Botanica SERBICA 40 (1): (2016) 69-81

Original Scientific Paper

Distribution of the genus *Galanthus* L. (Amaryllidaceae) in Serbia

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ABSTRACT: The distribution of species from the genus *Galanthus* in Serbia is presented, and notes on their taxonomy and ecology are given in the paper. To date, only two species from the genus are known to be present, namely *G. nivalis* and *G. elwesii.* Further research on delimitation of the taxa occurring in Serbia is needed.

Keywords: *Galanthus*, Serbia, distribution, ecology, taxonomy

Received: 07 August 2014 Revision accepted: 29 January 2016

UDC: 582.573.21:581.5(497.11)
DOI: 10.5281/zenodo.48864

INTRODUCTION

The genus *Galanthus* L. (Amaryllidaceae) comprises 21 species of bulbous, petaloid monocotyledonous plants native in Europe, Asia Minor and the Near East (Tan *et al.* 2014). The centres of species diversity are found in Greece and regions adjacent to the Balkans, Turkey and the Caucasus (Bishop *et al.* 2006). Species of the genus *Galanthus* commonly occur in woodland, forests or other places where the local environment is favourable (i.e., cool locations with plenty of water available during the growing season) (Davis 1999). The altitude range of the genus extends from sea level to about 2700 m, but the majority of species occur at altitudes above 1000 m (Bishop *et al.* 2006). Plants of the genus usually grow on fertile, base-rich soils, on limestone or on other calcareous substrates (Davis 1999). They rank among the finest of garden plants and have long been used for pharmaceutical purposes due to their content of bioactive compounds (e.g., galanthamine).

Despite the existence of an extensive literature on *Galanthus* (e.g., Bishop *et al.* 2006), taxonomy of the genus is still considered to be problematical (Zonneveled *et al.* 2003). In previous systematic treatments, there is considerable disagreement as to the number of species and division of the genus. Species of the genus *Galanthus* are difficult to distinguish and classify because of a lack of clearly definable morphological characters and the presence of great variability (Davis & Barnett 1997). Delimitation of the species has been mainly based on leaf characteristics (colour, width, vernation), flowering time, the number of green marks on inner perianth segments and distribution (Zonneveled *et al.* 2003). Numerous studies have been conducted in the past few decades in order to find systematically informative data. Besides comparative morphological investigations, karyological (Kamari 1981; Kandemir 2010), anatomical (Davis & Barnett 1997), phytochemical (Berkov *et al.* 2008) and molecular (Zonneveled *et al.* 2003) data have been used to clarify complex taxonomical issues within this genus.

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Along with taxonomic research, many regional accounts of the genus *Galanthus* have been published, including ones for Europe (Webb 1978), Greece (Artjushenko 1974; Kamari 1981, 1982), Bulgaria (Delipavlov 1971) and Turkey (Brickell 1984; Zeybek 1988; Zeybek & Sauer 1995; Davis 2001). The most notable chorological works on *Galanthus* in the Balkans were those of Hayek (1933) and Delipawlow & Angeliew (1970). However, the genus has been insufficiently investigated in Serbia. The most comprehensive investigation was carried out by Petković *et al.* (1982). Prior to this study, excluding the treatment in *The Flora of FR Serbia* (Stjepanović-Veseličić 1975), a number of other authors also mentioned the genus (Pančić 1856, 1874, 1882; Godra 1872; Petrović 1882; Ničić 1894; Zorkóczy 1896; Adamović 1898, 1901, 1909, 1911; Fritsch 1909; Wagner 1914; Prodan 1915), but none of them attempted to define its distribution in Serbia. Additionally, due to the different approaches and difficulties in classification of the genus, the actual patterns of its diversity and distribution have remained uncertain. Thus, a new study of the genus *Galanthus* in Serbia became necessary.

MATERIAL AND METHODS

The present study of the genus *Galanthus* in Serbia is based on field investigations and herbarium specimen analysis conducted between 2012 and 2014. Also, all relevant literature data were assembled and checked for additional information on the distribution, ecology and taxonomy of the genus.

Revision of herbaria was performed at the Herbarium of the Institute of Botany and Botanical Garden "Jevremovac", University of Belgrade (BEOU); the General Herbarium of the Natural History Museum in Belgrade (BEO); the Herbarium of the Department of Biology and Ecology, Faculty of Natural Sciences and Mathematics, University of Novi Sad (BUNS); and the Herbarium of the Faculty of Forestry, University of Belgrade (unregistered, in this paper referred to as SFB). The digital version of the Herbarium of the Royal Botanic Gardens, Kew (K) (abbreviations after THIERS 2015) was also used (http://apps.kew.org/herbcat/navigator.do).

Collected plant material was identified using the keys proposed by Davis (1999) and Bishop *et al.* (2006) and the amended key created for *Galanthus* in Serbia (Jovanović *et al.* 2012). Voucher specimens were deposited in BEOU, while duplicates are stored in SFB. Distribution of the species is mapped on 10 x 10 sq. km using a UTM grid system (UTM Zone 34T) (Lampinen 2001) and minutely listed in Appendix I-A (http://botanicaserbica.bio.bg.ac.rs). Floristic regionalization of the territory of Serbia was adopted after Stevanović (1992). The nomenclature is given according to Euro+Med PlantBase (http://www.emplantbase.org/home.html).

RESULTS AND DISCUSSION

The latest field investigations, herbarium studies and relevant literature data revealed that there are two species of the genus *Galanthus* in the flora of Serbia, specifically *G. nivalis* L. and *G. elwesii* Hook. These species can be identified using the following taxonomic key.

DIAGNOSTIC KEY TO SPECIES OF THE GENUS *GALANTHUS* L. IN SERBIA (after Jovanović *et al.* 2012, modified)

Leaves applanate in vernation, usually less than 1.5 cm in width, straight and erect or somewhat recurved to almost prostrate at maturity, green to glaucous but usually glaucescent in colour; inner perianth segments with one adaxial green apical mark . . . . . ***G. nivalis*** (Fig. 3a)
Leaves supervolute in vernation, 0.5-3.5 cm wide, straight or slightly twisted to twisted and erect at maturity, glaucous or infrequently matt green; inner perianth segments with two distinct green adaxial marks, one basal and one apical, sometimes joined in one large ± X-shaped . . . . . ***G. elwesii*** (Fig. 3b)

Distribution of *G. nivalis* in Serbia (Fig. 1; App. I-A1): In Serbia, *G. nivalis* was first recorded by Pančić (1856, 1874, 1882). It is a more common species than *G. elwesii* in Serbia and has been recorded in all regions of the country, confirming Stjepanović-Veseličić (1975). The northernmost and the westernmost localities are in the Bačka region, the easternmost point is situated in the vicinity of Dimitrovgrad, while the southernmost limit of its distribution is in Metohija (Šar-Planina Mts.). However, many of the records are not confirmed by the latest field survey, and some populations of the species are either very sparse or extinct (Žeravinac and Blata, near Šid; Topčider and Košutnjak, near Belgrade; Bukovo Reserve, near Negotin, etc.). In addition, the record from Mt. Vidlič (Marković *et al.* 2010) may be erroneous, since only *G. elwesii* was found at this locality.

Galanthus nivalis in Serbia is recorded in various forest communities, especially in beech forests. It also occurs near rivers or streams, on rocky slopes, and (rarely) in meadows. The species predominantly resides on calcareous substrates, such as limestone, but it is also found on igneous rocks (granite, granodiorite and andesite) and metamorphic rocks (marble). It commonly grows on deep fertile soils but is also encountered on alluvial deposits and sand. The altitude range of the species in Serbia extends from about 70 m to above 2100 m, but it more commonly occurs at over 500 m.

Besides the typical form, a number of other varieties and forms of *G. nivalis* have also been recorded in Serbia, particularly in the province of Vojvodina (Božа 1979; Božа & Obradović 1980; Obradović & Božа 1985; Božа & Vasić 1986; Radić 2000) (App. I-B1). According

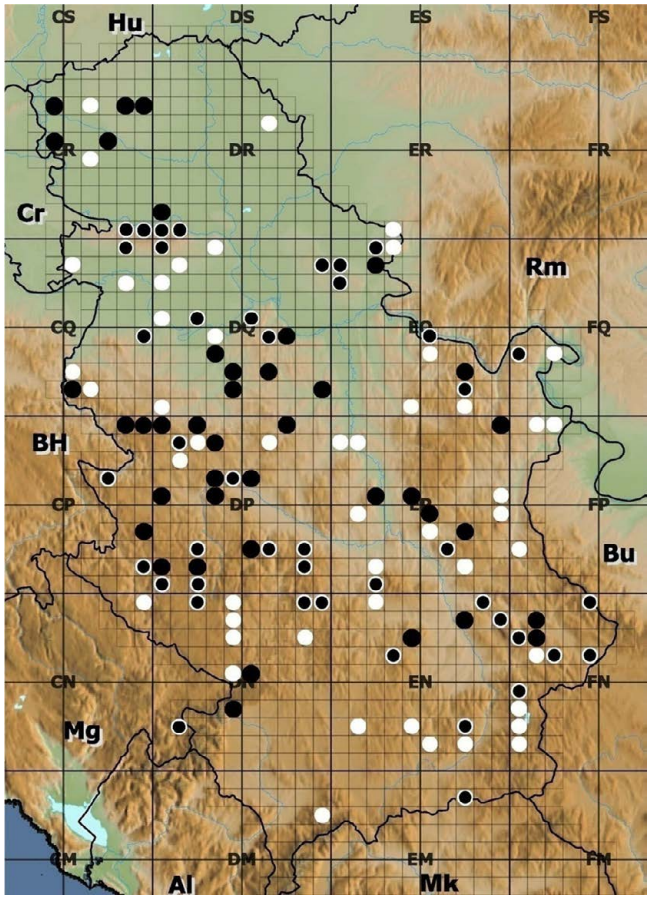

Figure 1. Distribution of *G. nivalis* in Serbia: ● – new or unpublished chorological data; ◙ – both literature and herbarium data; ○ – literature data.

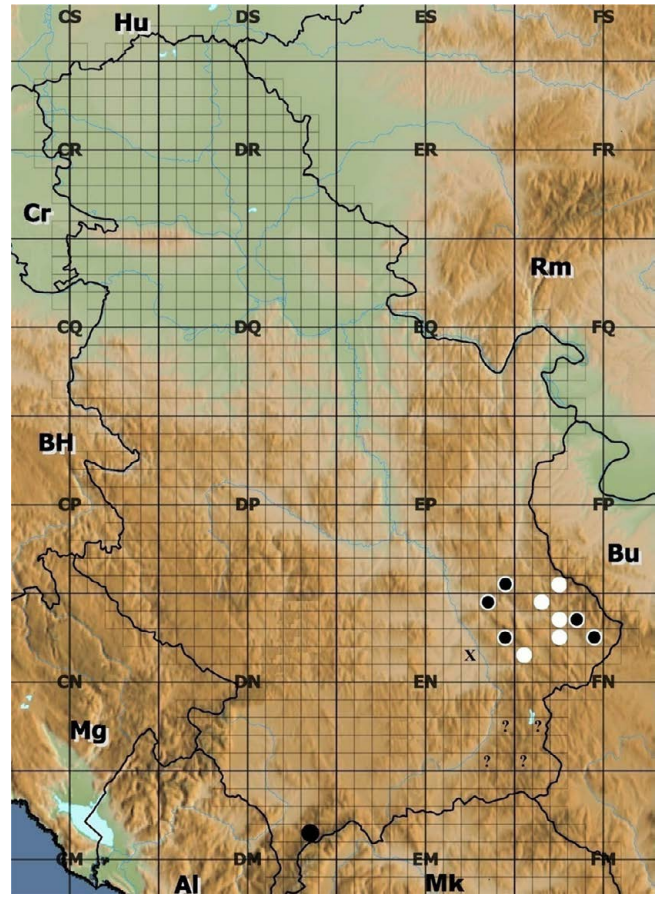

Figure 2. Distribution of *G. elwesii* in Serbia: ● – new or unpublished chorological data; ◙ – both literature and herbarium data; ○ – literature data; ? – doubtful data; X – erroneous data.

Figure 3. Species of the genus *Galanthus* in Serbia: **a –** *G. nivalis* [Mt. Belava, Debeli Del]; **b –** *G. elwesii* [vicinity of Pirot, Crni Vrh]; **c –** narrow-leaved variant of *G. elwesii* [Sićevo Gorge, Kusača].

to the updated classification of the genus (Davis 1999; Bishop *et al.* 2006), no infraspecific taxa are currently recognised for this species. However, with further research, it is possible that some infraspecific taxa will be recognised (Bishop *et al.* 2006). For instance, the remark made by Fritsch (1909) that two specimens of material collected in southern Serbia possessed certain features of *G. plicatus* M. Bieb. needs to be thoroughly checked out.

Distribution of *G. elwesii* in Serbia (Fig. 2; App. I-A2): In Serbia, *G. elwesii* was first reported by Adamović (1898, 1901, 1909, 1911) under the name *G. maximus* Velen., although it had been spotted by Pančić and tentatively named *Galanthus grandiflorus* (BEOU! 1879) nearly two decades before. Stjepanović-Veseličić (1975) listed it as *G. graecus* Orph. ex Boiss. Very narrowly distributed in Serbia, it is mostly found in the eastern part of the country, as a continuation of the distribution in Bulgaria.

The record of *G. graecus* from Prokuplje (Petković *et al.* 1982) is probably erroneous, considering that only *G. nivalis* was found in the vicinity of Brestovac. Additionally, no populations of *G. maximus* were recorded on Mt. Belava, Sarlah Hill or Božurato Hill near Pirot (Adamović 1901, 1911) during a recent field survey. The chorological data on *G. graecus* from Vlasina, southeast Serbia (Petković *et al.* 1982), are considered doubtful, given that they are: (1) inconsistent with related literature data (Košanin 1910; Jovanović & Niketić 1991; Ranđelović & Zlatković 2010); (2) not confirmed by the latest field survey; and (3) without matching herbarium specimens in BEOU, BEO, BUNS or SFB to support them.

Galanthus elwesii in Serbia has been recorded in oak forests and in upland calcareous meadows (Petković *et al.* 1982), as well as among bushes, in pastures and among rocks from 400 m to 1300 m a.s.l. (Adamović 1901, 1909; Fritsch 1909; Adamović 1911), but it is more common on slopes, in sinkholes and in montane beech forests (ass. *Fagetum montanum s. l.*) at altitudes above 1000 m.

Galanthus elwesii var. *maximus* (Velen.) Beck, which has been reported in Serbia by several authors (*see* App. I-B2), is considered to be indistinguishable from *G. elwesii* var. *elwesii* (Webb 1978). However, in accordance with observations made in Greece (Kamari 1981, 1982; Davis 1999), populations of *G. elwesii* in Serbia display different patterns of variation, including morphological features (leaves twisted, vernation variable) that have been used by Stern (1956), Artjushenko (1970) and Delipavlov (1971) as characters for recognition of *G. elwesii* var. *maximus*. Moreover, based on morphological, ecological and molecular data, Rønsted *et al.* (2013) argued that, compared with its Turkish representatives, *G. elwesii* occurring in Europe may represent not only a distinct taxon, but even a separate species.

Galanthus gracilis Čelak. has also been indicated for the territory of Serbia (namely southwest Serbia, Kosovo, Metohija) (Adamović 1909). However, this record probably refers to *G. elwesii*. In Stjepanović-Veseličić (1975), it was erroneously listed as a synonym for *G. graecus* (=*G. elwesii*), probably as a result of the accepted taxonomy (Stern 1956; Artjushenko 1970) or owing to the fact that the leaf vernation type was not included in description of the taxon. Furthermore, in conformity with the criteria proposed by Brickell (1984), the population from eastern Serbia (Kusača, Sićevo Gorge), which was initially identified as *G. gracilis* (Jovanović *et al.* 2012), is now revised as a narrow-leaved variant of *G. elwesii*. It resembles *G. gracilis* in almost all morphological features except leaf vernation, which is inconspicuously supervolute, and can be determined correctly during the first few weeks of development, taking into account only mature specimens (Fig. 3c). The population in question was found in ass. *Carpino orientalis-Quercetum mixtum*, in shrubs, among rocks and in short grass at altitudes above 750 m (Jovanović *et al.* 2012). Similar populations have also been recorded in Greece (Lafranchis & Sfikas 2009), and further knowledge of boundaries of the species' distribution may lead to some taxonomic revisions.

CONCLUSIONS

Based on recent field investigations, herbarium studies and relevant literature data, it can be concluded that the genus *Galanthus* is represented by two species in Serbia, namely *G. nivalis* and *G. elwesii*. The species *G. nivalis* has a large distribution, while *G. elwesii* is only locally distributed in Serbia.

Galanthus nivalis is found in all regions of Serbia, in various forest communities ranging in altitude from 70 m to over 2100 m. It usually grows on deep fertile soils or on limestone, but is also encountered on alluvial deposits, sand, granite, granodiorite, andesite and marble.

Galanthus elwesii has a pattern of distribution different from that previously stated. It is mostly found in eastern Serbia (Pirot and the vicinity of Niš). Although it has been recorded in oak forests, upland calcareous meadows, bushes, pastures and rocky habitats at altitudes ranging from 400 m to 1300 m a.s.l., it in fact primarily occurs in montane beech forests (ass. *Fagetum montanum s. l.*), at altitudes above 1000 m.

In addition, a population of a narrow-leaved variant of *G. elwesii* was recently recorded in Serbia. It is currently known only from a single locality situated in the vicinity of Niš in the eastern part of the country (Sićevo Gorge) at altitudes above 750 m.

Finally, the taxonomic status of the *G. graecus* complex (the narrow-leaved variant of *G. elwesii*), *G. elwesii* var. *maximus* and certain atypical populations of

G. nivalis reported from Serbia will need to be revised in keeping with the results of future investigations.

Acknowledgements – The authors also acknowledge financial support provided by the Serbian Ministry of Science and Technological Development (Project No. 173030). Also, we are sincerely grateful to Marko Dragojlović, Aleksandar Vlainić, Slavko Jovanović and Bojan Zlatković for their assistance during the field research and literature assembling stage.

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REZIME

Rasprostranjenje roda *Galanthus* L. (Amaryllidaceae) u Srbiji

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U radu se navode podaci o distribuciji, taksonomiji i ekologiji vrsta roda *Galanthus* u Srbiji. Do sada su u Srbiji konstatovane dve vrste: *G. nivalis* i *G. elwesii*. Neophodna su dalja istraživanja da bi se jasno definisali odnosi između taksona u okviru ovoga roda.

Ključne reči: *Galanthus*, Srbija, rasprostranjenje, ekologija, taksonomija

APPENDIX I – Chorological data on the genus Galanthus in Serbia

A. CHOROLOGICAL DATA ON *GALANTHUS* SPECIES IN SERBIA ARRANGED BY FLORISTIC REGIONS

1.Distribution of *G. nivalis* in Serbia

BANAT: **Kikinda**, surroundings – DR66 (Petković *et al.* 1982); **Vršac**, surroundings – EQ29 (op. cit.); **Vršac Mountains**: Gudurički Vrh – ER30, deciduous woodland (Sučević 1962; Panjković-Matanović 1989), ass. *Rusco aculeati-Querco-Carpinetum*, SW, 18°, 280 m; ass.*Carici pilosae-Querco-Carpinetum*, N0, 15°, 260 m(Pekanović 1991); Vršački Vrh – EQ29, ass.*Aceri-Fraxinetum excelsioris*, SW, 18-22°, 340-360 m; ass. *Poo nemoralis-Quercetum policarpae,* SO, 5-22°, 220 m; ass. *Tilio-Fagetum submontanum* subass. *ranunculetosus cassubici*, NO-N, 20-23°, 280-580 m; ass. *Carici pilosae-Querco-Carpinetum*, SW-W, 18-23°, 360-380 m (op. cit.); Kula – EQ29, ass. *Orno-Quercetum petraeae*, SO, 20°, 320 m (op. cit.); Đakov Vrh – EQ29, slopes, oak and sycamore woods, 373 m (leg. *Jovanović F.*, *16792*, 20.04.2013, BEOU!); Široko Bilo – EQ29, deciduous woodland (Sučević 1962; Panjković-Matanović 1989), ass. *Carici pilosae-Querco-Carpinetum*, SO, 18°, 190 m (Pekanović 1991); Mesić – EQ39, ass. *Carici pilosae-Querco-Carpinetum*, NO-N-W, 12-18°, 230-280 m(op. cit.); Sočica – EQ39, ass. *Carpino betuli-Quercetum frainetto-cerris* subass. *ornetosum*, SO, 30°, 190 m (op. cit.); Kuštilj – EQ28, mesophilic forests (Seležan 1975; leg. *Seležan S.*, *2791*, 18.03.1973, BUNS!); **Deliblato Sands** (Boža & Vasić 1986, sub. *G. nivalis* f. *major* Ten.), ass. *Querceto-Tilietum tomentosae* (Purić 1984); Devojački Bunar – DQ98 (Panjković 1977), linden and oak forest (*Stevanović V.pers. comm.*); Rošijana – EQ08 (Wagner 1914), linden forest (leg. *Veselinović*, *40807*, 05.04.1950, BEOU!); Palošće: Tilva-Vakarec – EQ08, sand dune slope, ass. *Quercetosum pubescentis*, N-NO, 15-20° (Stjepanović-Veseličić 1953); Tilva – EQ08, flat valley, ass. *Quercetosum pubescentis* (op. cit.); Pluc – EQ08, sand dune slope, ass. *Quercetosum pubescentis*, N-NO, 10° (op. cit.); Šušara – EQ07 (leg. *Sigunov A.& Diklić N.*, *s.n.*, 21.03.1973, BEO!).

BAČKA: **Sombor**: Kozara – CR47 (Vajgand 1965); Čonoplja – CR67 (Igić 1991; Petković *et al.* 1982, *distrib. map 2*), roadside (Grdinić 1996); **Bačka Topola** – CR97(Igić 1991); Bajša-Srednji Salaš – CR87, near a black locust forest (Boža 1976); **Apatin**, periphery – CR45 (leg. *Perić R.*, *2783*, 20.02.1999, BUNS); **Kula**: Kruščić – CR75 (Grdinić 1996); **Odžaci**: Srpski Miletić – CR64 (Petković *et al.* 1982, *distrib. map 2*), meadow (Grdinić 1996).

SREM: **Novi Sad**: Telep – DR01, meadow (Stanković 1993); Rumenka – DR01, grove (Ujhelji 2005; leg. *Ujhelji S.*, *2784*, 03.03.2004, BUNS!); **Mt. Fruška Gora** (Petković *et al.* 1982; Davis 1999, *distrib. map 1*); Čotovi – CR80 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1998, det. *Boža P.&Radić J.*, BUNS!); Venac – CR80 (ibid.); Susek: Ševinac – CR80, groves (Bugarski 1979; leg. *Bugarski V.*, *2790*, 17.03.1975, BUNS!); Čerević – CR90 (Zorkóczy 1896); Trešnjevac, Ravan – CR90 (*Vjerg B.pers. comm.*); Crveni Čot – CR90 (Radić 2000; leg. *Obradović M.*, *2782*, 12.03.1975, BUNS!; leg. *Radić J.*, *s.n.*, 01.03.1997, det. *Boža P.&Radić J.*, BUNS!); Jabuka – CR90 (op. cit.; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!); Letenka, Kosmatica – CR90 (ibid.); Osovlje – CR90 (ibid.; leg. *Obradović M.*, *2776*, 05.1963, BUNS!); Andrevlje – CR90 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1998, det. *Boža P.&Radić J.*, BUNS!); Papratski Do – CR90 (ibid.); Norcev – CR90, maple and linden forest, 500-560 m (leg. *Jovanović F.*, *16786*, 03.05.2012, BEOU!); Veliki Čot-Crni Čot – DR00(Erdeši 1971), ass. *Tilio-Fagetum submontanum*, SW, 15-30°, 205 m (Janković & Mišić 1980); Crni Čot – DR00, ass. *Tilio-Fagetum submontanum*, N-NE, 10-15°, 400-450 m (op. cit.); Veliki Potok – DR00, ass. *Chrysoplenio-Carpinetum betuli*, alluvial deposits, N-NW, 1-4°, 220 m (op. cit.); Kamenjarski Potok – DR00, ass. *Chrysoplenio-Carpinetum betuli*, alluvial deposits, E-NW, 1-4°, 230 m (op. cit.); Ledinci, Rakovac, Sremska Kamenica, Beočin – DR00 (Zorkóczy 1896); Beočin monastery – DR00 (Boža & Obradović 1980); Popovica – DR00 (Obradović 1966), forest (leg. *Savić D.*, *2794*, 25.02.1990, BUNS!); Paragovo – DR00 (op. cit.;Boža & Obradović 1980; Obradović & Boža 1985; Radić 2000; leg. *Radić J.*, *s.n.*, 23.02.1997, det. *Boža P.&Radić J.*, BUNS!); Rajkovac – DR00(Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.& Radić J.*, BUNS!); Anatema, Isin Čot, Glavica, Zmajevac, Široki Do, Elektrovojvodina –DR00 (ibid.); Bukovac, Sremski Karlovci – DR10 (Zorkóczy 1896; Butorac 1981); Čortanovci – DR10 (Obradović 1966), near the railway (Butorac 1981), forest (leg. *Butorac B.*, *2786*, 19.02.1975), meadow (leg. *Butorac B.*, *2785*, 04.04.1976, BUNS!); Velika Remeta – DR10 (Radić 2000; leg. *Radić J.*, *s.n.*, 15.03.1997, det. *Boža P. &Radić J.*, BUNS!); Ignjatov Hrast, Kusak – DR10 (ibid.); Stražilovo – DR10 (ibid.; Obradović 1966; leg.*Obradović M.*, *2777*, 22.04.1971, BUNS!), slopes, mesophilic forests (Butorac 1981); Vučedol – CQ89 (Radić 2000; leg. *Obradović M.*, *2781*,16.03.1975, BUNS!); Lipov Potok – DQ09, ass. *Chrysoplenio-Carpinetum betuli*, alluvial deposits, SE, 1-4°, 200-230 m (Janković & Mišić 1980); Iriški Venac – DQ09 (Obradović 1966; Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!); Mala Remeta – DQ09 (Radić 2000; leg. *Obradović M.*, *2775*, 18.03.1972, BUNS!), streamside (leg. *Boža P.*, *2778*, 03.1974, sub. *G.. n.* f. *biscapus* Beck, BUNS!, rev. *Jovanović F.*, 19.06.2013); Vrdnik – DQ09, forest (Kotur 2010); DQ39, DQ18

(Petkovićet al. 1982, *distrib. map 2*); **Ruma**: Jarak – DQ07, Klenak-Vitojevci – DQ05 (Godra 1872); **Šid**: Morović: Žeravinac, Blata – CQ58, pedunculate oak forests (Gajić & Karadžić 1991); **Obedska Pond**: Kupinovo, forests – DQ25 (Acević 1976; leg. *Acević N.*, *2793*, 26.01.1973, BUNS!); Kupinske Grede – DQ25, pedunculate oak forests (Gajić & Karadžić 1991); Plandište – DQ25, ass. *Saliceto cinereae-Fraxinetum angustifoliae*, 72 m (leg. *Jovanović F.*, *16796*, 02.05.2013, BEOU!).

ŠUMADIJA: **Belgrade**, surroundings – DQ55 (Pančić 1882; Petkovićet al. 1982, *distrib. map 2*); Topčider – DQ55 (Pančić 1856; leg. *Pančić J.*, *12224*, 03.1839, BEOU!); Košutnjak – DQ55, pedunculate oak and hornbeam forests (Ilićet al. 1972); **Mt. Avala** – DQ64 (leg. *Soška Th.*, *40830*, 03.1929, BEOU!; leg. *Sigunov A.*, *s.n.*, 27.03.1955, BEO!), beech forests (Obratov-Petković & Đukić 2000); Čarapićev Brest,forest management section 22 – DQ 64, ass. *Fagetum montanum tilietosum* (leg. *ObratovD.*, *s.n.*, 16.03.1984, SFB!), slopes and streamsides, metamorphosed limestone, 300-455 m (leg. *Jovanović F.*, *16789*, 03.03.2013, BEOU!); **Grocka**, surroundings – DQ74, forests and coppices, wet habitats (Spasić 2008); **Lazarevac**: Vreoci-Skobalj – DQ42, *Quercus robur* woods, alluvial deposits, 90-120 m (leg. *Stojković N.&Stojković S.*, *45240*, 22.03.2010, BEOU!); Šopić – DQ41, *Q. robur* woods, alluvial deposits, 100 m (leg. *Stojković N.*, *Stojković S. &Koprivica A.*, *45242*, 20.03.2010, BEOU!); **Mt. Kosmaj**, near the top – DQ62, slopes, ass. *Fagetum montanum*, metamorphosed limestone, 515-517 m (leg. *Jovanović F.*, *16798*, 30.04.2013, BEOU!); **Smederevska Palanka**: Glibovac – DQ91, forest (leg. *Tomić A.*, *40812*, 24.03.1992, BEOU!); **Topola**: Božurnja: Bokonje – DP79 (leg. *Niketić M.*, *Vukojičić S.*, *Tomović G. & Lazarević P.*, *22594*, 10.04.2004, BEOU!); **Mt. Rudnik**, subalpine region – DP68 (Fritsch 1909); **Mt. Vujan**: Banja – DP56, ass. *Fagetum submontanum*, limestone, 421 m (leg. *Lakušić D.*, *Vukojičić S.*, *Kuzmanović N. &Buzurović U.*, *39209*, 12.04.2013, sub. *Galanthus*, BEOU!, rev. *Jovanović F.*, 29.05.2013); EP14 (Petkovićet al. 1982, *distrib. map2*).

POMORAVLJE: **Petrovac** (Mlava river): Gornjak gorge: Gornjak monastery – EQ40, foothill of a slope, ass. *Fagetum submontanum mixtum syringetosum*, E, 5-15° (Mišić 1981);**Kragujevac**, surroundings – EP08 (Petković *et al.* 1982, *distrib. map 2*), forests (Pančić 1856); **Batočina**: Brzan – EP18 (Fritsch 1909); **Mt. Juhor**: Gluvać, Kurule, Dobra Voda, Crna Grača – EP25, beech forests, 200-300 m (Korać 1979); **Mt. Baba** – EP45, limestone, 400-650 m (leg. *Niketić M.& Tomović G.*, *19514*, 24.04.2005, BEOU!); **Mt. Bukovik**:Mratinja: Magareći Samar – EP54, ass. *Fagetum moesiacae submontanum*, eutric and acidic brown soils on sand,570-670 m (*Živanović A. pers. comm.*).

NE SERBIA: **Đerdap gorge** (Petrićet *al.* 2010); Golubac fortress, near the quarry – EQ54 (leg. *Nikolić V.& Diklić N.*, *s.n.*, 19.04.1968, BEO!); EQ53 (Petkovićet *al.* 1982, *distrib. map 2*); Mt. Miroč: Veliki Štrbac – FQ03 (leg. *Nikolić V.& Diklić N.*, *s.n.*, 25.04.1968, BEO!); FQ23 (Petkovićet *al.* 1982, *distrib. map 2*); **Majdanpek** (leg. *?*, *40820*, 1924, BEOU!); Rajkovo – EQ72 (leg. *Sigunov A.*, *s.n.*, 03.04.1959, BEO!), ridge, ass. *Fagetum submontanum*, limestone, 719 m (*Vrljanović S. pers. comm.*); Valja Saka – EQ72, depression,ass. *Fagetum submontanum*, limestone, 482 m (ibid.); Valja Fundata, near Pek – EQ71 (leg. *Sigunov A.*, *40820*, 16.03.1948, BEOU!); Majdanpečka Domena: Debeli Lug – EQ71, sessile oak and hornbeam forests, ash and maple forests, beech forests (Gajić 1985); EQ70 (Petkovićet *al.* 1982, *distrib. map 2*); **Bor**: Mt. Stol – EP99, slopes and ravines, beech and maple forest, limestone, 900-1110 m (leg. *Jovanović F.*, *16800*, 22.05.2013, BEOU!); **Negotin**, surroundings – FP19 (Petkovićet *al.* 1982); Bukovo, near the monastery – FP29, ass. *Fagetum submontanum silicicolum mixtum juglandetosum* (Mišić 1981); EP95 (Petkovićet *al.* 1982, *distrib. map 2*)**; Mt. Tupižnica** – EP94, montane forests (Fritsch 1909).

NW SERBIA: **Sremska Mitrovica**: Noćaj: Preska – CQ87 (Erdeši & Janjatović 2001); **Šabac**, surroundings – CQ94 (Petkovićet *al.* 1982, *distrib. map 2*), mesophilic forests (Đurić 1989), forests and coppices, wet habitats (Janković 1997; leg. *Janković M.*, *2795*,1997, BUNS!); **Obrenovac**: Veliko Polje: Jožića Kolibe – DQ34 (Veselinovićet *al.*2010); Čekićeva Šuma – DQ33, ass. *Querceto-Carpinetum* (leg. *Stevanović V.*, *Vukojičić S.*, *Jovanović S. &Lakušić D.*, *4905*, 12.03.1997, BEOU!), alluvium deposits, 75-80 m (leg. *Simeunović B.*, *45241*, 24.03.2010, BEOU!);**Mt. Gučevo** – CQ52 (Stojanović & Stevanović 2008); Gavrića Potok – CQ52, ass. *Quercetum frainetto-cerris* (Mitrović 2006); Đokići – CQ52, *Fagetum moesiacae submontanum* (op. cit.); Velika Ravan-Crni Vrh – CQ52, *Fagetum moesiacae submontanum* (op. cit.); Peratovac – CQ52, *Fagetum moesiacae submontanum*(op. cit.); **Mt. Boranja**: Radalj – CQ51 (leg. *Sigunov A.*, *s.n.*, 14.06.1980, BEO!); **Loznica**, surroundings – CQ61 (Petkovićet *al.* 1982); DQ00 (op. cit., *distrib. map 2*); **Mt. Jablanik**, near the mountain lodge – CP99, slopes, forests, N (leg. *Nikolić V.&Diklić N.*, *s.n.*, 25.03.1954, BEO!); Stabulja, near the road – CP99 (ibid.); **Mt. Medvednik**– CP99, plateau and slopes, beech forest, S (ibid.); **Mt. Bobija**: Tornička Bobija – CP89 (*Stamenković G. photo*); **Mt**. **Kapetanica** (Sušica river) – DP09, beech forest (Božić 1997); **Ribnica gorge**: Mionica: Paštrić – DP29, limestone (leg. *Niketić M.& Tomović G.*, *26643*, 29.03.2008, BEOU!); **Mt. Maljen**: Ožanj – DP18, ass. *Quercetum montanum* subass. *brachypodietosum*, S, 20°, 890 m (Karadžić 1994); **Mt. Divčibare**: Bukovska Reka – DP18 (*Stamenković G. photo*).

C SERBIA: **Mt. Goč**, beech and fir forests (Gajić 1984); Savin Laz, Crni Vrh, Prerovo, Bela Reka – DP82, DP81 (*Vlainić A.pers. comm.*); Trivunački Potok – DP81, 900-

1000 m (leg. *Jovanović F.*, *16788*, 12.05.2012, BEOU!); **Mt. Veliki Jastrebac** – EP20 (Petkovićet al. 1982); the north face – EP21, pedunculate oak and hornbeam forests, sessile oak and hornbeam forests, beech forests, beech and fir forests (Gajićet al. 1992); Lomnička Reka: Ravnište-Prokop – EP20, streamsides, ass. *Fagetum moesiacae montanum*, ass. *Betulo-Fagetum moesiacae montanum*, granodiorite, 600-635 m (leg. *Jovanović F.*, *16790*, 25.04.2013, BEOU!); **Mt. Kopaonik** (Lakušić 1996), foothill-tree line level, beech forests, beech and spruce forests (Lakušić 1995);Brzeće: Jelak – DN99, slopes and gullies, >1250 m (leg. *Jovanović F.*, *16785*, 27.05.2012, BEOU!); Lisinska Reka-mountain lodge – DN89, beech and spruce forest (ass. *Fageto-Abietetum*) (leg.*?*, *40810*, 23.04, BEOU!); Novoselske Bačije – DN89, spruce forests (ass. *Piceto-Abietis* subass. *moesiacum fagetosum subalpinae*), subalpine beech forests (ass. *Fagetum subalpinum*),granite, c. 1600 m (leg. *Lakušić D.*, *45244*, 23.03.1989, BEOU!); **Blace**, surroundings – EN29 (Perišićet al. 2004); **Prokuplje**: Mt. Vidojevica – EN47, slope, beech forest, 1135-1137 m (leg. *Jovanović F.*, *16797*, 09.05.2013, BEOU!).

E SERBIA: **Mt. Rtanj** – EP53 (Petkovićet al. 1982); **Soko Banja**, surroundings – EP71 (op. cit.); Janior – EP73 (leg. *Antonijević R.*, *40825*, 26.02.1957, BEOU!); **Mt. Devica**: Dugo Polje – EP73, ass. *Fagetum submontanum*,eutric and acidic brown soils, rendsina, 675-685 m (*Živanović A. pers. comm.*); **Mt. Ozren** – EP62, ass. *Carpinetum orientalis* (leg. *Nikolić V.& Diklić N.*, *s.n.*, 19.05.1957, BEO!); Jermenčić – EP62, slopes, 595 m (leg. *Jovanović F.*, *16781*, 26.04.2013, BEOU!); **Mt. Leskovik**: Sveti Stefan river – EP62 (Ranđelovićet al. 2005); the top – EP62, spruce and scots pine plantations, beech and hawthorn groves, 1031 m (leg. *Jovanović F.*, *16780*, 26.04.2013, BEOU!); **Knjaževac**, surroundings – FP02, shrubs, forests (Fritsch 1909); **Niš**, surroundings – EN89 (Petrović 1882; Petkovićet al. 1982, *distrib. map 2*; leg. *Pančić J.*, *12228*, 1879, BEOU!); **Niška Banja** – EN89(leg.*?*, *40814*, 03.1910, BEOU!); Banjsko Brdo – EN89, slope, ass. *Carpinetum orientalis*, limestone, 400 m (leg. *Jovanović F.*, *16793*, 28.03.2012, BEOU!); **Mt. Stara Planina** (Ivančević *et al.* 2007), foothills (Adamović 1911); Dojkinci: Jasenovo Lice – FN49, slopes, streamsides, 1120 m (*Ćirković M.pers. comm.*); **Mt. Seličevica** – EN78 (*Stamenković G. photo*); **Mt. Suva Planina** (Petrović 1882; Jovanović 1980); Bojanine Vode-Sokolov Kamen – EN98, slope, beech forest, limestone, 1100 m (leg. *Jovanović F.*, *16794*, 08.05.2013, BEOU!); Rakoš – FN07 (Adamović 1911); Malo Konjsko-Smrdan – FN07, pastures, beech forest, limestone, 1280-1400 m (leg. *Jovanović F.*, *16882*, 10.05.2014, BEOU!); Divljana – FN07, beech forest, >700 m (*Jovanović F.field obs.*); **Mt. Belava**: Petar: Debeli Del – FN18, sinkholes and slopes, beech forest, limestone, 890-905 m (leg. *Jovanović F.*, *16791*, 30.03.2013, BEOU!); **Mt. Šljivovički Vis**: Gornja Koritnica-Šljivovik – FN17, wet habitats, ass. *Quercetum frainetto cerris*, limestone, 600 m (leg. *Jušković M.*, *Ranđelović V. & Zlatković B.*, *45245*, 30.05.2002, BEOU!), ass. *Querco-Carpinetum orientalis serbicum*, limestone, 600-800 m (leg. *Jušković M. & Jušković I.*, *45246*, 14.05.2005, BEOU!); FN16 (Petkovićet al. 1982, *distrib. map 2*); **Babušnica**: Mt. Golemi Stol: Kijevac – FN26, slopes and streamsides, beech forest, 990-1000 m (leg. *Jovanović F.*, *16795*, 08.04.2013, BEOU!); **Mt. Vlaška Planina** – FN26, forests (Markovićet al. 2010); Dimitrovgrad-Zvonce – FN26, roadside (*Zlatković B. pers. comm.*); **Mt. Vidlič** – FN46, forests (Markovićet al. 2010); Dimitrovgrad – FN46 (leg. *Simonović D.*, *40815*, 22.02.1929, BEOU!).

S SERBIA: **Kuršumlija**: Prolom Banja: Banjski Vis – EN36 (leg. *Ilić Đ.*, *40803*, 03, BEOU!); **Mt. Sokolovica**: Ravan-Aleksino Brdo – EN36, ass. *Fagetum moesiacae montanum*, andesite, 850 m (Tomovićet al. 2005; leg. *Tomović G.& Niketić M.*, *45239*, 03.04.1998, BEOU!); **Mt. Radan**: Vlasovo: Gajtan – EN36, slopes and streamsides, beech forest, 1190-1195 m (leg. *Jovanović F.*, *16799*, 18.05.2013, BEOU!); **Mt. Oblik**: Sikirje, Drenovac – EN72 (Petkovićet al. 1982, *distrib. map 2*; *Petrović M. pers. comm.*); **Vranje**, surroundings, forests (Ničić 1894), dry rocky places and cracks on hills (Adamović 1909); Markovo Kale – EN71, forests (Fritsch 1909).

W SERBIA: **Mt. Maljen**: Bare – DP28, ass. *Quercetum montanum* subass. *brachypodietosum*, S-E, 15-20°, 800-830 m (Karadžić 1994); Veliko Okolište– DP17, plateau, ass. *Potentilletosum albae*, 750 m (op. cit.); **Mt.Suvobor**: Rajac – DP38 (leg. *Sigunov A.*, *s.n.*, 26.03.1971, BEO!); **Mt. Tara**, beech forests, beech and fir forests, beech and fir and spruce forests (Gajić 1988); Mitrovac, forest manag. section 92 – CP76, sinkholes and slopes, ass. *Piceo-Fago-Abietetum*, limestone, 1086 m (leg. *Jovanović F.*, *16782*, 16.04.2013, BEOU!); **Ovčar-Kablar gorge**: Mt. Ovčar – DP36, limestone (leg. *Stevanović V.*, *Niketić M.*, *Vukojičić S. &Tomović G.*, *19379*, 13.04.2005, BEOU!); Banjski Potok – DP35 (leg. *Sigunov A.*, *s.n.*, 26.04.1975, BEO!); **Čačak**, surroundings – DP46 (Petkovićet al. 1982, *distrib. map 2*; leg. *Pavlović S.*, *40811*, 1880, BEOU!); **Užice**: Zabučje – DP05 (leg. *Košanin N.*, *40801*, 14.03.1889, BEOU!); near the antenna – DP05, slope, hop hornbeam forest, limestone, 780m (leg. *Jovanović F. & Zlatković B.*, *16787*, 05.05.2012, BEOU!); **Mt. Zlatibor**: Ćaldov Vijadukt, near the tunnel – CP93, slope, beech and hornbeam and linden forest, c. 1000 m (leg. *Jovanović F. & Zlatković B.*, *16784*, 05.05.2012, BEOU!); **Mt. Mučanj** – DP22, ass. *Fagetum subalpinum*, limestone, N (leg. *Lakušić D. et al.*, *45243*, 01.05.1988, sub. *Galanthus*, BEOU!, rev. *Jovanović F.*, 29.05.2013), beech forests, beech and fir forests, beech and fir and spruce forests (Gajić 1989); **Mt. Čemerno**: Rudovik – DP52, marble (leg. *Stevanović V.*, *Niketić M.*, *Vukojičić S. &Tomović G.*, *18655*, 01.05.2004, BEOU!); **Mt. Stolovi** (Ibar valley): Jelova,

Bresnik – DP62 (Slavković 1994); Dobre Strane-top – DP62 (leg. *Slavković Ž.&Diklić N.*, *s.n.*, 03.1970, BEO!); **Mt. Zlatar** – CP91, ass. *Fagetum montanum serbicum*, ass. *Abieti-Fagetum calcicolum*, ass. *Abieti-Piceetum serbicum typicum* (Obratov-Petkovićet al. 2007; leg. *Obratov D.*, *s.n.*, 1992, SFB!); **Nova Varoš**: Šopot – DP01 (leg. *Ilić S.*, *40816*, 25.04.1949, BEOU!); **Mt. Čemernica**: Maskovo – DP21, slope, beech and spruce forest, 1230 m (leg. *Jovanović F.*, *16779*, 24.04.2013, BEOU!).

SE SERBIA: **Vlasina** (Košanin 1910; Jovanović & Niketić 1991); Ostrozub – FN04 (leg.*?*, *40808*, 21.04.1953, sub. *Galanthus*, BEOU!, rev. *Jovanović F.*, 29.05.2013); Čemernik – FN03 (Ranđelović & Zlatković 2010); Vardenik – FN02, FN01 (op. cit.); **Pčinja valley**: Mt. Kozjak: Delinovički Reed – EM78, ass. *Carpino orientalis-Quercetum mixtum*, migmatite, 640 m (Zlatković 2011); Preslop – EM78, ass. *Fago-Aceri intermedii-Coryletum colurnae*, migmatite, 1027 m (op. cit.); St. Prohor Pčinjski: Krst – EM78, ass. *Querco-Carpinetum orientalis*, fine grained biotite, biotite-muscovite gneisses, 450 m (op. cit.), river banks, alder and hornbeam forest, alluvial deposits, 445 m (leg. *Jovanović F.*, *16783*, 09.04.2012, BEOU!); Jablanica – EM78, by the river, damp and shady habitats, oak woods (*Querco-Fagetea*), fine grained biotite, biotite-muscovite gneisses, 560 m (Zlatkovićet al. 2014; leg. *Zlatković B.*, *16856*, 15.05.2005, BEOU!).

SW SERBIA: **Mt. Zlatar** – DP00, ass. *Fagetum montanum serbicum*, ass. *Abieti-Fagetum calcicolum*, ass. *Abieti-Piceetum serbicum typicum* (Obratov-Petkovićet al. 2007; leg. *Obratov D.*, *s.n.*, 1992, SFB!); **Mt. Javor** – DP20, DN29, beech forests, beech and fir forests, beech and fir and spruce forests (Gajić 1989); Stup: Vrelo – DN29, limestone, 1200 m (leg. *Stevanović V.*, *Niketić M.*, *Vukojičić S. &Tomović G.*, *20690*, 27.04.2006, BEOU!); Vasilin Vrh – DP20 (*Vukojičić S.pers. comm.*); **Mileševka river gorge** – CN99 (Ostojić & Zlatković 2010; Ostojić & Krsteski 2012); **Mt. Golija** – DN49, DN48, beech forests, beech and fir forests, beech and fir and spruce forests (Gajić 1989); **Novi Pazar**, surroundings – DN47, DN45 (Petkovićet al. 1982, *distrib. map 2*); **Mt. Mokra Gora**:Račiće – DN55, forest (leg. *Preljević N.*, *2792*, BUNS!).

KOSOVO: **Mt. Kopaonik** (south face) – DN87 (Petkovićet al. 1982, *distrib. map 2*); **Mt. Grmija**: Sofalija–EN12(loc. cit.), depression, beech and hornbeam forest (Krivošej 2013);EN42, EN51 (Petkovićet al. 1982, *distrib. map 2*);**Štrpce**: Mt. Ošljak: Sevce – DM97, beech forest (Krivošej 1997; Davis 1999, *distrib. map 1*).

METOHIJA: **Peć**: Mt. Čakor (south face) – DN12, streamside, deciduous woodland, 1200 m (Davis 1999, *distrib. map 1*; leg. *Mathew B.& Tomlinson A.J.*, *4032*, 03.05.1965, K!); **Mt. Prokletije**: Radavac – DN43, beech forest (leg. *Janković M.*, *40806*, 02.05.1960, sub. *Galanthus*, BEOU!, rev. *Jovanović F.*, 19.02.2014).

2.Distribution of *G. elwesii* in Serbia

E SERBIA: **Svrljig**,surroundings (Petkovićet al. 1982, sub. *G. graecus* Orph.); Svrljig Mountains: Pleš – EP90 (leg. *Pančić J.*, *12223*, 1879, sub. *G. grandiflorus* m., BEOU!, rev. *Jovanović F.*, 25.01.2012), beech and sycamore woods, limestone, 1235 m (leg. *Jovanović F.*, *16801*, 07.05.2013, BEOU!); **Mt. Stara Planina** – FP20 (Petkovićet al. 1982, *distrib. map 2*, id.; Ivančevićet al. 2007); **Sićevo gorge**: Manastir: Kusača: Vis – EN89, wooded places in sinkholes (Zlatković 1999, sub. *G. elwesii* subsp. *minor* Webb; leg. *Zlatković B.&Jović D.*, *2773*, 12.04.1994, det. *Zlatković B.*, BUNS!), ass. *Carpino orientalis-Quercetum mixtum*, 753 m (Jovanovićet al. 2012, sub. *G. gracilis*Čelak; leg. *Jovanović F.&Zlatković B.*, *16637*, 31.03.2012, det. *Jovanović F.*, sub. *G. gracilis*, BEOU!, rev. *Jovanović F.*, 19.02.2014; leg. *Jovanović F.*, *16805*, 04.04.2013, id., BEOU!, rev. *Jovanović F.*, 19.02.2014); FN19 (Petkovićet al. 1982, *distrib. map 2*, id.); **Mt. Belava** – FN28 (Adamović 1901, 1911, sub. *G. maximus* Velen.); **Pirot**, surroundings (op. cit.; Adamović 1909, id.; Petkovićet al. 1982, id.; Davis 1999, *distrib. map 7*), pastures, stones and bushes, hills and lower regions, 400-1300 m (Adamović 1901, 1911, id.), woodlands, 1000-1300 m (Stern 1956, sub. *G. e.* var. *maximus* /Velen./ Beck); Sarlah – FN28, Božurato – FN27 (Adamović 1901, 1911, id.); Crni Vrh – FN38 (op. cit.), sinkholes, beech and ash forests, limestone, 1146 m (leg.*Jovanović F.*, *16802*, 02.04.2013, BEOU!); **Mt. Vidlič**(op. cit.);Basara – FN38 (op. cit.; Stjepanović-Veseličić 1975, sub. *G. graecus*; Davis 1999, *distrib. map 7*), pastures and bushes, c. 1300 m (Fritsch 1909, sub. *G. graecus*), slopes, ass. *Fagetum montanum*, limestone, 1100-1300 m (leg. *Jovanović F.*, *16803*, 03.04.2013, BEOU!); Velika Paramunica-Slavinjski Kamen – FN47, slopes, ass. *Fagetum montanum*, limestone, 1290-1350 m (leg.*Jovanović F. & Zlatković B.*, *16804*, 08.04.2012, BEOU!); Kamenica – FN47 (Petković *et al.* 1982, id.); **Mt. Suva Planina** (Fritsch 1909, id.; Ranđelovićet al. 2000, id.), near the alps, limestone (Fritsch 1909, id.); Golemo Stražište – EN97 (*Niketić M.photo*).

S SERBIA: **Prokuplje**: Brestovac – EN76 (Petkovićet al. 1982, sub. *G. graecus*).

SE SERBIA: FN06 (Petkovićet al. 1982, *distrib. map2*, sub. *G. graecus*); **Vlasina** – EN92, FN12 (loc. cit.); **Vladičin Han**, **Surdulica**, surroundings – EN80 (loc. cit.); **Bosilegrad**, surroundings – FN00 (loc. cit.).

B.CHOROLOGICAL DATA ON INFRASPECIFIC TAXA OF THE GENUS *GALANTHUS* IN SERBIA

1.Infraspecific taxa of *G. nivalis* and their distribution in Serbia

var. *lutescens*Baker
Mt. Fruška Gora: Paragovo – DR00 (Božа & Obradović 1980; Radić 2000; leg. *Radić J.*, *s.n.*, 23.02.1997, det. *Boža P.&Radić J.*, BUNS!).

var. *major* Fiori
Deliblato Sands – DQ98, EQ08, EQ07 (Božа & Vasić 1986, sub. *G. nivalis* f. *major* Ten.); **Fruška Gora**: Glavica – DR00 (Božа 1979, sub. *G. n.* f. *major* Red.; Božа & Vasić 1986, id.; Radić 2000, sub.*G. n.* f. *major* Red.; leg.*Boža P.*, *2779*, 03.1979, id., BUNS!, rev. *Jovanović F.*, 19.06.2013).

f. *albus* Allen
Mt. Fruška Gora: Crveni Čot – CR90 (Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!); Kosmatica – CR90, Kusak – DR10 (ibid.); **Beočin**: Beočin monastery – DR00 (Božа & Obradović 1980; Božа & Vasić 1986); Široki Do – DR00 (Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!).

f. *biscapus* Beck
Mt. Fruška Gora: Paragovo – DR00 (Božа 1979; Radić 2000; leg. *Radić J.*, *s.n.*, 23.02.1997, det. *Boža P.&Radić J.*, BUNS!); Glavica – DR00 (Božа 1979; Božа & Vasić 1986); Mala Remeta – DQ09 (leg.*Boža P.*, *2778*, 03.1974, BUNS!).

f. *trifolius* Beck
Mt. Fruška Gora: Paragovo – DR00 (Obradović & Božа 1985; Radić 2000; leg. *Radić J.*, *s.n.*, 23.02.1997, det. *Boža P.&Radić J.*, BUNS!); Velika Remeta –DR10 (Radić 2000; leg. *Radić J.*, *s.n.*, 15.03.1997, det. *Boža P.&Radić J.*, BUNS!); Stražilovo – DR10 (ibid.).

f. *latifolius* Zapal.
Mt. Fruška Gora: Venac – CR80 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1998, det. *Boža P.&Radić J.*, BUNS!); Crveni Čot, Jabuka, Letenka, Kosmatica, Osovlje, Andrevlje, Papratski Do – CR90 (ibid.); Paragovo, Rajkovac, Anatema, Isin Čot, Zmajevac, Široki Do – DR00 (ibid.); Velika Remeta, Ignjatov Hrast, Kusak, Stražilovo – DR10 (ibid.); Iriški Venac – DQ09 (ibid.).

f. *platytepalus* Beck
Mt. Fruška Gora: Čotovi – CR80 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1998, det. *Boža P.&Radić J.*, BUNS!); Venac – CR80 (ibid.); Crveni Čot, Jabuka, Letenka, Kosmatica, Osovlje, Andrevlje, Papratski Do – CR90 (ibid.); Paragovo, Rajkovac, Anatema, Isin Čot, Zmajevac, Široki Do – DR00 (ibid.); Velika Remeta, Kusak, Stražilovo – DR10 (ibid.); Iriški Venac – DQ09 (ibid.).

f. *parviflorus* A. et G.
Mt. Fruška Gora: Venac – CR80 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1998, det. *Boža P.&Radić J.*, BUNS!); Papratski Do – CR90, Paragovo – DR00, Stražilovo – DR10 (ibid.).

f. *pictus*K. Maly
Mt. Fruška Gora: Letenka – CR90 (Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!); Paragovo – DR00 (ibid.); Glavica – DR00 (ibid.), streamside (leg. *Boža P.*, *2780*, 02.1979, BUNS!).

f. *hemileucos*Domin
Mt. FruškaGora: Osovlje – CR90 (Radić 2000; leg. *Radić J.*, *s.n.*, 01.03.1997, det. *BožaP.&Radić J.*, BUNS!).

f. *erdödensis*Prodan
Mt. FruškaGora: Rajkovac – DR00 (Radić 2000; leg. *Radić J.*, *s.n.*, 02.03.1997, det. *Boža P.&Radić J.*, BUNS!).

2.Infraspecific taxon of *G. elwesii* and its ditribution in Serbia

var. *maximus* (Velen.) Beck
Mt. Belava –FN28(Nikolić & Diklić 1986, sub. *G. graecus* f. *maximus* /Vel./ Hayek); **Pirot**,surroundings (Stern 1956); Sarlah – FN28, Božurato – FN27, Crni Vrh – FN38 (Nikolić & Diklić 1986, id.); **Mt. Vidlič** – FN47 (op. cit.); Basara – FN38 (op. cit.).

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