

THE SUBARCTIC-SUBALPINE MOSS *KIAERIA BLYTTII* (DICRANACEAE)  
IN CENTRAL POLAND

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ABSTRACT. In October 2009, *Kiaeria blyttii* (Bruch & Schimp.) Broth. was found in the Świętokrzyskie Mountains in the Małopolska Highland. It is the first record of this subarctic-subalpine moss in Central Poland. The paper presents details of this locality.

KEY WORDS: *Kiaeria blyttii*, mosses, subarctic-subalpine species, distribution, Świętokrzyskie Mountains, Małopolska Highland, Poland

## INTRODUCTION

*Kiaeria blyttii* (Bruch & Schimp.) Broth. is a Holarctic species, which thrives in most of Europe except its southern part, as well as in Siberia, Himalaya, Japan and Northern America (NYHOLM 1986, NEWMASER 2007). It has a subarctic-subalpine range (DÜLL and MEINUNGER 1989). In the Central Europe it occurs almost exclusively in higher mountain elevations. Its few localities from lowlands were given from relictual stations on glacial erratics (SZAFRAN 1948, 1957, MEINUNGER and SCHRÖDER 2007). It is very probable, that most of them do not exist at present. This situation was observed for example in Las Zaskoczyński in the Kartuskie Lake District, where this species, reported by KOPPE (1930), was not confirmed (RUSIŃSKA 1981). In the Polish part of the Carpathians, *K. blyttii* grows rather rarely only in the Tatras (CHAŁUBIŃSKI 1886, LISOWSKI 1959, KOSIŃSKI 1999). PODPĚRA (1907) reported this species from the Babia Góra (Babia Hora) massif, but the locality is unclear and as a result it has not been placed on the list of mosses of the Polish part of the Western Beskidy Mountains (STEBEL 2006). In the Sudetes it grows mainly in the Karkonosze Range (LIMPRICHT 1876, FUDALI 2002, FUDALI et al. 2003). One locality is known from the Góry Stołowe Range (SZMAJDA 1979). *Kiaeria blyttii* is a calcifuge and light-loving species, growing on acidic rocks, mainly granite. This paper presents details of the new localities of this species found during the botanical studies carried out in the Świętokrzyskie Mountains in 2009. Herbarium specimens are housed in herbaria KTC and SOSN.

## NEW LOCALITY

The new locality of *K. blyttii* was found on the Mt Szczytniak in the Pasma Jeleniowskie Range in the

Świętokrzyskie Mountains. The Świętokrzyskie Mountains are an old mountain chain, formed in the Caledonian tectonic movement in the Late Silurian and Early Devonian periods. At present they comprise few small and low ranges (the highest point is Mt Łysica, 612 m), but of very interesting geological structure, included into the Wyżyna Małopolska (Małopolska Highland). The Jeleniowskie Range is located in the eastern part of the Świętokrzyskie Mountains. The highest points are Mt Szczytniak (554 m) and Mt Jeleniowska (535 m). This range is composed of Upper Cambrian quartzite, sandstone, and schist. The large area is covered by *Abies alba* or *Abies alba-Fagus sylvatica* forest communities. On the slopes (mainly northern) characteristic periglacial stone runs, called here 'gołoborza', occur (KONDRACKI 2001). The best preserved patches on Mt Szczytniak and Mt Jeleniowska are protected as a Pasma Jeleniowskie landscape park.

The locality of the *K. blyttii* occurs in the highest part of Mt Szczytniak, which is protected as a geological reserve (Phot. 1). The species grows on scattered quartzite rocks in the western part of the reserve. Among boulders on scree many bryophytes, lichens, ferns as well as *Rubus* and *Vaccinium* spp. occur. Frequently solitary young trees or seedlings of *Sorbus aucuparia*, *Betula pendula*, *Fagus sylvatica* and *Abies alba* grow. Such formations, developing on the border of stone runs, are known as a local community *Sorbetum sanctae-crucianum* (GŁAZEK and WOLAK 1991). Its phytocoenoses are characterised by a variable physiognomy. The most common is the form of scrub, with the incidence of single beech, fir, Sycamore maple, or birch. *Sorbus aucuparia* is usually the main component of a layer of shrubs or trees. This community is floristically poor and extremely acidophilous, with the predominant species characteristic of the *Vaccinio-Piceetea* class and a smaller share of the species from the *Quercio-Fageteta*



PHOT. 1. Mt Szczytniak, locality of *Kiaeria blyttii* (photo by R. Piwowarczyk, 31 October 2009)

class. Mosses and lichens occur here abundantly (DANIELEWICZ 2000). *Sorbetum sanctae-crucianum* is considered to be a stable and sustainable association of the specific habitat conditions at the interface between forest and stone runs (GŁĄZEK and WOLAK 1991). Boulders are covered with lichen communities: *Aspicilietum cinereae*, *Lecideetum soredizae*, *Parmelietum conspersae* (CIEŚLIŃSKI and HALICZ 1971).

The floristic composition of the community is presented in the relevé: Relevé 1 Scree below the summit, bordering forest, western part of the Szczytniak Reserve. Geogr. coord. 50°49'36, 9"N/21°09'27, 6"E; date: 31/10/2009; patch area of 60 m<sup>2</sup>, 500 m altitude, exposure N; inclination 25°; ATMOS grid square Ee 78. The cover of the three layer A: 60%, shrub layer B: 30%, the herb layer C: 50%, moss layer D: 60%.

A: *Sorbus aucuparia* 3, *Fagus sylvatica* 2, *Betula pendula* 2, *Abies alba* 1, *Acer pseudoplatanus* 1; B: *Sorbus aucuparia* 2, *Betula pendula* 1, *Abies alba* 1, *Fagus sylvatica* +; C: *Polypodium vulgare* 3, *Vaccinium myrtillus* 3, *Abies alba* +, *Fagus sylvatica* +, *Dryopteris carthusiana* +, *D. dilatata* 1, *Sorbus aucuparia* +, *Geranium robertianum* +, *Oxalis acetosella* +, *Rubus idaeus* +; D: *Pleurozium schreberi* 2, *Dicranum scoparium* 2, *Hylacomium splendens* 1, *Kiaeria blyttii* +, *Lophozia attenuata* +, *Lophozia hatcheri* +, *Pohlia nutans* +, *Plagiothecium curvifolium* +, *Polytrichastrum formosum* +, *Sanionia unciata* +, *Lecanora* sp. 1, *Cladonia* sp. 1, *Lecidea* sp. +.

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