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***VIOLA ODORATA* L. (*VIOLACEAE*)
AS A REMNANT OF FORMER CULTIVATION
IN THE BIAŁOWIEŻA FOREST REGION**

Key words: NE Poland, ornamental plants, cultivation, status, Sweet Violet

Abstract. Białowieża Forest region. *V. odorata* is a species of uncertain status in Poland. According to the literature, the species is generally rare in Białowieża Forest, NE Poland. Recent observations show that the species is much more common in the Białowieża Forest region and should be treated here as a kenophyte/hemiagriophyte. Most localities are in parks, cemeteries, at roadsides, wasteland, along fences and under the canopy of trees close to human settlements. Four different colour forms were found: the most common were violet, purple, white and lilac.

Introduction

Viola odorata L. (*Violaceae*), Sweet Violet, is a native of the Mediterranean region and parts of SW Europe (Hulten, Fries, 1986; Valentine et al., 1968; Marcussen, 2006). Due to its scented flowers it has, however, a long history of cultivation as an ornamental plant, beginning at least in times of ancient Rome. Sweet Violet is also widely used as a medicinal and ritual plant (e.g., de Cleene, Lejeune, 2002). This long cultivation history obliterated the limits of its natural occurrence and native range. Today it is cultivated and grows spontaneously on six continents, in Mediterranean and temperate climates. It also thrives in mountains in the tropical zone, even above 3500 m altitude (Hultén, Fries, 1986; Tropicós, 2010; USDA, 2010).

The species is also very variable, sporting numerous colour forms (white, yellow, peach, rose, mauve, purple, lilac, violet, blue, variegated, etc.), as well as hundreds of cultivars and many hybrids (Zabłocki, 1947; The American Violet Society, 1999). The aim of the present study was an assessment of the status of the abovementioned species, as well as its phenotypic variability, in the Białowieża Forest region, Poland.

Materials and methods

Data from the literature, Internet sources, herbarium materials and the author's original studies were included. Distribution data for NE Poland taken from Zajac and Zajac (2001) were supplemented with data from Wołkowycki (2000) and herbarium materials from the herbarium of the Białowieża Geobotanical Station of Warsaw University, as well as the results of the author's own study.

In 2009 and 2010, in the flowering time of *V. odorata*, surveys were made in settlements of Białowieża Forest and its foreland, as well as along roadsides, fire lanes and cuttings. Ninety-three settlements were visited and about 250 km of roadsides searched. Localities were treated as separate when the distance between them was larger than 100 m. Sweet Violet occurrence, flower colour, abundance, habitat conditions and distance from the nearest settlement were noted for each locality.

The geographical-historical status was discussed following Zajac (1979), Zajac et al. (1998), Mirek et al. (2002), and Tokarska-Guzik (2005).

Status of *V. odorata* in Poland

As early as in 1947 Zabłocki (1947) expressed doubts concerning the status of Sweet Violet in northern Poland. According to recent Polish literature, the status of *V. odorata* in Poland is uncertain (Zajac, Zajac, 2001; Mirek et al., 2002; compare Introduction). The species is not included in the list of Polish kenophytes (Zajac et al., 1998; Tokarska-Guzik, 2005) and the list of archaeophytes (Zajac, 1979). In regional papers, authors give a whole array of opinions on the subject. Latowski (1994) treats the species as an archaeophyte in the northwestern part of Poland. On the other hand, Piotrowska (1983) regards *Viola odoratae-Ulmetum* as a natural forest community in the same region. Sudnik-Wójcikowska (1987) expressed doubts on the status of the species in the Mazowsze region, Pacyna (2004) did likewise concerning the West Carpathian region, whereas Wayda (1996) and Witosławski

(2006) treated it as a native species in the Tarnobrzeg Upland and Łódź, respectively. Sweet Violet is more common in the western and southern parts of Poland, growing not only close to human dwellings, but also in alluvial forests (Wayda, 1996; Zajac, Zajac, 2001; Pacyna, 2004).

Status of *V. odorata* in the Białowieża Forest Region

According to the literature, the species is generally rare in Białowieża Forest and in NE Poland (Sokołowski, 1995a, b; Zajac, Zajac 2001; Fig. 1).

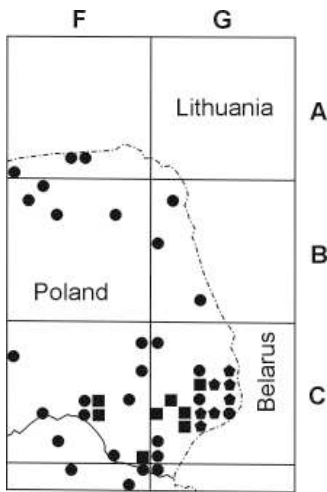


Fig. 1. Distribution of *V. odorata* in NE Poland. Circles – localities after Zajac, Zajac (2001); squares – localities after Wołkowycki (2000), pentagons – author's study

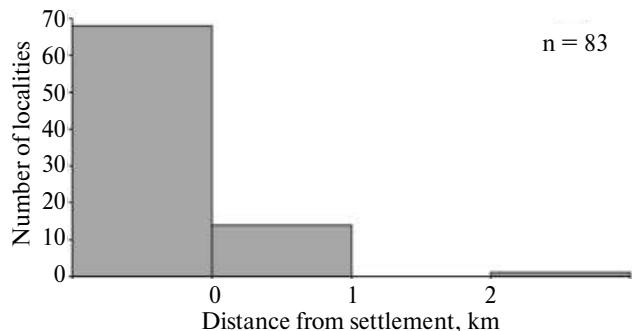


Fig. 2. Distance of *V. odorata* localities from the nearest settlement

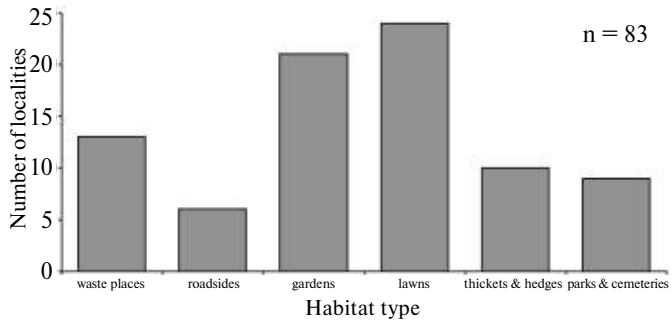


Fig. 3. Habitats occupied by *V. odorata* in the Białowieża Forest region

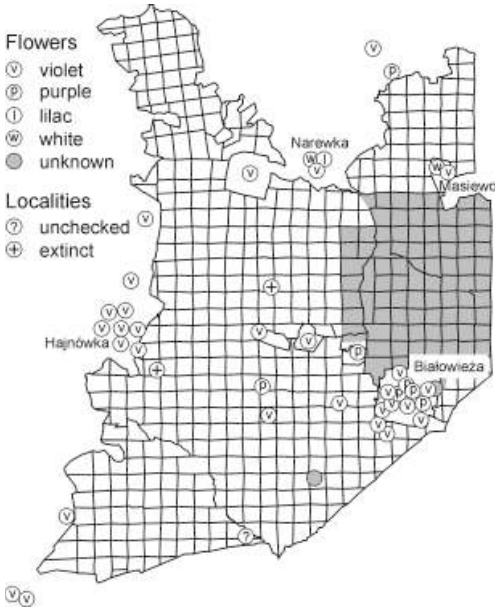


Fig. 4. Distribution of *V. odorata* in Białowieża Forest. Grey area – Białowieża National Park

However, new literature data (Wołkowycki, 2000) and this study show that Sweet Violet is much more common there than it was previously known. The species is currently rare under deliberate cultivation – only 8 localities were found. More often the species grows spontaneously, thriving close to human settlements (Fig. 2), especially in parks, cemeteries, lawns, neglected gardens, wastelands, and along fences and roadsides (Fig. 3), sometimes forming large populations.

It avoids well-preserved forests, i.e. Białowieża National Park (Fig. 4). Taking into consideration the fact of the relatively late colonization of Białowieża Forest and adjacent territories by humans (see discussion), this species should be treated locally as a kenophyte/hemiagriophyte.

Discussion

The problematic status of *V. odorata* is clearly visible in the treatment of the species in the floras of adjacent countries. In Lithuania (Gudžinskas, 2000) *V. odorata* is treated as a holoagriophyte. Parfenov (1999) reports the species in Belarus as a cultivated and escaped plant only; the same is the opinion of Dr. M. Dzhus (pers. comm.). In Ukraine, Didukh and collaborators (2010) treat *V. odorata* as a native plant in the whole country, whereas both Hulten and Fries (1986) and Marcussen (2006) suggest that it is native only in the Crimea. In the Czech Republic, Pyšek and collaborators (2002) regard it as an archaeophyte that arrived in medieval times. In Germany, Haeupler and Schönfelder (1988) treat at least some of its localities as native, whereas the BioFlor database (BioFlor, 2010) cites it as an archaeophyte.

There are medieval tumuli (10th–13th century) in Białowieża Forest, but no settlements from this time have been found (Górska, 1979). The first town in the region –

Kleszczele – was established in the 16th century; the first settlement in Białowieża Forest was mentioned in the 17th century; Hedemann, 1939; Wiśniewski, 1977). Recent paleobotanical studies (Milecka et al. 2009) confirm late and weak human influence on vegetation development in Białowieża Forest.

Despite the widespread use of *V. odorata* as a ritual, medicinal and edible plant described in European literature (de Cleene, Lejeune, 2002; Tardio et al., 2006; Red-
zić, 2007), in the Białowieża Forest region the species is used only as an ornamental plant (E. Pirożnikow, pers. comm.). Even more striking is the complete absence of the species in inventories of the garden flora of NE Poland (Burska, Skrzyp 1998).

The distribution pattern of Sweet Violet is interesting: it is present in all of the oldest settlements (Białowieża, Orla, Kleszczele, etc.), but rare in others (Wołkowycki, 2000). My observations confirm this pattern with the only exception: *V. odorata* is quite common in the town of Hajnówka (Fig. 4), which was established before the Second World War. This pattern shows the probable way of the first introduction of *V. odorata* to Białowieża Forest, as a hunting lodge of Polish kings existed here since the 17th century (Hedemann, 1939). The precise date of this introduction is impossible to find, although it surely precedes the first botanical information on this species (Paczoski, 1897–1900).

Four colour forms were found in the region (Fig. 4). The most common and widely distributed is the violet form. The purple form grows mainly in the Białowieża Clearing, whereas the white one appears only in Narewka and Masiewo villages. The lilac form was found only once, as a single specimen in Narewka. Most probably, different colour forms were introduced at different times and from different sources.

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**VIOLA ODORATA L. (VIOLACEAE) ЯК ОСТАНЕЦЬ КУЛЬТУРИ
В БІЛОВЕЗЬКОМУ ЛІСОВОМУ РАЙОНІ**

Viola odorata в Польщі має невизначений статус. За літературними даними, він загалом рідкісний для Біловезьких лісів (Північно-Східна Польща). Недавні спостереження показали, що вид частіше трапляється у Біловезі й має трактуватися як кенофіт/геміагриофіт. Численні його локалітети знайдені в парках, на цвинтарях, уздовж доріг та на пустирях, поблизу парканів і під наметом дерев біля поселень людини. Встановлено чотири кольорові форми виду: найчастіше трапляються фіолетова, пурпурова, біла та лілова.

Ключові слова: Біловезькі ліси, *Viola odorata*, кенофіт, геміагриофіт.

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**VIOLA ODORATA L. (VIOLACEAE) КАК ОСТАНЕЦ КУЛЬТУРЫ
В БЕЛОВЕЖСКОМ ЛЕСНОМ РАЙОНЕ**

Viola odorata в Польше имеет неопределенный статус. По литературным данным, в целом он редкий для Беловежских лесов (Северо-Восточная Польша). Недавние наблюдения показали, что вид чаще встречается в Беловежье, он должен трактоваться как кенофит/гемиагриофит. Выявлены его многочисленные локалитеты в парках, на кладбищах, вдоль дорог, заборов и на пустирях, под пологом деревьев вблизи поселений человека. Установлено четыре цветные формы вида: чаще встречаются фиолетовая, пурпурная, белая и лиловая.

Ключевые слова: Беловежские леса, *Viola odorata*, кенофит, гемиагриофит.