Skrifter 201
A catalogue of the terrestrial and marine animals of Svalbard

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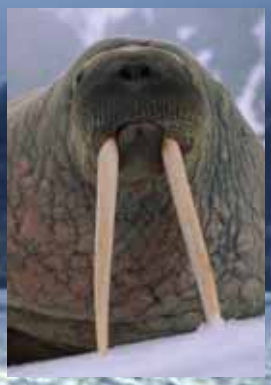





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Norwegian Polar Institute
Tromsø 2004

Cover pictures.—Background photograph: Brepollen, inner Hornsund (Winfried Dallmann). Inset photographs, clockwise from top left: *Odobenus rosmarus* (Kit & Christian, NPI); *Megaphorura arctica* (Stephen Coulson); *Alopex lagopus* (Hallvard Strøm); *Eumicrotremus spinosus* (Erling Svensen); *Larus hyperboreus* (Hallvard Strøm); *Mertensia ovum* (Erling Svensen); and *Limacina helicina* (Erling Svensen).

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Chapter 1. Introduction

Pål Prestrud, Hallvard Strøm & Helle V. Goldman

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The Arctic hosts a minor, but unique component of global biodiversity in that it contains endemic species and unique ecological processes and adaptations caused by a short growing season, a long and cold winter during which complete darkness reigns for a period which correlates with latitude (with equivalent periods of midnight sun each summer), and sea ice. Although the Arctic has relatively few species, the genetic diversity of many of these species is high, creating a mosaic of distinct populations and subspecies (Groombridge & Jenkins 2000; CAFF 2001). Knowledge of individual species and their distributions is fundamental in all ecological investigations. As biodiversity is lost across the globe (Wall et al. 2001), it becomes urgently important to document what species are present.

It is generally accepted that High Arctic ecosystems are comparatively simple. The negative correlation between species diversity and latitude, except for groups such as benthic animals, sawflies and sandpipers, is well established. In the context of environmental impact studies (*Miljøundersøkelser på Svalbard*) conducted in Svalbard in the late 1980s (Hansson et al. 1987), a discussion about the simplicity of the archipelago's ecosystems arose. Would it be possible to compile existing information about the species in Svalbard and to document how simple (or complex) the system really is?

The Norwegian Government has set high goals for the management of Svalbard. A white paper to the Parliament (*Stortingsmelding nr. 9 1999–2000 Svalbard*) states that "Svalbard should be one of the world's best managed wilderness areas. In the event of a conflict between environmental and other interests, environmental considerations are to prevail within the limits dictated by treaty obligations and sovereignty considerations." Achieving these goals depends on effective conservation and management, which in turn largely depends on up-to-date knowledge about the species, their distribution and their ecology.

In 1987, the Norwegian Polar Institute initiated a review of all published taxonomic material from Svalbard through a list of the species that had been found. That turned out to be a much bigger and time-consuming task than had been anticipated! One reason was the enormous number of publications on the topic. Because Svalbard is so accessible, large numbers of taxonomists have visited the islands over the last couple of centuries. Another reason was what seemed to be insurmountable taxonomic problems and strong disagreements among experts on the different taxonomic groups. On at least two occasions, the project ground to a halt and the draft chapters were shelved for a few years. Paradoxically, this seems to have helped bring the catalogue forward. When the manuscripts were picked up and dusted off, viewpoints seemed to have matured and disagreements lessened; fresh enthusiasm pushed the catalogue toward its completion.

The aim of the present catalogue, a companion to *A catalogue of Svalbard plants, fungi, algae and cyanobacteria* (Elvebakk & Prestrud 1996), has been to critically review the present literature and to use existing data bases to compile an updated species checklist for both marine and terrestrial animals. The catalogue consists of three main parts: the marine macro-organisms in Svalbard waters; the terrestrial and freshwater invertebrate fauna of Svalbard (and Jan Mayen); and the bird and mammal fauna of Svalbard. Each covers the entire Svalbard archipelago, but Chapter 3 also includes the fauna of Jan Mayen.

Svalbard is an archipelago of mountainous islands in the Arctic Ocean, located between latitudes 74° and 81° N and longitudes 10° and 35° E (see the map on the back cover of this volume). It covers a total terrestrial area of approximately 61 200 km^2. (As of early 2004, Norwegian territorial waters extend 12 nautical miles from land). Svalbard includes the small island of Bjørnøya (Bear Island), which is roughly 240 km south of Spitsbergen and midway between mainland Norway and the main group of islands.

The archipelago's climate is High Arctic, with average summer temperatures reaching only 4 - 5 °C. About 60 % of Svalbard is covered by glaciers or ice caps. In Longyearbyen, the islands' main settlement, there are about four months of continuous daylight; the polar night, when the sun stays completely below the horizon, is just a bit shorter. Despite its extreme northern location, the region is one of the most accessible parts of the High Arctic owing to the fact that the waters around the western part of the archipelago are open at least for most of the year. A branch of the North Atlantic Current transports relatively warm and high salinity water northwards into the Barents Sea and along the western coast of Spitsbergen throughout the year. This water mass mixes with cold polar water, resulting in high marine production at the fronts. The large biomass of pelagic invertebrates and fish forms the food base for sizeable populations of marine birds and marine mammals. The waters around the rest of Svalbard, not warmed by the North Atlantic Current, are covered by sea ice during much of the year. The extent of the ice cover varies from year to year (Mehlum & Bakken 1994; Hisdal 1998; Shapiro 2002).

Seeking a northern passage to India and China in 1596, Willem Barentsz discovered Svalbard instead (Arlov 1989). Svalbard's subsequent history can be seen in terms of lengthy, overlapping phases of exploitation: first whaling and the hunting of other marine mammals, then fur-trapping and, finally, coal mining (Arlov 1989; Hjelle 1993; Hisdal 1998). At the beginning of the 21st century, mining continues in Svalbard but scientific study—which began in the 1800s—and nature conservation have become the predominant themes, with tourism playing an increasingly significant role. Among the most northerly of year-round settlements, Ny-Ålesund began as a mining village but is now a base of operations for an international research community. Here, scientists investigate climate change, ecotoxins transported from industrialized regions in the south and other topics of critical significance. In Longyearbyen, The University Centre in Svalbard brings together natural science students from mainland Norway and beyond.

Conservation has become a high priority. In 2003, five newly proposed protected areas of various categories have increased the total land area under protection to 65 % of the archipelago, or roughly 39 500 km^2 (see the back cover). The total protected marine area is about 74 092 km^2. The walrus—once brought by hunting to the brink of extermination in the archipelago—is fully protected and is repopulating Svalbard's coasts.

Tourism offers new economic opportunities and environmental challenges. Tourists are attracted to the apparently pristine nature of Svalbard's stunning landscapes but their presence in large numbers potentially damages delicate flora and disturbs wildlife. The increased ship traffic and waste production that accompany growth in tourism constitute other potential threats to the environment.

The isolated island of Jan Mayen is situated between the Greenland Sea and the Norwegian Sea (71° N, 8° 30' W), 1000 km west of Norway, 500 km east of Greenland and 600 km north of Iceland (Gabrielsen et al. 1997; Hacquebord 1998). The island is 54 km long and 2.5 km to 17 km wide. Like Svalbard, Jan Mayen is in a highly biologically productive convergence zone of the south-flowing East Greenland Current and the north-flowing North Atlantic Current. These conditions strongly influence the island's fauna. The vegetation is sparse, with large, virtually bare areas (Knaap & Leeuwen 1998).

The present catalogue comprises a total of 2981 species. Chapter 2 covers the marine macroorganisms (marine invertebrates and fish species larger than ca. 1 mm) found in the Svalbard waters, and a total of 1708 marine species from 18 phyla have been documented in 137 articles and unpublished reports. The largest species diversity is found among the Crustacea with 467 species, followed by the Mollusca with 252 and Annelida with 254 species. Based on the data included in the checklist, 1415 species have been recorded only in the coastal region of the main part of the Svalbard archipelago, 30 have been recorded only at Bjørnøya, and 264 species have been recorded in both areas.

Chapter 3 covers the terrestrial and freshwater invertebrate fauna of Svalbard and Jan

Mayen, and a total of 1040 terrestrial and freshwater species have been extracted from 344 articles. Twelve phyla are represented, eight from the Kingdom Animalia (the Rotifera, Nematoda, Platyhelminthes, Annelida, Tardigrada, Chelicerata, Mandibulata and Crustacea) and four from the Protoctista (the Rhizopoda, Actinopoda, Ciliophora and Apicomplexa). The class Insecta is represented by 230 species, with the Diptera forming the largest order (128 species). Fifty-nine species of Collembola have been recorded in Svalbard, and a further 103 invertebrate species have been found on Jan Mayen.

Chapter 4 covers the birds and mammals of Svalbard, and the checklist comprises 202 species of birds and 31 species of mammals. These represent 17 orders and 43 families, and 5 orders and 15 families, respectively. Twenty-eight of the bird species are regarded as abundant or common breeders, and 13 are uncommon, irregular or probable breeders. Twelve species have been recorded as having bred in Svalbard, and the remaining 149 are occasional or rare vagrants. Of the mammals, eight species are regarded as common breeders, whereas 16 species are occasional or rare vagrants. A further six species and one subspecies were introduced but have subsequently become extinct, and one has died out through overexploitation.

All three papers comprise two main sections: the species checklist and the reference list. Each species is presented with its scientific name, followed by numbers corresponding to sources in the reference list. Apart from this, the authors of the individual chapters have been given the freedom to present the basic information they deem most suitable for their group of animals. Chapters 2 and 3 include authorities for each species; Chapter 4 gives authorities only for the mammals. As more is known about the distribution and occurrence of birds and mammals than most other groups in Svalbard, Chapter 4 includes abbreviations describing each species' occurrence rating, and—for the birds—a code indicating whether the record is approved by the committees handling new records of birds in Svalbard or Norway. Chapter 4 also includes the species' common English names.

While the reference sections in this catalogue probably includes most of the relevant publications concerning the marine, freshwater and terrestrial animal fauna of Svalbard, it is important to note that this volume is not a complete list of the fauna. Some of the reasons for this are:

- the majority of collections have been made on the west coast of Spitsbergen, especially in the vicinity of Longyearbyen, Ny-Ålesund and Hornsund, which is more accessible than other parts of the archipelago
- there is a likely bias towards those species which are easily identified compared to those species more difficult to collect or identify
- erroneous identifications
- over-representation of taxa which have been of special interest to Arctic taxonomists
- confusion due to synonyms and inconsistency in reference works
- the original material recorded from Svalbard has simply been compiled—not revised—by the authors of much of the cited literature
- not all records are reported or published

Misinterpretations and errors undoubtedly occur in this list of nearly 3000 species. We would therefore appreciate corrections and additions from readers.

We hope that this volume contributes in some way to the scientific study and environmental conservation of Svalbard. An enormous amount of effort has been invested in this catalogue through the participation of numerous experts, some of whom were consulted directly by the authors of the individual chapters as they worked on their manuscripts and others who served as (mostly anonymous) reviewers. The editors are indebted to the more than 20 referees who donated their time and knowledge to improve this volume; indeed, two had so much to contribute that they were brought on board as co-authors. The editors also thank the authors of each chapter for their perseverance.

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Chapter 2. The marine macro-organisms in Svalbard waters

Rune Palerud, Bjørn Gulliksen, Torleiv Brattegard,
Jon-Arne Sneli & Wim Vader

A checklist of the known marine macro-organisms (larger than ca. 1 mm) in the waters off Svalbard has been compiled based on the data base of species records maintained by Akvaplan-niva, in Tromsø, Norway, in collaboration with the Norwegian College of Fisheries at the University of Tromsø. Currently accepted species names are cross-referenced to the list of 137 published and unpublished sources. The species list comprises a total of 1708 marine species from 18 phyla. The Crustacea have the greatest species diversity with 467 species, followed by the Mollusca with 252 species and the Annelida with 254 species. 1415 of the species are recorded only in the coastal region of the main cluster of islands in the Svalbard archipelago, 29 are recorded only at Bjørnøya, and 264 species are recorded in both parts of the archipelago.

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Knowledge of individual species and their distributions are fundamental in all ecological investigations. In recent years focus has been put into studies of biodiversity, spurred in part by indications from around the globe of the loss of biodiversity at all taxonomic levels, in ecosystems of various scales (Wall et al. 2001). The year 2001 was proclaimed the International Biodiversity Observation Year by DIVERSITAS, the international programme of biodiversity science (Wall et al. 2001). This species list should be viewed against this background.

This list of species was originally compiled as part of the Norwegian Polar Institute's environmental impact studies which were carried out in Svalbard waters to assess the effects of petroleum activity in Svalbard in the 1980s. Our knowledge of the marine fauna in Svalbard waters has increased considerably since then. In 1994, an initiative from the Ministry of the Environment resulted in a joint venture between several Norwegian researchers to map marine biology in the coastal areas of Svalbard (including Bjørnøya) as well as Jan Mayen. Collected information, including species records, was compiled in a data base that is now administrated and regularly updated by Akvaplan-niva, in Tromsø, in collaboration with the Norwegian College of Fishery Science at the University of Tromsø.

Based on the information in the data base and compilations of earlier published species records, a list of marine benthic macro-organisms in Svalbard and Jan Mayen was published in 1999 by the Directorate for Nature Management (Gulliksen et al. 1999). This report contained records within the latitudes 74° – 81° N and longitudes 10° – 35° E. Species occurring within each of 17 marine zones around Svalbard was presented. Species found in

the marine areas on the continental shelf around the island of Jan Mayen were also included.

The present publication is an updated version of the species list for the Svalbard area within the coordinates stated above. It has been calibrated against the European Register of Marine Species (ERMS), a research consortium funded by the European Union under the Marine Science and Technology programme (Costello et al. 2001; http://erms.biol.soton.ac.uk/).

A total of 1708 marine species (larger than ca. 1 mm) from 18 phyla have been extracted from 137 published and unpublished works. The Crustacea, numbering 467 species, have the greatest species diversity, followed by the Mollusca with 252 species and the Annelida with 254 species (Table 1). Based on data in the checklist, 1415 are recorded only in the coastal region of the main cluster of islands in the Svalbard archipelago, 29 are recorded only at Bjørnøya (Bear Island), and 264 species are recorded in both parts of the archipelago. Each species is listed in Section I and cross-referenced to the appropriate papers in Section II (the reference list).

Although the majority of publications concerning the marine invertebrate and fish fauna of Svalbard have been consulted for this checklist, it does not constitute a complete description of the fauna. The reasons for this include: i) the majority of collections have been made on the west coast of Spitsbergen, which is more accessible than other parts of the archipelago; ii) there is likely to be a bias towards species which are more easily collected and identified; iii) concentration on those taxa that have caught the interest of Arctic taxonomists; iv) misidentifications can have occurred; v) confusion resulting from synonyms and inconsistency in reference works; and finally vi) much of the relevant literature consists of unrevised compilations of previous records. The authors would appreciate corrections and additions from readers. A major problem regarding invertebrate taxonomy is the large number of synonyms. Currently accepted names are used in this checklist; synonyms used in the references cited are published in Gulliksen et al. (1999).

We gratefully acknowledge the financial support of the Directorate for Nature Management, the University Centre in Svalbard, the University of Tromsø, Akvaplan-niva and the Norwegian Polar Institute. We also thank the anonymous reviewers of this manuscript.

Table 1. A summary of the marine macro-organisms in Svalbard waters.

Phylum	Class	Order	No. of species
Porifera	Calcera		10
	Hexactinellida		4
	Demospongiae		132
Cnidaria	Hydrozoa		106
	Scyphozoa		7
	Anthozoa		42
Ctenophora	Tentaculata		3
	Nuda		1
Nemertini			10
Nematoda			5
Kamptozoa (Entoprocta)			4
Priapulida			3
Echiurida			1
Sipunculida			5
Annelida	Polychaeta		253
	Oligochaeta		1
Chelicerata	Pycnogonida		25
Crustacea	Ostracoda		48
	Copepoda		20
	Cirripedia		14
	Malacostraca	Leptostraca	1
		Mysidacea	16
		Cumacea	30
		Tanaidacea	7
		Amphipoda	270
		Isopoda	35
		Euphausiacea	4
		Decapoda	22
Mollusca	Caudofoveata		3
	Solenogastres		2
	Polyplacophora		5
	Gastropoda		160
	Cephalopoda		4
	Bivalvia		75
	Scaphopoda		3
Brachiopoda			7
Bryozoa			182
Chaetognata			3
Echinodermata	Crinoidea		3
	Asteroidea		28
	Ophiuroidea		16
	Echinoidea		5
	Holothuroidea		14
Chordata	Larvacea		3
	Ascidiacea		51
	Chondrichthyes		5
	Osteichthyes		65
Total			1708

I. Species checklist

Species names currently considered valid are presented along with numbers corresponding to sources in the reference list. The notation "Also Bjørnøya" means that records for the species exist for *both* the main group of Svalbard islands and the archipelago's small southern outlier, Bjørnøya. "In Svalbard restricted to Bjørnøya" refers only to the species' distribution within the Svalbard archipelago and is not intended to describe the species' global distribution. If followed by a question mark, the species is not registered in the ERMS list. This may have one of the three reasons: the species was not included by the ERMS checklist compiler; the name is considered a synonym; or it is a doubtful species.

Phylum Porifera	References
Class Calcarea	
Clathrina coriacea (Montagu, 1818)	52, 97
Grantia capillosa (Schmidt, 1862)	97
Grantia compressa (Fabricius, 1780) Also Bjørnøya.	109
Leucandra egedii (Schmidt, 1870)	10
Leucosolenia complicata (Montagu, 1818)	109
Leucosolenia variabilis (Haeckel, 1870)	10
Pericharax polejaevi Breitfuss, 1896	63, 97
Scycettusa glacialis (Haeckel, 1872)	109, 129
Sycon ciliata (Fabricius, 1780)	10, 53
Sycon raphanus O. Schmidt, 1862	97
Class Hexactinellida	
Schaudinnia arctica Schulze, 1900	106
Schaudinnia rosea (Fristedt, 1887) Also Bjørnøya.	68, 106
Scyphidium septentrionale Schulze, 1900	106
Trichasterina borealis Schulze, 1900	106
Class Demospongiae	
Artemisina apollinis Ridley & Dendy, 1886	10, 106
Artemisina arcigera (Schmidt, 1870) Also Bjørnøya.	63, 68, 106
Asbestopluma bihamatifera (Carter, 1876)	63, 106
Asbestopluma pennatula (Schmidt, 1875)	63, 106
Axinella variabilis (Vosmaer, 1882)	68, 106
Biemna capillifera (Levinsen, 1886)	106
Biemna gemmulifera Breitfuss, 1897	10
Biemna variantia (Bowerbank, 1858)	97
Bubaris vermiculata (Bowerbank, 1866) Also Bjørnøya.	63, 68
Chalina arbuscula Verrill (Fristedt)?	10
Cladorhiza abyssicola M. Sars, 1872	110
Cladorhiza gelida Lundbeck, 1905	10
Cladorhiza oxeata Lundbeck, 1905	10

Polymastia uberrima (Schmidt, 1870) 106

Psuedosuberites carnosus (Johnston, 1842) 10
Pseudosuberites hyalinus (Ridley & Dendy, 1887) 68
Pseudosuberites montiniger Carter,1880 10, 97, 106

Quasillina brevis (Bowerbank, 1861) 10, 63
Quasillina richardi Topsent, 1913 10

Reniera heterofibrosa Lundbeck? 68

Rhizaxinella schaudinni Hentschel, 1929 106

Sphaerotylus borealis (Schwartschevsky, 1906) 63
Sphaerotylus schoenus (Sollas, 1882) 10

Spongosorites fibrosa (Fristedt, 1887) 68, 106
Also Bjørnøya.
Spongosorites genitrix (Schmidt, 1870) 10

Stelletta rhaphidiophora Hentschel, 1929 63, 106

Stryphnus fortis (Vosmaer, 1885) 10

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Tedania suctoria Schmidt, 1870 68, 106

Tentorium semisuberites (Schmidt, 1870) 53, 54, 63, 68, 97, 106

Tethya norvegica Bowerbank, 1872 10

Tetilla cranium (Müller, 1776) 10, 106
Tetilla infrequens (Carter, 1876) 106
Tetilla polyura Schmidt, 1870 10
Tetilla sibirica (Fristedt, 1887) 68
Tetilla zetlandica (Carter, 1872) 106

Thenea levis Lendenfeld, 1903 10
Thenea valdiviae Lendenfeld, 1903 63, 106

Tragosia sluiteri Vosmaer? 97

Trichostemma grimaldi (Topsent, 1913)? 63

Vosmaeria crustacea Fristedt, 1885 10

Phylum Cnidaria

Class Hydrozoa

Abietinaria abietina (L., 1758) 11, 45, 54, 57, 106
Also Bjørnøya.
Abietinaria filicula (Ellis & Solander, 1786) 10
Abietinaria pulchra (Nutting, 1904) 10, 57

Aeginopsis laurentii Brandt, 1838 57, 85

Aglantha digitale (O.F. Müller) 119

Aglaophenopsis compressa (Bonnevie, 1899)? 12, 57
In Svalbard restricted to Bjørnøya.

Bougainvilla superciliaris (L. Agassiz, 1849) 57, 113

Calycella syringa (L., 1767) 11, 57, 106
Also Bjørnøya.

Campanularia hincksii Alder, 1856 10, 11, 12, 57
Also Bjørnøya.

Halecium muricatum (Ellis & Solander, 1786) 11, 12, 24, 29, 73, 97, 106, 110
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Sertularia mirabilis (Verrill, 1872) 11, 12, 57, 106
Also Bjørnøya.

Class Scyphozoa

Class Anthozoa

Virgularia tuberculata Marshall, 1833 — 10, 57
Also Bjørnøya.

Phylum Ctenophora

Class Tentaculata

Bolinopsis infundibulum (O.F. Müller, 1776) — 35, 57, 105
Also Bjørnøya.

Mertensia ovum (Fabricius, 1780) — 105
Also Bjørnøya.

Pleurobrachia pileus (Fabricius, 1780) — 35, 105, 119
Also Bjørnøya.

Class Nuda

Beroe cucumis Fabricius, 1780 — 35, 57, 105
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Amphiporus groenlandicus Ørsted, 1843 — 16, 106
Cerebratulus barentsi Bürger, 1895 — 16, 106
Cerebratulus fuscus (McIntosh, 1873) — 16, 106
Cerebratulus marginatus Renier, 1804 — 16, 106
Cryptonemertes actinophila (Bürger, 1904) — 10, 106
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Emplectonema incompta Ehlers, 1871? — 10

Micrura purpurea (Dalyell, 1853) — 106

Nipponnemertes pulchra (Johnston, 1837) — 106

Tubulanus annulatus (Montagu, 1804) — 106

Phylum Nematoda

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Enoplus communis Bastian, 1865 — 106
Enoplus edentatus Linstow, 1900? — 106

Spilophora punctata Linstow, 1900? — 135
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Thoracostoma denticaudatum Schn.? — 135, 106
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Phylum Kamptozoa (Entoprocta)

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Barentsia major Hincks, 1888? — 10
Barentsia variarticulata K.A. Andersson, 1902? — 10
Loxosoma phascolosomata (C. Vogt, 1876) — 10

Phylum Priapulida

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Phylum Sipunculida

Phylum Annelida

Class Polychaeta

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Argilloecia liefdefjordensis Hartman, 1992 10
Baffinicythere howei Hazel, 1967 10
Boroecia borealis G.O. Sars, 1866 110
Bythocythere constricta G.O. Sars, 1866 10, 60
Bythocythere turgida G.O. Sars, 1866 10
Cythere lutea (O.F. Müller, 1785) 10
Cytheropteron angulatum (Brady & Robertson, 1868) 10, 60
Cytheropteron dimlingtonensis Neale & Howe, 1973 10
Cytheropteron hamatum G.O. Sars, 1869 10, 60
Cytheropteron latissimum (Norman, 1865) 10, 60
Cytheropteron nodosoalatum Neale & Howe, 1973 10
Cytheropteron nodosum Brady, 1868 10
Cytheropteron pseudomonstrosiense Whatley & Masson, 1980 10
Cytheropteron pyramidale (Brady, 1868) 10
Cytheropteron testudo G.O. Sars, 1870 10, 60
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Elofsonella concinna (Jones, 1857) 10, 60
Finmarchinella angulata (G.O. Sars, 1866) 10
Finmarchinella barenzovoensis (Mandelstam, 1957) 10
Finmarchinella curvicostata Neale, 1974 10
Hemicythere costata (Brady, 1866)? 60
Hemicythere emarginata (G.O. Sars, 1866) 10
Hemicytherura clathrata (G.O. Sars, 1866) 10, 60
Heterocyprides sorbyana (Jones, 1856) 10, 60
Krithe producta Brady, 1880 60
Muellerina abyssicola (G.O. Sars, 1886) 10, 60
Muellerina latimarginata (Speyer, 1863) 10
Palmenella limicola (Norman, 1865) 10
Paradoxostoma arcticum Elofson, 1941 10
Paradoxostoma rostratum G.O. Sars, 1865 10
Paradoxostoma variabile (Baird, 1835) 10
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Philomedes lilljeborgi G.O. Sars, 1866 60
In Svalbard restricted to Bjørnøya.
Polycope cf. *orbicularis* G.O. Sars, 1866 10
Rabilimis septentrionalis (Brady, 1866) 10
Robertsonites tuberculatus (G.O. Sars, 1866) 10, 60
Roundstonia macchesneyi (Brady & Crossekey, 1871) 10
Sarsicytheridea bradii (Norman, 1865) 10, 60
Sarsicytheridea macrolaminata (Elofson, 1939) 10
Sarsicytheridea punctillata (Brady, 1865) 10
Sclerochilus contortus (Norman, 1861) 10
Sclerochilus makeoeyanensis Hartmann, 1994 10

Semicytherura glaseri Hartmann, 1992 10
Semicytherura nigrescens (Baird, 1838) 10, 60
Semicytherura undata (G.O. Sars, 1866) 10, 60

Xestoleberis blumeli Hartmann, 1992 10
Xestoleberis depressa G.O. Sars, 1866 10

Class Copepoda

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Bradyidus similis (G.O. Sars, 1902) 10

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Calanus glacialis Jaschnov, 1955 4, 113
Calanus hyperboreus (Krøyer, 1838) 92, 113, 119, 128

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Also Bjørnøya.

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Hamatoscalpellum hamatum (G.O. Sars, 1879) 13, 110, 126

Lepas anatifera L., 1758 13, 60, 106

Ornatoscalpellum stroemi (M. Sars, 1859) 13, 60
Also Bjørnøya.

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Semibalanus balanoides (L., 1758) 13, 19, 29, 60, 108, 126, 129
Also Bjørnøya.

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Class Malacostraca

Order Leptostraca

Order Mysidacea

Order Cumacea

Order Tanaidacea

Order Amphipoda

Order Isopoda

Order Euphausiacea

Order Decapoda

Phylum Mollusca

Class Caudofoveata

Class Solenogastres

Class Polyplacophora

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Subclass Opistobranchia

Class Cephalopoda

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Panomya norvegica (Spengler, 1793)	24
Portlandia arctica (J.E. Gray, 1824)	24, 45, 51, 54, 97, 121, 127
Serripes groenlandicus (Bruguière, 1789)	45, 54, 51, 70, 97, 106, 107, 108, 119, 121, 128
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Thyasira equalis (Verrill & Bush, 1898)	24, 51
Thyasira ferruginea (Locard, 1886)	24, 97
Thyasira flexuosa (Montagu, 1803)	15, 24, 72, 97
Thyasira gouldi (Philippi, 1845)	24
Thyasira sarsi (Philippi, 1845)	24
Turtonia minuta (O. Fabricius, 1780)	81, 97
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Yoldia myalis (Couthouy, 1838) ?	10
Yoldiella annenkovae (Gorbunov, 1946)	24
Yoldiella frigida (Torell, 1859)	15, 24, 51, 52, 97, 106
Yoldiella intermedia (M. Sars, 1865)	24, 97, 106
Yoldiella lenticula (Møller, 1842)	24, 51, 52, 53, 54, 97, 106
Yoldiella lucida (Lovén, 1846)	24, 97
Yoldiella nana (M. Sars, 1865)	24, 51, 53, 97, 106
Yoldiella propinqua (Leche, 1878)	24
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Class Scaphopoda

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Dentalium occidentale Stimpson, 1851	10
Siphonodentalium lobatum (G.B. Sowerby II, 1860)	24, 52, 53, 54, 97, 106, 121

Phylum Brachiopoda

Glaciarcula spitzbergensis (Davidson, 1852)	10
Hemithiris psittacea (Gmelin, 1792) Also Bjørnøya.	24, 45, 52, 53, 54, 72, 113, 129
Liothyris arctica (Friele, 1878)	45
Macandrevia cranium (O.F. Müller, 1776)	24, 52, 53
Neocrania anomala (O.F. Müller, 1776) Also Bjørnøya.	45, 53
Terebratulina retusa (L., 1758)	24
Terebratulina septentrionalis (Couthouy, 1838) Also Bjørnøya.	10, 45

Phylum Bryozoa

Phylum Chaetognata

Phylum Echinodermata

Class Crinoidea

Class Asteroidea

Class Ophiuroidea

Class Echinoidea

Class Holothuroidea

Phylum Chordata

Subphylum Tunicata

Class Larvacea

Class Ascidiacea

Subphylum Vertebrata

Class Chondrichthyes

Class Osteichthyes

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Chapter 3. The terrestrial and freshwater invertebrate fauna of Svalbard (and Jan Mayen)

Stephen J. Coulson & Dagfinn Refseth

A checklist of the known terrestrial and freshwater invertebrate fauna of Svalbard and Jan Mayen has been compiled from an extensive survey of the literature. Currently accepted, valid species names are presented with the synonyms which occur in the Svalbard and Jan Mayen literature. Each species is cross-referenced to the appropriate papers. A total of 1040 terrestrial and freshwater species from Svalbard have been extracted from 344 articles. Twelve phyla are represented, eight from the Kingdom Animalia (the Rotifera, Nematoda, Platyhelminthes, Annelida, Tardigrada, Chelicerata, Mandibulata and Crustacea) and four from the Protoctista (the Rhizopoda, Actinopoda, Ciliophora and Apicomplexa). The class Insecta is represented by 230 species, with the Diptera forming the largest order (128 species). There are 59 species of Collembola present in Svalbard. A further 103 invertebrate species are found on the island of Jan Mayen, some 900 km south of Svalbard.

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Scientific descriptions of the invertebrate fauna of Svalbard began in the middle of the 19th century and the first major overview of the invertebrate fauna listed approximately 300 species (Thor 1930). The present checklist cites 277 papers considering the Svalbard invertebrate fauna which have appeared since Thor (1930), and while there have been subsequent faunistic summaries (for example, Sømme 1979, 1993), there has been no recent comprehensive cross-referenced species and reference checklist.

The checklist comprises two sections: I) the invertebrate and Protoctista species (species found on Jan Mayen are included); and II) references. It must be accepted that such lists are often out of date before going to press (Karppinen & Krivolutsky 1982). However, checklists like this one are of general use and interest and it is hoped that this list can be used as the basis for future revisions. A summary of the recorded invertebrate fauna from Svalbard is presented in Table 1.

While this checklist includes the majority of publications concerning the terrestrial and freshwater invertebrate fauna of Svalbard, it is important to note that it is far from a complete description of the fauna. The reasons for this include: i) the majority of collections have been made at or in the vicinity of only three locations on the west coast of Spitsbergen, namely Longyearbyen, Ny-Ålesund and Hornsund; ii) there is likely to be a bias towards those species easily identified to the detriment of those species difficult to collect and/or identify; iii) concentration on those taxa that have caught the interest of Arctic taxonomists; iv) some species may have been misidentified; and finally v) confusion over synonyms and inconsistency in reference works. For example, the current list of oribatid mite species could be reduced by perhaps as much as half with the removal of synonyms and problematic records (T.

Solhøy, pers. comm.). A full examination of the type specimens required to clarify many species confusions is beyond the scope of this work. It is likely, therefore, that there are errors and omissions in this checklist. The authors would appreciate corrections and additions from readers.

A major problem with invertebrate taxonomy is the large numbers of synonyms to be found. Currently accepted names are presented along with synonyms used in the references cited. Reorganization of classification schemes is an ongoing affair. The classification systems used here represent currently accepted systems (based on Margulis et al. 1998).

In the last 20 years there has been a move away from reports dealing solely with species presence to studies estimating species abundance and activity (Bengtson et al. 1974; Kristensen & Vestergaard 1975; Solem & Sendstad 1978; Byzova et al. 1997; Syrjämäki 1998), distribution (Frénot & Van Vliet-Lanoë 1992; Jørgensen & Eie 1993; Strathdee & Bale 1995; Uvarov & Byzova 1997), life cycles and population dynamics (Meijering 1979; Strathdee et al. 1993; Birkemoe 1995; Webb et al. 1995; Birkemoe & Sømme 1998; Birkemoe & Leinaas 1999; Coulson et al. 2000), ecosystem function (Opalinski 1991; Hodkinson & Wookey 1999), ecophysiology (Aunaas et al. 1983; Opalinski & Klekowski 1992; Block et al. 1994; Sømme & Birkemoe 1997; Hertzberg & Leinaas 1998; Holmstrup & Sømme 1998; Worland et al. 1998) and, more recently, genetic diversity (Colbourne et al. 1998; Hobæk & Weider 1999; Weider et al. 1999)—not only as a part of studies investigating High Arctic ecology as a whole, but also using the faunal assemblages as model systems to test general ecological theory (Sendstad 1981; Hertzberg et al. 1994; Coulson et al. 1996; Birkemoe 1998; Coulson et al. 2000). A review of the invertebrate ecology of Svalbard is given in Coulson (2000).

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Table 1. A summary of the recorded invertebrate fauna of Svalbard.

Phylum	Class	Order	No. of species
Rhizopoda			189
Actinopoda			3
Ciliophora			6
Apicomplexa			1
Rotifera	Digononta		37
	Monogononta		117
Nematoda	Penetrantia		33
	Secernentia		43
	Torquentia		28
	Adenophorea		4
Platyhelminthes	Cestoda		7
	Trematoda		1
Annelida	Oligochaeta		34
Tardigrada	Heterotardigrada		16
	Eutardigrada		67
Chelicerata	Arachnida: Acari	Acariformes	98
		Parasitiformes	18
	Arachnida: Araneae		18
Mandibulata	Collembola		59
	Insecta	Anoplura	2
		Ephemeroptera	1[a]
		Hemiptera	4
		Mallophaga	37
		Coleoptera	19
		Diptera	128
		Hymenoptera	26
		Lepidoptera	10
		Siphonaptera	2
		Trichoptera	1
Crustacea	Branchiopoda		10
	Copepoda		10
	Malacostraca		2
	Ostracoda		9
Total			1040

[a]One species of ephemeropteran has been identified from Svalbard. However, this is a dubious record. See list for fuller explanation.

I. Species checklist

Species names currently considered valid are presented along with numbers corresponding to sources in the reference list. Synonyms are given in smaller type. "In Svalbard restricted to Bjørnøya" and "restricted to Jan Mayen" refer only to the species' distribution within the Svalbard archipelago and Jan Mayen and is not intended to describe the species' global distribution. Species likely to be accidental migrants or relatively recent introductions as a result of human activities have been indicated wherever possible. In some cases the original species description is incomplete and the accuracy of identification is unclear. In such instances other more likely species are presented with a preceding question mark.

	References
Kingdom Protoctista	
Phylum Rhizopoda	
Order Amoebida	
Fam. Amoebidae	
Amoeba radiosa Ehrenberg	319
Amoeba verrucosa Ehrenberg	319
Order Arcellinida	
Fam. Arcellidae	
Arcella atrocera Leidy	319
Arcella arenaria Greeff	22, 25, 260
Arcella arenaria f. compressa Chardez	22, 24
Arcella arenaria var. *sphagnicola* Deflandre	22
Arcella bathystoma Deflandre	22
Arcella discoides Ehrenberg	22, 244
Arcella ovaliformis Chardez and Beyens	22, 61
Arcella rotundata Playfair	22, 24, 25
Arcella rotundata var. *aplanata* Deflandre	22
Arcella rotundata var. *undulata* Stepanek	22, 25
Arcella vulgaris Ehrenberg	14
Chlamydophrys stercorea Cienk	319
Cochliopodium erinaceum Penard	14
Cochliopodium obscurum Penard	22, 25
Cochliopodium opalinum Penard	22, 25
Difflugiella horrida Schönborn	14
Difflugiella oviformis (Penard) Bonnet and Thomas	14
Difflugiella pusilla (Playfair) Grospietsch	14
Microcorycia flava Greef	22, 25
Microcorycia husvikensis Beyens and Chardez	23
Parmulina louisi Chardez and Beyens	22
Pseudochlamys patella C. and L.	319
Pyxidicua cymbalum Penard	25
Pyxidicula ornata Bartos	14
Fam. Centropyxidae	
Centropyxis aculeata Stein	22, 25, 244
Centropyxis aculeata f. compressa	244
Centropyxis acuminata Couteaux and Chardez	22

Fam. Cryptodifflugiidae

Fam. Trigonopyxidae

Fam. Difflugiidae

Fam. Trinematidae

Corythion aerophila Decoitre 24
Corythion delamarei Bonnet and Thomas 14
Corythion dubium Taranek 14, 22, 24, 260
Corythion dubium var. *aerophila* Decloitre 14, 24
Corythion dubium f. *minima* Chardez 22, 24
Corythion dubium var. *orbicularis* Penard 22, 24
Corythion dubium var. *terricola* Schönborn 244
Corythion pulchellum Penard 14
Trinema complanatum Penard 22, 25
Trinema complanatum var. *globulosa* Chardez 22
Trinema euchelys (Ehrenberg) Leidy 14, 22, 24, 25, 260, 319
Trinema lineare Penard 14, 21, 22, 25, 244, 260
Trinema lineare f. *minuscula* Chardez 14, 22
Trinema lineare f. *truncatum* Chardez 22
Trinema lineare var. *longa* Korganova 22
Trinema navicularis Decloitre 22
Trinema penardi Thomas and Chardez 22

Fam. Cyphoderiidae

Cyphoderia ampulla Leidy 22
Cyphoderia perlucidus Beyens and Charedez 21, 22

Fam. Paulinellidae

Paulinella chromatophora Lauterborn 22

Fam. Gromiidae

Gromia sp. 319
Nadinella tenella Penard 244
Pseudodifflugia globulosa Stepanek 244
Pseudodifflugia gracilis Schlumberger 22, 244
Pseudodifflugia gracilis var. *terricola* Bonnet and Thomas 244
Pseudodifflugia senartensis Couteaux 244

Order Pelobiontida

? *Pelomyxa villosa* Leidy 319

Incertae sedis (name and genus placement uncertain)

Oopyxis cyclostoma Thomas 14, 260

Phylum Actinopoda

Fam. Acanthocytidae

Acanthocystis sp. 319

Fam. Actinophryridae

Actinophrys sol Ehrenberg 319

Fam. Clathrulinidae

Clathrulina elegans Cienk 319

Fam. Flosculariidae

Ptygura melicerta (Ehrenberg, 1832)	319
Ptygura spp.	83, 84, 85, 88, 90

Order Ploimida

Fam. Brachionidae

Kellicottia longispina (Kellicott, 1879)	9, 173, 276, 316, 317
? *Notholca longispina*	
Keratella cochlearis (Gosse, 1851)	9, 87, 317
Keratella hiemalis (Carlin, 1943)	9, 10, 90, 173, 246, 316, 317
Keratella quadrata (Müller, 1786)	7, 8, 9, 10, 319
Anuraea aculeata	
Keratella testudo (Ehrenberg, 1832)	85
Notholca acuminata (Ehrenberg, 1832)	9, 10, 85, 319
Notholca acuminata var. *extensa* Olofsson, 1918	85
Notholca foliacea (Ehrenberg, 1838)	7, 9, 83, 85, 90, 171, 172, 246, 316,
Argonotholca foliacea (Ehrenberg)	317, 319
Notholca foliacea var. *latistyla* Olofsson	
Notholca labis Gosse, 1887	83
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.	
Notholca latistyla (Olofsson, 1918)	9, 83, 85, 90, 173
Notholca latistyla f. *amreni* De Smet and Bafort, 1990	84, 85
Notholca marina (Focke, 1991)	85
Notholca striata (Müller)	9, 10, 319
Notholca striata var. *bipalium* (Müller)	
Notholca striata f. *extensa*	
Notholca squamala (Müller, 1786)	9, 10, 84, 85, 88, 90, 171, 172, 317

Fam. Colurellidae

Colurella adriatica Ehrenberg, 1831	83, 84, 85, 88, 90, 319
Colurella amblytelus (Gosse, 1851)	319
Colurella colurus (Ehrenberg, 1830)	83, 85, 89, 171, 172, 319
Colurella geophila Donner, 1981	83
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.	
Colurella hindenburgi Steinecke, 1917	83, 85, 90, 317
Colurella obtusa (Gosse, 1886)	83, 85, 319
Colurella uncinata (Müller, 1773)	83, 85, 90
Lepadella acuminata (Ehrenberg, 1834)	83, 85, 90, 319
Metopidia acuminata Ehrenberg	
Lepadella minuta (Montet, 1918)	83, 85
Lepadella ovalis (Müller, 1786)	83, 85, 173, 172, 319
Metopidia lapadella	
Lepadella patella (Müller, 1786)	46, 83, 84, 85, 88, 90, 171, 172, 305,
Metopidia oblonga	316, 317, 319
Lepadella quadricarinata (Stenroos, 1898)	83, 85, 319
Metopidia quadricarinata	
Lepadella triba Myers, 1934	85
Lepadella triptera Ehrenberg, 1830	83, 316
Lophocaris oxysternon (Goose, 1851)	319
Squatinella mutica (Ehrenberg, 1832)	83

Wulfertia ornata Donner, 1943 85

Fam. Scaridiidae

Scaridium longicaudum (Müller, 1786) 319

Fam. Synchaetidae

Polyarthra dolichoptera (Idelson, 1925) 7, 9, 10, 83, 85, 90, 173, 246, 316, 317
Polyarthra dolichoptera f. *aptera* (Hood, 1895) 85
Polyarthra dolichoptera f. *proloba* (Albertova, 1960) 85
Polyarthra vulgaris Carlin, 1943 319
Polyarthra trigla Ehrenberg
Synchaeta lakowitziana Ehrenberg, 1832 9, 10
Synchaeta lakowitziana arctica De Smet, 1988 83, 317
Synchaeta littoralis Rousselet, 1902 9, 10
Synchaeta truncata von Hofsten, 1909 9, 10
Synchaeta sp. 173, 316

Fam. Trichocercidae

Trichocerca bidens (Lucks, 1912) 90, 319
Diurella bidens Lucks
Trichocerca cavia (Gosse, 1886) 85, 171, 172
Trichocerca cristata Harring 319
Trichocerca intermedia (Stenroos, 1898) 85
Trichocerca longistyla (Olofsson, 1918) 85
Trichocerca rattus (Müller, 1776) 83, 85, 319
Rattulus carinatus
Trichocerca relicta (Donner, 1950) 83, 85
Trichocerca uncinata (Voigt, 1902) 83, 85, 90, 319
Diurella uncinata (Voigt)
Trichocerca weberi (Jennings, 1903) 83, 85, 90, 171, 172

Fam. Trichotriidae

Trichotria truncata (Whitelegge) 191, 193, 242
Trichotria pocillum (Müller, 1776) 83
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Phylum Nematoda

Class Penetrantia

Order Enoplida

Fam. Alaimidae

Alaimus arcuatus Thorne, 1939 215
Alaimus depressus Loof, 1971 215
Alaimus elegans de Man, 1921 6
Restricted to Jan Mayen (not present in Svalbard).
Alaimus parvus Thorne, 1939 215
Alaimus primitivus de Man, 1880 6
Restricted to Jan Mayen (not present in Svalbard).

Fam. Prismatolaimidae

Prismatolaimus dolichurus de Man, 1880 6, 215
Prismatolaimus intermedius (Buetschli, 1873) 6, 215
Prismatolaimus primitivus Loof, 1971 215

Fam. Mononchidae

Prionchulis muscorum (Dujardin, 1845) 191, 193

Fam. Nordiidae

Enchodelus macrodorus (de Man, 1880) 6
Restricted to Jan Mayen (not present in Svalbard).
Dorylaimus macrodorus de Man

Fam. Qudsianematidae

Labronema sp. 191, 193

Fam. Tylencholaimidae

Tylencholaimus proximus Thorne, 1939 215
Tylencholaimus teres Thorne, 1939 215

Class Secernentia

Order Rhabditida

Fam. Bunonematidae

Bunonema reticulatum Richters, 1905 215

Fam. Cephalobidae

Acrobeles ciliatus von Linstow, 1877 215
Acrobeloides bütschlii Gadea, 1954 228
Cephalobus bütschlii de Man
Acrobeloides enoploides Loof, 1971 215
Acrobeloides tricornis (Thorne, 1925) 38, 215
Cephalobus persegnis Bastian, 1865 6
Restricted to Jan Mayen (not present in Svalbard).
Cervidellus serratus (Thorne, 1925) 215
Cervidellus spitzbergensis Bostrøm, 1987 37
Chiloplacus saccatus Loof, 1971 38, 215
Eucephalobus arcticus Loof, 1971 38, 215
Eucephalobus oxyuroides (de Man, 1876) 6
Restricted to Jan Mayen (not present in Svalbard).
Cephalobus oxyuroides de Man
Heterocephalobus elongatus (de Man, 1880) 6, 215
Cephalobus elongatus de Man
Stegelleta similis (Thorne, 1925) 215
Stegelleta mucronata

Fam. Panagrolaimidae

Panagrolaimus papillosus Loof, 1971 215

Fam. Rhabditidae

Rhabditis intermedia (de Man, 1880) 6
Restricted to Jan Mayen (not present in Svalbard).
Anguillulina intermedia (de Man, 1880)
Rhabditis terricoli Dujardin, 1845 6
Restricted to Jan Mayen (not present in Svalbard).
Rhabditis aspera Bütschli
Rhabditis gracilicauda de Man, 1876 6
Restricted to Jan Mayen (not present in Svalbard).

Rhabditis sp. 171

Fam. Teratocephalidae

Euteratocephalus crassidens Andrassy, 1958 6, 39, 215
Metateratocephalus crassidens (de Man)

Teratocephalus costatus Andrassy, 1958 39
Teratocephalus decarinus Anderson, 1969 215
Teratocephalus lirellus Anderson, 1969 39, 215
Teratocephalus terrestris (Butschli, 1873) 6
Teratocephalus sp. 39, 171

Order Strongylida

Fam. Trichostrongylidea

Note: many of these are now considered to be dimorphic or trimorphic species with major or minor morphotypes (see ref. 133).

Grosspiculaqia occidentalis (Ransom, 1907) 54, 131, 132, 134
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Marshallagia marshalli (Ransom, 1907) 5, 48, 50, 53, 54, 131, 132, 133, 134
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Nematodirus helvetianus May, 1920 5, 133
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Ostertagia arctica Mitzkewitzsch, 1929 5, 133, 134
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Ostertagia grühneri Skrjabin, 1929 2, 3, 5, 48, 50, 53, 54, 131, 132, 133
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Ostertagia occidentalis Ransom, 1907 5, 48, 50, 53
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Paracuaria adunca (Creplin 1846) 257
Parasite of Glaucous Gull (*Larus hyperboreus*).

Skrjabinagia arctica (Mitzkevich, 1929) 48, 49, 53, 54, 131, 132, 134
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).
Possibly *Skrjabinagia lyrata* (Sjøberg, 1926)

Teladorsagia circumcincta (Stadelmann, 1894) 48, 49, 53, 54, 131, 132, 133, 134
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*)

Teladorsaga davitiani Andreeva and Satubaldini, 1984 54, 131, 134
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Teladorsaga trifurcata (Ransom, 1907) 5, 48, 49, 53, 54, 131, 132, 134
Parasite of Muskox (*Ovibos moschatus*; no longer present in Svalbard) and Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).
Possibly *Ostertagia trifurcata*

Order Tylenchida

Fam. Criconematidae

Criconemoides annulatus Taylor, 1936 215
*Criconemoides hemispaericaudatu*s Wu

Criconema sp. 215

Fam. Hoplolaimidae

Helicotylenchus spitsbergensis Loof, 1971 215

Fam. Pratylenchidae

Pratylenchoides crenicauda Winslow, 1958 215

Pratylenchoides magnicauda (Thorne, 1935) 215
Tylenchorhynchus magnicauda Filipijev

Pratylenchus pratensis (de Man, 1880) 6
Restricted to Jan Mayen (not present in Svalbard).
Anguillulina pratense (de Man)

Fam. Tylenchidae

Basiria dolichura Loof, 1971 215

Coslenchus costatus (de Man, 1921) 215
Tylenchus costatus de Man

Filenchus leptosoma (de Man, 1880) 6
Restricted to Jan Mayen (not present in Svalbard).
Anguillulina leptosoma (de Man, 1880)

Filenchus thornei (Andrassy, 1954) 215
Tylenchus thornei Andrassy

Geocenamus arcticus (Mulvey, 1969) 215
Tylenchorhynchus arcticus Mulvey

Geocenamus loofi (Siddiqi, 1979) 215, 274
Tetylenchus joctus Thorne apud Loof
Merlinius loofi Siddiqi

Geocenamus microdorus (Geraert, 1966) 215
Tylenchorhynchus microdorus Geraert

Lelenchus leptosoma (de Man, 1880) 215
Tylenchus leptosoma de Man

Malenchus bryophilus (Steiner, 1914) 215
Tylenchus bryophilus Steiner

Nagelus leptus (Allen, 1955) 215
Tylenchorhynchus leptus Allen

Tylenchus davainei Bastian, 1865 6, 215
Anguillulina davainei (Bastian)

Suborder Aphelenchina

Aphelenchus nivalis Aurivillius, 1883 306, 228

Class Torquentia

Order Araeolaimida

Fam. Araeolaimidae

Parachromagasteriella arctica Allgen, 1953 6
Restricted to Jan Mayen (not present in Svalbard).

Fam. Plectidae

Anaplectus cf. *grandepapillatus* (Ditlevsen, 1928) 171

Anaplectus granulosus de Coninck and Shürmans Stekhoven, 1933 215
Plectus granulosus Bastian

Anaplectus porosus Allen and Noffsinger, 1968 191, 193, 194, 215

Class Adenophorea

Subclass Enoplia

Order Stichosomida

Fam. Trichinellidae

Trichinella spiralis (Owen, 1935) 36, 189, 190, 207
Trichinella nelsnoni
Parasite of Polar Bear (*Ursus maritimus*).

Trichinella nativa (Britov and Boev, 1972) 180
Parasite of Arctic Fox (*Alopex lagopus*).

Trichinella sp. 36, 250
Parasite of Arctic Fox (*Alopex lagopus*) and Polar Bear (*Ursus maritimus*).

Fam. Philometridae

Philonema oncorhynchi Kuitunen-Ekbaum, 1933 184
Parasite of Arctic Char (*Salvelinus alpinus*).

Philonema sp. 277

Species Inquirida

Anguillulina macrophallum (de Man) 6
Restricted to Jan Mayen (not present in Svalbard).

Macfadyenia filicaudata Allgren, 1953 6
Restricted to Jan Mayen (not present in Svalbard).

Nomina dubia

Heterocephalobus filiformis (de Man, 1876) 6
Cephalobus filiformis de Man
Restricted to Jan Mayen (not present in Svalbard).

Phylum Platyhelminthes

Class Cestoda

Order Cyclophyllidae

Fam. Anoplocephalidae

Moniezia benedini Moniez, 1872 48, 49, 50, 51, 131
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).

Fam. Taeniidae

Echinococcus multilocularis Leuckart, 1863
Parasite of Sibling Vole (*Microtus rossiaemeridionalis*) and Arctic Fox (*Alopex lagopus*).

Taenia ovis krabbei (Moniez, 1879) Verster, 1969 48, 50, 50, 131
Parasite of Svalbard Reindeer (*Rangifer tarandus platyrhynchus*).
Cysticercus tarandi

Order Proteocephalidea

Fam. Proteocephalidae

Proteocephalus exiguus Weinland, 1858 184
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Order Pseudophyllidea

Fam. Diphyllobothriidae

Diphyllobothrium ditremum (Creplin, 1825) 184, 195
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Diphyllobothrium sp. 277
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Fam. Triaenophoridae

Eubothrium crassum (Bloch, 1779) 183
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Eubothrium salvelini Schrank, 1790 183, 184, 277
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Class Trematoda

Order Digenea

Cryptocotyle lingua (Creplin, 1825) 257
Parasite of Glaucous Gull (*Larus hyperboreus*). In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Phylum Annelida

Class Oligochaeta

Fam. Enchytraeidae

Bryodrilus diverticulatus Cernosvitov, 1929 30, 95
Bryodrilus ehlersi glandulosa

Bryodrilus ehlersi Ude, 1892 28, 30, 95, 236, 237, 238, 283

Bryodrilus parvus Nurminen, 1970 28, 30, 95, 283,

Cernosvitoviella immota (Knoller, 1935) 30, 95, 236, 237, 238

Cernosvitoviella sp. 238

Cognettia sphagnetorum (Vejdovsky, 1877) 95, 237, 238

Cognettia sp. 28, 30

Enchytraeus albidus Henle, 1837 95, 236, 238, 289, 290, 291, 305, 306

Enchytraeus kincaidi Eisen, 1904 30, 95, 236, 237, 238, 290, 291, 306
Enchytraeus liefdeensis Stephenson

Enchytraeus sp. 236, 238, 289

Fridericia bulboides Neilsen and Christensen, 1959 95, 236, 238

Fridericia bulbosa (Rosa, 1887) 95, 236, 237, 238, 266

Fridericia leydigi (Vejdovsky, 1877) 95, 236

Henlea heleotropha Stephenson, 1922,
augm. Nielsen and Christensen, 1959 28, 30, 95, 236, 238, 289, 291, 305
Henlea heleotrophus Stephenson

Henlea glandulifera Nurminen, 1970 95, 237, 238
as *Henlea similis* (ref. 30)

Henlea nasuta (Eisen, 1878) 95

Henlea perpusilla Friend, 1911, augm. Cernosvitov, 1937 28, 30, 95, 236, 237, 238, 266, 283,
Henlea brucei Stephenson 289, 290, 291, 305, 306

Henlea similis Nielsen and Christensen, 1959 28, 30, 236, 237, 238, 302

Henlea ventriculosa (d'Udekem, 1954) 28, 30, 236, 237, 238, 302

Henlea sp. 236, 266, 289, 290, 291, 305

Lumbricillus arenarius (Michaelsen, 1988) 95, 236, 238
Lumbricillus magdalenae Nurminen

Lumbricillus bülowi Nielsen and Christiensen, 1959 95
Lumbricillus eltoni (Stephenson, 1924) 95, 236, 290
Enchytraeus eltoni Stephenson
Lumbricillus muscicolus (Stephenson, 1924) 95, 236, 291
Enchytraeus muscicolus Stephenson
Lumbricillus neilseni Nurminen, 1965 95, 236, 237, 238
as *Lumbricillus bülowi* Nielsen and Christiensen, 1959 (ref. 30)
Lumbricillus pagenstecheri (Ratzel, 1869) 95, 236, 238, 289, 290, 291, 305, 306
as *Lumbricellus aegialites* Stepheson, 1922 (ref. 30)
as *Lumbricellus necrophagus* Stephenson, 1922 (ref. 30)
as *Lumbricellus nervosus* Ude, 1902 (ref. 30)
Lumbricillus reynoldsoni Backlund, 1948 95, 236, 238
Lumbricillus rivalis Levinsen, 1890, augm. Ditlevsen, 1904 95, 236, 238
Lumbricillus semifuscus (Claparede, 1861) augm. Stephenson, 1911 95, 236, 238
Lumbricillus tuba Stephenson, 1911 95
Lumbricellus sp. 238, 266, 275, 276
Marionina aporus (Stephenson, 1925) 95, 236, 291
Enchytraeus aporus Stephenson
Marionina argentea (Michaelsen, 1889) 28, 30, 95, 236, 237, 238, 266
Marionina crymodes (Stephenson, 1922) 95, 236, 289, 305, 306
Enchytreaus crymodes Stephenson
Marionina libra Neilsen and Christensen, 1959 95, 236, 238
Mesenchytraeus argentatus Nurminen, 1973 28, 30, 95, 283
Mesenchytraeus eltoni Stephenson, 1925 95, 236, 291, 306
Mesenchytraeus flavus (Levinsen, 1884) 28, 30, 95, 237, 238, 283
Mesenchytraeus sp. 28, 30, 95, 236, 237, 238, 289, 305

Fam. Lumbricidae

Sp. unknown. 236
One immature juvenile found. Extremely rare. Possible incorrect identification.

Phylum Tardigrada

Class Heterotardigrada

Order Arthrotardigrada

Fam. Echiniscidae

Bryodelphax sinensis (Pilato, 1974) 78, 221, 222
Echiniscus sinensis Pilato
Echiniscus arctomys Ehrenberg, 1853 222, 233, 319, 336
Echiniscus blumi Richters, 1903 78, 221, 222, 319, 336
Echiniscus capillatus Ramazzotti, 1956 78, 222
Echiniscus granulatus (Doyère, 1840) 78, 221, 222, 254
Echiniscus loxophthalamus Richters, 1911 222, 254
Echiniscus merokensis Richters, 1904 78, 221, 222, 336
Echiniscus oihonnae Richters, 1903 222, 254, 336
Echiniscus quadrispinosus Richters, 1902 222, 336
Echiniscus spinulosus (Doyère, 1840) 222, 336
Echiniscus testudo (Doyère,1840) 78, 221, 222, 336
Echiniscus wendti Richters, 1903 78, 171, 221, 222, 254, 319, 336
Echiniscus sp. 171, 222

Ameronothrus nigrofemoratus (L. Koch, 1879) 219
Restricted to Jan Mayen (not present in Svalbard).
Probably *Ameronothrus lineatus* (Thorell)
Probably only one species of *Ameronothrus* present (*A. lineatus*).

Superfam. Carabodoidea

Carabodes labyrinthicus (Michael, 1879) 219
Restricted to Jan Mayen (not present in Svalbard).

Tectocepheus alatus Berlese, 1913 235
Dubious record.

Tectocepheus sarekensis Trägårdh, 1910 181, 182

Tectocepheus velatus (Michael, 1880) 56, 70, 181, 182, 219, 318, 320

Tectocepheus sp. 272

Likely that only one species of *Tectocepheus* is present. Differences between *T. sarekensis* and *T. velatus* are problematic.

Superfam. Cymbaeremaeoidea

Micreremus brevipes (Michael, 1888) 235

Superfam. Damaeoidea

Belba compta (Kulczynski, 1902) 219
Restricted to Jan Mayen (not present in Svalbard).

Metabelba sp. 219
Restricted to Jan Mayen (not present in Svalbard).

Oribata ursina Thor, 1930 219, 318, 319
Validity of this species is questionable. *Damaeus ursinae* is cited in ref. 201 but may refer to *O. ursina* Thor 1930.

Spatiodamaeus sp. 235
Probably wrong. Middle European species.
? *Dameus* sp.

Superfam. Gymnodamaeoidea

Gymnodamaeus sp. 272
Probably wrong. Middle European species.

Superfam. Hermannioidea

Hermannia reticulata Thorell, 1872 13, 34, 66, 69, 152, 164, 181, 182, 219, 235, 305, 318, 319, 320, 335, 342

Hermannia scabra (L. Koch, 1879) 182, 319

Superfam. Gustavioidea

Ceratoppia bipilis (Hermann, 1804) 41, 42, 121, 164, 305, 306, 319
Eremaeus bipilis (Hermann)
Likely wrongly determined.

Ceratoppia hoeli Thor, 1930 13, 25, 66, 69, 70, 152, 181, 182, 235, 305, 318, 320, 335, 342
Ceratoppia hoeli and *C. sphaerica* are most probably synonyms.

Ceratoppia sphaerica (L. Koch, 1879) 25, 219, 306, 335
Notaspis bipilis var. *sphaerica* (L. Koch)
Ceratoppia hoeli and *C. sphaerica* are most probably synonyms.

Ceratoppia sp. 56, 266
Likely that only *C. sphaerica* occurs in Svalbard.

Superfam. Oppioidea

Autogneta kaisilai Karppinen, 1997 — 181, 182, 342
May be synonym with other *Autogneta*. Unclear whether this species genuinely occurs in Svalbard. More commonly from Finnish woodland.

Dissorhina ornata (Oudemans, 1900) — 181, 182, 219, 318, 320
Cosmoppia ornata (Oudemans)
Dameosoma ornatum (Oudemans)
Oppia ornata (Oudemans)

Lauroppia fallax (Paoli, 1908) — 181, 182, 320, 342
Oppiella fallax (Paoli)
Oppia fallax (Paoli)

Lauroppia maritima (Willmann, 1929) — 219
Restricted to Jan Mayen (not present in Svalbard).
Oppia maritima (Willmann)

Lauroppia translamellata (Willmann, 1923) — 70, 121, 181, 182, 191, 219, 235, 271, 272, 320, 342
Oppia translamellata (Willmann)

These three *Lauroppia* species are probably the same species in Svalbard (*L. translamellata*).

Microppia minus (Paoli, 1908) — 272
Considered a dubious record.
Oppiella minus

Oppia sp. — 56, 266
Probably *Lauroppia* sp.

Oppiella nova Oudemans, 1902 — 5, 69, 157, 181, 182, 219, 272, 318, 320, 335, 342
Dameosoma neerlandicum (Oudemans, 1900)
Oppia nova (Oudemans)
Oppia neerlandica (Oudemans)

Quadroppia quadricarinata (Michael, 1885) — 219
Restricted to Jan Mayen (not present in Svalbard).
Oppia quadricarinata (Michael)

Suctobelba trigona (Michael, 1888) — 219
Restricted to Jan Mayen (not present in Svalbard).

Suctobelba sp. — 272

Suctobelbella sarekensis (Forsslund, 1941) — 181, 182, 342
Suctobelba sarekensis (Forsslund)

Suctobelbella subcornigera (Forsslund, 1941) — 181, 182, 342
Suctobelba subcornigera (Forsslund)

Cohort Pterogasterina

Superfam. Ceratozetoidea

Ceratozetes spitsbergensis Thor, 1934 — 70, 181, 182, 272, 320

Chamobates borealis (Trägårdh, 1902) — 56

Chamobates birulai (Kulcynski, 1902) — 319
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.
Notaspis birulai Kulcynski

Diapterobates notatus (Thorell, 1871) — 13, 25, 34, 56, 66, 69, 70, 121, 152, 155, 157, 164, 181, 191, 235, 271, 182, 266, 272, 305, 306, 318, 319, 320, 335, 342
Oribata notata Thorell
Murcia notata (Thorell)
Sphaerozetes notatus Thorell
Trichoribates notatus (Thorell)

Edwardzetes edwardsii (Nicolet, 1855) — 181, 182, 320
Probably wrongly determined. Present in northern Norway.

Mycobates sarekensis (Trägårdh, 1910) 69, 181, 182, 219, 235, 273, 318, 320, 335, 342
Calyptozetes sarekensis (Trägårdh)

Oromurcia lucens (L. Koch, 1879) 319
Restricted to Bjørnøya and of questionable validity.
Notaspis lucens L. Koch
Probably *Svalbardia paludicola* Thor, 1930

Sphaerozetes piriformis (Nicolet, 1855) 164, 305, 306, 319
Probably wrongly determined. Present in northern Norway.

Svalbardia paludicola Thor, 1930 181, 318

Trichoribates novus (Sellnick, 1928) 56
Trichoribates setiger (Trägårdh, 1910) 235
Trichoribates trimaculatus (C.L. Koch, 1836) 56, 182, 219
Trichoribates sp. 56
The records of these *Trichoribates* species are problematic.

Superfam. Galumnoidea

Pergalumna nervosa (Berlese, 1914) 272
Probably wrongly determined. Middle European species.

Superfam. Licneremaeoidea

Scutovertex minutus (C.L. Koch, 1835) 181, 182, 235
Probably wrongly determined. Middle European species.

Superfam. Oribatelloidea

Oribatella arctica Thor, 1930 181, 318, 320

Superfam. Oripodoidea

Liebstadia similis (Michael, 1888) 219
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Oribatula crassipes (C.L. Koch) 219
Restricted to Jan Mayen (not present in Svalbard).
Oribatula tibialis (Nicolet, 1885) 56, 219
Oribatula venusta Berlese, 1908 56, 181, 182, 235, 320, 342
Zygoribatula venusta (Berlese)
Identity of *Oribatula crassipes* and *O. venustra* problematic. Most probably only one species in Svalbard (*O. tibialis*).

Phauloppia lucorum (C.L. Koch, 1841) 181
Probably wrongly determined. Unlikely to be present in Svalbard.
Notaspis lucorum (C.L. Koch) Michael, 1897, Berlese, 1889

Zygoribatula exilis (Nicolet, 1855) 164, 182, 305, 318, 319
Oribatula exilis (Nicolet)

Supercohort Macropylides

Cohort Arthronotina

Superfam. Brachychthonoidea

Brachychthonius berlesei William, 1928 219
Restricted to Jan Mayen (not present in Svalbard).
Brachychthonius horridus Sellnick, 1926 201
Restricted to Jan Mayen (not present in Svalbard).
Brachychthonius scalaris (Forsslund, 1942) 219
Restricted to Jan Mayen (not present in Svalbard).

Eobrachychthonius borealis (Forsslund, 1942) 235
Eobrachychthonius latior (Berlese, 1910) 181, 182, 219, 235
Eobrachychthonius grandis (Sellnick)
Eobrachychthonius oudemansi van der Hammen, 1952 235
Liochthonius alpestris (Forsslund, 1958) 56
Liochthonius brevis (Michael, 1888) 181, 318, 320
Brachychthonius perpusillus Berlese
Brachychthonius brevis (Michael) var. *glabra*
Liochthonius perpusillus (Berlese)
Liochthonius laetepictus (Berlese, 1910) 181, 182, 235, 320
Brachychthonius laetepictus Berlese
Liochthonius lapponicus (Trägårdh, 1910) 56, 119, 181, 182
Liochthonius muscorum Forsslund, 1964 56, 119
Liochthonius sellnicki (Thor, 1930) 181, 182, 219, 235, 318, 320
Brachychthonius sellnicki Thor
Liochthonius sp. 56, 191, 272

Cohort Holonotina

Superfam. Nothroidea

Camisia anomia Colloff, 1993 13, 66, 69, 335
Camisia biverrucata (C.L. Koch, 1839) 181, 182, 320
Nothrus biverrucatus C.L. Koch
Camisia borealis (Thorell, 1871) 70, 150, 181, 182, 235, 319
Camisia foveolata Hammer, 1955 56, 121, 182, 271, 280
Camisia horrida (Hermann, 1804) 34, 181, 182, 219, 235, 318, 320, 342
Nothrus horridus (Hermann)
Nothrus borealis Thorell
Camisia invenusta (Michael, 1888)
Nothrus invenusta (Michael)
Camisia lapponica (Trägårdh, 1910) 56
Camisia spinifer (C.L. Koch, 1836) 181, 182, 320
Nothrus spinifer C.L. Koch
Camisia sp. 56
Heminothrus paolianus (Berlese, 1913) 219
Restricted to Jan Mayen (not present in Svalbard). More probably *Heminothrus paolianus* var. *longisetosus* since *H. paolianus* is a Mediterranean species.
Nothrus borrusicus Sellnick, 1928 219
Restricted to Jan Mayen (not present in Svalbard).
Nothrus silvestris C.L. Koch, 1836 219
Restricted to Jan Mayen (not present in Svalbard).
Nothrus sp. 121, 272
Probably *Camisia* sp.
Platynothrus peltifer (C.L. Koch, 1839) 181, 182, 235
? *Platynothrus punctatus* (C.L. Koch)
Platynothrus septentrionalis Sellnick, 1944 181, 182
Problematic occurrence in Svalbard.
Platynothrus capillatus (Berlese) var. *septentrionalis* Sellnick

Cohort Ptyctima

Superfam. Euphthiracaroidea

Microtritia sp. 272
Probably wrongly determined. Unlikely to be present in Svalbard. A middle European species.

Suborder Sarcoptiformes

Supercohort Acaridida (Astigmata)

Superfam. Acaroidea

Fam. Acaridae

Acotyledon krameri (Berlese, 1881) 219
Restricted to Jan Mayen (not present in Svalbard).
Cosmoglyhus krameri Berlese

Tyroborus lini Oudemann 219
Restricted to Jan Mayen (not present in Svalbard).

Tyrophagus putrescentiae (Schrank, 1781) 219
Restricted to Jan Mayen (not present in Svalbard).
Coelognathus putrescentiae (Schrank)

Superfam. Glycyphagoidea

Fam. Glycyphagidae

Glycyphagus domesticum (De Geer, 1771) 219
Restricted to Jan Mayen (not present in Svalbard).
Oudemansium domesticus (De Geer)

Superfam. Anoetoidea

Fam. Anoetidae

Histiostoma sp. 219
Restricted to Jan Mayen (not present in Svalbard).

Suborder Trombidiformes (Actinedida)

Cohort Endostigmata

Superfam. Pachygnathoidea

Fam. Alicorhagiidae

Alicorhagia clavipilus (Thor, 1931) 320
Epistomalycus clavipilus Thor

Alicorhagia fragilis Berlese, 1910 219
Restricted to Jan Mayen (not present in Svalbard).

Alicorhagia plumipilis (Thor, 1931) 320
Epistomalycus plumipilis Thor

Fam. Nanorchestidae

Nanorchestes amphibius Topsent and Trouessart, 1890 219
Restricted to Jan Mayen (not present in Svalbard).

Nanorchestes arboriger (Berlese, 1904) 219, 318, 320
Alycus arboriger Berlese

*Speleochest*es sp. 219
Restricted to Jan Mayen (not present in Svalbard).

Cohort Eupodina

Superfam. Bdelloidea

Fam. Bdellidae

Bdella longicornis (Linnaeus, 1758) 159, 219, 305, 306, 318, 319, 320
Bdella decipiens Thorell

Bdella semiscutata Thor, 1930 318, 320

Bdellodes longirostris (Hermann, 1904) 219
Restricted to Jan Mayen (not present in Svalbard).
Bdella longirostris (Hermann)

Biscirus lapidarius (Kramer, 1881) 20, 318
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.
Scirus lapidarius (Kramer)

Cyta latirostris (Hermann, 1804) 219, 318, 320

Cyta brevirostris (L. Koch, 1879)
(a variety of *C. latirostris*) 41, 159, 305, 306, 319
Ammonia brevirostris L. Koch, sensu Trägårdh

Neomolgus capillatus (Kramer, 1881) 318
Molgus capillatus (Kramer)

Neomolgus littoralis (Linnaeus, 1758) 12, 20, 41, 159, 219, 305, 306, 318, 319
Bdella arctica Thorell, 1872
Bdella littoralis (Linnaeus)
Bdella groenlandicus Trägårdh
Molgus littoralis (L.)
Bdella sanguinea (Trouessart)

Neomolgus pallipes (L. Koch) 159, 305, 306

Fam. Cunaxidae

Cunaxoides croceus (C.L. Koch, 1838) 320
Eupalus croceus (C.L. Koch)

Superfam. Eupodoidea

Fam. Eupodidae

Cocceupodes clavifrons (R. Canestrini, 1886) 219, 318, 320
Coccorhagidia clavifrons (Canestrini)
Eupodes clavifrons Canestrini

Cocceupodes curviclava Thor, 1934 219
Restricted to Jan Mayen (not present in Svalbard).

Cocceupodes molicellus (Koch, 1838) 219
Restricted to Jan Mayen (not present in Svalbard).

Cocceupodes paradoxus Weis-Fogh, 1948 201
Restricted to Jan Mayen (not present in Svalbard).

Eupodes variegatus C.L. Koch, 1838 219, 318, 320

Protereunetes borneri Thor, 1934 219, 320

Protereunetes brevipes (Berlese, 1923) 219
Restricted to Jan Mayen (not present in Svalbard).

Fam. Penthaleidae

Halotydeus destructor Jack 219
In stored food. Misidentified? A Southern Hemisphere genus. Restricted to Jan Mayen (not present in Svalbard).

Penthaleus bipustulatus (Hermann, 1804) 219
Restricted to Jan Mayen (not present in Svalbard).

Penthaleus maior (Dugès, 1834) 219, 318, 319, 320
Penthaleus insulanus Thorell
Bertram and Lack 1938 cite *Penthaleus maior* (Dugès, 1834) as *Penthalodes maior* (Dugès, 1834).

Penthaleus sp. 306

Fam. Penthalodidae

Penthalodes ovalis (Dugès, 1834) 219, 306, 318, 319, 320
Chromotydeus arcticus Trägårdh, 1905
Penthalodes ovalis Dugès
Penthaleus arcticus Trägårdh

Fam. Rhagidiidae

Coccorhagidia clavifrons (Canestrini, 1886) 318
Rhagidia clavifrons (Canestrini)

Foveacheles terricola (C.L. Koch, 1835) 219
Restricted to Jan Mayen (not present in Svalbard).
Rhagidia terricola (C.L. Koch)

Poecilophysis reflexa (C.L. Koch, 1838) 219
Restricted to Jan Mayen (not present in Svalbard).
Rhagidia reflexa (C.L. Koch)

Rhagidia birulai Thor, 1909 219
Restricted to Jan Mayen (not present in Svalbard). Genus placement uncertain.

Rhagidia gelida Thorell, 1872 20, 41, 159, 219, 305, 306, 318, 319, 320

Superfam. Tydeoidea

Fam. Tydeiidae

Coccotydeus globifer (Thor, 1931) 320
Genus placement uncertain.

Microtydeus constans Thor, 1931 219, 320

Microtydeus similis R. Canestrini, 1886 219
Restricted to Jan Mayen (not present in Svalbard).

Microtydeus subtilis (Koch, 1838) 219
Restricted to Jan Mayen (not present in Svalbard).

Triophtydeus pinicolus (Oudemans, 1929) 320

Tydaeolus frequens (Grandjean, 1939) 219
Restricted to Jan Mayen (not present in Svalbard).
Coccotydeus frequens (Grandjean)

Tydaeolus tenuiclaviger (Thor, 1931) 320
Coccotydeus tenuiclaviger (Thor)

Tydeus croceus (Linnaeus, 1758)

Tydeus interruptus Thor, 1932 219
Restricted to Jan Mayen (not present in Svalbard).

Tydeus foliorum (Schrank, 1781) 318
Tydeus kochi Oudemans, 1928 219
Restricted to Jan Mayen (not present in Svalbard).

Tydeus langei Thor, 1934 320

Tydeus svalbardensis Thor, 1932 219, 320

Tydeus totensis Thor, 1932 201
Restricted to Jan Mayen (not present in Svalbard).

Tydeus tridactylus Weis-Fogh, 1948 219
Restricted to Jan Mayen (not present in Svalbard).

Tydeus sp. 219

Cohort Eleutherengona

Superfam. Raphignathoidea

Fam. Stigmaeidae

Eustigmaeus oudemansi (Thor, 1930) 318
Ledermülleria oudemansi (Thor)

Eustigmaeus pulchellus (Thor, 1930) 318
Liostigmaeus pulchellus Thor

Eustigmaeus sp. 56
Ledermulleria sp.

Superfam. Tetranychoidea

Fam. Tetranychidae

Bryobia borealis Oudemans, 1930 306, 318, 320

Bryobia praetiosa C.L. Koch, 1836 219
Restricted to Jan Mayen (not present in Svalbard).
Bryobia graminum (Schrank, 1781)

Cohort Heterostigmata

Superfam. Pygmephoroidea

Fam. Pygmephoridae

Bakerdania arcticus (Thor, 1934) 320
Pediculoides arcticus (Thor)

Bakerdania cultratus (Berlese, 1904) 219
Pygmephorus cultratus (Berlese)
Restricted to Jan Mayen (not present in Svalbard).

Bakerdania stercoricola (Berlese, 1904) 219
Pygmephorus stercoricola (Berlese)
Restricted to Jan Mayen (not present in Svalbard).

Bakerdania tarsalis (Hirst, 1921) 219
Pygmephorus tarsalis (Hirst)
Restricted to Jan Mayen (not present in Svalbard).

Pygmephorus spinosus Kramer, 1877 124, 219
Restricted to Jan Mayen (not present in Svalbard).

Superfam. Scutacaroidea

Fam. Scutacaridae

Scutacarus tridentinus (Paoli, 1911) 219
Restricted to Jan Mayen (not present in Svalbard).
Variatipes tridentinus (Paoli)

Superfam. Tarsonemoidea

Fam. Tarsonemidae

Xenotarsonemus uliginosus (Willmann, 1942) 219
Restricted to Jan Mayen (not present in Svalbard).
Tarsonemoides uliginosus (Willmann)

Cohort Parasitengona

Superfam. Lebertioidea

Fam. Sperchonidae

Sperchon brevirostris (Koenike, 1895) 20, 305, 318
Sperchon lineatus Thor, 1899

Superfam. Trombidioidea

Fam. Podothrombiidae

Podothrombium bicolor (Hermann, 1804) 318
Podothrombium curtipalpe (Thor, 1900) 318
Podothrombium svalbardense Oudemans, 1930 318

Fam. Ereynetidae

Ereynetes sp. 219
Restricted to Jan Mayen (not present in Svalbard).

Opsereynetes norvegicus Thor 219
Restricted to Jan Mayen (not present in Svalbard).

Order Parasitiformes

Suborder Gamasida (Mesostigmata)

Cohort Gamasina

Superfam. Ascoidea

Fam. Ascidae

Antennoseius (Vitzthumia) *oudemansi* (Thor, 1930) 56, 318, 320
Vitzthumia oudemansi Thor

Arctoseius laterincisus Thor, 1930 318, 320
Arctoseius multidentatus Evans, 1955 56
Arctoseius pristinus Karg, 1992 56
Arctoseius taimyricus Petrova et Makarova, 1991 56
Arctoseius weberi Evans, 1955 56

Melichares sp. 56

Proctolaelaps parvanalis (Thor, 1930) 318, 320
Lasioseuis parvanalis Thor

*Zerconopsi*s sp. 56
? *Zerconopsis* sp.

Fam. Phytoseiidae

Amblyseius magnanalis Thor, 1930 318, 320
Lasioseuis magnanalis Thor

Superfam. Dermanyssoidea

Fam. Haemogamasidae

Haemogamasus ambulans (Thorell, 1872) 201, 318, 320
Parasite of Sibling Vole (*Microtus rossiaemeridionalis*).
Eulaelaps ambulans (Thorell)

Fam. Hypoaspididae

Hypoaspis ovalis C.L. Koch 1836 159, 305, 319
Incertae sedis. In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Fam. Laelapidae

Laelaps hilaris C.L. Koch 201
Parasite of Sibling Vole (*Microtus rossiaemeridionalis*).

Superfam. Parasitoidea

Fam. Parasitidae

Eugamasus berlesei (Willmann, 1935) 219
Restricted to Jan Mayen (not present in Svalbard).
Gamasodes berlesei (Willmann)

Parasitellus fucorum (De Geer) 219
Restricted to Jan Mayen (not present in Svalbard).
Parasitellus ferox (Trägårdh)

Pergamasus sp. 219
Restricted to Jan Mayen (not present in Svalbard).

Superfam. Rhodacaroidea

Fam. Ologamasidae

Gamasellus borealis (Koch, 1879) 306
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Superfam. Veigaioidea

Fam. Veigaiidae

Veigaia kochi (Trägårdh, 1901) 41, 219
Restricted to Jan Mayen (not present in Svalbard).
Cyrtolaelaps kochi (Trägårdh)

Superfam. Zerconoidea

Fam. Zerconidae

Zercon curiosus Trägårdh, 1910 219
Restricted to Jan Mayen (not present in Svalbard).
Zercon forsslundi Sellnick, 1958 56
Zercon franzi Willmann, 1943 219
Restricted to Jan Mayen (not present in Svalbard).
Zercon inornatus Willmann, 1943 219
Restricted to Jan Mayen (not present in Svalbard).
Zercon perforatulus Berlese, 1904 219
Restricted to Jan Mayen (not present in Svalbard).
Zercon triangularis C.L. Koch, 1836 318, 320
Zercon zelawaensis Sellnick, 1944 56
Zercon spp. 56

Cohort Uropodina

Superfam. Polyaspidoidea

Fam. Polyaspididae

Uroseius acuminatus (Koch, 1847) sensu Berlese 1888 319

Superfam. Uropodoidea

Fam. Urodinychidae

Dinychus perforatus Kramer, 1882 219
Restricted to Jan Mayen (not present in Svalbard).

Suborder Ixodida (Metastigmata)

Superfam. Ixodoidea

Fam. Ixodidae

Ixodes (Ceratixodes) uriae White, 1852 — 41, 124
Restricted to Jan Mayen (not present in Svalbard).
Ixodes putus (Pickard-Cambridge)

Subclass Araneae

Fam. Linyphiidae

Collinsia sp. — 156

Erigone arctica palearctica Braendegaard, 1934 — 12, 43, 55, 56, 120, 137, 138, 146, 160, 129, 163, 166, 167, 168, 169, 199, 271, 305, 306, 312, 314, 318
Erigone arctica White

Erigone longipalpis Sundevall, 1830 — 319
Misidentification?
Possibly *Erigone arctica palearctica* Braendegaard, 1934

Erigone psychrophila (Thorell, 1871) — 137, 129, 138, 146, 160, 163, 166, 167, 168, 199, 306, 312

Erigone tirolensis L. Koch, 1872 — 20, 41, 42, 43, 44, 160, 166, 167, 169, 305, 306, 312, 322

Erigone sp. — 156, 163, 191, 193

Halorates holmgreni (Thorell, 1871) — 41, 42, 43, 44, 120, 137, 146, 160, 163, 166, 167, 168, 169, 305, 306, 312, 322
Collinsia holmgreni (Thorell)
Coryphaeus holmgreni Thor
Coryphaeus mendicus L. Koch
Coryphaeolanus holmgreni Thor
Lophomma holmgreni (Thorell)

Halorates spetsbergensis (Thorell, 1871) — 43, 56, 120, 137, 138, 146, 160, 161, 129, 163, 166, 167, 168, 169, 199, 271, 305, 306, 312, 314, 318, 319
Collinsia spetsbergensis (Thorell)
Typhochraestus spetsbergensis (Thor)
? *Typhochraestus borealis* Thor
Erigone spetsbergensis Thorell
Microeriogone spetsbergensis (Thorell)

Halorates thulensis (Jackson, 1934) — 146, 160, 312
Collinsia thulensis (Jackson)

Hilaira frigida Thor — 41, 42, 44, 322
Restricted to Jan Mayen (not present in Svalbard).
Erigone cryophila (Koelbel)

Hilaira glacialis (Thorell, 1871) — 43, 55, 56, 120, 137, 138, 146, 160, 129, 163, 166, 167, 168, 169, 199, 305, 306, 312, 314, 318, 319
Erigone glacialis Thorell

Hilaira sp. — 156

Lepthyphantes complicatus (Emerton, 1882) — 43, 120, 160, 169, 312
Lepthyphantes hyperboreus Strand
Micryphantes hyperboreus C.L. Koch

Lepthyphantes sobrius (Thorell, 1871) — 43, 120, 129, 137, 138, 146, 160, 163, 166, 167, 168, 169, 199, 305, 306, 312, 314, 319
Linyphia sobria Thorell

Mecynargus borealis (Jackson, 1930) — 138, 146, 160, 191, 193, 194, 199
Conigerella borealis (Jackson)
Rhaebothorax borealis (Jackson)

Isotoma anglicana Lubbock, 1862 — 15, 20, 41, 42, 56, 58, 60, 69, 70, 110, 112, 114, 116, 117, 122, 211, 212, 219, 263, 266, 278, 284, 286, 305, 306, 318, 319, 326, 327, 332
Isotoma viridis Bourlet
Isotoma palustris (Gmelin)

Isotoma multisetis Carpenter and Phillips, 1922 — 20, 58, 60, 112, 116, 305, 327
Revision of species required (see ref. 116).

Isotoma neglecta Schäffer, 1900 — 20, 33, 58, 60, 112, 114, 116, 117, 263, 286, 318, 319, 327
Isotoma fennica (Reuter)
Isotoma violacea Tullberg

Isotoma notabilis Schäffer, 1896 — 112, 114, 116, 122, 219, 284

Isotoma olivacea Tullberg, 1871 — 58, 112, 114, 116, 263, 266, 306, 318

Isotoma regularis Hammer, 1957 — 112
Isotoma binoculata Wahlgren

Isotoma ruseki Fjellberg, 1979 — 112, 116
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Isotoma tshernovi Martynova, 1974 — 56, 69, 112, 116, 117, 326, 327
Isotoma fennica (Reuter)
Isotoma nanseni Fjellberg
Isotoma olivacea (Tullberg)

Isotoma sp. — 56, 112, 191, 193, 327

Isotomiella minor (Schäffer, 1896) — 112, 114, 116, 122, 219
Restricted to Jan Mayen (not present in Svalbard).

Pseudanurophorus binoculatus Kseneman, 1934 — 112, 114, 116, 219
Restricted to Jan Mayen (not present in Svalbard).

Pseudanurophorus inoculatus Bödvarsson, 1957 — 56, 112, 114, 116, 117, 122, 326

Pseudisotoma sensibilis (Tullberg, 1876) — 41, 112, 116
Restricted to Jan Mayen (not present in Svalbard).

Tetracanthella arctica Cassagnau, 1959 — 20, 58, 60, 112, 114, 116, 123, 141, 143, 271, 305, 318, 319, 327, 332
Tetracanthella wahlgreni Linnaniemi: Thor
Tetracanthella pilosa Schött: Wahlgren
Tetracanthella coerulea (Haller)

Vertagopus arcticus Martynova, 1969 — 112, 117

Vertagopus pseudocinereus Fjellberg, 1975 — 112, 116
Probably a local introduction to the High Arctic; natural populations considered unlikely.

Fam. Katiannidae

Sminthurinus aureus (Lubbock, 1862) — 20, 112, 318, 327

Sminthurinus concolor (Meinert, 1896) — 20, 33, 41, 42, 58, 60, 69, 112, 114, 116, 117, 122, 211, 219, 263, 286, 305, 306, 284, 318, 326, 327
Sminthurinus niger (Lubbock)

Fam. Neanuridae

Anurida granaria (Nicolet, 1847) — 58, 112, 116, 306, 318, 327

Anurida maritima (Guerin, 1836) — 112, 117

Anurida polaris (Hammer, 1954) — 56, 69, 70, 112, 114, 116, 117, 141, 143, 263, 266, 284, 326
*Anurida fridgid*a Fjellberg

Anurida thalassophila (Bagnall, 1939) — 116, 122, 219
Restricted to Jan Mayen (not present in Svalbard).
Anurida remyi Denis

Anurida sp. — 112, 191

Friesea quinquespinosa Wahlgren, 1900 — 112, 116, 117, 284, 326, 327
Friesea nauroisi Cassagnau

Nomina dubia

Cryptopygus thermophilus (Axelson, 1900) 116, 318
Probably introduced or misidentification.
Isotomina thermophila (Axelson)

Folsomia inoculata Stach 1947 271
Identification uncertain. Unclear taxonomy of group.

Isotoma tigrina (Nicolet, 1841) 42, 116
Probably wrongly determined. Unlikely to be present in Svalbard or on Jan Mayen.
Isotoma grisesiens Schäffer
Isotoma grisescens Schäffer

Mesaphorura krausbaueri Börner (1901) 122, 219
Restricted to Jan Mayen (not present in Svalbard). However, reports considered dubious.
Tullbergia krausbaueri Börner

Proisotoma schoetti (Dalla Torre, 1895) 60, 116, 263, 327
Isotoma literalis Schott

Willowsia buski (Lubbock, 1896) 116, 318, 327
Sira flava Ågren

Class Insecta

Superorder Exopterygota

Order Ephemeroptera

Fam. Leptophlebiidae

Leptophlebia vespertina (L., 1758) 173
This is a dubious record. Unlikely that this species occurs so far north.

Order Anoplura

Fam. Echinophthiriidae

Antarctophthirus tricechi (Boheman, 1865) 176
Parasite of Walrus (*Odobenus rosmarus* L.).

Echinophthirius horridus (Olfers, 1816) 176
Parasite of Ringed Seal (*Phoca hispida* L.).

Echinophthirius groenlandicus Becher, 1886 110
Restricted to Jan Mayen (not present in Svalbard). Parasite of Harp Seal (*Phoca groenlandica*).

Order Mallophaga

Pay special note to the qualification in ref. 224. All are parasites of birds.

Suborder Amblycera

Ancistrona vagelli (Fabricus, 1787) 224

Austromenopon brevifimbriatum (Piaget, 1880) 224

Austromenopon corporosum (Kellogg and Kuwana, 1901) 224

Austromenopon fuscofasciatum (Piaget, 1880) 126, 224
Menopon fuscofasciatum Piaget

Austromenopon lutescens (Burmeister, 1838) 110, 126, 224, 319
Menopon lutescens Burmeister

Austromenopon merguli Timmermann, 1954 224

Austromenopon nigropleurum (Denny, 1842) 124, 126
Restricted to Jan Mayen (not present in Svalbard).

Austromenopon uriae Timmermann, 1954 224

Philopterus fusiformis (Denny)
Saemundssonia tringae variabilis (Denny, 1842) 224
Saemundssonia tringae lobata Martens, 1974 126, 224

Species below reported in ref. 126, but identification considered unreliable or of limited use by ref. 224.

Actornithophilus bicolor (Piaget)
Actornithophilus umbris (Burmeister sensu Timmermann)

Anatoecus mollissimae Keler
Anatoecus brevimaculatus (Giebel)
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Menacanthus spp.
Menacanthus mutablis Blagoveshtchensky
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Perineus sp.

Philopterus hamatus Packard
Philopterus spp.

Quadraceps conformis (Blagoveshtchensky)
Restricted to Bjørnøya.
Quadraceps hiaticulae (Fabricus)
Quadraceps normifer Timmermann
Quadraceps phalaropi (Denny)
Quadraceps strepsilaris (Denny)
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.
Quadraceps sp.

Ricinus spp.

Saemundssonia brevappendiculata (Piaget)
Saemundssonia gonothorax (Giebel)
Saemundssonia tridactyla Timmermann
Saemundssonia spp.

Trinoton querguedulae (L.)

Order Hemiptera

Fam. Aphididae

Subfam. Aphidinae

Acyrthosiphon calvulus Ossiannilsson, 1958 139, 245
Acyrthosiphon svalbardicum Heikinheimo, 1968 139, 150, 156, 294, 295, 296, 297, 298, 299, 300, 301, 334, 344

Nasonovia (Kakimia) saxifragae (Doncaster and Stroyan, 1952) 91
Kakimia (Neokakimia) saxifragae
Restricted to Jan Mayen (not present in Svalbard).

Subfam. Lachninae

Cinara abieticola (Cholodkovsky, 1899) 105, 139
Probably wind migrant. Not breeding in Svalbard.
? *Cinara piceae* (Panzer 1801)
? *Dilachnus piceae* Panzer (nec Walker)

Subfam. Eriosomatinae

Pemphigus groenlandicus (Rübsaamen, 1898) 139, 145
Probably wind migrant. Unlikely to be resident in Svalbard.

The following have been reported from Spitsbergen but identities are unclear. See ref. 139 for a full discussion.

Subfam. Aphidinae

Aphis borealis 106, 139
? *Cinara (Todolachnus) abieticola* (Cholodkovsky, 1899)
Unconfirmed report. Actual identity unknown but probably wind migrant. Unlikely to be resident in Svalbard.

Aphis sp. 139, 306, 318
Unconfirmed report, probably wind migrant. Unlikely to be resident in Svalbard.

Cavariella salicis (Monell, 1879) (*Siphocoryne*) 139, 318
Siphocoryne salicis
? *Cavariella* sp.
Unconfirmed report, probably wind migrant. Unlikely to be resident in Svalbard.

Subfam. Eriosomatinae

Pemphigus sp. 139, 318
Unconfirmed report, probably wind migrant. Unlikely to be resident in Svalbard.

Fam. Endopterygota

Order Coleoptera

Fam. Anthicidae

Anthicus flavipes (Panzer, 1797) 179

Fam. Byrrhidae

Simplocaria metallica (Sturm, 1807) 113, 128, 261, 293, 303, 305

Fam. Dytiscidae

Hydroporus striola Gyllenhal, 1827 196
One imago was recovered from the stomach of an Arctic Char (*Salvelinus alpinus* L.) from the lake Ellasjøen, Bjørnøya.

Fam. Carabidae

Amara quenseli (Schönherr, 1806) 17, 113, 302, 303, 305

Fam. Chrysomelidae

? *Phytodecta* 104, 306
Single specimen collected near the hot springs in Bockfjorden. Specimen lost and identity unclear.

Fam. Cryptophagidae

Atomaria atricapilla Stephens, 1830 113, 179
Atomaria lewisi Reitter, 1877 113, 178,

Fam. Curculionidae

Orchestris saliceti Fabricus 76, 104, 108, 198, 306, 319
Tachyerges (Orchestris) saliceti Fabricus
Rhynchaenus flagellum (Ericson, 1902) 113, 128, 146, 178, 303, 305, 318
? *Rhynchaenus foliorum* (Müller)

Fam. Lathridiidae

Lathrididius minutus (L., 1767) 20, 105, 205
Enicmus minutus L.

Fam. Silvanidae

Oryzaephilus surinamensis (L., 1758) — 113, 178, 281
Associated with human stored food transported to Svalbard.
Oryzaephilus mercator Fauvel

Fam. Staphylinidae

Atheta graminicola (Gravenhorst, 1806) — 12, 56, 76, 104, 128, 146, 156, 157, 198, 306
? *Atheta prope frigida* Sahlberg, 1806
Atheta sp. — 306

Boreophilia subplana (J. Sahlberg, 1880) — 76, 113, 128, 146, 198, 319
Atheta subplana J. Sahlberg

Eucnecosum brachypterum (Gravenhorst, 1802) — 20, 113, 198, 205
Arpedium brachypterum (Gravenhorst)

Micralymma marinum (Strøm, 1783) — 20, 76, 113, 146, 198, 205, 319

Olophrum boreale (Paykull, 1792) — 20, 41, 113, 205

Omalium caesum Gravenhorst, 1806 — 113
Omalium septentrioneis Thompson, 1857 — 20, 205
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Philonthus sp. — 113, 292
Dead specimen probably brought ashore in a ship's ballast.

Order Diptera

Suborder Nematocera

Fam. Chironomidae

The Chironomidae are taken from, and follow the nomenclature of, Lindegaard (1997 [ref. 210]), but include species from Hodkinson et al. (1996 [ref. 154]). Many of the species from Svalbard belong to families that have not been recently revised and species only known from Svalbard are probably synonyms. The list presented here is necessarily a conservative estimate of the Svalbard chironomid fauna; a complete taxonomic revision of the greater part of the Svalbard material is required (K. Aagaard, pers. comm.). The following references consider the chironomid fauna: 11, 20, 40, 47, 59, 96, 97, 98, 99, 101, 102, 120, 147, 154, 173, 185, 186, 187, 188, 191, 196, 203, 206, 210, 216, 220, 240, 252, 266, 270, 275, 285, 304, 305, 306, 309, 310 and 319.

Subfam. Tanypodinae

Arctopelopia barbitarsis (Zetterstedt, 1850) — 210
Arctopelopia melanosoma (Goetghebuer, 1933) — 210

Procladius crassinervis (Zetterstedt, 1838) — 210

Subfam. Diamesiinae

*Diamesa aberrat*a Lundbeck, 1889 — 154, 210
Diamesa arctica (Boheman, 1865) — 154, 210
Diamesa bertrami Edwards, 1935 — 154, 210
Diamesa bohemani Goetghebuer, 1932 — 210
Diamesa hyperborea Holmgren, 1869 — 210
Diamesa lindrothi Goetghebuer, 1931 — 154, 210
Diamesa lundstroemi Kieffer, 1911 — 210

Subfam. Orthocladiinae

Camptocladius stercorarius (De Geer, 1776) — 210

Chaetocladius holmgreni (Jacobson, 1898) — 210
Chaetocladius laminatus Brundin, 1947 — 154

Zaphne frontata (Zetterstedt, 1838) 42, 65, 120, 305, 306, 308, 319, 321
Acroptena frontata Zetterstedt
Aricia frontata Zetterstedt
Scatomyza obscura Boheman
*Hylemyia frontat*a Zetterstedt

Fam. Calliphoridae

Boreellus atriceps (Zetterstedt, 1845) 306
Phormia atriceps Zetterstedt

Calliphora vicina Robineau-Desvoidy, 1830 306
One record. collected from onboard a ship. Probable human introduction without a resident Svalbard population.
Calliphora erythrocephala (Meigen, 1826)

Cynomya mortuorum (L., 1761) 20, 41, 42, 101, 219
Restricted to Bjørnøya and Jan Mayen.

Protophormia terrae-novae (Robineau-Desvoidy, 1830) 105, 146, 158, 239, 306
Generally observed in the vicinity of human dwellings.
Phormia terrae-novae Robineau-Desvoidy
Phormia groenlandica (Zetterstedt)

Fam. Coelopidae

Coelopa eximia Stenhammer 1854 319

Fucomyia frigida Fallén, 1805 59, 65, 105, 125, 146, 306, 319
Coelopa frigida (Fabricus)

Fam. Drosophilidae

Drosophila funebris (Fabricus, 1787) 125, 281

Fam. Empididae

Rhamphomyia caudata Zetterstedt, 1838 65, 125, 146, 185, 187, 305, 306, 319

Fam. Fannidae

Fannia incisurata (Zetterstedt 1838) 42
Restricted to Jan Mayen (not present in Svalbard).

Fam. Heleomyzidae

Heleomyza borealis (Boheman, 1865) 156, 232, 319, 341
Heleomyza modesta (Meigen, 1838) 20, 101, 105, 185, 187
Leria modesta Meigen (det. Collin)
? *Leria geniculata* Zetterstedt

Heleomyza serrata (L., 1758) 125
Collected from onboard a ship in Longyearbyen, 1925. Probable introduction with this ship. Not recorded since.

Leria geniculata Zetterstedt, 1847 120, 319
Nomina dubia.

Neoleria prominens (Becker, 1897) 125, 267
Neoleria septentrionalis (Collin, 1923) 20, 59, 65, 101, 319
Leria septentrionalis Collin (det. Collin)

Fam. Muscidae

Limnophora sp. 41

Spilogona brunneifrons Ringdahl, 1931 313, 321

Fam. Yponomeutidae

Plutella xylostella (L., 1758) — 20, 41, 104, 110, 175, 204, 205, 214, 253, 281, 282, 287, 306, 319
Plutella cruciferarum var. *nivella*?
Plutella maculipennis (Curtis)
Plutella polaris (Zeller)

Fam. Nymphalidae

Nymphalis antiopa (L., 1758) — 282

Vanessa cardui (L., 1758) — 204, 214, 281, 282

Fam. Papilionidae

Parnassius apollo (L., 1758) — 72
Unable to locate source reference. Dubious record.

Fam. Pieridae

Pieris napi (L., 1758) — 175, 204, 281
Possible human introduction (see ref. 214).
Artogeia napi (L.)

Fam. Pyralidae

Pempeliella dilutella (Denis and Schiffermüller 1775) — 175, 204
Pempelia dilutella Hubner 1796
Pempeliella subornatella Duponchel

Pyla fusca Haworth, 1811 — 1, 204

Order Siphonaptera

Fam. Ceratophyllidae

Ceratophyllus vagabundus vagabundus (Boheman, 1866) — 75, 105, 176, 223, 319
Pulex vagabunda Boheman
Ceratophyllus digitalis (Wahlgren)
Parasite of geese and gulls.

Mioctenopsylla arctica arctica Rothschild, 1922 — 71, 128, 176, 223
Mioctenopsylla arctica Rothschild
Parasite of Kittywakes (*Rissa tridactyla*).

Order Trichoptera

Fam. Limnephilidae

Apatania zonella Zetterstedt, 1840 — 20, 82, 173, 195, 196, 205, 279, 281, 305, 306, 319, 324, 325
Apatania arctica (Boheman)
Apatelia zonella Zetterstedt
Goniataulius arcticus Boheman. Recorded as "Neuroptera" in ref. 318.

Phylum Crustacea

Class Branchiopoda

Order Notostraca

Lepiduras arcticus (Pallas, 1793) — 19, 20, 130, 171, 173, 188, 195, 196, 305, 318, 319

Order Cladocera

Acroperus harpae (Baird, 1835) — 19, 20, 165, 170
Restricted to Bjørnøya and Jan Mayen.

Alona guttata Sars, 1862 — 165, 173

Bosmina longirostris Müller, 1785

Chydorus sphaericus (Müller, 1785) — 19, 20, 130, 165, 170, 171, 173, 227, 305, 316, 318, 319

Daphnia pulex Leydig, 1860 — 19, 20, 64, 92, 144, 149, 148, 165, 170, 191, 225, 227, 305, 316, 319, 317, 318, 337, 338, 339

D. pulex is a species complex with complicated phylogenetic relationships; see ref. 148 for an overview (also refs. 149, 337–339).

Daphnia longispina — 19, 165, 170, 195, 196, 305, 316

Daphnia middendorffiana — 130, 149, 171, 173, 202, 218

Daphnia pulicaria — 338

Daphnia tenebrosa — 7, 9, 149

New genetic studies suggest that the above four *Daphnia* species may be clonal morphs.

Eubosmina longispina (Müller, 1785) — 173, 196

Bosmina longispina Müller

Bosmina obstusirostris Sars

Macrothrix hirsuticornis Norman and Brady, 1867 — 130, 165, 170, 171, 173, 226, 275, 276, 305, 311, 319

Macrothrix hirsuticornis arctica (Sars, 1890) — 20, 19, 227, 318, 319

Macrothrix arctica Sars

Macrothrix sp. — 41

Order Ctenopoda

Sida crystallina (Müller, 1776) — 19, 20, 173

Class Copepoda

Order Calanoida

Eurytemora raboti Richard, 1897 — 9, 130, 171, 305, 318, 319

Limnocalanus macrurus Sars, 1863 — 173, 311

Order Cyclopoida

Acanthocyclops gigas (Claus, 1857) — 19, 20, 197, 319, 305

In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Megacyclops gigas (Claus)

Cyclops gigas Claus

Cyclops abyssorum Sars, 1863 — 9, 19, 20, 103, 130, 173, 195, 197, 305, 318, 319

Cyclops strenuus Fischer

Cyclops strenuus medianus

Cyclops vicinus Ulianine, 1875 — 19, 20, 103, 197, 305, 319, 317

Diacyclops crassicaudis (Sars, 1863) — 130, 171, 173, 197, 311, 318

Cyclops crassicaudis Sars

Order Harpacticoida

Harpacticus uniremis Kröyer, 1845 — 311

Maraenobiotus brucei (Richard, 1898) — 305, 319

Tachidius discipes Giesbrecht, 1882 — 305, 315, 318

Tachidius brevicornis Lilljeborg

? *Tachidus spitsbergensis* Olofsson

Order Siphonostomatoida

Salmincola edwardsii Olsson, 1869 — 184, 277
Parasite of Arctic Char (*Salvelinus alpinus* L.).

Class Malacostraca

Order Amphipoda

Gammaracanthus loricatus (Sars, 1896) — 135
From stomach of an Arctic Char (*Salvelinus alpinus* L.).

Order Mysidacea

Mysis relicta Loven, 1861 — 305
Mysis oculata (Fabricus) var. *relicta*

Class Ostracoda

Order Podocopida

Candona candida Müller, 1776 — 20, 319
In Svalbard restricted to Bjørnøya. Not present on Jan Mayen.

Candona sp. — 19
? *Candona candida* Müller

Cyclocypris ovum (Jurine, 1820) — 319

Cytherissa lacustris (Sars, 1863) — 311

Eucandona rectangulata (Alm, 1914) — 136, 305, 311, 319, 318
Candona rectangulata Alm

Eucypris arctica Olofsson, 1918 — 305, 319

Eucypris glacialis (Sars, 1890) — 19, 20, 136, 319, 305
Prionocypris glacialis (Sars)

Heterocypris fretensis (Brady and Robertson, 1870) — 136

Limnocythere inopinata (Baird, 1843) — 136

Tonnacypris lutaria (Koch, 1838) — 136

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Chapter 4. The bird and mammal fauna of Svalbard

Hallvard Strøm & Georg Bangjord

A checklist of birds and mammals recorded in Svalbard (the area within 74° – 81° N and 10° – 35° E) has been compiled, based on records stored in the Fauna Register of the Norwegian Polar Institute and in the Svalbard Birds Rarities Committee data base. Scientific and English species names are presented along with abbreviations describing each species' current occurrence rating in Svalbard. For the birds a code indicating the status of the record is also included. The checklist comprises 202 species of birds (17 orders and 43 families) and 31 species of mammals (five orders and 15 families). Twenty-eight bird species are regarded as abundant or common breeders, and 13 are uncommon, irregular or probable breeders. An additional 12 species have been recorded as having bred in Svalbard. The remaining 149 species recorded are occasional or rare vagrants. Of the mammals, eight species are regarded as common breeders, whereas 16 species are occasional or rare vagrants. A further six species and one subspecies were introduced and have subsequently gone extinct, and one has died out through overexploitation.

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Records of birds and mammals in Svalbard have been collected and published since the archipelago was discovered in 1596. However, scientific descriptions of the birds and mammals began considerably later, in the middle of the 19th century. Løvenskiold (1964) was the first author to publish a checklist for birds in Svalbard. He summarized all records for the period 1596 to 1964 based on an extensive review of both published and unpublished literature, and his own fieldwork during the years 1948–1969. Løvenskiold (1964) listed 93 bird species as being recorded in Svalbard. Twenty-five years later Norderhaug (1989) summarized all records for the period 1964–1983 and listed 65 new bird species for the archipelago. An additional five species were reported for the period 1983–1988 by Mehlum (1989). Thus, by the end of the 1980s the list of avian species recorded in Svalbard totalled 163 species. Since Mehlum (1989), the Svalbard bird list has not been updated. No previous checklists have been published for mammals in Svalbard, beyond the species list published by Mehlum (1989).

The updates presented here are based on records stored in the Fauna Register of the Norwegian Polar Institute (NPI). In 1982, the Fauna Register at NPI was established to cater to the growing number of records of birds and mammals reported to the institute (Mehlum 1983). Since then both published records of birds and mammals and records reported directly to the institute have been entered into the data base. In addition to the NPI Fauna Register, a data base of information regarding records of birds in Svalbard is maintained by the Svalbard Bird Rarities Committee (SBRC). Records of birds that are rare or new to Svalbard are examined by the SBRC, and records of birds rare or new to Norway are additionally reviewed by the Norwegian Birds Rarities Committee (NBRC). No verification

Table 1. A summary of Aves species recorded in Svalbard.

Order	Family	Subfamily	No. of species
Gaviiformes	Gaviidae		4
Podicipediformes	Podicipedidae		2
Procellariiformes	Diomedeidae		1
	Procellariidae		3
	Hydrobatidae		2
Pelecaniformes	Sulidae		1
	Phalacrocoracidae		1
Ciconiiformes	Ardeidae		2
Anseriformes	Anatidae	Anserinae	13
		Anatinae	27
Accipitriformes	Accipitridae		3
Falconiformes	Falconidae		5
Galliformes	Tetraonidae		1
Gruiformes	Rallidae		3
	Gruidae		1
Charadriiformes	Haematopodidae		1
	Charadriidae	Charadriinae	5
		Vanellinae	1
	Scolopacidae	Calidridinae	13
		Gallinagininae	3
		Scolopacinae	1
		Tringinae	11
		Arenariinae	1
		Phalaropodinae	2
	Stercorariidae		4
	Laridae		13
	Sternidae		3
	Alcidae		7
Columbiformes	Columbidae		4
Cuculiformes	Cuculidae	Cuculinae	1
Strigiformes	Strigidae	Buboninae	1
		Striginae	2
Apodiformes	Apodidae	Apodinae	1
Coraciiformes	Upupidae		1
Passeriformes	Alaudidae		2
	Hirundinidae		3
	Motacillidae		7
	Bombycillidae	Bombycillinae	1
	Cinclidae		1
	Prunellidae		1
	Turdidae		12
	Sylviidae		8
	Muscicapidae		3
	Paridae		1
	Laniidae	Laniinae	1
	Corvidae		4
	Sturnidae		1
	Passeridae		1
	Fringillidae	Fringillinae	2
		Carduelinae	5
	Emberizidae	Emberizinae	5
Total			202

Table 2. A summary of Aves species breeding, probably breeding or having bred in Svalbard. For explanation of categories see text and Table 6.

Scientific name (English common name)	Occurence
Fulmarus glacialis (Northern Fulmar)	B^{ab}
Anser brachyrhynchus (Pink-footed Goose)	B^{ab}
Branta leucopsis (Barnacle Goose)	B^{ab}
Somateria mollissima (Common Eider)	B^{ab}
Rissa tridactyla (Black-legged Kittiwake)	B^{ab}
Uria aalge (Common Guillemot)	B^{abBJ}, $B^{uncomSP}$
Uria lomvia (Brünnich's Guillemot)	B^{ab}
Cepphus grylle (Black Guillemot)	B^{ab}
Alle alle (Little Auk)	B^{ab}
Fratercula arctica (Atlantic Puffin)	B^{ab}
Gavia stellata (Red-throated Diver)	B^{com}
Branta bernicla hrota (Brent Goose)	B^{com}
Somateria spectabilis (King Eider)	B^{com}
Clangula hyemalis (Long-tailed Duck)	B^{com}
Lagopus mutus hyperboreus (Rock Ptarmigan)	B^{com}
Calidris maritima (Purple Sandpiper)	B^{com}
Phalaropus fulicarius (Grey Phalarope)	B^{com}
Stercorarius parasiticus (Arctic Skua)	B^{com}
Catharacta skua (Great Skua)	B^{com}
Larus hyperboreus (Glaucous Gull)	B^{com}
Sterna paradisaea (Arctic Tern)	B^{com}
Plectrophenax nivalis (Snow Bunting)	B^{com}
Charadrius hiaticula (Ringed Plover)	B^{disp}
Calidris alba (Sanderling)	B^{disp}
Calidris alpina (Dunlin)	B^{disp}
Arenaria interpres (Ruddy Turnstone)	B^{disp}
Larus marinus (Great Black-backed Gull)	B^{disp}
Pagophila eburnea (Ivory Gull)	B^{disp}
Pluvialis apricaria (European Golden Plover)	B^{uncom}
Calidris canutus (Red Knot)	B^{uncom}
Phalaropus lobatus (Red-necked Phalarope)	B^{uncom}
Stercorarius longicaudus (Long-tailed Skua)	B^{uncom}
Larus sabini (Sabine's Gull)	B^{uncom}
Alca torda (Razorbill)	B^{uncom}
Larus argentatus (Herring Gull)	$B^{uncomBJ}$, B^{irrSP}
Anas crecca (Eurasian Teal)	B^{irr}, N^{freq}
Anas acuta (Northern Pintail)	B^{irr}, N^{freq}
Oenanthe oenanthe leucorhoa (Northern Wheatear)	B^{irr}, N^{freq}
Gavia immer (Great Northern Diver)	B^{irrBJ}, B^{probSP}
Anser anser (Greylag Goose)	B^{prob}, N^{freq}
Branta bernicla bernicla (Brent Goose)	B^{prob}, N^{occ}
Turdus iliacus (Redwing)	B^{rec2}, N^{freq}
Carduelis flammea (Mealy Redpoll)	B^{rec2}, N^{freq}
Gavia arctica (Black-throated Diver)	B^{rec1}, N^{freq}
Bred with *Gavia immer* on Bjørnøya in 1958.	
Larus ridibundus (Black-headed Gull)	B^{rec1}, N^{freq}
Motacilla alba (White Wagtail)	B^{rec1}, N^{freq}
Pluvialis fulva (Pacific Golden Plover)	B^{rec1}, $N^{r<5}$
Delichon urbica (House Martin)	$B^{rec1?}$, $N^{r<5}$
Anthus pratensis (Meadow Pipit)	$B^{rec1?}$, $N^{r<5}$
Melanitta nigra (Black Scoter)	B^{rec2BJ}, B^{probSP}
Larus canus (Mew Gull)	B^{rec2BJ}, N^{freq}
Larus fuscus (Lesser Black-backed Gull)	B^{rec2BJ}, N^{freq}
Sturnus vulgaris (Common Starling)	B^{rec1BJ}, N^{freq}

system exists for records of rare or new mammals in Svalbard. This implies that some of the records may not be valid. We have, however, only included records adjudged by us or other authors as valid. This means that the record is documented by a specimen, photographs or detailed written description, or it has been reported by experienced fieldworkers.

The checklist is limited to records from an area within 74°–81° N and 10°–35° E (see map on back cover). It currently contains 202 species of birds (17 orders and 43 families) and 31 species of mammals (five orders and 15 families) (Table 1). Twenty-eight bird species are regarded as abundant or common breeders, and 13 are uncommon, irregular or probable breeders. An additional 12 species have been recorded as having bred in Svalbard (Table 2). The remaining 149 species recorded are occasional or rare vagrants. Of the mammals (Table 3), eight species are regarded as common breeders, whereas 16 species are occasional or rare vagrants. A further six species and one subspecies were introduced and have subsequently gone extinct, and one has died out through overexploitation (Tables 4, 5).

It should be emphasized that the species lists will be out of date before this catalogue is printed. However, we hope that they will be useful to a variety of users and serve as the basis for future revisions. We would also like to stress that the list may not be complete due to the fact that not all observations are reported or published. We would therefore appreciate corrections and additions from readers.

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Table 3. A summary of Mammalia species recorded in Svalbard.

Order	Family	Subfamily	No. of species
Carnivora	Canidae		1
	Mustelidea	Mustelinae	1
	Odobenidae		1
	Phocidae		5
	Ursidae	Ursinae	1
Cetacea	Balaenidae		2
	Balaenopteridae		5
	Delphinidae		3
	Monodontidae		2
	Physeteridae		1
	Phocoenidae		1
Artiodactyla	Cervidae	Odocoileinae	1
	Bovidae	Caprinae	1
Rodentia	Muridae	Arvicolinae	2
		Murinae	2
Lagomorpha	Leporidae		2
Total			31

I. Species checklist

The English names of bird species accord with *The British bird list* prepared by the British Ornithologists' Union Records Committee (1999); it can be found on the British Ornithologist's Union website at www.bou.org.uk. Species not included on that list are named in accordance with the *Handbook of the birds of the world* (del Hoyo et al. 1996). For mammals the names follow *The Atlas of European mammals* (Mitchell-Jones et al. 1999).

Taxonomic nomenclature and classification follow the *Handbook of the birds of Europe the Middle East and North Africa* (Cramp & Simmons 1977, 1980, 1983; Cramp 1985, 1988, 1992;

Table 4. A summary of Mammalia species breeding or having bred in Svalbard. Introduced species are not included. For explanation of categories see text and Table 6.

Scientific name (common English name)	Occurence
Alopex lagopus (Arctic Fox)	B^{com}
Odobenus rosmarus (Walrus)	N^{freq}
Erignathus barbatus (Bearded Seal)	B^{com}
Phoca hispida (Ringed Seal)	B^{com}
Phoca vitulina (Harbour Seal)	B^{disp}
Ursus maritimus (Polar Bear)	B^{com}
Balaena mysticetus (Bowhead Whale)	N^{occ}
Delphinapterus leucas (White Whale)	B^{com}
Rangifer tarandus platyrhynchus (Svalbard Reindeer)	B^{com}

Table 5. Mammalia species introduced to Svalbard, and their current status. For explanation of categories see text and Table 6.

Scientific name (common English name)	Occurence
Mustela vison (American Mink)	I^{acc}
Rangifer tarandus tarandus (Reindeer)	I
Ovibos moschatus (Musk Ox)	I
Microtus rossiaemeridionalis (Sibling Vole) Restricted to an area on the south side of Isfjorden	B^{com}
Mus musculus (House Mouse)	I^{acc}
Rattus norwegicus (Brown Rat)	I^{acc}
Lepus arcticus (Arctic Hare)	I
Lepus timidus (Mountain Hare)	I

Cramp & Perrins 1993, 1994a, b) for birds and Wilson & Reeder (1993) for mammals. The taxonomic nomenclature in the *Handbook of the birds of Europe the Middle East and North Africa* is largely based upon Voous (1977). Contrary to Voous (1977), we have treated the Green-winged Teal *Anas carolinensis* as a separate species following Sangster et al. (2002).

Subspecies are only included in the lists if the records have been approved by the SBRC, the NBRC or scientific specialists who work with the specific taxonomic group.

For each species, an abbreviation is given which indicates its current occurrence rating in Svalbard, followed by a code describing the status of the record (Table 6). Eight bird species have been given separate codes for occurrence on Bjørnøya (BJ) and Spitsbergen (SP). These are species more common on Bjørnøya than in the rest of Svalbard. Irregular breeders, probable breeders and species having bred one or a few times have all been given two occurrence rating codes, one code indicating the number of breeding records known and one code indicating the occurrence of non-breeding individuals. This implies that the species are breeding or that breeding records are known but that the majority of records are of non-breeding individuals. Bird species not given a code describing the status of the record are abundant or common breeders, and records of these species do not need to be handled by the SBRC or the NBRC. Population sizes for the bird species (the "Abundant" and "Common" categories) are according to Anker-Nilssen et al. (2000).

The examination and approval of records by the SBRC and the NBRC is a continuous process, and thus the list includes observations that are not as yet approved by the committees (19 species). Some old records are included in the list, even though the committees are unable to assess the records due to lack of documentation (9 species). These observations are published and regarded as valid by the respective authors. The list of mammals does not include a status category because there is no official system for handling records of mammalian fauna in Svalbard as there is for the avifauna.

Finally, numbered references corresponding to sources listed in Section II are given for each species.

Table 6. Abbreviations employed in Section I.

Occurrence	
Non-breeders	
N^{freq}	Frequent (annual occurrence in small numbers, regularly occurring)
N^{occ}	Occasional (relatively frequent occasional visitor)
$N^{r<5}$	Rare (fewer than 5 records)
$N^{r<20}$	Rare (fewer than 20 records)
BGS	Recorded only in Barents/Greenland seas
Breeders	
B^{ab}	Abundant annual breeder (more than 10 000 breeding pairs)
B^{com}	Common annual breeder (fewer than 10 000 breeding pairs)
B^{disp}	Common but dispersed breeder
B^{uncom}	Uncommon annual breeder
B^{irr}	Irregular breeder (but may have annual breeding attempts)
B^{prob}	Probable annual breeder
B^{rec}	Breeding recorded
B^{rec1}	One breeding record
B^{rec2}	More than one breeding record
BJ	Bjørnøya (Bear Island)
SP	Spitsbergen
Status of record	
I	Introduced and later extinct
I^{acc}	Accidentally introduced and later extinct
?	Old record without documentation/uncertain observation
E	Exterminated
Unc^{SBRC}	Status of record uncertain. Needs to be examined and approved by the Svalbard Birds Rarities Committee (SBRC)
$SBRC^{app}$	Approved by SBRC
$SBRC^{x}$	Cannot be approved by the SBRC due to lack of documentation
Unc^{NBRC}	Status of record uncertain. Needs to be examined and approved by the Norwegian Birds Rarities Committee (NBRC)
$NBRC^{app}$	Approved by the NBRC
$NBRC^{x}$	Cannot be approved by the NBRC due to lack of documentation

	Occurrence	Status of record	Refer-ence
Class Aves			
Order Gaviiformes			
Fam. Gaviidae			
Gavia stellata Red-throated Diver	B^{com}		19
Gavia arctica Black-throated Diver	B^{recl}, N^{freq}	$SBRC^{app}$	19
Bred with *Gavia immer* on Bjørnøya in 1958.			
Gavia immer Great Northern Diver	B^{irrBJ}, B^{probSP}	$SBRC^{app}$	19
Gavia adamsii Yellow-billed Diver	$N^{r<5}$	$SBRC^{app}$	28
Order Podicipediformes			
Fam. Podicipedidae			
Podiceps grisegena Red-necked Grebe	$N^{r<5}$	$SBRC^{x}$	19
Podiceps auritus Slavonian Grebe	$N^{r<5}$	$SBRC^{app}$	33
Order Procellariiformes			
Fam. Diomedeidae			
Diomedea melanophris Black-browed Albatross	$N^{r<5}$, N^{BGS}	$NBRC^{app}$	19
Fam. Procellariidae			
Fulmarus glacialis Northern Fulmar	B^{ab}		19
Puffinus griseus Sooty Shearwater	$N^{r<5}$, N^{BGS}	$SBRC^{app}$	19
Puffinus puffinus Manx Shearwater	$N^{r<5}$, N^{BGS}	$SBRC^{app}$	28
Fam. Hydrobatidae			
Oceanites oceanicus Wilson's Storm-petrel	$N^{r<5}$, N^{BGS}	$NBRC^{app}$	35
Hydrobates pelagicus European Storm Petrel	$N^{r<5}$	$SBRC^{app}$	11
Order Pelecaniformes			
Fam. Sulidae			
Morus bassanus Northern Gannet	N^{occ}	$SBRC^{app}$	19
Fam. Phalacrocoracidae			
Phalacrocorax carbo Great Cormorant	$N^{r<5}$	$SBRC^{x}$	28
Order Ciconiiformes			
Fam. Ardeidae			
Subfam. Ardeinae			
Egretta alba Great White Egret	$N^{r<5}$	$NBRC^{app}$	21
Ardea cinerea Grey Heron	$N^{r<20}$	$SBRC^{app}$	19
Order Anseriformes			
Fam. Anatidae			
Subfam. Anserinae			
Tribe Anserini			
Cygnus olor Mute Swan	$N^{r<5}$	$SBRC^{app}$	28
Cygnus columbianus Tundra Swan	$N^{r<20}$	$SBRC^{app}$	19

Cygnus cygnus Whooper Swan	N^{freq}	$SBRC^{app}$	19
Anser fabalis Bean Goose	$N^{r<5}$	$SBRC^{app}$	28
Anser brachyrhynchus Pink-footed Goose	B^{ab}		19
Anser albifrons Greater White-fronted Goose	$N^{r<20}$	$SBRC^{app}$	17
Anser anser Greylag Goose	B^{prob}, N^{freq}	$SBRC^{app}$	7
Anser indicus Bar-headed Goose	$N^{r<5}$	$SBRC^{app}$	31
Anser caerulescens Snow Goose	N^{freq}	$SBRC^{app}$	27
Branta canadensis Canada Goose	$N^{r<5}$	$SBRC^{app}$	28
Branta leucopsis Barnacle Goose	B^{ab}		19
Branta bernicla bernicla Brent Goose	B^{prob}, N^{freq}	$SBRC^{app}$	28
Branta bernicla hrota	B^{com}		19
Branta bernicla nigricans	$N^{r<5}$	$NBRC^{app}$	21
Branta ruficollis Red-breasted Goose	$N^{r<5}$	Unc^{NBRC}	28
Subfam. Anatinae			
Tribe Tadornini			
Tadorna tadorna Common Shelduck	$N^{r<5}$	$SBRC^{app}$	28
Tribe Cairinini			
Aix galericulata Mandarin Duck	$N^{r<5}$	Unc^{SBRC}	28
Tribe Anatini			
Anas penelope Eurasian Wigeon	N^{occ}	$SBRC^{app}$	19
Anas strepera Gadwall	$N^{r<5}$	$SBRC^{app}$	28
Anas formosa Baikal Teal	$N^{r<5}$	$NBRC^{app}$	34
Anas crecca Eurasian Teal	B^{irr}, N^{freq}	$SBRC^{app}$	19
Anas carolinensis Green-winged Teal	$N^{r<5}$	$NBRC^{app}$	21
Anas platyrhynchos Mallard	N^{occ}	$SBRC^{app}$	19
Anas acuta Northern Pintail	B^{irr}, N^{freq}	$SBRC^{app}$	19
Anas querquedula Garganey	$N^{r<5}$, ?	$SBRC^{x}$	19
Anas discors Blue-winged Teal	$N^{r<5}$	$NBRC^{app}$	4, 9
Anas clypeata Northern Shoveler	$N^{r<20}$	$SBRC^{app}$	37
Tribe Aythyini			
Aythya collaris Ring-necked Duck	$N^{r<5}$	Unc^{NBRC}	28
Aythya fuligula Tufted Duck	N^{freq}	$SBRC^{app}$	19
Aythya marila Greater Scaup	$N^{r<20}$	$SBRC^{app}$	19
Tribe Somateriini			
Somateria mollissima Common Eider	B^{ab}		19
Somateria spectabilis King Eider	B^{com}		19
Somateria fischeri Spectacle Eider	$N^{r<5}$	$NBRC^{app}$	28
Polysticta stelleri Steller's Eider	N^{occ}	$SBRC^{app}$	28
Tribe Mergini			
Histrionicus histrionicus Harlequin Duck	$N^{r<5}$	$NBRC^{x}$	19
Clangula hyemalis Long-tailed Duck	B^{com}		19
Melanitta nigra Black Scoter	B^{rec2BJ}, B^{probSP}	$SBRC^{app}$	19
Melanitta fusca Velvet Scoter	$N^{r<20}$	$SBRC^{app}$	19
Bucephala islandica Barrow's Goldeneye	$N^{r<5}$	$NBRC^{x}$	33
Bucephala clangula Common Goldeneye	$N^{r<20}$	$SBRC^{app}$	27
Mergus serrator Red-breasted Merganser	N^{occ}	$SBRC^{app}$	29
Mergus merganser Goosander	$N^{r<5}$	Unc^{SBRC}	19

Order Accipitriformes			
Fam. Accipitridae			
Haliaeetus albicilla White-tailed Eagle	$N^{r<20}$	$SBRC^{app}$	28
Accipiter nisus Eurasian Sparrowhawk	$N^{r<5}$	$SBRC^{app}$	16
Buteo lagopus Rough-legged Buzzard	$N^{r<5}$	$SBRC^{app}$	28
Order Falconiformes			
Fam. Falconidae			
Falco naumanni Lesser Kestrel	$N^{r<5}$, N^{BGS}	$NBRC^{app}$	4, 10
Falco tinnunculus Common Kestrel	$N^{r<5}$	$SBRC^{app}$	19
Falco columbarius Merlin	$N^{r<5}$	$SBRC^{app}$	19
Falco rusticolus Gyr Falcon	N^{occ}	$SBRC^{app}$	19
Falco peregrinus Peregrine Falcon	$N^{r<5}$	Unc^{SBRC}	28
Order Galliformes			
Fam. Tetraonidae			
Lagopus mutus hyperboreus Rock Ptarmigan	B^{com}		19
Order Gruiformes			
Fam. Rallidae			
Rallus aquaticus Water Rail	$N^{r<5}$	$SBRC^{app}$	19
Gallinula chloropus Common Moorhen	$N^{r<5}$	$SBRC^{app}$	25
Fulica atra Common Coot	$N^{r<5}$	$SBRC^{app}$	24
Fam. Gruidae			
Grus grus Common Crane	$N^{r<5}$	$SBRC^{app}$	25
Order Charadriiformes			
Fam. Haematopodidae			
Haematopus ostralegus Eurasian Oystercatcher	N^{occ}	$SBRC^{app}$	19
Fam. Charadriidae			
Subfam. Charadriinae			
Charadrius hiaticula Ringed Plover	B^{disp}		19
Charadrius morinellus Eurasian Dotterel	$N^{r<5}$	Unc^{SBRC}	19
Pluvialis fulva Pacific Golden Plover	B^{rec1}, $N^{r<5}$	$NBRC^{app}$	12
Pluvialis apricaria European Golden Plover	B^{uncom}	$SBRC^{app}$	19
Pluvialis squatarola Grey Plover	$N^{r<20}$	$SBRC^{app}$	7
Subfam. Vanellinae			
Vanellus vanellus Lapwing	N^{occ}	$SBRC^{app}$	19
Fam. Scolopacidae			
Subfam. Calidridinae			
Calidris canutus Red Knot	B^{uncom}	$SBRC^{app}$	19
Calidris alba Sanderling	B^{disp}		19
Calidris minuta Little Stint	$N^{r<20}$	Unc^{SBRC}	8
Calidris temminckii Temminck's Stint	$N^{r<5}$	$SBRC^{app}$	28
Calidris fuscicollis White-rumped Sandpiper	$N^{r<5}$	$NBRC^{app}$	25
Calidris melanotos Pectoral Sandpiper	$N^{r<20}$	$NBRC^{app}$	29

Calidris acuminata Sharp-tailed Sandpiper	$N^{r<5}$	Unc^{NBRC}	28
Calidris ferruginea Curlew Sandpiper	$N^{r<20}$	$SBRC^{app}$	30
Calidris maritima Purple Sandpiper	B^{com}		19
Calidris alpina Dunlin	B^{disp}		19
Limicola falcinellus Broad-billed Sandpiper	$N^{r<5}$	Unc^{SBRC}	15
Tryngites subruficollis Buff-breasted Sandpiper	$N^{r<5}$	$NBRC^{app}$	1
Philomachus pugnax Ruff	$N^{r<5}$	$SBRC^{app}$	20
Subfam. Gallinagininae			
Lymnocryptes minimus Jack Snipe	$N^{r<5}$	$SBRC^{app}$	16
Gallinago gallinago Common Snipe	N^{occ}	$SBRC^{app}$	37
Gallinago media Great Snipe	$N^{r<5}$	Unc^{SBRC}	19
Subfam. Scolopacinae			
Scolopax rusticola Eurasian Woodcock	$N^{r<20}$	$SBRC^{app}$	19
Subfam. Tringinae			
Limosa limosa Black-tailed Godwit	$N^{r<5}$	$SBRC^{app}$	13
Limosa limosa islandica	$N^{r<5}$	$SBRC^{app}$	28
Limosa lapponica Bar-tailed Godwit	$N^{r<5}$	Unc^{SBRC}	22
Numenius phaeopus Whimbrel	N^{freq}	$SBRC^{app}$	19
Numenius arquata Eurasian Curlew	$N^{r<5}$	$SBRC^{app}$	7
Tringa erythropus Spotted Redshank	$N^{r<5}$	$SBRC^{app}$	37
Tringa totanus Common Redshank	N^{occ}	$SBRC^{app}$	19
Tringa nebularia Common Greenshank	$N^{r<5}$	$SBRC^{app}$	28
Tringa glareola Wood Sandpiper	$N^{r<5}$	$SBRC^{app}$	28
Xenus cinereus Terek Sandpiper	$N^{r<5BJ}$	$NBRC^{app}$	28
Actitis hypoleucos Common Sandpiper	$N^{r<5}$	Unc^{SBRC}	28
Actitis macularia Spotted Sandpiper	$N^{r<5}$	$NBRC^{app}$	19, 32
Subfam. Arenariinae			
Arenaria interpres Ruddy Turnstone	B^{disp}		19
Subfam. Phalaropodinae			
Phalaropus lobatus Red-necked Phalarope	B^{uncom}	$SBRC^{app}$	19
Phalaropus fulicarius Grey Phalarope	B^{com}		19
Fam. Stercorariidae			
Stercorarius pomarinus Pomarine Skua	N^{freq}		19
Stercorarius parasiticus Arctic Skua	B^{com}		19
Stercorarius longicaudus Long-tailed Skua	B^{uncom}	$SBRC^{app}$	19
Catharacta skua Great Skua	B^{com}		19
Fam. Laridae			
Larus minutus Little Gull	$N^{r<5}$	$SBRC^{app}$	28
Larus sabini Sabine's Gull	B^{uncom}	$SBRC^{app}$	19
Larus ridibundus Black-headed Gull	$B^{rec1,}$ N^{freq}	$SBRC^{app}$	6
Larus delawarensis Ring-billed Gull	$N^{r<5}$	$NBRC^{app}$	15
Larus canus Mew Gull	B^{rec2BJ}, N^{freq}	$SBRC^{app}$	19
Larus fuscus Lesser Black-backed Gull	B^{recBJ}, N^{freq2}	$SBRC^{app}$	19
Larus fuscus graellsii	N^{freq}	$SBRC^{app}$	28
Larus argentatus Herring Gull	$B^{uncomBJ}$, B^{irrSP}	$SBRC^{app}$	19
Larus glaucoides Iceland Gull	N^{freq}	$SBRC^{app}$	29

Larus hyperboreus Glaucous Gull	B^{com}		19
Larus marinus Great Black-backed Gull	B^{disp}		19
Rhodostethia rosea Ross's Gull	N^{freq}	$SBRC^{app}$	19
Rissa tridactyla Black-legged Kittiwake	B^{ab}		19
Pagophila eburnea Ivory Gull	B^{disp}		19
Fam. Sternidae			
Sterna hirundo Common Tern	$N^{r<5}$	$SBRC^{x}$	28
Sterna paradisaea Arctic Tern	B^{com}		19
Chlidonias niger Black Tern	$N^{r<5}$	$SBRC^{app}$	28
Fam. Alcidae			
Uria aalge Common Guillemot	B^{abBJ}, $B^{uncomSP}$	$SBRC^{app}$	19
Uria lomvia Brünnich's Guillemot	B^{ab}		19
Alca torda Razorbill	B^{uncom}	$SBRC^{app}$	19
Cepphus grylle Black Guillemot	B^{ab}		19
Alle alle Little Auk	B^{ab}		19
Fratercula arctica Atlantic Puffin	B^{ab}		19
Fratercula cirrhata Tufted Puffin	$N^{r<5BGS}$	$NBRC^{x}$	28
Order Columbiformes			
Fam. Columbidae			
Columba livia Rock Pigeon	I	$SBRC^{app}$	28
Columba palumbus Common Wood Pigeon	$N^{r<5}$	$SBRC^{app}$	19
Streptopelia decaocto Eurasian Collared Dove	$N^{r<5}$	$SBRC^{app}$	28
Streptopelia turtur European Turtle Dove	$N^{r<5}$	$SBRC^{app}$	28
Order Cuculiformes			
Fam. Cuculidae			
Subfam. Cuculinae			
Cuculus canorus Common Cuckoo	$N^{r<5}$	$SBRC^{app}$	28
Order Strigiformes			
Fam. Strigidae			
Subfam. Buboninae			
Nyctea scandiaca Snowy Owl	N^{freq}	$SBRC^{app}$	19
Subfam. Striginae			
Asio otus Long-eared Owl	$N^{r<5}$	$SBRC^{app}$	27
Asio flammeus Short-eared Owl	$N^{r<20}$	$SBRC^{app}$	7
Order Apodiformes			
Fam. Apodidae			
Subfam. Apodinae			
Apus apus Common Swift	$N^{r<20}$	$SBRC^{app}$	19

Order Coraciiformes			
Fam. Upupidae			
Upupa epops Hoopoe	$N^{r<5}$	$SBRC^{x}$	19
Order Passeriformes			
Fam. Alaudidae			
Alauda arvensis Sky Lark	$N^{r<5}$	$SBRC^{app}$	27
Eremophila alpestris Horned Lark	$N^{r<5}$	$SBRC^{app}$	19
Fam. Hirundinidae			
Riparia riparia Sand Martin	$N^{r<5}$	$SBRC^{app}$	28
Hirundo rustica Barn Swallow	N^{occ}	$SBRC^{app}$	19
Delichon urbica House Martin	$N^{recl?}$, $N^{r<5}$	$SBRC^{app}$	19
Fam. Motacillidae			
Anthus novaeseelandiae Richard's Pipit	$N^{r<5}$	$SBRC^{x}$	28
Anthus pratensis Meadow Pipit	B^{recl}, $N^{r<5}$	$SBRC^{app}$	28
Anthus cervinus Red-throated Pipit	$N^{r<5}$	$SBRC^{app}$	28
Anthus spinoletta Water Pipit	$N^{r<5}$	$SBRC^{app}$	19
Anthus trivialis Tree Pipit	$N^{r<5}$	$SBRC^{app}$	28
Motacilla flava Yellow Wagtail	$N^{r<20}$	$SBRC^{app}$	15
Motacilla alba White Wagtail	B^{recl}, N^{freq}	$SBRC^{app}$	19
Fam. Bombycillidae			
Subfam. Bombycillinae			
Bombycilla garrulus Bohemian Waxwing	$N^{r<5}$	$SBRC^{app}$	7
Fam. Cinclidae			
Cinclus cinclus White-throated Dipper	$N^{r<5}$	$SBRC^{app}$	28
Fam. Prunellidae			
Prunella modularis Hedge Accentor	$N^{r<5}$	Unc^{SBRC}	37
Fam. Turdidae			
Erithacus rubecula European Robin	$N^{r<20}$	$SBRC^{app}$	28
Luscinia svecica Bluethroat	$N^{r<5}$	Unc^{SBRC}	28
Phoenicurus ochruros Black Redstart	$N^{r<5BJ}$	Unc^{SBRC}	28
Phoenicurus phoenicurus Common Redstart	$N^{r<5}$	$SBRC^{app}$	15
Saxicola rubetra Whinchat	$N^{r<5}$	$SBRC^{app}$	7, 28
Saxicola torquata Stonechat	$N^{r<5BJ}$	Unc^{SBRC}	28
Oenanthe oenanthe Northern Wheatear *Oenanthe oenanthe leucorhoa*	B^{irr}, N^{freq}	$SBRC^{app}$	28
Turdus torquatus Ring Ouzel	$N^{r<5}$	$SBRC^{app}$	28
Turdus merula Common Blackbird	N^{occ}	$SBRC^{app}$	19
Turdus pilaris Fieldfare	N^{occ}	$SBRC^{app}$	19
Turdus philomelos Song Thrush	$N^{r<20}$	$SBRC^{app}$	37
Turdus iliacus Redwing	B^{rec2}, N^{freq}	$SBRC^{app}$	19
Fam. Sylviidae			
Locustella fluviatilis River Warbler	$N^{r<5}$	$NBRC^{app}$	24
Acrocephalus schoenobaenus Sedge Warbler	$N^{r<5}$	Unc^{SBRC}	17

Sylvia borin Garden Warbler	$N^{r<5}$	$SBRC^{app}$	1
Sylvia atricapilla Blackcap	$N^{r<5}$	$SBRC^{app}$	27
Phylloscopus inornatus Yellow-browed Warbler	$N^{r<5}$	$SBRC^{app}$	28
Phylloscopus sibilatrix Wood Warbler	$N^{r<5}$	$SBRC^{app}$	28
Phylloscopus collybita Common Chiffchaff	$N^{r<5}$	$SBRC^{app}$	27
Phylloscopus trochilus Willow Warbler	$N^{r<5}$	$SBRC^{app}$	24
Fam. Muscicapidae			
Muscicapa striata Spotted Flycatcher	$N^{r<5}$	Unc^{SBRC}	14
Ficedula parva Red-breasted Flycatcher	$N^{r<5BJ}$	$SBRC^{app}$	15
Ficedula hypoleuca Pied Flycatcher	$N^{r<5}$	$SBRC^{app}$	26
Fam. Paridae			
Parus major Great Tit	$N^{r<5BJ}$	$SBRC^{app}$	28
Fam. Laniidae			
Subfam. Laniinae			
Lanius excubitor Great Grey Shrike	$N^{r<5}$	$SBRC^{app}$	23
Fam. Corvidae			
Corvus monedula Jackdaw	$N^{r<5BJ}$	$SBRC^{app}$	28
Corvus frugilegus Rook	$N^{r<5}$	$SBRC^{app}$	16
Corvus corone Carrion Crow	$N^{r<20}$	$SBRC^{app}$	19
Corvus corax Common Raven	$N^{r<5}$	$SBRC^{app}$	19
Fam. Sturnidae			
Sturnus vulgaris Common Starling	B^{recBJ}, N^{freq}	$SBRC^{app}$	19
Fam. Passeridae			
Passer domesticus House Sparrow	$N^{r<5}$	Unc^{SBRC}	14
Fam. Fringillidae			
Subfam. Fringillinae			
Fringilla coelebs Chaffinch	$N^{r<5BJ}$	$SBRC^{app}$	27
Fringilla montifringilla Brambling	$N^{r<5}$	$SBRC^{app}$	7
Subfam. Carduelinae			
Carduelis chloris European Greenfinch	$N^{r<5}$	$SBRC^{app}$	33
Carduelis flavirostris Twite	$N^{r<5}$	Unc^{SBRC}	28
Carduelis flammea Mealy Redpoll	B^{rec2}, N^{freq}	$SBRC^{app}$	19
Carduelis hornemanni Arctic Redpoll	$N^{r<5}$	$SBRC^{app}$	19
Loxia curvirostra Common Crossbill	$N^{r<5}$	$SBRC^{app}$	19
Fam. Emberizidae			
Subfam. Emberizinae			
Calcarius lapponicus Lapland Longspur	$N^{r<20}$	$SBRC^{app}$	7
Plectrophenax nivalis Snow Bunting	B^{com}		19
Emberiza citrinella Yellowhammer	$N^{r<5}$	$SBRC^{app}$	19
Emberiza rustica Rustic Bunting	$N^{r<5}$	$SBRC^{app}$	28
Emberiza schoeniclus Reed Bunting	$N^{r<20BJ}$	$SBRC^{app}$	37
Hybrids			
Somateria spectabilis/mollissima	$N^{r<20}$, B^{prob}	$NBRC^{app}$	27, 28

Larus hyperboreus/argentatus	$N^{r<20}$, B^{prob}	Unc^{NBRC}	28
Larus hyperboreus/marinus	$N^{r<5}$	Unc^{NBRC}	28

Class Mammalia

Order Carnivora

Fam. Canidae

Alopex lagopus (Linnaeus, 1758) Arctic Fox	B^{com}		28

Fam. Mustelidae

Subfam. Mustelinae

Mustela vison Schreber, 1777 American Mink	I^{acc}		28

Fam. Odobenidae

Odobenus rosmarus (Linnaeus, 1758) Walrus	N^{freq}		28

Fam. Phocidae

Cystophora cristata (Erxleben, 1777) Hooded Seal	N^{occ}		28
Erignathus barbatus (Erxleben, 1777) Bearded Seal	B^{com}		28
Phoca groenlandica Erxleben, 1777 Harp Seal	N^{freq}		28
Phoca hispida Schreber, 1775 Ringed Seal	B^{com}		28
Phoca vitulina Linnaeus, 1758 Harbour Seal	B^{disp}		28

Fam. Ursidae

Subfam. Ursinae

Ursus maritimus (Phipps, 1774) Polar Bear	B^{com}		28

Order Cetacea

Fam. Balaenidae

Balaena mysticetus Linnaeus, 1758 Bowhead Whale Abundant previous to 1750.	N^{occ}		28
Eubalaena glacialis (Müller, 1776) Right Whale Previous distribution north to Bjørnøya.	E		28

Fam. Balaenopteridae

Balaenoptera acutorostrata Lacépède, 1804 Minke Whale	N^{freq}		28
Balaenoptera borealis Lesson, 1828 Sei Whale	N^{occ}		28
Balaenoptera musculus (Linnaeus, 1758) Blue Whale	$N^{r<5}$		28
Balaenoptera physalus (Linnaeus, 1758) Fin Whale	N^{occ}		28
Megaptera novaeangliae (Borowski, 1781) Humpback Whale	N^{freq}		28

Fam. Delphinidae

Globicephala melas (Traill, 1809) Long-finned Pilot Whale	$N^{r<5}$		28
Lagenorhynchus albirostris (Grey, 1846) White-beaked Dolphin	N^{freq}		28
Orcinus orca (Linnaeus, 1758) Killer Whale	N^{occ}		28

Fam. Monodontidae

Delphinapterus leucas (Pallas, 1776) White Whale	B^{com}		28

Monodon monoceros Linnaeus, 1758 Narwhal	N^{occ}	28
Fam. Physeteridae		
Physeter catodon Linnaeus, 1758 Sperm Whale	N^{occ}	28
Fam. Phocoenidae Grey, 1825		
Hyperoodon ampullatus (Forster, 1770) Northern Bottlenose Whale	N^{occ}	28
Order Artiodactyla		
Fam. Cervidae		
Subfam. Odocoileinae		
Rangifer tarandus platyrhynchus Svalbard Reindeer	B^{com}	38
Rangifer tarandus tarandus (Linnaeus, 1758) Reindeer	I	38
Fam. Bovidae		
Subfam. Caprinae		
Ovibos moschatus (Zimmermann, 1780) Musk Ox	I	2, 18
Order Rodentia		
Suborder Sciurognathi		
Fam. Muridae		
Subfam. Arvicolinae		
Dicrostonyx torquatus (Pallas, 1778) Collared Lemming	$N^{r<5}$, ?	36
Microtus rossiaemeridionalis Ognev, 1924 Sibling Vole	B^{com}	5, 29
Restricted to an area on the south side of Isfjorden.		
Subfam. Murinae		
Mus musculus Linnaeus, 1758 House Mouse	I^{acc}	29
Rattus norvegicus (Berkenhout, 1769) Brown Rat	I^{acc}	28
Order Lagomorpha		
Fam. Leporidae		
Lepus arcticus Ross, 1819 Arctic Hare	I	18
Lepus timidus Linnaeus, 1758 Mountain Hare	I	18

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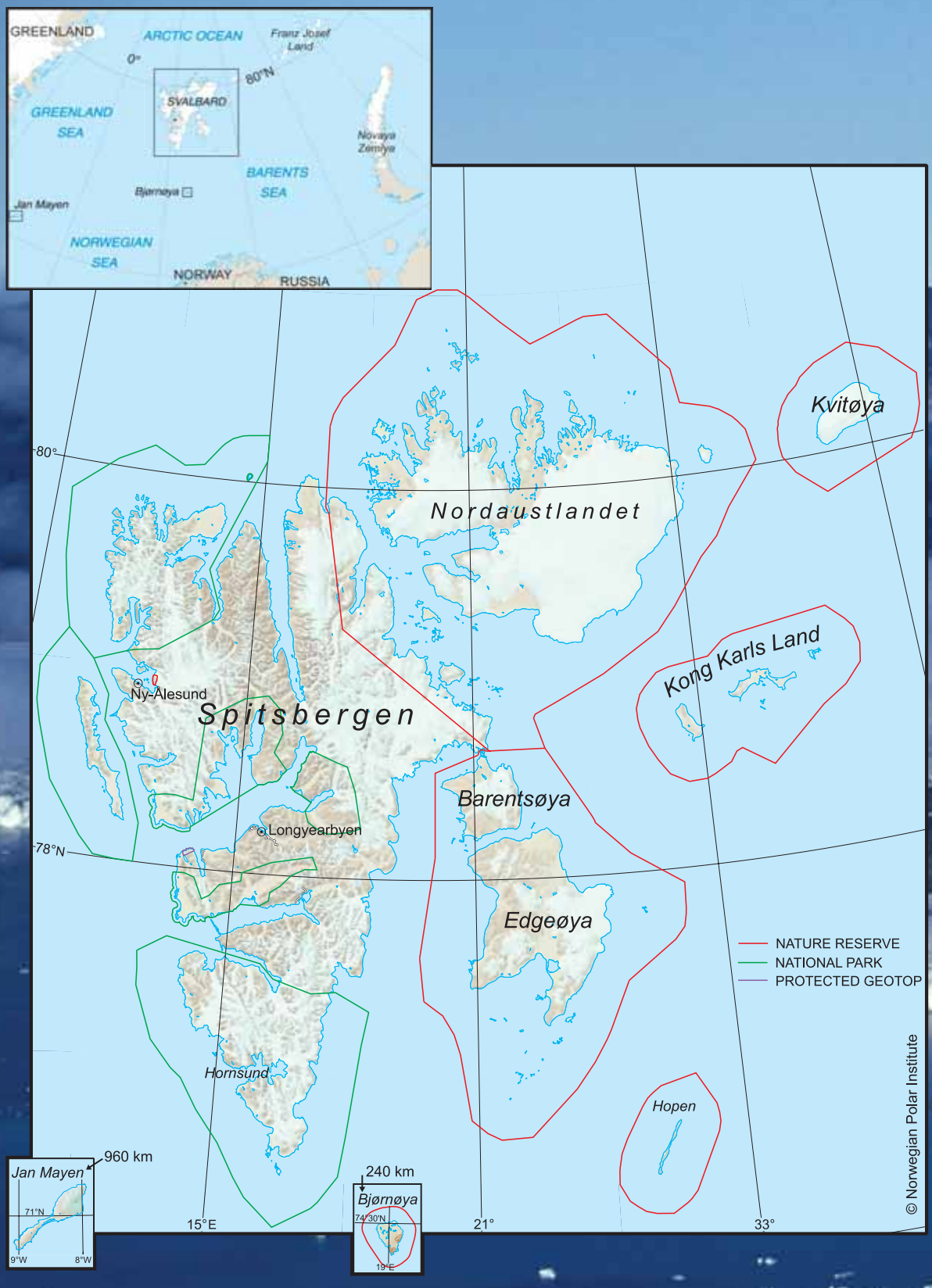
GREENLAND
ARCTIC OCEAN
Franz Josef Land
0°
80°N
SVALBARD
GREENLAND SEA
Novaya Zemlya
BARENTS SEA
Bjørnøya
Jan Mayen
NORWEGIAN SEA
NORWAY
RUSSIA
Kvitøya
80°
Nordaustlandet
Kong Karls Land
Ny-Ålesund
Spitsbergen
Barentsøya
Longyearbyen
78°N
Edgeøya
NATURE RESERVE
NATIONAL PARK
PROTECTED GEOTOP
Hornsund
Hopen
960 km
Jan Mayen
71°N
9°W
8°W
240 km
Bjørnøya
74°30'N
19°E
15°E
21°
33°
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