

Geastrum nanum found in Finland

CARL-ADAM HÆGGSTRÖM

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Geastrum nanum Pers. was found in 1972 in Björkör Nature Reserve in Åland, SW Finland. This is the first find of *G. nanum* from Finland, since an earlier record of the species was based on a misidentification. A description is given of the four gastrocarps from Björkör. The locality, a dry, stony meadow grazed by sheep, has a rather poor and common vascular plant flora. The total distribution of *G. nanum* is described.

Carl-Adam Hæggström, Department of Botany, University of Helsingfors, Unionsgatan 44, SF-00170 Helsingfors 17, Finland

Introduction

On August 26, 1972, during studies of the vascular plant flora and vegetation of Björkör Nature Reserve in Åland, SW Finland, I found *Geastrum nanum* Pers. on Björkör Island (Grid 27°E 6667:121). The determination of the species has been confirmed by Mr. Stellan Sunhede, Göteborg, Sweden. This is the first record of *G. nanum* in Finland. The species has been reported once before, from Sammatti in the province of Ab, SW Finland (Roivainen 1960), but the voucher specimen in H represents in my opinion *G. quadrifidum* Pers.

Description of the Finnish material

The material from Björkör consists of four gastrocarps, three fresh and one weathered.

Exoperidium not hygroscopic, 3.0—4.5 cm wide (when dry), split to about the middle into 6—9 acute, recurved lobes (rays). Mycelial layer persistent with soil particles adhering to it. Fibrous layer thin, pale brown (whitish gray in the weathered gastrocarp). Pseudoparenchymatous layer dark brown (when dry), sometimes cracked.

Endoperidium dark brown with a whitish farinose surface, subglobose to slightly oval, 0.8—1.3 cm broad and 0.6—1.1 cm high, with a short (about 0.5 mm) pale brown pedicel. Apophysis pronounced, paler than rest of endoperidium.

Peristome dark brown, definite, with a prominent ring, 3.5—5.5 mm in diameter, sulcate. Peristome tube 1.5—3.0 mm high.

Capillitium threads long, slender, 1.6—6.4 μm thick, almost hyaline to pale brown, slightly cyanophilous in lactic blue, no significant response could be observed in Melzer's reagent. The surface of capillitium threads smooth or coarse due to small particles.

Spores brown, spherical, verrucose, 4.8—5.6 μm in diameter, on average 5.2 μm in diameter (incl. the verrucae, $n = 20$, material revived in Melzer's reagent). No significant response could be observed either in lactic blue or in Melzer's reagent.

Ecology

The locality in Björkör is a dry, stony meadow, alt. 3—4 m, located between the main farm building (untenanted since 1960) and the seashore. The meadow was grazed by sheep. According to Andersson (1950:51), *Geastrum nanum* is in Sweden 'confined to districts where the rocky or loose strata contain lime'. On the Åland Islands the loose deposits are rich in Ordovician limestone (e.g. Brenner 1930, Eklund 1935), but this limestone is not very abundant in the Björkör area. Thus the vascular plant flora is rather poor and common (nomenclature according to Hämet-Ahti et al. 1977). The meadow contains low, scattered bushes of *Juniperus communis*, *Rubus idaeus* and *Rosa caesia*. In the field

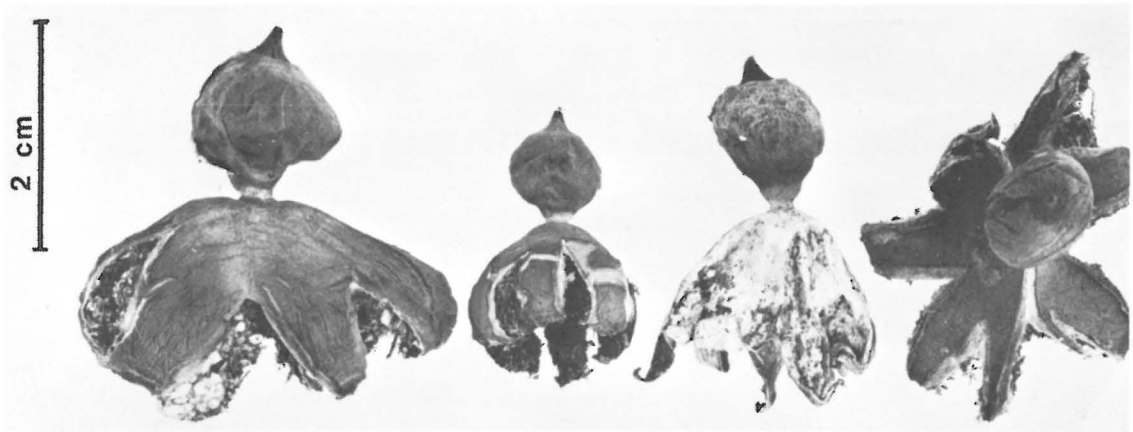


Fig. 1. *Geastrum nanum* Pers. from Björkör. Note the cracked lobes in the second gastrocarp from the left. The weathered gastrocarp is the third from the left. Photo Mauri Korhonen.

layer 37 species were recorded within 10–15 m from *G. nanum*. Many of these are typical of xerothermic sites in the SW archipelago of Finland, e.g. *Sedum telephium*, *S. acre*, *Potentilla argentea*, *Hypericum perforatum*, *Arabis glabra*, *Silene viscosa*, *Dianthus deltoides*, *Galium verum*, *Achillea millefolium*, *Tanacetum vulgare*, *Hieracium pilosella*, *Festuca ovina*, *Deschampsia flexuosa*, *Agrostis tenuis* and *Elymus repens*. Some calciphilous species (cf. Eklund 1946) were also recorded, e.g. *Filipendula vulgaris*, *Alchemilla glaucescens*, *Geranium sanguineum*, *Arabis hirsuta*, *Arenaria serpyllifolia*, *Plantago lanceolata*, *Artemisia campestris* and *Allium oleraceum*.

The ground layer consists of loose carpets and tufts of mosses and lichens, e.g. *Dicranum scoparium* Hedw., *Hypnum cupressiforme* Hedw., *Rhytidiadelphus squarrosus* (Hedw.) Warnst., *Cetraria islandica* (L.) Ach., *Peltigera canina* (L.) Willd. and *Cladonia* spp.

The humus layer is only 1–2 cm thick and merges gradually into the mineral soil, which consists mainly of sand and silt. The soil is slightly acid: pH 5.3 and 5.4 (soil/aqua dest. 1/2.5, pH determined with a Radiometer PHM 24e).

Total distribution

Geastrum nanum has an extensive distribution. The nearest localities to Björkör are in Uppsala and Stockholm, Sweden (Andersson 1950). The species

has been found in other places in Sweden, too: Gotland, Öland, Scania and Bohuslän (Andersson 1950). In Norway *G. nanum* has been recorded only twice (Eckblad 1955). In Denmark it is fairly common (Dissing & Lange 1961).

Outside the Nordic countries *G. nanum* has been reported from several parts of Europe and also from Asia, North and Central America, East and South Africa and Australia (Andersson 1950, Staněk 1958, Dörfelt et al. 1979).

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