



Terrestrial and Freshwater Invertebrate Fauna of the High Arctic Archipelago of Svalbard

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Abstract

An overview of the terrestrial and freshwater invertebrate fauna of the High Arctic archipelago of Svalbard is presented. Sixty seven additional species to the previous checklist are listed and the described terrestrial and freshwater invertebrate fauna of Svalbard now stands at 1,107 species. Species presented are cross referenced to the literature.

A brief comparison with the invertebrate fauna of Greenland indicates that Svalbard may be under-represented in Hymenoptera, Hemiptera and Lepidoptera but over-represented in Collembola and Acari. However, since 82% of Svalbard primary source manuscripts originate from three locations along the west coast, there is a resulting likely bias in our knowledge of the invertebrate fauna. The west coast has a mild climate for the northerly latitude due to the influence of the West Spitsbergen Current, a northerly flowing branch of the North Atlantic Drift. The faunistically poorly known east coast is hypothesised to have a different invertebrate fauna due to the predominant winds and currents originating from the north east and hence this coast will have a different history of immigration and colonization from the west coast.

The use of checklists is therefore cautioned due to possible sampling bias and omissions created by a concentration of work on popular groups and at a limited number of localities. However, this does not detract from their importance as baseline databases, especially during a period of rapid environmental change.

Key words: Spitsbergen, checklist, catalogue, insects, mites

Introduction

Few up to date checklists of the invertebrate fauna of polar regions exist. Nonetheless, such catalogues form an essential element of the study of ecology, biodiversity and biogeography as well as providing key baseline data for environmental impact assessments (Arctic Environment Protection Strategy 1997). Cross-referenced lists also provide a useful first point of reference when undertaking a survey of the literature pertaining to particular species and assist in clarifying taxonomic revisions.

The High Arctic archipelago of Svalbard lies between 74 and 81° N and 10 to 35° E and consists of four main islands with a total surface area of 61,200 km² of which approximately 60 % is permanently under snow or ice (Hisdal 1998). Despite the northerly location, the climate is relatively mild due to the northerly flowing West Spitsbergen Current, an offshoot of the North Atlantic Drift. The mean annual temperature (1961–1990) is -6.7°C, peaking at +5.9°C for August, with a minimum in February of -14.6°C, however, the temperature range during the period 1975–1990 was from -42.2 (March) to +17.0°C (July) (Hisdal 1998). Geographically the islands are remote, lying 700 km north of Norway, the nearest mainland, and 600 km east of Greenland. The current fauna has probably recolonized the islands during the recent Holocene and following the retreat of the glaciers during the last 10,000 years; few if any species are considered to have survived the peak of the last glaciation in situ (Coulson 2000). Coulson and Refseth (2004) published the first comprehensive checklist of