

Water Bent *Polypogon viridis* (Poaceae): a new grass species in the flora of Bosnia and Herzegovina

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Abstract:

Water Bent *Polypogon viridis* (Gouan) Breistr. is native to damp places in southern Europe, the Mediterranean, South-West and Central Asia and North-East Africa and was introduced into North and South America and Australia. It has been recorded for the first time in Bosnia and Herzegovina in north-eastern Bosnia at the beginning of the summer

in 2017, in the vicinity of the village Bakovići near Banovići. The paper presents a short morphological description and photographs of the new species for Bosnia and Herzegovina, as well as the known distribution of the species. A determination key is given for *Polypogon* taxa registered in Bosnia and Herzegovina and neighbouring countries.

Keywords: Bosnia and Herzegovina, distribution, grass, morphology, *Polypogon*

Maslo, S., Šarić, Š. (2018): *Polypogon viridis* (Poaceae): nova vrsta trave u flori Bosne i Hercegovine. Glas. Hrvat. bot. druš. 6(2): 16-20.

Sažetak

Polypogon viridis (Gouan) Breistr. je autohtona vrsta vlažnih staništa južne Europe, Sredozemlja, sjeverozapadne i središnje Azije kao i sjeveroistočne Afrike, dok je unešena u Sjevernu i Južnu Ameriku te Australiju. Početkom ljeta 2017. godine je po prvi put zabilježena u Bosni i Hercegovini, kod Bakovića

u blizini Banovića. U radu se donosi kratak opis morfoloških karakteristika vrste, karta poznate rasprostranjenosti te ključ za određivanje vrsta roda *Polypogon* zabilježenih u Bosni i Hercegovini i susjednim zemljama.

Ključne riječi: Bosna i Hercegovina, morfologija, *Polypogon*, rasprostranjenost, trava

Introduction

The genus *Polypogon* Desf. belongs to the tribe *Aveneae* Dumort. (Poaceae). There are about 20 species occurring in warm-temperate regions of the world, especially in damp places. Nine species have been recognized in Europe (Ryves et al. 1996, Valdés & Scholz 2009, Verloove 2016), among which five are native (Valdés & Scholz 2009). Only one species, *P. monspeliensis* (L.) Desf. has been recorded for Bosnia and Herzegovina (Beck-Mannagetta 1903). *P. viridis* (Gouan) Breistr. has been reported in Europe in Azerbaijan, Albania, Armenia, Belgium, Croatia, Cyprus, France, Georgia, Germany, Great Britain, Greece, Italy, Montenegro, Portugal, Serbia, Slovenia, Spain, Switzerland, The Russian Federation, Turkey and Ukraine (Rohlén 1942, Jordanov 1963, Josifović 1976, Pignatti 1982, Domac 2002, Jogan 2007, Valdés & Scholz 2009, Verloove 2016).

This species typically occurs on damp ground beside ponds, streams and rivers, in seepages, damp cultivated or disturbed ground and disturbed marshy areas.

Water Bent was, for a long time, included in *Agrostis* (as *Agrostis semiverticillata* (Forssk.) C. Chr.). Modern revisions have redefined the distinction and all species with deciduous, stipitate spikelets are now placed in *Polypogon* (Clayton & Renvoize 1986). A male-sterile hybrid between this species and *A. stolonifera* L. has been recorded from England (the island of Guernsey).

Material and methods

A summer floristic survey in 2017 in the area of north-eastern Bosnia resulted in new records for the flora of Bosnia and Herzegovina, *P. viridis*. Digital photographs and GPS coordinates were

taken in field. Identification of the specimens was done according to Philipson (1937), Hubbard (1984), Cope & Gray (2009) and Verloove (2016). The nomenclature follows the Euro-Med checklist (Euro+Med 2006). The collected plant specimen was deposited in the herbarium (SARA-51819). For herbarium abbreviations, see Holmgren et al. (1990).

Results and discussion

Polypogon viridis (Gouan) Breistr., Bull. Soc. Bot. France 110 (Sess. Extr.): 56 (1966), (synonyms: *Agrostis viridis* Gouan 1762., *Agrostis semiverticillata* (Forssk.) C. Chr. 1922).

P. viridis, formerly known as *Agrostis viridis* and *A. semiverticillata*, is perennial herb that has no perennating rhizomes but instead forms nodal adventitious roots at lower nodes of its branches. To identify this species, we offer the key for *Polypogon* taxa registered in Bosnia and Herzegovina, and in neighbouring countries, which is adjusted according to Tutin (1980), Doğan (1985) and Verloove (2016).

- 1 Glumes and lemma awnless; perennial grasses ***P. viridis***
- 1 Glumes awned; annual grasses **2**
- 2 Lemma awnless; glumes deeply 2-lobed, margin of glumes densely ciliate in upper half, awn inserted at ca ¼ from the apex ***P. maritimus***
- 2 Lemma with a short terminal awn; glumes emarginated, margin of glumes slightly ciliate in upper half, awn subapical ***P. monspeliensis***

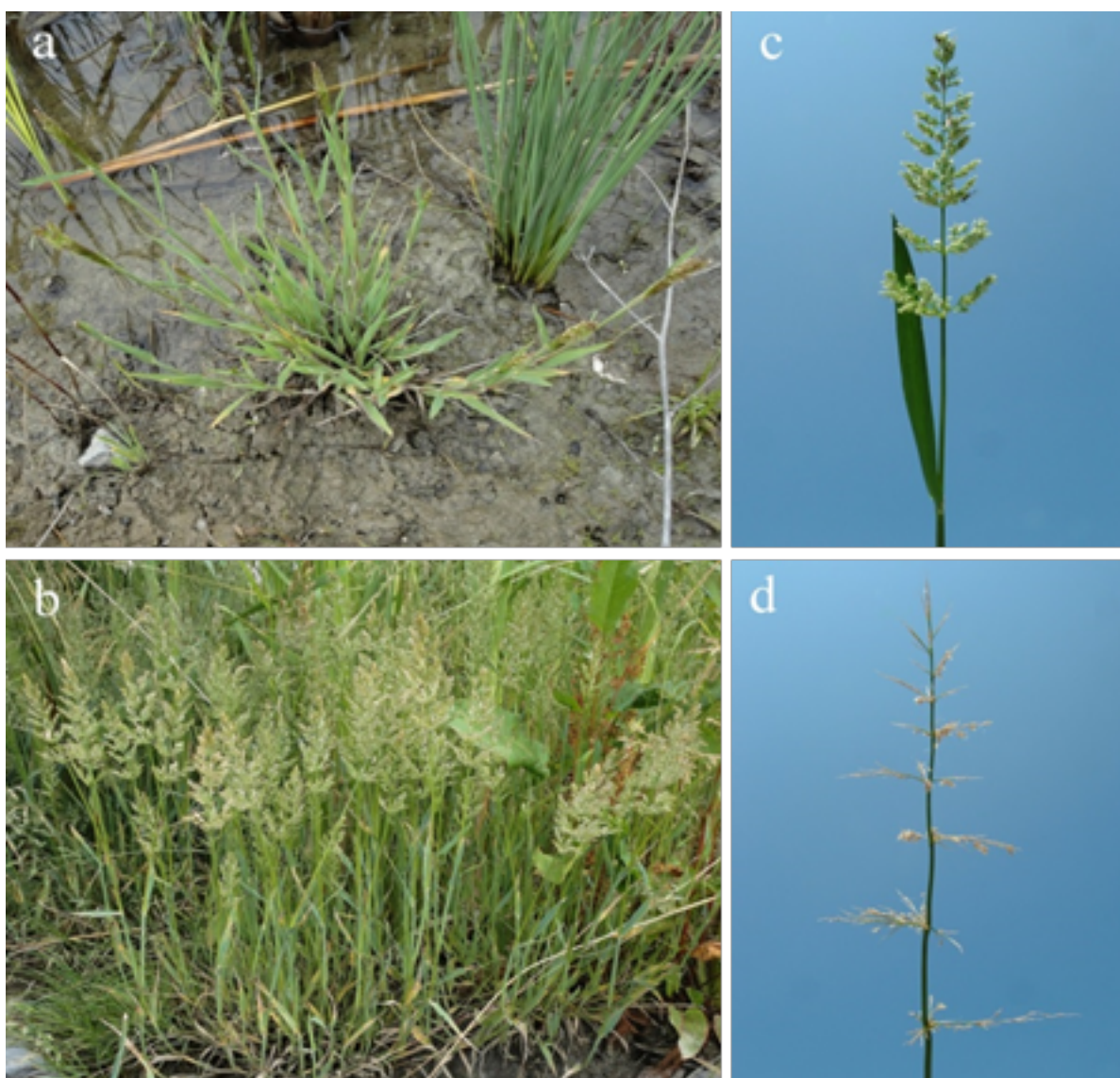


Figure 1. *Polypogon viridis* a) and b) habitat (Photos: Š. Šarić), c) and d) inflorescence (Photos: S. Maslo).

P. viridis (Fig. 1) is perennial, loosely tufted, 10-60 cm tall, with geniculately ascending culms rooting at the nodes. The ligule is blunt and membranous, 1.5-5 mm long. Leaf blades are flat and pointed, 2-10 mm wide and 3-18 cm long, hairless, closely nerved and rough. The panicle is erect, ovate to oblong, dense, lobed, sometimes interrupted below, 2-15 cm long and 1-4 cm wide, pale green or purplish. The spikelets are very numerous, oblong, awnless, 1.7-2.2 mm long, 1-flowered, falling at maturity with the pedicel attached. Glumes equal, as long as the spikelet, oblong or elliptic and blunt when opened out, rounded on the back below, keeled above the middle, minutely rough, 1-nerved, or the upper 3-nerved. Lemmas about half the length of the glumes rounded on the back, broadly elliptic, finely-5-nerved, and thin. Palea is nearly as long

as the lemma, 2-nerved. Anthers are 0.5-0.7 mm long. Caryopsis pale brown, oblong, 1 mm long. Chromosome counts are $2n=28$ (Hubbard 1984, Cope & Gray 2009).

The first record of this species for Bosnia and Herzegovina is coming from north-eastern Bosnia at the beginning of June 2017, in the vicinity of the village Bakovići near Banovići ($44^{\circ} 23' 50.83''$ N; $18^{\circ} 28' 17.86''$ E; elevation 393 m) (Fig. 2). About ten large populations were recorded on a surface of 4 ha. In the area it grows on open damp habitats together with a wide range of ruderals, including some alien species. This grass has become quite abundant in the area, and it was found accompanied by *Ambrosia artemisiifolia* L., *Artemisia absinthium* L., *Dipsacus laciniatus* L., *Dittrichia graveolens* (L.) Greuter, *Juncus articulatus* L., *Nicotiana rustica* L., *Phytolacca americana* L., *Reynoutria japonica*

Houtt., *Rumex conglomeratus* Murray, *Tussilago farfara* L. and *Typha angustifolia* L. During fieldwork in October 2017 the species was recorded also in the town of Neum (south Herzegovina) (42° 55' 05.43" N; 17° 37' 25.61" E; elevation 10 m) (Fig. 2). A few plants were found in pavement cracks and at the bases of walls and rubbish tips.

Some of the populations in north-eastern Bosnia are of a considerable size, suggesting that this species has been present in the area for several years. Probably it already occurs in the country more widely than the new records indicate, but it is most likely overlooked by collectors because of its similarity to some taxa of genus *Agrostis* (it has

been previously classified in that genus). However, one character can consistently separate this species. In the taxa of genus *Agrostis*, the glumes of ripe spikelets are persistent, but in Water Bent the glumes fall with the seeds and gradually create a skeletal flower-head (Fig. 1d).

Occurrence of this taxon in north-eastern Bosnia was not expected, as this Mediterranean plant was recorded in only one locality in neighboring Slavonia (Croatia) (Nikolić 2017). On the other hand the taxon is relatively common in neighboring Dalmatia, between Zadar and Dubrovnik, and our finding in Neum was not unusual.



Figure 2. The distribution of *Polypogon viridis* in Bosnia and Herzegovina.

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