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NEW LOCALITIES OF SOME FLORISTICALLY INTERESTING SPECIES IN THE NORTHWEST DINARIC MOUNTAINS IN CROATIA

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New localities of some rare and floristically interesting species in the Dinaric Mountains are listed in the paper. *Daphne cneorum* L. was previously found in the hinterland mountains of the town of Rijeka, *Paeonia mascula* (L.) Mill. on Mt Velebit, *Rhamnus pumila* Turra on Mt Obruč and Mt Risnjak, *Sorbus chamaemespilus* (L.) Crantz on Mt Obruč and Mt Velebit, and *Salix waldsteiniana* Willd. on Mt Risnjak.

Key words: Dinaric Mountains, Obruč, Risnjak, Velebit, Croatia

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U radu su navedeni dosad nezabilježeni lokaliteti pet floristički zanimljivih i rijetkih biljnih vrsta na području sjeverozapadnih Dinarida u Hrvatskoj. Novi lokaliteti vrste *Daphne cneorum* L. su zabilježeni na planinama u zaleđu grada Rijeke, vrste *Paeonia mascula* na Velebitu, vrsta *Rhamnus pumila* Turra na Obruču i Risnjaku, i *Sorbus chamaemespilus* (L.) Crantz) na planinama Obruč i Velebit, te vrste *Salix waldsteiniana* Willd. na Risnjaku.

Ključne riječi: Dinarske planine, Obruč, Risnjak, Velebit, Hrvatska

Daphne cneorum L. (*Thymelaeaceae*) is an evergreen shrub with usually decumbent or ascending stems and pink, fragrant flowers. In Croatia it was found in Požeška kotlina, on Mt Požeška gora, Mt Papuk, Mt Ivančica, Samobor Hills, Mt Žumberačka

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Tab. 1. Newly found localities of *Daphne cneorum, Paeonia mascula, Rhamnus pumila, Sorbus chamaemespilus* and *Salix waldsteiniana*.

Loc. no.	Taxon	x coordinate	y coordinate	Altitude (m)	Habitat type according to National habitat classification (NKS)
1	*D. cneorum*	5455738	5032756	525	C.3.5.2.9. As. *Genisto-Caricetum mucronatae* Ht. 1956
2	*D. cneorum*	5458505	5032906	751	E.7.4.5. As. *Euphorbio triflorae-Pinetum nigrae* Trinajstić 1999
3	*D. cneorum*	5460684	5031719	576	B.2.2.1. Illyrian-Adriatic littoral scree
4	*D. cneorum*	5459431	5033417	951	C.3.5.2. *Saturejon subspicatae* H-ić 1975
5	*P. mascula*	4914121	5533001	937	E.3.5. Mediterranean-Mountain Underwood
6	*P. mascula*	4913898	5532386	904	E.3.5. Mediterranean-Mountain Underwood
7	*P. mascula*	4912749	5532932	819	E.3.5. Mediterranean-Mountain Underwood
8	*P. mascula*	4913031	5533934	838	E.3.5. Mediterranean-Mountain Underwood
9	*P. mascula*	4911914	5534655	897	E.3.5. Mediterranean-Mountain Underwood
10	*P. mascula*	4911605	5533050	997	E.3.5. Mediterranean-Mountain Underwood
11	*P. mascula*	4909929	5534397	652	E.3.5. Mediterranean-Mountain Underwood
12	*P. mascula*	4909441	5540780	751	E.3.5. Mediterranean-Mountain Underwood
13	*R. pumila*	5459866	5034647	1187	B.1.3. Alpine-Carpathian-Balcanic limestone rocks
14	*R. pumila*	5460125	5034529	1205	B.1.3. Alpine-Carpathian-Balcanic limestone rocks
15	*R. pumila*	5470699	5030787	1311	B.1.3. Alpine-Carpathian-Balcanic limestone rocks
16	*S. chamaemespilus*	5459927	5034528	1194	D.2. Subalpine scrub
17	*S. chamaemespilus*	5499347	4960230	1522	D.2. Subalpine scrub
18	*S. chamaemespilus*	5565534	4904165	1497	D.2. Subalpine scrub
19	*S. chamaemespilus*	5499541	4957180	1624	D.2. Subalpine scrub
20	*S. chamaemespilus*	5499421	4958427	1627	D.2. Subalpine scrub
21	*S. chamaemespilus*	5498822	4961067	1535	D.2. Subalpine scrub
22	*S. chamaemespilus*	5498466	4960523	1434	D.2. Subalpine scrub
23	*S. chamaemespilus*	5500059	4958346	1560	D.2. Subalpine scrub
24	*S. chamaemespilus*	5500093	4957990	1611	D.2. Subalpine scrub
25	*S. chamaemespilus*	5499855	4956232	1621	D.2. Subalpine scrub
26	*S. chamaemespilus*	5499677	4958099	1511	D.2. Subalpine scrub
27	*S. chamaemespilus*	5503409	4945954	1401	D.2. Subalpine scrub
28	*S. waldsteiniana*	5471082	5031524	1239	D.2.1.1.2. As. *Salicetum appendiculatae* Ht. 1962

gora (Oštrc), in the Plitvička Jezera National park, on Mt Obruč, Mt Snježnik, Mt Risnjak, Vinodol and Mt Velebit (HORVAT, 1962; TOMAŠEVIĆ, 1998; RANDIĆ, 2010; NIKOLIĆ, 2011).

Paeonia mascula (L.) Mill. (*Paeoniaceae*) is a perennial plant with simple biternate leaves (or with a few leaflets divided) and a red flower. In Croatia it was found in Požeška kotlina and on the nearby mountains, in Plitvička Jezera National park, on Mt Učka, Mt Kamešnica (Tovarnica) and Mt Velebit (FORENBACHER, 1990; PLAZIBAT, 2002; NIKOLIĆ, 2011).

Rhamnus pumila Turra (syn. *R. pumilus* Turra) (*Rhamnaceae*) is a deciduous, usually dioecious, more or less procumbent mountainous shrub. Some authors distinguish *R. pumilus* Turra ssp. *illyrica* Šilić as endemic taxon of the Dinaric Mountains (ŠILIĆ, 2002). In Croatia it could be found on Mt Risnjak, Mt Snježnik, Mt Obruč, around Hajdova hiža in Gorski kotar, on Mt Kapela, around Plitivice Lakes (Vilina and Farkašić draga), on Vratnik pass, Mt Klek and Potklek, near the town of Ogulin (Klečica, Sladivojka) and on Mt Biokovo (HIRC, 1903–1912; HORVAT, 1962; NIKOLIĆ, 2011).

Sorbus chamaemespilus (L.) Crantz (*Rosaceae*) is a deciduous, usually erect mountainous shrub up to 1.5 (–3) m tall. In Croatia it was previously found on Mt Ivančica, Mt Risnjak, and Mt Velebit (FORENBACHER, 1990; NIKOLIĆ, 2011). *S. chamaemespilus* was also found on Mt Kamešnica (KUŠAN, 1956) but there was no specific information whether it grows in Croatia, Bosnia or both.

Salix waldsteiniana Willd. (*Salicaceae*) is a deciduous, usually erect mountainous shrub. In Croatia it was noticed on Mt Risnjak and Mt Velebit (DEGEN, 1938; NIKOLIĆ, 2011).

The aim of this paper is to present new localities of *D. cneorum*, *P. mascula*, *R. pumila*, *S. chamaemespilus* and *S. waldsteiniana*. The presentention new localities or knowledge of the exact locations on some of the mountains mentioned earlier in the literature constitute valuable information for any subsequent research into these species.

The new localities were discovered during several field trips undertaken from May 2006 to September 2011. Standard keys for identification were used (CULLEN & HEYWOOD, 1964; TUTIN, 1978; DOMAC, 1994), while NIKOLIĆ (2011) was employed as a standard for the nomenclature of the species. Each locality was described with provision of data about the altitude and position obtained with the use of a Garmin eTrex Vista HCx and Gauss-Krüger coordinates system. Habitat type, according to the National habitat classification – NKS (NARODNE NOVINE, 2009), was also given. Voucher specimens were deposited in the Herbarium of the Department of Pharmaceutical Botany with the Fran Kušan Pharmaceutical Botanical Garden, Faculty of Pharmacy and Biochemistry, University of Zagreb, Zagreb.

New localities of five rare and floristically interesting species in Croatia are shown in Tab. 1.

Localities of *Daphne cneorum*

Four new locations of *D. cneorum* were registered in the mountains behind the town of Rijeka.

1. *Brgudac above Rječina spring*

Brgudac is a small karst plateau located in the low section of Mt Obruč. Plants of *D. cneorum* were found on dolomite spots inside *Sesleria tenuifolia* Schrad. grasslands.

It is worth noting that some mountain plants (*D. cneorum*, *Pinus mugo* Turra, *Gentiana clusii* Perr. et Song., *Scabiosa graminifolia* L., *Scabiosa silenifolia* Waldst. et Kit., *Carex mucronata* All.) are present here only at about 500 m a.s.l. Some other plants species that grow together with *D. cneorum* are *Satureja subspicata* Bartl ex Vis. ssp. *liburnica* Šilić, *Erica carnea* L., *Globularia cordifolia* L. ssp. *bellidifolia* (Ten.) Wettst., *Teucrium montanum* L., *Genista sericea* Wulfen, *Onosma stellulata* Waldst. et Kit., *Edraianthus tenuifolius* (Waldst. et Kit.) A. DC., *Plantago holosteum* Scop., *Potentilla australis* Krašan, *Inula ensifolia* L., and *Schoenus nigricans* L.

2. Borovica (or Borova draga) below Mt Obruč

The valley of Borovica or Borova draga is located below Kobila Crag (or Nadborovica). Plants of *D. cneorum* grow on a dolomite slope exposed to the south together with *Pinus nigra* J. F. Arnold, *Amelanchier ovalis* Medik., *Erica carnea*, *Polygala chamaebuxus* L., and *Sesleria tenuifolia*. This is the only place in the hinterland of the town of Rijeka where *D. cneorum* grows inside an indigenous *Pinus nigra* forest.

3. Mudna dol

Mudna dol is a rocky torrent gorge and steep grassland area located on the low section of Mt Obruč. Only a few plants of *D. cneorum* were found near the trail from Potkilavac to Hahlić. Plants are stunted, in poor condition, and grow on the southeast-exposed scree below Nosi Crag. Vegetation is very scarce and formed mostly of *Sesleria tenuifolia* turf and individual plants of *Daphne alpina* L.

4. Valley below small pool Hahlići (Mt Obruč)

Plants of *D. cneorum* were found on the east-exposed slope inside *Sesleria tenuifolia* grassland and with dolomite substrate.

Localities of *Paeonia mascula*

Paeonia mascula was found at eight new locations in the south section on Mt Velebit at altitudes between 650 and 950 m a.s.l. The presence of *P. mascula* in this area (Paklenica National Park, Tulove grede, Sveto brdo, Crnopac) was previously noticed by FORENBACHER (1990) and ALEGRO (2004).

5. Ribnička vrata

Ribnička vrata is a grassland area mixed with shruby vegetation and located near Veliko Rujno. Plants of *P. mascula* grow on the site exposed to the southwest together with *Fagus sylvatica* L., *Pinus nigra*, *Sorbus aria* (L.) Crantz, *Cornus mas* L., *Viburnum lantana* (L.) Spreng., *Rosa pendulina* L., and *Orchis purpurea* L.

6. Rujanska kosa

Rujanska kosa is a grassland area interrupted by stones and located between Veliko Rujno and Malo Rujno. *P. mascula* sporadically grows together with *Pinus nigra* trees on the site exposed to the southwest. Some other plant species that grow together with *P. mascula* are *Fagus sylvatica*, *Pinus nigra*, *Sorbus aria*, *Cornus mas*, *Viburnum lantana*, *Rosa pendulina*, and *Orchis purpurea*.

P. mascula was also found on three microlocations on Veliko Rujno area.

7. Veliko Rujno 1

P. mascula grows at the edge of a *Pinus nigra* forest on a sites with southwestern or southeastern exposure. Plant species that grow together with *P. mascula* are *Acer*

campestre L., *A. monspessulanum* L., *Sorbus aria*, *Vaccinium myrtillus* L., *Convallaria majalis* L., *Lilium martagon* L. var. *cattaniae* Vis., *Cephalanthera rubra* (L.) Rich., *C. longifolia* (L.) Fritsch., *Orchis purpurea*, and *O. morio* L.

8. Veliko Rujno 2

P. mascula was noticed at the edge of a *Pinus nigra* forest together with *Acer campestre*, *A. monspessulanum*, *Sorbus aria*, *Vaccinium myrtillus*, *Lilium martagon* var. *cattaniae*, *Orchis purpurea*, *O. morio*, *Cephalanthera rubra*, *C. longifolia*, and *Convallaria majalis*.

9. Veliko Rujno 3

P. mascula grows at the edge of a *Pinus nigra* forest together with *Sorbus aria*, *Acer campestre*, *A. monspessulanum*, *Vaccinium myrtillus*, *Lilium martagon* var. *cattaniae*, *Convallaria majalis*, *Orchis purpurea*, *O. morio*, *Cephalanthera rubra*, and *C. longifolia*.

10. Bojinac

In this rocky area, *P. mascula* grows on sites exposed to the northeast and northwest together with shrubby forms of *Ostrya carpinifolia* Scop., *Acer obtusatum* Kit. ex Willd., *A. campestre*, *Cornus mas*, *Sorbus aria*, and *Prunus mahaleb* L.

11. Veliki Vaganc

Several plants of *P. mascula* were found at the edge of a shrubby area exposed to the southwest. Plant species that grow nearby are *Acer monspessulanum*, *A. campestre*, *A. obtusatum*, *Qurecus pubescens* Willd., *Prunus mahaleb*, *Cornus mas*, *Cotinus coggygria* Scop., *Rosa pendulina*, and *Prunus spinosa* L.

12. Velika Močila

Velika Močila is a plateau (near Mala Paklenica canyon) with an old black pine forest and a spring. Plants of *P. mascula* were found on sites with a southeastern exposure. Plant species that grow nearby are *Pinus nigra*, *Sorbus aria*, *Cornus mas*, *Juniperus oxycedrus* L., *Rosa pendulina*, *Daphne mezereum* L., *D. laureola* L., *Lilium martagon* var. *cattaniae*, *Plantago media* L., *Cephalanthera rubra*, *C. longifolia*, and *C. damasonium* (Mill.) Druce.

Localities of *Rhamnus pumila* Turra

New localities of *R. pumila* were found on Mt Obruč in the mountain hinterland of the town of Rijeka and on Mt Risnjak. HIRC (1903–1912) and HORVAT (1962) mentioned the presence of *R. pumila* on Mt Risnjak and Mt Obruč, but without any specific information as to where it grows.

13. Napa (Mt Obruč)

Napa is a rocky peak in the Pakleno area located on the right side of the trail (in the direction of the Hahlić mountain hut). *R. pumila* grows from the fissures on the vertical limestone rocks exposed to the northeast. *R. pumila* also grows on a small scree, which enabled determination of the habitat type according to the National Habitat Classification. Plant species that grow together with *R. pumila* on the vertical rocks are *Salix appendiculata* Vill., *Juniperus communis* L. ssp. *nana* Syme, *Daphne alpina*, *Micromeria thymifolia* (Scop.) Fritsch, *Leontopodium alpinum* Cass., *Silene saxifraga* L., *Campanula cespitosa* Scop., *Erigeron glabratus* Bluff et Fingerh., *Asplenium trichomanes* L., *A. ruta-muraria* L., *Calamagrostis* Adans. sp., and *Hieracium* L. sp. Plant species that grow together with *R. pumila* on the scree are *Galium lucidum* All.,

Kernera saxatilis (L.) Sweet, *Cyclamen purpurascens* Mill., *Athamanta turbith* (L.) Brot. ssp. *haynaldii* (Borbás et Euchtr.) Tutin, *Campanula cespitosa*, *Ranunculus carinthiacus* Hope, *Daphne alpina*, *Silene saxifraga*, *Erigeron glabratus*, *Polygala chamaebuxus*, *Clematis alpina* (L.) Mill., and *Thesium* L. sp.

14. Sightseeing spot near Špilja in the Pakleno area (Mt Obruč)

Few hundred meters from the peak called Napa there is an unnamed sightseeing spot located on the left side of the trail (in the direction of the Hahlić mountain hut) in the Pakleno area. Plant species that grow together with *R. pumila* are *Daphne alpina*, *Juniperus communis* ssp. *nana*, *Clematis alpina*, *Amelanchier ovalis*, *Rhododendron hirsutum* L., *Teucrium montanum*, *Polygala chamaebuxus*, *Micromeria thymifolia*, *Campanula cochlearifolia* Lam., *Carex brachystachys* Schrank, *Sesleria tenuifolia*, and *Asplenium ruta-muraria*.

15. Unnamed rock near Viljska ponikva (Mt Risnjak)

Viljska ponikva is the biggest karst valley in the Risnjak National Park. *R. pumila* was found on the rocks on the north-eastern side of Viljska ponikva. Plants of *R. pumila* grow from the fissures on the vertical limestone rocks exposed to the east. Plant species that grow nearby are *Salix appendiculata*, *Juniperus communis* ssp. *nana*, *Clematis alpina*, *Satureja subspicata* ssp. *liburnica*, *Buphthalmum salicifolium* L., *Galium lucidum*, *Campanula cespitosa*, *Gentiana lutea* L. ssp. *symphyandra* (Murb.) Hayek, *Silene saxifraga* L., *Saxifraga paniculata* L., *Anthericum ramosum* L., *Laserpitium siler* L., *Ligusticum lucidum* Mill., *Carex brachystachys*, *Sesleria tenuifolia*, *Asplenium ruta-muraria*, *Hieracium* sp., *Leucanthemum* Mill. sp., *Aquilegia nigricans* Baumg., and *Calamagrostis* sp.

Localities of *Sorbus chamaemespilus* (L.) Crantz

S. chamaemespilus was found on two distinct geographical sites: the mountain hinterland of Rijeka and on Mt Velebit. In the mountain hinterland of Rijeka it was found at one location.

16. Špilja in the Pakleno area (Mt Obruč)

A few hundred meters from Napa peak there is an unnamed sightseeing spot located on the left side of the trail (in the direction of Hahlić mountain hut). A few plants of *S. chamaemespilus* grow near the trail, on a site exposed to the north. Plant species that grow together with *S. chamaemespilus* are *Picea abies* (L.) H. Karst., *Fagus sylvatica*, *Pinus mugo*, *Salix appendiculata*, *Juniperus communis* ssp. *nana*, *Cotoneaster integerrimus* Medik., *Rhododendron hirsutum*, *Daphne mezerum*, *Rosa pendulina*, *Polygala chamaebuxus*, *Convallaria majalis*, *Thesium* sp., *Campanula cochlearifolia*, *Cirsium erisithales* (Jacq.) Scop., *Allium ericetorum* Thore, *Sesleria tenuifolia*, *Calamagrostis villosa* (Chaix) J. F.Gmel., and *Melica* L. sp.

So far *S. chamaemespilus* was noted for eleven locations on Mt Velebit. The presence of *S. chamaemespilus* at some other locations on Mt Velebit was previously noticed by FORENBACHER (1990) and NIKOLIĆ (2011).

17. Premužićeva staza 1

A few plants of *S. chamaemespilus* grow on the right side (in the direction of the Alan mountain hut) of the trail, two kilometres from the beginning of Premužićeva staza [trail]. Plant species that grow nearby are *Pinus mugo*, *Fagus sylvatica*, *Picea abies*, *Juniperus communis* ssp. *nana*, *Rosa pendulina*, *Sorbus chamaemespilus*, *S. aucu-*

paria L., *Salix appendiculata*, *Lonicera alpigena* L., *L. caerulea* L. ssp. *borbasiana* (Kuntze) E. May., *Amelanchier ovalis*, *Sambucus racemosa* L., *Cotoneaster integerrimus*, *C. nebrodensis* (Guss.) K. Koch, *Rubus idaeus* L., *Solanum dulcamara* L., *Micromeria thymifolia*, *Cirsium erisithales*, *Gentiana lutea* ssp. *symphyandra*, *Prenanthes purpurea* L., *Achillea clavennae* L., *Lamium galeobdolon* (L.) L., *Epilobium angustifolium* L., *Hypericum* L. sp., and *Adenostyles* Cass. sp.

18. Premužićeva staza 2

Several plants of *S. chamaemespilus* were found on the right side of the trail (in the direction of Alan mountain hut), about 1.6 km from the beginning of Premužićeva staza. Plant species that grow nearby are *Fagus sylvatica*, *Picea abies*, *Sorbus aria*, *S. aucuparia*, *Salix appendiculata*, *Lonicera alpigena*, *L. caerulea* ssp. *borbasiana*, *Rosa pendulina*, *Cotoneaster integerrimus*, *Juniperus communis* ssp. *nana*, *Cirsium erisithales*, *Achillea clavennae*, *Convallaria majalis*, *Gentiana lutea* ssp. *symphyandra*, *Micromeria thymifolia*, *Campanula waldsteiniana* Schult., *Adenostyles* sp., *Viola* L. sp., and *Hypericum* sp.

19. Crikvena

Crikvena (1641 m a.s.l.) is a famous peak in the northern section of Mt Velebit. Plants of *S. chamaemespilus* grow at the bottom of Crikvena peak inside a *Pinus mugo* stand. Plant species that grow nearby are *Pinus mugo*, *Fagus sylvatica*, *Acer pseudoplatanus* L., *Picea abies*, *Sorbus aucuparia*, *Salix appendiculata*, *Ribes alpinum* L., *Lonicera alpigena*, *L. caerulea*, ssp. *borbasiana*, *Daphne mezereum*, *Vaccinium vitis-idaea* L., *V. myrtillus*, *Prenanthes purpurea*, *Gentiana lutea* ssp. *symphyandra*, *Eryngium alpinum* L., *Buphthalmum salicifolium*, *Lamium galeobdolon*, *Cirsium erisithales*, and *Heracleum sphondylium* L.

20. Premužićeva staza 3

A few plants of *S. chamaemespilus* grow on the left side (in the direction of Alan mountain hut) of the trail, 4.4 km from the beginning of Premužićeva staza. Plant species that grow nearby are *Fagus sylvatica*, *Pinus mugo*, *Salix appendiculata*, *Ribes alpinum*, *Rosa pendulina*, *Juniperus communis* ssp. *nana*, *Rubus idaeus*, *Lonicera alpigena*, *L. caerulea* ssp. *borbasiana*, *Heracleum sphondylium*, *Buphthalmum salicifolium*, *Mycelis muralis* (L.) Dumort., *Senecio ovatus* (Gottfr. Gaertn., B. Mey. et Scherb.) Willd., *Melampyrum nemorosum* L., *Cirsium erisithales*, *Eryngium alpinum*, *Prenanthes purpurea*, *Gentiana lutea* ssp. *symphyandra*, *Carlina acaulis* L., *Seseli montanum* L., *Silene vulgaris* (Moench) Garcke, *Asplenium trichomanes*, and *Scrophularia* L. sp.

21. Smrčeve doline 1

Smrčeve doline is a great comples of *Picea abies* forest. *S. chamaemespilus* were noticed on an unnamed peak at the beginning (in the direction of Zavižan) of this forest complex. A few plants grow on the site exposed to the southeast. Plant species that grow nearby are *Fagus sylvatica*, *Picea abies*, *Ribes alpinum*, *R. petraeum* Wulfen, *Salix appendiculata*, *Rubus idaeus*, *R. saxatilis* L., *Rosa pendulina*, *Lonicera alpigena*, *L. caerulea* ssp. *borbasiana*, *L. nigra* L., *Vaccinium vitis-idaea*, *V. myrtillus*, *Clematis alpina*, *Melampyrum nemorosum*, *Prenanthes purpurea*, *Mercurialis perennis* L., *Lamium galeobdolon*, *Maianthemum bifolium* (L.) F. W. Schmidt., *Mycelis muralis*, *Polystichum lonchitis* (L.) Roth, *Adenostyles* sp., *Phyteuma* L. sp., and *Veronica* L. sp.

22. Smrčeve doline 2

A few plants of *S. chamaemespilus* were found on rocks with a northeastern exposure and located at the edge of karst valley. Plant species that grow nearby are

Fagus sylvatica, *Picea abies*, *Abies alba* Mill., *Salix appendiculata*, *Cotoneaster integerrimus*, *Rubus idaeus*, *R. saxatilis*, *Rosa pendulina*, *Clematis alpina*, *Asplenium ruta-muraria*, *Polystichum lonchitis*, and *Campanula* L. sp.

23. Vratarski kuk

Vratarski kuk (1678 m a.s.l.) is a famous peak in the northern section of Mt Velebit. A few plants of *S. chamaemespilus* were found in a *Pinus mugo* stand and near the hiking trail to this peak. Plant species that grow nearby are *Pinus mugo*, *Picea abies*, *Fagus sylvatica*, *Salix appendiculata*, *Lonicera alpigena*, *L. caerulea* ssp. *borbasiana*, *Juniperus communis* ssp. *nana*, *Rosa pendulina*, *Vaccinium vitis-idaea*, *Clematis alpina*, *Cirsium erisithales*, *Gentiana lutea* ssp. *symphyandra*, *Ranunculus platanifolius* L., *Solidago virgaurea* L., *Seseli montanum*, *Convallaria majalis*, and *Adenostyles* sp.

24. Depression near the Vratarski kuk – Novotnijev kuk trail

A few plants of *S. chamaemespilus* were found on the right side of the trail (in the direction of Novotnijev kuk). They grow among rocks exposed to the southeast and south. Plant species that grow nearby are *Fagus sylvatica*, *Picea abies*, *Pinus mugo*, *Juniperus communis* ssp. *nana*, *Rosa pendulina*, *Lonicera alpigena*, *Amelanchier ovalis*, *Ribes alpinum*, *Rubus idaeus*, *Cirsium erisithales*, *Gentiana lutea* ssp. *symphyandra*, *Carlina acaulis*, *Senecio ovatus*, *Achillea clavennae*, *Buphthalmum salicifolium*, *Lamium galeobdolon*, *Heracleum sphondylium*, *Hypericum* sp., *Phyteuma* sp., and *Scrophularia* L. sp.

25. Krajačev kuk

Krajačev kuk (1690 m a.s.l.) is a famous peak in the northern section of Mt Velebit. A few plants of *S. chamaemespilus* were also found near the hiking trail at the bottom of Krajačev kuk. Plant species that grow nearby are *Fagus sylvatica*, *Picea abies*, *Acer pseudoplatanus*, *Pinus mugo*, *Lonicera alpigena*, *Juniperus communis* ssp. *nana*, *Rosa pendulina*, *Cirsium erisithales*, *C. eriophorum* (L.) Scop., *Convallaria majalis*, *Buphthalmum salicifolium*, *Senecio ovatus*, *Heracleum sphondylium*, *Mercurialis perennis*, *Anemone nemorosa* L., *Polystichum lonchitis* (L.) Roth, *Solidago virgaurea*, *Mycelis muralis*, *Prenanthes purpurea*, *Silene vulgaris*, *Centaurea* L. sp., and *Hypericum* sp.

26. Premužićeva staza – Veliki Kozjak

Veliki Kozjak (1629 m a.s.l.) is a famous peak in the northern section of Mt Velebit. Several plants of *S. chamaemespilus* were found at the beginning of the hiking trail (in the direction of Veliki Kozjak) from Premužićeva staza to Veliki Kozjak. *S. chamaemespilus* grows together with *Fagus sylvatica*, *Lonicera alpigena*, *Rosa pendulina*, *Vaccinium vitis-idaea*, *V. myrtillus*, *Maianthemum bifolium*, *Prenanthes purpurea*, *Melampyrum nemorosum*, *Gentiana lutea* ssp. *symphyandra*, *Buphthalmum salicifolium*, *Achillea clavennae*, *Mercurialis perennis*, *Lilium martagon* var. *cattaniae*, *Daphne mezereum*, *Hypericum* sp.

27. Dokozina plan

S. chamaemespilus was found on the right side of the trail (in the direction of Šatorina), about 20 minutes from Dokozina plan. A few plants of *S. chamaemespilus* grow on the site exposed to the northeast. *S. chamaemespilus* grow together with *Fagus sylvatica*, *Acer pseudoplatanus*, *Laburnum alpinum* (Mill.) Bercht. et J. Presl, *Lonicera alpigena*, *Rosa pendulina*, *Rubus idaeus*, *Prenanthes purpurea*, *Mercurialis perennis*, *Anemone nemorosa*, *Euphorbia amygdaloides* L., *Veronica chamaedrys* L., *Convallaria majalis*, *Ranunculus thora* L., *Aquilegia nigricans*, *Adenostyles* sp., *Viola* sp.

Localities of *Salix waldsteiniana* Willd.

HIRC (1903–1912) mentioned the presence of *S. waldsteiniana* on Mt Risnjak, but without any specific information as to where *S. waldsteiniana* grows. These investigations confirmed the presence of *S. waldsteiniana* in Viljska ponikva on Mt Risnjak (MODRIĆ SURINA & SURINA, 2010). Also, one new location was found.

28. Karst valley below Južni Mali Risnjak (Mt Risnjak)

Južni Mali Risnjak is a peak located to the south of Veliki Risnjak peak. *Salix waldsteiniana* was found in the karst valley below the northern slope of Južni Mali Risnjak. The main characteristics of this valley are a long period of snow cover and frost that lead to the development of fragments of snow-bed vegetation. Plant species that grow together with *S. waldsteiniana* are *Picea abies*, *Salix appendiculata*, *Lonicera caerulea* ssp. *borbasiana*, *Vaccinium myrtillus*, *Rosa pendulina* L., *Rubus idaeus*, *Rubus saxatilis*, *Homogyne sylvestris* (Scop.) Cass., *Asplenium viride* Huds.

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SAŽETAK

Novi lokaliteti nekih floristički zanimljivih biljnih vrsta na području sjeverozapadnih Dinarida

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U razdoblju od svibnja 2006. do rujna 2011. godine utvrđeni su novi, dosada u literaturi nezabilježeni lokaliteti nekih floristički zanimljivih i na području sjeverozapadnih Dinarida Hrvatske razmjerno rijetkih biljnih vrsta: crvenog uskolisnog likovca (*Daphne cneorum* L.), velelisnog božura (*Paeonia mascula* (L.) Mill.), patuljaste krkavine (*Rhamnus pumila* Turra), mukinjice (*Sorbus chamaemespilus* (L.) Crantz) i Waldsteinove vrbe (*Salix waldsteiniana* Willd.).

Četiri nova lokaliteta crvenog uskolisnog likovca zabilježena su na širem području planine Obruč u zaleđu Rijeke. Velelisni božur utvrđen je na osam novih lokaliteta na južnom Velebitu na nadmorskoj visini između 650 i 950 m. Dvije prirodne populacije patuljaste krkavine zabilježene su na planini Obruč u zaleđu Rijeke, dok je jedna zabilježena na području Risnjaka. Mukinjica je zabilježena na jednom lokalitetu na planini Obruč, te na još jedanaest lokaliteta na području sjevernog Velebita. Jedna populacija u nas iznimno rijetke Waldsteinove vrbe zabilježena je na Risnjaku (podno južnog Malog Risnjaka).

Poznavanje točnih lokaliteta ovih, u Hrvatskoj razmjerno rijetkih biljnih vrsta, predstavlja veliku pomoć pri prikupljanju uzoraka svima onima koji će ih u budućnosti detaljnije proučavati.