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Records of *Ramaria ochraceo-virens* (Jungh.) Donk and *Sphaerobolus stellatus* Pers. from the Arctic island Bjørnøya (Bear Island)

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Summary. In 1983 *Ramaria ochraceo-virens* and *Sphaerobolus stellatus* were observed on the Arctic island Bjørnøya. A review is given of the material which was collected and of the performance of the species on the island.

KEY WORDS: *Ramaria*, *Sphaerobolus*, Bjørnøya (Bear Island).

Introduction

During the expedition of the Tromsø Museum, IMV, to Bjørnøya in 1983 (Engelskjøn 1986, Skifte 1989, Skifte & Høiland 1993) S. Dunfield, T. Engelskjøn and the author discovered *Ramaria ochraceo-virens* and *Sphaerobolus stellatus* on the island. As these species have not previously been published from the archipelago of Svalbard, I will give a brief account on these collections.

Bjørnøya (Fig. 1) is situated about halfway between the northernmost coast of Norway and the southernmost tip of Spitsbergen. The position for the weather station (and Bjørnøy Radio) is 74°31' N 19°01' E (Steffensen 1982).

The southern and southeastern parts of Bjørnøya consist mostly of mountains, the highest, Miseryfjellet, is 536 m a. s. l. The northern and northwestern parts of the island are flat but rugged and stony with many small lakes (Steffensen 1982). Bedrock varies considerably. Sandstone areas are represented in different parts of the island., and in northeastern Bjørnøya deposits of coal are found in these Devonian strata. Limestone and lime-rich bedrock are also encountered in several areas, especially in southern parts of the island (Engelskjøn 1986).

Bjørnøya has a maritime middle Arctic climate (Elvebakk 1985) with low temperatures and humid conditions. A special feature of the island, as well as other Arctic islands, is fog in summer.

The first contribution to the flora of Bjørnøya was a collection brought back from the island in 1827 by the Norwegian geologist, B.M. Keilhau (Rønning 1959). Thanks to the publications by Rønning (1959), Engelskjøn (1986) and Engelskjøn & Schweitzer (1970), our knowledge about the vascular flora of

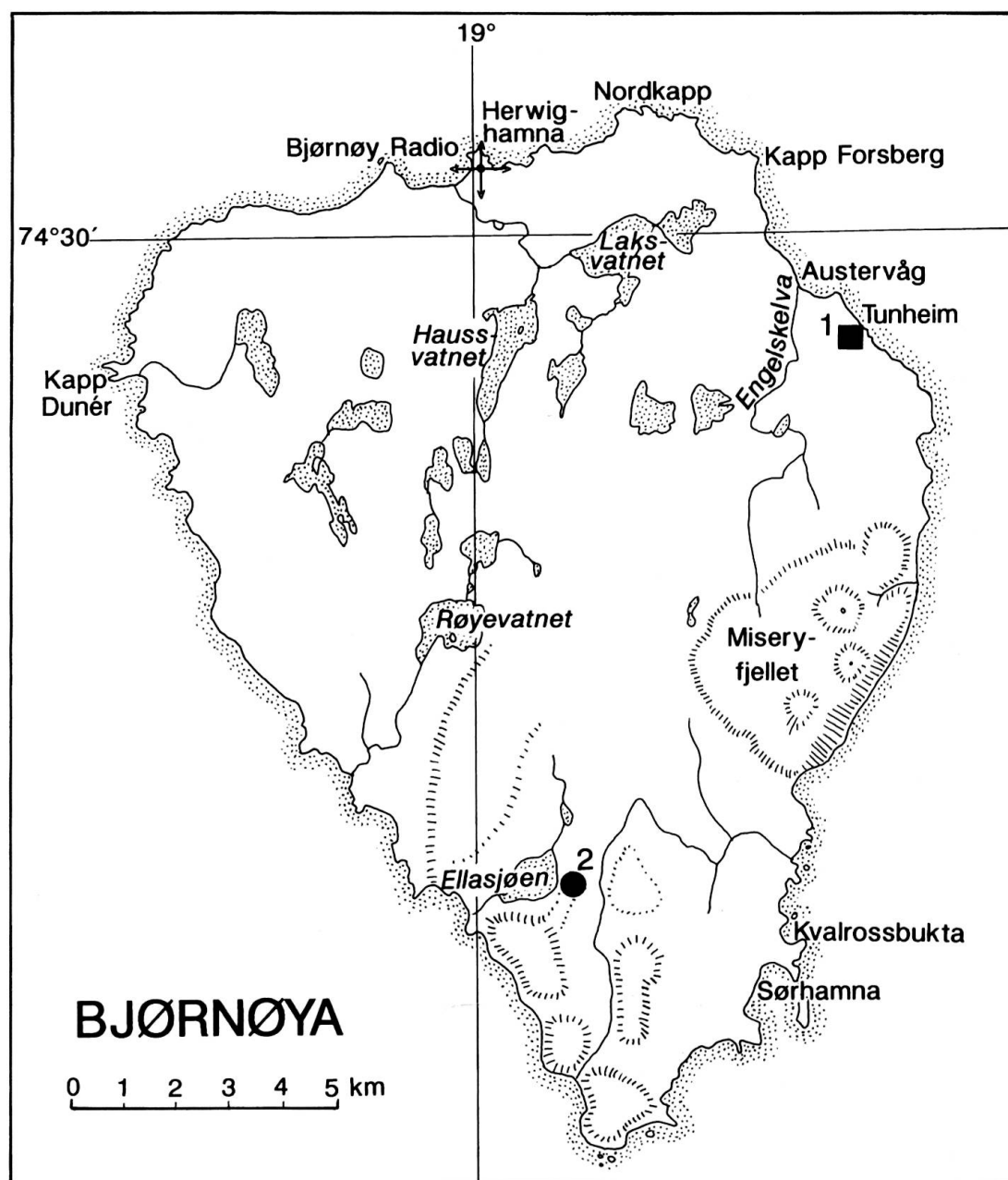


Fig. 1.— Map of Bjørnøya (Bear Island) showing the localities where the material has been collected.— 1. Northeastern Bjørnøya (Bear Island): Tunheim: Locality for *Sphaerobolus stellatus* Pers. (OS 19/Bjø 83).— 2. Southern Bjørnøya (Bear Island): Between the lake Ellasjøen and the valley Ymerdalen. Locality for *Ramaria ochraceo-virens* (Jungh.) Donk (OS 88/Bjø 83).

Bjørnøya today is rather good, both from the floristic as well as from the eco-geographical point of view.

From the mycological point of view, however, the situation is quite different. Except for several records of fungi made by B.M. Kilhau and the Danish botanist J.E. Vahl (published e.g. in *Botaniska Notiser* 1840), the Finnish mycologist P.A. Karsten ought to be considered as the first contributor to our knowledge of the macrofungi in the archipelago of Svalbard (Woldmar 1969). The list of species from Bjørnøya published by Karsten (1972) includes seven agarics, one Gasteromycete and one discomycete.

As a participant in the expeditions to Bjørnøya from Tromsø Museum in 1957 and 1983 (Rønning 1959; Engelskjøn 1986), the author had the opportunity to gather specimens of macrofungi on the island. From these collections material representing the genera *Russula* (Skifte 1989) and *Cortinarius* (*Dermocybe*) (Skifte & Høiland 1993) has been published previously.

The material mentioned in this paper is deposited at Tromsø Museum, IMV, University of Tromsø (TROM).

Description of the taxa

***Ramaria ochraceo-virens* (Jungh.) Donk 1933 Rev. Niederl. Homobas. Aphyll. 2: 112.**

During a study tour to Copenhagen in 1985, the material of this *Ramaria* from Bjørnøya has been identified by H. Knudsen and J.H. Petersen.

The basidiomes are compact and irregularly branched, about 20 mm high, and about 10 mm wide the top. The stems measure about 2,7 mm at the apex, and about 2 mm at the base. The colour at the top of the basidiomes is yellow-orange (Kornerup & Wanscher 1961: 5A7), but dull ochreous (4A5) elsewhere. The lower part of the stem is yellow-green, especially at the base, which often stains greenish. The actual base is tomentose due to white mycelium, which still can be observed on dry material.

Spores 6.5–8(8.5) × 3.5–4.5 µm, rough or slightly verrucose, ovoid to egg-shaped or oblong, often clumped together as stated by Corner (1950). Basidia about 40 × 5 µm, clavate, narrow with 4 sterigmata. Hyphae with clamps on septa.

Material examined: Southern BJØRNØYA: Between the lake Ellasjøen and the valley Ymerdalen (see Fig. 1). In *Salix polaris* – community dominated by moss vegetation, about 150 m a.s.l. The specimens were growing in deep moss-carpet forming a fairy-ring with a diameter of 90 cm. 15 August 1983, S. Dunfjeld, T. Engelskjøn & O. Skifte (TROM: OS 88/Bjø 83).

In Europe this species has been reported both from humus-rich soil (Corner 1950, Breitenbach & Kränzlin 1986, Bon 1987) and on litter in coniferous woods (Breitenbach & Kränzlin 1986, Bon 1987).

***Sphaerobolus stellatus* Persoon 1801**
Syn. Fung. 115.

Fruitbodies 1–2 mm in diameter, globose to subglobose, weakly tomentose at first, becoming smooth, white to pale yellow. On the substratum immersed in a web of white mycelium.

Spores 8–9.5×5 µm, broadly ellipsoid, hyaline, smooth.

Material examined: Northeastern BJØRNØYA: Tunheim, in an old cow-stable constructed during the coal-mining time (1916–1925), in large numbers on a board of *Pinus sylvestris*, 10 August 1983, S. Dunfjeld, T. Engelskjøn & O. Skifte (TROM: OS 19/Bjø 83).

The distribution of *Sphaerobolus stellatus* seems to be very wide. Eckblad (1955) and Lange (1948) claim it is a cosmopolitan species. It seems, however, to be rare in (sub-)arctic areas of Fennoscandia. So far, only few records have been published from northern Finland (Kallio & Kankainen 1966) and Greenland (Lange 1948). According to Herbarium specimens in TROM, we know this species from northern Norway (Nordreisa and Lyngen districts in Tromsø county). *Sphaerobolus stellatus* has not previously been observed in the archipelago of Svalbard.

Discussion

Ramaria ochraceo-virens: The habitats supporting this species at Bjørnøya are quite different from those recorded elsewhere in Europe. Perhaps the species is not very substratum-dependent, and for its occurrence both climate and hydrology may be important as well. In Scandinavia this species is recorded from different ecological niches, e. g. on rotting needles of *Juniperus* growing on calcareous soil (Petersen & Vesterholt 1990).

At Bjørnøya *Ramaria ochraceo-virens* is growing in a habitat on limestone and dolomite (Engelskjøn 1986), dominated by several flowering plants demanding eutrophic soil, such as: *Equisetum scirpoides*, *Alopecurus alpinus*, *Poa alpina* var. *vivipara*, *Phippsia concinna*, *Salix polaris*, *S. reticulata*, *Ranunculus sulphureus*, *Papaver dahlianum*, *Arabis alpina*, *Draba alpina*, *Saxifraga hirculus*, *S. nivalis*, *S. oppositifolia*, and *S. tenuis*.

As regards to the climate, Elvebakk (1985) classifies Bjørnøya as middle Arctic and Engelskjøn (1986) considers the island as being situated in the typical maritime Arctic, having a longer growing season (extending into September) than Spitsbergen.

Accordingly, both the peculiar substrate and the rather mild climate on Bjørnøya may be responsible for the occurrence of *Ramaria ochraceo-virens* in an otherwise Arctic environment.

Sphaerobolus stellatus: During the coal-mining time a horse was kept at Tunheim (Hagnæs Kjell Dahl 1973). After the coal-mining was given up (1925), this horse ("Bjørnøya Blakka") still lived there until 1941 as a mascot for the crew of Bjørnøya Radio which had been established in the Tunheim area. It is difficult to imagine how *Sphaerobolus stellatus* reached Bjørnøya. Perhaps it has been accidentally introduced with the wooden board on which we found it or more likely arrived on the island with fodder (grass, straw) for the before-mentioned horse, or other domestic animals.

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