

A collection of spiders (Araneae) from palsa bogs in the vicinity of Vardø, northern Norway

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Spiders have been collected by pitfall traps from two palsa bogs in the vicinity of Vardø in Finnmark, northern Norway. A total of 449 specimens belonging to 27 species from 4 families were caught. Two major ecological guilds were present, active vagrant forms, mainly consisting of lycosids, and the smaller net-building species represented by Linyphiidae and Hahniidae. Linyphiids made up 70% of the species but only 38% of the individuals, the lycosids being most abundant. Faunal differences between sites is probably caused by placement of the traps in different parts of the bogs. Seven species are new to Finnmark, although one has been reported before without being named. General faunistic and taxonomic comments are given on a few additional species: *Agyneta mossica*, recently reported from Norway, *Agyneta* sp., *Arctosa alpigena lamperti*, and *Ozyptila arctica*.

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INTRODUCTION

The spider fauna of the northern half of Norway (counties of Nordland and Finnmark) is still very poorly known. Principal papers providing distributional and ecological data on spiders from this region are Simon (1887), Strand (1900, 1906), Jackson (1932), Tambs-Lyche (1940, 1955), Holm (1960), Cooke (1967), Waaler (1970), Hauge (1976, 1977), Holm (1973) and Ashmole & Planterose (1979).

The spider fauna of peatlands in Norway is also insufficiently known, especially in northern Norway. The list of species presented here therefore represents a considerable contribution to our knowledge of this fauna.

STUDY SITE, MATERIAL AND METHODS

The material originates from pitfall traps operated in late summer/early fall 1998 in two bogs on the Varanger peninsula. Both localities are situated in Vardø municipality, Finnmark county. Barvikmyra (70° 26 N, 30° 55 E, EIS 185) is close to the city of Vardø whereas Hollamyra (70° 14 N, 30° 31 E, EIS 178) lies in the vicinity of Komagvær to the south-west of Vardø (Figure 1). Barvikmyra is part of Barvikmyran and Blodskytodden Nature Reserve established in 1983 (DN 1995). The traps were operated from 5-10 July 1998 in both sites. Additionally, some traps were

operated in Barvikmyra in September 1998. The traps were mostly situated in wetter parts around the palsas, with a few on top of them, some traps were situated in wet and minerotrophic *Carex* fen with a bottom layer of *Sphagnum* spp.

The two localities consist of different bog types, both along nutrient and moisture gradients. Palsa structures are present on the ombrotrophic parts (see Fremstad 1997 for definition). Dominant vegetation consists of species of *Sphagnum*, *Eriophrum*, *Juncus* and *Carex* spp. Climatic details of the region are given in Hanssen & Olsvik (1998).

The nomenclature follows Platnick (1998) except for the linyphiids which follows Tanasevitch (2000).

RESULTS AND DISCUSSION

Altogether 449 individuals representing 27 species from 4 families were captured (Table 1). Some 70% of the species but only 38% of the individuals consisted of linyphiids, the majority of individuals belonging to the Lycosidae. In light of the capture method it is not surprising that highly active vargrant forms dominate the material.

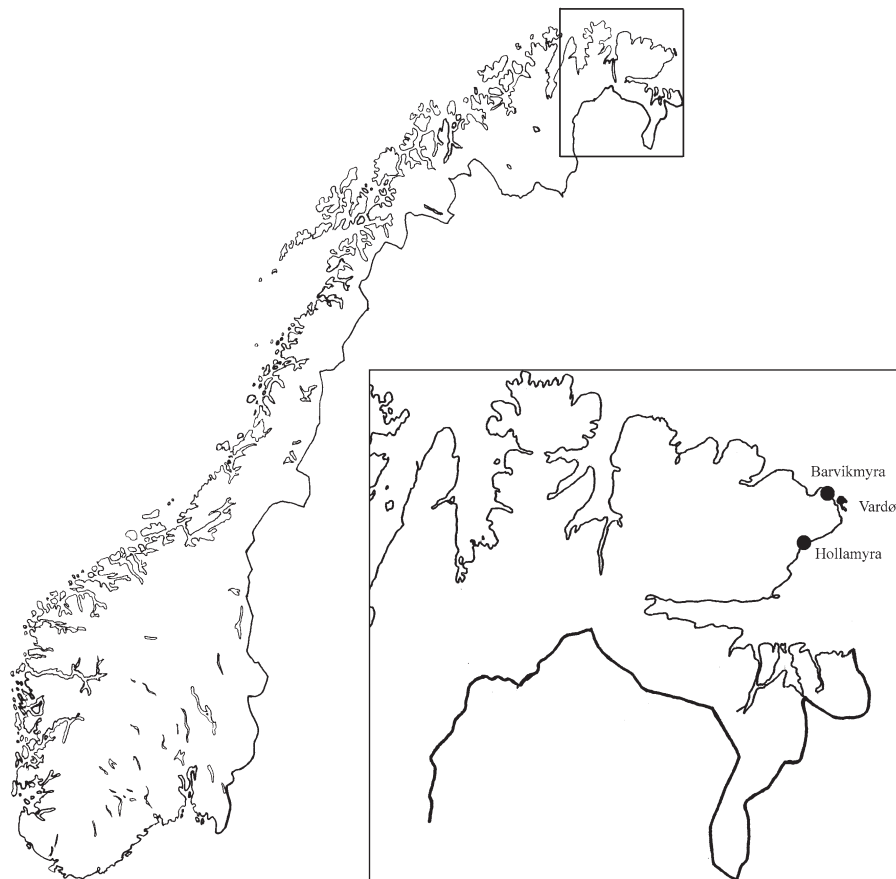


Figure 1
Locations of collection sites
on the Varanger-peninsula.

Several species have not previously been taken this far north in Norway and the current records indicate that they occur throughout our country. These records are also the northernmost in Europe. Species new to Finnmark are *Hahn timer ononidum* (but see below), *Gnathonar ium dentatum*, *Gonatium rubens*, *Mecynargus sphagnicola*, *Semljicola faustus* and *Walckenaeria cuspidata*, all of these species are also known from the northernmost regions of Sweden (Jonsson pers. comm.) and Finland (Palmgren 1976, see Schikora 1995 for *A. mossica*), except *G. dentatum* which has only been taken north to the Polar circle in Finland (Palmgren 1976).

The spiders found in the palsa bogs belong to two major ecological groups: active vagrant forms (most of the lycosids) and the smaller, moss or litter-inhabiting species (Linyphiidae and Hahniidae). The ecological classification of the species is given in Table 1.

Differences in species composition between the two bogs are evident, but are difficult to explain because the collection effort has not been equal over both sites. Furthermore, the topological and

botanical characteristics of the two sites have not been recorded in detail, making comparisons difficult. A few comments may be given, however. Some species are present on Hollammyra which were not found on Barvikmyra, such as *Hahn timer ononidum*, *Agyneta mossica*, *Gnathonar ium dentatum*, *Pardosa atrata*, *P. hyperborea* and both thomisid species. Some of these are strongly hygrophilous species (*A. mossica*, *G. dentatum*, *P. atrata*) which would indicate that the traps have been placed in wetter sites than on Barvikmyra. On the other hand, species not found on Hollammyra but present on Barvikmyra include *Bolyphantes luteolus*, *Erigone psychrophila*, *Lepthorophthrum robustum*, *Oreonetides vaginatus*, *Semljicola faustus*, *Walckenaeria cuspidata*, *W. kochi* and *Pardosa amentata*. These are for the most part pioneer species (*E. psychrophila*), forest or open land species (*O. vaginatus*, *S. faustus*) or euryoecious species (*B. luteolus*, *L. robustum*, *W. cuspidata* and *P. amentata*). The traps at Barvikmyra thus seems to have been placed in more heterogenous sites, perhaps close to heaths. The large number of *Hilaira nubigena* found at Barvikmyra in September 1998 is caused by the fall activity of this species.

Table 1. List of species. Barvikmyra I and II refer to capture periods 5-10 July 1998 and September 1998 (no exact date available), respectively. Numbers refer to males/females. Ecological groups are hygrophilous (hygr.), sphagnophilous (sphagn.), open land species (open), euryoecious (eury.), pioneer species (pioneer) and forests species (forest).

Species	Barvikmyra		Hollamyra	Ecology
	I	II		
HAHNIIDAE				
<i>Hahnia ononidum</i> Simon, 1865	-	-	9/0	Hygr., open
LINYPHIIDAE				
<i>Agyneta mossica</i> (Schikora, 1993)	-	-	4/1	Hygr, sphagn.
<i>Agyneta</i> sp. aff <i>decora</i> (O. P.-Cambridge, 1870)	1/0		1/1	Hygr, sphagn.
<i>Bolyphantes luteolus</i> (Blackwall, 1833)	-	1/0	-	Eury.
<i>Erigone psychrophila</i> Thorell, 1872	-	0/1	-	Pioneer, eury.
<i>Gnathonarium dentatum</i> (Wider, 1834)	-	-	0/2	Hygr., sphagn.
<i>Gonatium rubens</i> (Blackwall, 1833)	-	2/1	0/2	Eury., open
<i>Hilaira nubigena</i> Hull, 1911	0/2	53/20	0/1	Hygr, eury.
<i>Hypomma bituberculatum</i> (Wider, 1834)	-	0/1	7/5	Hygr, eury.
<i>Leptorhoptrum robustum</i> (Westring, 1851)	-	0/1	-	Hygr, eury.
<i>Mecynargus borealis</i> (Jackson, 1930)	-	-	0/2	Hygr., open
<i>M. sphagnicola</i> (Holm, 1939)	2/14	-	1/0	Hygr, sphagn.
<i>Oedothorax retusus</i> (Westring, 1851)	-	-	2/1	Hygr, open
<i>Oreonetides vaginatus</i> (Thorell, 1872)	-	2/0	-	Hygr, forest
<i>Oryphantes angulatus</i> (O.P.-Cambridge, 1881)	7/12	-	0/2	Open
<i>Pelecopsis menzei</i> (Simon, 1884)	1/0	-	0/8	Hygr, sphagn.
<i>Semljicola faustus</i> (O.P.-Cambridge, 1900)	1/0	-	-	Sphagn., forest
<i>Walckenaeria cuspidata</i> (Blackwall, 1833)	0/1	-	-	Eury.
<i>W. karpinskii</i> (O.P.-Cambridge, 1873)	1/3	-	0/1	Hygr., sphagn.
<i>W. kochi</i> (O. P.-Cambridge, 1872)	-	1/0	-	Hygr., sphagn.
LYCOSIDAE				
<i>Arctosa alpigena</i> (Doleschall, 1852)	2/0	0/1	4/1	Hygr., sphagn.
<i>Pardosa amentata</i> (Clerck, 1757)	-	1/0	-	Hygr., eury.
<i>P. atrata</i> (Thorell, 1873)	-	-	37/7	Hygr., sphagn.
<i>P. hyperborea</i> (Thorell, 1872)	-	-	4/0	Hygr, open
<i>P. palustris</i> (Linnaeus, 1758)	28/10	0/15	134/24	Hygr., open
THOMISIDAE				
<i>Ozyptila arctica</i> Kulczynski, 1908	-	-	0/1	Open
<i>Xysticus cristatus</i> (Clerck, 1757)	-	-	2/0	Eury.
Totals				
	43/42	60/40	205/59	

FAUNISTIC AND TAXONOMIC NOTES

Hahnia ononidum (Simon, 1865)

Waler (1970) reported 4 male "*Hahnia* sp." from Sør-Varanger which in all probability belong to this species as no other *Hahnia* species is known to occur this far north in Europe.

Agyneta mossica (Schikora, 1993)

The distribution in Norway of this recently described species was provided by Aakra (2000) who also included the individuals reported here in that paper. This peatland character species (Schikora 1993, 1995) probably occurs throughout our country even if it has not yet been found in the southeastern parts. Although not listed in Schikora's (1995) list of material a record of *A. mossica* from Finnmark was included on his map.

Agyneta sp. aff *decora* (O. P.-Cambridge, 1870).

A few individuals of both sexes were found which did not match descriptions of species known from northern Europe. The male palp, particularly the lamella characteristic (Figure 2), does not resemble any species of *Agyneta* sensu lato (including those usually referred to *Meioneta*) known from Fennoscandia. The males could belong to *Agyneta breviceps* Hippa & Oksala, 1985, only known from northern Finland (Hippa & Oksala 1985), the male of which remains undescribed. The lamella characteristic of this species is significantly different from its close relative, *A. trifurcata* Hippa & Oksala, 1985, however, which the male of *A. breviceps* probably resembles (Hippa & Oksala 1985). The epigyne of the female tentatively believed to be conspecific with the males (Figure 3) bears a slight resemblance to both *A. conigera* (O. P.-Cambridge, 1863) and *A. (Meioneta) innotabilis* (O. P.-Cambridge, 1863) but the spermatheca differs and the female palps are swollen. The specimens reported here may be somewhat aberrant specimens of *A. decora*, but a conclusion will have to await future studies.

Arctosa alpigena (Doleschall, 1852)

A. alpigena lamperti Dahl, 1908 is sometimes considered a separate species (e.g. Lugetti & Tongiorgi 1965), but is treated as a subspecies in recent taxonomic papers (Buchar 1981, Buchar & Thaler 1995) and catalogues (Platnick 1998). According to the descriptions of Buchar (1981) and Buchar & Thaler (1995), *lamperti* is distinguished by its unicolorous legs and lack of a scapula on Tarsus I. The habitat also provides a clue, *A. a. lamperti* being a "moorform" (Buchar & Thaler 1995). Palmgren (1977) noted that two varieties were present in Finnish collections. South of Lapland a smaller form was found, which did not fit the description of *A. lamperti* by Lugetti & Tongiorgi (1965), probably representing a geographical variety or race. The presence of *A. a. lamperti* in the north is uncertain as Holm (1947) synonymised the two forms and Palmgren (1939) did not separate them. *A. alpigena* is known throughout Sweden (Holm 1947) and most parts of Norway, though only from high elevations in southern parts (Hauge 1989). Specimens have recently been discovered from lowland grassy fields and bogs near Trondheim, central Norway (Aakra unpub.), these also seem to fit the description of *A. a. lamperti*. Given that *A. a. alpigena* is considered an arctic-alpine species (Thaler 1997), these lowland specimens may belong to *lamperti*, although it is not certain if subspecies status is warranted (Buchar & Thaler 1995). It is probably best to leave this issue for future studies and use the name *A. alpigena* for all specimens from northern Europe.

Ozyptila arctica (Kulczynski, 1908)

This species has been reported as *O. rauda arctica* from Finnmark (Holm 1960, Waaler 1970) as well as from southern Norway (Hauge et al. 1978, Hauge & Refseth 1979). It was elevated to full species status by Hippa et al. (1986) but not included as such in the Norwegian check-list (Hauge 1989).

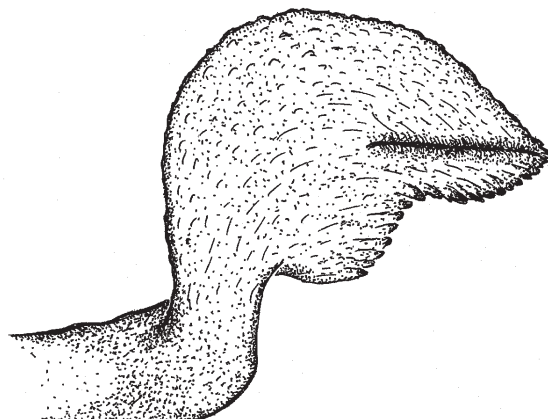


Figure 2
Agyneta sp. Lamella characteristic.

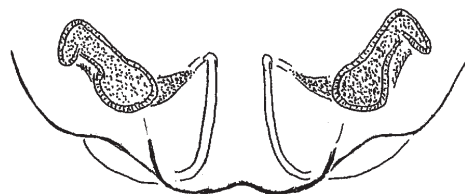


Figure 3
Agyneta sp. Vulva.

ACKNOWLEDGEMENTS

Thanks to attendant Hans Martin Hansen for the pitfall material collected in September 1998.

SAMMENDRAG

Edderkopper fra pals-myrier ved Vardø, Finnmark

Edderkopper fra to palsamyrier nær Vardø er blitt samlet inn ved hjelp av fallfeller. Totalt 449 individer tilhørende 27 arter fra 4 familier ble funnet. To økologiske grupper dominerer på myrene, kursorielle vandrende former, hovedsakelig ulve-edderkopper, og mindre nettbyggende arter fra familiene Linyphiidae og Hahniidae. Det er enkelte artsforskjeller mellom myrene, disse skyldes nok plasseringen av fellene i ulike deler av myrene. Linyphiidene utgjør ca. 70 % av artsantall, men kun 38 % av individantallet. Syv arter er nye for Finnmark, en har riktignok

blitt rapportert før uten navn. Generelle faunistiske og taksonomiske kommentarer er gitt for noen arter; *Agynera mossica*, som nylig ble rapportert fra Norge for første gang, *Agynera* sp., en foreløpig uidentifisert art, *Arctosa alpigenei* og *Oxyptila arctica*.

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Editorial

We are happy to present *Fauna norvegica* again, now issued by the Norwegian Institute for Nature Research (NINA) in co-operation with the Directorate for Nature Management (DN), after a short period of uncertainty, involving reorganisation and refinancing which resulted in no volume being issued in 1999. We regret the confusion this gap may have created among our subscribers and library connections. The principles of the reorganisation were announced in correspondence in 1998 as well as in the 1998 volumes of *Fauna norvegica* Serie A, Serie B and Serie C. The reorganisation involved continuation of Serie B (entomology) and Serie C (ornithology) under different journal names, by the Norwegian Entomological Society and the Norwegian Ornithological Society respectively, while Serie A was to be continued as *Fauna norvegica*, with a general faunal scope.

We strongly believe that there is a need for a journal that makes sound, faunistic information known and thus accessible to the scientific society and to nature management. Such data much too frequently will stay in each scientists files, or in voluminous reports with very limited distribution, written in a national language. Such detailed information is outside the scope of most international journals covering biological science, mainly devoted to the development and testing of theories and principles, and to understanding causality. However important that is, natural science and its application in nature management depend on empirical, descriptive data. Presenting such data is the specific niche of *Fauna norvegica*, thereby providing data for a wider application, in both science and management; facilitating search for co-workers; and making available adequate empirical information for more generalised analyses. Conflicting interests in land and water use, and increasingly also in the use of coastal sea areas, pose new challenges in sustained use and conservation of bio-diversity, and there is a constant shortage of relevant information on the spatial distribution of organisms.

Although *Fauna norvegica* focuses on Norwegian fauna, research dealing with other geographical regions may also be accepted. In addition to faunistic studies, contributions concerning general and applied animal ecology, behaviour, zoo-geography and all aspects of conservation ecology, as well as methodological development, are welcome, and will be considered for publication after peer review.

Fauna norvegica also aspires to become a forum for management strategies, exchange of ideas, points of view, comments and news pertaining to both research and management relating to the scope of the journal. We challenge researchers and managers of the biological environment to contribute, both to the scientific and the forum sections of the Journal.

Thrine Moen Heggberget

Guide to authors

Language and style. *Fauna norvegica* publishes papers in English, occasionally in Norwegian with an extended English summary. When the paper is written in English, an extended summary in Norwegian is also required, to be printed after Acknowledgements. Authors should consult this issue or more recent copies of *Fauna norvegica* and follow their style as closely as possible. Manuscripts that do not conform to this guide will be returned for revision.

Manuscripts, double-spaced, on one side of the paper and with wide margins, should be submitted to the editor-in-chief in 3 copies, including figures and tables. Separate sheets should be used for (i) title page, with author's name and a suggestion for a running head (36 characters or less), (ii) abstract, followed by key words and the name(s) and full postal address(es) of the author(s), (iii) tables with their headings, (iv) numbered figures, and (v) legends to figures. The approximate position of tables and figures in the text should be indicated in the margin.

The body of **standard** articles should be organised in sections labelled Introduction, Methods and material, Results, and Discussion. All acknowledgements should be gathered under a single heading at the end of the text. **Short communications** must be structured in the same way as outlined for standard articles unless they are kept very short (i.e. less than two pages in the final print). **Reviews** and **forum contributions** may be organised differently.

Nomenclature. The first time a binomen of an invertebrate or a little-known vertebrate is used in the text, the name of the author should be included. Names of authors should be written in full, except L. for Linnaeus. The date of the initial description can be included when considered necessary, for example *Rhyacophila nubila* (Zetterstedt, 1840). All Latin names of genera and species in the text and tables should be in italics. Names of higher taxa and other Latin terms should be left unitalicised and put in parentheses when their English synonyms are included.

Abbreviations, number formats, etc. All measurements are to be given in SI units. Use s (second), min (minute), h/hrs (hour/hours), yr/yr (year/years), but do not abbreviate day, week or month. Dates should be given as 10-20 Aug. 1970 (except March, April, May, June, July, which should not be abbreviated). Indicate times of day according to the 24-hour clock (e.g. 0900 and 2100). Do not use daylight-saving time, but specify that standard time is used at the first reference to time of day. Use the following abbreviations for some common statistical terms: SD, SE, CV, n, ANOVA, F, t , t -test, U-test, df, p, ns). Omit periods between numbers and statistical parameters (e.g. t , df, p, n), operators (e.g. =, >, <), % and °C. Number formats should comply with these examples: 10^{-x} , 0.01, 1000, 10 000, 10^x . Do not give the exact p-value of a statistical test, just indicate p-level as $p<0.001$, $p<0.01$, $p<0.05$, $p>0.05$, $p>0.1$, etc.