

DIANTHUS CAMPESTRIS (CARYOPHYLLACEAE), A SPECIES NEW TO POLAND

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Abstract. *Dianthus campestris* M. Bieb. is a species new to the flora of Poland. This southeastern European plant is restricted to the steppe and forest-steppe zones. In 2005 it was found near Sejny in the northeastern Poland. The species grows in semi-natural, dry-mesic grasslands and its population is numerous. The origin of the population, the status of the species in the flora of Poland, and the identity of subspecies are uncertain.

Key words: Caryophyllaceae, *Dianthus campestris*, distribution, NE Poland

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INTRODUCTION

Dianthus campestris M. Bieb. is a species that was included in the first comprehensive Polish flora (Kulczyński 1921). After World War II the borders of Poland were moved westwards, far from the species range. Since then this southeastern species has been excluded from the Polish flora. In October 2005, *D. campestris* was found in the vicinity of Berżniki village near Sejny, in northeastern Poland (Fig. 1).

TAXONOMICAL REMARKS

Dianthus campestris M. Bieb. belongs to the sub-genus *Dianthus* L. (= *Caryophyllum* Ser. in DC.). It is a perennial with numerous stems 20–60 cm high. The flowers are pink or purplish above, greenish-yellow beneath, ca 20 mm in diameter, solitary or in pairs, terminating all the branches (Fig. 2). The calyx is glabrous and usually at least 15 mm long. Epicalyx scales (4–6) are about 1/3 as long as the calyx (Tutin & Walters 1993). Individuals from the population near Berżniki village fit the species diagnosis well. The species is characteristic and easily distinguished from other Polish pink species (see key below).

D. campestris is a polymorphic species. Of the three subspecies distinguished, the typical subspecies is most common and widespread (Tutin & Walters 1993). It is difficult to identify the subspecies of the newly discovered population of *D. campestris*. For example, leaves 1–2 mm wide agree with those of *D. campestris* subsp. *campestris*, but the lack of puberulence on the stems seems to exclude this subspecies. The lack of puberulence observed in the specimens collected from Poland is an obligatory diagnostic feature of the subsp. *laevigatus* (Gruner) Klokoc

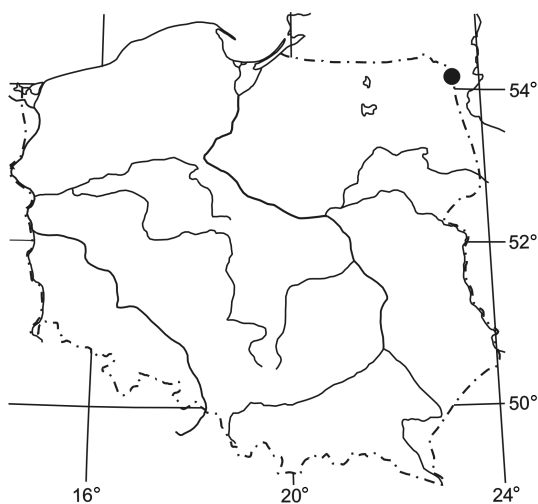


Fig. 1. Locality of *Dianthus campestris* M. Bieb. in Poland.

in Kotov (a subspecies from the Dnieper and Dniester valleys). Polish plants have stems 30–45 cm long, which also disagrees with the descriptions of both *D. campestris* subsp. *campestris* (stem up to 30 cm long) and *D. campestris* subsp. *laevigatus* (stem 40–60 cm long). The leaves *ca* 2 mm wide in the Polish population exclude *D. campestris* subsp. *laevigatus* (having leaves 3–5 mm wide). The long-branched inflorescence disagrees with the *D. campestris* subsp. *steppaceus* Širj. in Širj. & Lavrenko (a subspecies from eastern Ukraine). The less xeromorphic appearance of the collected specimens as compared with that of the typical subspecies from its main distribution range (lack of puberulence, longer stem, more loosely arranged leaves, etc.) could be due to the more humid climatic conditions in Poland. Thus, experimental studies are needed to determine the subspecies.

DESCRIPTION OF THE NEWLY DISCOVERED LOCALITY

The population of *D. campestris* near Berżniki village consists of *ca* 250 clumps and covers an area of *ca* 500 m². The locality on the upper part of the slope, which is partly manmade; this is an embankment of the historic road from Sejny to Grodno (in Belarus). The road has hardly been used since World War II. The species grows in seminatural, mesic-dry, slightly xerothermic, extensively grazed grassland similar to vegetation of the classes *Koelerio-Corynephoretea* and *Festuco-Brometea*, as exemplified by the following phytosociological relevé (plant names given after Mirek *et al.* 2002 and Ochrya *et al.* 2003; diagnostic species given according to Mucina 1997):

Date: 23.07.2007. Area of relevé 10 m²; inclination 20°; exposure SSE; altitude 140–142 m a.s.l. Cover of herbs 60%; cover of bryophytes 20%.

Koelerio-Corynephoretea: *Acinos arvensis* +, *Arenaria serpyllifolia* +, *Brachythecium albicans* +, *Armeria maritima* subsp. *elongata* +, *Festuca ovina* s.str. 1, *Koeleria glauca* +, *Potentilla impolita* +, *Sedum acre* 1, *Syntrichia ruralis* +, *Thymus serpyllum* +, *Trifolium arvense* +, *Veronica dillenii*; *Festuco-Brometea*: *Artemisia campestris* 1, *Centaurea stoebe* +, *Medicago falcata* 1, *Galium verum* s.str. +, *Onobrychis vicifolia* +,



Fig. 2. *Dianthus campestris* M. Bieb. near Berżniki village, NE Poland.

Oxytropis pilosa +, *Pimpinella saxifraga* +, *Poa angustifolia* 1, *Potentilla arenaria* +; *Molinio-Arrhenatheretea*: *Dactylis glomerata* +, *Festuca rubra* s.str. 1, *Galium mollugo* +, *Knautia arvensis* +, *Leucanthemum vulgare* +, *Plantago lanceolata* +; others: *Abietinella abietina* 2, *Agrostis capillaris* +, *Anchusa officinalis* +, *Bromus inermis* 2, *Berteroa incana* +, *Convolvulus arvensis* +, *Dianthus campestris* 2, *Galium mollugo* × *G. verum* +, *Hieracium pilosella* +, *Hypericum perforatum* +, *Plagiomnium* sp. +, *Pulsatilla pratensis* +, *Rumex thyrsiflorus* 1.

GENERAL DISTRIBUTION

Dianthus campestris is restricted to the forest-steppe and steppe zones. It grows on sandy soils in grassland (especially on slopes) and in pine and oak forests (Shishkin 1936; Klokov 1952; Dubovik *et al.* 1986). This vegetation is assigned to the *Festucetea vaginatae*, *Sedo-Scleranthetea* and *Pulsatillo-Pinetea* classes (Fedoronchuk & Didukh 2002). According to *Atlas Florae Europaeae* (Jalas & Suominen 1986), the species range extends from

the surroundings of L'viv near the Polish border in western Ukraine and northeastern Romania, through Moldova, most of Ukrainian territory, southern Russia to southern Ural and western Siberia. This is inconsistent with the data from the latest Ukrainian sources (Fedoronchuk & Didukh 2002; see also Dubovik *et al.* 1986). The maps clearly show that *D. campestris* hardly reaches the southern forest zone. Most probably the map in the *Atlas Florae Europaeae* is incorrect. Also, the eastern limit of distribution of the species has not been defined well. It reaches central Kazakhstan (Pavlov 1960) and the adjacent part of Russian Siberia (Shishkin 1936).

According to *Ecoflora of Ukraine* (Fedoronchuk & Didukh 2002), the northern limit of the main distribution of *D. campestris* in Ukraine follows the following line: (state border with Moldova) – Zhitomir – Cherkasi – Sumi – (state border with Russia). The species has also been reported from the vicinity of Uzhgorod city in the Ukrainian Carpathians, but the status of this locality is uncertain (Kuz'mina 2004). In the area north of the line described, the species occurs sporadically, only in secondary localities: in Riga (Laasimer *et al.* 1993; observed in 1918 and 1927) and in Belarus near Dobruzh in the Province of Gomel' (Parfenov 1999). In Ukraine, expansion of the species is observed in manmade habitats (Fedoronchuk & Didukh 2002). For example, the species spreads along railways (I. Moysiienko, personal information in 2007). Expansion of *D. campestris* northwards from its natural range has also been noted in Russia (Kuz'mina 2004).

STATUS IN THE POLISH FLORA

The patch of vegetation in the new locality of *D. campestris* in Poland seems similar to those in its natural habitats in southeastern Europe, but the status of the species in Poland is uncertain. The distance between the newly discovered locality in northeastern Poland and its nearest natural stands (in the vicinity of Zhitomir in Ukraine – Fedoronchuk & Didukh 2002) is nearly 600 kilometers. Assuming an anthropogenic origin of the population, further observations are needed to determine whether the

species should be treated as a plant successfully established in seminatural vegetation (hemiagriophyte), or as an ephemeral one (ephemerophyte). It cannot be ruled out that the locality is natural or that the migration of the species to Poland is spontaneous colonization of a new area.

SPECIMENS EXAMINED. POLAND. POJEZIERZE LIIEWSKIE LAKELAND DISTRICT. 0.5 km SE of Berzniki village (54°04'37"N/23°28'43"E), mesic-dry grassland, 140 m a.s.l., 20 October 2005 & 23 July 2007; *leg.* P. Pawlikowski.

Specimens of *D. campestris* have been deposited in the Herbarium of the Department of Plant Systematics and Geography of the University of Warsaw (WA) and in the Herbarium of the W. Szafer Institute of Botany of the Polish Academy of Sciences in Kraków (KRAM).

KEY TO WILD *DIANTHUS* SPECIES OCCURRING IN POLAND (EXCLUSIVELY MONTANE SPECIES ARE NOT INCLUDED)

1. Petal limb lacinate, divided more than 1/3 the distance to the middle 2
- 1* Petal limb dentate, divided not more than 1/4 the distance to the middle 3
 2. Leaves 0.5–1.0 mm wide, at least some of them obtuse *D. arenarius* L.
 - 2* Leaves 3–5 mm wide, acute *D. superbus* L.
3. Flowers either solitary, in pairs, or distinctly pedicellate, inflorescence loose 4
- 3* Flowers usually numerous, subsessile, crowded in dense heads 6
 4. Flowers 1.0–1.5 cm in diameter, epicalyx scales 2(4), *ca* 1/2 as long as calyx *D. deltoides* L.
 - 4* Flowers 1.5–3.0 cm in diameter, epicalyx scales 4(6), *ca* 1/3 as long as calyx 5
5. Plants 6–25 cm, non-flowering stems present, petals dentate, pinkish beneath *D. gratianopolitanus* Vill.
- 5* Plants 25–60 cm, non-flowering stems absent, petals divided up to 1/4 the distance to the middle, greenish-yellow beneath *D. campestris* M. Bieb.
6. Plants annual or biennial, calyx puberulent *D. armeria* L.
- 6* Plants perennial, calyx glabrous 7
7. Leaves with 1 vein, at least some of them obtuse or subobtuse *D. barbatus* L.

- 7* Leaves with 3, 5 or 7 veins, acute or acuminate 8
8. Leaves linear, 0.5–5.0(6.0) mm wide; sheaths of cauline leaves at least 3 times as long as diameter of stem and at least 3 times as long as leaf width *D. carthusianorum* L.
- 8* Leaves lanceolate, 5–8 mm wide; sheaths of cauline leaves 1–2 times as long as diameter of stem and shorter than leaf width *D. collinus* Waldst. & Kit.

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