

The occurrence of the *Oenothera* species in the Polish and Czech Sudetes and in the Polish and Slovak Carpathians

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Abstract: The paper presents high altitude localities of 9 *Oenothera* species (*Oenothera perennis* L., *Oe. biennis* L., *Oe. rubricaulis* KLEB., *Oe. salicifolia* DESF. ex G. DON, *Oe. erythrosepala* BORB., *Oe. fallax* RENNER em. ROSTAŃSKI, *Oe. acutifolia* ROSTAŃSKI, *Oe. pycnocarpa* ATK. et BARTL. and *Oe. subterminalis* GATES) recorded in the Polish and Czech parts of the Sudetes and in the Polish and Slovak Carpathians.

Keywords: *Oenothera*, ephemerophytes, epoeophytes, ergasiophytes, the Beskids, the Sudetes, the Carpathians.

The evening primroses (*Oenothera* L.) are plants of lowlands in Europe. They prefer sandy soils and grow along rivers, on road sides and railway embankments, in gravel- and sandpits and on mineheaps.

In the republics of Poland, Czechia and Slovakia the number of the *Oenothera* species and permanent hybrids includes 29, 23 and 17 taxa, respectively, with 14 units occurring in all the three countries; the total number is 34 (Tab. 1). 30 of them belong to the type section *Oenothera* (without the indication in text!) the last four of them, cultivated in gardens, represent other sections.

According to the number of localities, the most frequent species in the three countries mentioned, occurring in the wild, are: *Oenothera biennis*, *Oe. rubricaulis* and *Oe. salicifolia*; particularly in Poland - *Oe. hoelscheri*, *Oe. subterminalis*, *Oe. acutifolia* and *Oe. paradoxa*, whereas in Czech Republic - *Oe. erythrosepala* and *Oe. pycnocarpa*, and in Slovakia - *Oe. suaveolens*.

Tab. 1. Comparison of the *Oenothera* found in Poland (P), in Czech Republic (C) and in Slovakia (S)

No	<i>Oenothera</i> species or taxon name (synonym)	Occurring (P,C,S)	Remarks
1	<i>acutifolia</i> ROSTAŃSKI	(P,C,-)	
2	<i>albipercurva</i> RENNER ex HUDZIOK	(P,C,-)	
3	<i>ammophila</i> FOCKE	(P,C,-)	
4	<i>biennis</i> L.	(P,C,S)	
5	<i>canovirens</i> STEELE (= <i>renneri</i> H. SCHOLZ)	(P,C,-)	
6	<i>cruciata</i> NUTTAL ex G. DON	(P,-,-)	
7	<i>drawerti</i> RENNER ex ROSTAŃSKI	(-, -,S)	
8	<i>erythrosepala</i> BORB.	(P,C,S)	cultivated, escape
9	<i>fallax</i> RENNER em. ROSTAŃSKI	(P,C,S)	cultivated, escape
10	<i>hoelscheri</i> RENNER ex ROSTAŃSKI	(P,C,S)	
11	<i>issleri</i> RENNER ex ROSTAŃSKI	(P,C,S)	
12	<i>jueterbogensis</i> HUDZIOK	(P,-,-)	
13	<i>missouriensis</i> SIMS. [sect. <i>Megapterium</i> (SPACH) MUNZ]	(P,C,S)	cultivated only!
14	<i>oakesiana</i> (A. GRAY) ROBBINS ex S. WATS. (= <i>syrticola</i> BARTL.)	(P,C,S)	
15	<i>oehlkersi</i> KAPPUS	(-, -,S)	cultivated, very rare escaped.
16	<i>paradoxa</i> HUDZIOK	(P,-,-)	
17	<i>parviflora</i> L.	(P,C,S)	
18	<i>perennis</i> L. (= <i>pumila</i> L.) (Kneiffia (SPACH) MUNZ)	(P,-,-)	
19	<i>pseudochicaginis</i> ROSTAŃSKI	(P,-,-)	
20	<i>pyncocarpa</i> ATK. et BARTL. (= <i>chicaginis</i> DE VRIES ex RENNER)	(P,C,S)	
21	<i>punctulata</i> ROSTAŃSKI et GUTTE	(P,C,-)	
22	<i>rostaŃskii</i> JEHLÍK	(-, C,-)	
23	<i>royfraseri</i> GATES (= <i>turoviensis</i> ROSTAŃSKI)	(P,C,S)	
24	<i>rubricaulis</i> KLEB. (= <i>muricata</i> L. s.str.)	(P,C,S)	
25	<i>salicifolia</i> DESF. ex G. DON (= <i>hungarica</i> BORB.)	(P,C,S)	
26	<i>slovaca</i> JEHLÍK et ROSTAŃSKI	(-, -,S)	
27	<i>stricta</i> LEDEB. [sect. <i>Oenothera</i> subsect. <i>Munzia</i> DIETRICH]	(-, C,-)	
28	<i>suaveolens</i> DESF. ex PERS.	(P,C,S)	
29	<i>subterminalis</i> GATES (= <i>silesiaca</i> RENNER)	(P,C,-)	
30	<i>tacikii</i> ROSTAŃSKI	(P,-,-)	
31	<i>tetragona</i> ROTH [sect. <i>Kneiffia</i> (SPACH) MUNZ]	(P,C,S?)	cultivated as ornamental
32	<i>victorini</i> GATES (= <i>nissensis</i> ROSTAŃSKI)	(P,C,-)	
33	<i>wienii</i> RENNER ex ROSTAŃSKI	(P,-,-)	
34	<i>wratislaviensis</i> ROSTAŃSKI	(P,-,-)	

Total: Poland=29, Czech Republic=23, Slovakia=17

Among the above species, there are those which can invade mountain regions, either as ephemerophytes, or as epocophytes and ergasiophytes (i. e. those cultivated by man.).

On the basis of the literature data and the author's own observations, the following high altitude localities of the species given below should be mentioned: *Oenothera perennis* L. was given by SCHUBE (1900) from the Sudetes: Wilcza Poręba in Karpacz (the Karkonosze Mts.) from altitude 800 m - perhaps cultivated there.

Oenothera biennis L. occurs in the Sudetes along rail ways up to 600 m in Szklarska Poręba Dolna in the Polish part of the Karkonosze Mts. (ROSTAŃSKI 1965). From the Czech part it was given by ŠOUREK (1969) from the same altitude at Rokytnice nad Jizerou. In the Carpathians, from the Polish part of the Tatra Mts. it was found in Zakopane near the "Bristol" hotel - ca 850 m (MIREK & PIĘKOŚ-MIRKOWA 1984). In the Slovak Tatra it was found at the Poprad Veľká railway station at 700 m (PAWŁOWSKI 1956) and in the Slovak Nízke Tatry - on Mt. Zvolen at 800 m JEHLÍK & ROSTAŃSKI 1980). Moreover, in the Bieszczady Mts. was collected in Moczarnie at Wetlina by A. Jasiewicz in 1964 at the altitude 700 m (KRAM).

Oenothera rubricaulis KLEB. There are only very few data from the Sudetes. ŠOUREK (1969) gives it from a garden in Obří Důl in the Krkonoše (850 m), but V. JEHLÍK stated, that it was in fact *O. fallax* (see below). The latter author collected it at the south margin of the Jizerské hory, in Jablonec nad Nisou, 460 m (JEHLÍK & ROSTAŃSKI 1979). In the Polish side, the author collected it on a dump in Kletno in 1968 - 650 m. (E. Sudetes). The Carpathians: in the Polish part of the Western Beskid in 1982 it was found by the author on the Żylica stream in Szczyrk (550 m), in the Beskid Sądecki in 1986 on a sand heap in Powroźnik near Krynica (480 m), but in 1962 in the Eastern Beskids in the Bieszczady Mts. on the Oslawa stream in Wola Michowa (550 m). In the Slovak part it was found by V. JEHLÍK in the years 1973-74 in Žilinská kotlina near the Žilina railway station (335 m) (JEHLÍK & ROSTAŃSKI 1979).

Oenothera salicifolia DESF. ex G. DON. In the Polish Western Sudetes it was found in 1949 in Jelenia Góra by B. Krozitowicz, ca 350 m (LOD), and in the Czech Middle Sudetes in 1975 was collected by V. JEHLÍK in Podorlická pahorkatina at the Náchod railway station (350 m). In the Polish part of the Carpathians: the Żywiec Beskids Mts. near the Zwardoń railway station and the Slovak border, at 680 m, observed by the author in 1987. In the Middle Carpathians collected by V. JEHLÍK in 1973: Levočské vrchy at the Levoča railway station (JEHLÍK & ROSTAŃSKI 1979), 470 m.

Oenothera erythrosepala BORB. In the Czech part of the Sudetes found by V. JEHLÍK at the northern edge of Jizerské hory in 1975: Přebýtek at Lázně Libverda, 490 m and Lázně Libverda, 430 m (cultivated only). In the Polish part of the Carpathians, in the western Beskids Mts. it was observed by the author in 1990 at the foot of Babia Góra in the village of Zawoja Widly on the Skawica stream, 600 m, as an escape from a garden.

Oenothera fallax RENNER em ROSTAŃSKI. Only one locality from the Czech part of the Sudetes is known: Krkonoše Mts., Pec pod Sněžkou - Obří Důl, 850 m, cultivated by

J. ŠOUREK in his garden as *Oe. rubricaulis* (ŠOUREK 1969, corrected by V. JEHLÍK , JEHLÍK & ROSTAŃSKI 1979).

Oenothera acutifolia ROSTAŃSKI. From the Czech part of the Sudetes it was given by V. JEHLÍK from Liberec railway station, 377 m (l. c.). From the Polish Carpathians it was observed in the Żywiec Beskids, village Zwardoń, 680 m (at the same place where *Oe. salicifolia* grew on the sandy heap driven up from the sandpits in the lowland), by the author in 1987.

Oenothera pycnocarpa ATK. et BARTL. The only one locality was found in Czech Sudetes: Jizerské hory, Nové Mesto pod Smrkem, 456, V. JEHLÍK (JEHLÍK & ROSTAŃSKI 1979).

Oenothera subterminalis GATES. In the Polish part of the Middle Sudetes it was collected by Z. GŁOWACKI in 1968 between the villages Grzmiąca and Gluszyńca, ca. 400 m (WSRP). In the Czech part of the Sudetes it was found by V. JEHLÍK in 1975 in Ludvikov pod Smrkem, 460 m (l.c.).

Summary

The following higher altitude localities of the *Oenothera* stated so far in the Polish (P) - Czech (C) area of the Sudetes Mts. and in Polish (P) - Slovakian (S) Carpathians are as follows:

<i>Oenothera</i> species:	Sudetes		Carpathians	
<i>biennis</i>	600(P-R65)	600(C-S69)	850(MP-M84)	800(S-JR80)
<i>rubricaulis</i>	650(P-KR)	460(C-JR79)	550(P-KR)	335(S-JR79)
<i>salicifolia</i>	350(P-KR in LOD)	350(C-JR79)	680(P-KR)	470(S-JR79)
<i>erythrosepala</i>	-	370(C-JR79)	600(P-KR)	-
<i>fallax</i>	-	850(C-JR79)	-	-
<i>acutifolia</i>	-	377(C-JR79)	680(P-KR)	-
<i>pycnocarpa</i>	-	456(C-JR79)	-	-
<i>subterminalis</i>	400(KR in WSRP)	460(C-JR79)	-	-

Explanation:

JR79 = JEHLÍK & ROSTAŃSKI 1979

JR80 = JEHLÍK & ROSTAŃSKI 1980

KR = K. ROSTAŃSKI, unpublished data

LOD, WSRP, and KRAM (l.c.) = herbarium abbreviations in MIREK 1990

MP-M = MIREK & PIĘKOŚ-MIRKOWA 1984

R65 = ROSTAŃSKI 1965

S69 = ŠOUREK 1969.

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