

Euro+Med-Checklist Notulae, 9

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Euro+Med-Checklist Notulae, 9

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Abstract: This is the ninth of a series of miscellaneous contributions, by various authors, where hitherto unpublished data relevant to both the Med-Checklist and the Euro+Med (or Sisyphus) projects are presented. This instalment deals with the families *Amaranthaceae*, *Amaryllidaceae* (incl. *Alliaceae*), *Apocynaceae*, *Araceae* (incl. *Lemnaceae*), *Asparagaceae* (incl. *Hyacinthaceae*), *Cactaceae*, *Cannaceae*, *Caprifoliaceae*, *Commelinaceae*, *Compositae*, *Convolvulaceae*, *Crassulaceae*, *Cruciferae*, *Euphorbiaceae*, *Leguminosae*, *Malvaceae* (incl. *Tiliaceae*), *Neuradaceae*, *Nyctaginaceae*, *Orobanchaceae*, *Polygonaceae* and *Solanaceae*. It includes new country and area records and taxonomic and distributional considerations for taxa in *Achyranthes*, *Allium*, *Brassica*, *Canna*, *Catharanthus*, *Chlorophytum*, *Convolvulus*, *Corchorus*, *Dipcadi*, *Hieracium*, *Ipomoea*, *Lablab*, *Lonicera*, *Mercurialis*, *Mirabilis*, *Neurada*, *Opuntia*, *Orobanche*, *Phelipanche*, *Polygonum*, *Solanum*, *Spirodela*, *Tradescantia*, *Vinca* and *Wolffia*, new combinations in *Hieracium* and *Phelipanche*, and a replacement name in *Sempervivum*.

Key words: distribution, Euro+Med PlantBase, Europe, Med-Checklist, Mediterranean, new combination, new record, taxonomy, vascular plants

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Notice

A succinct description of the Euro+Med project, with a list of recognized territories and their abbreviations, and the conventions used to indicate the status and presence of taxa, can be found in the introduction to the first instalment of the Euro+Med Notulae (Greuter & Raab-Straube 2005: 223–226) and on the Euro+Med PlantBase website (Euro+Med 2006+). For the previous instalment of the Euro+Med-Checklist Notulae, see Raab-Straube & Raus (2017).

The following have contributed entries to the present instalment: G. Barsotti, A. Borzatti de Loewenstern, G. Domina, Š. Duraki, R. El Mokni, H. Freitag, V. Holzgreve,

D. Iamónico, M. Jovanović, B. Kreinsen, V. Lazzeri, M. Niketić, E. von Raab-Straube, Th. Raus, S. Rätzel, M. Ristow, I. V. Tatanov, J.-M. Tison and H. Uhlich.

Amaranthaceae

Achyranthes aspera L.

+ **Tn:** Tunisia: Nabeul, Dar Chichou, 36°57'41"N, 10°58'52"E, 60 m, part of herbaceous plant succession in undergrowth of maquis of *Olea europaea* L. and *Pistacia lentiscus* L. with *Quercus coccifera* L. and planted *Eucalyptus* spp., 1 May 2014, *El Mokni* (herb. Univ. Monastir, HFLA). – As part of ongoing research on

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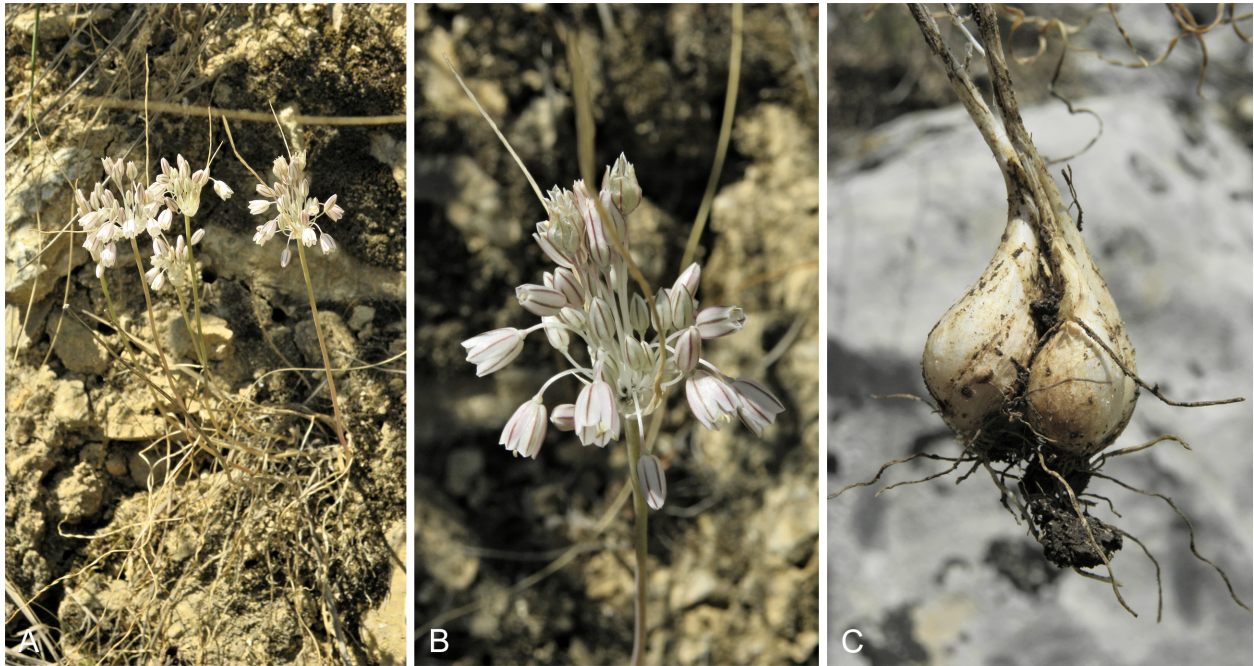


Fig. 1. *Allium litardierei* – A: habitat and habit; B: typical inflorescence; C: bulbs. – Tunisia: Bizerte, Mateur, Sidi El Bechir, 17/18 Jun 2014, photographs by R. El Mokni.

Amaranthaceae s. str. and on the vascular flora of Tunisia (e.g. El Mokni & al. 2013, 2016; Iamonico 2014a, 2014b, 2015a; Iamonico & Jarvis 2012; Iamonico & Sánchez Del Pino 2014, 2016; Iamonico & El Mokni 2017, 2018), many populations identifiable as *Achyranthes aspera*, occupying an area of some hectares, were found in the forest of Dar Chichou in the Cap Bon region. *Achyranthes aspera* was previously known to occur in N Africa only in Egypt (Iamonico 2015b+ and references therein). Concerning Tunisia, all the former records of *Achyranthes* refer to *A. sicula* (L.) All. (Bonnet & Barratte 1896; Greuter & al. 1984; Le Floch & Boulos 2008; Le Floch & al. 2010; Dobi-gnard & Chatelain 2011a).

Achyranthes aspera is morphologically similar to *A. sicula*, from which it differs in having the stem pubescent (vs glabrescent or nearly so in *A. sicula*) and the leaves green on both surfaces (vs white tomentose on the abaxial surface in *A. sicula*) (Bao & al. 2003; Robertson 2003; Iamonico 2017). Furthermore, *A. aspera* is a very variable species morphologically. In fact, several taxa were described in the past (see, e.g., Tropicos 2018+), and some authors recognized one or more varieties, namely *A. aspera* var. *aspera*, *A. aspera* var. *indica* L., *A. aspera* var. *villosior* (Hensl.) D. M. Porter, which differ from each other in characters of stems (indumentum) and leaves (shape, apex, colour). However, ongoing studies carried out by one of us (D.I.) show that all

forms of *A. aspera* always display leaves green on both surfaces (never white tomentose as in *A. sicula*; see also Bao & al. 2003). According to Iamonico (2015b+), we therefore prefer to consider *A. sicula* as a separate species and *A. aspera* in the wide sense. However, further investigations (especially with molecular methods, which are still lacking for *A. sicula*) are necessary to reach a final taxonomic decision on these taxa.

D. Iamonico & R. El Mokni

Amaryllidaceae (incl. *Alliaceae*)

Allium litardierei J.-M. Tison – Fig. 1.

+ **Tn**: Tunisia: Bizerte, Mateur, Sidi El Bechir, 36°55'30"N, 09°28'49"E, 325 m, degraded scrubland, 17/18 Jun 2014, *El Mokni* (herb. El Mokni); *ibid.*, Sidi Nsir to Joumine, 36°54'35"N, 09°25'40"E, 280 m, degraded scrubland, 17/18 Jun 2014, *El Mokni* (herb. El Mokni); Béja, Nefza south, 36°54'14"N, 09°06'42"E, 145 m, scrubland, 17/18 Jun 2014, *El Mokni* (herb. El Mokni). – Populations identifiable as *Allium litardierei* were found as part of ongoing updating and improving knowledge on the Tunisian vascular flora (e.g. El Mokni & al. 2014, 2015a, 2015b, 2015c; Sukhorukov & al. 2016; El Mokni & Domina 2017; El Mokni & Iamonico 2017; El Mokni & Véla 2017; El Mokni & Verloove 2017; Iamonico & El Mokni 2017, 2018). *Allium litardierei* is a N African species recorded

in Algeria and Morocco, with doubtful/probable presence for Tunisia (cf. Tison 2010). Neither the recent Tunisian checklist (Le Floch'h & al. 2010) nor the online African flora database (APD 2018) recorded or confirmed this species in Tunisia. Our discovery (June 2014) is therefore the first concerning the native Tunisian flora and includes several populations located mainly on clayey soils in degraded scrublands of calcareous mountains in N Tunisia (governorates of Béja and Bizerte). The plants occur in an area of about 1000 km² and seem actually not to be threatened by human activities and/or interspecific competition.

R. El Mokni & J.-M. Tison

Apocynaceae

Catharanthus roseus (L.) G. Don

A Tn: Tunisia: Nabeul, Nabeul city, 36°27'32"N, 10°44'49"E, 13 m, roadsides, 11 Dec 2016, *El Mokni* (herb. Univ. Monastir). – A perennial, evergreen herb native to Madagascar, widely cultivated as an ornamental and more recently as a medicinal plant, used as the source of the drugs vincristine and vinblastine to treat cancer, now found growing feral in many warm-temperate to subtropical regions of the world. In the Euro+Med region the taxon is reported as naturalized in the Canary Islands and as a casual alien in Crete (Yannitsaros 2006). In the African Plant Database (APD 2018) the taxon is listed only as cultivated in Morocco. The present report as a casual alien is therefore the first for the Tunisian flora, considered an introduced ornamental locally escaped from cultivation.

R. El Mokni

Vinca difformis Pourr.

+ Tn: Tunisia: Jendouba, Béni Métir, 36°44'22"N, 08°44'17"E, 475 m, *Quercus* forests, 30 Mar 2006, *El Mokni* (herb. Univ. Bizerte); *ibid.*, Oued Zéen, 36°49'27"N, 08°50'00"E, 355 m, *Quercus* forests, 19 Mar 2018, *El Mokni* (herb. Univ. Monastir). – First records for Tunisia. Given as native to the W and C Mediterranean countries from Portugal eastwards to Italy (Marhold 2011a+). For N Africa it was reported from Morocco and Algeria with no mention for Tunisia (Le Floch'h & al. 2010; Dobignard & Chatelain 2011a; Marhold 2011a+; APD 2018).

R. El Mokni

Vinca major L.

N Tn: Tunisia: Jendouba, Ain Draham, 36°46'34"N, 08°40'54"E, 715 m, *Quercus* forests, 4 Apr 2012, *El Mokni* (herb. Univ. Bizerte); *ibid.*,

Fernana, 36°39'54"N, 08°41'10"E, 290 m, *Quercus suber* L. forests, 18 Mar 2018, *El Mokni* (herb. Univ. Monastir); *ibid.*, Tabarka, 36°57'30"N, 08°45'17"E, 9 m, coastal vegetation, 27 Feb 2013, *El Mokni* (herb. Univ. Bizerte); *ibid.*, Tabarka, 36°55'40"N, 08°47'28"E, 30 m, *Quercus suber* vegetation, 7 Mar 2017, *El Mokni* (herb. Univ. Monastir). – In the Euro+Med area considered native in S Europe from Spain to the W Balkans; additionally given as a naturalized or casual alien in adjacent areas from the Atlantic coast (Ireland, Norway, Portugal) eastwards to the Levant (Marhold 2011a+). For N Africa, it was reported from Morocco and Algeria as cultivated (doubtfully escaping) with no mention for Tunisia (Marhold 2011a+; Le Floch'h & al. 2010; Dobignard & Chatelain 2011a; APD 2018). In Tunisia it was first found in 2012 in *Quercus* forests of Ain Draham in the NW part of the country, where it was re-collected during the 12th OPTIMA Iter Mediterraneum in 2014 (Greuter & Domina 2015: 28, without status information). For Tunisia, the species is considered here as an introduced ornamental plant that has become locally established in suitable habitats outside cultivation.

R. El Mokni

Vinca minor L.

N Tn: Tunisia: Jendouba, Ain Draham, Col des Ruines, 36°46'58"N, 08°41'11"E, 725 m, *Quercus* forests, 4 Apr 2012, *El Mokni* (herb. Univ. Bizerte). – Native to Europe from Portugal to the Caucasus (Davis 1978: 163), but not mentioned for N Africa (Marhold 2011a+; Le Floch'h & al. 2010; Dobignard & Chatelain 2011a; APD 2018). First record for Tunisia (and N Africa), as locally naturalized in *Quercus* forests of the NW part of the country.

R. El Mokni

Araceae (incl. Lemnaceae)

Spirodela polyrhiza (L.) Schleid.

+ Tn: Tunisia: Bizerte, Douaar Jaafar toward Teskraya, 37°13'57"N, 09°42'11"E, 40 m, agricultural effluent sewers, 14 May 2014, *El Mokni* (herb. Univ. Monastir, PAL). – *Spirodela polyrhiza* is a nearly cosmopolitan species, native to Eurasia, Africa, North America, Australia and possibly naturalized in Hawaii. This taxon was until now known in many countries around the Mediterranean area (Uotila 2009+), but with no mention for Tunisia (Uotila 2009+; Le Floch'h & al. 2010; Dobignard & Chatelain 2010; APD 2018), until a large population was found in agricultural sewers in the surroundings of Tinja and Teskraya. The plants occupy



Fig. 2. A–C: *Dipcadi fulvum*; A, B: inflorescences showing flowers with brownish reddish tepals; C: immature capsule. – D: *Dipcadi serotinum*, flower with brownish yellowish tepals. – Tunisia: Nabeul, Hammamet south, Hammam Bent Jedidi, 27 Mar 2014, photographs by R. El Mokni.

an area of c. 300 m² within watercourses and swamps and seem to be recently introduced, possibly by birds. They may have been overlooked or misidentified in the past.

R. El Mokni & G. Domina

***Wolffia arrhiza* (L.) Wimm.**

+ **Tn:** Tunisia: Bizerte, Douaar Jaafar toward Teskraya, 37°13'57"N, 09°42'11"E, 40 m, agricultural effluent sewers, 14 May 2014, *El Mokni* (herb. Univ. Monastir, PAL). – *Wolffia arrhiza* is native to Europe, N Africa (only to Morocco and Algeria), and parts of Asia. It is present in other parts of the world as a naturalized species and is here reported for Tunisia, where it has not been mentioned before (Uotila 2009+; Le Floc'h & al. 2010; Dobignard & Chatelain 2010; APD 2018). Many populations were found in agricultural sewers in the surroundings of Tinja and Teskraya. The species forms very dense patches in the watercourses, sloughs and marshes of the area. It could have spread there from Algeria during recent years and previously could have been confused with species of *Lemna*.

R. El Mokni & G. Domina

Asparagaceae (incl. *Hyacinthaceae*)

***Chlorophytum comosum* (Thunb.) Jacques**

A Tn: Tunisia: Bizerte, Bizerte city, 37°17'04"N, 09°52'22"E, 3 m, escape from pots in public gardens, 11 May 2017, *El Mokni* (herb. Univ. Monastir); Monastir, Monastir city, 35°46'11"N, 10°49'38"E, 16 m, roadsides, 9 Aug 2016, *El Mokni* (herb. Univ. Monastir). – A perennial plant native to tropical and sub-

tropical Africa, naturalized in other parts of the world including Western Australia (Howell & al. 1958), but not reported from the Mediterranean basin so far (Euro+Med 2006+). The African Plant Database (APD 2018) accepts the taxon as introduced for N Africa without any precise area of occurrence. The present report as a casual alien is therefore the first for the Tunisian flora. Plants grown as ornamentals produce clonal plantlets that readily root to produce new plants and easily escape from pots.

R. El Mokni

***Dipcadi fulvum* (Cav.) Webb & Berthel. (≡ *D. serotinum* var. *fulvum* (Cav.) Ball) – Fig. 2A–C.**

+ **Tn:** Tunisia: Nabeul, Hammamet south, Hammam Bent Jedidi, 36°23'33"N, 10°20'17"E, 75 m, very degraded lands covered with thermophilous plant communities under *Pinus halepensis* Mill., 27 Mar 2014, *El Mokni* (herb. El Mokni). – *Dipcadi fulvum* has not been mentioned before for the Tunisian vascular flora (see, e.g., Le Floc'h & al. 2010; Dobignard & Chatelain 2010; APD 2018). In N Africa, the taxon is recorded in Algeria (Véla & Mostari 2013) and Morocco (APD 2018), whereas in Europe it is reported as native to the Canaries and Portugal (Webb & Berthelot 1842–1850; APD 2018). The present report is therefore the first for the native Tunisian flora and refers to a population with several individuals, growing on loamy-sandy soils in degraded land in calcareous mountains. The plants occur in an area of c. 6000 m² and seem actually not to be threatened by human activities or interspecific competition. Both *D. fulvum* and *D. serotinum*

(L.) Medik. (Fig. 2D) were found within the same extended area and during the same time period.
R. El Mokni

Cactaceae

Opuntia stricta (Haw.) Haw.

P Gr: Greece: E Makedonia, Nomos and Eparchia of Chalkidiki, Kalives Poligirou, 40°17'16"N, 23°23'38" E, 20 m, c. 1 km from the Aegean seashore, on the NE outskirts of the village, thriving on the remains of an abandoned farmstead, on flat ground, on a mound about 1 m high, as well as on a decaying wooden roof of a nearby deserted house, 9 Jul 2017, *Jovanović* (photo); *ibid.*, between Agios Nikolaos and Ormos Panagias, 40°14'50"N, 23°43'22" E, 3 m, at the base of a rocky outcrop c. 15 m from a sandy beach, several bushy clones of different size and age, 11 Jul 2017, *Jovanović* (photo). – *Opuntia stricta*, not previously reported from Greece, is a medium-sized species of cactus (to 2 m tall), endemic to the subtropical and tropical coastal areas of SE North America (South Carolina to E Texas), the Caribbean and Mexico, and is introduced to South Africa and Australia (Pinkava 2003: 133). Also in the Mediterranean basin, this xenophyte is reported to be established in S France, Italy (incl. Sardinia and Sicily), Morocco and Libya (Korotkova & Raab-Straube 2017+). Although remnants of former cultivation, the populations observed on the N coast of the Aegean have obviously been spreading for a longer period without human support and are therefore considered on the verge of naturalization. The determination of the material has been verified by Valerio Lazzeri, botanist at the Museum of Natural History of the Mediterranean in Livorno, and confirmed by Urs Egli (Sukkulanten-Sammlung Zürich). Smaller than *O. ficus-indica* L. in all parts, the species is distinguished chiefly by its margins of stem segments appearing somewhat undulate between the raised areoles (see drawing in Pinkava 2003: 134, available at http://www.efloras.org/object_page.aspx?object_id=38199&flora_id=1).

M. Jovanović & Th. Raus

Cannaceae

Canna indica L.

N Tn: Tunisia: Bizerte, Louata, 37°13'26"N, 09°44'42"E, 2 m, river passing under principal road to city centre, 13 Jul 2013, *El Mokni* (herb. Univ. Bizerte); Béja, Ouachteta, 36°57'54"N, 09°00'42"E, 18 m, marshy depression by dam,

1 Jul 2015, *El Mokni* (herb. Univ. Monastir); Jendouba, Tabarka, 36°56'16"N, 08°47'24"E, 1 m, marshy depression, 1 Aug 2017, *El Mokni* (herb. Univ. Monastir). – A rhizomatous herb native to tropical America including the Caribbean and a very popular ornamental plant throughout the tropical world (GISD 2015). In the Mediterranean area, the taxon is reported so far only as an alien with unknown status in the Iberian peninsula, with no report for N Africa (Euro+Med 2006+; Dobignard & Chatelain 2013; APD 2018). It is here reported for the first time outside cultivation for Tunisia and N Africa. Many scattered small populations have been observed since 2005 mainly in N Tunisia, growing in thickets, crowding out other plants and occupying more and more space. Their spreading mainly by rhizomes makes the plants difficult to remove. Therefore, according to the definitions given by Pyšek & al. (2004), the species can be considered as fully naturalized in Tunisia.
R. El Mokni

Caprifoliaceae

Lonicera japonica Thunb.

A Tn: Tunisia: Jendouba, Tabarka, 36°56'58"N, 08°46'22"E, 2 m, roadsides in *Ulmus procera* Salisb. plantations, 16 May 2018, *El Mokni* (herb. Univ. Monastir). – A semi-evergreen perennial climber native to E Asia (Gleason & Cronquist 1963; Lee & al. 1990), which has become naturalized in other parts of the world, e.g. across the S United States from California to New England (Hickman 1993; Clapham & al. 1962) and in Atlantic and Mediterranean parts of Europe. For N African countries, however, it is reported only from Algeria as an alien with unknown status (Raab-Straube 2017a+). The African Plant Database (APD 2018) does not report this taxon for N African countries at all. The present report is therefore the first for the Tunisian flora as a casual alien, i.e. a local escape from horticultural introduction.

R. El Mokni

Commelinaceae

Tradescantia fluminensis Vell.

A Tn: Tunisia: Bizerte, Bizerte city, 37°16'51"N, 09°52'36"E, 3 m, roadside among individuals of *Bryophyllum houghtonii* (D. B. Ward) P. I. Forst., 25 Mar 2018, *El Mokni* (herb. Univ. Monastir). – A xenophyte endemic to the tropical rainforests of SE Brazil and adjacent areas of Uruguay and Argentina (Barreto 1997; USDA-ARS 2018), now also naturalized in

New Zealand (Kelly & Skipworth, 1984), SE Australia (Dunphy, 1991), Portugal (Aguiar & al. 2001), Italy (Orlando & Grisafi 1977), Greece including the Cretan area (Dimopoulos & al. 2013: 86, 300), Russia (Tolkach & al. 1990), Japan (Enomoto 2000) and SE North America (Wunderlin 1998; USDA-NRCS 2018; Wunderlin & Hansen 2003), and most likely beyond what is given in published sources. For N Africa, the species is listed in Euro+Med (2006+) only for Morocco as an alien with unknown status; it was, however, assigned as naturalized in Morocco, Algeria and Libya by APD (2018), with no data for Tunisia (see also Dobignard & Chatelain 2010). It is here given for the first time for Tunisia with the status of a casual alien. R. El Mokni

Tradescantia pallida (Rose) D. R. Hunt

A Tn: Tunisia: Jendouba, Ain Draham, 36°47'47"N, 08°41'00"E, 620 m, roadsides under trees in plantation of *Pinus pinaster* Aiton, 27 Sep 2013, *El Mokni* (herb. Univ. Monastir). – This xenophyte, native to Mexico (Govaerts 2012; USDA-ARS 2018), is now widely grown as an ornamental and houseplant in many tropical and subtropical regions including North, Central and South America, the West Indies, South Africa, the Canary Islands, Madeira and Myanmar (Govaerts 2012; USDA-ARS 2018). In the Euro-Mediterranean area, the taxon is not yet reported except as an alien with unknown status in the Canary Islands (Euro+Med 2006+; Dobignard & Chatelain 2010; APD 2018). The present report is therefore the first for Tunisia and N Africa as a casual alien, i.e. a local escape from horticultural introduction. R. El Mokni

Compositae (Asteraceae)

Hieracium andrasovszkyi Zahn subsp. *andrasovszkyi*

+ Al: Albania: “Albanien: Korabgebirge ob Radomir, 2200 m (Andrasovszky)!” (Zahn 1922: 1033). – In Greuter (2006+), the F.Y.R. Makedonija is listed as the only area where the type subspecies of *Hieracium andrasovszkyi* occurs. From the protologue, however, it is certain that the gathering was made above the village of Radomira in Albania.

+ Sr: Serbia: Šar Planina, Ošljak, above Virovi, c. 1950 m, limestone, rock crevices in *Pinus mugo* Turra zone, 22 Jul 1988, *Niketić* (BEO).

The subspecies is also new to Serbia, for which only *Hieracium andrasovszkyi* subsp. *cremnophilum* O. Behr & al. and *H. andrasovszkyi* subsp. *kobilicanum* O. Behr & al. were known (Greuter 2006+). The origin of the

species was interpreted by Zahn (1922) as “*H. naegelianum-pilosum*”. It belongs to a group of plants described by Behr & al. (1937, 1939) that have until recently been neglected. They have been known only from a local mountainous area of the present-day W F.Y.R. Makedonija (near the Albanian border), and so far their chorology and taxonomy have not been considered. Six taxa from this group will be dealt with in the following notes as new taxa for Serbia (Kosovo, Šar Planina). Š. Duraki & M. Niketić

Hieracium bohatschianum subsp. *platytrigonodon* O. Behr & al.

+ Sr: Serbia: Šar Planina, Crni Vrh, right side of ridge toward Bevgrod peak, c. 2150 m, limestone, pastures and scrub, 4 Aug 2014, *Duraki* (BEO). – This subspecies belongs to an endemic SE European species previously known from Romania, F.Y.R. Makedonija and Greece. According to Zahn (1922), the species might have arisen by hybridization between *Hieracium sparsum* Friv. and *H. schmidtii* Tausch (“*H. pallidum*” sensu Zahn, non Biv.). We believe that one of the progenitors of the subspecies *H. bohatschianum* subsp. *platytrigonodon* could be *H. schmidtii* subsp. *balkanum* (R. Uechtr. ex Pančić) Niketić (see below).

Š. Duraki & M. Niketić

Hieracium crocatum Fr.

+ Mk: F.Y.R. Makedonija: Mt Korab, Ribnička skala, c. 1900 m, silicate, rocky places on edge of *Fagus* forest, 22 Jul 2016, *Niketić & al.* (BEO); Dlaboka reka [river], Gropa Fongot, 1750–1800 m, silicate, screes on edge of *Fagus* forest, 22 Jul 2016, *Niketić & al.* (BEO).

+ Sr: Serbia: Šar Planina, Dražiči village to Crni Vrh, pastures and rocky places, 18 Jul 1978, *Nikolić & al.* (BEO det. Niketić); Ošljak, c. 1400 m, limestone, 4 Sep 1997, *Stevanović* (BEO det. Niketić); Kobilica, Treskavac, c. 2300 m, limestone, pastures, 26 Jul 2004, *Duraki* (BEO); Crni Vrh, pass to Mali Vrh peak, c. 2000 m, silicate, pastures, 25 Jul 2015, *Duraki* (BEO).

During an excursion on Mt Korab in 2016, unusual specimens resembling *Hieracium prenanthoides* Vill. were found. Further survey of the herbarium material showed that the plant (*H. crocatum*) was derived from natural hybridization between *H. prenanthoides* and *H. umbellatum* L. Earlier exsiccates of the same species from Šar Planina in Serbia and F.Y.R. Makedonija were also found and are mentioned here. So far, the plant has been known from the Balkans only from Bosnia, as *H. crocatum* subsp. *valdefrondosum* K. Malý & Zahn. Our specimens

are morphologically different from those from Bosnia, e.g. they have a much smaller number of stem leaves. Their infraspecific status has remained unresolved and therefore has not been specified here. Š. Duraki & M. Niketić

***Hieracium djimilense* subsp. *brachytrichophyes* O. Behr & al.**

+ **Sr:** Serbia: Šar Planina, Prevalac pass to Jažinačko lake, c. 1400 m, silicate, rocky places in *Pinus peuce* Griseb. zone, 29 Sep 1991, *Niketić* (BEO); Stojkova Kuća hut, c. 1300 m, silicate, rocky places in *Pinus peuce* zone, 1 Oct 1991, *Niketić* (BEO); Kobilica, Treskavac, Sedlo, c. 2300 m, limestone, rocky pastures, 20 Jun 2006, *Niketić* & *Duraki* (BEO); Kobilica, above abandoned border fort, c. 1700 m, silicate, rocky places, 19 Aug 2006, *Niketić* & *Duraki* (BEO); Crni Vrh, foothill, c. 1500 m, silicate, 31 Jul 2008, *Niketić* & *Duraki* (BEO); Crni Vrh, c. 2150 m, silicate, cirque, 4 Aug 2014, *Duraki* (BEO); Crni Vrh, right side of ridge toward Bevgrod peak, c. 2200 m, limestone, pastures, 4 Aug 2014, *Duraki* (BEO); Konjuška, rise between first and second plateaus, c. 2120 m, silicate, clearing in *Juniperus* and *Vaccinium* scrub, 5 Aug 2015, *Duraki* (BEO). – Three subspecies of *Hieracium djimilense* Boiss. & Balansa have been mentioned from Stara Planina in E Serbia, but in our opinion only *H. djimilense* subsp. *velenovskyi* (Freyn) Zahn really belongs to that species. Another subspecies, *H. djimilense* subsp. *brachytrichophyes* is endemic to the Scardic mountains, described from the present-day F.Y.R. Makedonija (Mt Korab) and now recorded also from Šar Planina in Serbia (Kosovo). It is a relatively common *Hieracium* in Šar Planina occurring from the *Fagus* and *Pinus peuce* forests to the alpine zone on different geological substrates. Š. Duraki & M. Niketić

Hieracium jurassicum* Griseb. subsp. *jurassicum

+ **Cg:** Montenegro: Mt Durmitor, Crno Jezero lake, c. 1450 m, limestone, *Picea* forest, 20 Aug 1991, *Niketić* (BEO); Skakala to Sušičko lake, c. 1350 m, limestone, mixed *Picea* and *Fagus* forest, 20 Jul 1993, *Niketić* (BEO); Škrka lake to Skakala, c. 1700 m, limestone, mixed *Picea* and *Fagus* forest, 20 Jul 1993, *Niketić* (BEO); Virak settlement, c. 1530 m, limestone, mixed forest with *Fagus sylvatica* L. and *Acer heldreichii* Orph., edge of forest, 20 Jul 1993, *Niketić* (BEO).

+ **Sr:** Serbia: Šar Planina, Crni Vrh, Šmit, c. 1700 m, silicate, *Fagus* forest, 1 Aug 2015, *Duraki* (BEO).

In the Balkan peninsula, the type subspecies was previously known from Bosnia and

Montenegro (Zahn 1939), although the record from Montenegro (Mt Durmitor) was omitted in Greuter (2006+). We confirmed its presence on Mt Durmitor at several localities. The same plant has also recently been found in F.Y.R. Makedonija, at Šar Planina and Suva Gora (Teofilovski 2014, as *Hieracium jurassicum*). Until now, only the stenoendemic subspecies *H. jurassicum* subsp. *papyraceum* (Zahn) Greuter was known in the flora of Serbia, although a possible presence of the type subspecies was indicated by Zahn (Zahn 1939, as “*H. juranum* subsp. *juranum*”): “Bosnien: Veliki Stolac” near the Serbian border. Š. Duraki & M. Niketić

***Hieracium jurassicum* subsp. *subperfoliatum* (Arv.-Touv.) Greuter**

+ **Cg:** Montenegro: Mt Durmitor, Šušičko lake to Škrka lake, c. 1000 m, limestone, *Fagus* forest, 18 Jul 1991; Malo Škrško lake, c. 1800 m, limestone, subalpine *Fagus* forest, 20 Jul 1992, *Niketić* (BEO); Jablan Bara lake, c. 1700 m, limestone, 20 Aug 1996, 4 Aug 2003, *Niketić* (BEO); Virak, c. 1500 m, limestone, forest of *Fagus sylvatica* L. and *Acer heldreichii* Orph., 12 Aug 1997, *Niketić* (BEO). – A possible presence in Montenegro was previously indicated by Zahn (Zahn 1939, as “*Hieracium juranum* subsp. *subperfoliatum*”): “Bosnien: Am Veternik der Ljubicna pl.”, because that locality is along the border with Montenegro. Zahn’s record was the only one previously known from the Balkans. Š. Duraki & M. Niketić

***Hieracium naegelianum* subsp. *maglicense* Beck & Zahn**

– **Mk:** This subspecies was described from Mt Maglić on the border of Bosnia and Montenegro. Another record originated from Behr & al. (1937): Šar Planina (Kobilica) on the border of Serbia and F.Y.R. Makedonija. At the same locality we collected similar plants with several stellate hairs on the base of the involucre. A detailed survey showed that they actually belong to very small individuals of *Hieracium oroglaucum* O. Behr & al. (see below). Š. Duraki & M. Niketić

***Hieracium oroglaucum* O. Behr & al. subsp. *oroglaucum* – Fig. 3.**

+ **Cg:** Montenegro: Prokletije mountains, Maja Sapica, silicate, c. 2100 m, rocky places in *Pinus peuce* Griseb. zone, 7 Jul 1994, *Niketić* (BEO); Maja Sapica, near Sapica lake, silicate, c. 1900 m, rocky places in *Pinus peuce* zone, 9 Jul 1994, *Niketić* (BEO).

+ **Sr:** Serbia: Šar Planina, Prevalac pass to Jažinačko lake, c. 1400 m, silicate, rocky places in *Pinus peuce*

zone, 29 Sep 1991, *Niketić* (BEO); Stojkova Kuća hut, c. 1300 m, silicate, rocky places in *Pinus peuce* zone, 1 Oct 1991, *Niketić* (BEO); Kobilica, Treskavac, Sedlo, c. 2300 m, limestone, rocky pastures, 20 Jun 2006, *Niketić & Duraki* (BEO); Kobilica, Ljubinske Uši pass, c. 2160 m, limestone, rocky pastures, 20 Jun 2006, *Niketić & Duraki* (BEO); Dukat Planina, Karamanica, Beli Kamen to Golemi Vrh, c. 1700 m, silicate, rocky pastures and stony places, 29 Jun 2016, *Niketić & Tomović* (BEO).

Hieracium oroglaucum subsp. *oroglaucum* is a Balkan endemic plant previously known only from Mt Korab in F.Y.R. Makedonija (Behr & al. 1937, 1939). During our field research we found it in a much wider area of the C Balkans (Fig. 3). The origin of this polymorphic species was interpreted by Behr & al. (1937) as “*H. naegelianum* > *pseudobifidum* (*transylvanicum-bifidum*)”.

Š. Duraki & M. Niketić

Hieracium schmidtii* subsp. *argyrosericeum (O. Behr & al.) Greuter

+ **Sr**: Serbia: Šar Planina, Crni Vrh, Gornji Jelovarnik, c. 1900 m, silicate, pastures above tree line, 27 Jun 2015, *Duraki* (BEO). – Also previously known from Mt Korab (Behr & al. 1937). New to Serbia. Š. Duraki & M. Niketić

Hieracium schmidtii* subsp. *balkanum (R. Uechtr. ex Pančić) Niketić, **comb. nov.** ≡ *Hieracium balkanum* R. Uechtr. ex Pančić in Glasn. Srpskog Učenog Društva 53: 206. 1883 ≡ *Hieracium djimilense* subsp. *balkanum* (R. Uechtr. ex Pančić) Zahn in Engler, Pflanzenz. IV. 280 (Heft 79): 1057. 1922 [*‘balkanum’*]. – **Lectotype (designated here)**: [Serbia, Stara Planina] “*Hieracium Balkanicum* [sic] Uechtr. in lit. / Св. Никола 1878 / Zunächst verwandt mit *H. rupicolum* [sic] Fries / No 1 ad Uechtr.”, Pančić (BEOU [No. 11398]). – Fig. 4.

+ **Mk**: F.Y.R. Makedonija: Šar Planina, Ljuboten, near source of Ljubotenska river, c. 1650 m, silicate, rock crevices, 21 Jun 2016, *Niketić* (BEO). – Described from silicate mountains in E Serbia and W Bulgaria under the name *Hieracium balkanum* (Pančić 1883). It is a new record for F.Y.R. Makedonija.

We provide a proper citation of the protologue of the basionym, i.e. Glasn. Srpskog Učenog Društva 53: 206. 1883. Pančić’s *Elementa ad floram principatus Bulgariae* is just a differently paginated offprint from this journal (with *Hieracium balkanum* on p. 46).

Disagreement between the original and current classifications was mentioned by Niketić (2014). The combination *Hieracium djimilense* subsp. *balkanum* (Zahn 1922) was most prob-

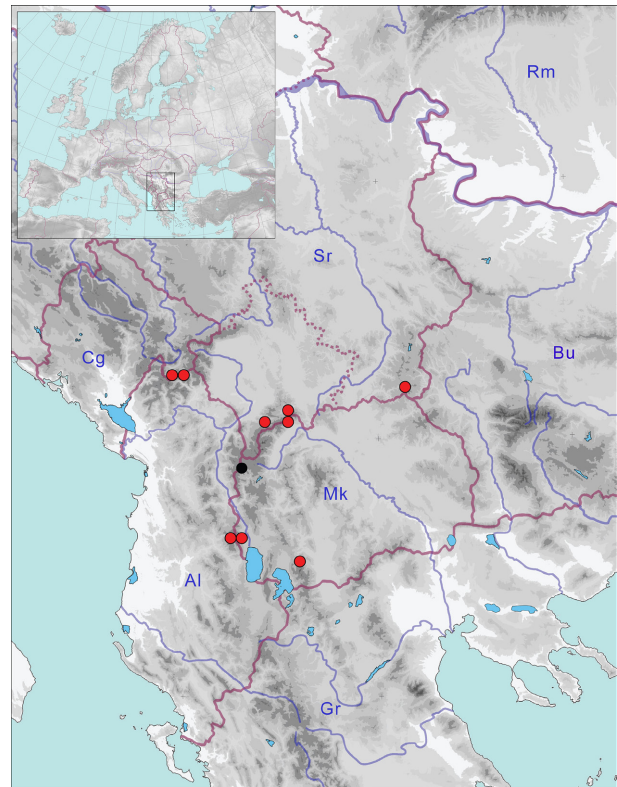


Fig. 3. Distribution map of *Hieracium oroglaucum* subsp. *oroglaucum* – black circle: locus classicus (Mt Korab); red circles: new localities.

ably based on material of *H. djimilense* misidentified as *H. balkanum* from the same localities as in the protologue of *H. balkanum*. This material was gathered and identified by “Pelivanović” and it seems that Zahn did not see the original material of Pančić. Our inspection of that material (designated here as the lectotype) together with our field investigations indisputably confirm the relation with *H. schmidtii* Tausch, and indeed Pančić (1883) had already stressed that connection: “Proximum *H. Schmidtii* Tausch...”.

Š. Duraki & M. Niketić

Hieracium sparsum* subsp. *squarrosobracchiatum O. Behr & al.

+ **Sr**: Serbia: Šar Planina, Stojkova Kuća hut, c. 1300 m, silicate, rocky places in *Pinus peuce* Griseb. zone, 1 Oct 1991, *Niketić* (BEO); Karanikolica, c. 2350 m, silicate, rocky places above tree line, 22 Aug 2006, *Niketić & Duraki* (BEO); Konjuška, slopes toward Prevalac pass, c. 2490 m, silicate, screes and rocky places, 5 Aug 2015, *Duraki* (BEO). – Until now, Mt Korab was the only known locality of this taxon (Behr & al. 1937). We also found one population on Mt Jablanica in F.Y.R. Makedonija (near the Albanian border). *Hieracium sparsum* subsp. *squarrosobracchiatum* is very similar to



Fig. 4. *Hieracium schmidtii* subsp. *balkanum* – Serbia: Stara Planina, Žarkova Čuka (7–8 km from type locality), 5 Jul 2014, photographs by M. Niketić.



Fig. 5. *Hieracium stenoglossophyllum* – Serbia: Šar Planina, Ošljak, 30 Jul 2008, photographs by M. Niketić.

H. sparsum subsp. *naegelianiforme* O. Behr & al., from which it is distinguished by its (almost) glabrous peduncles. Š. Duraki & M. Niketić

Hieracium stenoglossophyllum O. Behr & al. (≡ *Hieracium oroglaucum* subsp. *stenoglossophyllum* (O. Behr & al.) Greuter) – Fig. 5.

+ **Sr:** Serbia: Šar Planina, Brod, Duška Reka Gorge, c. 1450 m, limestone, rocky places, 19 Jul 1988, *Niketić & Stevanović* (BEO); Ošljak, near summit, c. 2200 m, limestone, rocky places in *Pinus mugo* Turra zone, 21 Jul 1988, *Niketić* (BEO); Ošljak, Popovo Prase, c. 1900 m, limestone, rocky places in *Pinus peuce* Griseb. zone, 29 Sep 1991, *Niketić* (BEO); Prevalac pass to Jažinačko lake, c. 1400 m, silicate, rocky places in *Pinus peuce* zone, 29 Sep 1991, *Niketić* (BEO); Ošljak, Popovo Prase, 42°11'08.0"N, 20°58'07.5"E, 1935 m, limestone, rocky places above *Pinus mugo*, 17 Aug 2006, *Lazarević & al.* (BEO); Kobilica, above abandoned border fort, c. 1700 m, silicate, rocky places, 19 Aug 2006, *Niketić & Duraki* (BEO); Ošljak, Popovo Prase, c. 1900 m, limestone, rocky places in *Pi-*

nus peuce zone, 30 Jul 2008, *Niketić & Duraki* (BEO); Crni Vrh, foothill, c. 1400 m, silicate, rocky pastures, 31 Jul 2008, *Niketić & Duraki* (BEO); Crni Vrh, right side of ridge toward Bevgrod peak, c. 2150 m, silicate and limestone, sparse shrub communities, 4 Aug 2014, *Duraki* (BEO); Crni Vrh, Drozga, c. 1950 m, silicate, stony blocks, 12 Aug 2014, *Duraki* (BEO); Crni Vrh, Drozga, c. 2100 m, limestone, sparse shrub communities, 31 Aug 2014, *Duraki* (BEO); Donji Jelovarnik, c. 1570 m, silicate, clearing in *Fagus* forest, 1 Aug 2015, *Duraki* (BEO); Crni vrh, Bevgrod, c. 1870 m, silicate, rocky pastures and stony blocks in central part, 1 Aug 2015, *Duraki* (BEO); Gornji Jelovarnik, behind Bevgrod, c. 1910 m, silicate, sparse *Juniperus* and *Vaccinium* communities, 1 Aug 2015, *Duraki* (BEO). – Like *Hieracium oroglaucum* O. Behr & al., this species was known only from Mt Korab (Behr & al. 1937), but it is also fairly common on Šar Planina. The origin of this species was interpreted by Behr & al. (1937) as “*H. naegelianum*–*pseudobifidum* (*transylvanicum*–*bifidum*)”’. Š. Duraki & M. Niketić

*Convolvulaceae****Convolvulus althaeoides* subsp. *tenuissimus* (Sm.) Batt.**

+ **Tn:** Tunisia: Bizerte, Mateur, Souideya, 37°00'53"N, 09°38'09"E, 55 m, degraded stage of vegetation linked to thermophilous maquis of *Olea europaea* L. and *Pistacia lentiscus* L., 6 May 2015, *El Mokni* (herb. El Mokni). – *Convolvulus althaeoides* subsp. *tenuissimus* was not previously known from Tunisia (see, e.g., Le Floch & al. 2010; Dobignard & Chatelain 2010; APD 2018; Wood & al. 2015; Raab-Straube 2018+) until the extensive, apparently native population reported here was found in a clayey area on calcareous rocks between Mateur and Sidi Nsir. The plants occur in an area of c. 1000 m² and seem actually not to be threatened by human activities or interspecific competition.

R. El Mokni

***Ipomoea indica* (Burm.) Merr.**

N Tn: Tunisia: Bizerte, Bizerte, E coast, 37°17'27"N, 09°52'15"E, 2 m, abandoned fields, 24 Dec 2016, *El Mokni* (herb. Univ. Monastir); Monastir, Monastir, E coast, 35°45'01"N, 10°49'38"E, 2 m, abandoned lands, 12 Nov 2017, *El Mokni* (herb. Univ. Monastir). – A xenophyte of American origin known to occur as a naturalized or casual alien in many countries around the Mediterranean with no mention so far for Tunisia (Raab-Straube 2018+; Le Floch & al. 2010; Dobignard & Chatelain 2011b; APD 2018). This is the first report for the Tunisian flora, with the status considered as naturalized as in neighbouring Algeria, Malta and Sicily.

R. El Mokni

Crassulaceae

***Sempervivum verereginae-amaliae* Raus, nom. nov. = *Sempervivum reginae-amaliae* Boiss., Fl. Orient. Suppl.: 248. 1888, nom. illeg. [non *Sempervivum reginae-amaliae* Baker in Gard. Chron., ser. 2, 8 [No. 191]: 230. 1877. – **Neotype designated here:** [icon in] Rümpler & Schumann, Sukkulanten: 63, fig. 35. 1892] = *Sempervivum reginae-amaliae* Halácsy, Consp. Fl. Graec. 1: 580. 1901, isonym = *Sempervivum tectorum* subsp. *reginae-amaliae* Maire & Petitm. in Bull. Soc. Sci. Nancy, ser. 3, 9: 234. 1908 = *Sempervivum marmoreum* subsp. *reginae-amaliae* (Maire & Petitm.) Zonn. in Succulenta 78: 92. 1999. – **Lectotype designated here** (sec. Hagemann 1986: 339; Hart 2002: 311): Greece, Sterea Ellas: "In m[ontis] Parnassi reg[ione]. alpina, Aug[ustus]. 1855", *J. Guicciardi*, De Heldreich Flora Graeca Exsiccata No. 2982 (WU [No. 081444]).**

Boissier (1872–1873: 796) initially did not validly publish the name *Sempervivum reginae-amaliae* because

he merely cited it in synonymy (Turland & al. 2018: Art. 36.1(b)). However, validation of that name was effected by Boissier himself 15 years later when he, by mentioning diagnostic characters based on the exsiccatum "*Guicciardi* 2982" seen by him, discussed the possible conspecificity of *S. reginae-amaliae* Heldr. & Sartori ex Boiss. and *S. tectorum* L. (Boissier 1888: 248). However, Boissier's name was antedated by the heterotypic *S. reginae-amaliae* Baker (Baker 1877), which denotes a taxon in *S. sect. Jovibarba* DC. considered conspecific with *S. heuffelii* Schott (Hart & al. 2003: 342). As a consequence, the independent attempt by Halácsy (1901: 580) to validate the name *S. reginae-amaliae* for a species in *S. sect. Sempervivum* resulted in a later isonym with no nomenclatural status (Turland & al. 2018: Art. 6 Note 2). Maire & Petitmengin (1908: 234, under *S. tectorum*) were the first to validly publish a legitimate replacement name for *S. reginae-amaliae* Boiss. at subspecific rank (Turland & al. 2018: Art. 58.1). After 91 years, Zonneveld (1999: 92) transferred that subspecies to *S. marmoreum* Griseb., which replaces *S. tectorum* L. in Greece (Greuter & al. 1986: 31; Parnell & Favarger 1992: 428; Hart 2002: 313). Zonneveld (l.c.) published "*Sempervivum marmoreum* subsp. *reginae-amaliae* (Heldreich & Sartori ex Boissier 1872) Zonneveld", providing a full and direct reference to Boissier (1872–1873), but not to the basionym, i.e. Maire & Petitmengin (1908), and citing three heterotypic synonyms with full references. According to Turland & al. (2018: Art. 41.8(c)), this is to be treated as a correctable error for the new combination *S. marmoreum* subsp. *reginae-amaliae* (Maire & Petitm.) Zonn.

The combination "*Sempervivum marmoreum* subsp. *reginae-amaliae* (Heldr. & Sartori ex Baker) Zonn.", as currently (4 Jul 2018) recorded in the International Plant Names Index (IPNI 2012+), represents a synonym of *S. heuffelii* Schott (= *Jovibarba heuffelii* (Schott) Á. Löve & D. Löve; = *S. reginae-amaliae* Baker, non Boiss. nec Halácsy). This IPNI record is in fact erroneous in that it invokes Art. 41.8(c) of Turland & al. (2018), as described above, but treats the basionym as being *S. reginae-amaliae* Baker (1877), which is recorded in IPNI, rather than *S. reginae-amaliae* Boiss. (1888), which is not recorded in IPNI (only the earlier, not validly published designation of Boissier [1872–1873] is recorded there). This clearly contradicts the original intention of Zonneveld (1999: 87; Hart & al. 2003: 344), who definitely published a combination in *Sempervivum* L. s. str. (based on the illegitimate *S. reginae-amaliae* Boiss.) rather than in *Jovibarba* (DC.) Opiz (based on *S. reginae-amaliae* Baker). Baker simply obtained from an English private garden a living plant of *S. heuffelii*, in line with the times wrongly labelled "*Sempervivum reginae-amaliae* Heldr. et Sart.", and referred to it under that name in a leading gardeners' newspaper together with an elaborate description, thus validly publishing the name *S. reginae-amaliae* as a mere synonym, from the present-day point of view, of *S. (Jovibarba) heuffelii* (Niederle 2015). Baker's herbarium and types are deposited in K and WELT (Staffleu & Cowan 1976: 104). How-

ever, Nikolić & al. (2014: 220) could not locate any herbarium material to serve as the nomenclatural type of *S. reginae-amaliae* Baker (= “*Diopogon heuffelii* var. *reginae-amaliae* (Baker) H. Jacobsen”, nom. inval. [Jacobsen 1970: 153, place of publication of basionym not cited] = *Jovibarba heuffelii* var. *reginae-amaliae* (Baker) Müssel [Müssel 1977: 18]). From his protologue it seems that Baker merely based his description on a living plant that was seen by him “on a recent visit to Mr. Barr’s”, who “had it in considerably quantity in a full state of development”, yet without substantiating the taxon with herbarium vouchers. Therefore, the illustration in Rümpler & Schumann (1892: 63, fig. 35, *S. reginae-amaliae* Heldr. & Sart.), the sole appropriate element from the account of *S. heuffelii* in Praeger (1932: 93), is selected here as the neotype of *S. reginae-amaliae* Baker. The drawing clearly exhibits the connivent petals of the few-petalled flowers characteristic of a member of *S.* sect. *Jovibarba* and is captioned “in Griechenland heimisch” [native to Greece] and “mit glockigen, an der Spitze gefranst-zerrissenen, dreispitzigen, gelblich-weißen Kronenblättern“ [with campanulate, apically lacerate-fringed, tricuspidate, yellowish-white petals]. This is concordant with Baker’s protologue (Baker 1877) and a later description by the same author (Baker 1879: 428).

The replacement name in *Sempervivum* sect. *Sempervivum*, proposed here in allusion to Baker’s usurpation of Guicciardi’s royal dedicatee for the illegitimate *S. reginae-amaliae* Boiss. and its isonym *S. reginae-amaliae* Halácsy, is needed for taxonomists and *Sempervivum* breeders who, as advocated by Gowler & Tebbitt (2011), consistently apply specific rank to *S. marmoreum* subsp. *ballsii* (Wale) Zonn. (= *S. ballsii* Wale; see Greuter & al. 1986: 30), subsp. *erythraeum* (Velen.) Zonn. (= *S. erythraeum* Velen.; see Greuter & al. 1986: 30), subsp. *marmoreum* (*S. marmoreum* Griseb. s. str.) and subsp. *reginae-amaliae* (Maire & Petitm.) Zonn. (Wills & Wills 2000: 13, as “*S. reginae-amaliae* Heldr.”; Mitchell 1973: 22; Konop 1987: 154; Gowler & Tebbitt 2011: 87, as “*S. reginae-amaliae* Halácsy” = *S. verereginae-amaliae*) alongside *S. balcanicum* Stoj. (Parnell & Favarger 1992: 427), *S. kosaninii* Praeger (Jalas & al. 1999: 60), *S. leucanthum* Pančić (Parnell & Favarger 1992: 426; Hart 2002: 310) and *S. macedonicum* Praeger (Greuter & al. 1986: 30; Parnell & Favarger 1992: 427; Jalas & al. 1999: 60). The alleged conspecificity of *S. verereginae-amaliae* and *S. erythraeum*, claimed in Marhold (2011c+), was refuted by Letz (2009: 294), who qualified the latter as taxonomically different and endemic to Bulgaria, hence absent from Greece, following Vălev (1970: 645–646), Petrova (2006: 94) and Assyov & Petrova (2006: 355). Th. Raus

Cruciferae (*Brassicaceae*)

Brassica napus L.

N Tn: Tunisia: Bizerte, Bizerte city, 37°17'16"N,

09°52'12"E, 7 m, roadside vegetation, 3 Apr 2005, *El Mokni* (herb. Univ. Bizerte); *ibid.*, Mateur to Michou, 37°03'36"N, 09°36'47"E, 14 m, roadside vegetation, 22 Apr 2006, *El Mokni* (herb. Univ. Bizerte); *ibid.*, Menzel Bourguiba to Zaârour, 37°07'47"N, 09°46'14"E, 17 m, roadside vegetation, 26 Mar 2018, *El Mokni* (herb. Univ. Monastir); *ibid.*, Mateur to Ghezala, 37°05'09"N, 09°32'42"E, 25 m, 26 Mar 2018, *El Mokni* (herb. Univ. Monastir). – The taxon is considered native to Scandinavia and Russia and is most commonly grown in N temperate regions. It is thought to have originated as a garden hybrid of *Brassica oleracea* var. *capitata* L. and *B. rapa* L. var. *rapa* and has been cultivated since the Middle Ages. In the Mediterranean area, the taxon is solely given for European Turkey and Anatolia as cultivated, but is not mentioned for N Africa (Marhold 2011b+). However, Dobignard & Chatelain (2011b) assigned it as “alien/adventitious” for Algeria, Libya, Morocco and also Tunisia. For Tunisia it has not yet been given as naturalized, neither by Pottier-Alapétite (1979), who reported it as “occasionally subsponaneous”, nor by Le Floc’h & al. (2010), who gave the status “alien/adventitious”. The actual status of *B. napus* in Tunisia is defined here. Many populations have been observed since 2005, and they have been occupying more and more space at least since 2006. Therefore, according to the definitions given by Pyšek & al. (2004), the species can be considered as naturalized in Tunisia. R. El Mokni

Euphorbiaceae

Mercurialis perennis L.

D Tn: Tunisia: Bizerte, Jarzouna, E coast, 37°16'00"N, 09°52'37"E, 1 m, abandoned fields, 30 Dec 2006, *El Mokni* (herb. Univ. Bizerte); *ibid.*, Bizerte, E coast, 37°17'27"N, 09°52'15"E, 2 m, abandoned fields, 14 Jan 2017, *El Mokni* (herb. Univ. Monastir). – The species is found native usually in the herb layer of forests from the Canary Islands throughout Europe eastwards to the Urals and N Iran, locally extending to N Africa, where it is so far reported only from Algeria (Hultén & Fries 1986: map 1280; Jefferson 2008). In view of the lack of previous records for the Tunisian flora (Euro+Med 2006+; Le Floc’h & al. 2010; Dobignard & Chatelain 2011b; APD 2018), these are the first records for the country, where *Mercurialis perennis* seems to have been overlooked or confused with the sympatric *M. annua* L. Both species are dioecious and may show a similar habit, but *M. perennis* has a branching rhizome system. The Tunisian records come

from nitrophilous vegetation of abandoned fields, hence *M. perennis* is considered doubtfully native in Tunisia. R. El Mokni

Leguminosae (Fabaceae)

Lablab purpureus (L.) Sweet

NTn: Tunisia: Jendouba, Fernan, 36°38'52"N, 08°41'52"E, 245 m, within deserted buildings, 25 Apr 2011, *El Mokni* (herb. Univ. Bizerte); Tunis, Bab Saâdoun, 36°48'36"N, 10°09'18"E, 16 m, within deserted buildings, 5 Mar 2018, *El Mokni* (herb. Univ. Monastir); Monastir, Zaouiet Kontich, 35°39'10"N, 10°46'04"E, 30 m, roadsides, on cacti, 22 Apr 2018, *El Mokni* (herb. Univ. Monastir); *ibid.*, Masjed Aissa, 35°44'02"N, 10°43'34"E, 10 m, roadsides, on cacti, 22 Apr 2018, *El Mokni* (herb. Univ. Monastir); *ibid.*, Ouwardanine, 35°43'09"N, 10°39'17"E, 65 m, roadsides, on cacti, 22 Apr 2018, *El Mokni* (herb. Univ. Monastir). – No previous records are known for Tunisia (ILDIS 2010; Le Floch & al. 2010; Dobignard & Chatelain 2012; APD 2018). The species, native to Africa S of the Sahara and now widely cultivated pantropically, seems to have been introduced by human activities and then escaped from cultivation. A vigorously trailing, twining herbaceous plant, domesticated types are mostly summer-growing annuals or occasionally short-lived perennials. The wild ancestors are strongly perennial with stems robust, trailing to upright, 3–6 m long (Cook & al. 2005). R. El Mokni

Malvaceae (incl. Tiliaceae)

Corchorus olitorius L.

A Tn: Tunisia: Bizerte, Zouaouine, 37°07'59"N, 10°01'52"E, 95 m, agricultural fields, 26 Jul 2017, *El Mokni* (herb. Univ. Monastir); Monastir, Jemmel, 35°37'05"N, 10°45'23"E, 30 m, roadsides, 7 Oct 2015, *El Mokni* (herb. Univ. Monastir); Jendouba, Boussalem, 36°37'47"N, 08°55'12"E, 135 m, roadsides near agricultural fields, 2 Jul 2011, *El Mokni* (herb. Univ. Monastir). – No previous records are known for Tunisia (Raab-Straube 2017b+; Le Floch & al. 2010; Dobignard & Chatelain 2012; APD 2018). The species, native to Pakistan and India, is now widespread throughout the world in tropical countries, extending to N Australia. R. El Mokni

Neuradaceae

Neurada al-eisawii Barsotti & al. (≡ *N. procumbens* var. *al-eisawii* (Barsotti & al.) Turki)

– **Eg:** Turki (2007) reported the finding of *Neurada al-eisawii* in Egypt and reduced it to the rank of variety under *N. procumbens* L. He supported this new taxonomic treatment on the basis of morphological features that were not taken into account in the original description of *N. al-eisawii* as a new species (Barsotti & al. 2000). Actually, the latter taxon differs from *N. procumbens* mainly in the morphology of the well-developed fruits, whereas the fruit illustrations provided by Turki reveal that what he thought to be *N. al-eisawii* was in fact attributable to the variability of *N. procumbens* var. *procumbens*. We therefore consider the finding of *N. al-eisawii* in Egypt to be erroneous and to be rejected. At the same time, we reaffirm the suitability of specific rank for *N. al-eisawii* on the basis of the notable differences in fruit morphology from *N. procumbens* that were observed at the time of its first finding. Consequently, *N. al-eisawii* is here regarded as an exclusive endemic to the area of the Hisma Basin in S Jordan.

V. Lazzeri, A. Borzatti de Loewenstern & G. Barsotti

Nyctaginaceae

Mirabilis jalapa L.

N Tn: Tunisia: Bizerte, Bizerte city, 37°17'14"N, 09°52'10"E, 9 m, roadside vegetation, 13 May 2008, *El Mokni* (herb. Univ. Bizerte); Monastir, Lamta, 35°40'16"N, 10°52'12"E, 12 m, roadsides along non-permanent stream crossing olive groves, 22 Apr 2016, *El Mokni* (herb. Univ. Monastir); *ibid.*, Jemmel, 35°37'56"N, 10°46'28"E, 17 m, roadsides along non-permanent stream, 22 Apr 2016, *El Mokni* (herb. Univ. Monastir); *ibid.*, Téboulba, 35°38'19"N, 10°57'34"E, 25 m, roadsides near railway to city centre, 22 Apr 2016, *El Mokni* (herb. Univ. Monastir); *ibid.*, Touza, 35°37'51"N, 10°49'14"E, 35 m, meadows in olive groves, 22 Apr 2016, *El Mokni* (herb. Univ. Monastir); Nabeul, 36°27'32"N, 10°44'49"E, 13 m, meadows in olive groves, 25 Jun 2017, *El Mokni* (herb. Univ. Monastir). – A popular ornamental plant native to tropical America and cultivated worldwide for the beauty of its flowers, which can be white, red, pink, purple, yellow or multicolored; it is naturalized from cultivation (Grierson & Long 1984). For N Africa, the species is listed by Uotila (2011+) only in Libya as a casual alien; however, it was assigned as cultivated (APD 2018) or cultivated/subspontaneous for Algeria, Libya, Morocco and also Tunisia (Dobignard & Chatelain

2012). For Tunisia it has not previously been given as naturalized, and the actual status is defined here. Many populations have been observed since 2008, and they have been occupying more and more space mainly in C Tunisia; therefore, according to the definitions given by Pyšek & al. (2004), the species can be considered as naturalized in Tunisia. R. El Mokni

Orobanchaceae

Orobanche litorea Guss. (= *O. fuliginosa* Jord.; = *O. sabulicola* Lojac.) – Fig. 6.

+ **Lu:** Portugal: Algarve, dunes near Carrapateira, on *Plantago coronopus* L. s.l. (matrix nova), very big population, 12 Apr 2015, Holzgreve (photo); ibid., Ribeira de Carrapateira, “Mündung bis Stausee”, 22 Apr 2015, Holzgreve (photo). – New for Portugal and the Iberian peninsula. This plant, described from Sicily without concrete locality (Gussone 1828: 184; see also Gussone 1844: 136) and lectotypified by Domina & Mazzola (2009: 179), is a typical element of Mediterranean coastal dunes. Almost all previously mentioned host plants are *Asteraceae*, and there is one record of *Eryngium maritimum* L. as a host (Domina & Arrigoni 2007: 122). The plants from the type gathering were parasitizing *Anthemis maritima* L. (Domina & Mazzola 2009: 179) and this is also the main host in the C Mediterranean. The parasitism of *O. litorea* on *Plantaginaceae* is new to science. Except for Sardinia and Sicily, the plant has very rarely been collected in other regions and countries. It has been recorded from France, Italy and Tunisia (France: Bouches-du-Rhône: Marseille; Var: Hyères, Île de Porquerolles; Alpes Maritimes: Cannes, Île Sainte Marguerite; Jordan 1846: 226; Grenier 1853: 633; Gillet & Magne 1863: 301; Ardoino 1867: 290; Ardoino 1879: 292; Ollivier 1885: 16; Rouy 1909: 184; Bonnier 1926: 99, all as *O. fuliginosa*; Thorogood 2016: 462; Italy: Tuscany, Sardinia, Sicily; Nicotra 1878: 336; Lojaccono Pojero 1882: 37; Caruel 1885: 388; Béguinot 1902: 484; Lojaccono Pojero 1904: 165; Fiori 1925–1929: 390; Beck von Mannagetta 1930: 217, as *O. fuliginosa*; Domina & Arrigoni 2007: 122; Domina & al. 2011: 219ff.; D’Antraccoli & al. 2016: 77; Thorogood 2016: 462; Tunisia: El Mokni & al. 2015a: 6ff.). Other reports require confirmation (often published under different names; Bertoloni 1845–1847; Caruel 1860; Pellegrini 1942; Fossi Innamorati 1989; Foggi & al. 2001; all quoted in D’Antraccoli & al. 2016: 77); likewise generally all reports from the E Mediterranean require confirmation, i.e. Crete

(see the note in El Mokni & al. 2015a: 8) and other regions in Greece and Turkey (Greuter & al. 1989: 257, as *O. fuliginosa* in a wide sense). We cannot assign all the reports of *O. fuliginosa* in Dimopoulos & al. (2013: 118) to *O. litorea*; because the latter is a strictly coastal species, the reports of *O. fuliginosa* from inland localities presumably belong to a different taxon.

Orobanche litorea has been photographically documented by C. Thorogood from the Algarve, but without a correct specific determination (<https://www.flickr.com/photos/23743086@N02/2403237438>, as *O. amethystea* on *Hieracium* sp.; Thorogood 2014, as “*Orobanche* sp. parasitizing *Plantago coronopus*” with note: “populations of a fourth cryptic taxon occur locally on dunes and coastal shales on the western sea belt of the Algarve which are parasitic on *Plantago coronopus*. This taxon [...] appears to be closely related to *O. amethystea* [...] and also *O. litorea*”). The reports in Foley (2001: 59, Cabo de São Vicente, as *O. maritima* Pugsley) and Greuter & al. (1989: 261, “Lu, Hs”, as *O. maritima*) possibly also belong here.

Orobanche litorea is evidently poorly known and has often been misidentified or erroneously put in synonymy. Beck von Mannagetta (1930: 181) included it in *O. canescens* C. Presl, a species morphologically related to *O. pubescens* d’Urv., which has a different habit and, among other features, long glandular hairs on the outer side of the corolla (see also Domina & Štěpánek 2009). In Pignatti (1982: 612) and Greuter & al. (1989: 261), *O. litorea* is treated as a synonym of *O. minor* Sm., which has shorter flowers and usually a lax inflorescence, but shares with *O. litorea* the character of always very short glandular hairs on the outer side of the corolla. There is also little resemblance of *O. litorea* with species like *O. amethystea* Thuill. and *O. chironii* Lojac., with which it is often synonymized or confused.

Orobanche litorea is not conspecific with *O. maritima* Pugsley, described 1940 from England (Cornwall, Devon, Dorset, Kent) and the Channel Islands (Guernsey and Jersey) and parasitizing *Daucus* L. (holotype: BM000582370). *Orobanche maritima* lives in dunes as well, with *Plantago coronopus* s.l. reported as one of the host plants (Pugsley 1940: 110; Stace 2010: 663). Those plants have a habit similar to *O. minor*, with a lax inflorescence and shorter flowers.

Orobanche angelicifixa Péteaux & St.-Lag. 1890 [= *O. fuliginosa* f. *angelicifixa* (Péteaux & St.-Lag.) Beck 1930], described from a garden in Lyon with the host *Angelica* L., has a



Fig. 6. *Orobanche litorea* – A: habit of plants with host *Plantago coronopus* s.l.; B: inflorescence detail; A, B: Portugal: Algarve, dunes near Carrapateira, 12 Apr 2015, photographs by V. Holzgreve. – C: habit of plant with host *Anthemis maritima* (bottom left); D: inflorescence detail; C, D: Italy, Sicily: coastal dunes near Portopalo, 14 Mar 2016, photographs by B. Kreinsen & S. Rätzel.

different habit (Péteaux & Saint-Lager 1890: 221ff. with drawings) and is not conspecific with *O. litorea*. The location of *O. angelicifixa* – far inland and anthropogenic – and Gagnepain’s successful cultivation experiments (e.g. on *Trifolium* L.; Gagnepain 1945: 258; Gagnepain 1949: 182) strongly suggest a close relationship with *O. minor*.

On the other hand, especially with regard to the corolla shape, the flower size and the frequent development of strong stigma lobes, there are clear affinities to the members of *Orobanchae* subsect. *Speciosae* (Lojac.) Novopokr., *O. crenata* Forssk. and *O. owerini* (Beck) Beck. However, *O. litorea* is also distinguished from those species by the typically compact inflorescence (the drawing in Thorogood [2016: 462] is not typical for the species).

Plants from the Algarve (Fig. 6A, B) match very well with historical collections (e.g. the lectotype of *O. litorea*: PAL43213; see Domina & Mazzola 2009: 179, 180, fig. 1; and “*Orobanche sabulicola* n. sp.”, *Lojacono*, K000759358) and plants from Sicily (on *Anthemis maritima*, root attachment verified, Mar 2016, Kreinsen & Rätzel, herb. Rätzel; Fig. 6C, D).

S. Rätzel, V. Holzgreve,
B. Kreinsen & H. Uhlich

Orobanche reticulata* subsp. *agigensis Rätzel & Uhlich

+ **Tu(A)**: Turkey: B5 Kayseri, mountain Erciyes, 15 km from Hisarcık to Develi, 38°30'42"N, 35°29'58"E, 2100–2200 m, steppe, 14 Jul 2009, Zare 490 & al. (HUB); *ibid.*, 2 km S of Tekir lake, 38°29'52"N, 35°30'59"E, steppe, 27 Jun 2010, Zare 600 & Bayrak (HUB); *ibid.*, Develi to Kayseri, 8 km before (S of) Tekir lake, 27 Jun 2010, Zare 606 & Bayrak (HUB). – These records, published by Zare & Dönmez (2013), are the first certain ones of *Orobanche reticulata* Wallr. for Turkey. Apart from that, there is only one uncertain indication of the species from the Bursa region in W Turkey (Gilli 1982; Zare & Dönmez 2013). The collections from the region of Kayseri in C Anatolia match *O. reticulata* subsp. *agigensis*, recently described from the Thaç massif in the Russian W Greater Caucasus (Rätzel & Uhlich 2016). This taxon can be determined in the field especially by the obligate yellow stigmas. It is probably a plant of higher altitudinal ranges in SW Asia that has its own area separate from *O. reticulata* subsp. *reticulata*.

S. Rätzel & H. Uhlich

Phelipanche gussoneana (Lojac.) Domina, Raab-Straube, Rätzel & Uhlich, **comb. nov.** ≡ *Phelypaea gussoneana* Lojac. in *Naturalista Sicil.* 1: 199. 1882.

– Lectotype (designated by Domina & Mazzola 2007: 230): “*Phelipaea* n. sp. / *rufescens* Gris. / opp. *caesia* / ad radices *Rumex / tuberosus* / sotto Busambra / 13 Jun 1878” (PAL 43009). – Fig. 7.

= *Phelipanche schultzioides* M. J. Y. Foley in Bot. Chron. (Patras) 19: 7. 2008 ≡ *Orobanche schultzioides* (M. J. Y. Foley) Domina in Willdenowia 39: 331. 2010. – Holotype: Greece, Peloponnisos, Zarouchla, roadside N of the village, 13 Jun 2005, *Foley 2115* (E; isotype: E).

+ **Si(S)**: Italy, Sicily: Busambra (Palermo), on *Rumex tuberosus* L., 13 Jun 1878, *Lojacono* (PAL 43009); *ibid.*, on *Rumex nebroides* Campd., 28 Jun 2004, *Domina* (PAL); *ibid.*, on *Arabis alpina* subsp. *caucasica* (Willd.) Briq., 20 Jun 2004, *Domina* (PAL); *ibid.*, on *Hyoseris radiata* L., 28 Jun 2004, *Domina* (PAL); *ibid.*, on *Geranium rotundifolium* L., 28 Jun 2004, *Domina* (PAL); *ibid.*, on *Centaurea cyanus* L. and *Anthemis cupaniana* Nyman, 28 Jun 2004, *Domina* (PAL); *ibid.*, on *Rumex triangularis* DC., Jun 1878, *Lojacono* (P); *ibid.*, *Lojacono 44* (PRC); *ibid.*, on *Rumex nebroides*, Jun 1881, *Lojacono* (FI); Palermo, *Lojacono 7* (PRC); Madonie (Palermo), Jun 1853, [A. Todaro] (PAL); Madonie, on *Artemisia camphorata* Vill., *Gussone* (NAP); Madonie [Isnello], c.da Rianello, on *Artemisia camphorata* [= *A. alba* Turra], *Palumbo* (herb. Minà).

+ **Rf(CS)**: Russia, N Greater Caucasus: Krasnodarskiy Kray, Anapskiy Rayon, near Anapa, valley of river Sukko, 5–7 km above Sukko village, on *Lamium maculatum* (L.) L., root attachment verified, host det. Tatanov, 7 Jun 1989, *Dolmatova & al. 1637* (LE01042372); *ibid.*, near Anapa, c. 4 km S of Malyy Utrish, 27 May 2014, *Dugorova*, as *Orobanche purpurea* Jacq. (MW1004073, MW1003793); *ibid.*, c. 1.2 km E of Malyy Utrish, 44.708116°N, 37.476416°E, *Carpinus* wood, 29 May 2013, *Kozhin Kr-1594*, as *O. dalmatica* (Beck) Tzvelev (MW0637999); *ibid.*, c. 1.2 km E of Malyy Utrish, 44.70883°N, 37.4768°E, *Carpinus* wood, 29 May 2016, *Kozhin Kr-1610*, as *O. dalmatica* (MW0723903).

+ **Ab(A)**: Azerbaijan: Talysh, Lerik rayon, “Caucasus – auf Wiesen in der Umgegend von Tatuni. Jul.”, without year, without collector [*Hohenacker?*], as *Phelypaea coerulea* var. *comosa* (LE01015390 [i.e. plant on left of sheet annotated with “a.” and “II.”]).

Phelipanche gussoneana, including *Phelipanche schultzioides* described from Peloponnisos, Greece (Foley 2008), has probably been overlooked in the C and E Mediterranean, and was recently also found on the Crimean peninsula (Rätzel & al. 2017a, 2017b). *Pheli-*



Fig. 7 *Phelipanche gussoneana* – A: habit of plant; B: inflorescence detail. – Italy, Sicily: Palermo, Rocca Busambra (type locality of *Phelypaea gussoneana*), 20 Jun 2014, photographs by G. Domina.

panche schultzioides, including its type, and specimens from Sicily identified as *Phelipanche oxyloba* (Reut.) Soják (Domina & al. 2011) match *Phelypaea gussoneana*, including its type. For reasons of nomenclatural priority, the present new combination is necessary when *Phelipanche schultzioides* and *Phelypaea gussoneana* are regarded as conspecific. This taxon is typically taller than the morphologically similar *Phelipanche mutellii* (F. W. Schultz) Pomel and has a different appearance, with bracts sticking out from the inflorescence in bud, and dark bluish veins on the corolla.

S. Rätzel, G. Domina, E. von Raab-Straube,
I. V. Tatanov & H. Uhlich

Phelipanche kelleri (Novopokr.) Soják (≡ *Orobancha kelleri* Novopokr.) – Fig. 8.

+ **Gg(G)**: Georgia: Greater Caucasus, Mzcheta-Mtianeti, near Karsani, Sarkinetis Kedi, 41.835519°N, 44.714053°E, 640 m, S-exposed slope, stony, open sunny site, collected together with fragment of host [*Bassia prostrata* (L.) Beck], 11 May 2017, Gröger & Shewardnadze 2206 (M); *ibid.*, Caucasus, Gouv. Tiflis, 14 Jun 1889, Lipsky (LE).

+ **Tu(A)**: Turkey: Ankara, Şereflikoçhisar, 12 May 2013, Tonsun, as *Orobancha* sp. (photo [<http://dogalhayat.org/property/Orobancha-10/>]).

Phelipanche kelleri, described from Kazakhstan (Novopokrovskij 1950: 319, holotype: LE00050173), is a rarely collected and illustrated species. It was previously known

from Armenia (Tzvelev & Cherepanov 728 & 818, LE; Yegorova & al. 2101, LE; Zaturyan & Grigoryan 1987: 375; Terekhin & al. 1993: 115), Azerbaijan (Karyagin & Safiew, LE; Yegorova & al. 483, LE; Tzvelev 1957: 568; Terekhin & al. 1993: 115), Russia (Tzvelev 1981: 328), Kazakhstan (Novopokrovskij 1950: 319; Orazova 1965: 156; Terekhin & Filimonova 1993: 52) and W China (Zhang 1988: 398; Zhang 1990: 105; Zhang & Tzvelev 1998: 233; Tzvelev 2006: 17). Reports from Ukraine (e.g. Tzvelev 1981: 328) and Kurdistan territories (e.g. Novopokrovskij & Tzvelev 1958: 57; Kabulov 1978: 15) require confirmation. Here the species is reported for the first time from Georgia and Turkey. It is morphologically well characterized by the strongly keeled corolla and its often bulged edges, the completely glabrous inner surface of the corolla and its whitish (especially in the lower half) to bright violet-blue colour.

Parasitism on *Chenopodiaceae* is unusual in the genus *Phelipanche*. Only the W Mediterranean *P. camphorosmae* Carlón & al. is known to parasitize *Camphorosma monspeliaca* L. So far, only *Bassia prostrata* has been mentioned as a host plant for *P. kelleri* (Tzvelev 2015). The presumed host (root attachment not verified) for the plant from Georgia (Sarkinetis Kedi) is also *B. prostrata*. Though bearing neither flowers nor fruits, the latter could be identified by its unmistakable leaf anatomy (Freitag & Kadereit 2014: fig. 3F).

S. Rätzel, H. Freitag & H. Uhlich



Fig. 8. *Phelipanche kelleri* – A: habit in late flowering and early fruiting stage; B: detail, upper part of inflorescence. – Georgia: Sarkinetis Kedi, 11 May 2017, photographs by A. Gröger.

Phelipanche orientalis (Beck) Soják (≡ *Orobancha orientalis* Beck). – Fig. 9.

+ **AE(G)**: Greece, E Aegean Islands: Rodos, c. 2.7 km ESE of Agios Isidoros, 36°09'42.9"N, 27°52'41.4"E (WGS 84), c. 540 m, edge of old cultivated land, top of small hill, open and sunny, parasitic on shrubs of *Prunus webbii* (Spach) Vierh. (matrix nova), many plants, all under solitary shrubs (but not outside them), 26 May 2014, Krause & al. (herb. Rätzl, B). – New to Greece (not recorded in Dimopoulos & al. 2013, 2016). *Phelipanche orientalis*, described from the NW Himalaya (Beck von Mannagetta 1890: 110f., t. 1, fig. 19; 1930: 90), is a poorly known and rarely illustrated species (holotype: K; isotype: LE [not found, fide Novopokrovskij & Tzvelev 1958: 65]; syntype: Pakistan, K000061351 [as *Phelypaea aegyptiaca* (Pers.) Walp.]; syntypes: India, M-0185499, M-0185500, P02982291, P02982293 [as *Phelypaea aegyptiaca*]). There are also records from Cyprus (Meikle 1985: 1237; Heller & Heyn 1987: 70; Greuter & al. 1989: 261; Viney 1994: 500; Hand & al. 2011+, http://www.flora-of-cyprus.eu/cdm_dataportal/taxon/5bf50fa5-b80c-4772

-af52-d0cfa723f583, Turkey (P02968071 [as *Phelypaea ramosa* (L.) C. A. Mey.]; Greuter & al. 1989: 261), Azerbaijan (Tzvelev 1957: 572; Novopokrovskij & Tzvelev 1958: 65), NW Iran (Bornmüller 1910: 158; Beck von Mannagetta 1930: 90; Schiman-Czeika 1964: 9; Heller & Heyn 1987: 70), Armenia (Novopokrovskij & Tzvelev 1958: 65; Zaturjan & Grigorjan 1987: 377), Iraq (Al-Mayah & Al-Asadi 2017: 6), Uzbekistan (Zakirov 1961: 356; Terekhin & Filimonova 1993: 53), Tajikistan (Zakirov 1961: 356; Yunusov 1986: 448; Terekhin & Filimonova 1993: 53), Afghanistan (Beck von Mannagetta 1890: 111; 1930: 90) and Pakistan (Boissier 1879: 498, as *Phelypaea lavandulacea* (Rchb.) Reut.; Stewart 1972: 673; Athar & al. 2007: 348). Further records from Syria, Israel, Palestinian territories, Egypt, Jordan, Oman and China require confirmation.

The almost verified hosts for this species are *Rosaceae*, especially shrubby species of *Prunus* sect. *Amygdalus* (L.) Benth. & Hook. f., e.g. *P. bucharica* B. Fedtsch. (Yunusov 1986: 448), *P. fenzliana* Fritsch (Tzvelev 1957: 572; Novopokrovskij & Tzvelev 1958: 65) and *P. spinosissima* Franch. (Yunusov



Fig. 9. *Phelipanche orientalis* – A: habit of plants, B: inflorescence detail. – Greece: Rodos, near Agios Isidoros, 26 May 2014, photographs by S. Rätzel.

1986: 448). Meikle (1985: 1237) gave as host for the plants from Cyprus “*Prunus dulcis*, *Medicago spec.*, *Astragalus lusitanicus*, etc.” *Phelipanche orientalis* can also be very abundant in plantations of *Prunus armeniaca* L. (apricot), e.g. in Turkey, prov. Malatya, 2013, Aksoy & Pekcan, as *Phelipanche aegyptiaca* (Pers.) Pomel (photo [Aksoy & Pekcan 2014: 31]). The species probably occurs also on other members of *Prunus* sect. *Amygdalus*, but has been misidentified (Schiman-Czeika 1964: 1ff.; Musselmann 1980: 463ff.; Riches & Parker 1995: 226ff.; Saeidi Mehrvarz & al. 2010: 113; Sánchez Pedraja & al. 2016+).

Phelipanche orientalis is characterized by its slender growth, erect branches (if present), slender tubular and erecto-patent corolla, and long and acute corolla lobes, often with few coarse teeth. Beck von Mannagetta (1890: 110) referred to the more or less high connection of the bracteoles with the calyx tube. This feature is characteristic, but is not continuous within a population or even on the same plant and is not therefore fully suitable for differentiation from other species. *Phelipanche orientalis* differs from the taller and

mostly unbranched *P. schultzi* (Mutel) Pomel by the much shorter calyx lobes. In contrast to *P. mutelii* (F. W. Schultz) Pomel [including var. *nana* (Reut.) Uhlich & Rätzel and var. *oxyloba* (Reut.) Rätzel & Uhlich] and *P. ramosa* (L.) Pomel, the bracts are not appressed to the buds, but are fairly developed and spreading (see Rätzel & al. 2017b). This character is similar in *P. gussoneana* (Lojac.) Domina & al. (= *P. schultzioides* M. J. Y. Foley, see notula above); both species have a distinct tuft-like appearance of the top of the spike. *Phelipanche orientalis* is very variable in size, but normally significantly larger than *P. mutelii* s.l.

Phelipanche orientalis may be conspecific with *Phelipanche libanotica* (Boiss.) Soják, described from Ainhata and Bscherre, Lebanon as *Phelypaea libanotica* Boiss. (Boissier 1888: 357). The structure of the flower and the habit of the two taxa are similar. *Phelipanche libanotica* was also indicated from Mt Makmel, Lebanon, and from near Alexandria, Egypt (Beck von Mannagetta 1930: 92, as *Orobanche schultzi* var. *alexandrina* Beck). The material of those last two records was most probably

destroyed in B in 1943, and no other original material is known. The holotype of *Phelypaea libanotica* (Schweinfurth 453, G00150062) is rather scanty, consisting of three separate flowers and drawings of habit and flowers, and the host is not known either. Two other sheets determined by Sánchez Pedraja & al. (2016+) as *Phelipanche libanotica* probably also belong to *Phelipanche orientalis*: “In Libani borealis declivitatibus orientalibus silvaticis, inter Der-el-Ahmar et Aineta”, 1600–1700 m, 27–28 Jun 1910, J. & F. Bornmüller 12240, as *O. schultzii* Mutel (P02968070); “Syrie, champs au S. de Rachaya”, 1250 m, 6 May 1926, A. Berton 139, as *O. mutelii* F. W. Schultz (P02968675).

S. Rätzel, M. Ristow & H. Uhlich

Polygonaceae

Polygonum argyrocoleon Kunze

N Tn: Tunisia: Béja, 36°44'49"N, 09°12'27"E, 150 m, cultivated fields and meadows, 1 Jul 2015, *El Mokni* (herb. Univ. Monastir). – A naturalized alien, originating from the Irano-Turanian region, new to the flora of Tunisia. For N Africa, it was previously reported as native from Morocco, Algeria and Libya with no mention for Tunisia (Uotila 2017+; Le Floch & al. 2010; Dobignard & Chatelain 2013; APD 2018). A large population was detected in Tunisia growing in cultivated fields, while other plants were observed in meadows along the Béja river. The species seems to have been previously confused in Tunisia with *P. patulum* M. Bieb. due to a similar habit. Its almost leafless floral branches are conspicuously different from the leafy branches in *P. patulum*. R. El Mokni

Solanaceae

Solanum rostratum Dunal

A Tn: Tunisia: Sousse, Bouficha, 36°11'46"N, 10°25'41"E, 13 m, cultivated fields and along roadsides, 7 Apr 2015, *El Mokni* (herb. Univ. Monastir). – A casual alien new to the flora of Tunisia. *Solanum rostratum* is considered native to Mexico and the Great Plains region of the United States (Whalen 1979) and is now widely naturalized and invasive in tropical and subtropical regions around the world (Randall 2012; USDA-NRCS 2018). For N Africa, it has been reported so far only as a casual alien in Morocco, with no mention for Tunisia (Valdés 2012+; Le Floch & al. 2010; Dobignard & Chatelain 2013; APD 2018). R. El Mokni

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