

NEW LOCALITIES OF *COLEANTHUS SUBTILIS* (TRATT.) SEID. (POACEAE) IN THE “MILICZ PONDS” ORNITHOLOGICAL RESERVE IN WIELKOPOLSKA

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ABSTRACT. The paper presents new localities of *Coleanthus subtilis* identified in spring 2012 on the bottoms of two drained ponds in the Ruda Sułowska Complex “Milicz Ponds” Ornithological Reserve in Wielkopolska region. Both ponds showed very numerous fully developed populations of the discussed species. A potential threat of this species extinction exists and therefore its legal protection is necessary.

KEY WORDS: *Coleanthus subtilis*, Poaceae, SEM, protected species, Natura 2000 species, “Milicz Ponds” reserve, Wielkopolska

INTRODUCTION

Coleanthus subtilis (Tratt.) Seid. 1817 represents a species from Poaceae family.

It is covered by strict protection (ORDINANCE... 2004, 2012) and it is included in the Habitat Directive, annex II with a list of species, whose protection requires Special Protection Areas of Endangered Plants IUCN. *Coleanthus subtilis* is marked with the code number 1887 as a species of Natura 2000. It is also entered into the Red list of Lower Silesia critically endangered vascular plants with CR category (KĄCKI et AL. 2003).

So far, from the area of Poland, two localities have been reported: 1) Borowa Olesińska (20 km to the east from Wrocław) on the Olesiński Lowland, where it was found in three ponds (FABISZEWSKI and CEBRAT 2003). Actually, it is included in the Natura 2000 Network – Special area of the Ponds in Borowa localities (PLH 020045), 2) field pond near Stawno, not far from Ruda Milicka, NE from Milicz, within the borders of “Milicz Ponds” reserve (DAJDOK 2009). Actually, the species is included in Natura 2000 network – Special Area of Ostoja Habitat Localities at the Barycz river (PLH 020041).

CHARACTERISTICS OF THE NEW LOCALITY

The new locality was found in June 2012 in two ponds in the Ruda Sułowska Complex, about 14 km to SW from Milicz, within the borders of “Milicz Ponds” Ornithological Reserve (Fig. 1).

A. “Trześniówka” pond in Ruda Sułowska Complex, in “Milicz Ponds” reserve. A phytosociological picture has been made by Braun-Blanquet method using a 7-degree numerical scale and a 5-degree co-occurrence scale. The phytosociological picture was made on the 28th of June 2012, on an area of 100 m² covered in 95% by C layer. Among the co-occurring plants, the following species were recorded in the C layer: *Bolboschoenus maritimus* 3.3, *Coleanthus subtilis* 2.2, *Polygonum lapathifolium* ssp. *lapathifolium* 2.1, *Limosella aquatica* 1.1, *Oenanthe aquatica* 1.1, *Veronica anagalloides* 1.1, *Veronica peregrina* 1.1, *Batrachium trichophyllum* +, *Bidens frondosa* +, *Callitriche hamulata* +, *Equisetum limosum* +, *Lemna gibba* +, *Lemna minor* +, *Peplis portula* +, *Ranunculus sceleratus* +, *Alopecurus aequalis* r, *Bidens radiata* r, *Chenopodium ficifolium* r, *Polygonum aviculare* r.

B. Pond “Żabieniec Duży” in Ruda Sułowska Complex, in “Milicz Ponds” reserve.

A phytosociological picture has been made on the 26.06.2012 on the area of 100 m² covered in 95% by a C layer. Among the plants co-occurring with *Coleanthus subtilis*, the following species were recorded in the C layer: *Coleanthus subtilis* 2.2, *Batrachium trichophyllum* 1.1, *Bolboschoenus maritimus* 1.1, *Callitriche hamulata* +, *Elatine hydropiper* 1.1, *Limosella aquatica* 1.1, *Veronica anagalloides* 1.1, *Veronica peregrina* 1.1, *Carex bohémica* +, *Catabrosa aquatica* +, *Chenopodium rubrum* +, *Cyperus fuscus* +, *Polygonum lapathifolium* ssp. *lapathifolium* +, *Echinochloa crus-galli* r, *Eleocharis acicularis* r, *Matricaria maritima* subsp. *inodora* r.

The main plant mentioned in the title is counted in the new locality to the group of muddy soil species being

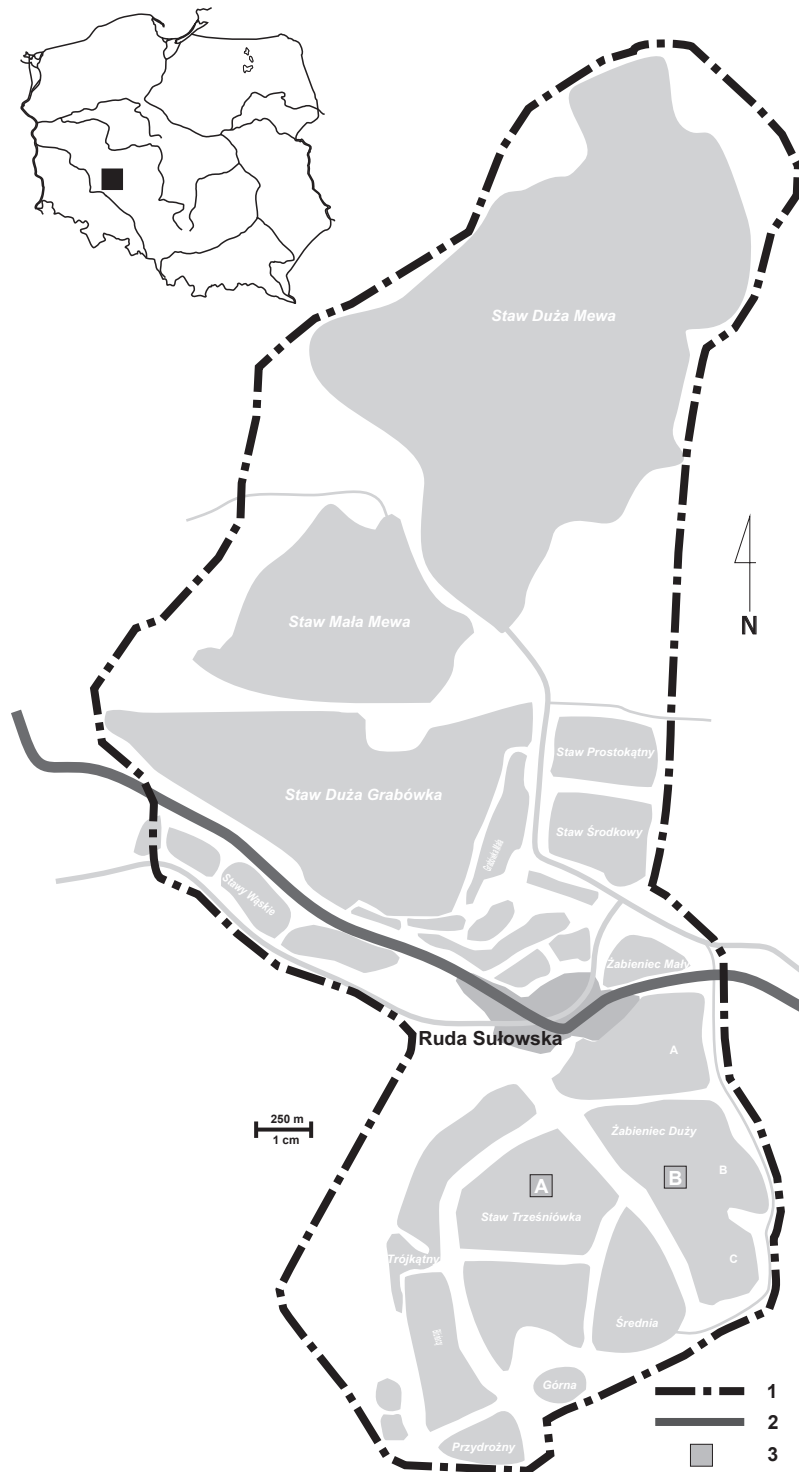


FIG. 1. Localization of the new localities of *Coleanthus subtilis* (Tratt). Seid. in the "Milicz Ponds" Ornithological Reserve: 1 - borders of Ruda Sułowska Complex, 2 - roads, 3 - new locality

representative of phytocenoses from the association *Elatini-Eleocharition ovatea* Pietsch 1965, from the class of *Isoëto-Nanojuncete* Br.-Bl. et R. Tx. 1943. A high participation in patches of *Limosella aquatica* may indicate that it belongs to the association *Eleocharito acicularis-Limoselletum aquaticae* Wendelberger-Zielinka 1952.

In the new locality, *Coleanthus subtilis* developed on the drained pond bottom during spring, while in

autumn (26.09.2012), the ponds were filled again with water and the main species was not found, not even on the pond borders not covered by water. Therefore, it is an example of an ephemeral species which can disappear in a given locality and after several years, it can appear again (CVELEV 1988). The seeds of the main species found in the reservoir bottom, or in the flowing water may preserve for a long time the ability to

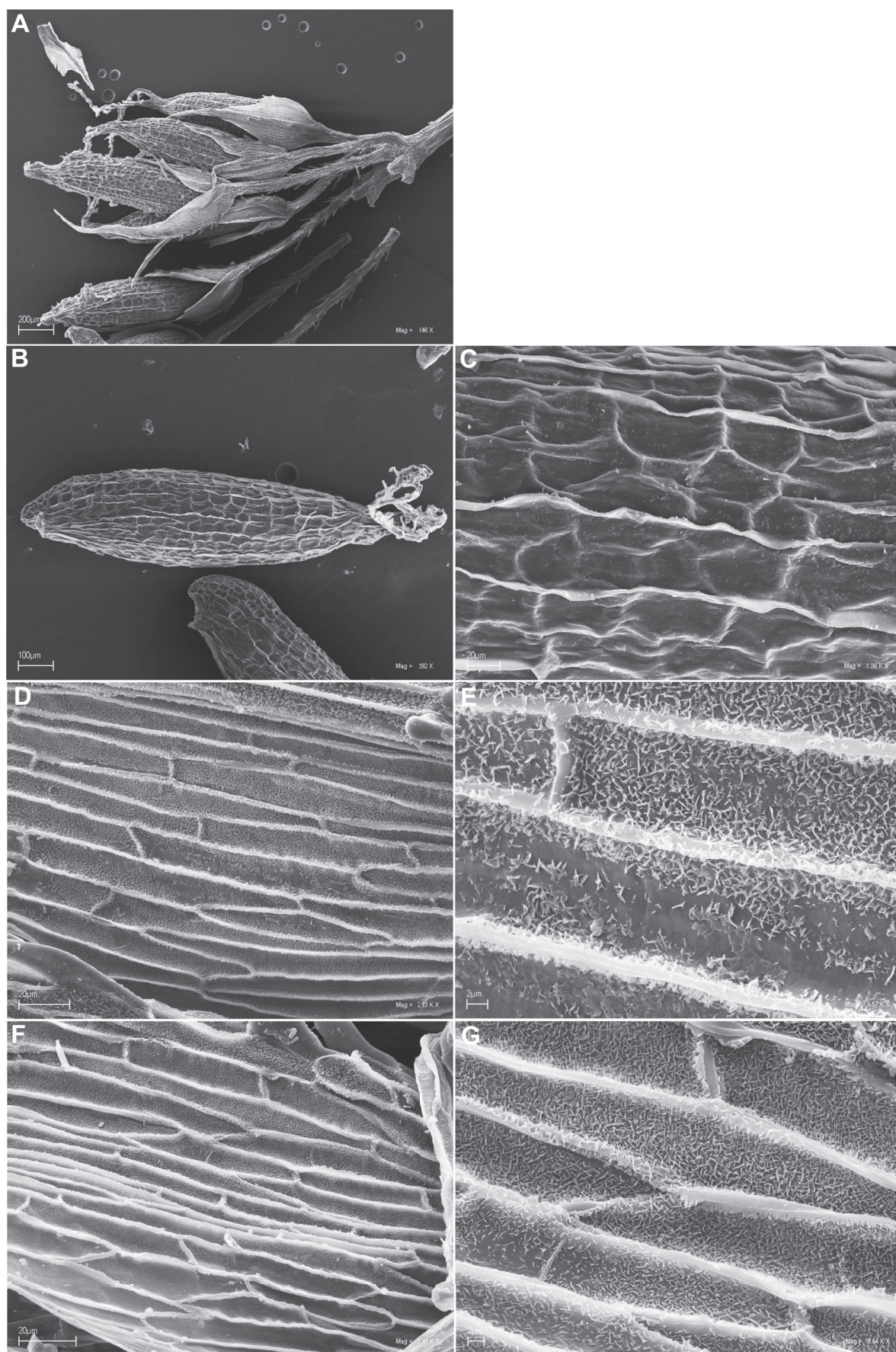


FIG. 2. Macro- and micromorphological characteristics of the grains and spikelets of *Coleanthus subtilis* (Tratt.) Seid. are made on the basis of material collected in the "Milicz Ponds" Ornithological Reserve in Ruda Sułowska Complex: A – spikelets with caryopsis, B – caryopsis habit, C – sculpture of caryopsis, D – surface area of the lower glume, E – wax peltates on the surface area of the lower glume, F – upper glume, G – wax peltates on the surface area of the upper glume

germinate. It can even survive 20 years in water (HEJNY 1969), therefore, in the successive vegetation seasons, one must observe whether the main species will show up when the water is drained in the ponds "Trześniówka" and "Żabieniec Duży". The life cycle of this species is short and it may last only 5-7 weeks. The plant creates a great number of grains (on 1 m² about one million) and the grains are spread by birds by way of epizochoria and hydrochoria (ČEŘOVSKÝ ET AL. 1999).

MORPHOLOGICAL CHARACTERISTICS

The following morphological characteristics has been done on the basis of the specimens collected in the ponds: "Trześniówka" and "Żabieniec Duży" in Ruda Sułowska Complex, in "Milicz Ponds" reserve.

Coleanthus subtilis is an annual plant (therophyte) reaching only a height of 2-5 (-11) cm creating small clusters. The leaf blades are about 2.4 cm long and 4.5 mm wide and they usually are sickle-like bent with a ligule 0.4-0.9 (1.72) mm long. The leaf sheaths are strongly expanded. The inflorescence represents a panicle 0.5 to 5 cm long. The panicle axis is curved. The spikelets have one flower 0.7 to 1.3 mm long; they are flattened and they appear in bunches of 7-26, separated from each others. On one inflorescence, there can be 4 to 8 (18) bunches of spikelets.

The spikelets are provided with a lower and upper glume which (0.91-1.3 mm long, 0.26-0.52 mm width) are without leaves (0.39-0.83 mm long, 0.1-0.21 width), but they sometimes have a sharp end. The sculpture of the lower and upper glume is very similar to the cells which are several times longer than their width with anticlinal raised or straight walls cut off at the ends, or, less frequently, they are cut off wedge-like (Fig. 2 D, F). The epidermis of glumes surface is covered with pelates wax (Fig. 2 E, G). There are no lower and upper glume. They bloom from April to August. Already in May, they have ripe fruits 0.6-1.40 mm long and they are by 0.21 to 0.32 mm wide (Fig. 2 A). The sculpture of grains is reticulated with cells only slightly longer than their width. Their walls are anticlinal and raised, some of them are slightly wavy, while the periclinal walls are sunk (Fig. 2 B, C).

SUMMARY

Coleanthus subtilis should be included in the new Red List edition in the V category of endangered plants.

Because of the small dimensions of this plant, its specimens can be often not perceived, particularly in localities, where only single plants occur. The characteristic features of this species include: leaves are sickle-like bent. During blooming, the panicle consists of spikelet bunches separated from each others, but sometimes the lower and upper glumelles are absent.

The reasons of this species endangerment on the new locality can be the habitat eutrophization, or the

discontinuation of the traditional economic utilization of the fish ponds.

In the successive years, after draining of the ponds "Trześniówka" and "Żabieniec Duży", one should observe whether *Coleanthus subtilis* will appear and if it appears, one should monitor its condition and undertake adequate measures to protect the ponds against inflow of contaminations and one must not apply any fertilization or liming. The edges of these ponds should be formed in such a way that they gently descend towards the reservoirs, or one should arrange sandbanks which are visible already in case of the smallest water level decrease in the ponds.

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