

***LUZULA SYLVATICA* (HUDS.) GAUDIN - A NEW VASCULAR PLANT SPECIES TO
OPAWSKIE MTS. IN OPOLE SILESIA**

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ABSTRACT: During the geobotanical researches in Opawskie Mts. in southern part of Opole Silesia, a population of *Luzula sylvatica* was found. This is a new vascular plant species to this mountain range, never reported before despite intensive botanical works. The species represents mountainous flora group which is very scarce in Opole Silesia, so is significantly important for the conservation. The population of *Luzula sylvatica* was found between Głucholazy and Podlesie on a steep, western slope of the Góra Parkowa hill. It consists of only three tussocks.

KEY WORDS: Opawskie Mountains, vascular plants, mountain flora, Opole province, flora conservation

Introduction

Luzula sylvatica is a species, which occurs in the Middle, Western and Eastern Europe (Tutin et al. 2005). In Poland it grows in Sudety Mts. and Carpathians, rarely sloping down on lowland. Few sites noted in West Pomerania belong to West-European range of this taxon. According to Zajac (1996), researched species is a mountain plant, which belongs to subatlantic element. In Kubát's (2002) opinion *Luzula sylvatica* occurs in subalpine (700-1300 m a.s.l.) and alpine zone (above 1300 m a.s.l.).

The main phytocoenosis type hosting the *Luzula sylvatica* populations are different types of spruce forests. It appears also in communities from the *Adenostyilion alliariae* Br.-Bl. 1925 alliance (Zajac 1996; Zajac and Zajac 2001). According to Oberdorfer (1994), studied taxon is related to beech- and oak forests, as well as fir- or spruce-trees [the *Luzulo-Fagenion* (Lohm. ex Tx. 1954) Oberd. 1957 suballiance, the *Piceion abietis* Pawł. in Pawł. et al. 1928 alliance – most often in the *Calamagrostio villosae-Piceetum* (Tx. 1937) Hartm. 1953 ex Schlüter 1969 association, the *Quercion roboris* Malc. 1929

alliance, and also in dwarf shrub communities with domination of *Vaccinium myrtillus*]. It prefers fresh, acidic, alkaline-deficient humus soils and cool, shaded places.

According to Matuszkiewicz (2007), *Luzula sylvatica* is a differential species of the *Piceion abietis* Pawł. et al. 1928 alliance. It is hemicryptophyte, of numerous sites, occurring mainly in one region (Zarzycki et al. 2002).

In spite of many years' botanical surveys (Krawiecowa et al. 1963; Ciaciura 1988; Kuźniewski et al. 1993), *Luzula sylvatica* has never been noted in Opawskie Mts. The nearest stands of this species in Poland are located in Śnieżnik Massif (ca. 50 km distance), where it occurs in tree limit zone and above (Szelağ 2000). In the Czech republic the nearest population was reported from Rychlebske Hory and Lower Jeseník (Chrtek et al. 1959; Duda et al. 1990), ca. 20 km from the newly found population.

Till now *Luzula sylvatica* was reported from three stands in Opole province (Kuczyńska 1974). One of them, in Strzelce Opolskie in lowland part of the region is considered as doubtful, because there is no direct citation in Kuczyńska work and no literature evidence for this station. The location in Przysiecz reported by Kuczyńska (1974) is also not perfectly documented. Probably the citation refers to the work from late 60-ties when the scientists from Wrocław University conducted ecological and botanical researches in Przysiecz reserve. Unfortunately in manuscript edited by prof. Macko where Krawiecowa and Kuczyńska (1967) described the flora and vegetation of the protected area, only *Luzula nemorosa* (presently *L. luzuloides*) and *L. pilosa* were mentioned. However, the results of Kuźniewski (1989) investigation shows that *L. sylvatica* is present in Przysiecz reserve. The third population was found in Kamień Śląski nature reserve Kamień Śląski (Krawiecowa and Kuczyńska 1970). In all this location *Luzula sylvatica* disappeared, so the newly found population is the only existing within the province borders (Spalek 2003; A. Nowak - pers. comm.).

Methods

The geobotanical studies were conducted in the southern part of the Opole province within the area of Opawskie Mts. (eastern Sudeten; Fig. 1). Studies were carried out in 2008 and 2009. As phenological aspects were also considered in the fieldwork, basic investigations were conducted from June to August. The phytocoenosis with the occurrence of *Luzula sylvatica* was sampled using the phytosociological Braun-Blanquet approach (1964). The nomenclature of plants follows Mirek et al. (2002).

Results

As a result of geobotanical studies conducted within the area of Opawskie Mts. scarce population of *Luzula sylvatica* was found. It consists of three tufts of that species. *Luzula sylvatica* occupies west hillside of Parkowa Mt. A slope inclination in this place was 45% with the exposure to the west and the altitude - 345 m a.s.l. (ATPOL square CF31). The phytocoenosis is located near forest road from Głuchołazy to Podlesie.

The species composition of the community patch, where the specimens of *Luzula sylvatica* were noted, is given below:

Date: 19.07.2009 r.; Area: 250 m²; Species number - 27; Density of tree layer a1 (%) - 75%: *Picea abies* 4, *Fagus sylvatica* 1; Density of tree layer a2 (%) - 20%: *Fagus sylvatica* 2; Density of shrub layer b (%) - 30%; *Fagus sylvatica* 2, *Sambucus*

nigra 1, *Sorbus aucuparia* 1, *Corylus avellana* +; Cover of herb layer c (%) - 50%: *Luzula sylvatica* +, *Fagus sylvatica* 2, *Athyrium filix-foemina* 1, *Dryopteris carthusiana* 1, *Festuca gigantea* 1, *Impatiens parviflora* 1, *Luzula luzuloides* 1, *Lysimachia vulgaris* 1, *Oxalis acetosella* 1, *Poa nemoralis* 1, *Prenanthes purpurea* 1, *Rubus hirtus* 1, *Acer pseudoplatanus* +, *Campanula rapunculoides* +, *Cardamine flexuosa* +, *Carex sylvatica* +, *Equisetum sylvaticum* +, *Geranium robertianum* +, *Glechoma hederacea* +, *Quercus robur* +, *Sambucus nigra* +, *Symphytum tuberosum* +, *Chelidonium majus* r, *Lapsana communis* r.

Discussion

The occurrence of *Luzula sylvatica* in Opawskie Mts. is a very interesting from the floral diversity conservation point of view and also for the biogeographical analysis. The population enlarges and completes the range of the species in Sudety Mts. It's another important species, which is like following taxa: *Lonicera nigra*, *Gnaphalium norvegicum*, *Ranunculus platanifolius*, *Blechnum spicant*, *Carex pendula*, and *Huperzia selago*, a representative of the mountainous flora typical for highest elevation within the region. The founding of the another mountainous species in Opawskie Mts. emphasize the floral separateness of this small area in comparison to remaining part of the region. It should be also underline that all species from this group are very scarce and threatened. For several years the population of *Gnaphalium norvegicum* reported by Krawiecowa et al. (1963) has not been confirmed. Others species like *Lonicera nigra*, *Ranunculus platanifolius*, *Carex pendula* and *Huperzia selago* have only one or two locations with not numerous population (Nowak 2002a; Nowak and Gębala 2009). Only *Blechnum spicant* is still relatively abundant and stabile, but also considered as very rare (Nowak 2002b).

Luzula sylvatica occurs in the Eastern Sudety Mts., especially in Jeseniki Mts., Rychlebskie Mts. and Śnieżnik Massif (Schube 1903; Chrtek et al. 1959; Szelağ 2000; Hédl 2001). Thus, it was not astonishing that *Luzula sylvatica* has been found in Opawskie Mts. range running over an adjacent area. However, it hasn't been confirmed from the nearest Lower Jesenik for over one hundred years (Duda et al. 1990).

The alleviation of studied species location belongs to the one of the lowest known in its range, in lower mountain zone (beech forest belt). Such location is probably a result of anthropogenic transformation of beech woods into spruce tree stands, which took place 100-150 years ago.

Long lasting changes led to considerable changes in habitat conditions and increase of a spruce participation with related acidification of the soil substrate. As a result of these changes convenient conditions for *Luzula sylvatica* developed. It could enable the widening of local range of researched species and spreading of the plant from higher parts of Eastern Sudeten to their northern foreland, i.e. Opawskie Mts.

The new site of *Luzula sylvatica* is seriously threatened. It is located almost in forest road verge, on a steep slope, endangered by eluviations and earth sliding. The tree stand is appropriated according to forest management plan of Prudnik Forest Inspectorate, for rebuilding in direction to recreate natural beech woods in this area. This of course could wipe the species out, because of the acute impact during the forest cultivation works and then due to changes of habitat conditions. The site of *Luzula sylvatica* should be under permanent surveillance of "Opawskie Mts. Landscape Park" service.

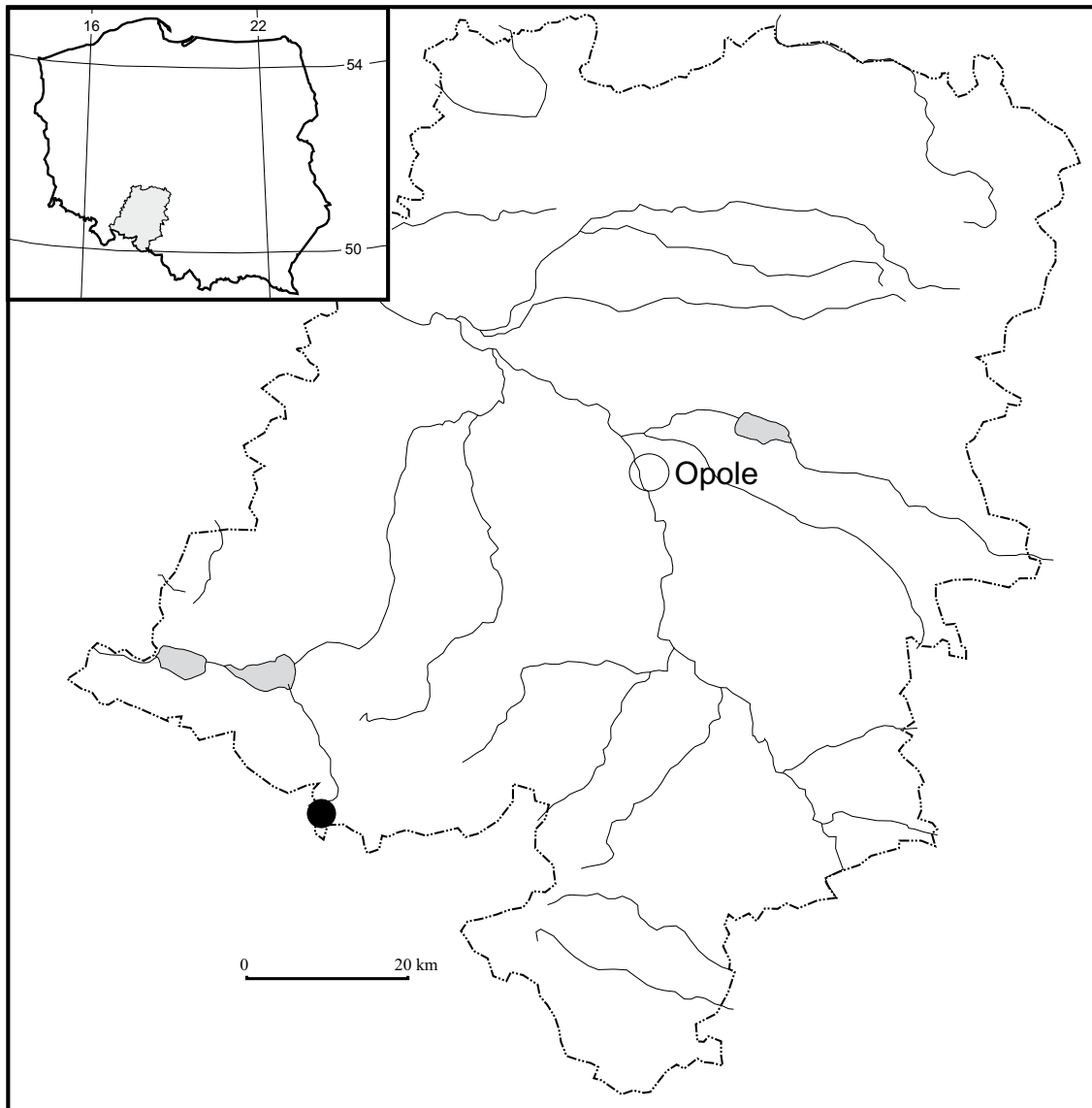


Fig. 1. The location of *Luzula sylvatica* (Huds.) Gaudin in Opole Silesia (marked with black dot)

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