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Report on the new floristic data from Serbia

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***Abstract**:*

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New chorological data for 16 taxa of vascular flora of Serbia (records no. 1-16) are given in the article. The taxa represented belong to the following families: Asteraceae (1-8), Euphorbiaceae (9), Geraniaceae (10), Juncaceae (13), Lamiaceae (11), Salicaceae (12), Poaceae (14, 15) and Typhaceae (16). *Artemisia alba* var. *biasolettiana* is reported for the first time within the territory of Serbia.

Key words: new chorological data, Serbia, vascular flora

Apstrakt:

Zlatković, B., Bogosavljević, S.: Izveštaj o novim flourističkim podacima iz Srbije. ***Biologica Nyssana, 5 (2), Decembar 2014: 123-129.***

Prikazani su novi horološki podaci za 16 taksona vaskularne flore Srbije (podaci br. 1-16). Taksoni pripadaju sledećim familijama: Asteraceae (1-8), Euphorbiaceae (9), Geraniaceae (10), Juncaceae (13), Lamiaceae (11), Salicaceae (12), Poaceae (14, 15) i Typhaceae (16). Prisustvo *Artemisia alba* var. *biasolettiana* do sada nije bila poznato u flori Srbije.

Ključne reči: novi horološki podaci, Srbija, vaskularna flora

Introduction

The goal of this paper is presentation of new chorological data for 16 taxa in vascular flora of Serbia. According to our survey of literature, one infraspecies taxon was reported in this paper for the first time within the territory of Serbia. The new records may be used as additional data for distribution of taxa presented in the edition series "The Flora of SR Serbia (I-X)" (Josifović, ed., 1970-1977; Sarić & Diklić, 1986; Diklić, 1977; Nikolić et al., 1986), as well as the taxa that were reported from Serbia after the monograph was published but will be included within the new edition "The Flora of Serbia" (Stevanović, 1992, 2012) and for completing the datasets on general distribution of recorded taxa.

Material and methods

The collected plant material was stored at the Herbarium of the Institute of Botany and Botanical Garden "Jevremovac", University of Belgrade (BEOU), Herbarium of the Faculty of Science and Mathematics, University of Niš (HMN) and Herbarium of the Faculty of Sciences and Mathematics, University of Novi Sad (BUNS). Acquisition numbers are given in the brackets. Distribution of the studied taxa within the territory of Serbia was determined and mapped in UTM grid system (10 x 10 Sq. km., UTM Zone 34T). The nomenclature and classification of taxa was matched with the Euro+Med (2006). We used a geographic regionalization of Serbia according to Marković (1970), modified by Stevanović (1999).

Results and discussion

Asteraceae

1. *Erigeron sumatrensis* Retz. (syn. *Conyza sumatrensis* (Retz.) E. Walker, *C. albida* Spreng.)

- (Central): the town of Niš, Batušinac village, ruderal, 186 m, *Artemisietea vulgaris*, EN69, 15.09.2014, coll. *B. Zlatković* (HMN 9245).
- (East): the town of Gadžin Han, Grkinja village, ruderal, 350 m, *Artemisietea vulgaris*, EN88, 27.09.2014, coll. *M. Ranđelović* & *S. Bogosavljević* (HMN 9244).
- (East): the town of Niš, Gorica Hill, ruderal, 358 m, *Artemisietea vulgaris*, EN79, 02.10.2014, coll. *B. Zlatković* & *S. Bogosavljević* (HMN 9246).
- (South): the town of Leskovac, ruderal, 250 m, *Artemisietea vulgaris*, EN76, 21.09.2014, coll. *M. Ranđelović* & *S. Bogosavljević* (HMN 9243).

Presence of invasive species *E. sumatrensis* in Serbia was first recorded in 2002 in vegetation of urban area of Belgrade (Niketić & Jovanović, 2002). This species originated in tropical and subtropical regions, and its presence in European countries, where it has invasive character, was first recorded in 1875 (Casasayas, 1989). Spread of species *E. sumatrensis* in territory of Serbia matches the invasive potential shown by this species in other countries of Southeastern Europe and Balkan Peninsula (Anastasiu & Memedemin, 2010; Vladimirov, 2009).

2. *Dittrichia graveolens* (L.) Greuter (syn. *Inula graveolens* (L.) Desf.)

- (East): Sićevo gorge, Gradište village, limestone, ruderal places, roadside, 400 m, *Artemisietea vulgaris*, EN99, 27.09.2011, coll. *B. Zlatković* (BEOU 16839).
- (East): the town of Dimitrovgrad, Srećkovac village, limestone, ruderal places, roadside, 470 m, *Artemisietea vulgaris*, FN36, 26.10.2013. coll. *B. Zlatković*, *M. Miljković* & *M. Marković* (BEOU 16840).

Dittrichia graveolens is a therophyte species with Mediterranean-submediterranean range type, with additional parts of range in Middle East and the Atlantic region of Europe (Meusel & Jäger, 1992). Recently this species was introduced to North America, Australia and South Africa, showing a strong invasive character (Brownsey et al., 2013). Its range increase in Central Europe started in mid-20th century and continues to gain intensity (Király et al., 2014). It is assumed that spread of this species is greatly influenced by its anthropochorous type of dispersal, particularly facilitated by construction of traffic routes and formation of ruderal-type habitats. The new localities are situated along the high-frequency international traffic routes, so it is assumed that the anthropogenous factor is greatly beneficial to its range increase in Serbia. It was previously recorded only in vicinity of Suva Reka in Kosovo and Metohija (Gajić, 1975a).

3. *Achillea chrysocoma* Friv.

- (Southeast): Vlasina plateau, Vlasina Rid, schists, in vegetation of mountain pastures (*Nardion strictae*) close to the lake, 1200 m, FN03, 16.06.2013, coll *M. Ranđelović* & *S. Bogosavljević* (BEOU 16833).

Endemic species characteristic for vegetation of high-mountain pastures and stony ground in the central and southern part of Balkan Peninsula. In the territory of Serbia it has been reported from high mountains of Kosovo and Metohija (Šar-planina, Koritnik), as well as Besna Kobila Mt. (Diklić, 1977; Nikolić et al., 1986) and Crni Vrh close to Vranje (Adamović, 1908). Tomović (2007) considers the distribution data for this species in region of Vlasina (gorge of Masurićka reka) to be doubtful due to incomplete herbarium material in collection of BEOU. The new record in distribution of *Achillea chrysocoma* in Serbia supports the claim that range of this species may realistically include the area of Vlasina Plateau.

4. ***Artemisia alba*** Turra var. ***biasolettiana*** (Vis.) Ch. Gussev

- (East): Valley of Visočica, village Slavinja, carbonates, marls, 734 m, FN47, 13.08.2010, coll *B. Zlatković* & *D. Jović* (HMN 9247).

Artemisia alba is a relatively common species with Pontian-Mediterranean type of distribution, and within its wide range it shows a pronounced polymorphism of morphological characters. In Serbia it appears in several types of thermophilous habitats, primarily on stony ground on limestone and serpentinite. Besides the type variety (var. *alba*), this study has revealed the first record of taxon *A. alba* var. *biasolettiana* in Serbia. It is characterized by presence of very thick white indumentum that completely covers the leaves, stem and inflorescences of this plant (**Fig. 1c, 1d**). The closest known locality where this taxon was recorded is situated in western part of Bulgaria (Gussev, 2012).

5. ***Artemisia campestris*** L.

- (*East*): the town of Knjaževac, Rgošte village, alluvium, ruderal places near railroad, 230 m, *Artemisietea vulgaris*, EP92, 13.10.2013, coll. *B. Zlatković* & *S. Bogosavljević* (BEOU 16832).

According to Gajić (1975), *Artemisia campestris* is a species distributed almost throughout Serbia. However, our review has shown that this species is rare in southern and eastern parts of Serbia where its distribution is insufficiently known.

6. ***Carlina graeca*** Heldr. & Sartori

- (South): Mt Rujan, Slavujevac village, silicate, dry pastures, 800 m, Festuco-Brometea, EM68, 31.07.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16835).

Distribution of this species in Serbia is still insufficiently studied and important, as it form the northern edge of its area from Mediterranean region toward inner part of Balkan Peninsula. It was reported from the few localities from southern and southeastern region of Serbia (Ničić, 1902; Zlatković & Ranđelović, 2004; Zlatković, 2006).

7. ***Jurinea polycephala*** Formánek (syn. *J. bipinnata* Adamović)

- (South): Mt Rujan, Orljak, silicate, 742 m, *Festuco-Brometea*, EM67, 26.06.2009, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16849).
- (Southeast): the town of Bosilegrad, Izvor village, limestone, dry pastures and rocky grounds, 995 m, *Festuco-Brometea*, FC20, 21.06.2014, coll. *B. Zlatković* & *G. Tomović* (HMN 9372).

This species inhabits steppe-like grassy habitats and thermophilous rocky ground on silicate and limestone geological substrate. Records of *J. arachnoidea* in vicinity of Sukovo (Adamović, 1899), Prizren (Košanin, 1939), and Bosilegrad (Ranđelovič et al., 1988), probably refers to *J. polycephala*. Besides the new data on distribution this study has also proven the presence of this species in vicinity of Bosilegrad, at the slopes of Mt. Rudina in Serbia.

8. ***Centaurea melanocephala*** Pančić (**Fig. 1a, 1b**)

- (*Central*): Studena planina, peak Cvetalica, slopes toward Brezanska Reka river, serpentinite, mountain pastures and glades in oak forest, exp. NW, 1055 m, *Festuco-Brometea*, DP72, 11.09.2002, coll. *B. Zlatković* (HMN 9248).

Until now, this endemic species was reported from very few localities in the Ibar valley and slopes of Mt. Stolovi in Central Serbia (Pančić, 1874, Adamović, 1907) and surroundings of Kosovska Mitrovica and Đakovica in Kosovo and Metohija (Wraber, 1993). The new data offers first confirmation for existence of this extremely rare species close to its "*locus classicus*" ("*Mt. Stol*"= Mt. Stolovi) after it was described by Pančić (1874).

Euphorbiaceae

9. ***Euphorbia velenovskyi*** Bornm.

- (*East*): the town of Babušnica, Bežište village, alluvium, 600 m, *Phragmitetea*, FN07, 28.05.2008, coll. *B. Zlatković* (BEOU 16848).
- (South): the town of Vranje, Buštranje village, silicate, wet meadows, 450 m, *Molinio-Arrhenatheretea*, EM79, 17.05.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16857).
- (South): the town of Vranje, Ribnice village, alluvium, wet meadows, 370 m, *Phragmitetea*, EN70, 17.05.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16834).

Euphorbia velenovskyi is an insufficiently studied species of Serbian flora, and the only data on its distribution in Serbia are from several sites in vicinity of Bosilegrad in southeast Serbia (Urumoff, 1935). Certain authors consider this taxon to be a synonym for species *E. palustris*, but

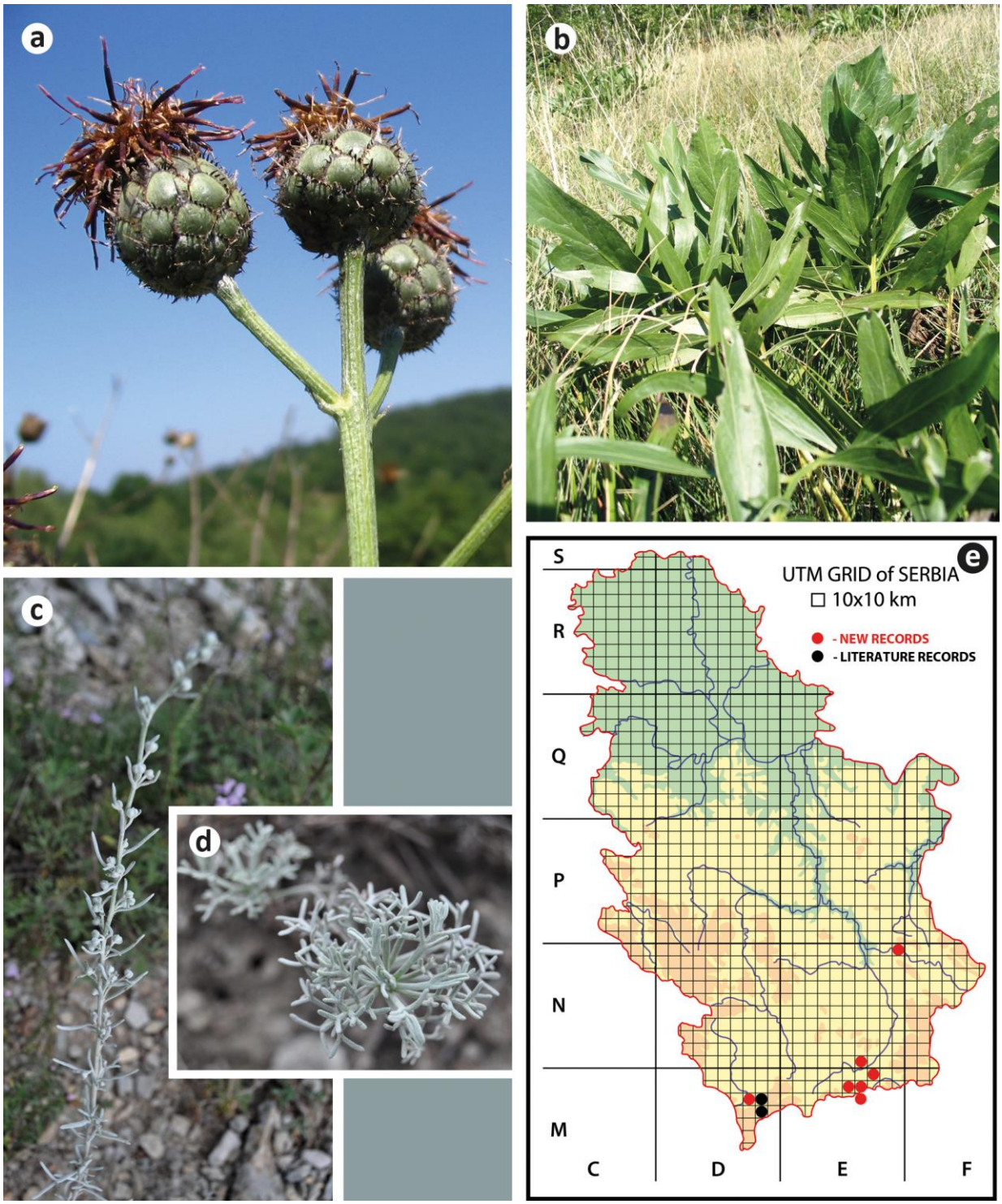

Figure 1. a, b - *Centaurea melanocephala*; **c, d** - *Artemisia alba* var. *biasolettiana*; **e** - distribution of *Trachynia distachya* in Serbia.

E. velenovskyi clearly differs by pointed tips and sharply serrated margins of leaf blades (Kuzmanov, 1979). We believe that *E. velenovskyi* may have much wider distribution in Serbia, but it is necessary to perform a review of data on distribution of *E. palustris* in vicinity of Bujanovac (Janković & Nikolić, 1972), Vranje, Pirot and Sukovo (Adamović, 1898).

Geraniaceae

10. *Geranium pratense* L.

- (*East*): The town of Dimitrovgrad, Mazgoš village, alluvium, 661 m, *Salicetum albo-fragilis*, FN56, 22.06.2013, coll. *B. Zlatković & N. Stanković* (HMN 9250).
- (*East*): The town of Dimitrovgrad, Protopopinci village, alluvium, 666 m, wet meadows,

Molinio-Arrhenatheretea, FN56, 22.06.2013, coll. *B. Zlatković & N. Stanković* (HMN 9249).

In Serbia, it was reported only for Šumadija region (V e l j o v i ć , 1967).

Lamiaceae

11. *Salvia verbenaca* L.

- (*East*): the town of Dimitrovgrad, Kozarica Mt. Slopes, limestone, ruderal places, roadside, 474 m, *Festuco-Brometea*, FN46, 30.04.2007, coll. *B. Zlatković* (BEOU 16855).
- (*East*): the town of Pirot, Sarlak hill, limestone, ruderal places, roadside, 450 m, *Festuco-Brometea*, FN28, 30.04.2007, coll. *B. Zlatković* (BEOU 16854).
- (*Southeast*): The municipality of Trgovište, Crnovce village, molasses, steppe-like pastures in silicate, *Astragalo-Stipetum capillatae*, 800 m, *Festuco-Brometea*, EM89, 17.05.2008, coll. *B. Zlatković* (BEOU 16838).

Presence of this species was recently recorded in several localities in eastern and southwestern parts of Serbia (Z l a t k o v i ć et al., 2005). Monitoring of its distribution has shown spread pattern along the traffic routes as well as in ruderal habitats in human settlement, mostly in southern warmer parts of Serbia.

Salicaceae

12. *Salix elaeagnos* Scop.

- (Southeast): Vlasina plateau, Bratanov Del, silicate, near stream, 1238 m, *Querco-Fagetea*, FN02, 31.07.2013, coll. *B. Zlatković* (BEOU 16850).

This species is distributed along the river courses of western and southwestern Serbia and Kosovo and Metohija (J o v a n o v i ć & T u c o v i ć , 1972; J o v a n o v i ć , 1997), however the amount of substantiated data on its distribution in other regions of Serbia is insufficient.

Juncacee

13. *Juncus capitatus* Weigel

- (*South*): Rujan planina, Borovac village, eroded areas along the road, 422 m, EM69, 31.07.2013, coll. *B. Zlatković* (HMN 9251).

This is the second confirmed set of data on existence in Serbian flora of this threatened taxon (CR B2ab(i,iii,iv)), which used to be known from a single locality at the extreme southeast of Serbia (T o m o v i ć et al., 2009). At the new locality, this species appears in a localized, sparse population, within the mostly therophytic vegetation, at sandy areas around streams and springs.

Poaceae

14. *Rostraria cristata* (L.) Tzvelev (syn. *Koeleria phleoides* (Vill.) Pers.)

- (East): Sićevo gorge, Sićevo village, limestone, 420 m, *Festuco-Brometea*, EN89, 11.07.2010, coll. *B. Zlatković & S. Bogosavljević* (HMN 9254).

This Mediterranean grass is casual in Serbia. It was reported from a few localities in eastern and southeastern parts of the country (Š m a r d a , 1968; Z l a t k o v i ć & S t e v a n o v i ć , 2007).

15. *Trachynia distachya* (L.) Link (syn. *Brachypodium distachyon* (L.) P. Beauv.)

- (East): Sićevo gorge, Gradište village, arid grassy locations, EN99, 05.07.1999, coll. *B. Zlatković* (BUNS).
- (South): Mt Rujan, Orljak, silicates, 742 m, EM67, 26.06.2009, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16841).
- (South): Mt Rujan, Slavujevac village, arid pastures, 800 m, EM68, 31.07.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16845).
- (South): Preševska Povija, Mamince village, limestone, dry pastures, 450 m, *Thero-Brachypodietea*, EM58, 23.07.1998, coll. *B. Zlatković, N. Ranđelović* & *V. Ranđelović* (BEOU 16843).
- (South): the town of Bujanovac, Srpska Kuća village, marls, clays and sandstones, arid pastures, 421 m, EN60, 31.07.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16846).
- (South): the town of Vranje, Buštranje village, limestone, dry pastures, 516 m, *Thero-Brachypodietea*, EM79, 17.05.2008, coll. *B. Zlatković* & *N. Smiljković* (BEOU 16836).
- (Southeast): Pčinja river gorge, Brnjare village, marls, shales and sandstones, ephemeral pastures of dry sand area, *Ornithopodi-Tuberarietum guttatae*, 510 m, EM79, 28.06.2004, coll. *B. Zlatković* & *M. Jušković* (BEOU 16847).
- (*Metohija*): the town of Prizren, Našec village, limestone, thermophilous pastures on shallow substrate, 390 m, *Thero-Brachypodietea*, DM77, 30.06.1996, coll. *B. Zlatković* (BEOU 16837).
- (*Metohija*): the town of Prizren, thermophilous pastures on shallow substrate, limestone, 371 m, DM77, 30.06.1996, coll. *B. Zlatković* (BEOU 16844).

Mediterranean, therophyte species recorded in Serbia for the first time near Sredska (Krivošej et al., 1993-1994), and later also in gorge of Prizrenska Bistrica (Zlatković et al., 2014) at Kosovo and Metohija. Supported by influence of warm climate from the Adriatic and Aegean Mediterranean areas, following the valleys of larger rivers, this species has spread its range significantly in Metohija, southern, southeastern and eastern Serbia (**Fig. 1e**). This species is a constituent of vegetation of thermophilous pastures and stony ground, appearing at lower altitudes.

Typhaceae

16. *Typha laxmannii* Lepech.

- (Northeast): the town of Zaječar, Rgotina village, Rgotsko Lake, 185 m, FP07, 03.08.2014, coll. S. Bogosavljević (HMN 9255).

The first record of this species in Serbia was from Vojvodina (Budak, 1975, 1986), while recently it was recorded at several localities in eastern and southeastern Serbia (Zlatković et al., 2007). At the locality in northeastern Serbia *Typha laxmannii* forms a relatively abundant population inhabiting shallow pools and ponds that dry out in summer months. The habitats are anthropogenous in origin, situated in immediate vicinity of stone quarries or gravel excavation pits. In some cases it may also appear along the stream that flows into the accumulation of artificial lake near the settlement Rgotina.

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