

***CARDAMINE CHELIDONIA* L. - A NEW SPECIES TO OPOLE SILESIA**

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ABSTRACT: In 2014, a new locality of *Cardamine chelidonia* L., an extremely rare alien plant species in Poland, was found in the Przyłęk Natura 2000 site between Głuchołazy and Nysa in the southern part of Opole province. The newly discovered population grows in patchy forest composed mainly of *Fraxinus excelsior*, *Populus alba* and *Salix alba* in the canopy layer. The chorological aspects as well as some ecological details of the newly discovered population with a short description of habitat and vegetation composition are given.

KEY WORDS: alien species, chorology, distribution, ATPOL, SW Poland.



Introduction

The flora of Opole province consists of a great number of alien species, many of which have been found in recent years (e.g. Nowak and Nowak 2007). According to the regional checklist of vascular plant species, approximately 26% out of the total number of species reported within the region are regarded as anthropophytes, mostly established as a permanent element of its flora (Nowak 2004). Many of them have already caused unwanted changes in the native vegetation or could have a negative impact if the population sizes increase in a short time period. That is why the monitoring and analysing of such alien flora is one of the most crucial topics in nature conservation and biogeography (Abbot 1992; Hilton-Taylor 2000; Tokarska-Guzik and Dajdok 2004).

Opole Silesia, because of its geographical location at the entrance of Morawska Gate, long history of human colonisation and settlements and fairly well developed road system, is regarded as remarkably vulnerable to alien plant encroachments. Many of them have the starting point of expansion in Poland in this region, e.g. *Solidago graminifolia* or *Erechtites hieracifolia* (e.g. Dajdok and Nowak 2007). This provides an extraordinary opportunity for botanists to study the range changes, population dynamics and synanthropisation processes of alien species (e.g. Michalak 1970, 1972, 1973, 1981; Sendek 1973; Szotkowski 1988; Spalek 1996; Tokarska-Guzik and Dajdok 2004).

Cardamine chelidonia is a native species in southern European countries: central and southern Italy, Sicily, Corsica and Croatia (Archangeli 1882; Parlato 1893; Jones 1964). In its native range the species inhabits montane forests with *Fagus sylvatica* or *Picea abies* as the dominant forest species (Caruel

1860; Archangeli 1882; Jones 1964). The species also has anthropogenic sites in Central Europe, e.g. in Poland and the Czech Republic (Schalow 1935; Hroudá 1992; Kubát et al. 2002; Pender and Kusiak 2003; Hadinec and Lustyk 2008). Until now, *Cardamine chelidonia* was regarded as ephemerophyte in Poland (Rostański and Sowa 1986-1987; Mirek et al. 2002) or metaphyte (Pender and Kusiak 2003). In recent years it was noted only in two sites - in the Karkonosze Mts. in Karpacz village and the Łomnica stream valley (Pender and Kusiak 2003). These population inhabit montane coppices composed of *Acer platanoides*, *A. pseudoplatanus*, *Picea abies*, *Fraxinus excelsior* and *Betula pendula*, as well as synanthropic habitats like village road verges with graminoid-dominated lawns. The population in the Łomnica valley has been known since 1933 (Schalow 1935). This proves that the species is permanently established within the flora of Poland and should be regarded, without any doubt, as metaphyte (Pender and Kusiak 2003; Urbisz 2011). As it is spotted in wood phytocoenoses, it seems to enter the holoagriophyte phase of the introduction process according to the Kornaś division (Kornaś 1982, 1983).

Materials and methods

Geobotanical investigations aimed at finding new sites of *Cardamine chelidonia* were conducted within the area of the Morawska Gate and its closed northern vicinity encompassing the Głubczycki Plateau, Opawskie Mts. Foothills and the Paczkowskie Foreland. The field studies were conducted in 2014 and 2015. The bibliography and all available herbaria were checked in Kraków, Chorzów and Opole (KRA, KTU, OPUN). The locality description comprises an exact stand location (with the help of a GPSMAP 60CSx device with an accuracy of ± 5 m, using

the WGS84 reference frame), population size and plant community in which *Cardamine chelidonia* occurs. The syntaxonomical

Results

Recently, *Cardamine chelidonia* (Phot. 1, 2) was also found in a small forest plot near Przełęk village within the foreland of the Opawskie Mts (Fig. 1). The population consisting of approx. several hundreds of individuals occupies an open riverside forest with domination of *Fraxinus excelsior*, *Salix alba* and *Populus alba*. The population was found within open spaces where - due to

classification is given according to Matuszkiewicz (2007) and the nomenclature of plants follows Mirek et al. (2002).

frequent inundations of the Biała Głuchowska River or forest management - the tree canopy is not dense and the light conditions are suitable for encroachment of plants with higher light demand. In the forest complex the river valley herbs dominate, among others *Alliaria petiolata*, *Ficaria verna*, *Circaea lutetiana*, *Glechoma hederacea*, *Lamium maculatum*, *Melandrium rubrum*, *Milium effusum*, *Ranunculus lanuginosus*, *Rubus caesius*, *Stellaria nemorum* and *Urtica dioica*.

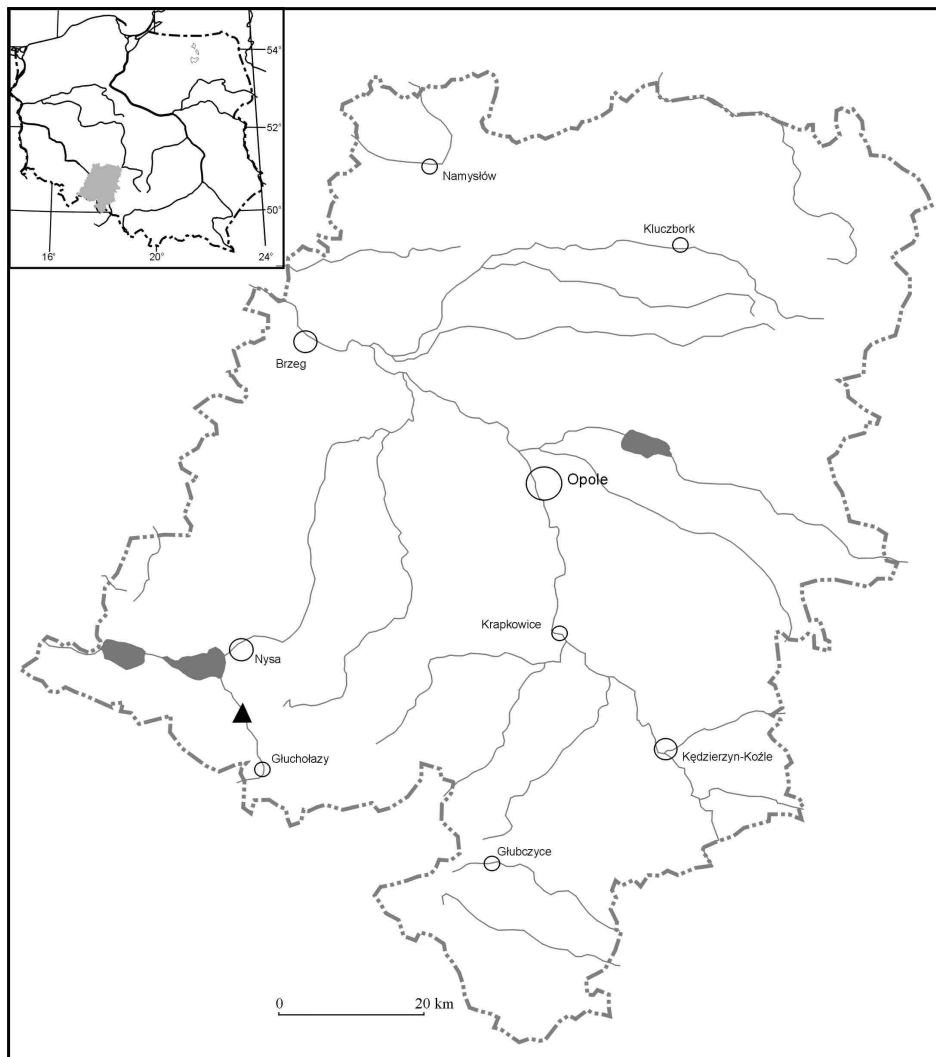


Fig. 1. Locality of *Cardamine chelidonia* L. in Opole Silesia. ▲ - population in Przełęk in Natura 2000 site PLH160016.



Phot. 1, 2. *Cardamine chelidonia* in riverside forest of Biała Głuchowska near Przyłek.

The species composition of the forest plot in Przyłek with the contribution of *Cardamine chelidonia* is presented in following relevé:

Przyłek, a river forest plot in Biała Głuchowska River valley; ATPOL grid square CF21: 50°24'29.1''N, 17°19'44.7''E, 222 m, 12th of May 2014, leg. A. Nowak (OPUN). *Fraxinus excelsior* a 3, *Populus alba* a 1, *Salix alba* a 1, *Sambucus racemosa* b 1, *Cardamine chelidonia* 2, *Ficaria verna* 3, *Lamium maculatum* 3, *Alliaria petiolata* 2, *Glechoma hederacea* 2, *Rubus caesius* 2, *Stellaria nemorum* 2, *Urtica dioica* 2, *Ranunculus lanuginosus* 2, *Ajuga reptans* 1, *Lapsana communis* 1, *Melandrium rubrum* 1, *Chaerophyllum aromaticum* +, *Dactylis glomerata* +, *Geum urbanum* +, *Impatiens parviflora* 1, *Luzula pilosa* +, *Moehringia trinervia* +, *Myosotis sparsiflora* +, *Veronica serpyllifolia* +, *Veronica chamaedrys* +.

Conclusions

The *Cardamine chelidonia* population found in Opole Silesia confirms that the species is a permanently established element of the Polish flora. A relatively large population size and occurrence in forest phytocoenosis shows that the plant has probably entered the holoagriophyte phase of their spread in southern Poland. The location is probably related to the population known from the Zlate Hory in the northern Czech Republic (Kubát et al. 2002). It is only approximately 20 km distance from Przyłek. Because the population of *Cardamine chelidonia* occupies the riverside habitats, it is supposed that it could easily spread down the Biała Głuchowska River and further to the Nysa Kłodzka river valley, with many suitable habitats alongside the river banks.

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