneus diadematus* Clerck. Lyngen Peninsula, Norway; c. 300 m; 5 F; 13 Aug. 77.

## LINYPHIIDAE, Subfamily ERIGONINAE

- Caledonia evansi* O.P. Cambridge. Austvågøy, Lofoten; mountainside near Svolvær at 400 m; F; 24 June 75.
- Ceratinella brevipes* (Westring). Flakstadøya, Lofoten; moorland close to sea level and at 140 m. in vegetation; 3F; 28 and 30 June 75.
- Diplocephalus cristatus* (Blackwall). Flakstadøya, Lofoten at 68°06'N.; sandy beach; 5M, 11 F; 29 June 75. This appears to be the northernmost record for the species.
- Erigone arctica* (White). Flakstadøya, Lofoten; sandy beach near Flakstad; 3 M; 18 F; 29 June 75.
- Erigone atra* (Blackwall). Flakstadøya, Lofoten; sandy beach with *E. arctica*; M, 2F; 29 June 75.
- Erigone dentipalpis* (Wider). Lyngen Peninsula, Norway; c. 300 m; 13 Aug. 77.
- Hypomma bituberculatum* (Wider). Ammarnäs, Sweden; 810 m; F; 29 June 77.
- Oedothorax retusus* (Westring). Sareks National Park, Sweden; 815 m; F; 20 July 77. Austvågøy, Lofoten; under seaweed on rocky beach near Svolvær; M, 7 F; 25 June 75.
- Pocadicnemis pumila* (Blackwall). Flakstadøya, Lofoten; c. 140 m in vegetation on steep slope; F; 30 June 75.

- Rhaebothorax morulus* (O.P. Cambridge) Sareks National Park, Sweden; 815 m; F; 20 July 77.
- Savignya frontata* (Blackwall). Flakstadøya, Lofoten; under debris on rocky shore; F; 27 June 75.
- Silometopus reussi* (Thorell). Flakstadøya, Lofoten; sandy beach; F; 29 June 75. This specimen was kindly determined by Å. Holm.
- Tiso aestivus* (L. Koch). Ammarnäs, Sweden; 880 m; F; 5 July 77. Sareks National Park, Sweden; 815 m; 2 F; 20 July 77. Værøy, Lofoten; 425 m; under rock in grass sward close to cliff top; 3 F; 3 July 75. Sør-Varanger, Norway; 400 m; 4 F; 31 July 77.
- Trichopterna menegi* (Simon). Sareks National Park, Sweden; 815 m; F; 20 July 77.
- Walckenaera antica* (Wider). Flakstadøya, Lofoten; moorland close to sea; F; 28 June 75.
- Walckenaera capito* (Westring). Austvågøy, Lofoten; 510 m on Rundfjell, in area recently exposed by melting snow; 2 F; 26 June 75.

## LINYPHIIDAE, Subfamily LINYPHIINAE

- Bolyphantes luteolus* (Blackwall). Værøy, Lofoten; among boulders near beach; F; 3 July 75.
- Centromerus arcanus* (O.P. Cambridge). Austvågøy, Lofoten; 305 m on Rundfjell; F; 26 June 75.
- Centromerus inclitum* (L. Koch). Flakstadøya, Lofoten; at 68°03' N.; 260 m on East slope of Fisken, under rocks in grassy area; F; 27 June 75. This may be the northernmost record of this rare species. The specimen was determined by P. Merrett.
- Centromerus sylvaticus* (Blackwall). Flakstadøya, Lofoten; moorland below 30 m; F; 27 June 75.
- Diplostyla concolor* (Wider). Austvågøy, Lofoten; under debris on rocky shore near Svolvær; M; 25 June 75. This may be the most northerly record of the species.
- Halorates reprobus* (O.P. Cambridge). Værøy, Lofoten; under debris on rocky shore; M; 3 July 75. Flakstadøya, Lofoten; on rocky shore; M, F; 27 June 75.
- Hilaira excisa* (O.P. Cambridge). Nusfjord, Flakstadøya, Lofoten, at 68°01'N.; under debris on rocky shore; F; 27 June 75. This may be the most northerly record of the species.
- Hilaira frigida* (Thorell). Ammarnäs, Sweden; 685 m; F; 30 June 77. Værøy, Lofoten; under rock in grass sward close to cliff-top at 425 m; 5 F; 3 July 75. Austvågøy, Lofoten; 510 m on Rundfjell, under rock recently exposed by melting snow; F; 26 June 75.
- Hilaira pervicax* Hull. Ammarnäs, Sweden; 810 m; F; 29 June 77.
- Lepthyphantes alacris* (Blackwall). Ammarnäs, Sweden; 880 m; F; 5 July 77. Austvågøy, Lofoten; mountainside near Svolvær at 270 m and 400 m; 2 M, F; 24 June 75. Also in the same area, 510 m on Rundfjell, under rock recently exposed by melting snow; M, 2 F; 26 June 75.
- Lepthyphantes bergstroemi* Schenkel. Sareks National Park, Sweden; 1280 m; M; 20 July 77.

*Lepthyphantes ericaeus* (Blackwall). Flakstadøya, Lofoten, at 68°06'N.; sandy beach near Flakstad; F; 29 June 75. There are very few records of this species in Fennoscandia, although it is locally abundant in Western Norway (Hauge 1976).

*Lepthyphantes mengei* Kulczynski. Flakstadøya, Lofoten; moorland close to sea level; M; 28 June 75.

*Lepthyphantes zimmermanni* Bertkau. Værøy, Lofoten; in two localities near the shore, and near cliff-top at 425 m; 4F: 3 July 75. Flakstadøya, Lofoten; on the shore and at two inland localities, the highest at 160 m; 5 F: 27–29 June 75. Austvågøy, Lofoten at 68°16'N.; mountainsides at 270 m and 305 m; 3 F: 24–26 June 75. This species seems to be little known in Fennoscandia, but has been recorded by Hauge (1972, 1976) from two localities in Western Norway and by Holm (1977) in Southern Sweden; it is one of the commonest spiders in Iceland (Brændegaard 1958).

*Leptorhoptrum robustum* (Westring). Værøy, Lofoten; under debris on a rocky shore, and near cliff-top at 425 m; M, 7 F; 3 July 75. Flakstadøya, Lofoten; two localities on rocky shores; 5 F; 27–29 June 75. Austvågøy, Lofoten; mountainside near Svolveær at 270 m and 400 m, in a wood at c. 50 m, and on shore; M, 3 F; 24–25 June 75.

*Macrargus carpenteri* (O.P. Cambridge). Austvågøy, Lofoten at 68°15'N.; mountainside near Svolveær; 400 m; F: 24 June 75.

*Meioneta nigripes* (Simon). Ammarnäs, Sweden; 880 m; 5 M, 3 F; 5 July 77. Sør-Varanger, Norway; 400 m; 9 M; 11 F; 31 July 77.

*Oreonetides vaginatus* (Thorell). Ammarnäs, Sweden; 685 m and 880 m; 3 F; 30 June 77 and 5 July 77. Flakstadøya, Lofoten; at 260 m on east slopes of Fisken, under rocks in grassy area; 3 F; 27 June 75. Austvågøy, Lofoten; mountainsides near Svolveær at 400 m and 510 m; 3 M, 2 F; 24–26 June 75.

*Porrhomma montanum* Jackson. Flakstadøya, Lofoten, at 68°03'N.; 260 m on east slope of Fisken; under rocks in grassy area; M, F; 27 June 75. This species does not seem to have been recorded previously in northern Fennoscandia, although there is a record from 59°47' in Norway (Hauge 1972).

*Porrhomma pallidum* Jackson. Værøy, Lofoten; 425 m near cliff-top, under rocks in grass sward; M; 3 July 75. Austvågøy, Lofoten; mountainside near Svolveær at 305 m; 2 F; 26 June 75.

We are grateful to Dr. Åke Holm and Dr. Erling Hauge, who identified some of the difficult specimens and commented on Fennoscandian distributions; Dr. Torbjørn Kronestedt kindly confirmed the identity of some specimens of *Pardosa eiseni* (Thorell). We should like to thank also Jonathan Caddy, Susan Dick, Martin Howard and Alasdair Mackie, the other members of the expedition who were responsible for the 1977 collection.

## REFERENCES

- Brændegaard, J. 1958. Araneida. *Zoology of Iceland* 3 (54), 113.
- Cooke, J.A.L. 1967. Spiders from Norway. *Ent. Mon. Mag.* 103, 12–13.
- Hauge, E. 1971. Araneae from Northern Norway. *Norsk Ent. Tidsskr.* 18, 25–28.
- Hauge, E. 1972. Spiders and Harvestmen from Møre & Romsdal and Trøndelag, Norway. *Norsk Ent. Tidsskr.* 19, 117–121.
- Hauge, E. 1976. Araneae from Finnmark, Norway. *Norw. J. Ent.* 23, 121–125.
- Hauge, E. 1977. The spider fauna of two forest habitats in northern Norway. *Astarte* 10, 93–101.
- Holm, Å. 1950. Studien über die Spinnenfauna des Torneträskgebietes. *Zool. Bidrag, Uppsala* 29, 103–213.
- Holm, Å. 1973. On the spiders collected during the Swedish Expeditions to Novaya Zemlya and Yenisey in 1875 and 1876. *Zool. Scripta* 2, 71–110.
- Holm, Å. 1977. Kullabergs spindlar. *Kullabergs Natur* 15, 1–29.
- Koponen, S. 1976. Spider fauna (Araneae) of Kevo area, northernmost Finland. *Rep. Kevo Subarctic Res. Stat.* 13, 48–62.
- Palmgren, P. 1965. Die spinnenfauna der Gegend von Kilpisjärvi in Lappland. *Acta Zool. Fenn.* 110, 1–70.
- Palmgren, P. 1974. Die Spinnenfauna Finnlands und Ostfennoskandiens V. Theridiidae und Nesticidae. *Fauna Fennica* 26, 1–54.
- Waalder, P. F. 1970. Spiders from Syd-Varanger, North Norway, with a note on a gynandromorph *Cornicularia*. *Rhizocrinus (Occ. Pap. Zool. Mus. Univ. Oslo)* 1, No. 5, 1–9.

Received 18. Aug. 1979.

## ACKNOWLEDGEMENTS

We wish to acknowledge the extensive help of Dr. Peter Merrett, who checked many of the identifications and corrected several of them.



# Checklist of Norwegian ticks and mites (Acari)<sup>1</sup>

REIDAR MEHL

Mehl, R. 1979. Checklist of Norwegian ticks and mites (Acari). *Fauna Norvegica Ser. B.* 26, 31-45.

The purpose of this faunistic checklist is to sum up all the published species of ticks and mites from Norway and give references so that the literature will be more accessible.

The checklist includes 810 species belonging to the following six groups: Mesostigmata 96, Ixodides 12, Trombidiformes (excl. Hydrachnellae) 201, Hydrachnellae 183, Sarcoptiformes (excl. Oribatei) 74, and Oribatei 244.

Reidar Mehl, Laboratory of Medical Entomology, Department of Environmental Toxicology, National Institute of Public Health, Postuttak, N-Oslo 1, Norway.

## INTRODUCTION

The knowledge of Norwegian ticks and mites is based upon numerous articles, many of which are old and often difficult to locate.

The purpose of this faunistic checklist is to sum up all the published species and give references so that the literature will be more accessible. The result, I hope, will be a useful starting-point for future investigations. A critical revision of identifications and nomenclature is beyond the scope of this survey.

This compilation surely is incomplete, and information concerning publications and unpublished finds of mites from Norway will be highly appreciated.

Mites from Spitzbergen are not included in this survey.

In the old surveys of animals in Norway by Strøm (1768) and Hammer (1775) some species of mites and ticks are mentioned, but it is difficult to recognize the species and the identifications are uncertain. Thor published numerous papers on soil mites and water mites from 1897 until his death in 1937, and in 1943 Natvig published a bibliography of Thor's works, but some of his latest papers were not included.

Foreign scientists have contributed knowledge to the mite fauna by publishing faunistic notes (Oudemans 1927, Willmann 1929, Dalenius 1960, Forsslund in Løken 1966), comprehensive surveys (Leatherdale 1959, Cadwalladr 1969, Karppinen 1971) or have included material from Norway in their taxonomical works (Berlese 1904, 1923, Fain 1969, Fain et al.

1974). Leatherdale (1959) gave references (not repeated here) to many older faunistic publications concerning gall-making insects and mites in Norway.

The Government Entomologists W. M. Schøyen (1891-1912), T. H. Schøyen (1913-1941) and Fjelddalen (1951, 1953, 1960, 1962) included mites of economic importance in their publications on agricultural pests and in their annual reports. Fjelddalen (1968) has included some unpublished gall-mites from his collections in the Checklist of Norwegian names of animals (*Norske Dyrenavn.B.*)

Parasitic mites from domestic animals and humans have been published by Tambs-Lyche (1943a, b), Nærland (1950), Austad (1968), Tharaldsen (1973, 1978) and Mehl (1978). Some parasitic species were included in a report of a committee for pesticides against ectoparasites (Komité 1975).

During the past ten years several Norwegian biologists have been studying mites. Publications from three projects are cited: The Norwegian International Biological Program (IBP) (Solhøy 1975, 1976, Solhøy et al. 1975); Acid Precipitation — Effects on Forests and Fish (Hågvar 1978); and Research on Ectoparasites on Birds, Mammals and Man (Edler & Mehl 1972, Mehl 1968-1978).

The present checklist is arranged similarly to the checklist of Danish mites being divided into six main groups and the species in each group arranged alphabetically (Hallas 1978). References to the publications are given by the author's initials and publication date. There is one exception. On the list of the Hydrachnellae the dates of Thor's publications are given only after 1901b. In all other cases the omission of dates

<sup>1</sup>Contribution No. 149 from Zoological Museum, University of Oslo.

after the initials means that the species have been recorded, but not published.

In the checklist I have used the same scientific names as appeared in the literature cited. However, some alterations have been made, and some synonyms have been added. The list of the Oribatei is based on an unpublished list by the late Karl-H. Forsslund and corrected in accordance with the recent literature.

When an author has used an other name of the species or the genus than the name on the list, the synonym is put in parenthesis after the reference.

About 50 000 species of mites are known and in Norway we may expect to find about 2 000 species. This checklist includes 810 species belonging to the following six groups: Mesostigmata 96, Ixodides 12, Trombidiformes (excl. Hydrachnellae) 201, Hydrachnellae 183, Sarcoptiformes (excl. Oribatei) 74, and Oribatei 244.

#### ABBREVIATIONS:

AB — Antonio Berlese, AE — Anders Edler, AF — Alex Fain, AL — Astrid Løken, AO — A. C. Oudemans, CH — Christopher Hammer, CS — Christian Stenseth, CW — C. Willmann, DAC — D. A. Cadwalladr, DL — Donald Leatherdale, DOØ — Dag Olav Øvstedal, EK — E. Karppinen, ES — Embrikt Strand, GN — G. Nærland, HS — Hans Strøm, HTL — Hans Tambs-Lyche, JF — Jac. Fjeldalen, JT — Jorunn Tharaldsen, JØ — Jan Økland, MM — Manfred Moritz, OAS — Ole A. Sæther, NVH — Komité nedsatt av Landbruksdepartementets råd for veterinærmedisin, plantevernmidler og fórmidler m.m., PD — Peter Dalenius, RM — Reidar Mehl, SH — Sigmund Hågvar, SSS — G. Schulte, R. Schuster & H. Schubart, ST — Sig Thor, THS — T. H. Schøyen, TS — Torstein Solhøy, WMS — W. M. Schøyen, OH — Oddvar Helle

#### ACKNOWLEDGEMENTS

I am greatly indebted to the following persons for valuable information about records of mites and literature: Jac. Fjeldalen, Sigmund Hågvar, Torstein Solhøy, Christian Stenseth and Jorunn Tharaldsen. Valuable technical assistance in preparing the manuscript was given by Inger Høiby.

#### MESOSTIGMATA

1. *Amblyseius jugortus* Athias-Henriot SH 1978.
2. *A. obtusus* (Koch) SH 1978.
3. *Androlaelaps casali casali* (Berlese) AE + RM 1972.
4. *A. fahrenheitzi* (Berlese) AE + RM 1972.
5. *Cyrtolaelaps minor* Willmann AE + RM 1972.
6. *C. mucronatus* (G. & R. Canestrini) AE + RM 1972.
7. *Dermanyssus alaudae* (Schrank) RM.
8. *D. americanus* Ewing RM.
9. *D. chelidonis* Oudemans RM.
10. *D. grochovskae* Zemskaya RM.
11. *D. gallinae* (De Geer) RM 1978.
12. *D. hirundinis* (Hermann) RM 1978.
13. *D. quintus* Vitzthum RM.
14. *Eulaelaps novus* Vitzthum RM.
15. *E. stabularis* (C. L. Koch) AB 1904a, AE + RM 1972, RM 1972e.
16. *Eviphis ostrinus* (C. L. Koch) AE + RM 1972, SH 1978.
17. *Gamasellus montanus* (Willmann) SH 1978.
18. *Haemogamasus ambulans* (Thorell) AE + RM 1972.
19. *H. hirsutus* Berlese AE + RM 1972.
20. *H. horridus* Michael AE + RM 1972.
21. *H. liponyssoides* Ewing RM.
22. *H. nidi* Michael AE + RM 1972.
23. *H. nidiformes* Bregetova AE + RM 1972.
24. *H. pontiger* Berlese RM 1977.
25. *Halolaelaps marinus* (Brady) AO 1927.
26. *Hirstionyssus isabellinus* Oudemans AE + RM 1972.
27. *H. laticutatus* (de Meillon & Lavoipierre) AE + RM 1972.
28. *H. sciurinus* (Hirst) RM 1971.
29. *H. soricis* (Turk) AE + RM 1972.
30. *H. tatricus* Mrciak AE + RM 1972.
31. *Hyperlaelaps amphibius* Zachvatkin RM 1970.
32. *H. microti* (Ewing) AE + RM 1972.
33. *Hypoaspis aculeifer* (Canestrini) SH 1978.
34. *H. krameri* (Canestrini) RM.
35. *H. lubrica* Voigts & Oudemans RM.
36. *H. marginalis* (Willmann) RM.
37. *H. sardoa* (Berlese) AE + RM 1972.
38. *Laelaps agilis* C. L. Koch AE + RM 1972.
39. *L. clethrionomydis* Lange AE + RM 1972.
40. *L. hilaris* C. L. Koch AE + RM 1972.

41. *L. lemmi* Grube AE + RM 1972.
42. *L. muris* (Ljungh) RM 1970.
43. *Leioseius bicolor* (Berlese) SH 1978.
44. *Macrocheles decoloratus* (C. L. Koch) RM.
45. *M. matrius* (Hull) RM.
46. *M. muscaedomesticae* (Scopoli) RM.
47. *Macronyssus kolenati* (Oudemans) RM.
48. *Myonyssus ingricus* Bregetova AE + RM 1972.
49. *Ololaelaps placentula* (Berlese) AB 1904a (*O. confinis* Berlese)
50. *Ophionyssus natricis* (Gervais) RM.
51. *O. saurarum* (Oudemans) RM.
52. *Ornithonyssus bacoti* (Hirst) RM 1978.
53. *O. pipistrelli* (Oudemans) RM.
54. *O. sylvarum* (Canestrini & Franzang-o) RM.
55. *Pachylaelaps sculptus* Berlese AB 1920.
56. *Parasitus coleoptratum* (L.) AB 1906.
57. *P. consanguineus* Oudemans CS.
58. *P. eta* Oudemans & Voigts AB 1906 (*Gamasus distinctus*).
59. *P. furcatus* G. & R. Canestrini AB 1906 (*Gamasus*).
60. *P. fucorum* (De Geer) RM.
61. *P. immanis* (Berlese) AB 1904, 1906 (*Gamasus*).
62. *P. kraepelini* Oudemans AE + RM 1972, SH 1978.
63. *P. remberti* (Oudemans) AE + RM 1972.
64. *P. trouessarti* (Berlese) AB 1904a (*Gamasus excurrens*) AB 1906.
65. *Parazercon sarekensis* Willmann SH 1978.
66. *Pergamasus brevicornis* (Berlese) AB 1906.
67. *P. crassipes* (L.) AB 1904a, 1906 (*P. c. longicornis*).
68. *Pergamasus lapponicus* Trägårdh SH 1978.
69. *P. robustus* Oudemans AB 1906, SH 1978.
70. *P. runciger* Berlese AB 1904a, 1906.
71. *P. cf. schweizeri* Bhattachar SH 1978.
72. *P. septentrionalis* Oudemans AB 1906 (*P. s. norvegicus*).
73. *Phaulocylliba ventricosa* Berlese AB 1904a.
74. *Phaulodinychus replectus* Berlese AB 1904a.
75. *P. simplex* Berlese AB 1904a.
76. *Phytoseiulus persimilis* Athias-Henriot CS 1968.
77. *Platyseius subglaber* (Oudemans) AO 1927 (*Lasioseius*).
78. *Pneumonyssoides caninum* (Chandler & Ruhe) JT + JG 1978 (*Pneumonyssus*).
79. *Poecilochirus necrophori* Vitztum AE + RM 1972.
80. *Proctolaelaps pygmaeus* (Müller) AE + RM 1972.
81. *Prozercon kochi* Sellnick SH 1978.
82. *Pseudoparasitus venetus* (Berlese) SH 1978.
83. *Sejus borealis* (Berlese) AB 1904a (*Ame-roseius*).
84. *Spinturnix acuminatus* (C. L. Koch, 1836) RM.
85. *S. kolenati* Oudemans RM.
86. *S. myoti* (Kolenati) RM.
87. *S. mystacinus* (Kolenati) RM.
88. *S. plecotinus* (C. L. Koch) RM.
89. *Steatonyssus periblepharus* Kolenati, RM.
90. *Urodinychus ovalis* (Kramer) AB 1904a. (n.var. *thorianus*).
91. *Uropoda formicarum* Thor ST 1900c.
92. *U. obnoxia* Reuter THS 1926.
93. *Veigaia cervae* (Kramer) SH 1978.
94. *V. exigua* (Berlese) SH 1978.
95. *V. nemorensis* (C. L. Koch) SH 1978.
96. *Zercon cf. zelawatiensis* Sellnick SH 1978.

## IXODIDES

1. *Amblyomma* sp. RM 1978.
2. *Argas vespertilionis* (Latreille) RM 1970.
3. *Hyalomma marginatum marginatum* C. L. Koch RM 1970.
4. *Ixodes arboricola* Schulze & Schlottke, HTL 1943b.
5. *I. caledonicus* Nuttal RM 1970.
6. *I. hoxagonus* Leach HTL 1943b, RM 1972.
7. *I. lividus* (C. L. Koch) RM 1970.
8. *I. pari* Leach RM.
9. *I. ricinus* (L.) HTL 1943, RM 1972.
10. *I. trianguliceps* Birula HTL 1943b,
11. *I. uriae* White HTL 1943b, RM 1968.
12. *Rhipicephalus sanguineus* (Latreille) JT 1973.

## TROMBIDIFORMES (excl. Hydrachnellae).

1. *Aceria anceps* (Nalepa) DL 1959.
2. *A. astragali* Liro DL 1959.
3. *A. bartschiae* (Nalepa) DL 1959.
4. *A. brevirostris* (Nalepa) DL 1959.
- 5a. *A. brevitarus* (Fockeu) DL 1959.
- 5b. *A. brevitarus phyllereus* Nalepa DL 1959.

6. *A. calycophthira* Nalepa JF 1968.
7. *A. centaureae* (Nalepa) DL 1959.
8. *A. dispar* (Nalepa) DL 1959.
9. *A. diversipunctatus* (Nalepa) DL 1959.
10. *A. drabae* (Nalepa) DL 1959.
11. *A. enanthus* (Nalepa) DL 1959.
12. *A. euaspis* (Nalepa) DL 1959.
13. *A. filiformis* (Nalepa) DL 1959.
14. *A. geranii* (Canestrini) DL 1959.
15. *A. iteinus* (Nalepa) DL 1959.
16. *A. kochi* (Nalepa & Thomas) DL 1959.
17. *A. leionotus* Nalepa DL 1959 (*A. lissonotus* (Nalepa)).
18. *A. nervisequa* Canestrini JF 1968.
19. *A. platanoidea* Nalepa JF 1968.
20. *A. pseudoplatani* Corti JF 1968.
21. *A. rhodiolae* (Canestrini) DL 1959.
- 22a. *A. rudis longisetosus* (Nalepa) DL 1959.
- 22b. *A. rudis typicus* (Nalepa) FL 1888 DL 1959.
23. *Aceria saxifragae* (Rostrup) DL 1959.
24. *A. scaber* (Nalepa) JF 1962.
25. *A. stenaspis* Nalepa JF 1968.
- 26a. *A. tetanothrix* (Nalepa) DL 1959.
- 26b. *A. tetanothrix laevis* (Nalepa) DL 1959.
27. *A. tiliae* (Pagenstecher) DL 1959.
28. *A. vinosa* Roivainen DL 1959.
29. *Alicorhagia plumipilus* Thor ST 1931b (*Epistomalycus*).
30. *Amorphacarus elongatus* (Poppe) RM 1972.
31. *A. parvisetosus* Lukoschus & Driessen RM 1972.
32. *Anystis baccharum* (L.) ST 1912b AO 1927.
33. *Bdella longicornis* (L.) ST 1904.
34. *B. strandi* Berlese AB 1923 (+ var. *vistosa*).
35. *Bimichaelia setigera* (Berlese) ST 1931b.
36. *B. subnuda* (Berlese) ST 1931b.
37. *Biscirus intermedius* Thor ST 1928b.
38. *Bonzia halacaroides* Oudemans AO 1927, ST + CW 1941.
39. *Brachytydeus breviculus* (C. L. Koch) ST 1931a, 1933.
40. *Bryobia praetiosa* C. L. Koch JF 1952.
41. *Calepitrimerus alchemillae* (Liro) DL 1959.
42. *Callyntrotus polygoni* (Liro) DL 1959.
43. *Cecidophyes atrichus* (Nalepa) DL 1959.
44. *C. betulae* (Nalepa) DL 1959.
45. *C. galii* (Karpelles) DL 1959.
46. *C. nudus* (Nalepa) DL 1959.
47. *C. ribis* (Westwood) DL 1959, JF 1962 (*Cecidophyopsis*).
48. *C. tetratrichus* (Nalepa) DL 1959.
49. *Cecidophyopsis ribis* (Westwood) JF 1962.
50. *entrotrombidium schneideri* Kramer AO 1927.
51. *Cheletomorpha venustissima* (C. L. Koch) ST 1912c.
52. *Cheyletiella blakei* (Smiley) RM 1978.
53. *C. parasitivorax* (Megnin) RM 1978.
54. *C. yasguri* (Smiley) RM 1978.
55. *Cheyletus eruditus* (Schrank) ST 1912c.
56. *Cocceupodes clavifrons* (Canestrini) ST 1934a.
57. *C. curviclava* Thor ST 1934b.
58. *C. mollicellus* (C. L. Koch) ST + CW 1941.
59. *Coccotydeus globifer* Thor ST 1931a, 1933.
60. *C. tenuiclaviger* Thor ST 1931a, 1933.
61. *Cunaxa setirostris* (Hermann) ST 1912c.
62. *C. taurus* (Kramer) ST 1912c.
63. *Cyta latirostris* (Hermann) ST 1904.
64. *Demodex bovis* Stiles OH 1972, NVH 1975.
65. *Demodex canis* Leydig OH 1972, NVH 1975.
66. *D. cati* Megnin OH 1972.
67. *D. caprae* Railliet GN 1950, NVH 1975.
68. *D. equi* Railliet NVH 1975.
69. *D. folliculorum* (Simon) OH.
70. *Enemothrombium caligigerum* (Berlese) AB 1910.
71. *Eotetranychus telarius* L. JF 1968.
72. *Epitimerus trilobus* Nalepa JF 1968.
73. *Eriophyes exilis* (Nalepa) DL 1959.
74. *E. gibbosus* Nalepa JF 1962 DL 1959.
75. *E. goniothorax* Nalepa DL 1959.
76. *E. gracilis* (Nalepa) JF 1962.
77. *E. inangulis* (Nalepa) DL 1959.
- 78a. *E. laevis alni-incanae* Nalepa DL 1959.
- 78b. *E. laevis typicus* Nalepa DL 1959.
79. *E. leiosoma* (Nalepa) DL 1959.
80. *E. loewi* Nalepa JF 1968.
81. *E. macrochelus pseudoplatani* Corti DL 1959.
82. *E. macrorrhynchus cephaloneus* Nalepa DL 1959.
83. *E. mali* Nalepa JF 1962.
84. *E. malimarginemtorquens* (Liro) DL 1959.
85. *E. malinus* Nalepa DL 1959 JF 1962.
86. *E. paderineus* Nalepa DL 1959.
87. *E. padi* Nalepa DL 1959 JF 1962.
88. *E. pyri* (Pagenstecher) DL 1959 JF 1962.
89. *E. silvicola* (Canestrini) JF 1962.
- 90a. *E. similis* Nalepa DL 1959 JF 1962.
- 90b. *E. similis prunispinosae* Nalepa DL 1959.

91. *E. sorbeus* (Nalepa) DL 1959.
92. *E. sorbi* (Canestrini) DL 1959.
93. *E. violae* Nalepa THS 1926.
94. *E. xylostei* Canestrini DL 1959.
95. *Erythracarus comes* (Berlese) ST 1926b.
96. *E. parietinus* (Hermann) ST 1912b.
97. *Erythraeus phalangioides* (De Geer) AO 1927.
98. *Eupalus croceus* C. L. Koch ST 1912c
99. *Eupodes decoloratus* C. L. Koch ST + CW 1941.
100. *E. hjartdaliae* Thor ST 1934c.
101. *E. skiaaki* Thor ST 1934c.
102. *E. variegatus* C. L. Koch ST 1912a.
103. *E. voxencollinus* Thor ST 1934c.
104. *Eustigmaeus kermesinus* (C. L. Koch) AO 1927.
105. *Eutrombidium frigidum* Berlese AB 1910.
106. *Halacarus alpinus* Thor ST 1910.
107. *Hemitarsonemus latus* Ewing JF 1953.
108. *Leptus coccineus* (Scopuli) AO 1927.
109. *Linopodes ambustus* C. L. Koch ST + CW 1941.
110. *L. motatorius* (L.) CH 1775, ST 1912a.
111. *Lorryia reticulata* (Oudemans) ST 1931a, 1933.
112. *Metatetranychus ulmi* C. L. Koch JF 1952 (*P. pilosus*).
113. *Microtrombidium geographicum* Berlese AB 1910.
114. *M. norvegicum* Berlese, 1910 AB 1910.
115. *M. pusillum* Hermann AB 1910 (*M. p. pingus*).
116. *M. quadrispinum* Berlese AB 1910.
117. *M. simulans* Berlese AB 1910.
118. *Microtydeus constans* Thor ST 1931a, 1933.
119. *Molgus capillatus* (Kramer) ST 1904.
120. *M. clypeatus* Thor ST 1930a.
121. *M. littoralis* (L.) ST 1904, AO 1927 (Bdella).
122. *M. tuberculatus* Berlese AB 1923.
123. *Myobia musculi* (Schrank) RM 1972a.
124. *Nanorchestes amphibius* Toppent & Trouessart ST 1931b.
125. *N. arborigier* (Berlese) ST 1931b, 1934a ST + CW 1941.
126. *Opsereynetes norvegicus* Thor ST 1932a, 1933.
127. *Otonia pexata* (C. L. Koch) ST 1900a.
128. *O. planca* (C. L. Koch) ST 1900a.
129. *O. purpurea* (C. L. Koch) ST 1900a.
130. *O. pusilla* Hermann ST 1900a.
131. *O. spinifera* Thor ST 1900a.
132. *O. strandi* Thor ST 1900a.
133. *O. trigona* (Hermann) ST 1900a.
134. *O. vesiculosa* Thor ST 1900a ST 1936 (*Camerotrombidium*).
135. *Pachygnathus rostratus* (Trägårdh) ST 1931b (= *Alycus roseus*).
136. *P. villosus* Dugès ST 1931 (= *Alycus roseus* C. L. Koch).
137. *Paratetranychus ununguis* Jacobi JF 1968 (*Oligonychus*).
138. *Penthalodes ovalis* (Dugès) ST 1912a (= *Chromotydaeus ovatus* (C. L. Koch, 1838)) ST + CW 1941.
139. *Peymotes* SH 1978.
140. *Phenthaleus maior* (Dugès) ST 1912a (*P. haematopus* L. Koch) ST + CW 1941.
141. *Phyllocoptes acericola* Nalepa DL 1959.
142. *P. populi* Nalepa DL 1959.
143. *P. setiger* Nalepa JF 1962.
144. *Phytoptus avellanae* (Nalepa) DL 1959 JF 1962.
145. *P. quadrisetus* Thomas DL 1959.
146. *Podothrombium magnum* Berlese AB 1910.
147. *P. strandi* Berlese AB 1910.
148. *Protomyobia c. claparedei* (Poppe) RM.
149. *P. onoi* Jameson & Dusbabek RM 1972.
150. *Pygmeophorus* RM.
151. *Radfordia affinis* (Poppe) RM.
152. *Retelydeus catenulatus* Thor ST 1931a, 1933.
153. *R. viviparus* Thor ST 1931a, 1933.
154. *Rhagidia bidens* Thor ST 1909, 1912a.
155. *R. gelida* Thorell ST 1912a.
156. *R. osloensis* Thor ST 1934d.
157. *R. terricola* (C. L. Koch) ST 1912a.
158. *R. uniseta* Thor ST 1909, 1912a.
159. *Rhyncholophus globigera* Berlese ST 1900b.
160. *R. norvegica* Thor ST 1900b.
161. *R. opilionoides* C. L. Koch ST 1900b.
162. *R. plumosa* Thor ST 1900b.
163. *R. regalis* C. L. Koch ST 1900b.
164. *R. trimaculata* (Hermann) ST 1900b.
165. *R. vertex* Kramer ST 1900b.
166. *Scirus lapidarius* (Kramer) ST 1904.
167. *S. longirostris* Hermann ST 1904.
168. *S. norvegicus* Thor ST 1905b.
169. *S. silvaticus* (Kramer) ST 1904.
170. *S. virgulatus* (Canestrini & Fanzango) ST 1904.
171. *Scolotydaeus bacillus* Berlese ST 1932a, 1933.
172. *Sericithrombium heterotrichum* Berlese AB 1910.
173. *Siteroptes graminum* (Reuter) TR + JF 1962.
174. *Smaridia ampulligera* Berlese ST 1900b.

175. *Smaris expalpis* (Hermann) ST 1900b.  
 176. *Speleorchestes formicorum* Trägårdh ST 1913b.  
 177. *Spinibdella reducta* Thor ST 1930a.  
 178. *Tanaupodus passimpilosus* Berlese AO 1927.  
 179. *Tarsolarkus articulosus* Thor ST 1912d.  
 180. *Tarsonemus pallidus* Banks JF 1952.  
 181. *Tetranychus cinnabarinus* Boisd JF 1968.  
 182. *T. urticae* C. L. Koch JF 1952. (*T. althaeae*) CS 1976.  
 183. *Triophtydeus pinicolus* (Oudemans) ST 1932b, 1933.  
 184. *Trombicula zachvatkini* Schluger RM.  
 185. *Trombidium filipes* C. L. Koch ST 1900a.  
 186. *T. fuliginosum* Hermann ST 1900a.  
 187. *T. holosericeum* (L.) ST 1900a.  
 188. *Tydeus aberrans* Oudemans ST 1932b, 1933, AO 1932.  
 189. *T. albofasciatus* C. L. Koch ST 1933.  
 190. *T. croceus* (L.) ST 1912a, 1933 (*T. foliorum* (Schrank)).  
 191. *T. interruptus* Thor ST 1932b, 1933.  
 192. *T. subalpinus* Thor ST 1932b, 1933.  
 193. *T. thori* Oudemans ST 1932b, AO 1931.  
 194. *T. totensis* Thor ST 1932b, 1933.  
 195. *Vasates anthobius* (Nalepa) DL 1959.  
 196. *V. comatus* (Nalepa) JF 1962.  
 197. *V. fockei* (Nalepa & Trouessart) DL 1959 JF 1962.  
 198. *V. masseei* (Nalepa) JF 1962.  
 199. *V. myrsinitis* Roivonen DL 1959.  
 200. *V. schlehtendali* (Nalepa) JF 1962.  
 201. *Villersia vietsi* Oudemans AO-1927.

## HYDRACHNELLAE

1. *Acercus torris* (Müller) ST, OAS 1965.
2. *A. triangularis* Piersig ST.
3. *Arrhenurus albator* (Müller) JØ 1964.
4. *A. bicuspidator* Berlese ST, JØ 1964.
5. *A. caudatus* De Geer ST.
6. *A. claviger* Koenike ST.
7. *A. conicus* Piersig ST.
8. *A. coronator* Thor ST.
9. *A. cuspidifer* Piersig ST.
10. *A. emarginator* Müller ST.
11. *A. errator* Thor ST.
12. *A. finmarchicus* Thor ST 1923.
13. *A. forpicatus* Neuman ST.
14. *A. fragilis* Thor ST.
15. *A. globator* Müller ST.
16. *A. integrator* (Müller) ST.
17. *A. kjermanni* Neuman ST.
18. *A. maculator* (Müller) ST.
19. *A. mediorotundatus* Thor ST.
20. *A. membranator* Thor ST.
21. *A. paluster* Thor ST.
22. *A. primitivus* Thor ST 1923.
23. *A. pustulator* (Müller) ST.
24. *A. regulator* Thor ST.
25. *A. stecki* Koenike ST.
26. *A. stjoerdalensis* Thor ST.
27. *A. truncatellus* (Müller) ST.
28. *Atax crassipes* (Müller) ST.
29. *A. kochi* Thor ST.
30. *Atractides spinirostris* Thor ST.
31. *Aturus scaber* Kramer ST.
32. *Bandakia concreta* Thor ST 1913a.
33. *Brachypoda versicolor* (Müller) ST, JØ 1964, OAS 1965.
34. *Curvipes alatus* Thor ST.
35. *C. annulatus* Thor ST.
36. *C. carneus* C. L. Koch ST.
37. *C. clavicornis* (Müller) ST.
38. *C. coccineus* C. L. Koch ST, JØ 1964 (*Piona*).
39. *C. coccinoides* Thor ST.
40. *C. controversiosus* Piersig ST.
41. *C. disparilis* Koenike ST.
42. *C. laminatus* Thor ST.
43. *C. luteolus* Koch ST.
44. *C. neumani* Koenike ST.
45. *C. pauciporus* Thor ST.
46. *C. raropalpis* Thor ST.
47. *C. rotundoides* Thor ST.
48. *C. rotundus* Kramer ST.
49. *C. stjoerdalensis* Thor ST.
50. *C. uncatus* Koenike ST.
51. *Diplodontus despiciens* (Müller) ST, AO 1927 JØ 1964 (*Hydrodroma*).
52. *Drammenia clongata* Thor ST 1913b.
53. *D. crassipalpis* Thor ST 1913b.
54. *Euthyas longirastris* Piersig ST.
55. *Eylais angustipons* Thor ST.
56. *E. cornuta* Thor ST.
57. *E. discreta* Koenike ST.
58. *E. duplex* Thor ST.
59. *E. extedens* (Müller) ST, JØ 1964, OAS 1965.
60. *E. foraminipons* Thor ST.
61. *E. infundibulifera* Koenike ST. OAS 1967.
62. *E. latipons* Thon ST.
63. *E. muelleri* Koenike ST, JØ 1964 (*E. setosa muelleri*).
64. *E. mutila* Koenike ST.
65. *E. neglecta* Thor ST.
66. *E. setosa* Koenike ST, JØ 1964.
67. *E. spinipons* Thor ST.
68. *E. tenuipons* Thor ST.
69. *E. undulosa thienemanni* (Koenike) JØ 1964.

70. *Feltria composita* Thor ST.  
71. *Forelia liliacea* (Müller) ST (*Acercus*), OAS 1965.  
72. *Frontipoda musculus* (Müller) ST.  
73. *Gnaphiscus setosus* Koenike ST.  
74. *Hjartdalia runcinata* Thor ST 1901a.  
75. *Huitfeldtia rectipes* Thor ST, OAS 1967.  
76. *Hydrachna binominata* Thor ST.  
77. *H. biscutata* Thor ST.  
78. *H. cruenta* (Müller) JØ 1964.  
79. *H. geographica* (Müller) ST.  
80. *H. globosa* (De Geer) ST.  
81. *H. koenikei* Thor ST.  
82. *H. uniscutata* Thor ST.  
83. *Hydrochoreutes acutus* Thor ST.  
84. *H. incertus* Piersig ST.  
85. *H. ungulatus* Koch ST, OAS 1965.  
86. *Hydrophantes octoporus* Koenike ST.  
87. *Hydrophantes clypeatus* Thor ST.  
88. *H. dispar* (von Schaub) ST.  
89. *H. draco* Thor ST.  
90. *H. ruber* (De Geer) ST, OAS 1965.  
91. *Hygrobates albinus* Thor ST 1927b.  
92. *H. calliger* Piersig ST 1927b.  
93. *H. fluviatilis* (Strøm) HS 1768, ST 1928a.  
94. *H. longipalpis* (Hermann) ST 1927b, JØ 1964, OAS 1965.  
95. *H. longiporus* Thor ST 1927b.  
96. *H. nigromaculatus* (Lebert) ST 1927b.  
97. *H. processifer* Thor ST 1905d, ST 1923.  
98. *H. reticulatus* Kramer ST.  
99. *H. squamifer* Thor ST 1927b.  
100. *H. trigonicus* Koenike ST 1927b.  
101. *H. walteri* Thor ST 1923.  
102. *Kongsbergia materna* Thor ST.  
103. *Lebertia angulata* Thor ST 1907d.  
104. *L. brevipora* Thor ST 1900e, 1906b.  
105. *L. contracta* Thor ST 1906b.  
106. *L. expansa* Thor ST 1923.  
107. *L. fimbriata* Thor ST 1900e, 1905a.  
108. *L. glabra* Thor ST 1900e, 1907a.  
109. *L. insignis* Neuman ST 1900e, 1906a.  
110. *L. obscura* Thor ST 1906a.  
111. *L. oudemansi* Koenike ST.  
112. *L. porosa* Thor ST 1906a.  
113. *L. prolongata* Thor ST 1923.  
114. *L. stigmatifera* Thor ST 1907d.  
115. *L. theodora* Thor ST 1907d.  
116. *Lebertia vietsi* Thor ST 1923.  
117. *L. vigintimaculata* Thor ST.  
118. *Limnesia connata* Koenike ST.  
119. *L. histrionica* Hermann ST, JØ 1964 (*L. fulgida* C. L. Koch)  
120. *L. koenikei* Piersig ST.  
121. *L. lorea* Thor ST.  
122. *L. maculata* (Müller) ST, JØ 1964, OAS 1965.  
123. *L. undulata* (Müller) ST.  
124. *Limnochaeres aquatica* (L.) ST (*L. holosericea* Latreille) JØ 1964, OAS 1965.  
125. *Ljania bipapillata* Thor ST.  
126. *Megapus nodipalpis* Thor ST.  
127. *M. spinipes* (C. L. Koch) ST.  
128. *M. tener* Thor ST.  
129. *Mesobates forcipates* Thor ST 1901 a.  
130. *Midea elliptica* Müller ST.  
131. *M. orbiculata* (Müller) JØ 1964.  
132. *Mideopsis orbicularis* (Müller) ST.  
133. *Neumania deltoides* (Piersig) ST (*N. mirabilis* (Neuman)), OAS 1965.  
134. *N. setosa* Thor, 1901 ST.  
135. *N. spinipes* (Müller) ST.  
136. *N. vernalis* (Müller) ST, OAS 1965.  
137. *Oxus koenikei* Thor ST.  
138. *O. ovalis* (Müller) ST.  
139. *O. plantaris* Thor ST.  
140. *Paninus michaeli* Koenike ST.  
141. *P. thoracatus* (Piersig) ST.  
142. *Piona bipora* Thor ST 1923.  
143. *P. bullata* Thor ST.  
144. *P. conglobata* (C. L. Koch) ST (*Curvipes*), JØ 1964, OAS 1965.  
145. *P. latipes* Müller ST.  
146. *P. longipalpis* (Krendowsky) ST (*Curvipes brunzella* Thor), JØ 1964, OAS 1965.  
147. *P. nodata* (Müller) ST (*Curvipes fuscatus* Herman), OAS 1965.  
148. *P. ornata* (C. L. Koch) ST, JØ 1964 (*Acercus*).  
149. *P. scaura* Koenike ST.  
150. *P. variabilis* (C. L. Koch) ST (*Curvipes rufus* C. L. Koch), OAS 1965.  
151. *Pionacercus leuckarti* Piersig ST.  
152. *P. norvegicus* Thor ST.  
153. *P. scutatus* Thor ST.  
154. *P. sinuosus* Thor ST.  
155. *P. uncinatus* Koenike ST.  
156. *Pionides ensifer* Koenike ST.  
157. *Pionopsis lutescens* Hermann ST, OAS 1965.  
158. *Pseudothyas trabecula* Thor ST.  
159. *Pseudoxus integer* Thor ST.  
160. *Rivobates norvegicus* Thor ST.  
161. *Sperchon brevis* Koenike ST.  
162. *S. elegans* Thor ST.  
163. *S. glandulosus* Koenike ST.  
164. *S. lineatus* Thor ST.  
165. *S. multiplicatus* Thor ST.  
166. *S. norvegicus* Thor ST 1923.  
167. *S. papillosus* Thor ST 1901a.  
168. *S. setiger* Thor ST.  
169. *S. squamosus* Kramer ST.  
170. *S. tenuabilis* Koenike ST.

171. *S. thori* Koenike ST.
172. *Sperchonopsis verrucosa* (Protz) ST.
173. *Teutonia cometes* (Koch) JØ 1964.
174. *T. primaria* Koenike, ST.
175. *T. subalpina* Thor ST.
176. *Thyas barbiger* Viets JØ 1964.
177. *T. dentata* Thor ST.
178. *T. pachystoma* Koenike JØ 1964.
179. *T. pustulosa* Thor ST.
180. *T. stollii* Koenike, ST.
181. *Thyas valvata* Thor ST.
182. *Unionicola intermedia* (Koenike) JØ 1964.
183. *Zschokkiae oblonga* Koenike ST.

### SARCOPTIFORMES (excl. Oribatei)

1. *Acarus siro* L. WMS 1894-1913, THS 1914-1941, RM 1978.
2. *Alloptes bisetatus* (Haller) RM.
3. *Apodemopus apodemi* (Fain) RM.
4. *Brephosceles formosus* Cerny RM.
5. *Bucholzia fusca* Nitzsch RM.
6. *Buchovskia charadrii* (Canestrini) RM.
7. *B. squatarolae* (Canestrini) RM.
8. *Caparinia tripilis* (Michael) RM 1972b.
9. *Carpoglyphus lactis* (L.) THS 1917 (*C. pas-sularum*), RM 1978.
10. *Chirodiscoides caviae* Hirst RM.
11. *Choriopetes bovis* (Hering) OH 1972, NVH 1975.
12. *Criniscansor apodemi* Fain, Munting & Lukoschus RM.
13. *Dermacarus caucasicus* Fain RM.
14. *D. hypudei septentrionalis* Fain AF 1969.
15. *D. norvegicus* Fain, Philips & Wilson AF et al. 1979.
16. *Dermatophagoides chelidonis* (Hull) RM.
17. *D. farinae* Hughes RM 1973.
18. *D. pteronyssinus* (Trouessart) RM 1973.
19. *D. microceras* Griffiths & Cunnington RM.
20. *Euroglyphus maynei* (Cooreman) RM.
21. *E. longior* (Trouessart) RM.
22. *Glicricoptes betulina* Kok, Lukoschus & Fain RM.
23. *Glycyphagus destructor* (Schrank) THS 1915, 1916, 1922 (*G. spinipes*) RM 1978.
24. *G. domesticus* (De Geer) WMS 1904-12, THS 1915-30, RM 1978.
25. *Gohieria fusca* (Oudemans) RM.
26. *Harpyrrhyncus rubeculinus* Cerny & Sixl RM.
27. *Histiophorus capit* Dubinina RM.
28. *H. fedjushini* Dubinina RM.
29. *H. latus* Dubinina RM.

30. *Hypodectes propus* (Nitzsch) RM.
31. *Knemidocoptes laevis gallinae* (Railliet) THS 1929.
32. *K. mutans* (Robin & Lanquetin) OH 1972.
33. *Kuzinia laevis* (Dujardin) RM.
34. *Labidophorus sciurinus* (C. L. Koch) RM 1971.
35. *Leporacarus brevicaudatus* (Ullrich) RM.
36. *L. gibbus* (Pagenstecher) RM.
37. *Listrophorus americanus* Radford RM.
38. *L. dozieri* Radford RM.
39. *L. leuckarti* Pagenstecher RM.
40. *L. mustelae* Megnin RM.
41. *L. pagenstecheri* Haller RM 1971.
42. *L. synaptomys* Fain, Whitaker, McDaniel & Lukoschus AF et al. 1974.
43. *Melesodectes auricularis* Fain & Lukoschus RM 1972.
44. *Myocoptes j. japonensis* Radford RM.
45. *M. musculus* (C. L. Koch) RM.
46. *Monojoubertia hemiphylla* (Robin) RM.
47. *M. microphylla* (Robin) RM.
48. *Neottialges evansi* Fain RM.
49. *N. vitzthumi* Fain, RM.
50. *Notoedres cati* (Hering) NVH.
51. *N. muris* Megnin RM.
52. *Orycteroxenus soricis* (Oudemans) RM.
53. *Otodectes cynotis* (Hering) RM 1972.
54. *Picidectes* RM.
55. *Pomeranzevia numenii* (Canestrini) RM.
56. *Proctophyllodes picae* C. L. Koch, RM.
57. *Psorergates* RM.
58. *Psoroptes cuniculi* (Delafond) RM.
59. *P. equi* (Hering) NVH 1975.
60. *P. ovis* (Hering) GN 1950.
61. *Rhizoglyphus echinopus* (Fumouze & Robin) THS 1926.
62. *Sarcoptes scabiei* (L.) ES 1876, RM 1978.
63. *Sokoloviana rehbergi* (Canestrini & Berlese) RM.
64. *Sulanyssus caput-medusae* (Trouessart) RM.
65. *Trichoecius apodemi* Fain, Munting & Lukoschus RM.
66. *T. tenax* (Michael) RM.
67. *Tyrophagus longior* (Gervais) WMS 1907, 1911, THS 1916-26, RM.
68. *T. putrescentiae* (Schrank) RM.
69. *Thecarthra setigera maritimae* W. Dubinin RM.
70. *Xenocastor fedjushini* Zachvatkin RM.
71. *Xenoryctes krameri* (Michael) RM.
72. *X. punctatus* Fain RM.
73. *Zachvatkinia stercorarii* W. Dubinin RM.
74. *Zachvatkiniana lutrae* Volgin RM.



## ORIBATEI

1. *Achipteria coleoprata* (L.) ES 1910 (*Oribates ovalis*), CW 1929, ST 1937, AL 1966, DAC 1969, EX 1971.
2. *A. italicus* Oudemans (= *A. willmanni* van der Hammen) ST 1937, AL 1966, DAC 1969, TS + DOØ 1979 (*Para chipteria*).
3. *A. magna* (Sellnick) EK 1971.
4. *A. punctata* (Nicolet) ST 1937, DAC 1969, EK 1971, TS 1976a (*Parachipteria*).
5. *A. sellniki* van der Hammen ST 1937 (*A. nitens* (Nicolet)).
6. *Acrogalumna longiplumus* (Berlese) AL 1966.
7. *Adoristes ovatus* (C. L. Koch) CW 1929, ST 1937, DAC 1969.
8. *A. poppei* (Oudemans) EK 1971 (in ST 1937 as part of *A. ovatus* sensu EK), TS + DOØ 1979.
9. *Ameronothrus bilineatus* (Michael) SSS 1975.
10. *A. lineatus* (Thorell) ES 1910, SSS 1975.
11. *A. maculatus* (Michael) SSS 1975, TS + DOØ 1979.
12. *A. marinus* (Banks) SSS 1975.
13. *A. nigrofemoratus* (L. Koch) SSS 1975.
14. *Astegistes pilosus* (C. L. Koch) ES 1910 (*Liacarus bicornis*).
15. *Autogneta parva* Forsslund EK 1971.
16. *A. traegaardhi* Forsslund. *A. longilamellata* (Michael) in ST 1937 is probably *A. traegaardhi* sensu EK 1971.
17. *Belba compta* (Kulczynski) ST 1937 (*Damaeus*), DAC 1969, EK 1971.
18. *B. corynopus* Hermann ST 1937 (*Notaspis*).
19. *B. crispata* (Kulczynski) ST 1937.
20. *B. montana* (Kulczynski) ST 1937 (*Damaeus*).
21. *Brachychochthonius immaculatus* Forsslund DAC 1969 (*B. semiornatus* G. O. Evans), MM 1976b.
22. *B. zelawaiensis* Sellnick DAC 1969, TS + DOØ 1979.
23. *Caleremaeus monilipes* (Michael) ST 1937, DAC 1969, EK 1971.
24. *Calyptozetes sarekensis* (Trägårdh) ST 1937, PD 1960, AL 1966, DAC 1969, EK 1971, TS 1975.
25. *Camisia biurus* (C. L. Koch) ST 1937 (*C. segnis*), AL 1966, DAC 1969 (*C. segnis*), EK 1971, TS 1975, TS 1976a, TS + DOØ 1979.
26. *C. biverrucata* (C. L. Koch) ST 1937 (*Nothrus*).
27. *C. borealis* (Thorell) EK 1971.
28. *C. foveolata* Hammer TS 1976b.
29. *C. horrida* (Hermann) ES 1910 and ST 1937 (*Nothrus*), TS 1975.
30. *C. invenusta* (Michael) AL 1966, TS + DOØ 1979.
31. *C. lapponica* (Trägårdh) ST 1937, DAC 1969, EK 1971, TS 1975, 1976.
32. *C. spinifer* (C. L. Koch) ST 1937, DAC 1969, EK 1971, TS + DOØ 1979.
33. *Carabodes affinis* Berlese ST 1937.
34. *C. areolatus* Berlese ST 1937, EK 1971.
35. *C. coriaceus* C. L. Koch ST 1937.
36. *C. femoralis* (Nicolet) ST 1937, EK 1971, SH 1978.
37. *C. forsslundi* Sellnick EK 1971, SH 1978.
38. *C. labyrinthicus* (Michael) CW 1929, ST 1937, EK 1971, TS 1975.
39. *C. marginatus* (Michael) ST 1937, DAC 1969, EK 1971, TS et al. 1975, TS 1976, SH 1978, TS + DOØ 1979.
40. *C. minusculus* Berlese ST 1937, EK 1971, TS et al. 1975, TS 1976a, TS + DOØ 1979.
41. *C. supalpinus* Thor ST 1937.
42. *C. subarcticus* Trägårdh EK 1971, SH 1978.
43. *Cepheus cepheiformis* (Nicolet) ST 1937.
44. *C. dentatus* (Michael) ST 1937, AL 1966.
45. *C. latus* C. L. Koch ST 1937.
46. *Ceratoppia bipilis* (Hermann) ES 1910 (*Notaspis*) ST 1937, EK 1971, TS 1976, TS + DOØ 1979.
47. *C. sphaerica* C. L. Koch DAC 1969.
48. *Ceratozetes cisalpinus* Berlese ST 1937, EK 1971.
49. *C. gracilis* (Michael) ST 1937, EK 1971, TS + DOØ 1979.
50. *C. mediocris* Berlese ST 1937.
51. *C. parvulus* Sellnick ST 1937 (*Allozetes*).
52. *C. thienemanni* (Willmann) DAC 1969, EK 1971.
53. *Chamobates cuspidatiformes* (Trägårdh) AL 1966, TS 1976a, TS + DOØ 1979.
54. *C. cuspidatus* (Michael) ST 1973, TS 1976a, TS + DOØ 1979.
55. *Chamobates lapodarius* (Lucas) AB 1923, ST 1937.
56. *C. schuetzii* (Oudemans) ST 1937, AL 1966, and 1969 (*C. borealis* (Trägårdh)), EK 1971, TS 1975.
57. *Cultroribula juncata* (Michael) ST 1937.
58. *Cymbaeremaeus cymba* (Nicolet) ES 1910, ST 1937.
59. *Damaeus clavipes* (Hermann) ES 1910, ST 1937 (*Notaspis*), AL 1966, TS 1976a (*Paradamaeus*).

60. *D. gracilipes* (Kulczynski) ST 1937 (*Belba*), AL 1966, EK 1971.
61. *D. onustus* (C. L. Koch) ES 1910 (*D. geniculata* C. L. Koch), ST 1937 (*Belba geniculosa* (Oudemans)).
62. *D. tecticola* Michael, DAC 1969.
63. *D. verticillipes* (Nicolet) ST 1937 (*Belba*).
64. *Dameobelba minutissima* (Sellnick) TS + DOØ 1979.
65. *Edwardzetes edwarsi* (Nicolet) ST 1937, AL 1966, DAC 1969, EK 1971, TS 1975, 1976a.
66. *Eniochthonius minuttisimus* (Berlese) ST 1937 (*Hypochthoniella pallidula* (C. L. Koch)).
67. *Eobrachychthonius borealis* Forsslund EK 1971.
68. *E. oudemansi* van der Hammen TS 1975.
69. *Epidamaeus tatricus* (Kulczynski) TS 1975.
70. *Eremaeus oblongus* C. L. Koch ST 1937.
71. *E. silvestris* Forsslund EK 1971.
72. *Eulohamannia ribagai* (Berlese) ST 1937, DAC 1969, EK 1971, TS + DOØ 1979.
73. *Eupelops acromius* (Hermann) ES 1910 and DAC 1969 (*Pelops*).
74. *E. auritus* (C. L. Koch) ST 1937, EK 1971.
75. *E. duplex* (Berlese) ST 1937 (*Pelops*), EK 1971.
76. *E. geminus* Berlese ST 1937 (*Pelops*), AL 1966.
77. *E. occultus* (C. L. Koch) ST 1937, (*Pelops*), EK 1971.
78. *E. planicornis* (Schrank) ST 1937 and DAC 1969 (*Pelops*), EK 1971.
79. *E. plicatus* (C. L. Koch) ST 1937, AL 1966, EK 1971, TS 1975.
80. *E. septentrionalis* (Trägårdh) PD 1960 (*Pelops*).
81. *E. subulatus* (Berlese) AB 1916 (*Pelops*).
82. *E. tardus* C. L. Koch ST 1937 (*Pelops*).
83. *E. ureaceus* (C. L. Koch) ST 1937 (*Pelops*), EK 1971.
84. *Euphthiracarus cribrarius* (Berlese) AB 1904b.
85. *E. monodactylus* (Willmann) ST 1937, EK 1971.
86. *Euzetes seminulum* (O. F. Müller) ES 1910 (*Oribata globula* Nicolet), ST 1937, EK 1971.
87. *Furcoribula furcillata* (Nordenskiöld) ST 1937 (*Cultroribula*).
88. *Fuscozetes fuscipes* (C. L. Koch) ES 1910 (*Oribata*), ST 1937, CW 1929, DAC 1969, TS 1975, TS + DOØ 1979.
89. *F. setosus* (C. L. Koch) ES 1910 (*Oribata*).
90. *Galumna alata* (Hermann) ES 1910 (*Oribata*), ST 1937.
91. *G. dorsalis* (C. L. Koch) ST 1937, EK 1971.
92. *G. elimata* (C. L. Koch) ST 1937.
93. *G. europaea* (Berlese) AB 1914 (*Oribates*), ST 1937.
94. *G. flagellata* Willmann ST 1937.
95. *G. lanceata* (Oudemans) ST 1937.
96. *G. nervosa* (Berlese) AB 1914 (*Oribates*), ST 1937.
97. *G. obvius* (Berlese) AB 1914 (*Oribates obvius norvegicus*), ST 1937.
98. *Gustavia fusifer* (C. L. Koch) ES 1910 (*Serrarius microcephala* Nicolet), ST 1937 (*G. microcephala*).
99. *Gymnodamaeus bicostatus* (C. L. Koch) ES 1910 (*Damaeus*), ST 1937.
100. *Hafenrefferia gilvipes* (C. L. Koch) ST 1937.
101. *Hemileius initialis* (Berlese) AB 1908 (*Protoribates*), ST 1937, AL 1966, TS et al. 1975, TS 1976a, TS + DOØ 1979. *Schelorbates confundatus* Sellnick in CW 1929, ST 1937 and PD 1960 is a synonym.
102. *Heminothrus poalianus* Berlese ST 1937, DAC 1969, PD 1970, EK 1971, TS 1975 (*Paulonothrus longisetosus* (Willmann)).
103. *H. targionii* (Berlese) ES 1910 (*Nothrus*), ST 1937, EK 1971.
104. *Hermannia gibba* C. L. Koch ST 1937.
105. *H. reticulata* Thorell CW 1929, ST 1937, DAC 1969, TS + DOØ 1979.
106. *H. scabra* (C. L. Koch) ES 1910, ST 1937, PD 1960, EK 1971.
107. *H. subglabra* Berlese ST 1937, AL 1966.
108. *Hermannella granulata* (Nicolet) ST 1937.
109. *Hydrozetes confervae* (Schrank) AO 1927, CW 1929, ST 1937.
110. *H. lacustris* (Michael). AO 1932, ST 1937.
111. *H. rufulus* C. L. Koch. ES 1910, CW 1929, ST 1937, AL 1966, DAC 1969, EK 1971, TS 1976, TS + DOØ 1979.
112. *Liacarus coracinus* (C. L. Kopch) ST 1937, DAC 1969.
113. *L. keretinus* Nordenskiöld PD 1960 (*L. holmi*), AL 1966, EK 1971.
114. *L. nitens* (Gervais) ST 1937.
115. *L. subterraneus* ST 1937 (*L. tremellae* (L.)).
116. *L. xylariae* (Schrank) ST 1937.
117. *Licneremaeus licnophorus* (Michael) ST 1937.
118. *Liebstadia similis* (Michael) ES 1910, ST 1937, AL 1966, DAC 1969, EK 1971, TS 1975.
119. *Limnozetes ciliatus* (Schrank) AO 1927,

- 1932, CW 1929, (*L. sphagni* Michael), ST 1937, EK 1971, TS + DOØ 1979.
120. *Liochthonius brevis* (Michael) ST 1937 (*Hypochthonius*). *Brachychthonius perpusillus* (Berlese) in DAC 1969 and *L. perpusillus* Berlese in EK 1971 are synonyms sensu Moritz (1976a).
121. *L. hystricinus* (Forsslund) TS 1976.
122. *L. lapponicus* (Trägårdh) AL 1966, TS 1975.
123. *L. neglectus* Moritz MM 1976a.
124. *L. sellnicki* Thor ST 1937 (*Brachychthonius*), MM 1976a.
125. *Liodes theleproctus* (Herman) ST 1937 (*Neoliodes*).
126. *Malaconothrus egregius* (Berlese) EK 1971, TS 1975.
127. *M. globiger* Trägårdh ST 1937.
128. *M. monodactylus* (Michael) CW 1929.
129. *Melanozetes meridianus* (Sellnick) EK 1971, TS + DOØ 1979.
130. *M. mollicomus* (C. L. Koch) ST 1937, DAC 1969, EK 1971, TS 1975, 1976.
131. *M. stagnatilis* Hull CW 1929.
132. *Mesotritia testacea* Forsslund EK 1971.
133. *Metabelba pulverulenta* (C. L. Koch) ST 1937 (*Damaeus*), EK 1971.
134. *Microtritia minima* (Berlese) EK 1971.
135. *Minunthozetes semirufus* (C. L. Koch) CW 1929, EK 1971.
136. *Mucronothrus nasalis* (Willmann) CW 1929, TS 1975.
137. *Mycobates parmeliae* (Michael) ST 1973, EK 1971.
138. *M. tridactylus* (Willmann) EK 1971.
139. *Nanhermannia comitalis* Berlese EK 1971.
140. *N. coronata* Berlese ST 1937, TS 1976, TS + DOØ 1979.
141. *N. nana* (Nicolet) CW 1929, DAC 1969, EK 1971, TS + DOØ 1979.
142. *N. sellnicki* Forsslund EK 1971.
143. *Neonothrus humicola* Forsslund EK 1971.
144. *Neoribates aurantiacus* (Oudemans) ST 1937, DAC 1969, EK 1971.
145. *Nothrus anaaniensis* Canestrini & Fanzago TS + DOØ 1979.
146. *N. biciliatus* (C. L. Koch) ST 1937 (*Gymno-nothrus*), EK 1971.
147. *N. borussicus* Sellnick ST 1937 (*Gymnonot-hrus*) AL 1966, DAC 1969, EK 1971, TS 1975.
148. *N. palustris* C. L. Koch ST 1937 (*Gymno-nothrus*) DAC 1969, EK 1971, TS + DOØ 1979.
149. *N. pratensis* Sellnick CW 1929, ST 1937 (*Gymnonothrus*), EK 1971, TS + DOØ 1979.
150. *N. silvestris* Nicolet ST 1937, (*Gymnonot-hrus*), EK 1971, SH 1978, TS + DOØ 1979.
151. *Odontocephus elongatus* (Michael) ST 1937, TS + DOØ 1979.
152. *Ophidiotrichus borussicus* (Sellnick) EK 1971 (= *Joelia connexa* Berlese), TS + DOØ 1979.
153. *Oppia bicarinata* (Paoli) TS 1975.
154. *O. fallax* Paoli ST 1937.
155. *O. maritima* (Willmann) AK 1971.
156. *O. minus* (Paoli) EK 1971.
157. *O. nova* (Oudemans) ST 1937, DAC 1969, EK 1971, TS 1975, SH 1978, TS + DOØ 1979. Under the name *O. neerlandica* (Oudemans) in ST 1937 and DAC 1969.
158. *O. ornata* (Oudemans) CW 1929, ST 1937, PD 1960, DAC 1969, TS 1975, TS + DOØ 1979.
159. *O. splendens* (C. L. Koch) EK 1971.
160. *O. subpectinata* (Oudemans) ST 1937, DAC 1969, EK 1971, TS 1975, TS + DOØ 1979.
161. *O. translamellata* (Willmann) AL 1966, DAC 1969, EK 1971, TS 1975, 1976, TS + DOØ 1979.
162. *O. unicarinata* (Paoli) PD 1960.
163. *Oribatella berlesei* (Michael) ST 1937.
164. *O. calcarata* (C. L. Koch) ES 1910 (*Oribata quadricornuta*), ST 1937.
165. *Oribatula crassipes* (L. Koch) ST 1937, AL 1966.
166. *O. rotundata* Thor ST 1937.
167. *O. tibialis* (Nicolet) ES 1910 (*Notaspis*), ST 1937, PD 1960, AL 1966, DAC 1969, EK 1971, TS 1975, 1976, TS + DOØ 1979. (= *O. venusta* Berlese in AB 1908 and ST 1937, sensu DAC 1969.
168. *Oribella castanea* (Hermann) CW 1929, DAC 1969, EK 1971.
169. *O. paolii* (Oudemans) EK 1971, TS + DOØ 1979.
170. *O. pectinata* (Michael) ST 1937.
171. *Oribota nuda* (Berlese) ST 1937 (*Oribotritia*).
172. *Oribotritia decomana* (C. L. Koch) ST 1937.
173. *O. loricata* (Rathke) ST 1937, DAC 1969.
174. *Oromurcia bicuspidata* (Thor) ST 1937, AL 1966, DAC 1969, TS 1975.
175. *Peloptulus phaenotus* (C. L. Koch) ST 1937, EK 1971.
176. *Phauloppia asperula* (Berlese) TS + DOØ 1979.
177. *P. lucorum* (L. Koch) ES 1910 (*Notaspis*), ST 1937 (= *P. conformis* (Berlese) and *Oribata geniculata* (L.)).
178. *Phthiracuras affinis* (Hull) TS + DOØ 1979.
179. *P. anonynum* Grandjean TS + DOØ 1979.

180. *P. borealis* (Trägårdh) ST 1937, DAC 1969, EK 1971.
181. *P. clavatus* Parry TS + DOØ 1979.
182. *P. globosus* (C. L. Koch) EK 1971, TS + DOØ 1979.
183. *P. italicus* (Oudemans) ES 1910 (*Hoplo-derma dasypus*), EK 1971.
184. *P. laevigatus* (C. L. Koch) ST 1937 (*Hoplo-derma*).
185. *P. ligneus* Willmann EK 1971.
186. *P. pavidus* (Berlese) ST 1937, EK 1971.
187. *P. piger* (Scopoli) ST 1937, DAC 1969, EK 1971, TS 1975.
188. *P. rectisetosus* Parry TS + DOØ 1979.
189. *P. subglobosus* Berlese AB 1923.
190. *P. tardus* Forsslund EK 1971.
191. *Platynothrus capillatus* (Berlese) EK 1971, TS 1976 (= *Ovonothrus septentrionalis* (Sellnick)).
192. *P. peltifer* (C. L. Koch) CW 1929, ST 1937, PD 1960, AL 1966, DAC 1969, EK 1971, TS 1975, TS 1976, TS + DOØ 1979.
193. *P. punctatus* (C. L. Koch) ST 1937, AL 1966, EK 1971, TS 1975.
194. *P. thori* (Berlese) AB 1904a (*Angelia*), ST 1937 (*Heminothrus*), AL 1966, DAC 1969, EK 1971.
195. *Porobelba spinosa* (Sellnick) ST 1937 (*Damaeus*), TS 1975.
196. *Pseudotritia monodactyla* Willmann ST 1937.
197. *Punctoribates punctum* (L. Koch), ST 1937.
198. *Quadroppia quadricarinata* (Michael) ST 1937 (*Oppia*), DAC 1969 (*Oppia*) EK 1971, TS 1976, TS + DOØ 1979.
199. *Rhysotritia ardua* (C. L. Koch) ES 1910 (*Phthiracarus*), ST 1937, EK 1971.
200. *R. duplicata* Grandjean TS + DOØ 1979.
201. *Scapheremaeus palustris* (Sellnick) ST 1937.
202. *S. frigidus* (Berlese) AB 1908.
203. *S. laevigatus* (C. L. Koch) ST 1937, AL 1966, EK 1971.
204. *S. latipes* (C. L. Koch) ST 1937, EK 1971.
205. *S. pallidulus* (C. L. Koch) PD 1960, DAC 1969, EK 1971.
206. *Scutovertex bidactylus* Coggi DAC 1969.
207. *S. minutus* (C. L. Koch) ST 1937, EK 1971.
208. *Sphaerozetes orbicularis* (C. L. Koch) ST 1937.
209. *S. piriformis* (Nicolet) ST 1937, TS 1976, TS + DOØ 1979.
210. *Steganacarus applicatus* (Sellnick) ST 1937 (*Hoplo-derma*), EK 1971.
211. *S. magnus* (Nicolet) ST 1937 (*Hoplo-derma*).
212. *S. spinosus* (Sellnick) ST 1937 (*Hoplo-derma*).
213. *S. striculus* (C. L. Koch) CW 1929, ST 1937 (*Hoplo-derma*), AL 1966, DAC 1969 (*Hoplo-derma*), EK 1971, TS 1976, TS + DOØ 1979.
214. *Suctobelba acutidens* Forsslund TS + DOØ 1979.
215. *S. intermedia* Willmann EK 1971.
216. *S. longirostris* Forsslund DAC 1969, EK 1971.
217. *S. perforata* (Strenzke) DAC 1969, TS + DOØ 1979.
218. *S. sarekensis* Forsslund EK 1971, TS + DOØ 1979.
218. *S. similis* (Forsslund) TS 1976, TS + DOØ 1979.
220. *S. subcornigera* Forsslund EK 1971, TS 1976, TS + DOØ 1979.
221. *S. trigona* Michael ST 1937.
222. *Synchthonius crenulatus* (Jacot) DAC 1969 (*S. boschmai* van der Hammen sensu Moritz 1976 b).
223. *Tectocephus cuspidentatus* Knülle TS + DOØ 1979.
224. *T. sarekensis* Trägårdh PD 1960, EK 1971.
225. *T. velatus* (Michael) CW 1929, ST 1937, AL 1966, DAC 1966, EK 1971, TS 1975, TS 1976, SH 1978, TS + DOØ 1979.
226. *Tegoribates latirostris* (C. L. Koch) PD 1960, EK 1971.
227. *Thyrisoma lanceolatum* (Michael) PD 1960 (*Oribella*), TS + DOØ 1979 (*Banksinoma*).
228. *Trhypochthonius cladonicola* (Willmann) ST 1937.
229. *T. tectorum* (Berlese) EK 1971.
230. *Trichoribates incisellus* (Kramer) EK 1971.
231. *T. monticola* (Trägårdh) AL 1966.
232. *T. numerosus* (Sellnick) EK 1971.
233. *T. oblongus* (L. Koch) ST 1937 (*Murcia*).
234. *T. setiger* (Trägårdh) TS 1975.
235. *T. tectopedacutus* (Thor) ST 1937 (*Murcia*).
236. *T. trimaculatus* (C. L. Koch) ST 1937 (*Murcia*), AL 1966, EK 1971, TS + DOØ 1979.
237. *Trimalaconothrus glaber* (Michael) ST 1937.
238. *T. indusiatus* Berlese, ST 1937.
239. *T. novus* Sellnick CW 1929, ST 1937, EK 1971.
240. *Tritegeus bifidatus* (Nicolet) ST 1937, TS + DOØ 1979 (*T. bisulcatus* Grandjean).
241. *Tropacarus carinatus* (C. L. Koch) ST 1937, EK 1971.
242. *Xenillus tegeocranus* (Hermann) ES 1910 (*Cepheus*), ST 1937, EK 1971, TS + DOØ 1979.
243. *Zetorchestes micronychus* (Berlese) ST 1937.

244. *Zygoribatula exilis* (Nicolet) CW 1929 (*Oribatula*), ST 1937, TS + DOØ 1979.

## LITERATURE

- Austad, R. 1968. *Cheyletiella parasitivorax*. En dyremidd som årsak til kløende utslett hos menneske. *Tidsskr. norsk Lægeforen.* 88, 26-30.
- Berlese, A. 1904a. Acari nuovi. *Redia* 1 (2), 258-280.
- 1904 b. Acari nuovi. *Redia* 2 (1), 10-32.
- 1906. Monografia del genere «Gamasus» Latr. *Redia* 3 (1), 66-304.
- 1908. Elenco di generi e specie nuove di Acari. *Redia* 5 (1), 1-15.
- 1910. Brevi diagnosi di generi e specie di Acari. *Redia* 6 (2), 346-388.
- 1914. Acari nuovi. *Redia* 10 (1), 115-150.
- 1916. Centuria prima di Acari nuovi. *Redia* 12 (1), 19-67.
- 1920. Centuria quinta di Acari nuovi. *Redia* 14, 143-195.
- 1923. Centuria sesta di Acari nuovi. *Redia* 15, 237-262.
- Cadwalladr, D. A. 1969. On the soil inhabiting Collembola (Insecta) and Oribatei (Acarina) of the Olderdjord Region of North Norway. *Astarte* 2, 7-25.
- Dalenius, P. 1960. Studies on the Oribatei (Acari) of the Torneträsk Territory in Swedish Lapland I. A list of the habitats, and the composition of their Oribatid fauna. *Oikos* 11 (1), 80-124.
- Edler, A. & Mehl, R. 1972. Mites (Acari, Gamasina) from small mammals in Norway. *Norsk ent. Tidsskr.* 19, 133-147.
- Fain, A. 1969. Les deutonymphes hypopiales vivant en association phoretique sur les mammifères (Acarina: Sarcoptiformes). *Bull. Inst. r. Sci. nat. Belg.* 45 (33), A-262.
- Fain, A., Philips, J. R. & Wilson, N. 1979. Two new species of the genus *Dermacarus* Haller, 1880 (Acari: Glycyphagidae). *Intl. J. Acar* 5, 73-76.
- Fain, A., Whitaker, J. A., McDaniel, B. J. & Lukoschus, F. 1974. *Listrophorus synaptomys* a new species from *Synaptomys* and *Lemmus* (Acarina: Listrophoridae). *Acarologia* 16 (2), 319-324.
- Fjeldalen, J. 1952. Midder på frukttrær og bærvæxter. *Frukt og bær*, 1952, 56-72.
- 1953. Skuddtoppmidd, *Hemitarsonemus latus* (Banks) Ewing. Et ødeleggende skadedyr på grønne planter. *Gartneryrket* 1953 nr. 30, 527-530.
- 1960. Tomat og krysanthemum — nye vertsplanter for skuddtoppmidd, (*Hemitarsonemus latus* (Banks) Ewing). *Gartneryrket* 1960 nr. 8-9, 120-123.
- 1962. Bladmidd på bærvæxter og frukttrær. *Frukt og Bær* 15, 42-56.
- Hågvar, S. 1978. Eksperimentelle forsøringsforsøk i skog. 6. Virkning av syrebehandling og kalking på to vanlige grupper av jordbunnsdyr: Collemboler og midd. *SNSF-prosjektet. Oslo-Ås. Intern rapport* 36/78, 1-29.
- Hallas, T. E. 1978. Fortegnelse over danske mider (Acari). *Ent. Meddr.* 46, 27-45.
- Hammer C. 1775. *Forsøg til en norsk natur-historie. I. Deel.* Kiøbenhavn.
- Karppinen, E. 1971. Studies on the Oribatei (Acari) of Norway. *Ann. Ent. Fenn.* 37, 30-53.
- Komiteé nedsatt av Landbruksdepartementets råd for veterinærmedisin, plantevernmidler og føremidler m.m. 1975. *Utøymidler til husdyr.* Komiteinnstilling. Oslo. 56 s.
- Leatherdale, D. 1959. The plant galls of Norway. *Univ. Bergen. Årb. 1959. Naturvid. Rekke nr. 8*, 1-56.
- Løken, A. 1966. Insekter og arachnoider samlet under det 13. Nordiske Entomologmøtets ekskursjon til Flåm (SFi: Aurland) 13.-16. august 1965. *Norsk ent. Tidsskr.* 13, 317-386.
- Mehl, R. 1968. Lopper og lundelus på sjøfugl på Røst 1968. *Fauna* 21, 197-198.
- 1970. Records of ectoparasitic insects and mites on birds and mammals in Norway. *Norsk ent. Tidsskr.* 17, 109-113.
- 1971. Ektoparasitter på ekorn, *Sciurus vulgaris*, i Norge. *Fauna* 24, 69-83.
- 1972a. Midd av familien Myobiidae på spissmus i Norge. *Fauna* 25, 23-30.
- 1972b. Lopper, flått og midd på piggsvin i Norge. *Fauna* 25, 186-196.
- 1972 c. Ektoparasitter som hjelpemiddel ved artsbestemmelse av fugler og pattedyr. *Fauna* 25, 220.
- 1972d. Ektoparasitter fra rødrev i Norge. *Fauna* 25, 247-257.
- 1972e. Ektoparasitter på grevling i Norge. *Fauna* 25, 265-274.
- 1973. Husstøvallergi og midd. *Astma allerginytt* 3 1973, 23-27.
- 1977. *Haemogamasus pontiger* Berlese (Acari: Mesostigmata) in Norway. *Rhizocrinus* 9, 1-4.
- 1978. Henvendelser angående skadedyr, ektoparasitter og andre plagsomme dyr i 1972 - 1976. *Fauna* 31, 250-267.
- Moritz, M. 1976a. Revision der europäisichen Gattungen und Arten der Familie Brachychthoniidae (Acari, Oribatei) Teil I. Allgemeiner Teil: Brachychthoniidae Thor, 1934. Spezieller Teil: *Liochthonius* v. d. Hammen, 1959, *Verachthonius* nov. gen. und *Paraliochthonius* nov. gen. *Mitt. Zool. Mus. Berlin* 52 (1), 27-136.
- 1976b. Revision der europäisichen Gattungen und Arten der Familie Brachychthoniidae (Acari, Oribatei) Teil 2. *Mixochthonius* Niedbala, 1972, *Neobrachychthonius* nov. gen., *Synchthonius* v. d. Hammen, 1952, *Poecilochthonius* Balogh, 1943, *Brachychthonius* Berlese, 1910, *Brachyochthonius* Jacot, 1938. *Mitt. Zool. Mus. Berlin* 52 (2), 227-319.
- Nærland, G. 1950. *Om snyltarplaga hos småfe. Småskrift nr. 1.* Norsk Sau- og Geitlagslag. 69 s.
- Natvig, L. R. 1943. Entomologien ved Det Kongelige

- Frederiks Universitet. Et bidrag til norsk entomologisk historie. I. *Norsk ent. Tidsskr.* 7 (1/2), 1-73.
- Økland, J. 1964. The eutrophic lake Borrevann (Norway), an ecological study on shore and bottom fauna with special reference to gastropods, including a hydrographic survey. *Folia limnol. scand.* 13, 1-337.
- Oudemans, A. C. 1927. Acarologische Aanteekeningen LXXXVIII. *Ent. Ber.* 7 (158), 257-268.
- 1931. Acarologische Aanteekeningen CX. *Ent. Ber.* 8 (181), 289-296.
- 1932. Acarologische Aanteekeningen CXII. *Ent. Ber.* 8 (183), 350-364.
- Sæther, O. A. 1965. Limnologi. - In: Brun, E., Høeg, O. A. & Sæther, O. A. Østensjøvannet. *Østlandske natvfor. småskr.* 7, 9-72.
- 1967. Notes on the bottom fauna of two small lakes in Northern Norway. *Nytt Mag. Zool.* 14, 96-124.
- Schøyen, T. H. 1914-1918. Statsentomolog T. H. Schøyens beretning. *Aarsberetning fra Landbruksdirektøren.*
- 1919-1930. Statsentomolog T. H. Schøyens beretning. *Tillegg C til Landbruksdirektørens beretning.*
- 1934- og 1941. Statsentomolog T. H. Schøyens melding. *Tillegg C til Landbruksdirektørens årsmelding.*
- Schøyen, W. M. 1880. Lepidopterologiske bidrag til Norges fauna. *Nyt Mag. Naturvid.* 25, 301-309.
- 1891. Indberetning fra landbruksentomologen. *Aarsberetning fra Landbruksdirektøren.*
- 1892-1894. Landbruksentomolog Schøyens beretning. *Aarsberetning fra Landbruksdirektøren.*
- 1895-1913. Statsentomolog Schøyens beretning. *Aarsberetning fra Landbruksdirektøren.*
- Schulte, G. 1975. Holaraktische Artateale der Ameronothridae (Acari, Oribatei). *Veröff. Inst. Meeresforsch.* 15, 339-357.
- Schulte, G., Schuster, R. & Schubart, H. 1975. Zur Verbreitung und Ökologie der Ameronothriden (Acari, Oribatei) in terrestrischen, limnischen und marinen Lebensräumen. *Veröff. Inst. Meeresforsch. Bremerhaven* 15 (4), 359-385.
- Sømme, L. 1962. A survey of Coleoptera and Lepidoptera of stored products in Norway. *Norsk ent. Tidsskr.* 12, 1-10.
- Solhøy, T. 1975. Dynamics of Oribatei populations on Hardangervidda. — In: Wielgolaski, F. E. (ed.). *Fennoscandian Tundra Ecosystems. Part 2. Ecological Studies* 17, 1-337.
- 1976a. Species composition of Oribatei (Acari) on oceanic mountain ground in western Norway. *Norw. J. Ent.* 23, 17-22.
- 1976b. *Camisia foveolata* Hamar 1955 (Acari, Oribatei) found in Norway and on Svalbard. *Norw. J. Ent.* 23, 89.
- Solhøy, T., Østbye, E., Kauri, H., Hagen, A., Lien, L. & Skar, H. J. 1975. Faunal structure on Hardangervidda, Norway. — In: Wielgolaski, F. E. (ed.). *Fennoscandian Tundra Ecosystems. Part 2. Ecological Studies* 17, 29-45.
- Solhøy, T. & Øvstedal, D. O. 1979. Planter, plante-samfunn og dyr på et forsøksfelt med nærliggende omgivelser på Rebnor, Austrheim herred, Hordaland. (In press).
- Stenseth, Chr. 1968. Erfaringer med biologisk bekjempelse av veksthuspinnmidd på agurk i veksthus (*Tetranychus urticae*). *Gartneryrket* 58 (10), 194-196.
- 1976. Overvintring av veksthuspinnmidd (*Tetranychus urticae*) i jordbærfelt. *Gartneryrket* 66 (23/24), 463-468.
- Strand, E. 1910. Neue Beiträge zur Arthropoden-Fauna Norwegens nebst gelegentlichen Bemerkungen über deutsche Arten. I.V. *Nyt Mag. Naturvid.* 48, 307-352.
- Strøm, H. 1768. Beskrivelse over Norske Insecter, Andet Stykke. *K. Norske Vidensk. Selsk. Skr.* 4, 313-371.
- Tambø-Lyche, H. 1943a. Notes on Norwegian ticks. *Bergens Mus. Arb., Naturvid. Rekke nr.* 3, 8.
- 1943b. Ixodes ricinus og piroplasmosen i Norge. *Norsk Vet.-Tidsskr.* 1943, 337-366, 401-441, 449-506, 513-542.
- Tharaldsen, J. 1973. Parasite findings in dogs and cats at the Norwegian quarantine station. — In: O. Halvorsen. Proceedings of the Scandinavian Society for Parasitology. *Norw. J. Zool.* 21 (4), 327-328.
- Tharaldsen, J. & Grøndalen, J. 1978. The nasal mite of dogs, *Pneumonyssus caninum*. A case report from Norway. *J. small Animal Pract.* 19, 245-250.
- Thor, S. 1897a. Bidrag til kundskaben om Norges Hydrachnider. *Arch. Math. Naturv.* 19 (11), 1-74.
- 1897b. Andet bidrag til kundskaben om Norges Hydrachnider. *Arch. Math. Naturv.* 20 (3), 1-40.
- 1898a. Huiitfeldtia, en ny hydrachnide-slegt fra Søndfjord, Norge. *Arch. Math. Naturv.* 20 (7), 1-6.
- 1898b. Nye hydrachnideformer fundne i Norge sommeren 1898. *Arch. Math. Naturv.* 20 (12), 1-10.
- 1898c. *Ljania*, en ny hydrachnide-slegt fra omegnen af Kristiania, Norge. *Arch. Math. Naturv.* 20 (13), 1-4.
- 1899a. *En ny hydrachnide-slegt og andre nye arter fundne i Norge sommeren 1899.* (O. Norli) Kristiania 8 s.
- 1899b. Tredie bidrag til kundskaben om Norges hydrachnider. *Arch. Math. Naturv.* 21 (5), 1-65. pl. VI-XVII.
- 1900a. Første undersøgelse af Norges Trombidiiidae. *Forth. VidenskSelsk. Krist.* 1900 (2), 1-18.
- 1900b. Første undersøgelse af Norges Rhyncholephidae. *Forth. VidenskSelsk. Krist.* 1900 (3), 1-11.
- 1900c. Milben als Ameisenfeinde. *Nyt Mag. Naturv.* 37 (4), 375-377.
- 1900d. Prodrömus Systematis Hydrachnidarum. *Nyt Mag. Naturvid.* 38 (3), 263-266.
- 1900e. Hydrachnologische Notizen I-III. *Nyt Mag. Naturvid.* 38 (3), 267-279.

- 1900f. Hydrachnologische Notizen IV-VIII. *Nyt Mag. Naturvid.* 38 (4), 369-389.
  - 1901a. Zwei neue Hydrachniden-Gattungen und 4 neue-Arten aus Norwegen, nebs Bemerkungen über die Begattung von *Hjartdalia* n.g. *Zool. Anz.* 24, 673-680.
  - 1901b. Fjerde bidrag til kundskaben om Norges hydrachnider. *Arch. Math. Naturv.* 23 (4), 1-56.
  - 1904. Norwegische Bdellidae I, nebst Notizen über die Synonymie. *Zool. Anz.* 28 (3), 69-79.
  - 1905a. *Lebertia*-Studien II-V. *Zool. Anz.* 29 (2/3), 41-69.
  - 1905b. Norwegische Bdellidae II. *Zool. Anz.* 29 (7), 203-207.
  - 1905c. Eine neue *Hygrobat*-Art, *Mixobates* nov. sub-genus. *Zool. Anz.* 29 (11), 371-373.
  - 1906a. *Lebertia*-Studien VI-VIII. *Zool. Anz.* 29 (25/26), 761-790.
  - 1906b. *Lebertia*-Studien XI-XLV. *Zool. Anz.* 30 (15), 463-484.
  - 1907a. *Lebertia*-Studien XV. *Zool. Anz.* 31 (4), 105-115.
  - 1907b. *Lebertia*-Studien XIX—XXIII. *Zool. Anz.* 32 (6), 150-172.
  - 1910. Die erste norwegische Süßwasserform der Halacariden. *Zool. Anz.* 36 (20/21), 348-351.
  - 1911. *Lebertia*-Studien XXIV-XXV. *Zool. Anz.* 37 (19/20), 385-394.
  - 1912a. Verzeichnis der in Norwegen gefundenen Eupodidae. *Zool. Anz.* 39 (5/6), 235-237.
  - 1912b. Norwegische Anystidae I. *Zool. Anz.* 39 (11/12), 387-388.
  - 1912c. Norwegische Cunaxidae und Cheyletidae I. *Zool. Anz.* 39 (11/12), 389-390.
  - 1912d. Norwegische Anystidae II. *Zool. Anz.* 39 (15/16), 465-473.
  - 1912e. *Lebertia*-Studien XXVI-XXVIII. *Zool. Anz.* 39 (17/18), 529-536.
  - 1913a. Eine neue Hydracarin-Genus aus dem Bodenschlamm von Bandaksvand in Norwegen. *Zool. Anz.* 43 (1), 40-42.
  - 1913b. *Drammenia*, eine neue Bachmilbgattung aus Norwegen, nebst Bemerkungen über die systematische Stellung von *Drammenia* und *Bandakia*. *Zool. Anz.* 43 (1), 42-47.
  - 1923. Neue Acarin-formen aus meinen älteren Sammlungen, nebst Bemerkungen über Arten, Gattungen und Familien. *Nyt Mag. Naturv.* 61, 91-118.
  - 1926. Über das glaziale Relikt *Hygrobat* *albinus* Sig Thor und die Zeit der Verbreitung dieses Tieres. *Arch. Hydrobiol.* 16 (3), 399-416.
  - 1927. Vorläufige Revision der Gattung *Hygrobat* (C. L. Koch, 1837), mit phylogenetischen Bemerkungen. *Norsk Ent. Tidsskr.* 2 (3), 118-148.
  - 1928a. Acarinologische Notizen. *Zool. Anz.* 75 (11/12), 295-297.
  - 1928b. Norwegische Bdellidae III und einige Bemerkungen über Haare, Chitinleisten und Schilder am Cephalothorax. *Zool. Anz.* 77 (9/10), 213-219.
  - 1930. Norwegische Bdellidae IV-V. *Zool. Anz.* 92 (1/2), 17-26.
  - 1931a. Norwegische Tydeidae I-VII mit Kennzeichnung vier neuer Gattungen. *Zool. Anz.* 94 (3/4), 89-104.
  - 1931b. Norwegische Alycidae I-VII. *Zool. Anz.* 94 (9/10), 229-238.
  - 1932a. *Opsereynet*, eine neue augentragende Gattung aus der Familie Erynetidae A. C. Oudemans 1931, in Norwegen gefunden. *Zool. Anz.* 99 (1/2), 27-30.
  - 1932b. Norwegische Tydeidae VIII-XV, mit bemerkungen über die Gattung *Tydeus* und über Augen, Tracheen usw. *Zool. Anz.* 98 (3/4), 69-91.
  - 1933. Acarina Tydeidae, Erynetidae. *Das Tierreich* 60, 1-84.
  - 1934a. Neue Beiträge zur Kenntnis der invertebraten Fauna von Svalbard. *Zool. Anz.* 105 (5/6), 114-138.
  - 1934b. Eine neue *Eupodes*-Art von Südafrika und eine neue *Cocceupodes*-Art von Norwegen. *Zool. Anz.* 108 (7/8), 178-179.
  - 1934c. Einzelne neue, besonders norwegische *Eupodes*-Arten mit einigen älteren Arten verglichen. *Zool. Anz.* 105, 201-215.
  - 1934d. Über das «Rhagidia-Organ» bei den Arten der Acarinenfamilie Rhagidiidae. *Zool. Anz.* 105, 313-318.
  - 1937. Übersicht der norwegischen Cryptostigmata mit einzelnen Nebenbemerkungen. *Nyt Mag. Naturvid.* 77, 275-307.
- Thor, S. & Willmann, C. 1941. Acarina. Eupodidae, Penthalodidae, Penthaloidae, Rhagidiidae, Pachygnathidae, Cunaxidae. *Das Tierreich* 71a, 1-186.
- Willmann, C. 1929. Oribatiden von der Insel Herdla. *Bergen Mus. Arb.* 1929. *Naturvid. Rekke*, 5, 1-6.

Received 20 June 1979.

## Short communication

### NEW RECORDS OF *ISOPERLA DIFFORMIS* (KLAPÁLEK, 1909) (PLEC., PERLODIDAE) FROM WESTERN NORWAY.

TROND ANDERSEN

Three records of *Isoperla difformis* from outer Hordaland are given.

Trond Andersen, Museum of Zoology, N-5014 Bergen — University, Norway.

In his study on the distribution and ecology of the Norwegian Plecoptera, Lillehammer (1974) stated that *Isoperla difformis* (Klapálek, 1909) «has only once been taken in western Norway». According to his map of the distribution the locality is in the Stavanger area. However, Brekke (1941), in his review of the Norwegian stoneflies, recorded *I. difformis* from Hordaland (Fana). A female of *I. difformis*, identified by Brekke, is deposited in the collection at the Museum of Zoology in Bergen. The label reads: Skjold, Fana, 9 May 1937, N.Knaben leg.

On 22 May 1973 I collected a micropterous male of *I. difformis* at Fitjo (UTM: 32VLNO98156), HOy: Osterøy (60 m a.s.l.). The specimen was collected by sweeping the vegetation along a small, calm river. Later the same day I collected a second specimen of *I. difformis*, a female, at Kleppe (UTM: 32VLN111161), HOy: Osterøy (250 m a.s.l.). This specimen also was taken by sweeping the vegetation along another, more rapidly running stream.

*I. difformis* is distributed throughout Central and Northern Europe (Illies 1967). It is common and widely distributed in the southern and central parts of Sweden and occurs, but rarely, also in the northern mountainous parts (Brinck 1949). In Norway the species is common in the inner Oslofjord area, and is also found sporadically in other parts of southern and northern Norway (Lillehammer 1974). From my findings it can be concluded that *I. difformis* is a species also inhabiting the outer parts of western Norway. However, as a rather large *Isoperla* material from outer as well as inner Hordaland has been identified without encountering more than three specimens, it seems obvious that *I. difformis* is very rarely found within this area.

## REFERENCES

- Brekke, R. 1941. The Norwegian stoneflies. Plecoptera. *Norsk ent. Tidsskr.* 6, 1—24.  
Brinck, P. 1949. Studies on Swedish stoneflies (Plecoptera). *Opusc. ent., suppl.* 11, 250 pp.  
Illies, J. 1967. Plecoptera. — In: Illies, J. (ed.), *Limnofauna Europaea*. G. Fischer Verlag, Stuttgart, pp. 220—229.  
Lillehammer, A. 1974. Norwegian stoneflies. II. Distribution and relationship to the environment. *Norsk ent. Tidsskr.* 21, 195—250.

Received 25 May 1979.

### *MASOREUS WETTERHALLI* GYLLENHAL (COL., CARABIDAE) NY ART I NORGE.

KARL ERIK ZACHARIASSEN

The carabid beetle *Masoreus wetterhalli* Gyllenhal, is reported found in Norway for the first time. One female specimen was found on sandy ground near the sea in Stavern, Vestfold county, on 8 July 1978.

Karl Erik Zachariassen, Zoologisk institutt, Universitetet i Trondheim, NLHT; Rosenborg, 7000 Trondheim.

Løpebillen *Masoreus wetterhalli* Gyllenhal, lever på tørre, sandige lokaliteter (Landin, 1970), gjerne på spredt bevakst flyvesand nær havet (Hansen, 1968). Arten er vidt utbredt i Danmark og i det sydlige Sverige, bl.a. i Bohuslän (Lindroth, 1960), men er hittil ikke rapportert funnet i Norge.

Ett eksemplar av *M. wetterhalli* ble 8.7.1978 funnet av forfatteren på Risøya ved Stavern. Dyret ble funnet under en planke, som lå på spredt bevakst sand, noen få meter fra stranden. Dyret var en hunn med lengde 4,8 mm. Det oppbevares i forfatterens samling.

Lokaliteten der dyret ble funnet er dessverre i ferd med å bli ødelagt, idet bukten funnstedet ligger ved er under gjenfylling. Det er imidlertid flere lignende biotoper i området, der arten også kan være å finne.

## REFERANSER

- Hansen, V. 1968. Biller XXIV. Sandspringere og Løpebiller. *Dann. Fauna* 76, 451 pp.  
Landin, B.—O. 1970. *Fältfauna/Insekter* 2. Natur och Kultur. Kunskapsförlaget, Stockholm.  
Lindroth, C.H. (ed.) 1960. *Catalogus Coleopterorum Fennoscandiae et Daniae*. Entomologiska Sällsk., Lund.

Received 2 May 1979.



**BEMBIDION NIGRICORNE GYLLENHAL  
(COL., CARABIDAE) NY FOR NORGE.**

JOHAN ANDERSEN  
OG KARL ERIK ZACHARIASSEN

*Bembidion nigricorne* Gyllenhal, (Col. Carabidae) is reported new to Norway from Sørumsand, Akershus province. Four specimens were found in a habitat typical for the species.

Johan Andersen, Institutt for biologi og geologi, Universitetet i Tromsø, N-9000 Tromsø,  
Karl Erik Zachariassen, Zoologisk Institutt, Universitetet i Trondheim, NLHT, Rosenborg, N-7000 Trondheim.

I et sandtak på Sørumsand, Akershus fylke, fant den ene av forfatterne (K.E.Z.) 1. august 1973 et eksemplar av *Bembidion nigricorne* Gyllenhal. Dette er det første funn av arten i Norge. Stedet ble atter besøkt 12/5-79. Det ble da ialt samlet fire små, mørkt metalliske eksemplarer av *Bembidion* sp. Et av disse eksemplarene var *B. lampyros Herbst*, de øvrige tre var *B. nigricorne*.

Tre av eksemplarene av *B. nigricorne* (de funnet 12/5-79) ble tatt i utkanten av sandtaket eller i soleksponert felt i en skogsglenne nær dette. I begge tilfelle bestod jordbunnen av morenesand, delvis med noe grus og stein på overflaten. Jorda varierte en del i fuktighet og var del-

vis løs og nesten tørr. Vegetasjonen der dyra ble funnet var sparsom med flekkvis sauesvingel (*Festuca ovina*) og meget lav mose. Billene ble tatt under lauv eller barkflak (overskyet vær med vind). Undervegetasjonen rundt de sparsomt bevakste feltene bestod av tildels tette klynger av røsslyng (*Calluna vulgaris*), mens skogen utgjordes av gran og furu. *B. nigricorne* ble funnet sammen med *Amara tibialis* Paykall.

Den beskrivelsen av habitatet for *B. nigricorne* som er gitt her, er i bra samsvar med den Lindroth (1945) gir for arten ellers i Fennoskandia.

*B. nigricorne* ansees for å være en østlig art i Fennoskandia og Danmark, men den er vidt utbredt fra sørlige del av Sverige og Finland nord til Kalix (Lindroth pers. com.). Funnet ved Sørumsand er det vestligste i Fennoskandia, men dette forandret ikke noe vesentlig på det østlige utbredelsesmønster arten viser i den nordlige delen av sitt utbredelsesområde.

**LITTERATUR**

Lindroth, C.H. 1945. Die fennoscandischen Carabidae. I. Göteborgs K. Vetensk. - o. Vitterh. samh. Handl. Ser. B4, 709 pp.

Received 10. July 1979.

## Bokanmeldelser

Frölich, G., R. Beyer und E.-M. Kleiner 1979. Phytopathologie und Pflanzenschutz. *Wörterbücher der Biologie*. VEB Gustav Fisher Verlag Jena (295 sider, 62 fig., Bestellnr. 532 869 I, pris 19DM).

Gustav Fisher forlag er i gang med å gi ut ein serie små, hendige ordbøker i biologi, — «Det biologiske fagområde i leksikalsk framstilling».

Det undrar kanskje somme at ei bok i serien med tittelen «Phytopathologie und Pflanzenschutz» skal meldast i dette tidsskriftet, sidan insekt og andre planteetande dyr oftast ikkje er medrekna i plantepatologien i norsk og engelsk språkbruk. Men slår vi opp på «Phytopathologie» i denne boka, finn vi at det er vitenskapen om utforskinga av sjukdomsprosessar og deira årsaker hos planter, og vidare at det ofte på urett vis blir prøvd å avgrense fagområdet til infeksjonssjukdommar. Her tar vi ikkje standpunkt til kva som er rett språkbruk, men merkjer oss at boka omfattar alle årsaker til sjukdom og skade på planter. Entomologien kjem då inn som ei viktig grein av fagområdet.

Innanfor dei 295 sidene med sats i små, men letlesne typar har det blitt plass til konsise definisjonar av omlag 3000 stikkord. I tillegg er mange underbegrep og synonym nemnde i somme definisjonar. I

opplegget ser det ut til at hovudvekta er lagt på generelt og prinsippielt stoff. Såleis er det innanfor insekt-systematikken mest omfattande omtale av ordenar og familiar, men få oppslagsord og lite omtale av ein-skilde viktige arter.

Det er tatt med langt fleire stikkord frå tilgrensande fagområde enn mange ville vente, t.d. er mange økologiske termar definerte. Figurane er i klare strekteikningar, og med mange detaljteikningar slik at dei 62 fig. nummera omfatter omlag 200 ein-skildfigurar. For kjemiske middel er oftast strukturformelen gitt.

Det er rikeleg med krysstilvisingar. Der det høver er ofte det motsette begrep til stikkordet nemnt, t.d. *Holozyklie* — *Gegens.: Anholozyklie*, *Antagonismus* — *Gegens.: Synergismus*, *Optimum* — *Gegens.: Pessimum*.

I det heile er dette ei bok som er innhaldsrik etter sitt omfang, og gir god valuta for dei 19 DM. Mest nyttig vil boka vere når ein les tyskspråkleg faglitteratur.

At vi ved spissfindig leiting kan slumpe til å finne små inkonsekvensar skal det leggast mindre vekt på. La oss som døme slutte av med «*Terminalia: Endsegmente des Hinterleibes von Insektön ...*». I tekst til ei side figurar er så *Terminalia* (*Endsegmente*) kalla *Analsegmente*. Oppslag på *Analsegment* gir tilvising til *Telson*, som så har ein definisjon som får lesaren til å tvile på om det var det stafetten starta med.

**Gudmund Taksdal**

## GUIDE TO AUTHORS.

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.

**Manuscripts** should be submitted to one of the members of the editorial committee or directly to the Editor-in-Chief. Send two copies. They must be typewritten, double spaced throughout, on one side of the paper, and with wide margins, 5-6 cm on the left. Separate sheets should be used for the following: 1) Title page, with author's name. 2) An abstract, with the name and full postal address of the author underneath. 3) Tables with their headings. 4) Legends to figures.

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

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.

**Figures and Tables.** Send two copies. All illustrations should be identified lightly with the author's name and the figure number. The figures and tables should be constructed in proportion to either the entire width of the typed area (140 mm) or to the column width (67 mm).

**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). No ditto marks should be used. Titles of journals should be abbreviated according to the World List of Scientific Periodicals. Do not refer to papers «in prep» among the references.

Examples:

*Journal:*

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

*Book:*

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

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

*Chapter:*

Whitman, L. 1951. The arthropod vectors of yellow fever.- In: Strobe, K. (ed.), *Yellow Fever*. McGraw - Hill, New York & London, pp 229 - 298.

**Proofs.** Two copies of the first proof will be sent to the author. One corrected copy should be returned to the editor without delay. Alterations should be limited to correcting typesetting errors. Extensive alterations will be charged to the author.

**Reprints.** Twentyfive reprints are supplied free (fifty with multiple authorships). Additional reprints can be ordered at a charge (an order form is sent with the proofs).

---

Som omtalt på side 2 av omslaget, skal FAUNA NORVEGICA komme med tre serier A, B og C. B og C skal komme med to hefter pr. år, men av serie B har vi i 1979 bare klart å få ut dette ene heftet. Hefte 2 1979 vil komme i begynnelsen av 1980.

Serie A skal komme med ett hefte pr. år, og vil utkomme første gang på nyåret 1980. Denne serien står åpen for systematiske bidrag fra alle grener av norsk fauna bortsett fra entomologi og ornitologi.

En årgang (ett hefte) av serie A koster for medlemmer av våre tre zoologiske foreninger kr. 15,-. Ikke medlemmer må betale kr. 25,-.

**Alle som ønsker å abonnere på serie A bes innsende beløpet så snart som mulig.**

Adressen er Norsk Zoologisk Tidsskriftsentral, Zoologisk museum, Sarsgt. 1, Oslo 5. Postgiro 2 34 83 65.

## Content

### Fauna Norv. Ser. B, Vol. 26, No. 1

A Letter from the Editor .....	1
Kauri, H. C. H. Lindroth 1905—1979 .....	2
Engdal, J. & K. E. Zachariassen. New records of Coleoptera in Norway .....	5
Refseth, D. Noen funn av Coleoptera fra Trøndelag og Møre .....	8
Sveum, P. Notes on the distribution of some Norwegian ant species (Hymenoptera, Formicidae) ...	10
Andersen, T. Some caddis flies (Trichoptera) in western Norway, and their arrival pattern in light traps .....	12
Aarvik, L. Seven species of Lepidoptera new to Norway .....	18
Nielsen, T. R. Hoverflies (Diptera, Syrphidae) associated with Ramson ( <i>Allium ursinum</i> L.) .....	21
Toft, S. Spiders from Jan Mayen .....	24
Ashmole, N. P. & B. R. Planterose. Spiders from arctic Fennoscandia .....	26
Mehl, R. Checklist of Norwegian ticks and mites (Acari) .....	31

### Short communications

Andersen, T. New records of <i>Isoperla difformis</i> (Klapálek, 1909) (Plec., Perlodidae) from western Norway .....	46
Zachariassen, K. E. <i>Masoreus weterhalli</i> Gyllenhal (Col., Carabidae) ny art for Norge .....	46
Andersen, J. og K. E. Zachariassen. <i>Bembidion nigricornе</i> Gyllenhal (Col., Carabidae) ny for Norge.	47

<b>Bokanmeldelser</b> .....	48
-----------------------------	----

---

As mentioned on p. 2 of the cover, FAUNA NORVEGICA has three series, A, B and C. B and C normally have two issues per year, but we have only managed to publish one issue of the B series in 1979. Issue 2 of 1979 will appear at the beginning of 1980.

Series A has a single issue per year, which will appear early in 1980. This series is open for systematic and faunistic contributions on all aspects of the Norwegian fauna except for entomology and ornithology.

One volume of series A costs N.kr. 15 for members of the three Norwegian zoological societies. For non-members it costs N.kr. 25,-.

**All those wishing to subscribe to series A are requested to send the appropriate amount, as soon as possible to: Norsk Zoologisk Tidsskriftsentral, Zoologisk museum, Sars gt. 1, N-Oslo 5. Postgiro 2 34 83 65.**

Outside Fennoscandia: Extra per year for Ser. A N.kr. 3,-, for Ser. B and C N.kr. 5,-.