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Chorological data for some new, doubtfully known and rare plants in the flora of the Republic of Macedonia

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Abstract

Senecio sylvaticus is reported as a new species in the flora of Republic of Macedonia while new records are presented for the following 14 doubtfully known or rare taxa: *Carex tomentosa, Galeopsis angustifolia, Centaurea graeca, Centranthus longiflorus* subsp. *junceus, Epipactis microphylla, Epipactis palustris, Eruca vesicaria, Gentianella ciliata, Isopyrum thalictroides, Lathyrus palustris, Minuartia juniperina* subsp. *kosaninii, Ranunculus auricomus* s.l., *Ranunculus incomparabilis* and *Sanguisorba officinalis.*

Key words: distribution, flora, Macedonia, new records, rare taxa, *Senecio sylvaticus*.

Introduction

The Republic of Macedonia is a small country with a relatively rich vascular flora. Despite the extensive floristic researches lasting more than one and half century new taxa for the vascular flora of this country are continuously discovered with additions of numerous new chorological data for many rare plants as well as confirmations of some doubtfully known ones. In this paper the author presents a part of the results of the floristic investigations carried out during the last several years in different parts of the country territory.

Material and methods

During the fieldwork representative specimens were collected and photographed. They were labelled with the specific data regarding the location (including GPS coordinates), habitat and state of the populations. The collected material was herbarized according to the standard methods and stored in the personal herbarium of the author. Identification was performed according to the relevant standard floras as well as some monographic works (Tutin & al. 1964-1980, etc.). Previously known chorological data for each of the taxa are presented on a base of relevant literature regarding the flora of Macedonia. The distribution of 13 taxa in Macedonia is presented on relief maps.

Results and discussion

***Carex tomentosa* L.** (Figs. 1, 6)

Mt Galičica – above Ljubaništa village, 1200 m, 40° 54'18.60"N, 20°47'36.84"E, shrubby places, limestone, 19.8.2016, leg. A. Teofilovski.

This is a first confirmation of this species in the flora of Macedonia after period of almost nine decades. The only earlier report for this species in Macedonia refers to "Petrina - St. Petka" (Malý 1931), a locality situated most probably near Velgošti village, in N part of Mt Galičica, 25 km north from the newly discovered locality near Ljubaništa village.

***Centaurea graeca* Griseb.**

Mt Jablanica – 1.3 km NW from Lukovo village, roadside, 870 m, 41°21'23.09"N, 20°35'42.66"E, 28.6.2016, leg. A. Teofilovski; Mt Jablanica – 2.7 km SW from Oktisi village, stony place, limestone, 1130 m, 41° 12'42.20"N, 20°35'14.56"E, 17.7.2017, leg. A. Teofilovski; Mt Jablanica (foothills) – coastal area between Kališta village and Elen Kamen, rocky and stony places, limestone, 700 - 730 m, 41° 8'9.51"N, 20°38'43.74"E, 22.6.2016, observ. A. Teofilovski (photog.); Mt Kožuf – Mrežičko village, near the road to Majdan, stony place, limestone, 530 m, 41°12'12.50"N, 21°58'56.72"E, 23.6.2015, leg. A. Teofilovski.

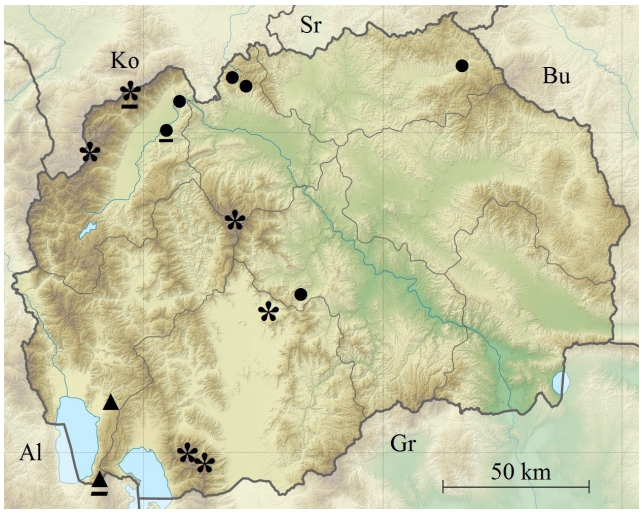

Figure 1. Distribution of *Carex tomentosa* (▲), *Isopyrum thalictroides* (●) and *Ranunculus incomparabilis* (∗) in Macedonia. The underlined symbols are new records.

These are the first reports of this S Balkan endemic from Mt Jablanica and mountain massif Kožuf - Nidže, but otherwise well-known from several areas in S & C parts of Macedonia, northward to Zelenikovo, eastward to Mt Blasica and westward to the west coast of Prespa Lake (Bornmüller 1926, Soška 1941, Rudski 1943, Micevski 1970). The range of this species also includes mainland of Greece (Dimopoulos & al. 2013), two localities in SE Albania - southern coast of Ohrid Lake (Bornmüller 1926) and the west coast of Prespa Lake (Barina & al. 2017), and SW Kosovo - Mt Paštrik (Gajić 1977).

***Centranthus longiflorus* subsp. *junceus* (Boiss. & Heldr.) I. Richardson** (Figs. 2, 7)

Mt Šar Planina - Vejce village, Dupen Kamen, limestone screes, 1640 - 1830 m, 42°4'28.89"N, 20° 56'38.47"E, 10.7.2018, leg. A. Teofilovski.

This is a S Balkan endemic subspecies and the only representative of *C. longiflorus* in the flora of Macedonia. Previously it was known only from three close between each other sites in the NW parts of the country: Gorna Radika (Grebenščikov 1937, sub *C. junceus* Boiss. & Heldr.), Mt Korab – Dlaboka Reka (Micevski 1973, sub *C. junceus*) and Koža (Rizovski 1984, sub *C. junceus*).

***Epipactis microphylla* (Ehrh.) Sw.** (Figs. 4, 8)

Mt Šar Planina – 1.9 km SE-S from mountain lodge Ljuboten, beech forest, limestone, 1440 m, 42°10'13.33"N, 21° 8'25.08"E, 5.8.2017, leg. A. Teofilovski; Mt Karadžica – Oča river valley, 0.7 km NW-W from mountain lodge Selište, stony place, limestone, 1020 m, 41°45'32.00"N, 21°15'16.27"E, 7.6.2014, leg. A. Teofilovski; Mt Jablanica – near the road to Lakavica village, 1150 m, 41°18'8.39"N, 20°34'16.76"E, 30.6.2016, leg. A. Teofilovski; Mt Jablanica – 1.4 km N from Sveti Ilija, beech forest, 1600 m, 41° 19'54.49"N, 20°32'16.27"E, 17.8.2016, leg. A. Teofilovski; Mt Plačkovica - S from Laki village, deciduous forest, 1050 m, 18.6.2018, observ. A. Teofilovski (photo.).

The previous reports of this species are: Mt Kožuf (Adžibarica) (Vandas 1909), Mt Galičica (Golem Osoj) (Em 1986), Mt Suva Gora (Sedlarevo, Lopušnik) and Kičevo (Studenčica) (Teofilovski 2011). Although it is already known from several localities in different mountain regions, according to the author's observation this species still should be considered a very rare in Macedonian flora, since populations are usually represented with only few individuals.

***Epipactis palustris* (L.) Crantz** (Fig. 2)

Mt Jablanica – 1.0 km W from Lakavica village, 1370 m, marshy place, 41°19'28.11"N, 20°31'12.16"E, 13.7.2016, leg. A. Teofilovski; Mt Jablanica – near the road 1,0 km W from Gorna Belica village, 1540 m, wet place, 15.7.2017, observ. A. Teofilovski; Mt Šar Planina – 4 km W-SW from Bozovce village, marshy place, 1550 m, 42°2'1.78"N, 20°47'15.32"E, 2.9.2017, leg. A. Teofilovski; Kratovo – 1.7 km SE, damp place near the local water reservoir, 770 m, 42°4'6.88"N, 22° 11'40.15"E, 26.6.2017, leg. A. Teofilovski, B. Micevski; Mt Ogražden – 7.0 km NE from Drvoš village, marshy place, 1420 m, 41°32'4.94"N, 22°50'33.25"E, 23.7.2016, leg. A. Teofilovski, B. Micevski.

This is the only species of the genus *Epipactis* L. in Europe occurring on damp and marshy habitats. For a long time, the only locality in Macedonia where it has been known to occur was Mavrovsko Pole (Em 1957) and only recently it was reported also on Mt Suva Gora (Lukovica) (Matevski & Teofilovski 2004).

***Eruca vesicaria* (L.) Cav.** (Fig. 3)

Tetovo – in front of the municipality building, 42° 0'23.49"N, 20°58'26.29"E, 7.5.2018, leg. A. Teofilovski.

Only few specimens were observed growing between decorative shrubs in the central part of city of Tetovo. This species was included in the "Flora of the Republic of Macedonia" (Micevski 1995) only on a base of following rather old literature data, without any recent field confir-

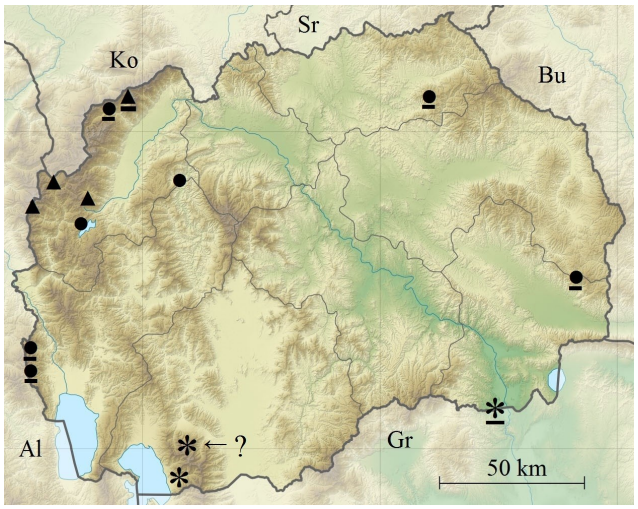

Figure 2. Distribution of *Centranthus longiflorus* subsp. *junceus* (▲), *Epipactis palustris* (●) and *Galeopsis angustifolia* (∗) in Macedonia. The underlined symbols are new records.

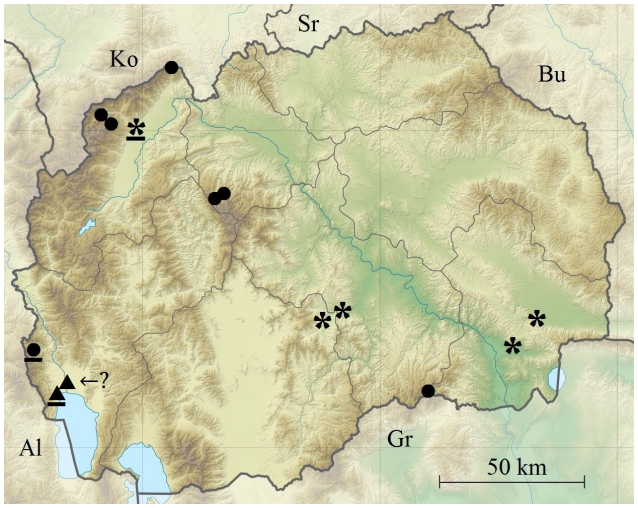

Figure 3. Distribution of *Eruca vesicaria* (∗), *Gentianella ciliata* (●) and *Lathyrus palustris* (▲) in Macedonia. The underlined symbols are new records.

mation: Drenovo gorge (Jurišić 1923, sub *E. sativa* Mill.), Valandovo (Kajali), Prilep (Trojaci) (Stojanoff 1928, sub *E. sativa*) and Strumica (Rudski 1943, sub *E. sativa*). Marhold (2011) considers this species in Macedonia alien with unknown status, which, according to the present knowledge, seems to be an acceptable remark. Among the neighbouring countries it is not known from Serbia, Kosovo and Albania while in Bulgaria and Greece it is considered native (Kuzmanov 1970, Dimopoulos & al. 2013).

***Galeopsis angustifolia* Ehrh. ex Hoffm.** (Figs. 2, 9 a,b)

Gevgelija - train station, on the railway track, 41° 8'42.22"N, 22°30'42.80"E, 16.8.2018, leg. A. Teofilovski.

Only one exemplar was found growing at the stony layer of the railway track but the largest part of the locality has been not checked. From the territory of Macedonia this species was known by two rather old reports that were not recently confirmed: Resen - Brajčino village (Dimitrov 1908) and Pelister [Todorovski 1963, sub *G. ladanum* var. *angustifolia* (Hoffm.) Gaud.]. The later report seems doubtful since the author in his following work (Todorovski 1967) reported for the same locality *G. ladanum* s.l. that could be interpreted as a correction of the previous identification.

The range of *G. angustifolia* comprises much of C, W and S Europe and Morocco, but as introduced species it occurs also in Ireland and Sweden (World Checklist of Selected Plant Families 2010). On the territory of Balkan Peninsula this is a rare species but known from all countries excluding European part of Turkey (World Checklist of Selected Plant Families 2010). Within the countries neighboring Macedonia, it is known from a single locality on Albanian Alps in Albania (Barina & al. 2017), a single and doubtful locality Nestos River gorge in NE Greece (Dimopoulos 2013) and Predbalkan and Black Sea coast regions in Bulgaria (Asenov 1989), while in Serbia (incl. Kosovo) it is considered "widespread but less frequent than *G. ladanum*" (Diklić 1974).

G. angustifolia is closely related to *G. ladanum* L., which has more frequent occurrence in Macedonia and differs mainly in its patent indumentum of the calyx and broader leafs.

***Gentianella ciliata* (L.) Borkh.** (Fig. 3)

Mt Jablanica – N Slopes of Strižak, pastures on limestone, 1750 m, 41°17'49.75"N, 20°32'12.00"E, 2.9.2016, leg. A. Teofilovski.

This species was known only from three mountains regions: Mt Kožuf (Momina Čuka) (Vandas 1909), Mt Šar Planina (Popova Šapka, Elak, Lešnica, Ljuboten) and Mt Karadžica (Rada Planina, Patiška Reka) (Matevski 2010).

***Isopyrum thalictroides* L.** (Fig. 1)

Mt Žeden (foothills) - Siričino village, near the road to Tudence village, between oak trees, 42° 1'6.85"N, 21° 5'55.08"E, 21.4.2015, leg. A. Teofiovski.

This is a very rare early flowering species in Macedonian flora which presence was not confirmed in the treatment of the family *Ranunculaceae* in "The flora of SR Macedonia" (Micevski 1985). In this treatment it was included on a base only of literature data for Kriva

Palanka (Urumov 1922) and Mt Skopska Crna Gora (Grupče 1958) with addition of a personal information of H. Em for two localities - Žeden gorge and Mt Babuna (An – Abdi paša). In the cited work the report from Kosovo part of Mt Šar Planina (Kačanik) (Bornmüller 1925) was incorrectly related to the territory of Macedonia.

***Lathyrus palustris* L.** (Fig. 3)

Struga – Kališta marsh, in a dense stands of *Carex* sp., 41° 9'39.36"N, 20°38'57.24"E, 13.6.2017, leg. A. Teofilovski.

This species was previously known only from the "former Struga marsh" (Micevski 2001), which is nowadays almost completely drained and transformed into an agricultural land and thus most probably it no longer exists there. Therefore, Kališta marsh that actually represents an adjacent part of the former Struga marsh, is the only locality in Macedonia where the current occurrence of this species is confirmed. Unfortunately, the recorded small population is highly endangered due to the intensive drainage and construction activities in the recent years.

***Minuartia juniperina* subsp. *kosaninii* Stevanović & Kamari** (Figs. 4, 10)

Mt Šar Planina - Bistrica River valley, Dobra Strana, rocks cervices, 1950 m, 42°7'38.87"N, 20°58'25.79"E, 19.7.2018, leg. A. Teofilovski.

This is a steno endemic chasmophyte restricted to Macedonian part of Mt Šar Planina. It was previously known only from the locus classicus – Brezjanski Kuli (Kamari & Stevanović 1996), a nearby rocky ridge between Lesočka and Bistrica rivers.

***Ranunculus auricomus* s.l.**

Mt Maleševski Planini - NE-E from Smilanci village, forest clearing with *Pteridium aquilinim*, 1300 m, 41° 43'37.60"N, 22°40'49.19"E, 25.4.2017, leg. A. Teofilovski.

Ranunculus auricomus s.l. is an Eurasian polyploid complex of hundreds of apomictic and several sexual species, described mostly from Scandinavia and Central Europe. In Balkan Peninsula this complex is quite poorly known in terms of the modern taxonomy. In Macedonia (as well as Albania) the only known member of this complex was the SW Balkan endemic *R. degenii* Kümmerle & Jáv. known from few mountain areas in W & NW parts of the country: Mts Šar Planina, Korab and Dešat (Micevski 1985, Barina & al. 2017). The population from Mt Maleševski Planini does not belong to *R. degenii* and is therefore to be considered a second representative of *R. auricomus* complex in the flora of Macedonia which identification needs further studies.

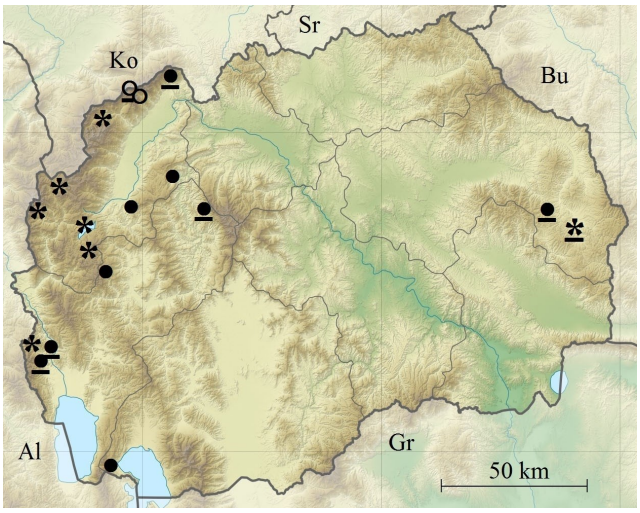

Figure 4. Distribution of *Epipactis microphylla* (●), *Minuartia juniperina* subsp. *kosaninii* (o) and *Sanguisorba officinalis* (*) in Macedonia. The underlined symbols are new records.

***Ranunculus incomparabilis* Janka** (Fig. 1)

Mt Šar Planina – Bistrica River, Smik, wet place near a siliceous rock, 1615 m, 42°07'17.66" N, 20°50'42.47" E, 18.6.2018, leg. A. Teofilovski.

So far there are only few reported localities of this species in Macedonia: Mt Šar Planina (Bogovinjska River) (Ade 1954), Mt Baba (Bukovo Planina) (Adamović 1904), Mt Baba (Pelister), Mt Jakupica and Prilep (near Treskavec) (Micevski 1985).

***Sanguisorba officinalis* L.** (Fig. 4)

Mt Maleševski Planini - 3.1 km SW of village of Ratevo, damp meadow, 920 m, 41°39'11.73"N, 22° 49'42.43"E, 22.7.2016, leg. A. Teofilovski, B. Micevski.

This is the first record of this species from the eastern part of Macedonia, though well-known from the following localities in the west and north-west parts: Mt Šar Planina, Lukovo Pole, Mavrovsko Pole, Mt Bistra, Mt Korab and Mt Jablanica (Micevski 1998).

***Senecio sylvaticus* L.** (Fig. 5, 11a,b)

Struga – 1.2 km NE-N from Brčevo village, deforested place, 820 m, 41°18'30.36"N, 20°40'26.04"E,

30.8.2018, leg. A. Teofilovski; Kruševo – near the forest roads SW from Pusta Reka village, 1200 - 1520 m, 41° 23'40.85"N, 21° 8'15.22"E, 15.9.2018, leg. A. Teofilovski; Kruševo – near the forest roads 2.0 km NW-W from Vrboec village, 1000 m, 41°20'20.43"N, 21°16'19.67"E, 3.10.2018, leg. A. Teofilovski.

This is a new species for the flora of the Republic of Macedonia.

Description. Erect annual up to 70 cm, with sulcate steam and ascending branches, usually somewhat floccose, glandular-hairy at least in inflorescence but not viscid. Leaves irregularly pinnatifd; basal and lower cauline leaves oblanceolate in outline, shortly petiolate; middle and upper oblong in outline, auriculate-amplexicaul. Capitula numerous, 4-6 mm in diameter, in a large terminal corymb. Involucral bracts 7-10 mm, concolorous or slightly dark-tipped, glandular-hairy; supplementary bracts 2 or 3, 1-2 mm. Ligules 8-15, very short and revolute immediately after anthesis, yellow. Achenes c. 2-5 mm, rather sparsely subappressed-hairy. (Chater & Walters 1976)

The closest representative of the genus *Senecio* L. in the flora of Macedonia is *S. vulgaris* L., widely distributed on disturbed habitats and waste places throughout entire territory of the country. It clearly defers from *S. sylvaticus* in lacking glandular hairs, having 8-10 supplementary bracts of the involucre that are usually black-tipped, etc.

On the newly recorded localities this species generally grows on freshly deforested habitats. As a pioneer species it settles deforested areas shortly (within 1-2 year) after the logging or construction of the forest roads. On the locality near Struga several tents of individuals were observed on a small freshly deforested place in an oak forest complex while on the localities near Kruševo this species occurs very abundantly in the belt of beech forests growing near recently constructed forest roads as well as on recently deforested areas along them. On the later localities this species is usually accompanied by following plants, mostly typically pioneer species: *Epilobium angustifolium*, *E. montanum*, *Erigeron canadensis, Galeopsis cf. tetrahit*, *Hieracium murorum*, *H. racemosum*, *Lactuca muralis*, *L. viminea*, *Luzula luzuloides*, *Rubus hirtus* agg., *R. idaeus*, *Sonnchus oleraceus*, *Veronica officinalis*, etc.

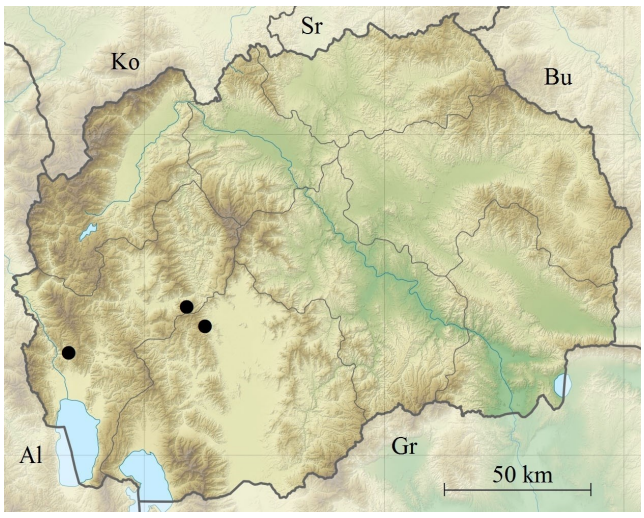

Figure 5. First records of *Senecio sylvaticus* in Macedonia (●).

Senecio sylvaticus is distributed in most of Europe, growing mostly on forest margins and disturbed ground, especially on sandy soil (Chater & Walters 1976), while introduced in S Africa, N & S America, Hawaii, Hong Kong, Australia, New Zealand, and some parts of E Europe (see Robinson & al., Greuter 2006+). This species is known in all Balkan countries with an exception of Albania (Greuter 2006+, Barina & al. 2017). Within the neighbouring countries of Macedonia it is most widely distributed in Bulgaria, occurring through the whole country though rather rarely and sporadically (Vladimirov 2012), while in Greece it is known only from NE part (Dimopoulos & al. 2013) and in Serbia only from two localities - Majdanpek (E Serbia) and Banja Koviljača (W Serbia) (Gajić 1975).

In relation to the new records, the closest previously known localities are situated more than 160 km northwest in Montenegro and 180 km east in SW Bulgaria and NE Greece. Therefore, the discovery of this species on the territory of W & C Macedonia is of noticeable phytogeographic importance, extending its area of distribution deep toward SW part of Balkan Peninsula.

Conclusions

Senecio sylvaticus is recorded for the first time in the flora of Macedonia. The new records near Struga and Kruševo extend its distribution area toward SW part of the Balkan Peninsula, with the closest known localities being situated more than 160 km northwest in Montenegro and 180 km east in SW Bulgaria and NE Greece.

The second but still unidentified representative of *Ranunculus auricomus* s.l. in the flora of Macedonia is reported from Mt Maleševski Planini.

Carex tomentosa was rediscovered on the territory of Macedonia after almost eight decades on a new locality on Mt Galičica.

The doubtful presence of *Galeopsis angustifolia* in the flora of Macedonia is confirmed with a first record in Gevgelija.

Figure 6. *Carex tomentosa* (inflorescence) (photo A. Teofilovski).

Figure 7. *Centranthus longiflorus* subsp. *junceus* (photo A. Teofilovski).

Figure 8. *Epipactis microphylla* (photo A. Teofilovski).

Figure 9. *Galeopsis angustifolia* a. whole plant, b. flower (photo A. Teofilovski).

Figure 10. *Minuartia juniperina* subsp. *kosaninii* (photo A. Teofilovski).

Figure 11. *Senecio sylvaticus* a. whole plant, b. flowering capitulas (photo A. Teofilovski)

The actual presence of *Lathyrus palustris* on the territory of Macedonia is confirmed with a first record in Kališta marsh.

The first record of *Eruca vesicaria* in Tetovo confirms the presence of this species in the flora of Macedonia.

One or more new localities are reported for the following nine rare species or subspecies: *Centaurea graeca, Centranthus longiflorus* subsp. *junceus, Epipactis microphylla, Epipactis palustris, Gentianella ciliata, Isopyrum thalictroides, Minuartia juniperina* subsp. *kosaninii, Ranunculus incomparabilis* and *Sanguisorba officinalis.*

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References

Adamović, L., 1904. Beiträge zur Flora von Macédonien und Altserbien. Denkschriften der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe, 74: 115-150.

Ade, A., 1954. Ein Ausflug in die Rudoka-Planina bei Tetovo (Mazedonien) vom 3.6.1931 mit 5.6.1931. Fragmenta Balcanica. Museum Macedonicum Scientiarum Naturalium, 1, 4: 31-35.

Asenov, I., 1989. *Galeopsis* L. In Kuzmanov B. (ed.). Flora Republica Popularis Blgaricae. Vol. IX. Academia Scientarium Bulgarica, Institutum Botanicum cum Horto, Sofia, 431-438. (In Bulgarian)

Barina, Z., Mullaj, A., Pifkó, D., Somogyi, G., Meco, M., & Rakaj, M. 2017: Distribution maps. In: Barina, Z. (ed.): Distribution atlas of vascular plants in Albania. Hungarian Natural History Museum, Budapest, 47-445.

Bornmüller, J., 1925. Beiträge zur Flora Mazedoniens, I. Botanische Jahrbücher fur Systematik, Pflanzengeschichte und Pflanzengeographie, 59: 294-504.

Bornmüller, J., 1926. Beiträge zur flora Mazedoniens II. Sammlungen in den Kriiegsjahren 1916-1918. Botanische Jahrbücher fur Systematik, Pflanzengeschichte und Pflanzengeographie, 60: 1-125.

Chater, A.O. & Walters, S.M., 1976. *Senecio* L. In: Tutin. T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valen-

tine, D. H., Walters, S. M. & Webb, D. A. (eds.). Flora Europaea 4. The University Press, Cambridge, 191-205.

Diklić, N., 1974. *Galeopsis* L. In: Josifović, M. (ed.). Flore Republique Socialiste de Sebie. Vol. VI. Academie Serbe des Sciences et des Arts, Beograd, 386-393. (In Serbian)

Dimitrov, A., 1908. Materials on the flora of the surrounding of Bitola. Periodičesko Spisanie na Blgarskoto Knižovno Družestvo. Plovdiv. 9-10: 693-748. (in Bulgarian)

Dimopoulus, P., Raus, Th., Bergmeier, E., Constantinidis, Th., Iatrou, G., Kokkini, S., Strid, A., & Tzanodacis, D. 2013. Vascular flora of Greece: an annotated checklist, Englera. 31: 1-372.

Em, H., 1957. Moorwaldchen von Grauweide (*Salix cinerea* L.) vom Mavrovsko Polje in Macedonien. Revue Forestiere. Skopje. 5(3-4): 13-19. (In Macedonian with summary in Germany)

Em, H., 1986. Zwei Phytozenosen der Macedonischen Eiche (*Quercus trojana* Webb.) in Macedonien. Annuaire de la Faculté de Sylviculture de l'Universié, Skopje, 31: 5-20. (In Macedonian with German summary)

Gajić, M., 1975. Asteraceae Dumortier. In: Josifović, M. (ed.). Flore Republique Socialiste de Sebie. Vol. VII. Academie Serbe des Sciences et des Arts, Beograd. 1-465. (In Serbian)

Greuter, W., 2006+. Compositae (pro parte majore). In: Greuter, W. & Raab-Straube, E. von (eds.): Compositae. Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity (accessed 7.10.2018).

Grebenščikov, O., 1937. Phlanzegeographische Uebersicht der wälder der oberen Radikaschlucht. Bulletin dé l'Societe Scintistic de Skopje, 13, 6: 107-124. (In Serbian with summary in Germany)

Grupče, Lj. 1958. Über das Pflanzenvorkommen in der Skopska Crna Gora. Faculté de Philosophie de l'Université de Skopje. Éditions spéciales, 9: 1-80. ((In Macedonian with German summary)

Jurišić, Ž., 1923. A contribution to the flora of South Serbia. Spomenik Srpske Kraljevske Akademije LX, Prvi razred, 10: 3-45. (in Serbian)

Kamari, G. & Stevanović, V. 1996. *Minuartia juniperina* (Caryophyllaceae) in the Balkan Peninsula. Phyton (Horn, Austria), 36, 1: 93-105.

Malý, K., 1931-1932. Carices der Balkanhalbinsel, Bulletin de l'Institut et du jardinbotaniques de l'Université de Beograd, 2: 59-66.

Marhold, K., 2011. *Brassicaceae*. In: Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity (accessed 1.10.2018) .

Matevski, V., 2010. The Flora of the Republic of Macedonia, II (1). Macedonian Academy of Sciences and Arts, Skopje, 1-187. (In Macedonian)

Matevski, V. & Teofilovski, A., 2004. New contributions for the flora of the republic of Macedonia. Proceedings of the 2nd Congress of Ecologists of the Republic of Macedonia with international Participation, 25 -29.10.2003, Ohrid. Special issues of Macedonian ekological Society, 6: 384-389. (In Macedonian with English summary)

Micevski, K., 1970. Beitrag zur Kenntnis der Flora fon Macedonien, V. Annuaire. Faculté des Sciences Naturelles de l'Université kiril et Metodij - Skopje, 22: 167-178. (In Macedonian with German summary)

Micevski, K., 1973. Beitrag zur Kenntnis der Flora fon Macedonien, VI. Annuaire. Faculté des Sciences Naturelles de l'Université kiril et Metodij - Skopje, 26: 125- 129. (In Macedonian with German summary)

Micevski, K., 1985. The Flora of SR Macedonia, I (1). Macedonian Academy of Sciences and Arts, Skopje, 1-152.

Micevski, K., 1995. The Flora of the Republic of Macedonia, I (3). Macedonian Academy of Sciences and Arts, Skopje, 398-778

Micevski, K., 1998. The Flora of the Republic of Macedonia, I (4). Macedonian Academy of Sciences and Arts, Skopje, 781-1113.

Micevski, K., 2001. The Flora of the Republic of Macedonia, I (5). Macedonian Academy of Sciences and Arts, Skopje, 1121-1430.

Rizovski, R., 1984. Neue Fundorte einiger in Mazedonien seltener Phlanzen. Patrimoine culturel, 19: 159 -168. (In Macedonian with German summary)

Robinson, D.E., O'Donovan, J.T., Sharma, M.P., Doohan, D.J., & Figueroa, R., 2003. The Biology of Canadian Weeds. 123. *Senecio vulgaris* L. Canadian Journal of Plant Science, 83: 629–644.

Rudski, I., 1943. Beitrag xur Kenntnis der Flora der Umgebung von Strumica. Ohridski zbornik, 35, 2: 205-238. (In Serbian)

Soška, T,. 1941. Beitrag zur Schluchtenfloren von Südserbien IV, Bulletin dé l'Societe Scintistic de Skopje, 12, 8: 169 – 184.

Stojanoff, N., 1928. Thracische und Mazedonische Herbarmaterialen des Verstorbenen Prof. Dr. Theodor Nikoloff. Spisanie na Blgarskata Akademia na Naukite, 17: 49-209.

Teofilovski, A., 2011. Contributions to the flora of the Republic of Macedonia. Private edition, Skopje, pp. 1-142. (In Macedonian with English summary)

Todorovski, A., 1963. A contribution for knowledge of the antierosiv flora in the district of Bitola. Prilozi, 4: 89-93. (In Macedonian with English summary)

Todorovski, A., 1967. Melliferous flora of the district of Bitola. Prilozi, 6-8: 3-20. (In Macedonian with English summary)

Tutin. T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds.). 1964-1980. Flora Europaea 1-5. The University Press, Cambridge.

Urumov, Iv. K., 1923. Beiträge zur Flora "Belomorska Trakija". Issue of Bulgarian Academy of Sciences, 28, 13: 1-107.

Vandas, C., 1909. Reliquiae Formánekianae : enumeratio critica plantarum vascularium, quas itineribus in Haemo Peninsula et Asia Minore (Bithynia) factis collegit Dr. Ed. Formánek. Brunae.

Vladmirov, V., 2012. *Senecio* L. In: Kožuharov, S.I. & Ančev, M.E. (eds.). Flora Republica Popularis Blgaricae. Vol. XI. Academia Scientarium Bulgarica, Institutum Botanicum cum Horto, Sofia, 432 – 449. (In Bulgarian)

World Checklist of Selected Plant Families. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; http://wcsp.science.kew.org/. (accesed 1.10.2017)

Хоролошки податоци за распространувањето на некои нови, сомнително присутни и ретки растенија во флората на Република Македонија

Ацо Теофиловски

Во овој труд *Senecio sylvaticus* се наведува како нов вид во флората на Република Македонија, додека нови наоѓалишта се презентирани за следните 14 ретки таксони, или таксони чие присуство се смета за сомнително: *Carex tomentosa, Galeopsis angustifolia, Centaurea graeca, Centranthus longiflorus* subsp. *junceus, Epipactis microphylla, Epipactis palustris, Eruca vesicaria, Gentianella ciliata, Isopyrum thalictroides, Lathyrus palustris, Minuartia juniperina* subsp. *kosaninii, Ranunculus auricomus* s.l., *Ranunculus incomparabilis* и *Sanguisorba officinalis.*

Клучни зборови: *Senecio sylvaticus*, дистрибуција, нови податоци, Македонија, ретки таксони, флора.