



LOWLAND STATION OF THE *GENTIANA ASCLEPIADEA* L. IN MIKOŁÓW (SILESIAN UPLAND, S POLAND)

BARBARA FOJCIK, MARIUSZ WIERZGOŃ

B. Fojcik, M. Wierzgoń, Department of Botany and Nature Protection, University of Silesia, Jagiellońska 28, 40-032 Katowice, Poland, e-mail: fojcik@us.edu.pl, mariuszwierzgon@wp.pl

(Received: November 21, 2014. Accepted: December 19, 2014)

ABSTRACT. *Gentiana asclepiadea* L. is a montane flowering plant species that has a very limited lowland distribution in Poland. The only existing lowland station that is known occurs in the Katowice-Muchowiec (Silesian Upland). In this paper a second station from the Silesian Upland in the Mikołów-Jamna area is described. A single cluster of rare *albiflora* form was observed within the newly discovered population. Information about the status and distribution of the Willow Gentian in Poland is also given.

KEY WORDS: *Gentiana asclepiadea*, distribution, Silesian Upland, Poland

INTRODUCTION

The Willow Gentian *Gentiana asclepiadea* L. in Polish flora of vascular plants is one of the eight members of the genus *Gentiana* (Gentianaceae) (MIREK et al. 2002). This multizonal mountain species occurs in the mountains of Central and South Europe and in the Caucasus (Alpine-Central European type of distribution; JASIEWICZ 1971, ZAJĄC 1996). It grows in tall herb communities (order *Adenostyletalia alliariae*) as well as in coniferous and mixed forest communities (alliance *Vaccinio-Piceion*) and semi-natural mat grasslands (order *Nardetalia*; ZAJĄC 1996).

Gentiana asclepiadea is morphologically not a very variable species. Flowers are very attractive usually with violet-blue blooms, but form with a white corolla can be distinguished (*albiflora* Murr. form; JASIEWICZ 1971), too. White flower plants occur very rarely (JASIEWICZ 1971, ŚWIDERSKI 2004). Other changes in morphology, like the occurrence of mottled leaves, reduced growth and retarded flowering, may be caused by a rhabdovirus GRVG (ZAJĄC & PINDEL 2011).

DISTRIBUTION AND STATUS IN POLAND

In Poland *Gentiana asclepiadea* occurs mainly in the Carpathians, is rarer in the Sudety Mts. and is

frequent at the foothills to subalpine belt (JASIEWICZ 1971, ZAJĄC 1996). The revision of the distribution of the Willow Gentian in Poland that was presented by ZAJĄC & ZAJĄC (2001) took into account two natural, lowland localizations. The first one, which is historical, was located in Ojców in the Cracow-Częstochowa Upland where *Gentiana asclepiadea* was observed in the second half of the 19th century, but recently the occurrence of this species has not been confirmed (URBISZ 2004, MICHALIK 2008) (Fig. 1). The other occurrence, which was observed in Szczepanek near Strzelce Opolskie in the 1960s (on the periphery of Silesian Upland; KOWAL et al. 1962), is now considered to be doubtful (ZAJĄC & ZAJĄC 2001). In “Distribution atlas of vascular plants in Poland” (ZAJĄC & ZAJĄC 2001), a single, synanthropic occurrence is also mentioned in the region of Kazimierz Dolny.

At present the only locality, for which its existence is certain in the Polish lowlands, is described in the Katowice-Muchowiec in the Silesian Upland region (BABCZYŃSKA-SENDEK 1999). The Willow Gentian there is growing in a forest of a degenerating oak-hornbeam type on an area of a few square meters. This localization marks the northern limit of the range of *Gentiana asclepiadea* in Poland.

According to the order of the Minister of the Environment on 9 October 2014, *Gentiana asclepiadea* is under partial legal protection in Poland.

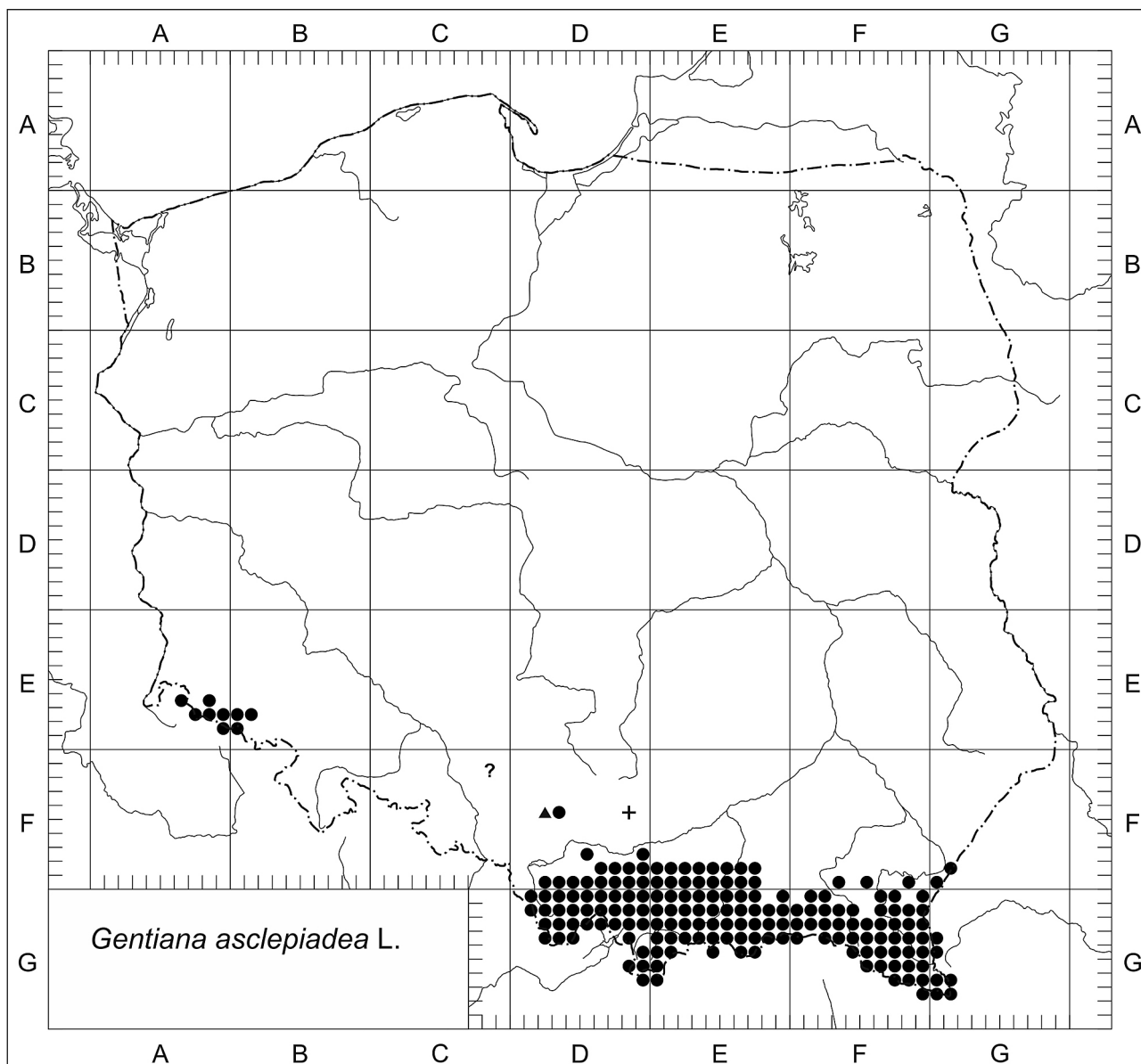


Fig. 1. Distribution of *Gentiana asclepiadea* L. in Poland (ZAJĄC & ZAJĄC 2001) and localization of the new station in Mikołów-Jamna: ▲ – new localization; + – extinct localization; ? – uncertain localization

DESCRIPTION OF THE NEW STATION

A new station of *Gentiana asclepiadea* was found in Mikołów-Jamna (Katowice Upland, central part of the Silesian Upland; KONDRACKI 1994). According to the ATPOL cartogram grid system (ZAJĄC 1978), the new localization is included in square DF42 (Fig. 1). It is situated in forest section 85. The population occupies an area of 25 m² in a mixed forest in a loosely knit belt between secondary *Quercus robur*-*Pinetum* and a deciduous tree stand in the habitat of an oak-hornbeam forest (Fig. 2). Characterisation of local flora is as follows:

A – 20%: *Betula pendula* 2.1, *Pinus sylvestris* 2.1;

B – 50%: *Betula pendula* 2.1, *Frangula alnus* 2.1, *Padus serotina* 2.1, *Sorbus aucuparia* 2.1, *Alnus incana* 1.1;

C – 100%: *Agrostis capillaris* 3.4, *Gentiana asclepiadea* 2.3, *Oxalis acetosella* 2.3, *Galeopsis tetrahit* 2.2, *Rubus* sp. 2.2, *Vaccinium myrtillus* 2.2, *Athyrium filix-femina* 2.1, *Equisetum sylvaticum* 2.1, *Frangula alnus* 2.1, *Myrcelias muralis* 2.1, *Calamagrostis epigejos* 1.2, *Holcus lanatus* 1.2, *Deschampsia flexuosa* 1.2, *Dryopteris carthusiana* 1.1, *Festuca gigantea* 1.1, *Potentilla erecta* 1.1, *Bidens frondosa* +, *Cirsium palustre* +, *Epilobium montanum* +, *Equisetum arvense* +, *Juncus effusus* +, *Peucedanum palustre* +, *Populus tremula* +, *Quercus robur* +, *Quercus rubra* +, *Ranunculus acris* +, *Rubus idaeus* +, *Salix cinerea* +, *Sorbus aucuparia* +, *Stellaria media* +, *Tilia cordata* +, *Vaccinium uliginosum* +, *Viburnum opulus* +;

D – 40%: *Sciuro-hypnum oedipodium* 2.3, *Pleurozium schreberi* 2.3, *Atrichum undulatum* 1.2, *Aulacomnium palustre* 1.2, *Polytrichastrum formosum* 1.2, *Pseudosclerop-*



Fig. 2. View of localization of *Gentiana asclepiadea* L. in Mikołów-Jamna (phot. B. FOJCIK)

dium purum 1.2, *Sphagnum fimbriatum* 1.2, *Thuidium tamariscinum* 1.2.

The newly discovered population is rather numerous and consists of more than 20 clusters (with about 400 shoots, almost all of which have flowers). It is worth pointing out that there is one cluster of the rare *albiflora* variety.

A characterisation of both localizations in the Katowice Upland may suggest that they are not relict characters, but rather that they have originated relatively recently. The anthropogenic origin of the described station seems to be unlikely – it is localized deep in the forest, moreover in Poland the Willow Gentian is rarely used as an ornamental plant (PIN-

DEL & PINDEL 1998). It is worth remembering, that the Katowice Upland has been mentioned as a region that has a concentration of localizations of many montane species, e.g. *Doronicum austriacum* Jacq., *Oreopteris limbosperma* (Bellardi ex All.) Holub, *Streptopus amplexifolius* (L.) DC., and *Veratrum lobelianum* Bernh. (PARUSEL 1984, NOWAK et al. 2011). This is quite probably connected with the fact that this region is on the migration track of montane species that run from the south in the direction of the central part of the Silesian Upland. Furthermore, the described station is localized around the valley of the Jamna river, the area presented the one especially rich in montane species (URBISZ 2000). The occurrence of *Gentiana asclepiadea* confirms the status of the Silesian Upland as an important area for montane species in phytogeographical and ecological terms (NOWAK et al. 2011).

ACKNOWLEDGEMENTS

The authors are grateful to Ms. Michele Simmons for the linguistic comments on the manuscript.

REFERENCES

- BABCZYŃSKA-SENDEK B. (1999): Interesujące stanowisko *Gentiana asclepiadea* (Gentianaceae) w Katowicach-Muchowcu. *Fragmenta Floristica et Geobotanica Polonica* 6: 279–282.
- JASIEWICZ A. (1971): *Gentiana* L., Goryczka. In: B. Pawłowski, A. Jasiewicz (eds). *Flora polska. Rośliny naczyniowe Polski i ziem ościennych* 12. Wyd. Nauk. PWN, Warszawa–Kraków: 8–32.
- KONDRACKI J. (1994): *Geografia Polski. Mezoregiony fizyczno-geograficzne*. Wyd. Nauk. PWN, Warszawa.
- KOWAL T., SERWATKA J., CIACIURA M. (1962): Materiały zielnikowe do flory Śląska. *Zeszyty Przyrodnicze Opolskiego Towarzystwa Przyjaciół Nauk* 2: 91–107.
- MICHAŁIK S. (2008): Rośliny naczyniowe Ojcowskiego Parku Narodowego. In: A. Klasa, J. Partyka (eds). *Monografia Ojcowskiego Parku Narodowego*. Przyroda. Ojcowski Park Narodowy, Ojców: 149–178.
- MIREK Z., PIĘKOŚ-MIRKOWA H., ZAJĄC A., ZAJĄC M. (2002): Flowering plants and pteridophytes of Poland. A checklist. Vol. 1. Biodiversity of Poland. – Krytyczna lista roślin naczyniowych Polski. T. 1. Różnorodność biologiczna Polski. W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków.
- NOWAK T., URBISZ A., KAPUSTA P., TOKARSKA-GUZIŁ B. (2011): Distribution patterns and habitat preferences of mountain vascular plant species in the Silesian Uplands (Southern Poland). *Polish Journal of Ecology* 59(2): 219–234.
- PARUSEL J.B. (1984): Rośliny górskie w rezerwacie przyrody „Ochojec” na Górnym Śląsku. *Parki Narodowe i Rezerваты Przyrody* 2: 13–20.
- PINDEL Z., PINDEL A. (1998): Conditions of the occurrence of Willow Gentian. *Zeszyty Naukowe Akademii Rolniczej w Krakowie* 57(2): 739–742.
- ŚWIDERSKI A. (2004): Occurrence of diverse flower forms of *Gentiana asclepiadea* L. in natural habitats in the Beskidy Mountains in Poland. *Visnyk of L'viv University, Biology Series* 36: 339–343.
- URBISZ A. (2000): Gatunki górskie we florze naczyniowej południowo-zachodniej części Wyżyny Katowickiej. *Acta Biologica Silesiana* 35(52): 108–122.
- URBISZ A. (2004): *Konspekt flory roślin naczyniowych Wyżyny Krakowsko-Częstochowskiej*. Wydawnictwo Uniwersytetu Śląskiego, Katowice.
- ZAJĄC A. (1978): Atlas of distribution of vascular plants in Poland (ATPOL). *Taxon* 27 (5–6): 481–484.
- ZAJĄC M. (1996): Mountain vascular plants in Polish lowlands. *Polish Botanical Studies* 11: 1–92.
- ZAJĄC A., PINDEL A. (2011): Review of the Willow Gentian, *Gentiana asclepiadea* L. *Biodiversity* 12(3): 181–185.
- ZAJĄC A., ZAJĄC M., eds (2001): *Distribution atlas of vascular plants in Poland*. Pracownia Chorologii Komputerowej Instytutu Botaniki Uniwersytetu Jagiellońskiego, Kraków.