

NOMENCLATRURAL AND TAXONOMIC NOTES ON THE FLORA OF SERBIA AND THE BALKAN PENINSULA. I. CARYOPHYLLACEAE

M. NIKETIĆ¹, V. STEVANOVIĆ², and GORDANA TOMOVIĆ²

¹Natural History Museum, 11000 Belgrade, Serbia

²Institute of Botany and Jevremovac Botanical Garden, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia

Abstract — The nomenclatural analysis included 12 autochthonous and mostly endemic species from the genera *Atocion* Adans., *Cerastium* L., *Heliosperma* (Rchb.) Rchb., and *Silene* L. (Caryophyllaceae). In conformity with ICBN, 12 new infra-specific taxa are described with locus classicus on the territory of Serbia. Also presented are 24 new nomenclatural combinations, including several for endemic taxa not present in Serbia. The nomenclature of certain taxa is supplemented by a short taxonomic-chorological review. Results of these studies will be incorporated in the next volume of “Flora of Serbia”.

Key words: Nomenclature, plant taxonomy, Caryophyllaceae, Serbia, Balkan Peninsula

UDC 582.661.51(497.11):57.06
581.9

INTRODUCTION

The ten volume edition “Flora of Serbia” (Josifović, 1970-1976; 1977; Sarić and Diklić, 1986) is a capital-value work of Serbian botany, filling a void that existed for almost more than a century in studies on the flora of this part of Balkan Peninsula, more precisely since the publishing of Pančić’s “Flora of the Principality of Serbia” and its “Addendum” (Pančić, 1874; 1884). “Flora of Serbia” was finished in an unusually short time for this type of large-scale synthetic work. It united mostly fresh knowledge on taxonomy, distribution and ecological preferences of taxa that were known since Pančić’s time, as well as the many new ones recorded within the boundaries of modern Serbia. “Flora of Serbia” initiated intensive floristic and chorological studies of the vascular flora in Serbia during the last 30 years. Since 1986, immense quantities of fresh material have been collected on distribution, taxonomy and ecology of plant taxa; new monographs on genera have been published; new regional floras have been issued for the Balkan countries; and new nomenclatural principles have been accepted in European plant taxonomy, elucidating in a new way the validity and taxonomic position of species and genera. Altogether,

conditions are now suitable for starting a new edition of Flora of Serbia, and the Committee for Flora and Vegetation of SASA accepted this challenge. The main intent of the new edition is to remove the deficiencies of the first edition (non-uniform taxonomic principles in taxon studies, incomplete and/or false data on taxon distribution, failure to utilize relevant modern taxonomic literature, failure to check herbarium material, etc.). The first volume of the new edition of Flora of Serbia was published in 1992, and the second one is planned, after a long break, for 2008. It will include the orders Ranales (continuing with fam. Berberidaceae), Papaverales, Urticales, Fagales, Betulales, Juglandales, and Caryophyllales. The manuscript of the second volume of the new edition was prepared ten years ago, but unfortunately the publishing procedure was never initiated. More than 15 years have passed since the first edition, and numerous papers have appeared in the meantime in the European botanical literature, including new nomenclatural and taxonomic principles which should be incorporated in the new, expanded manuscript of the second volume. The main goal of this paper was to, through new interpretation of certain taxonomic challenges, facilitate the use of synonyms

in the next volume of the second edition of Flora of Serbia. Certain new taxa and nomenclatural combinations are here mentioned for the first time, and in the mentioned publication they will be individually presented within the completely processed genera and species of the family Caryophyllaceae. This paper deals with certain representatives of the genera *Atocion* Adans., *Cerastium* L., *Heliosperma* (Rchb.) Rchb. and *Silene* L., which were presented in the previous edition of Flora of Serbia by Gajić (1970: 156-176) and Slavnić (1970: 204-240). In order to fully present the infraspecific variability of certain species, we have included new combinations for some endemic subspecies that do not appear on the territory of Serbia but are closely related to taxa analyzed in Flora of Serbia. Basic data on distribution are included for newly described taxa.

During the last decade, there has been a great improvement in understanding of the phylogeny and classification of taxa within the tribe Sileneae (Caryophyllaceae) (Oxelman and Liden, 1995; Oxelman et al., 1997; Oxelman et al., 2001; Frajman and Oxelman, 2004, 2007; Niketić and Stevanović, 2007). There are clear definitions of monophyletic lines that are genetically and morphologically distinct from other genera, primarily from the genus *Silene* (although until recently they were considered an integral part of that genus). This is particularly true of the genera *Atocion*, *Heliosperma*, *Eudianthe* (Rchb.) Rchb. and *Viscaria* Bernh. On the other hand, certain taxa which were considered as belonging to separate genera are now added to the genus *Silene* – for example *Silene baccifera* (L.) Roth, which used to be known as *Cucubalus baccifer* L. It was therefore necessary to assign new combinations to certain infraspecific taxa within the genera *Atocion* and *Heliosperma*, but also within the genus *Silene*, if they were previously absent. This was not done only for formal reasons, but also due to the need to, as much as possible, elucidate numerous taxonomic and chorological problems. Several new taxa are therefore described on this occasion.

Additionally, activities of describing and interpreting the very complicated infraspecific variability within the genus *Cerastium*, started by Niketić

(1999), are continued here, with the accent on separating subspecies within the species *C. decalvans* Schlosser & Vuk. (subsp. *glutinosum* and subsp. *leontopodium*).

MATERIAL AND METHODS

The study of 12 investigated species is based on the examination of available herbarium material (BEO, BEOU, LJU, SARA, UPA, SO, SOM). Acronyms follow Index Herbariorum (Holmgren et al., 1990; and <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>). Synonymization and description of new taxa were done in conformity with ICBN (McNeill et al., 2006) and are based on surveyed herbarium material and published data.

Abbreviations — **Cro** Croatia, **BiH** Bosnia and Herzegovina, **Mtg** Montenegro, **Ser** Serbia, **Al** Albania, **Ma** Macedonia, **Bu** Bulgaria, **Gr** Greece.

RESULTS AND DISCUSSION

ATOCION Adans.

Atocion armeria (L.) Raf. var. *lithuanicum* (Zapal.) Niketić & Stevanović, **comb. nova**; *S. lithuanica* Zapal., Consp. Fl. Galic. Crit. 3: 181 (1911) [*basion.*]; *Silene armeria* var. *lithuanica* (Zapal.) Graebner & Graebner fil. in Ascherson & Graebner, Syn. Mitteleur. Fl. 5(2): 154 (1920).

Atocion armeria (L.) Raf. var. *sparsiflorum* (Schur) Niketić & Stevanović, **comb. nova**; *Silene armeria* var. *sparsiflora* Schur, Enum. Pl. Transs.: 105 (1866) [*basion.*].

Atocion lerchenfeldianum (Baumg.) M. Popp var. *macedonicum* (Form.) Niketić & Stevanović **comb. nova**; *Silene macedonica* Form. in Verh. Naturf. Ver. Brünn 31: 183 (1894) [*basion.*]; *Silene lerchenfeldiana* var. *macedonica* (Form.) Bornm. in Bot. Jahrb. 59: 409 (1924).

CERASTIUM L.

Cerastium banaticum (Rochel) Steudel f. *adenotrichum* (Čelak.) Niketić, **stat. nov.**; *C. adenotrichum* Čelak in Österr. Bot. Zeitschr. 37: 338 (1887) [*basion.*]; *C. banaticum* var. *adenotrichum* (Čelak.) Borza

in Bot. Közl. 12: 63 (1913).

Cerastium banaticum (Rochel) Steudel f. *glandulusculum* Niketić, f. **nova** - Typus: Flora serbica: Homoljske Planine Mts.: Ms Vukan, in saxosis, alt. ca. 2000-2200 m, leg. V. Nikolić 12-Jul-1956 (Holotypus: 116 BEO). - Bracteae et calyces hirsuti, glandulis sparsis, brevibus obsiti. **Ser, Bu, Gr.**

Cerastium decalvans Schlosser & Vuk. subsp. *decalvans*

f. *pauciflorum* (G. Beck) Niketić, **comb. in stat. nov.**; *C. lanigerum* f. *pauciflorum* G. Beck in Glasn. Muz. Bosn. Herceg. 18: 483 (1906) [*basion.*]; Hayek in Feddes Repert. (Beih.) 30(1): 206 (1924); *C. lanigerum* subsp. *minutum* Georgiev in God. Sof. Univ. 13: 421 (1935); *C. decalvans* f. *minutum* (Georgiev) Niketić in Glasn. Prir. Muz., Ser. B 49-50: 43 (1999); *C. decalvans* var. *pauciflorum* (G. Beck) Niketić *op. c.*: 46 (1999).

f. *rudskii* Niketić, f. **nova** - TYPUS: Flora serbica: Prokletije Mt. (Mt. Visitor), in pratis, alt. ca. 2000-2200 m, leg. P. Černjavski, I. Rudski, 26-Jul-1933, sub "*C. decalvans*", rev. P. Černjavski sub "*C. lanigerum* subsp. *dollineri* var. *alpicolum*" (HOLOTYPUS: 110 BEO). - Formae *paucifloro* valde simile sed inflorescentia eglandulosa. **BH, Mtg, Ser, A, Ma.**

var. *bosniacum* (G. Beck) Trinajstić f. *nikolicii* Niketić, f. **nova** - TYPUS: Flora serbica: Mt Mućanj, ad jugum et cacuminem, in saxosis, leg. V. Nikolić, 2.8.1981 (HOLOTYPUS: 117 BEO). - Formae *bosniaco* valde simile sed inflorescentia glanduloso-pilosa. **BiH, Mtg, Ser.**

var. *robustum* (G. Beck) Niketić, **comb. in stat. nov.**; *C. lanigerum* f. *robustum* G. Beck in Ann. Naturh. Mus. (Wien) 6: 329 (1891) [*basion.*]; *C. lanigerum* var. *decalvans* f. *robustum* (G. Beck) Hayek in Feddes Repert. (Beih.) 30(1): 206 (1924); *C. decalvans* f. *robustum* (G. Beck) Niketić in Glasn. Prir. Muz., Ser. B 49-50: 44 (1999).

f. *baldaccii* Niketić, f. **nova** - TYPUS: Flora montegrina: Prokletije Mts.: Kuči - Klementi (ad fines) - Greča (Grijepši), in pratis, alt. ca. 2000-2200 m, leg. A. Baldacci, 24-Jul-1900, sub "*C. tomentosum*"

(HOLOTYPUS: 160 BEOU). - Formae *robusto* valde simile sed inflorescentia eglandulosa. **BiH, Mtg, Ser, Ma.**

f. *bogdanovicii* Niketić, f. **nova** - TYPUS: Flora serbica: Užice: in fauce ad rivam Djetina, in rupestribus calcareis, leg. N. Diklić, M. Bogdanović, 20-May-1974 (HOLOTYPUS: 111 BEO). - Formae *baldaccio* valde simile, etiam folia glanduloso-pilosa. **BiH, Ser.**

Cerastium decalvans Schlosser & Vuk. subsp. *glutinosum* (Strid) Niketić, **comb. nova**; *C. moesiicum* f. *halacsyi* Borza in Bot. Közl. 12: 57 (1913); *C. moesiicum* var. *halacsyi* (Borza) Graebner & Corr. in Aschers. & Graebner, Syn. Mitteleur. Fl. 5(1): 588 (1917); *C. moesiicum* f. *thasium* Hayek in Feddes Repert. (Beih.) 30(1): 207 (1924) [*nom. illeg.*]; *C. arvense* var. *bornmuellerianum* Stoj. & Kitanov in God. Sof. Univ. 41(3): 358 (1945-1946); *C. moesiicum* subsp. *glutinosum* Strid in Strid & Tan, Fl. Hellen. 1: 202 (1997) [*basion.*]; *C. decalvans* var. *halacsyi* (Borza) Niketić in Glasn. Prir. Muz., Ser. B 49-50: 44 (1999); „*C. alpinum* var. *glutinosum*“ sensu Halácsy in Österr. Bot. Z. 42(12): 414 (1892), non Koch (1835).

This subspecies does not grow in Serbia and is only known from the island of Thasos in the Aegean Sea. Since Halácsy (1892: 414) collected the first specimens of this plant, its taxonomic position was very differently and mostly falsely interpreted, until Strid (1986: 110-116) assumed that the revised material from Thasos in fact belongs to *C. decalvans*. The same author later (Strid, 1997: 202) assumed that the population from Thasos really does belong to the species *C. moesiicum*. He then established the new combination [„*C. decalvans* subsp. *glutinosum* (Halácsy) Strid comb. & stat. nov.“], which was based on the misapplied name (pseudosynonym) „*C. alpinum* var. *glutinosum*“ sensu Halácsy, non Koch. Halácsy (1892: 414) did not actually describe a new taxon, but according to ICBN (McNeill et al., 2006: Art. 32.4) implied that it is Koch's variety „var. *glutinosum* Koch“, indirectly pointing to the primary reference (Koch, 1835: 124). Strid's name, although technically false, satisfies the rules of ICBN (McNeill et al., 2006: Art. 33.3, 33.4), as the syn-

onym list includes *C. moesiacum* f. *halacsyi* Borza. It follows that in further citations, the task of creating a new combination could be performed through replacement of synonyms. *C. moesiacum* subsp. *glutinosum* Strid would then be an avowed substitute („nom. et stat. nov.“), based on *C. moesiacum* f. *halacsyi* Borza (replaced synonym).

After an excursion to Thasos (2004) and checking a huge amount of herbarium material, we concluded that this taxon really does belong to *C. decalvans*, and that due to its very broad leaves, elongated internodes, and somewhat longer calyx it should remain at the subspecific level, but in a new combination. Preliminary karyological data have shown that this is a paleotetraploid. Herbarium material kept at the Botanical Garden in Belgrade included a specimen from the vicinity of Salonika (Gül-Tepe prope Kereci, leg. I. Dimonie, Apr-1909, sub *C. balcanicum* f. *eglandulosum*, s. n. BEOU) that very much resembles subsp. *glutinosum*. A future check at the site will show if this is one and the same taxon.

Cerastium decalvans Schlosser & Vuk. subsp. ***leontopodium*** (Stoj. & Stefanov) Niketić, **comb. in stat. nov.**; *C. grandiflorum* var. *albanicum* Bald. in Bull. Herb. Boiss. 4: 618 (1896); *C. albanicum* (Bald.) Corr. in Österr. Bot. Z. 59: 182 (1909); *C. banaticum* var. *leontopodium* Stoj. & Stefanov in Österr. Bot. Z. 72(1-5): 86 (1923) [*basion.*]; *C. lanigerum* var. *dollineri* f. *albanicum* (Bald.) Hayek in Feddes Repert. (Beih.) 30(1): 205 (1924); *C. grandiflorum* subsp. *banaticum* var. *leontopodium* (Stoj. & Stefanov) Stoj. & Stefanov, Fl. Bäl. 1: 411 (1924); *C. leontopodium* (Stoj. & Stefanov) Georgiev in Stoj. & Stefanov, Fl. Bäl. ed. 2: 378 (1933); *C. lanigerum* subsp. *albanicum* (Bald.) Georgiev in God. Sof. Univ. 13: 421 (1935) [p. p.]; *C. macedonicum* Georgiev in Stoj. & Stefanov, Fl. Bäl. ed. 2: 378 (1933); *C. leontopodium* subsp. *soskianum* Georgiev in God. Sof. Univ. 13: 416 (1935); *C. decalvans* var. *leontopodium* (Stoj. & Stefanov) Buschm. in Feddes Repert. 43: 134 (1938); *C. decalvans* subsp. *macedonicum* (Georgiev) Stoj. & Stefanov, Fl. Bäl. ed. 3: 416 (1948). **Incl.:** *C. histrio* Corr. in Österr. Bot. Zeitschr. 59: 182 (1909) [*nom. illeg.*]; Corr. ex Prain in Index Kew. Suppl. 4: 44 (1913); *C. decalvans* subsp. *adamovicii* var. *histrio* (Corr. ex Prain) Stoj. & Stefanov, Fl. Bäl. ed. 3: 416

(1948); *C. decalvans* subsp. *histrio* (Corr. ex Prain) Stoj., Stefanov & Kitanov, Fl. Bäl. ed 4: 380 (1966) [*comb. inval.*]; Stoj., Stefanov & Kitanov ex Greuter & Burdet in Willdenowia 12: 37 (1982); *C. balcanicum* var. *anisophyllum* Bornm., Beitr. Fl. Mazedon. 1: 425 (1925); *C. lanigerum* subsp. *nikolovii* Georgiev in God. Sof. Univ. 13: 421 (1935).

The polyploid complex of the species *C. decalvans* Schlosser & Vuk. is in the taxonomic sense perhaps the most complicated within the whole genus. So far there are a great many described infraspecific taxa (Niketić, 1999). Besides the type subspecies, the only other definitively distinct subspecies mentioned in the literature is subsp. *orbelicum* from the silicate mountains of Southern Bulgaria and Eastern Macedonia (Greuter et al., 1984; Jalas, 1993; Strid 1997; Niketić, 1999), while the present paper also includes subsp. *glutinosum*.

It should be noted that all the names of distinct species and subspecies described by Georgiev (1933; 1935) were very soon moved to the synonym list very soon (Buschmann, 1938). As she had a very conservative approach, these taxa (as well as the taxa described by other authors) were not accorded any recognized status and were treated as synonyms. This includes even current subspecies, for example subsp. *orbelicum*. The only infraspecific category recognized by this author was var. *leontopodium* (Stoj. & Stefanov) Buschm., to which were added Correns's (*C. histrio*) and Bornmüller's (*C. lanigerum* var. *isophyllum* and *C. balcanicum* var. *anisophyllum*), but not Georgiev's (*C. macedonicum*, *C. cernjavskii*) or Baldacci's (*C. grandiflorum* var. *albanicum*) taxa. The main records of differential characters and chorology of Buschmann's taxon *leontopodium* are acceptable even by present-day taxonomy, as they are supported by karyological data. In contrast to the type tetraploid (neodiploid) species, which is probably distributed only in the Dinarides, this taxon represents an extremely polymorphic polyploid complex in the central and southern part of the species range, and it probably originated by reticular evolution. In the morphological sense, it is characterized by more compact structure, narrower leaves, and characteristic axillary fascicles composed of narrow leaflets. For all these features it should be

awarded subspecific status.

In regard to proper naming of the subspecies *leontopodium*, it should be noted that, according to the rules of recognizing a new taxonomic combination (McNeill et al., 2006: Art. 11.2) and results of research, the oldest legitimate name of a taxon on the subspecific level must be chosen. For this taxon, there are several appropriate names listed in the same paper by Georgiev (1935). There are also some older appropriate combinations of subspecies: *C. decalvans* subsp. *macedonicum* (Georgiev) Stoj. & Stefanov (Stojanov and Stefanov, 1948: 416) and *C. decalvans* subsp. subsp. *histrion* (Corr. ex Prain) Stoj. & al. ex Greuter & Burdet (Greuter and Burdet, 1982: 37). However, due to inclusion of a multitude of names in this paper, in conformity with ICBN (McNeill et al., 2006: Art. 11.5, 11.6) we chose the name subsp. *leontopodium* as a derived autonym of *C. leontopodium* subsp. *soskianum* Georgiev (Georgiev, 1935: 416), although the same paper also explicitly cited *C. lanigerum* subsp. *albanicum* (Bald.) Georgiev and *C. lanigerum* subsp. *nikolovii* Georgiev. The name *leontopodium* (and not *albanicum* or *nikolovii*) was chosen due to the fact that in most of the range there are individuals that more or less morphologically match the description of *C. banaticum* var. *leontopodium* Stoj. & Stefanov from the *locus classicus* - Mt Slavjanka [„Ali-Botuš“] (excl. f. *nikolovii*).

In Central Serbia, this subspecies is very common on serpentine substrates. The populations in the eastern part of Western and Southwest Serbia, on Mts. Paštrik and Koritnik, and in the broader area of the Šar Planina Mountains, are probably in the introgression zone with the type subspecies. It is therefore difficult to determine their infraspecific position. The freshest karyological data indicate that representatives from these regions are closely related to subsp. *leontopodium*, but without always matching the recorded morphological characters.

var. *cernjavskii* (Georgiev) Niketić, **comb. et stat. nov.**; *C. cernjavskii* Georgiev in God. Sof. Univ. 13: 422 (1935) [*basion.*]; „*C. grandiflorum* var. *rosmarinifolium*“ sensu Griseb., Spic. Flor. Rumel. Bith. 1: 211 (1843); „*C. decalvans* var. *albanicum*“ sensu Niketić

in Glasn. Prir. Muz., Ser. B 49-50: 42 (1999) [p. p.].

This variety is characterized by linear filiform leaves and was therefore long confused with *C. grandiflorum* Waldst. & Kit. It is most abundant in gorges of Southern Serbia and Northern Macedonia.

f. *stevanovicii* Niketić, f. **nova** - TYPUS: Flora macedonica: Mt. Scardus (Ljuboten), in rupestribus calcareis, 2200 m., leg. V. Stevanović, 6-Jul-1979, sub “*C. grandiflorum* ?” (HOLOTYPUS: 1576 BEOU). - Patula, formae *scardico* valde simile sed inflorescentia eglandulosa. **Ser, Ma.**

var. *leontopodium*

f. *eglandulosum* Niketić, f. **nova** - TYPUS: Flora serbica: Mt Kopaonik: Kozje stene, in saxosis serpentinaceis, alt. ca. 1500 m, leg. M. Niketić, G. Tomović, 27-Jun-2004 (HOLOTYPUS: 112 BEO). - Formae *leontopodio* valde simile sed inflorescentia eglandulosa. **Ser, Ma, Al, Gr, Bu.**

f. *serbicum* Niketić, f. **nova** - TYPUS: Flora serbica: Raška, pag. Trnava, fluv. Trnavska reka, ripa sinistra, in lapidosis, alt. ca. 430-600 m, leg. Z. Pavlović, 26-Apr-1951 (HOLOTYPUS: 113 BEO). - Formae *leontopodio* valde simile, etiam folia glanduloso-pilosa. **Ser, Ma.**

Cerastium eriophorum Kit. f. *glanduloso-villosum* (G. Beck) Niketić, **comb. nova**; *C. alpinum* var. *glutinosum* Koch, Syn. Fl. Germ. Helv.: 124 (1835); *C. alpinum* var. *lanatum* f. *glanduloso-villosum* G. Beck in Glasn. Muz. Bosn. Herceg. 18: 484 (1906) [*basion.*]; *C. lanatum* f. *litigiosum* Borza in Bot. Közl. 12: 53 (1913); *C. lanatum* f. *glutinosum* (Koch) Hayek in Feddes Repert. (Beih.) 30(1): 208 (1924); *C. eriophorum* f. *glutinosum* (Koch) Niketić in Glasn. Prir. Muz., Ser. B 49-50: 40 (1999).

Cerastium malyi (Georgiev) Niketić f. *muravjevii* Niketić, f. **nova** - TYPUS: Flora montenegrina: in fauce rivulum Bistrica prope Berane, leg. N. Muravjev 1935 sub *C. moesiicum* (HOLOTYPUS: 115 BEO). - Sepala et bracteae, saepe pedunculi et rami inflorescentiae glanduloso-pilosi. **BiH, Mtg, Ser.**

HELIOSPERMA (Rchb.) Rchb.

Heliosperma pusillum (Waldst. & Kit.) Hoffmanns. subsp. *albanicum* (K. Malý) Niketić & Stevanović, **comb. nova**; *H. albanicum* K. Malý in Wiss. Mitt. Bosn. Herceg. 10: 634 (1907) [*basion.*]; *Silene quadridentata* subsp. *albanica* (K. Malý) H. Neumayer in Österr. Bot. Z. 72: 285 (1923); H. Neumayer in Hayek in Feddes Repert. (Beih.) 30(1): 265; *Silene pusilla* subsp. *albanica* (K. Malý) Greuter & Burdet in Willdenowia 12: 190 (1982); *H. pudibundum* (Hoffmanns.) sensu Griseb., Spic. Fl. Rumel. 1: 182 (1843), non *Silene pudibunda* Hoffmanns. (1844); „*Silene quadrifida* var. *pudibunda*“ sensu Pančić, Dodatak Flori Kn. Serije: 118 (1884), non (Hoffmanns.) Koch (1835); *Silene quadridentata* f. *pudibunda* (Hoffmanns.) sensu Boiss., Fl. Orient. 1: 656 (1867) [*syn. subst.*], non *Silene pudibunda* Hoffmanns. (1844); H. Neumayer *op. cit.* (1924).

Molecular study of the genus and species (Frajman and Oxelman, 2007) showed that the range of this subspecies probably includes the Tatras, Carpathians, and mountainous areas of the central and southern parts of the Balkan Peninsula (Montenegro, Serbia, Bulgaria, Albania, Macedonia, Greece). In the zone where the range overlaps with subsp. *monachorum* (the Prokletije, and Šar Planina Mountains, Macedonian and Greek mountains) there was probably some introgression. The phylogenetic connection with a morphologically very similar plant from the Alps, described as *Silene pudibunda* Hoffmanns, was not proven. Grisebach (1843: 182) believed that this plant is also present on the Balkan Peninsula, citing it under the name *H. pudibunda* (Hoffmanns.) Griseb.

Heliosperma pusillum (Waldst. & Kit.) Hoffmanns. subsp. *moehringiifolium* (Uechtr. ex Pančić) Niketić & Stevanović, **comb. nova**; *Silene moehringiifolia* Uechtr. ex Pančić, Dodatak Flori Kn. Serije: 118 (1884) [*basion.*]; *Silene quadridentata* subsp. *moehringiifolia* (Uechtr. ex Pančić) H. Neumayer in Hayek in Feddes Repert. (Beih.) 30(1): 266 (1924); *Silene pusilla* subsp. *moehringiifolia* (Uechtr. ex Pančić) Slavnić in Josifović *et al.*, Flora SR Srbije 2: 236 (1970).

This subspecies has a sporadic distribution in mountainous regions of the central part of the Balkan

Peninsula (Northeast and Eastern Serbia, Central Bulgaria: middle part of the Stara Planina Mts.). The status of this taxon of Pančić has remained doubtful until the present day (Chater and Walters, 1964: 173, Greuter *et al.*, 1984: 270). According to Chater *et al.* (1993: 211), it is a synonym of *Silene chromodonta* Boiss. & Reuter, known from the Olympus Mountains in Greece. Besides the great similarities between these two taxa, it is recorded that specimens from the Greek population have longer calyces and relatively long anthophores, which are only 2-3 times shorter than the capsule. According to Greuter (1995: 25) and Greuter *et al.* (1997: 294), the Greek population belongs to a special, locally endemic taxon, *Silene pusilla* Waldst. & Kit. subsp. *chromodonta* (Boiss. & Reuter) Greuter. We also believe that the Greek taxon and the Pančić taxon should be treated separately, but within *H. pusillum* (Waldst. & Kit.) Hoffmanns.

var. *diklicii* Niketić & Stevanović, **var. nov.** TYPUS: Flora serbica: Mt Veliki Krš, in saxosis, ad jugam montium, leg. N. Diklić, 23-Jun-1962, sub “*S. quadridentata*” (HOLOTYPUS: 39119 BEO). – Folia ± glabra; spathulata vel oblanceolata, obtusa vel rarius acuta. Capsula carpophoro 2-4-plo longior. Formae *moehringiifolio* valde simile sed folia latiora. **Ser.**

var. *panicii* Niketić & Stevanović, **var. nov.**; „*Silene glutinosa*“ sensu Pančić, Flora Kn. Srbije: 168 (1874), non Zois (1858), nec Pers. (1805); excl. *Heliosperma quadrifidum* var. *glanduliferum* K. Malý in Glasn. Zem. Muz. Bosn. Herceg. 16: 561 (1903). TYPUS: Flora serbica: in scopulo Lazareva Reka, in saxosis, ad jugam montium, leg. N. Diklić, 23-Jun-1962, sub “*S. quadridentata*” (HOLOTYPUS: *s.n.* BEOU). – Tota planta pilis glanduliferis pluricellularibus dense obsita. Folia ± glabra; spathulata vel oblanceolata, obtusa vel rarius acuta. Capsula carpophoro 3-4-plo longior. Formae *diklicio* valde simile sed folia dense glandulosa. **Ser.**

var. *trojanense* (Velen.) Niketić & Stevanović, **comb. nova**; *H. trojanense* Velen. in Sits Bohem. Ges. 1910(8): 6 (1911) [*basion.*]; *H. quadrifidum* var. *trojanensis* (Velen.) Stoj. & Stefanov, Fl. B'lg. ed. 1, 1: 384 (1924); *Silene quadridentata* var. *trojanensis* (Velen.) H. Neumayer *l.c.* (1924); *Silene trojanensis*

(Velen.) Jordanov & Panov in Jordanov, Fl. Nar. Rep. B'lg. 3: 492 (1966).

A new taxon for the flora of Serbia. Previously known only for central Bulgaria (middle part of the Stara Planina Mountains), it was recently recorded on Mt. Rtanj, in the Djerdap Gorge [Iron Gate] (Mt. Veliki Štrbac), in the Suva Planina Mountains, and in the Sićevačka Gorge.

It is interesting to note that all three mentioned broad-leaved taxa have wider distribution than the narrow-leaved type variety (var. *moehringiifolium*), recorded locally in gorges and on mountains in Northeast Serbia.

Heliosperma pusillum (Boiss. & Reuter) Hoffmanns. subsp. *chromodontum* (Boiss. & Reuter) Niketić & Stevanović, **comb. in stat. nov.**; *Silene chromodonta* Boiss. & Reuter in Boiss., Diagn. Pl. Orient., ser. 2, 3(1): 71 (1854) [*basion.*]; *H. chromodontum* (Boiss. & Reuter) Juratzka in Verh. K. K. Zool.-Bot. Ges. Wien 8: 38 (1858); *Silene quadridentata* subsp. *chromodonta* (Boiss. & Reuter) H. Neumayer in Hayek in Feddes Repert. (Beih.) 30(1): 265 (1924): 266 (1924), excl. var. *vandasii* H. Neumayer, l.c.; *Silene pusilla* subsp. *chromodonta* (Boiss. & Reuter) Greuter in Willdenowia 25(1): 132 (1995); sensu Slavnić in Josifović *et al.*, Flora SR Srbije 2: 236 (1970) [*comb. inval.*].

This is a local endemic of the Olympus Mountains in Greece and does not occur on the territory of Serbia. Slavnić's citation (1970: 236) of this taxon in Southern Serbia probably pertained to subsp. *moehringiifolium*.

Heliosperma pusillum (Waldst. & Kit.) Hoffmanns. subsp. *monachorum* Niketić & Stevanović, **comb. nova**; *H. monachorum* Vis. & Pančić in Mem. Imp. Reale Ist. Veneto Sci. 12: 463 (1864) [*basion.*]; *Silene monachorum* (Vis. & Pančić) Vis. & Pančić in Pančić, Flora Kn. Srbije: 168 (1874); *H. rohlena* Vandas in Feddes Repert. 8: 300 (1910); *Silene quadridentata* subsp. *monachorum* H. Neumayer in Hayek in Feddes Repert. (Beih.) 30(1): 265 (1924); *Silene pusilla* subsp. *monachorum* (Vis. & Pančić) Slavnić in Josifović *et al.*, Flora SR Srbije 2: 236 (1970); *Silene pusilla* subsp. *tymphaea* Greuter in Willdenowia

25(1): 132 (1995) [„*tymphaea*“].

var. *candavicum* (H. Neumayer) Niketić & Stevanović, **comb. et stat. nov.**; *Silene quadridentata* subsp. *candavica* H. Neumayer in Österr. Bot. Z. 72: 285 (1923) [*basion.*]; H. Neumayer in Hayek in Feddes Repert. (Beih.) 30(1): 267 (1924); *Silene pusilla* subsp. *candavica* (H. Neumayer) Greuter & Burdet in Willdenowia 12(2): 190 (1982).

This taxon grows in the Šar Planina Mountains (near the village of Brod) as well as in the mountains of Western Macedonia. It was long regarded as a subspecies, due to its lanceolate acute coronal scales (Greuter *et al.*, 1984: 271, Stevanović and Niketić 1999: 360, 517). However, it was later observed that size and acuteness of the coronal scales may vary even within the same population of *H. pusillum*.

var. *lanceolatum* Niketić & Stevanović, **var. nov.** **TYPUS:** Flora serbica: the Prokletije Mountains (Mt. Žljeb, along the Rožaj–Peć road), 2000 m., leg. V. Nikolić, N. Diklić, M. Bogdanović, 13-Jul-1973, det M. Niketić (HOLOTYPUS: 39173 BEO). – Appendices coronulae petalorum breves, ovati vel elongati, rotundati. Folia caulina media 6-12-plo longior quam latior. Formae *monachoro* valde simile sed folia latiora. **BiH, Ser, Mtg, Al, Mac, Gr.**

Both mentioned taxa have broader leaves than the type variety (var. *monachorum*), which occurs locally in gorges of Serbia and Montenegro.

SILENE L.

Silene hungarica (Wrigley) Niketić & Stevanović, **comb. et stat. nov.**; *S. otites* subsp. *hungarica* Wrigley in Ann. Bot. Fenic.: 23(1): 74 (1986) [*basion.*]; „*S. densiflora* subsp. *wolgensis*“ (Hornem) sensu Slavnić in Josifović *et al.*, Flora SR Srbije 2: 235 (1970), non *Silene wolgensis* (Hornem.) Otth 1824.; „*S. otites*“ sensu Slavnić, non (L.) Wibel 1799, op.c.: 234, p.p.; „*S. otites* var. *pseudotites*“ sensu Slavnić l.c.

The characters that distinguish it from the closest taxon, *S. otites* (L.) Wibel, are as follows:

Biennial or short-lived perennial plant with a relatively shallow root system. Stem mostly single,

strong, 80-140 cm tall, often with reddish-purplish veins. Leaves grayish, with hairs up to 0.3 (0.5) mm long. Rosette mostly wilted during fructification. Inflorescence a wide, lax panicle, often with secondary branchlets; peduncles 1-4 times longer than the calyx. Capsule 3.5-5 mm long.

These two species also greatly differ from the ecological point of view. *S. otites* mostly inhabits open limestone rocky ground and open thermophilous oak and oriental hornbeam forests from lowlands to altitudes of 1000 m, while *S. hungarica* prefers lowland steppe and sand plain communities.

Silene parnassica Boiss. & Spruner subsp. ***hayekiana*** (Handel-Mazzetti & Janchen) Stevanović & Niketić stat. & comb. nov.; *S. hayekiana* Hand.-Mazz. & Janch. in Österr. Bot. Z. 55: 429 (1905) [*basion.*].

The species *S. parnassica* Boiss. & Spruner, from the complex *S. saxifraga* L., according to Greuter (1995: 129) and Greuter et al. (1997: 286-287) grows exclusively on the Balkan Peninsula (the data from the Apennines are actually for other taxa). There are five subspecies, including *S. parnassica* subsp. *serbica* (Vierh. et Adamović) Greuter, which was described from limestones of the southern part of Mt. Kopaonik (Treska). The type subspecies, subsp. *parnassica*, was also recorded for the flora of Serbia, from the foothills of Šar Planina Mountains (Stevanović and Niketić, 1999: 361, 517). According to Greuter et al. (1997: 286), these taxa are very closely related to *S. hayekiana* Hand.-Mazz. & Janch., which grows in the eastern Alps and mountains of Northwest Croatia, and which would be best considered another subspecies of *S. parnassica*. A new combination was therefore proposed. This taxon is morphologically and phytogeographically closest to subsp. *serbica*.

Silene roemerii Friv. var. ***balcanica*** (Form.) Stevanović & Niketić, stat. nov.; *S. roemerii* subsp. *balcanica* Form. in Verh. Nat. Brünn. 36: 98 (1892) [*basion.*]; *S. roemerii* var. *rhodopaea* Podp., Verh. Zool. Bot. Ges. Wien 52: 633 (1902), p.p; Hayek, l.c.; *S. sendtneri* subsp. *balcanica* (Form.) Greuter in Willdenowia 25(1): 119 (1995).

f. ***polycephala*** (Jordanov & Panov) Stevanović &

Niketić, stat. nov.; *S. roemerii* subsp. *balcanica* var. *polycephala* Jordanov & Panov in Jordanov, Fl. Nar. Rep. Bălg. 3: 593 (1966) [*basion.*].

Silene sendtneri Boiss. f. ***slavnicii*** Niketić & D. Lakušić, f. **nova** TYPUS: Flora serbica: Mt Kopaonik (Sedlo-Treska), leg. *anonim.* 12-Jul-1987 (HOLOTYPUS: 662/91 BEO). – Inflorescentia laxe paniculata; flores in dichasia verticillara dispositi; capitulae nullae. **Ser.**

A similar type of inflorescence is also present in *S. roemerii* Friv. var. *orbetica* Velen. (= *S. velenovskiana* Jordanov et Panov).

Silene vulgaris (Moench) subsp. ***bosniaca*** (G. Beck) Janchen var. ***oreophila*** (K. Malý) Stevanović & Niketić, **comb. nov.**; *S. inflata* [*stat. indet.*] *ciliata* [*stat. indet.*] *latifolia* Rchb., Fl. Germ. Excurs.: 823 (1832); *S. latifolia* (Rchb.) Hayek in Österr. Bot. Z. 52: 489 (1902), non Poirlet (1789), nec (Mill.) Britten & Rendle (1907); *S. venosa* var. *oreophila* K. Malý in Glasn. Muz. Bosn. Herceg. 22: 692 (1910) [*basion.*]; *S. antelopum* var. *latifolia* Janchen in Österr. Bot. Z. 90 (1919); *S. vulgaris* subsp. *antelopum* f. *latifolia* (Rchb.) Hayek in Feddes Repert. (Beih.) 30(1) 1: 258 (1924); Gajić in Sarić *et al.*, Flora SR Srbije (Dodatak) 9: 58 (1977); *S. vulgaris* subsp. *antelopum* f. *glabrescens* Gajić, Zašt. Prir. 15: 17 (1959); Gajić, l.c.

Silene vulgaris (Moench) subsp. ***prostrata*** (Gaudin) Schinz var. ***marginata*** (Kit.) Stevanović & Niketić, **comb. nov.**; *Cucubalus marginatus* Kit. ex Schult, Österr. Fl. ed. 2,1: 674 (1814) [*basion.*]; *S. inflata* ḡ *marginata* J. Malý, Enum. Pl. Austr.: 307 (1848); *S. marginata* (Schultes) Kit. in Linnaea 32: 536 (1863), non Schott (1824); *S. vulgaris* subsp. *marginata* (Schultes) Hayek in Feddes Repert. (Beih.) 30(1) 1: 258 (1924); Gajić in Sarić *et al.*, Flora SR Srbije (Dodatak) 9: 60 (1970).

Silene vulgaris (Moench) var. ***oleracea*** (Rouy & Foucaud) Stevanović & Niketić, **comb. in stat. nov.**; *S. oleracea* Boreau, Fl. Centr. France ed. 3, 2: 95 (1857) [*basion.*], non Ficin. (Ficin.) (1838) [*nom. illeg.*]; *S. cucubalus* var. *oleracea* Rouy & Foucaud in Rouy, Fl. Fr., 3: 104 (1896); *S. vulgaris* var. *vesicaria* f. *oleracea* Fiori & Paoletti, Fl. Analit. Ital. App. 74

(1907), non *S. inflata* var. *oleracea* Ficin. (1821) [*nom. illeg.*]; Hayek in Feddes Repert. (Beih.) 30(1) 1: 257 (1924) [„*S. vulgaris* f. *oleracea*“]; *S. venosa* subsp. *vulgaris* var. *pseudoleracea* Graebner & Graebner fil. in Ascherson & Graebner, Syn. Mitteleur. Fl. 5(2): 72 (1920).

REFERENCES

- Buschmann, A. (1938). Über einige ausdauernde *Cerastium*-Arten aus der Verwandtschaft des *C. tomentosum* Linné. *Feddes Repert.* **43**, 118-143.
- Chater, A. O., and S. M. Walters (1964). *Silene* L. In: *Flora Europaea* **1** (Eds. T.G. Tutin, V.H. Heywood, N.A. Burges, D.H. Valentine, S.M. Walters, and D.A. Webb), 158-181. Cambridge University Press, Cambridge.
- Chater, A. O., Walters, S. M., Akeroyd, J. R., and F. Wrigley (1993). *Silene* L. In: *Flora Europaea* ed. 2, 1 (Eds. T. G. Tutin, N. A. Burges, A. O. Chater, J. R. Edmondson, V. H. Heywood, D. M. Moore, D. H. Valentine, S. M. Walters, and D. A. Webb), 191-218. Cambridge University Press, Cambridge.
- Frajman, B., and B. Oxelman (2004). Phylogeny of *Heliosperma* based on chloroplast and nuclear DNA sequences. *Plant Evolution in Mediterranean Climate Zones, Valencia, Abstracts*, 66.
- Frajman, B., and B. Oxelman (2007). Reticulate phylogenetics and phytogeographical structure of *Heliosperma* (Sileneae, Caryophyllaceae) inferred from chloroplast and nuclear DNA sequences. *Mol. Phylogenet. Evol.* **43**, 140-155.
- Gajić, M. (1970). *Caryophyllaceae* Juss. In: *Flora SR Srbije* **2** (Ed. M. Josifović), 122-280. Srpska akademija nauka i umetnosti, Beograd.
- Georgiev, T. (1933). *Cerastium* L. - Rožec. In: *Flora na Bălgarija* ed. 2 (Eds. N. Stojanov, B. Stefanov), 376-382. Sofia.
- Georgiev, T. (1935). Beležki vrhu sistematikata i razprostranienieto na seriit alpina i arvensia ot roda *Cerastium* L. *Godišnik na Sofijskija universitet Fiz.-Mat. Fakultet* **13**, 402-432.
- Greuter, W. (1995). Studies in Greek *Caryophyllaceae*: *Agrostemma*, *Silene*, and *Vaccaria*. *Willdenowia* **25**, 105-142.
- Greuter, W., Burdet, H. M., and G. Long (Eds.) (1984). Med-Checklist I. Conservatoire et Jardin botaniques de la Ville de Genève, Med-Checklist Trust of OPTIMA, Genève.
- Greuter W., Pirker, B., and B. Oxelman (1997). *Silene* L. In: *Flora Hellenica* **1** (Eds. A. Strid and K. Tan), 239-323. Königstein: Koeltz Scientific Books.
- Grisebach, A. (1843). *Spicilegium Florae rumelicae et bithynicae exhibens synopsis plantarum quas in aest. 1893 legit auctor A. Grisebach* **1**. Fridericus Vieweg et filius, Brunsvigae [Braunschweig].
- Halácsy, E. (1892). Beiträge zur Flora der Balkanhalbinsel. IX. Florula insulae Thasos. – *Österr. Bot. Z.* **42**(12), 412-420.
- Jalas, A. (1993). *Cerastium* L. [“Perennial species”]. In: *Flora Europaea* ed. 2, 1 (Eds. T. G. Tutin, N. A. Burges, A. O. Chater, J. R. Edmondson, V. H. Heywood, D. M. Moore, D. H. Valentine, S. M. Walters and D. A. Webb), 164-171. Cambridge University Press, Cambridge.
- Josifović, M. (Ed.) (1970-1976). *Flora SR Srbije* **1-8**. Srpska akademija nauka i umetnosti, Beograd.
- Josifović, M. (Ed.) (1977). *Flora SR Srbije* **9, dodatak**. Srpska akademija nauka i umetnosti, Beograd.
- Koch, W. D. J. (1835). *Synopsis Florae germanicae et helveticae*. F. Wilmans, Francofurti ad Moenum [Frankfurt am Main].
- McNeill, J., Barrie, F. R., Burdet, H. M., Demoulin, V., Hawksworth, D. L., Marhold, K., Nicolson, D. H., Prado, J., Silva, P. C., Skog, J. E., Wiersema, J. H., and N. J. Turland (Eds.) (2006). International Code of Botanical Nomenclature (Vienna Code). adopted by the Seventeenth International Botanical Congress Vienna, Austria, July 2005. *Regnum Vegetabile* **146**, 1-568.
- Niketić, M., and V. Stevanović (2007). A new species of *Heliosperma* (Caryophyllaceae) from Serbia and Montenegro. *Bot. J. Linn. Soc.* **154**(5), 55-63.
- Niketić, M. (1999) [1995-1998]: *Cerastium* subsection of the genus *Cerastium* L. (*Caryophyllaceae*) on the Balkan Peninsula. Annotated check-list. *Glasn. Prir. Muz. Ser. B* **49-50**, 39-61.
- Oxelmann, B., and M. Liden (1995). Generic boundaries in the tribe *Sileneae* (*Caryophyllaceae*) as inferred from nuclear rDNA sequences. *Taxon* **44**(4), 525-542.
- Oxelmann, B., Liden, M., and D. Berglund (1997). Chloroplast rps16 intron phylogeny of the tribe *Sileneae* (*Caryophyllaceae*). *Plant Syst. Evol.* **206**, 393-410.
- Oxelmann, B., Liden, M., Rabeler, R. K., and M. Popp (2001). A revised generic classification of the tribe *Sileneae* (*Caryophyllaceae*). *Nord. J. Bot.* **20**, 743-748.
- Pančić, J. (1874). *Flora Kneževine Srbije*. Državna štamparija, Beograd.
- Pančić, J. (1884). *Dodatak Flori Kneževine Srbije*, Beograd. Kralj.-srp. državna štamparija, Beograd.
- Sarić, M., and N. Diklić (Eds.) (1986). *Flora SR Srbije* **10, dodatak** (2). Srpska akademija nauka i umetnosti, Beograd.
- Slavnić, Ž. (1970). *Silene* L. [In: M., Gajić: *Caryophyllaceae* Juss.]. In: *Flora SR Srbije* **2** (Ed. M. Josifović), 204-240. Srpska akademija nauka i umetnosti, Beograd.

Stevanović, V., and M. Niketić (1999). *Silene pusilla* Waldst. & Kit. subsp. *candavica* (H. Neumayer) Greuter & Burdet. In: Stevanović, V. (ed.): *The Red Data Book of Flora of Serbia* 1, 90-91, 425. Ministry of Environment of the Republic of Serbia, Faculty of Biology, University of Belgrade, Institute for Protection of Nature of the Republic of Serbia, Belgrade.

Strid, A. (1986). *Cerastium* L. In: *Mountain Flora of Greece* 1 (Ed. A. Strid), 110-122. Cambridge University Press, Cambridge.

Strid, A. (1997). *Cerastium* L. In: *Flora Hellenica* 1 (Eds. A. Strid and K. Tan), 198-214. Koeltz Scientific Books, Königstein.

НОМЕНКЛАТУРНИ И ТАКСОНОМСКИ ПРИЛОЗИ ЗА ФЛОРУ СРБИЈЕ И БАЛКАНСКОГ ПОЛУОСТРВА. I. CARYOPHYLLACEAE

М. НИКЕТИЋ¹, В. СТЕВАНОВИЋ² и ГОРДАНА ТОМОВИЋ

¹Природњачки музеј, 11000 Београд, Србија

²Институт за ботанику, Биолошки факултет, Универзитет у Београду, 11000 Београд, Србија

Номенклатурно је анализирано 12 аутохтоних и већином ендемичних врста из родова *Atocion* Adans., *Cerastium* L., *Heliosperma* (Rchb.) Rchb. и *Silene* L. (*Caryophyllaceae*). У складу са ICBN описано је 12 нових инфраспецијских таксона чији је *locus classicus* на територији Србије. Такође је дато 24 нових номенклатурних комби-

нација, од којих се неке односе и на ендемске таксоне који расту ван Србије. Уз номенклатуру појединих таксона приложен је и кратак таксономско-хоролошки осврт. Резултати истраживања приказаних у овом раду биће једним делом инкорпорирани у наредни волумен едиције „Флора Србије“.