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*Carlina onopordifolia* Besser in protected areas of Western Podillya region (Ukraine)

Dziewięćsił popłocholistny *Carlina onopordifolia* Besser na obszarach chronionych  
Zachodniego Podola (Ukraina)

SUMMARY

*Carlina onopordifolia* Besser is one of the most valuable species in the European flora. The species is protected according to the Habitat Directive (Appendix II and IV) and Bern Convention, as well as it is mentioned at the Red List of IUCN (category V). *Carlina onopordifolia* is strictly protected in Poland and Ukraine as well as it is considered a seriously endangered species (Polish Red Data Book of Plants – category VU; the Red List of Ukraine – 1st category of threat – dying out species).

*Carlina onopordifolia* is a remarkably xerothermic and heliophilous species. It usually occurs on the slopes of southern and south-western exposure, mainly on carbonate rendzinas. It is considered a characteristic species of *Inuletum ensifoliae* association, included in *Cirsio-Brachypodium pinnati* alliance.

Only a dozen or so natural localities of *Carlina onopordifolia* are known throughout the world. Six of them are situated in Poland (Wyżyna Lubelska upland, Polesie Wołyńskie, Niecka Nidziańska basin, Wyżyna Miechowska upland). A permanent monitoring of all Polish populations has been conducted until recently.

Studies on Ukrainian populations of *Carlina onopordifolia* have been carried out by the authors since 2008. The abundance of stands and share of particular life forms in the population were recorded. Until now, the occurrence of the species in 4 localities of Western Podillya, in vicinity of the cities of Złoczów (Золочів) and Brzeżany (Бережану) has been confirmed. The most numerous populations (over 12 000 individuals) were recorded in Złoczów region – on Łysa Góra Mt. and Góra Sipuha Mt. (Луса Гора and Гора Сипуха) near Stinka (Стінка) village. More than 3000 specimens were recorded in the area of spatial nature monument Góra Pidlyska Mt. (Гора Підлусся) near Biały Kamień (Білий Камінь) village. The population occurring in Brzeżany region, in vicinity of Demnya (Демнія) village, is small (30–50 individuals). The abundance and vitality of that population decreases, due to a natural succession.

## STRESZCZENIE

*Carlina onopordifolia* Besser jest jednym z najcenniejszych gatunków we florze europejskiej. Jest gatunkiem chronionym w ramach Dyrektywy Siedliskowej (Załącznik II i IV) oraz Konwencji Berneńskiej, jak również obecny jest na Czerwonej Liście IUCN (kategoria V). W krajach występowania, czyli w Polsce i na Ukrainie, objęty jest ścisłą ochroną gatunkową. W obu krajach takson jest uznany za gatunek silnie zagrożony (Polska Czerwona Lista – kategoria VU; Czerwona Lista Ukrainy – I kategoria zagrożenia – gatunek ginący).

Dziewięcił popłocholistny jest gatunkiem wybitnie kserotermicznym i heliofilnym. Rośnie głównie na stokach o ekspozycji południowej lub południowo-zachodniej, zwykle na rędzinach węglanowych. Uważany jest za gatunek charakterystyczny dla zespołu *Inuletum ensifoliae*, należącego do związku *Cirsio-Brachypodium pinnati*.

Na świecie znanych jest kilkanaście naturalnych stanowisk *Carlina onopordifolia*. 6 z nich znajduje się na terenie Polski (Wyżyna Lubelska, Polesie Wołyńskie, Niecka Nidziańska, Wyżyna Miechowska). Są one objęte stałym monitoringiem.

Badania dotyczące stanowisk *Carlina onopordifolia* na terenie Ukrainy są prowadzone przez autorów od 2008 roku. Badano liczebność i udział poszczególnych form rozwojowych. Dotychczas potwierdzono obecność gatunku na 4 stanowiskach na Zachodnim Podolu w okolicach miast: Złoczów (*Золочів*) i Brzeżany (*Бережани*). Najliczniejsze populacje (łącznie ponad 12000 osobników) notowano w rejonie złoczowskim na Łysej Górze i Górze Sipiuha (*Луса Гора i Гора Сунуха*) obok wsi Stinka (*Стінка*). Ponad 3000 osobników stwierdzono na obszarze powierzchniowego pomnika przyrody Góra Pidluskia (*Гора Підлуцька*) w pobliżu wsi Biały Kamień (*Білий Камінь*). Populacja występująca w rejonie brzeżańskim, w okolicach wsi Demnya (*Демнія*), jest nieliczna (30–50 osobników). Liczebność i żywotność tej populacji zmniejsza się, co jest wynikiem postępującej sukcesji.

**Key words:** *Carlina onopordifolia*, endangered and protected species, Nature 2000, Western Podillya, Ukraine

## INTRODUCTION

*Carlina onopordifolia* Besser is considered one of the most valuable components of European flora. The species requires protection in the continental scale, e.g. by establishing special protected areas. The thistle is protected according to the Habitat Directive (Appendix II and IV) (Pawlaczyk, Jermaczek 2004) and Bern Convention, as well as it is mentioned on the Red List of IUCN (category V). *Carlina onopordifolia* is also strictly protected by law in all countries of occurrence – Poland and Ukraine. In both countries it is considered a highly endangered plant. The species is mentioned in the *Polish Red data Book of Plants* in category VU (Poznańska, Kaźmierczakowa 2001) and in the Red List of Ukraine in the 1st category of threat (dying out species) (Szeljag-Sosonka 1996). The large habitat requirements of the thistle and lability of occupied plant communities are considered to be the most significant threats to the species (Poznańska 1991a).

It is a highly specialized plant in relation to habitat and climate. It grows on south-, south-west – and west-exposed, sunny calcareous hills and slopes, where thermophilous vegetation with the participation of species typical of steppe biotopes occurs (Izdebski 1959, Fijałkowski 1970, Poznańska 1991a). The thistle is considered to be a Pannonian element of flora (Piękoś-Mirkowa, Mirek 2003).

It is a component of xerothermic grasslands. It is a characteristic species for *Inuletum ensifoliae* association, included in *Cirsio-Brachypodium pinnati* alliance (Matuszkiewicz 2001).

The geographic range of the species is limited and discontinuous. *Carlina onopordifolia* occurs in the Wyżyna Małopolska and Lubelska uplands as well as Volyn and Podillya regions of Ukraine (Poznańska 1991c). Six stands of *Carlina onopordifolia* are known from Poland (Fig. 1). Two localities are situated in Lublin region (Rogów near Zamość and in Stawska Góra Mt. near Chełm). Other localities are situated in the Wyżyna Małopolska upland: one of them in the “Wały” nature reserve near Miechów, and the remaining three in the north-western part of the Garb Pińczowski hummock. Localities of *Carlina onopordifolia* in Ukraine are concentrated in the western part of Volyn region, in vicinity of the cities of Złoczów and Brzeżany (Podillya region). Moreover, data on occurrence of the species near Czeczelnik town (Winnica district) were published by Zawierucha (1981, 1996).

For the first time data on occurrence of *Carlina onopordifolia* in Poland were described by Łapczyński (1881) and Karo (1883). The described locality (Stawska Góra Mt. near Chełm) exists till now. Studies on thistle populations in Poland have been recently carried out quite systematically. They mainly focused on the attempt to estimate the abundance of stands (Poznańska 1991b, Bzdón, Ciosek 2007, Denisiuk et al. 2008) and changes in concentration of *Carlina onopordifolia* during the process of xerothermic grassland succession (Poznańska 1991a, b). Attempts to introduction species on substitute habitats near their natural stands were conducted in 1987 (Poznańska 1988).

The first information on occurrence of *Carlina onopordifolia* in the area of present Ukraine comes from the interwar period (Szafer et al. 1924, Panek 1939). Data on distribution and biology of the species were published in the postwar period (Zawierucha 1981, 1996, Melnik et al. 2007). Single studies have investigated aspects of seed dispersal (Zelenchuk 1985). Most research generally focused on the steppe vegetation of selected areas of western part of Ukraine, whereas *Carlina onopordifolia* was only mentioned (Bojko 1962, Szeljag-Sosonka et al. 1975, 1980, Melnik 1993, Didukh 2003). Therefore, our knowledge on the population of the species in the area of Ukraine can be considered far from satisfactory.

The aim of the research was to estimate the condition of *Carlina onopordifolia* populations in four natural stands situated in protected areas of Western Podillya region, and to determine their dynamic tendencies.

## MATERIAL AND METHODS

Field research was carried out in July 2008, 2009 and 2010. All stands of *Carlina onopordifolia* in Western Podillya, available in the literature, were visited. The species was found at four of them, in the following localities (Fig. 1):

Locality I and II – in the area of spatial botanical nature monument “Łysa Góra and Góra Sipuha”, includes two populations defined as Łysa Góra (49°48'05"N; 24°42'43"E) and Góra Sipuha (49°46'44"N; 24°44'24"E).

Locality III – situated in the area of spatial botanical nature monument “Góra Pidlyska” (49°55'53"N; 24°49'59"E).

Locality IV – in the area of the “Golyckyj” (49°24'15"N; 24°49'37"E)

Such parameters as abundance of population and structure of life forms were characterized. The following development stages were distinguished:

- juvenile stage – seedlings;
- barren immature stage – specimens with several dozen or so leaves, not arranged in rosette;
- barren mature stage – individuals with leaves arranged in rosette;
- generative stage – flowering specimens.

## RESULTS AND DISCUSION

In total, 17 700 specimens of *Carlina onopordifolia* were recorded in 2010 in its four natural stands in the Western Podillya region (Table 1).

**Table 1.** Number of individuals in populations of *Carlina onopordifolia* in protected areas of the Western Podillya

Lata Years  Stanowisko Station		2008			2009			2010		
		1	2	3	1	2	3	1	2	3
Botanical natural monument „Łysa Góra and Góra Sipuha”	I. Łysa Góra	5992	332	5,5	6689	586	8,8	7454	531	7,1
	II. Góra Sipuha	4345	401	9,2	6492	733	11,3	6511	852	13,1
III. Botanical natural monument „Pidlyska Gora”		3276	252	7,7	2996	407	13,6	3697	404	10,9
IV. Golyckyj nature reserve		46	3	6,5	41	1	2,4	38	3	7,9
Σ		13659	988		16218	1727		17700	1790	

Abbreviations used in table: **1** – number of specimens in total; **2** – generative specimens; **3** – share of generative specimens in %

Two stands are located close to each other, in the area of spatial botanical nature monuments “Łysa Góra and Góra Sipuha”, in a distance of about 1.5 km. The thistle individuals occur in large clusters (agglomeration spatial distribution of specimens) on the area of dozen or so hectares each.

The population at stand I “Łysa Góra” was the most numerous – 7 454 specimens. Population II at “Góra Sipuha” in 2010 was composed of 6 511 individuals. In comparison with data from 2008, a 24.4% increase in the number of *Carlina onopordifolia* specimens was noted at stand I and 49.5% at stand II. In a three-year period of studies the expansion of species and the colonization of new areas was observed. The spreading of *Carlina onopordifolia* along paths, traversing southern slopes and leading along the foot of hills was especially visible. At the same time large thistle aggregations were observed in couloirs, through which ra-

inwaters flow down from higher elevated areas. Those observations suggest that *Carlina onopordifolia* is not only an anemochoric, but also hydrochoric and slightly zoo – and antropochoric species.

In the studied populations, barren specimens, both immature and mature, dominated (Table 2). The higher number of flowering specimens was noted at station II – 852 (13.1% of the total number of specimens). The age pyramid of that population is distinguishable by wide basis (immature vegetative stage – 48.4%). Over 35% of specimens were in the barren mature stage. That is the highest share of that life stage out of all studied natural stands of *Carlina onopordifolia*. It can be a signal of the slight ageing of the population, but taking into consideration the high share of young life stages we can positively assess its reproductive potential.

**Table 2.** Development structure of *Carlina onopordifolia* in protected areas of the Western Podillya (2010)

Development structure	Botanical natural monument „Łysa Góra i Góra Sipuha”				III. Botanical natural monument „Pidlyska Góra”		IV. Golyckyj nature reserve	
	I. Łysa Góra		II. Góra Sipuha		number of specimens	%	number of specimens	%
	number of specimens	%	number of specimens	%				
Juvenile specimens	203	2,7	217	3,3	142	3,9	1	2,6
Immature vegetative specimens	4230	56,8	3148	48,4	2148	58,1	13	34,2
Mature vegetative specimens	2490	33,4	2294	35,2	1003	27,1	21	55,3
Generative specimens	531	7,1	852	13,1	404	10,9	3	7,9
Σ	<b>7454</b>	<b>100</b>	<b>6511</b>	<b>100</b>	<b>3697</b>	<b>100</b>	<b>38</b>	<b>100</b>

In total, 531 generative specimens were found at stand I (7.1%). The population is in excellent condition. The age pyramid is still progressive (barren immature stage – 56.8%; barren mature stage – 33.4%). The further development and expansion of species is not endangered. It is expected that specimens in the barren mature stage in good climatic conditions will flower and fruit soon. Therefo-

re positive dynamic tendencies of population (increase in the number of individuals) will be maintained.

The xerothermic vegetation from the class *Festuco-Brometea* and its components, e.g. the thistle in the area of nature monument “Łysa Góra and Góra Si-puha” are still in very good condition. We can assume that *Carlina onopordifolia* populations at stand I and II reproduce effectively, which gives good promise for the future.

Population in locality III (“Góra Pidlyska”) is composed of a dozen or so agglomerations, scattered in the area of several hectares. In 2010, the number of *Carlina onopordifolia* individuals was 3 697. A little increase in the number of individuals (12.8%), compared with 2008 was recorded. Barren specimens dominate in the studied populations, both immature and mature (Table 2). The population, like the former ones, is distinguishable by a high share of flowering specimens (10.9%). The wide basis of the age pyramid (barren immature stage – 58.1%) and a large number of seedlings (142) indicates excellent reproduction of thistle in this locality. We can positively assess the development perspectives of these populations. A considerably slow increase in the number of individuals is probably the result of human activity (close vicinity of agrocenoses and the dirt road leading through the middle of the stand) and natural succession of xerothermic grasslands.

Only 38 *Carlina onopordifolia* specimens were recorded in stand IV in the “Golyckyj” nature reserve near Brzeżany in 2010. The acreage of population is small (approximately 80 m<sup>2</sup>). There is one small aggregation of 28 individuals. The remaining 10 specimens are scattered in the stand area. Due to the small abundance of the stand and the observed systematic decrease in the number of specimens (Table 1), the population is considered highly threatened. In spite of presence of several flowering specimens, only a single seedling was observed. The share of specimens in barren immature stage was only 13%, in barren mature stage – 55.3%. The development pyramid is evidently regressive, which is additionally unfavourable for the population, which is mainly the result of competition of tall grasses, e.g. *Brachypodium pinnatum*, due to the natural succession of communities of class *Festuco Brometea*. Therefore special attention should be paid to that population. The introduction of the species to more exposed parts of the “Golyckyj” nature reserve should be considered.

## CONCLUSIONS

– In total, 17 700 individuals of *Carlina onopordifolia* were recorded in 2010 in protected areas of Western Podillya region in four natural localities.

– Most of the studied populations are in good condition. An increase in the number of specimens and colonisation of new areas was observed in the period of studies. A high share of flowering specimens and plants in barren immature sta-

ge also shows the favourable development conditions in most of the analysed populations. A serious threat to a stand was observed in the “Golyckyj” nature reserve. A small abundance of population and decrease in the number of individuals as a result of natural succession of xerothermic communities and competition of tall grasses, especially of *Brachypodium pinnatum*, was observed.

– According to the instructions mentioned in the Nature 2000 programme, some procedures of active protection should be undertaken in all studied localities, including cutting out trees and shrubs in vicinity of *Carlina onopordifolia* individuals.

– Sowing of *Carlina onopordifolia* diaspores in selected areas of the “Golyckyj” nature reserve is suggested as one of the methods of species protection.

– Annual monitoring of all populations due to specific biology of the species and increasing anthropopressure, aiming at effective protection of the studied populations is suggested.

#### REFERENCES

1. Bojko M. P. 1962. Roslinnist Pidliskoy gori Bila s. Pidlissia Oleskogo rayonu Lvivskoy oblasti (Vegetation of Mt. Bila and Mt. Pidlisia in Olesk region in Lvov Province). Ukr. Botan. Zhurn. T. 19 (5): 68–72.
2. Bzdon G., Ciosek M.T. 2007 Condition of *Carlina onopordifolia* Besser population on Pińczów Hummock. Nat. Conserv. 64, 2: 83–87.
3. Denisiuk Z., Chmura D., Adamski P. 2008. Stan izolowanych naturalnych populacji dziewięciśliu popłocholistnego *Carlina onopordifolia* w Polsce (The state of isolated natural populations of thistle *Carlina onopordifolia* in Poland). Parki Nar. i Rez. Przyr. 27: 15–32.
4. Didukh J., Korotchenko I. 2003. Kserothermna roslinnist pivnychno-zahidnogo Podillia (Xerothermic vegetation of north-western part of Podillya region). Visn. Lviv. un-tu. Ser. Biol. Vyp. 34: 82–91.
5. Fijałkowski D. 1970. O cyklicznym zakwitaniu dziewięciśliu popłocholistnego *Carlina onopordifolia* Bess. w rezerwacie Rogów na Lubelszczyźnie (On cyclic flowering of Caroline thistle *Carlina onopordifolia* Bess in Nature reserve Rogów in Lublin province). Chrońmy Przyr. Ojcz. 16 (4): 61–62.
6. Izdebski K. 1959. Badania fitosocjologiczne i florystyczne w rezerwacie Stawska Góra pod Chełmem (Phytosociologische und floristische Untersuchungen in Naturreiservat Stawska Góra). Annales UMCS, C, 13: 213–230.
7. Karo F. 1883. Spis rzadkich krajowych roślin zebranych w latach 1881 i 1882 w okolicach Lublina oraz pod Stawską Górą za Chełmem (The list of rare native plant species collected in years 1881–1882 in Lublin environs and near Mt. Stawska in Chełm vicinity). Pam. Fizjogr. 3: 292–329.
8. Łapczyński K. (1881): Wiadomości o trzech roślinach z rodziny złożonych znalezionych w Lubelskiem (Information on three plants of *Asterceae* family collected in Lublin Voivodeship). Pam. Fizjogr. 1: 200–207.
9. Matuszkiewicz W. 2001. Przewodnik do oznaczania zbiorowisk roślinnych Polski. Wyd. Nauk. PWN, Warszawa: 11–537. (A guide for identification of the plant communities of Poland).
10. Melnik V. I. 1993. Ekstrazonalnaya stepnaya rastitelnost Volynskoy vozvyschennosti i yeye botaniko-geographicheskiye svyazi s lugovymi stepyami Zapadnoy i Vostotschnoy Evropi

- (Extrazonal steppe vegetation of the Volyn Upland and its botanical-geographic relationships with meadow steppes of Western and Eastern Ukraine). *Botan. Zhurn.* T. 78 (2): 28–38.
11. Melnik V. I., Volodimiriec V. O., Kuzmishyna I. I. 2007. Geographichne poschirennya ta umovi miszczrozstan *Carlina onopordifolia* Besser ex Szafer, Kulcz. et Pawł. (= *Carlina acantifolia* All.) na Volynskoy visochini (The geographic distribution and habitat conditions of *Carlina onopordifolia* Besser ex Szafer, Kulcz. et Pawł. (= *Carlina acantifolia* All.) in the Volhynia Upland region). *Visn. nac. nauk. – prirodn. muzeyu. Ser. Botan.* t. 2: 489–405
  12. Panek J. 1939. Roślinność stepowa i naskalna lessowego Wołynia (Steppe and rocky vegetation of the loess Volyn). *Rocznik Wołyński. Równie*, t. VIII: 26–65.
  13. Pawlaczyk P., Jermaczyk A. 2004. Natura 2000 – narzędzie ochrony przyrody (Nature 2000 – an instrument of nature conservation). *Planowanie ochrony obszarów Natura 2000*. WWF Polska, Warszawa, 1–76.
  14. Piękoś-Mirkowa H., Mirek Z. 2003. Flora Polski. Atlas roślin chronionych (Flora of Poland. Atlas of protected plants). Multico Ofic. Wyd., Warszawa, 1–584.
  15. Poznańska Z. 1988. Pierwsze udane próby podsiewania nasion dziewięciśiłu popłocholistnego *Carlina onopordifolia* na nowych stanowiskach (The first attempts of seeding of *Carlina onopordifolia* diaspores at new stands). *Chrońmy Przyr. Ojcz.* 44(2): 72–74.
  16. Poznańska Z. 1991a. *Carlina onopordifolia* Besser – the dynamics of its population in the course of succession of xerothermal swards and the problem of active ecological protection. *Ochrona Przyr.* 48: 55–83.
  17. Poznańska Z. 1991b. Stan populacji dziewięciśiłu popłocholistnego *Carlina onopordifolia* w Polsce w 1990 roku (The status of *Carlina onopordifolia* population in Poland in 1990). *Chrońmy Przyr. Ojcz.* 47(4): 48–53.
  18. Poznańska Z. 1991c. Zmiany zagęszczenia i struktury populacji dziewięciśiłu popłocholistnego *Carlina onopordifolia* Besser w procesie sukcesji murawy kserotermicznej oraz problemy jego aktywnej ochrony „in situ” (The changes in concentration and structure of *Carlina onopordifolia* Besser due the process of succession of xerothermic grasslands and the problems of its active protection „in situ”). *Prądnik. Prace Muz. Szafera* 3: 161–174.
  19. Poznańska A., Kaźmierczakowa R. 2001. VU *Carlina onopordifolia* Besser Dziewięciśl popłocholistny. – W: Kaźmierczakowa R., Zarzycki K. (ed.), *Polska czerwona księga roślin. Paprotniki i rośliny naczyniowe*. PAN, Instytut Botaniki im. W. Szafera, Instytut Ochrony Przyrody, Kraków, 381–382. (*Carlina onopordifolia* Besser. – [In: Kaźmierczakowa R., Zarzycki K. (eds.), *Polish Red Data Book of Plants. Pteridiophytes and vascular plants.*).
  20. Szafer W., Kulczyński S., Pawłowski W. 1924. *Rośliny Polskie* (Polish plants). Lwów-Warszawa, 1–736.
  21. Szeljag-Sosonka J.R. ed. 1996 – *Czerwona Księga Ukraini. Roslinii swit* (Red Data Book of Ukraine. Vegetable Kingdom). *Ukraińska Encyklopedia*, M.P. Bażan, Kijów, 1–608.
  22. Zawierucha B. 1981. Novi dani do chorologii ta fitocenotychnoy pryurochenostii ridikisново reliktoвого wydu *Carlina onopordifolia* Besser ex Szafer, Kulcz. et Pawł. (A new data on chorology and phytocenotic attachment of rare, relict species of Besser ex Szafer, Kulcz. et Pawł.). *Ukrain. Bot. Zhurn.* 38: 49–52.
  23. Zawierucha B. 1996. Widkasnik tatarlikolistij *Carlina onopordifolia* Besser ex Szafer, Kulcz. et Pawł. (*Carlina onopordifolia* Besser ex Szafer, Kulcz. et Pawł. [In:] *Red Data Book of Ukraine. Vegetable Kingdom*) In: *Czerwona księga Ukraini. Roslinnij swit*. Ed. J.R. Szeljag-Sosonko, *Ukraińska Encyklopedia* im. M.P. Bażana, Kijów.
  24. Zelenchuk A. T. 1985. Ossobiennosti siemiennogo rozmnozhenija i vobnovljenija *Carlina onopordifolia* (*Astreaeae*) v uslovijah Zapadnogo Podolia (The peculiarity of seed reproduction of *Carlina onopordifolia* (*Astreaeae*) in the area of Western Podillya region). *Botan. Zhurn.* 70 (4): 500–507.



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Current distribution of *Orchis ustulata* L. in the southern part of the  
Świętokrzyskie Mts.

Aktualne rozmieszczenie *Orchis ustulata* L. w południowej części Gór Świętokrzyskich

SUMMARY

The paper presents the distribution and current state of *Orchis ustulata* in the southern part of the Świętokrzyskie Mts. All localities of the species, given from this area, have been verified. Four sites, out of seven, have been confirmed. A new site of *O. ustulata* near Chęciny – Mt. Sosnówka, was found and described. The threat to and need of implementation of effective protection measures for maintenance of the species is also discussed.

STRESZCZENIE

Praca przedstawia rozmieszczenie i aktualny stan populacji *Orchis ustulata* w południowej części Gór Świętokrzyskich. Wszystkie stanowiska podane z tego terenu zostały zweryfikowane. Z siedmiu znanych stanowisk potwierdzono występowanie populacji *O. ustulata* na czterech. Opiszano nowe stanowisko storczyka drobnokwiatowego na górze Sosnówka w pobliżu Chęciny. W pracy przedyskutowano również zagrożenia i konieczność wprowadzenia efektywnych form ochrony tego gatunku.

**Key words:** *Orchis ustulata*, threatened species, species protection, Świętokrzyskie Mts.

INTRODUCTION

*Orchis ustulata* L. (Orchidaceae) is a European – Western Asian species. It is distributed in most of Europe, in the Caucasus and in West Siberian Plain (Hultén, Fries 1986). In Poland two subspecies of *O. ustulata* occur: typical one – subsp. *ustulata* and late flowering one – subsp.