Euro+Med-Checklist Notulae, 13

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Notulae ad floram euro-mediterraneam pertinentes No. 42

ECKHARD VON RAAB-STRAUBE[1*] & THOMAS RAUS[1] (ed.)

Euro+Med-Checklist Notulae, 13

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Abstract: This is the thirteenth of a series of miscellaneous contributions, by various authors, where hitherto unpublished data relevant to both the Med-Checklist and the Euro+Med (or Sisyphus) projects are presented.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 *Amaryllidaceae* (incl. *Alliaceae*), *Apocynaceae*, *Caryophyllaceae*, *Chenopodiaceae*, *Compositae*, *Crassulaceae*, *Cucurbitaceae*, *Gramineae*, *Hydrocharitaceae*, *Iridaceae*, *Labiatae*, *Liliaceae*, *Malvaceae*, *Meliaceae*, *Myrtaceae*, *Orobanchaceae*, *Oxalidaceae*, *Papaveraceae*, *Pittosporaceae*, *Primulaceae* (incl. *Myrsinaceae*), *Ranunculaceae*, *Rhamnaceae*, *Rubiaceae*, *Solanaceae* and *Umbelliferae*. It includes new country and area records and taxonomic and distributional considerations for taxa in *Allium*, *Anthemis*, *Atriplex*, *Centaurea*, *Chasmanthe*, *Chenopodium*, *Delphinium*, *Digitaria*, *Elodea*, *Erigeron*, *Eucalyptus*, *Hypecoum*, *Leptorhabdos*, *Luffa*, *Malvaviscus*, *Melia*, *Melica*, *Momordica*, *Nerium*, *Oxalis*, *Pastinaca*, *Phelipanche*, *Physalis*, *Pittosporum*, *Salvia*, *Scorzoneroides*, *Sedum*, *Sesleria*, *Silene*, *Spartina*, *Stipa*, *Tulipa* and *Ziziphus*, new combinations in *Cyanus*, *Lysimachia*, *Rhaponticoides* and *Thliphthisa*, and the reassessment of 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 (2020).

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Amaryllidaceae (incl. *Alliaceae*)

Allium melanogyne Greuter – Fig. 1.

+ Bu: Bulgaria: Rhodopes (East), Haskovo district, close to Madzharovo, near the road to Borislavtsi village, 41°39'6.24"N, 25°52'33.57"E, 180 m, eroded slopes and screes, among scattered trees of *Acer monspessulanum* L. and *Quercus frainetto* Ten., in flower, 17 May 2020, *Kunev* (SO 108064; SOM 177321); ibid., in fruit, 23 Jun 2019, *Kunev* (SO 108065; SOM 177332); Rhodopes (East), 28 May 1983, *Cheshmedzhiev* (SOA 41079, as *Allium nigrum* L.); Pirin mts, 5 Aug 1989, *Stoyanov* (SOM 147887, as *A. nigrum*); Slavyanka

(Orvilos) mt., 9 Jul 1991, *Pashaliev* (SOM 151274, as *A. nigrum*). – This species was first described by Greuter (2010: 342–343), and later its identity and distribution in Greece were defined by Strid (2017: 294–295). A further specimen from Greece (Thasos, E of Ypsario, 1100 m, rocky areas at the main ridge, 3 Jun 1942, *Kitanoff*, SOM 92560) also represents *A. melanogyne*. All the morphological features of the plants from the new Bulgarian locality match with the protologue, except the number and width of the leaves. According to Greuter (2010), the leaves of the species were 4–7 mm wide, and their number on an isotype specimen was 1 (Greece: Nomos of Evros, Eparchia of Soufli, 1 km S of Dadia, 13 Jun 1992, *Greuter & al. 23311*, B 10 0343220 [https://herbarium.bgbm.org/object/B100343220]). However, later finds of this species from Greece (Strid, pers. comm.) and Bulgaria showed that these characters are rather variable. The Bulgarian plants from the new location discussed here had 4–6(–8) leaves, which were 7–32 mm wide.

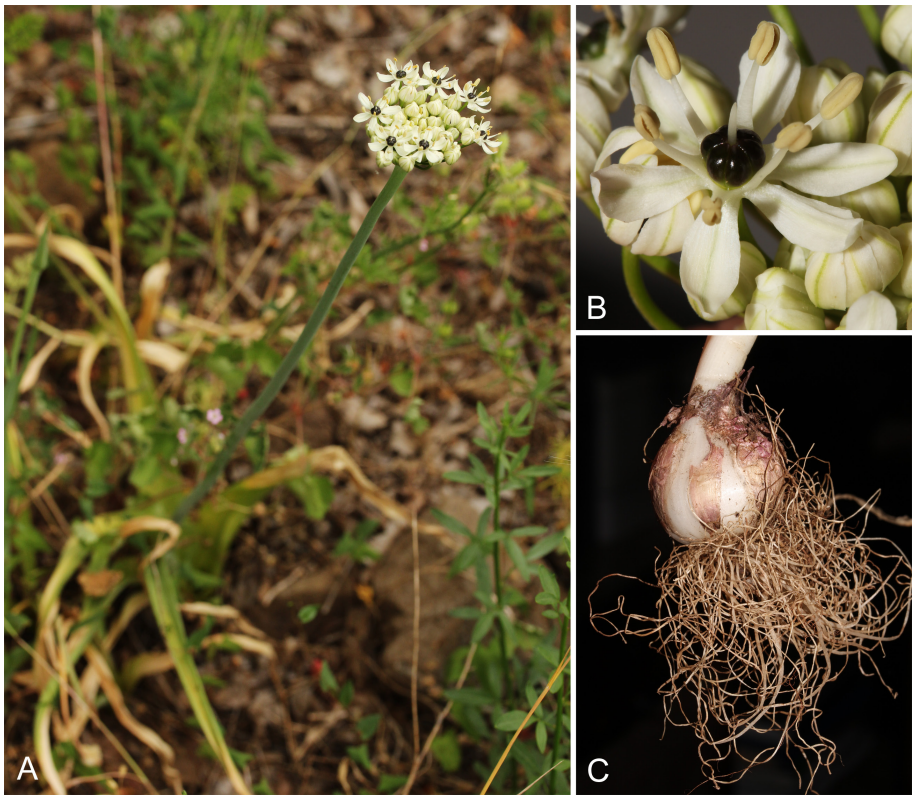

Fig. 1. *Allium melanogyne* – A: habit of flowering plant; B: detail of flowers showing characteristic, oblong, white tepals with a narrow, green midvein and typically blackish, glossy ovary at beginning of flowering period; C: bulb ovoid, 22–25 mm in diam., with purplish grey, membranous to somewhat papyraceous outer tunic. – Bulgaria, East Rhodopes, Haskovo district, close to Madzharovo, 17 May 2020, *Kunev* (SO 108064), photographs by G. Kunev.

Additional field studies are required to clarify the current distribution of the species in Bulgaria. Based on the scarce data available, the species is presumably rare. Some conservation measures, such as its evaluation according to IUCN criteria at national scale and its inclusion under Annex 3 of the Bulgarian Biodiversity Act, should be considered.

The true *Allium nigrum* can be confirmed for at least two localities not far from the coastline of the Black Sea: NE Bulgaria, W of Kavarna, 17 May 2012, *Petrova* (SOM 169090); ibid., W of Bulgarevo village, 6 Jul 2018, *Barzov & Petrova* (SOM 176351). Therefore, although some earlier collections of *A. nigrum* in fact belong to *A. melanogyne*, *A. nigrum* should not be excluded from the vascular plant flora of Bulgaria. G. Kunev

Apocynaceae

Nerium oleander L.

A Cm: Crimea: Sevastopol region, Laspi bay, 44°23'47"N, 34°43'29"E, 5 m, boulder-block beach, single plant in generative stage, 5 Jul 2017, *Ryff* (photo); Yalta vicinity, Gurzuf, Pushkin embankment, 44°32'12"N, 34°16'25"E, 8 m, in asphalt cracks near a fence and wall, two individuals in generative stage, 16 Jul 2020, *Ryff* (photo); ibid., 2 Feb 2021, *Ryff* (YALT); ibid., Nikita, Nikitsky Botanical Garden, Lower Park, Palm Alley, 44°30'32"N, 34°14'02"E, 100 m, irrigated flower bed, juvenile plant, 9 Feb 2021, *Ryff* (photo). – *Nerium oleander* is native to the Mediterranean, SW and S Asia (Marhold 2011+a; Govaerts & al. 2021). It has long been widely cultivated in all tropical and subtropical regions of the world as an ornamental plant. This species often escapes and locally naturalizes, becoming a ruderal or agricultural weed.

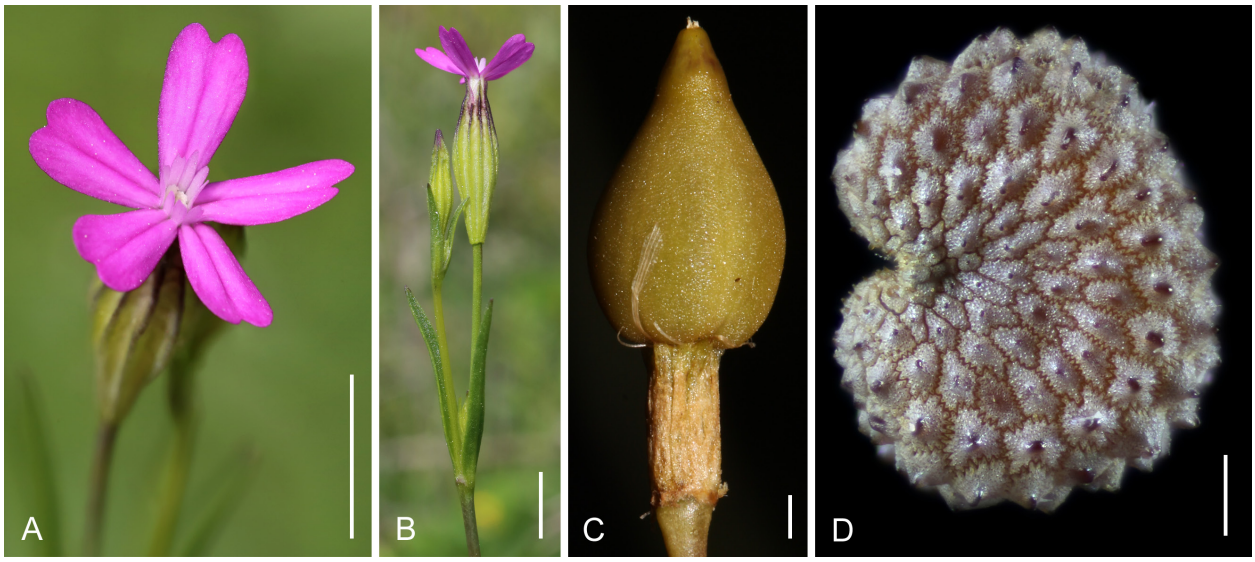

Fig. 2. *Silene tenuiflora* – A: emarginate petals and obtuse coronal scales; B: terminal inflorescence, often 1-flowered; C: capsule and anthophore; D: seed. – Scale bars: A, B = 5 mm; C = 1 mm; D = 0.2 mm. – A, B: Bulgaria, East Rhodopes, Kardzhali district, Fotinovo, 13 May 2019; D: ibid., 20 Dec 2020, photographs by I. Kostadinov; C: ibid., 14 Jun 2020, *Kunev* (SO 108062), photograph by G. Kunev.

In some countries and regions it is considered an invasive species (Randall 2017; CABI 2020; Govaerts & al. 2021). For Crimea and E Europe, *N. oleander* was listed only as a cultivated plant (Pobedimova 1978; Prokudin 1987; Czerepanov 1995). It is not included in the checklist of the spontaneous flora of the Crimean peninsula (Yena 2012) nor in the lists of the alien species of the region (Bagrikova 2013; Protopopova & Shevera 2014). This species, however, is cited as a casual alien in the Nikitsky Botanical Garden, where it does not spread outside its territory (Bagrikova 2014). At present, in the lower altitude belt, and possibly due to global warming, *N. oleander* has begun to expand from cultivation sites to adjacent anthropogenic habitats, where seedlings, juveniles and adult generative plants can be observed. The only record of a flowering and fruiting individual in a natural biotope – on a boulder-block beach – was noted on the coast of Laspi bay, a few hundred meters from the nearest cultivated specimens. On this basis, *N. oleander* is included in the list of the coastal flora of S Crimea (Ryff 2020), although it can only be considered a casual alien so far.

L. E. Ryff

Caryophyllaceae

Silene cretica L.

? Bu: See next entry. Former records of this species in Bulgaria may refer to *Silene tenuiflora* Guss. when both taxa are treated as different species.

G. Kunev & I. Kostadinov

Silene tenuiflora Guss. – Fig. 2.

+ Bu: Bulgaria: Rhodopes (East): Kardzhali district, 1.5 km W from Fotinovo village, next to the remains of a destroyed barn, 41°22'42.00"N, 25°19'31.38"E, 442 m, serpentine, in flower, 17 May 2020, *Kunev* (SO 108063; SOM 177323); ibid., in fruit, 14 Jun 2020, *Kunev* (SO 108062; SOM 177324). – This species was reported for Bulgaria by Greuter (1997); however, his report was uncertain because no herbarium material labelled as *S. tenuiflora* was found in the indexed Bulgarian herbaria (SO, SOA, SOM) or referenced in floristic works (Jordanov & Panov 1966; Delipavlov & al. 2011; Petrova & Vladimirov 2018). Assyov & al. (2012) listed the species as questionable to draw attention to its possible occurrence in the country. Our find provides the first evidence for the presence of *S. tenuiflora* in Bulgaria. The species was observed in a semi-natural grassland vegetation grazed by sheep and dominated by *Chrysopogon gryllus* (L.) Trin. and some annual clovers such as *Medicago monspeliaca* (L.) Trautv., *M. polymorpha* L. and *Trifolium scabrum* L.

The similar *Silene cretica* L. has been reported from several regions in S Bulgaria. It was evaluated as “vulnerable” according to the IUCN criteria by Assyov & Denchev (2009: 87). *Silene cretica* is similar to *S. tenuiflora* to such an extent that in some references both were considered conspecific (Chater & al. 1993; Marhold 2011+b). However, Coode & Cullen (1967) and Greuter (1997) provided useful differential characters between those two taxa. Additionally, comparison of seed mi-

cromorphology has demonstrated that they are different enough to be accepted as separate species (Kuh & al. 2017).

Some useful distinguishing characters for *Silene tenuiflora* are its longer calyx (12.5–14 mm), narrower petals (1.4–2.3 mm) which are scarcely notched at the apex (vs broader and 1/3–1/2 bilobed in *S. cretica*), shorter, obtuse coronal scales (1–1.5 mm) and a longer anthophore (3–4 mm) than in *S. cretica*. Seeds collected by us showed micromorphological features that correspond well to those presented by Kuh & al. (2017) for *S. tenuiflora* (Fig. 2D).

At least one collection labelled as *Silene cretica* from Bulgaria (E Rhodopes, 15 May 2004, *Petrova*, SOM 160208) turned out to be in fact *S. tenuiflora*. Greuter (1997) stated that *S. cretica* occurrs mostly in S and C Greece, but is replaced by *S. tenuiflora* in the northern regions of the country; therefore, the alleged occurrence of *S. cretica* in Bulgaria requires confirmation. G. Kunev & I. Kostadinov

Chenopodiaceae

Atriplex tatarica L.

+ Cr: Greece: Kriti (Crete), Nomos of Lasithi, Eparchia of Ierapetra, Pachia Ammos, 35°06'36"N, 25°48'42"E, 2–3 m, steinig-sandige Lehme an der Küste, Sprayzone, 24 Aug 1998, *Böhling 8934* (B, as "*A. prostrata*"; det. Raus). – First record from Crete and new for the entire S Aegean area (KK sec. Dimopoulos & al. 2013). The nearest localities are in SE Peloponnisos (saltmarsh near the village of Epidavrou Limiras, 14 Oct 1994, *Strid 36823*; C) and on the East Aegean island of Samos (Strand von Limnionas bei Votsalakia, 9 Sep 1997, *Düll*; herb. Düll, now STU). The species is fairly widespread in coastal areas of the C and N Greek mainland and the N Aegean area and on the Ionian islands of Lefkas and Kefallinia. The general distribution is S and E Europe and Anatolia. Th. Raus & A. Strid

Chenopodium betaceum Andrz. (– *C. strictum* auct., non Roth)

A Si(S): Italy: Sicilia (Sicily), Palermo municipality, on the edge of the small port of Sant'Erasmo, 38°06'43.6"N 13°22'46.3"E, 0 m, 8 Nov 2020, *Di Gregorio* (HFLA, PAL; det. D. Iamonico & R. Guarino). – *Chenopodium betaceum* is a species native to SE Europe, C and SW Asia (Zhu & al. 2003; Uotila 2011, sub "*C. strictum* Roth" misappl.), recently widely discussed by Mosyakin (2017) for its intricate nomenclature and taxonomy. In Italy, *C. betaceum* is recorded in the north and in Marche and Lazio regions (C Italy) as a native species (Bartolucci & al. 2018). We found a population identifiable as *C. betaceum* based on the following characters: stem ribbed and more or less reddish, leaves with almost parallel entire margins and obtuse apex, lower branches ascending from an almost horizontal base, and diameter of seeds 0.9–1 mm (see Iamonico 2010). This population of about 20 individuals represents the first record of the species for Sicily and a new addition to the 1052 taxa already recorded in the urban flora of Palermo (Domina & al. 2020). The species was found in the inland margin of the shingle beach bordering part of the pier of the small port of Sant'Erasmo, in a position quite sheltered from the sea but fully exposed to salt spray. We have not found any further population along the coast of Palermo city. Because the native distribution area is rather distant from the present record, we consider *C. betaceum* a casual alien for Sicily.

D. Iamonico, B. Di Gregorio & R. Guarino

Compositae (*Asteraceae*)

Anthemis auriculata Boiss.

+ Al: Albania: above Saranda town, dry rocky places, limestone, 4 May 2019, *Dimitrov* (SOM 177208); near restaurant opposite of fortress Porto Palermo, 4 May 2019, *Dimitrov* (SOM 177207); National Park Butrint, 4 May 2019, *Dimitrov* (SOM 177206). – Because it is not mentioned for the country by Greuter (2006+), Barina & al. (2018) or other literature sources, this species is apparently new for the flora of Albania. D. S. Dimitrov

Centaurea albanica Bornm. (≡ *Centaurea alba* subsp. *albanica* (Bornm.) Dostál)

+ Mk: North Macedonia: Korab mt., south of peak Kepi Bar, 1740 m, grassy places, limestone, 30 Aug 1947, *Kitanov* (SO 96556 [det. D. Dimitrov]). – New for North Macedonia. According to Greuter (2006+), Dimopoulos & al. (2013) and Barina & al. (2018: 48, 313), this species was hitherto known only from Greece.

D. S. Dimitrov

Cyanus akcadaghensis (Uysal & Şirin) Raab-Straube & Greuter, **comb. nov.** ≡ *Centaurea akcadaghensis* Uysal & Şirin in Medit. Bot. 41: 174. 2020.

Cyanus ermenekensis (Şirin & Uysal) Raab-Straube & Greuter, **comb. nov.** ≡ *Centaurea ermenekensis* Şirin & Uysal in Medit. Bot. 41: 176. 2020.

Controversial opinions exist as to the taxonomic rank of the clearly monophyletic (Boršić & al. 2011) *Cyanus* Mill. or *Centaurea* sect. *Cyanus* (Mill.) DC.). Treatment as a genus is still not universally accepted, even though that classification increasingly prevails. In Euro+Med PlantBase (Greuter 2003, 2006+), Med-Checklist (Greuter 2008a) and other recent sources (for a comprehensive overview, see Negaresh 2020 and references therein), the genus *Cyanus* is accepted. For permitting a coherent nomenclatural treatment under that option, it is therefore necessary to validate the two new combinations above to accommodate those two endemic taxa recently described from Turkey (Şirin & al. 2020).

W. Greuter & E. von Raab-Straube

Erigeron karvinskianus DC.

A Cm: Crimea: Yalta, Lomonosova str., Uchan-Su river bed, 44°29'22"N, 34°08'30"E, 50 m, in cracks of retaining wall, 10 Sep 2020, *Ryff* (YALT). – *Erigeron karvinskianus* is a herbaceous, short-lived, caespitose perennial, usually forming dense clumps. It is native to C and N parts of South America and is widely grown as an ornamental plant in tropical, subtropical and temperate regions of the world; under suitable conditions it often escapes and becomes a weed (Hind 2012). In some countries, especially with warm and humid climates, *E. karvinskianus* is considered an invasive species (Randall 2017; CABI 2020; GISD 2021a). In particular, it occurs as alien in the W Mediterranean, W and S Europe (Greuter 2006+; Randall 2017; CABI 2020). In E Europe, this species has not previously been reported outside of cultivation. However, this region is predicted to be favourable for its presence, although only in S Crimea are there currently the most suitable ecological conditions for it (Hannah & al. 2019). Recent climatic indicators of Yalta (absolute minimum temperature −13°C, mean annual rainfall 700 mm, dry period duration five months (May–Sep), according to Plugatar & al. 2015) are close to the acceptable environmental limits for *E. karvinskianus* (lower limit of absolute minimum temperature −15°C, lower limit of mean annual rainfall 600 mm, upper limit of dry period duration five months, according to Hind 2012; CABI 2020). However, the observed tendency toward increasing average annual temperature and precipitation may contribute to further spreading of this species in Crimea. *Erigeron karvinskianus* can occupy different ecological niches in native and anthropogenic habitats, but it prefers rock crevices and old walls (Hind 2012; CABI 2020). It is a diagnostic species of the *Cymbalario-Parietarietea diffusae* Oberdorfer 1969, which comprise thermophilous chasmophytic vegetation of walls of the Mediterranean and the winter-mild Atlantic to subcontinental regions of temperate Europe, the Middle East and N Africa (Mucina & al. 2016). On the S coast of Crimea, *E. karvinskianus* has long been cultivated as an ornamental plant. In the 1980s we observed a few individuals escaped from cultivation in the Nikitsky Botanical Garden, but later they disappeared. In Yalta, the only self-reproducing population has been recorded in the old, but actively built-up district of Nizhnyaya Autka (Chekhovo). The population covers an area of about 100 m^2 and includes more than 30 individuals of different ages. They spontaneously grow in the cement-filled cracks between limestone blocks of the retaining SW-facing wall, which limits the Uchan-Su river bed, where *E. karvinskianus* forms a community with *Ficus carica* L., *Parietaria judaica* L., *Verbena officinalis* L., and *Erigeron sumatrensis* Retz., the latter a neophyte also recently discovered in Crimea (Raab-Straube & Raus 2017). L. E. Ryff

Rhaponticoides hajastana (Tzvelev) M. V. Agab. & Greuter, **comb. nov.** ≡ *Centaurea hajastana* Tzvelev in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 19: 411. 1959.

Rhaponticoides razdorskyi (Karjagin ex Tzvelev) M. V. Agab. & Greuter, **comb. nov.** ≡ *Centaurea razdorskyi* Karjagin ex Tzvelev in Komarov, Fl. SSSR 28: 607. 1963.

Rhaponticoides tamanianiae (M. V. Agab.) M. V. Agab. & Greuter, **comb. nov.** ≡ *Centaurea tamanianiae* M. V. Agab. in Biol. Zhurn. Armenii 42: 187. 1989.

When Steinwehr's (1754–1760) publication was included in Appendix I of the *International Code of Nomenclature for algae, fungi, and plants* (Turland & al. 2018), the name *Rhaponticoides* Vaill. 1754 lost its status of a validly published name (see Greuter 2008b for details), and valid publication of the name shifted to the year 2008 (Greuter 2008b). All combinations under *Rhaponticoides* (cf. Greuter 2003; Greuter & Raab-Straube 2005; Eren 2007) published before that date, similarly, lost their previous status of validly published names (Turland & al. 2018: Art. 35.1). In their majority, they have been validated in *Med-Checklist* volume 2 (Greuter 2008c), but three names belonging to taxa that do not occur within the geographic coverage of *Med-Checklist*, to the best of our knowledge, still await their validation, which is effected here. M. V. Aghababyan & W. Greuter

Scorzoneroides rilaensis (Hayek) Holub

+ Mk: North Macedonia: Jablanica mountain range,

around Podgorishko lake, 20 Aug 1948, *Kitanov* (SOM 168458). – New to North Macedonia. According to Greuter (2006+), this species occurs in Bulgaria, Romania and Serbia.

D. S. Dimitrov

Crassulaceae

Sedum pallidum M. Bieb.

N It: Italy: Lombardia: Milano (MI), Viale Zara, poco a nord di Viale Stelvio, 45.492910°N, 09.192824°E, 125 m, erboso lungo i binari del tram, 24 May 2020, *Galasso* (MSNM); ibid., Viale Zara, poco a sud di Viale Marche, 45.494810°N, 09.193919°E, 126 m, erboso lungo i binari del tram, 24 May 2020, *Galasso* (MSNM, herb. Gallo); ibid., Viale Marche, tra Viale Zara e Via T. Taramelli, 45.495240°N, 09.195672°E, 126 m, erboso lungo i binari del tram, 24 May 2020, *Galasso* (MSNM, herb. Gallo); ibid., Viale Marche, tra Via T. Taramelli e Via A. Martignoni, 125 m, erboso lungo i binari del tram, 24 May 2020, *Galasso* (MSNM, herb. Gallo). – First record for Italy. *Sedum pallidum* is an annual to short-lived perennial "euxinic" species, with more or less erect petals (see Chamberlain 1972: 242), ranging from the area surrounding the Black Sea (Anatolia, Caucasus) to Iran ('t Hart & Alpinar 1991; 't Hart & Bleij 2003). In the past, it was often confused with *S. eriocarpum* Sm., *S. hispanicum* L. and *S. rubens* L. *Sedum pallidum* is widely used as an ornamental and is able to spread easily by means of vegetative propagation. Its actual distribution is much wider than the native one, proven by many occurrences in the wild or in anthropogenic environments, originating from cultivated plants. It is therefore not easy to define the native range of the species. If the taxon is considered endemic to the surroundings of the Black Sea extending to Iran, the reports from the Balkans would have to be treated as either misidentifications or as naturalized occurrences. *Sedum pallidum* was also reported from the Middle East: Zohary & al. (1980) cited it for "Palestine […] Syria-Lebanon […]", Al-Eisawi (1982) for Jordan, and Zohary (1987) for Israel and Palestine. These reports, however, can be related to *S. eriocarpum* s.l. ('t Hart 1996) or *S. hispanicum* ('t Hart & Bleij 2003). The morphological description and the figure of *S. pallidum* in Zohary (1987) agree very well with the protologue of *S. eriocarpum*, especially with regard to the annual habit and the papillose or "puberulent" carpels (smooth in *S. pallidum*). The confusion with *S. eriocarpum*, above all with *S. eriocarpum* subsp. *delicum* (Vierh.) 't Hart, is also the reason for its exclusion from the Greek flora (see Dimopoulos & al. 2013: 241; Strid 2016a, 2016b). Based on bibliographical data, the distribution of *S. pallidum* can be summarized as follows: native in some countries of the former Soviet Union such as Georgia and Ukraine (only Crimea), Bulgaria, European Turkey, Anatolia and Iran; casual or naturalized alien in Great Britain, the Baltic republics, Germany, Austria, the Czech Republic and the lowlands of Ukraine; mentioned by mistake for Greece, Syria, Lebanon, Palestine, Israel and Jordan. Its presence was also reported for Albania and North Macedonia where, if confirmed, it can be considered as a naturalized alien. Finally, Byalt (2011) still indicated it for Scandinavia. *Sedum pallidum* is absent from Romania and in almost all of Bulgaria ('t Hart 2003), and this allows us to hypothesize that its diffusion, on both sides of the Black Sea, occurred through the Caucasus and not the Balkans.

In Italy, *Sedum pallidum* has never been reported as wild, although it is widely cultivated as an ornamental and is able to survive autonomously in areas close to gardens or glasshouses, such as in Piemonte, near the home of one of the authors (LG). The city of Milano is therefore the first case of naturalization of this species in Italy, which took place in a highly anthropogenic environment a few years ago. At times the species entirely covers the space along and between the tram tracks, forming an almost uninterrupted carpet.

The plants naturalized in Milano match the description of *Sedum bithynicum* Boiss., a perennial taxon with spreading petals (cf. Chamberlain 1972: 242), with a restricted distribution in ancient Bithynia, a classical geographical region in NW Anatolia. A few years after its publication, however, Boissier (1872) reduced it to a variety of *S. glaucum* Waldst. & Kit., a heterotypic synonym of *S. hispanicum*. The status of this taxon is much debated: some authors have treated it as a synonym of *S. pallidum* (Hamet 1908; Jalas & al. 1999; 't Hart & Bleij 2003; Euro+Med 2006+; Shynder & Negrash 2020), while others have separated it at the rank of variety or form (Rechinger 1944; Chamberlain 1972), still others as a subspecies (Byalt 2001, 2012), and finally some authors have kept it separate at specific rank (Fröderström 1932; Czeczott 1939; Petrova 2004). Therefore, the taxonomic value of *S. bithynicum* is yet to be clarified through appropriate taxonomic studies.

L. Gallo, E. Banfi & G. Galasso

Sempervivum verereginae-amaliae Raus in Willdenowia 48: 204. 2018 ≡ *Sempervivum reginae-amaliae* Halácsy, Consp. Fl. Graec. 1: 580. 1901, nom. illeg. [non *Sempervivum reginae-amaliae* Baker in Gard. Chron., ser. 2, 8 [No. 191]: 230. 1877] ≡ *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.

Nomenclatural reassessment of *Sempervivum verereginae-amaliae* Raus (2018: 204) appears appropriate after Raus (2018: l.c.) adopted valid publication of *S. reginae-amaliae* Boiss. based on Boissier's description of determining floral characters, which refer the plant to *S.* sect. *Eusempervivum* (Boissier 1888: 248). The claimed validity of Boissier's name, however, is possibly prevented by Art. 36.1 of the *Shenzhen Code* (Turland & al. 2018), ruling that a name is not validly published when it is not accepted by its author in the original publication (which may apply to Boissier 1888: 247–248). If Boissier's name is considered not to be validly published, *S. reginae-amaliae* Halácsy is not an isonym as advocated by Raus (2018: 204), but a validly published albeit illegitimate homonym of the earlier *S. reginae-amaliae* Baker (1877). *Sempervivum verereginae-amaliae* Raus – as the proposed replacement name (the epithet from Latin *vere* = true, right, correct, honouring the originally intended dedication, see Raus 2018) – is nevertheless validly published because Halácsy's name, which in that case is considered the intended replaced synonym, is cited with its author and a full and direct reference to its place of valid publication, so that Art. 41.5 of the *Code* is satisfied. Pertinent typifications (Raus 2018: 204) are not affected.

Th. Raus & E. von Raab-Straube

Cucurbitaceae

Luffa aegyptiaca Mill.

A Tn: Tunisia: Monastir, Bembla, 35°41'59"N, 10°47'40"E, 20 m, walls of ancient buildings, 8 Dec 2019, *El Mokni* (Herb. Univ. Monastir); Monastir, Touza, 35°38'01"N, 10°50'02"E, 25 m, disturbed area with ruderal plants, 16 Dec 2019, *El Mokni* (Herb. Univ. Monastir). – Casual alien species new for the adventitious flora of Tunisia and N Africa. *Luffa aegyptiaca* is an annual climbing tropical to subtropical plant that has been under cultivation since ancient times. It produces fruits containing a fibrous vascular system and is believed to have been domesticated in tropical Asia, possibly India, and to have reached China about 600 AD (Purseglove 1976) and Egypt in the Middle Ages (Mansfeld 2001). *Luffa* species have a long history of cultivation in the tropical countries of Asia and Africa. The Indo-Burmese region is reported to be the centre of diversity for *Luffa aegyptiaca* (Whitaker & Davis 1962). The main commercial production countries are China, Korea, India, Japan and Central America (Bal & al. 2004). Cultivation of *L. aegyptiaca* has been reported in many countries all over the world, among them Algeria, Libya and Tunisia in N Africa and Georgia, Germany, Italy, Portugal, Spain and Switzerland in Europe. According to the Euro+Med PlantBase (Henning & al. 2017+), the taxon has been reported in SE Europe as alien with "unknown status" in Albania, Bulgaria and Moldova. For N Africa, the taxon has not yet been cited as an alien (Henning & al. 2017+; APD 2020). *Luffa aegyptiaca* is known to spread by seeds, which are mainly dispersed by birds and rodents (CABI 2020). R. El Mokni

Momordica balsamina L.

A Tn: Tunisia: Medenine, Djerba, Mezraya, 33°51'45"N, 10°57'40"E, 2 m, disturbed areas, 29 Oct 2014, *Dubrouille* (photo https://www.orchid-nord.com/Flore-Djerba/Momordica%20balsamina/Momordica%20balsamina.html); Sousse, Bourjine, 35°38'49"N, 10°35'09"E, 80 m, disturbed areas and roadsides, 8 Sep 2018, *El Mokni* (Herb. Univ. Monastir). – Casual alien species new for the adventitious flora of Tunisia and N Africa. *Momordica balsamina* is an annual to perennial tendril-bearing herb, native to Africa (Jeffrey 1978), where it is widespread throughout the drier parts of southern and tropical Africa (Bosch 2004), mainly in coastal areas (Welman 2004). The plant is also present in tropical Asia and Australia (Welman 2004; Thakur & al. 2009; APD 2020; CABI 2020). The taxon has been introduced in parts of the neotropics (see, e.g., Jeffrey 1967; Hyde & al. 2019) and is known to be naturalized in North America (Holm & al. 1977; Randall 2012) and Pakistan (Flora of Pakistan 2019). In Australia, *M. balsamina* shows a wide distribution in South Australia and Queensland (Atlas of Living Australia 2019), whereas it is considered only as alien in Western Australia (Western Australian Herbarium 2020). In Europe, it has been cultivated in gardens since the 1800s (Welman 2004). The Euro+Med PlantBase (Henning & al. 2017+) reported the taxon as cultivated mainly in Ukraine and in S European Russia and, in N Africa, only in Egypt as "alien with status unknown". The African Plant Database (APD 2020) does not cite the occurrence of this taxon in N Africa, under any status. In Tunisia, the species seems to spread locally by human mediation in disturbed areas.

R. El Mokni & F. Debruille

Fig. 3. A: spikelets of *Digitaria aegyptiaca* subsp. *aegyptiaca*; B: comparison of spikelets of *D. aegyptiaca* subsp. *aegyptiaca* (1), *D. sanguinalis* var. *parvispicula* (2); and *D. sanguinalis* var. *sanguinalis* (3). – Scale bars: A, B = 2 mm. – Source of material: Spain, Santiago de Compostela (A, B1); Germany, Bamberg (B2, B3). – Photographs by R. Otto.

Gramineae (*Poaceae*)

Digitaria aegyptiaca (Retz.) Willd. subsp. ***aegyptiaca*** – Fig. 3.

A Hs(S): Spain: Galicia, Santiago de Compostela, at the crossing of Rúa Costa Vella and Rúa dos Loureiros, 42.883349°N, 08.543245°W, small public green, several seedlings (further cultivated by the first author in Germany), 17 May 2017, *Otto* 22897 (herb. R. Otto, BR). – This taxon was found as a weed in ornamental plantings in Santiago de Compostela and is most likely an introduction there, with an uncertain vector. It is reported here as a new record for Spain, apparently the first occurrence of the species in SW Europe. According to the Euro+Med PlantBase (Valdés & Scholz 2009+), *D. aegyptiaca* occurs in Egypt, Greece, Russia and Ukraine. It was also reported by Scholz & Sukopp (1965) from Berlin (Germany), but apparently Scholz did not take into account his own record when compiling the Euro+Med PlantBase treatment. It is in fact a poorly known species with an uncertain natural distribution. Tzvelev (1983) stated that its origin most probably should be sought in the sands of the terraces of the Dniepr and Don rivers, where it is very common. In his monograph of the genus, Henrard (1950) already stated that it is indeed probably of oriental origin (although certainly not from Egypt, despite its name) and often cultivated in botanical gardens in Europe (but much more rarely in recent times). The plants from Santiago de Compostela belong to *D. aegyptiaca* subsp. *aegyptiaca*. In *D. aegyptiaca* subsp. *caucasica* (Henr.) Tzvelev, the spikelet nerves are almost smooth, i.e. almost devoid of minute prickles.

Although accepted as a distinct species by Valdés & Scholz (2009+), the taxonomic position of *Digitaria aegyptiaca* is contested. Henrard (1950) reduced it to subspecific rank under *D. sanguinalis* (L.) Scop., the species it indeed most closely resembles. The latter is an almost cosmopolitan and exceedingly variable species. Both share the distinctly spinulose nerves of the lower lemmas and upper glumes. *Digitaria aegyptiaca* differs from *D. sanguinalis* primarily by the following combination of characters (Fig. 3): spikelets (lower lemma and upper glume) completely glabrous, upper glume somewhat ovate and only c. 1/3 as long as spikelet. In *D. sanguinalis*, the spikelets are nearly always ± pubescent along the margins of the lower lemma and upper glume. In typical forms, the lower glume is somewhat lanceolate and at least ½ as long as the spikelets. However, in *D. sanguinalis* var. *parvispicula* (Reynier) Henr., a small-spikeleted "race" with spikelets only 2.5 mm long or even less, the glumes can be as short as in *D. aegyptiaca*. Spikelets of these three taxa are compared in Fig. 3B. Henrard (l.c.) further distinguished *D. sanguinalis* var. *glabra* (Hack.) Henr., which has glabrous interspaces between the nerves of the lower lem-

ma, except for the inflexed margins, which are somewhat pubescent. Although most of this variation was said to be of minor importance by Henrard, the existence of such forms further blur the species boundaries between *D. aegyptiaca* and *D. sanguinalis*. A lower taxonomic rank of the former, as already proposed by Henrard, might be more appropriate.

R. Otto & F. Verloove

Melica altissima L.

+ Cm: Crimea: Simferopolsky rayon, c. 3 km SE of Levadki village, Skifskiy Mys, near entrance to Zmeinaya cave, 44°51'01.3"N, 34°03'52.6"E, 500 m, rocky, shrubby slope, 26 Sep 2020, *Yena* (CSAU). – Only a few individuals have been found at the cited locality, but it is plausible that *Melica altissima* grows unnoticed somewhere else in the Crimean foothills. In any case, the species should be regarded as relictual in Crimea, like some other species of the temperate zone growing in the same area, e.g. the extremely rare *Betula pendula* Roth with only two localities (Korzhenevskiy & Svirin 2015).

Despite its wide distribution, from C, S and E Europe through Russia (including the Caucasus and Siberia) extending to Central Asia (Tzvelev & Probatova 2019), *Melica altissima* is reported here for the first time with certainty from the Crimean peninsula. The species was erroneously given for "Cm" by Hempel (2009), who referred to, but at the same time misinterpreted, Prokudin's *Manual of the higher plants of Ukraine*. In fact, Prokudin (1987: 460) wrote "v Krymu […] otsutstvujet [absent in Crimea]". The only relevant mention of the species for Crimea was made by J. G. Georgi (1800) in his review of the Russian flora. Nevertheless, Prokudin, who prepared the *Poaceae* for Vul'f's *Flora Kryma* (Vul'f 1951), considered Georgi's data as erroneous – most likely because of the absence of herbarium specimens of *M. altissima* from Crimea. In the Russian Empire, the toponym Tauria denoted not only the Crimean peninsula but also the adjacent lands along the N coast of the Black Sea and the Sea of Azov (between the Dnieper and Molochnaya rivers), therefore the whole administrative unit called Tavricheskaya Oblast', which existed from 1784 to 1796 (Anonymous 1999). Describing the distribution of *M. altissima*, Georgi (1800: 690) wrote "Am Dnepr, in Taurien, an der Oka …", which means that he discerned the continental part of Tavricheskaya Oblast' from the Crimean peninsula, and the latter was undoubtedly the place that he called Tauria. Hence Georgi (1800) was in fact the first who mentioned *M. altissima* for Crimea, albeit in an undocumented form. It is worth noting that this is the second case of verifying the presence of a species given for the region by Georgi and not accepted in modern floristic works on Crimea (see Yena & Svirin 2013). Altogether, five species of the genus *Melica* are now known to occur in Crimea corroborated by herbarium specimens (Yena 2012; Tzvelev & Probatova 2019).

A. V. Yena

Sesleria alba Sm.

+ Mk: North Macedonia: Nidze mt. (Voras mt.), 19 May 1916, *Mrkvicka* (SOM 4484). – First record for the country. According to Valdés & Scholz (2009+), this species had not been recorded previously from North Macedonia.

D. S. Dimitrov

Spartina versicolor E. Fabre

– Gr: Absent from Greece. The record of this W and C Mediterranean halophyte from the N Aegean coastal area of continental Greece (Dimopoulos & al. 2013: 129) was in fact based on a misidentified collection of *Phacelurus digitatus* (Sm.) Griseb. (Nestos delta, Aladjagola area N of Chrisoupolis, 13 Aug 1998, *Schuler 98/320* (herb. A. Schuler [det. Th. Raus 2021]). The first and up to now only record of *Spartina versicolor* E of the Adriatic Sea is from S Albania, from where it is reported as a naturalized alien on maritime sand dunes near Vlora (Barina 2017: 378).

Th. Raus & A. Schuler

Stipa balcanica (Martinovský) Kožuharov

+ Mk: North Macedonia: Jablanica mountain range, N of the village of Labuništa [= Llabunisht], 1000 m, limestone rock, 14 Jul 1948, *Kitanov* (SOM 177139 [det. D. Dimitrov]). – According to Valdés & Scholz (2009+), this species has not been recorded for North Macedonia before.

D. S. Dimitrov

Hydrocharitaceae

Elodea nuttallii (Planch.) H. St. John

A Cm: Crimea: Sevastopol, Lyubimovka, 44°39'30"N, 33°33'19"E, in a pond, 3 Sep 2020, *Svirin* (CSAU [det. Yena]). – This submerged aquatic herb was first detected by S. A. Svirin and N. V. Lyamina on 22 Apr 2020. A photograph of the plant was placed on the iNaturalist website under the name *Egeria densa* (Svirin 2020). Only on 4 Sep 2020 was the plant correctly identified by A. V. Yena. *Elodea nuttallii* is well distinguished from the two closely relat-

ed adventitious American species of the *Hydrocharitaceae* that have recently arrived and spread in Crimea. It differs from *E. canadensis* Michx. by narrower and longer leaves with their apices narrowly acute, not broadly acute to rounded (Simpson 1986), and from *Egeria densa* Planch. by leaves in whorls of three, not of four to six (Byalt & Orlova 2003). Being widely cultivated in aquaria throughout the world, *E. nuttallii* often becomes established in rivers and lakes in many European countries (CABI 2020). In adjacent territories N of Crimea, the species has been recorded as a casual alien in Ukraine in 2004 (Chorna & al. 2006) and in the Russian mainland in 2017 (Panasenko & Shcherbakov 2018). The Crimean population with quite numerous plants has probably already existed unnoticed for some years.

S. A. Svirin, N. V. Lyamina & A. V. Yena

Iridaceae

Chasmanthe floribunda (Salisb.) N. E. Br.

A AE(G): Greece: East Aegean Islands, Rodos, c. 1.2 km SE of Theologos, 36°21'55"N, 28°02'59"E (WGS 84), c. 50 m, temporarily wet rivulet with ± dense scrub, plants with semi-ripe capsules, 5 Apr 2019, *Rätzel & Ristow* (herb. Rätzel); ibid., Filerimos, N slope 0.5 km N of the chapel on the summit, 36°24'10"N 28°08'43"E, c. 100 m, open *Pinus* stand with scrub, 18 Feb 2021, *Kalaentzis* (photos). – *Chasmanthe floribunda* is reported here for the first time for Greece. There are no records in Dimopoulos & al. (2013, 2016) or Strid (2016a, 2016b). *Chasmanthe* N. E. Br., following De Vos (1985), is a small genus with only three accepted species with a natural distribution restricted to the Cape Province of South Africa. *Chasmanthe aethiopica* (L.) N. E. Br. and especially *C. floribunda* have been cultivated for a long time in frost-free regions worldwide. They have a high potential of running wild, especially due to the ability of forming axillary buds, which can break off, on their corms. Several escapes or even established populations of *C. floribunda* have been recorded in the Mediterranean region (e.g. Algeria, France, Italy, Portugal, Tunisia) and from the Canary Islands and Madeira (Greuter & Raus 2012; Galasso & al. 2016; Domina & al. 2018; APD 2020; El Mokni & Hadj Khalifa 2020; GBIF 2020; Muer & al. 2020). In part, literature records for *C. aethiopica* belong to *C. floribunda* (e.g. the figure in Muer & al. 2016: 1107). Besides floral characters, *C. floribunda* can be identified by the apical "nipple" of the capsule, the many-flowered inflorescence, and the conspicuous, reticulate fibres on the upper part of the corm (see De Vos 1985). The two populations on Rodos, consisting of several small groups of individuals, are more than 0.5 km and more than 1 km, respectively, from the nearest larger settlements. Near Theologos, no other conspicuous neophytes (besides *Oxalis pes-caprae* L. in the understorey) were spotted. At Filerimos, garden refuse with leaves and branches of ornamentals had been dumped, and *Ricinus communis* L. is growing there as a further neophyte. Both populations give the impression of older escapes.

S. Rätzel, K. Kalaentzis & M. Ristow

Labiatae (*Lamiaceae*)

Salvia hispanica L. – Fig. 4.

A Bu: Bulgaria: Struma valley (south), Blagoevgrad district, Damyanitsa village, mouth of Bozhdovska river, 41°31'04.60"N, 23°15'26.36"E, 97 m, gravel bar, 15 Nov 2020, *Kunev* (SO 108057; SOM 177320). – *Salvia hispanica*, known throughout the world as "chia", is an annual plant, native to the mountainous regions of Mexico and Guatemala (Baginsky & al. 2016). The species is known as an important crop, cultivated in many regions of the world, valued for its nutritional and medicinal properties for the human body and for some domestic animals (Ayerza & Coates 2006; Meineri & Peiretti 2007; Grancieri & al. 2019). In Europe it is known from Austria, Belgium, Bosnia and Herzegovina, the Czech Republic, Germany, Italy, Slovenia, Spain and Sweden. All of its European occurrences were considered ephemeral due to the high sensitivity of the plants to frost (Maslo & Šarić 2020; Šilc & al. 2020) and therefore their inability to sustain self-supporting populations.

This is the first record of *Salvia hispanica* from Bulgaria. The species can be easily distinguished from the other representatives of the genus known from the country by its robust appearance; 1.2–1.5 m tall, four-angled, shortly appressed pubescent stem, which is broadly rounded-ribbed, with a narrow sulcus between ribs on each side; inflorescence dense, terminal; corolla bluish, with two oval, white marks on lower lip (Fig. 4A).

Three individuals were found on alluvial deposits of the Struma river. The dominant species in the community were ruderals and hygrophytes such as *Artemisia vulgaris* L., *Echinochloa crus-galli* (L.) P. Beauv., *Humulus*

lupulus L., *Lycopus europaeus* L., *Myosoton aquaticum* (L.) Moench, *Persicaria lapathifolia* (L.) Delarbre, *Rorippa amphibia* (L.) Besser, *Rumex palustris* Sm., *Solanum dulcamara* L., *S. nigrum* L. and *Urtica dioica* L. Some alien species and crop plants were also observed at the site, namely *Cucurbita maxima* Duchesne, *Cuscuta campestris* Yunck., *Dysphania ambrosioides* (L.) Mosyakin & Clemants, *Lycopersicon esculentum* Mill. and *Physalis peruviana* L. The origin of the plants of *Salvia hispanica* could be attributed to the disposal of garden waste.

G. Kunev

Fig. 4. *Salvia hispanica* – A: detail of inflorescence and bluish corollas, lower lip typically marked with two oval, white spots; B: detail of upper stem with regularly distributed, short, silvery and appressed hairs. – Bulgaria, Blagoevgrad district, Damyanitsa village, 15 Nov 2020, *Kunev* (SO 108057; SOM 177320), photographs by G. Kunev.

Liliaceae

Tulipa clusiana Redouté

– Gr: In Greece, this species of Irano-Turanian origin is known as an alien segetal weed confined to the island of Chios (AE(G)), where it has been established for centuries (Dimopoulos & al. 2013: 112, 301; Strid 2016b: map 2302). Records of *Tulipa clusiana* from continental Greece in previous basic floras (Hayek 1932–1933: 68; Tutin & al. 1980: 30) go back to a single specimen seen by Boissier in the herbarium of Jean-Baptiste Fauché said to have been collected in Peloponnisos (without exact locality data, Boissier 1881: 194). Because no collection of a true tulip is mentioned in publications related to Fauché's fieldwork in Greece (Fauché & al. 1832–1833; Bory de Saint-Vincent 1835–1836; Chaubard & Bory de Saint-Vincent 1838) and *T. clusiana* was never reconfirmed later from the area, the dubious record of this taxon for "Gr" has to be disregarded.

Th. Raus

Malvaceae

Malvaviscus arboreus Cav.

A Tn: Tunisia: Bizerta, Bizerta-North, Aîn Mariem, 37°17'23"N, 09°52'08"E, 5 m, sidewalks, 4 Mar 2020, *El Mokni* & *Iamonico* (Herb. Univ. Monastir, HFLA). – *Malvaviscus arboreus* is a species native to tropical America (Mendenhall & Fryxell 2015) showing a high phenotypic variability, which lead Schery (1942) to recognize 11 varieties. More recently, Turner & Mendenhall (1993) proposed to consider just two of them, i.e. var. *arboreus* and var. *drummondii* (Torr. & A. Gray) Schery, which differ by shape and length of the leaf blades (unlobed, longer than wide, basally rounded, apically acute in var. *arboreus* vs 3-lobed, as long as wide, basally cordate, apically obtuse in var. *drummondii*), petiole indumentum (stellate hairy to glabrous in var. *arboreus* vs proximally glabrous, distally

densely minutely tomentose in var. *drummondii*) and stem indumentum (diffusely pubescent with overlapping stellate hairs forming a velvety vestiture in var. *drummondii* vs variously pubescent to glabrous in var. *arboreus*). We found in the wild in Tunisia some sporadic individuals of *M. arboreus* s.str., a species that has not previously been reported from Tunisia, the entire Euro+Med area (Valdés 2011) or the whole of Africa (see SANBI 2012 and literature therein; APD 2021). The Tunisian occurrence therefore represents the first record of the genus in the Euro+Med area and Africa. Two subpopulations were found in Bizerta city. The first comprises five individuals, which occupy an area of c. 4 m^2; the second includes three individuals occupying an area of 9–10 m^2. We consider *M. arboreus* var. *arboreus* to be a casual alien in Tunisia. D. Iamonico & R. El Mokni

Meliaceae

Melia azedarach L.

N Tn: Tunisia: Bizerta, Sidi-Salem toward corniche, near "Resort Hotel", 37°16'59"N, 09°52'39"E, 0 m, roadsides, edges of waterways, urban open spaces and wasteland, 19 Sep 2015, *El Mokni* (Herb. Univ. Monastir); ibid., 37°17'05"N, 09°52'21"E, 5 m, 12 Oct 2016, *El Mokni* (Herb. Univ. Monastir). – *Melia azedarach* is typically a medium-sized tree up to 20 m tall originating from S Asia (Yulianti & al. 2011). It is widely introduced and has long been cultivated throughout SW Asia, the Indian subcontinent and China. It has been reported from India, Nepal, Sri Lanka and tropical China through Malesia to the Solomon Islands and Australia (see, e.g., Wheeler & al. 1992; Ahmed & Idris 1997; Doran & Turnbull 1997; Mabberley & al. 2015). It has also been reported as naturalized in Botswana and as invasive in Malawi (Witt & Luke 2017). Holm & al. (1979) listed the species as a common to invasive weed in Taiwan (Asia) and in Belize, Panama and the U.S.A. According to Jury (2009+), the taxon is reported in the Mediterranean region of Europe as a naturalized alien in France, Italy and Malta. For N Africa, the taxon is cited as alien with "unknown status" only for the Canary Islands (Jury 2009+). The African Plant Database (APD 2020) lists the taxon within N Africa as present with "cultivated" status for Algeria, the Canary Islands, Libya, Morocco and Tunisia. More recently the taxon has been assigned naturalized status in Algeria (Sakhraoui & al. 2019). The actual status of *Melia azedarach* in Tunisia is defined here. Sporadic subpopulations of individuals of different heights, each subpopulation numbering c. 20 individuals within an area of 1 ha, have been observed growing and occupying more space since 2015, mainly in the Bizerta region. Therefore, the species can be considered as locally naturalized. R. El Mokni

Myrtaceae

Eucalyptus camaldulensis Dehnh.

N Tn: Tunisia: Jendouba, Tabarka, road El Houemdeya toward Sylvopastoral Institute of Tabarka, near "Secondary School 2 Mars", 36°56'10"N, 08°47'30"E, 10 m, roadsides and edges of waterways, 19 Nov 2012, *El Mokni* (Herb. Univ. Monastir); ibid., 36°56'02"N, 08°47'31"E, 15 m, 23 Sep 2015, *El Mokni* (Herb. Univ. Monastir); ibid., 14 Aug 2019, *El Mokni* (Herb. Univ. Monastir); Monastir, Monastir city, "Pilot Secondary School of Monastir", 35°45'59"N, 10°49'25"E, 20 m, roadside close to a wall, 14 Dec 2018, *El Mokni* (Herb. Univ. Monastir). – *Eucalyptus camaldulensis* is a tree up to 20 m tall native to Australia, where it grows typically along watercourses and on flood plains, occasionally extending to drier slopes at higher elevations (Rejmánek & Richardson 2011). It has been widely introduced around the world and can now be found in cultivation and naturalized in Bangladesh, India, Pakistan, South Africa and the U.S.A. (Hawaii, California and Florida) (Rejmánek & Richardson 2011). In the Mediterranean region, according to the Euro+Med PlantBase (WCSP 2020), the taxon is reported as alien with "unknown status" in Corsica, France, Greece, Italy, Malta, Portugal, Sardinia, Sicily and Spain. For N Africa, the taxon is cited as an alien with "unknown status" only for the Canary Islands and Morocco (WCSP 2020). For N Africa, the African Plant Database (APD 2020) lists the taxon as present with "problematic status" in Algeria, the Canary Islands, Libya and Tunisia, although it has been confirmed as naturalized in Algeria (Zeddam & Raus 2017). The actual status of *E. camaldulensis* in Tunisia is defined here. Three distant subpopulations, one of them consisting of more than 100 individuals up to 150 cm tall within an area of 1 ha, resulting from seed germination, have been observed expanding for many years, mainly in the Tabarka region. Therefore, the species can be considered as naturalized. R. El Mokni

Orobanchaceae

Leptorhabdos parviflora (Benth.) Benth. – Fig. 5.

P It: Italy: Trentino, Adige Valley, Trento, near Sard-

agna village, 46°03'31.24"N, 11°06'01.51"E, 565 m, disturbed arid terrain, scrub edge, limestone, 13 Sep 2020, *Prosser* (ROV74211, B). – On 17 April 1994 near the former Sardagna quarry near Trento I noted remains of dried plants from the previous year belonging to an unknown annual *Orobanchaceae*. Unfortunately, the importance of the find was underestimated and forgotten. Only on 13 September 2020 did I accidentally return to that place in the late season, finding a population of a couple of hundred individuals of an annual plant in flower and beginning to fruit: plants to 1.8 m tall; branching fastigiate; leaves opposite, lower stem leaves pinnate, other leaves linear; flowers numerous, yellowish, small, campanulate, in long spikes (Fig. 5). The classification with the key of the *Flora of China Scrophulariaceae* (Hong & al. 1998) led to *Leptorhabdos parviflora*. Two days later, a further eight populations were found within the neighbouring abandoned quarry consisting of another 800 individuals. All populations are included in an area of c. 5 ha. Subsequent searches nearby have given negative results so far.

Fig. 5. *Leptorhabdos parviflora* – A: habit of flowering plants; B: lower stem leaves; C: inflorescence apex with c. 6 mm long flowers; note glands on calyx, peduncles and inflorescence rachis; D: fruits. – Italy, Trentino, Adige Valley, Trento, near Sardagna village, 15 Sep 2020, photographs by F. Prosser.

Leptorhabdos Schrenk is a monospecific genus today included in *Orobanchaceae* (Angiosperm Phylogeny Group 2016), tribe *Micrargerieae* (Fischer 2004) or *Pedicularideae* (Nickrent 2020). *Leptorhabdos parviflora* is a species native to the steppe plateaus and river banks of C and SW Asia, in particular present in NW China, Afghanistan, NW India, Iran, Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan and near the borders of Europe in the Georgian Caucasus (Rechinger 1981; Akhani 1998; Hong & al. 1998; Gagnidze 2005; Tarkhnish-

vili & Chaladze 2013, Kew Backbone Distributions 2020). *Leptorhabdos parviflora* is not mentioned in *Flora europaea* (Webb 1972) nor in Euro+Med (2006+). It is not a cultivated or commercialized species, and in any case it does not appear to be mentioned as an expanding species: no occurrence is reported outside its native range by GBIF (2019). It has strictly local uses as an anti-inflammatory in the Himalayan region in the context of traditional Tibetan medicine (Singh & al. 2009) and is traditionally used as fodder in the Chambra area in N India (Srivastava & Saggoo 2015).

Near Sardagna, *Leptorhabdos parviflora* grows in very different habitat conditions: an arid ridge with *Allium coloratum* Spreng., *A. lusitanicum* Lam., *Artemisia alba* Turra, *Cleistogenes serotina* (L.) Keng, *Eryngium amethystinum* L., *Festuca valesiaca* Gaudin, *Koeleria macrantha* (Ledeb.) Schult. and others; an abandoned gravelly square with *Agrimonia eupatoria* L., *Dactylis glomerata* L., *Melilotus albus* Medik., *Solidago canadensis* L., *Ulmus minor* Mill. (juv.) and others; a stony slope with shrub colonization with *Carlina vulgaris* L., *Fraxinus ornus* L. (juv.), *Hieracium bifidum* Hornem., *Ligustrum vulgare* L., *Pinus sylvestris* L. (juv.) and others; margins of gravelly-clayey yards due to recent discharge of material with colonization of *Buddleja davidii* Franch., *Populus nigra* L. (juv.), *Phragmites australis* (Cav.) Trin. and others. The species therefore shows a considerable ecological breadth, growing from markedly arid and moderately disturbed areas, to woodland margins and typically anthropic-ruderal environments, even with a certain amount of stagnant water, in full sun or half shade. The records in 1994 and 2020 show that *L. parviflora* has settled permanently near Sardagna, but its diffusion is evidently blocked by the unsuitable surrounding environment, mainly woods belonging to *Orno-Ostryetum* Br.-Bl. 1961 and areas cultivated with vegetable gardens or vineyards. The species has so far been unable to reach apparently suitable habitats, which are present especially in the direction of Piedicastello, such as a second former quarry and a large ruderal area where the cement factory stood that used the marly material extracted from the quarry near Sardagna. The seeds of *L. parviflora* seem to have no particular adaptation for dispersal, also according to the images reported by Ather & al. (2013). *Leptorhabdos parviflora* is hemiparasitic (Nickrent 2020), and evidently it can parasitize species that are completely different from those present in its native area. After the marl extraction ended a few decades ago, the two quarries were used as a partly illegal deposit for material from all over N Italy (Canadè 2009). It is likely that the introduction of *L. parviflora* occurred accidentally during this period. The survival of a large part of the *L. parviflora* population near Sardagna is linked to the fate of the former quarry. It seems that it will no longer be used in the future to unload material, and probably the expansion of the woodland could lead to the disappearance of the plant. The population on the arid ridge, the only one outside the former quarry, appears more stable, but it is widely surrounded by dense woodland.

F. Prosser

Phelipanche gussoneana (Lojac.) Domina & al.

+ Ga(F): France: [Département: Pyrénées-Orientales, Canton: Vallespir-Albéres] "Sur *Lamium flexuosum*, Champs à Sorède", 24 May 1899, *Conill* (P P04410781 [http://coldb.mnhn.fr/catalognumber/mnhn/p/p04410781, as "*Orobanche teucrii* H. et Sch.", collection with host *Lamium flexuosum* Ten. verified, matrix nova]); ibid., "Sur *Lamium flexuosum*, Lieux herbeux à Sorède". 4 May 1902, Conill (P P04410799 [http://coldb.mnhn.fr/catalognumber/mnhn/p/p04410799, as "*Orobanche teucrii*"]). – New for France and the W Mediterranean (cf. Domina 2018, as "*Orobanche oxyloba* Beck"). For identification, more details and chorology, see Foley (2008) and Rätzel & al. (2017a, 2017b, 2018, 2020). H. Uhlich & S. Rätzel

Oxalidaceae

Oxalis latifolia Kunth

A Cm: Crimea: Yalta vicinity, Nikita, Nikitsky Botanical Garden, Lower Park, Palm Alley, 44°30'32"N, 34°14'02"E, 100 m, regularly watered flower bed, 26 Jun 2020, *Ryff* (YALT); ibid., Upper Park, 44°30'37"N, 34°14'01"E, 135 m, flower bed under old tree of *Pistacia atlantica* Desf., among cultivated *Oxalis triangularis* subsp. *papilionacea* (Hoffmanns. ex Zucc.) Lourteig, 16 Oct 2020, *Ryff* (photo); ibid., 44°30'41"N, 34°13'56"E, 150 m, regularly watered flower bed with planted chrysanthemums, 19 Oct 2020, *Ryff* (photo); ibid., 23 Oct 2020, *Ryff* (YALT). – *Oxalis latifolia* is an acaulescent, bulb-bearing, herbaceous perennial. It is native to Central America and adjacent areas of North and South America and is cultivated predominantly in tropical and subtropical regions of the world for ornament, ground cover, rabbit food and medicinal purposes. Now it has become a transcontinental weed of crop fields, orchards, gardens, nurseries etc. (Lourteig 2000; Royo-Esnal

& López 2008; CABI 2020) and is included as an invasive species in the Global Compendium of Weeds (Randall 2017), the Global Invasive Species Database (GISD 2021b) and the Invasive Species Compendium (CABI 2020). In Europe, this species has been recorded in at least 15 countries at different stages of naturalization (Henning & Raab-Straube 2016+a; Randall 2017). For E Europe, it was cited by Czerepanov (1995) without specifying the exact location, but this record was subsequently cancelled by Tzvelev (1996). *Oxalis latifolia* is also not mentioned in later regional reports (Mosyakin & Fedoronchuk 1999; Yena 2012). The closest region where this species is cultivated and escaped is the NW Caucasus (Zernov 2006), from where it was most likely spontaneously introduced with planting material into Crimea in recent years. *Oxalis latifolia* is not deliberately cultivated in the Nikitsky Botanical Garden (NBG). A few years ago it was noted as a weed in greenhouses and nurseries of the NBG, as well as in adjacent private areas (L. F. Myazina, T. V. Belich, pers. comm.). Since 2018, it has been registered on the grounds of the NBG Arboretum. Plants do not set seed due to the peculiarities of generative reproduction, in particular heterostyly (Gardner & al. 2012). Weedy populations are usually short-styled (CABI 2020), which also applies to the Crimean population. But this is compensated by production of a large number of daughter bulbs, which contributes to active vegetative reproduction and dispersal. *Oxalis latifolia* has a significant invasive ability and quickly captures new areas. The applied traditional measures to control this weed are not effective (Royo-Esnal & López 2008; CABI 2020). Therefore, there is a high probability of further expansion of this invasive species both in the territory of the NBG and outside. Some closely related bulbous species (*O. debilis* Kunth, *O. tetraphylla* Cav., *O. violacea* L.) or rhizomatous species (*O. articulata* Savigny) have already been recorded as aliens in neighbouring regions (Tzvelev 1996; Gagnidze 2005; Zernov 2006; Petrova & Vladimirov 2019; Orlov & Shevera 2020). At least two of them are grown in Crimea and can potentially escape from cultivation. L. E. Ryff

Papaveraceae

Hypecoum torulosum Å. E. Dahl

+ Tn: Tunisia: Medenine, Djerba, Midoun, 33°49'31"N, 10°53'18"E, 25 m, sandy soils in coastal areas, 14 Feb 2016, *Debruille* (photo https://www.orchid-nord.com/Flore-Djerba/Hypecoum%20littorale/Hypecoum-littorale.html, as "*Hypecoum littorale*"); Mahdia, Sidi Alouane, 35°23'07"N, 10°53'44"E, 70 m, loamy-sandy soil within olive groves, 23 Mar 2020, *El Mokni* (Herb. Univ. Monastir). – New for Tunisia. This is the second finding for N Africa, where the taxon was hitherto known only from Algeria (Aghababian 2011+; APD 2020). For identification, morphological details and geographical distribution see Dahl (1989). R. El Mokni & F. Debruille

Pittosporaceae

Pittosporum undulatum Vent.

A Tn: Tunisia: Monastir, Monastir city surroundings toward Sousse, a few flowering individuals on roadside of an abandoned area planted with many ornamental trees, 15 Mar 2019, *El Mokni* (photo); ibid., 2 Apr 2019, *El Mokni* (herb. Univ. Monastir). – *Pittosporum undulatum* is reported here as a second casual alien of this genus for the flora of Tunisia. The record of *P. tobira* (Thunb.) W. T. Aiton in Tunisia (El Mokni 2019) can be referred to *P. tobira* var. *calvescens* Ohwi (see Zhang & al. 2003). *Pittosporum undulatum*, native to coastal rainforests in SE Australia, from SE Queensland to E Victoria (Cooper 1956; Goodland & Healey 1996), is an evergreen shrub to tree easily recognizable by its terminal, umbelliform inflorescence, very fragrant white flowers with yellow centre and leaves which are characteristically wavy at their edges (cf. Goodland & Healey 1996; Cayzer & al. 2000; Lorenzi & al. 2003). It has been recorded in the U.S.A., the Caribbean, Central America (Guatemala, Mexico), South America (Bolivia, Brazil, Colombia and Ecuador) and South Africa (Goodland & Healey 1997; Bellingham & al. 2005; Blum & al. 2005; Henderson 2007; Negrelle & al. 2018), where it occurs in a wide variety of habitats including tropical forests, wet or dry sclerophyllous forests as well as savannahs (Binggeli & Goodland 1997). In Europe, the taxon is listed as an alien in Italy (Marhold 2011+c), Portugal and Spain (see, e.g., Paiva 1997; Marchante & al. 2008), whereas in France it is cited as cultivated (doubtfully escaping) (Marhold 2011+c). For N Africa, the taxon has been reported so far only from the Canary Islands and Morocco (Marhold 2011+c; APD 2020).

Key to the species of *Pittosporum* found in the wild in Tunisia

1. Shrubs or small trees to 6 m tall; leaf margin entire, revolute, apex rounded or obtuse; sepals free, lanceo-

late, 3–4 mm long; petals oblanceolate, 10–12 mm long; capsule globose, angular, c. 12 mm in diam., dehiscing by 3 valves . . . . . ***P. tobira***

– Shrubs or trees to 13 m tall; leaf margin markedly undulate, apex with small drip tip; sepals spreading, frequently basally connate into a tube splitting into 2 parts, one part 1- or 2-lobed, the other part 3- or 4-lobed, lobes acuminate, 8–10 mm long; petals linear-oblanceolate to linear-oblong, obtuse, 11–17 mm long; capsule subglobose to globose, 10–14 mm in diam., dehiscing by 2 valves . . . . . ***P. undulatum*** R. El Mokni

Primulaceae (incl. *Myrsinaceae*)

Lysimachia arvensis subsp. ***platyphylla*** (Baudo) Véla, **comb. nov.** ≡ *Anagallis platyphylla* Baudo in Ann. Sci. Nat., Bot., sér. 2, 20: 345. 1843 ≡ *Anagallis arvensis* var. *platyphylla* (Baudo) Durieu, Expl. Sci. Algérie, Atlas: 30. 1855 ["1849"] ≡ *Anagallis arvensis* subsp. *platyphylla* (Baudo) Batt. in Battandier & Trabut, Fl. Algérie, Dicot.: 723. 1890. – Fig. 6.

Anagallis platyphylla was described by Baudo (1843) as a species distinct from both *A. monelli* L. (s.l.) and *A. arvensis* L. (s.l.) with the following diagnosis "Herba *A. arvensis latifoliae* cum flore *Monnelli coeruleae*. — Caul[is]. tetrapterus, antherae lineares." No locality was given, but the IPNI website mentions as original data "Alger" (IPNI & WCSP 2020). Contrary to the opinion of Pujadas (1997), the Algerian plants long known under the name *A. arvensis* subsp. *platyphylla* are not covered by the morphological variability of *A. arvensis* subsp. *arvensis*. Pujadas (1997: 60) argued that herbarium specimens from Algeria examined by him showed corollas 12–14 mm in diam., thereby justifying inclusion in the nominate subspecies with a corolla diameter range given as "6–12(–15) mm". But, based on my personal measurements made on fresh, living plants from Algiers Mitidja (Reghaia lake), Great Kabylia (M'zarir in S Djurdjura mts, 2 km E of Col d'Akfadou), Lesser Kabylia (Imaaliouene in Soummam valley) and Numidia (Douar Guergour W of El Tarf), the corolla diameter range of *A. arvensis* subsp. *platyphylla* is 15–19 mm. Other photographs from Numidia (E of Oued el Aneb) taken by me provided evidence for sympatry of *A. arvensis* subsp. *platyphylla* with *A. arvensis* subsp. *parviflora* (Hoffmanns & Link) Arcang., although the relevant specimens had not been measured. Compared to *A. arvensis* subsp. *parviflora*, characterized by a smaller corolla (4–6 mm in diam.), most often in pure populations, *A. arvensis* subsp. *platyphylla* is characterized by a larger corolla (at least 15–19 mm in diam.). Certainly the "20–30 mm" corolla diameter range of the latter given by Quézel & Santa (1963: 727) was exaggerated, as pointed out by Pujadas (1997), but the corolla dimensions are in fact larger, while our measurements for *A. arvensis* subsp. *arvensis* and *A. arvensis* subsp. *parviflora* coincide with those given by Pujadas (1997). Battandier (1888–1890) and Battandier & Trabut (1905) gave a "16–30 mm" range for the corolla diameter, which includes the ranges from Quézel & Santa (1963) and those from my own sampling.

Recently the genus *Anagallis* L. has been included in the genus *Lysimachia* L. (Manns & Anderberg 2009), but only combinations at specific level were carried out (e.g. *L. arvensis* (L.) U. Manns & Anderb.; *L. foemina* (Mill.) U. Manns & Anderb.; *L. monelli* (L.) U. Manns & Anderb.). Subsequently, Peruzzi (2010) combined accepted subspecies names under *L. arvensis* (*L. arvensis* subsp. *latifolia* (L.) Peruzzi; *L. arvensis* subsp. *parviflora* (Hoffmanns. & Link) Peruzzi) as well as *L. monelli* subsp. *linifolia* (L.) Peruzzi. But, as an overlooked taxon erroneously synonymized with *L. arvensis* subsp. *arvensis* (Marhold 2011+d; IPNI & WCSP 2020), *L. arvensis* subsp. *platyphylla* has not been combined until now (APD 2020).

In conclusion, *Lysimachia arvensis* subsp. *platyphylla* represents a discrete taxon, with its subspecific rank awaiting kary-

Fig. 6. *Lysimachia arvensis* subsp. *platyphylla* – A: general view of inflorescence; B: detail of stem with leaves; C: root detail; D: flower detail. – Scale bars: A–C = 1 cm; D = 1 mm. – A–C: Algeria, Boumerdes, Reghaïa lake, 24 Feb 2020; D: Algeria, El Tarf, Douar Guergour, 29 Apr 2016, photographs by E. Véla.

ological and/or phylogenetic proof. Confusion with *L. monelli* subsp. *linifolia* may happen because of the similar corolla dimensions of both taxa, if one does not consider the perennial vs annual growth form and the lanceolate vs ovate leaves of *L. monelli* vs *L. arvensis*. Its area of distribution includes at least N and NE Algeria (Battandier 1888–1890; Quézel & Santa 1963) and Tunisia (Bonnet & Barratte 1896; Pottier-Alapetite 1981), where regional occurrence is still misunderstood because of a strong contradiction between Floras (Bonnet & Barratte vs Pottier-Alapetite). For Morocco, it has been given only with doubt and as a probable confusion with *Anagallis arvensis* var. *platyphylloides* Pau (Jahandiez & Maire 1934; Sauvage & Vindt 1952), another overlooked and unresolved taxon not mentioned by Fennane & al. (1999) but later considered by Fennane & Ibn Tattou (2005) as "doubtful, to be confirmed", based on one historical record. Mentions from Spain as a native and from Bulgaria as an alien, given by Greuter & al. (1989: 370), should be checked.

E. Véla

Ranunculaceae

Delphinium sylvaticum subsp. ***purpureum*** El Mokni & al.

+ Ag: Algeria: Skikda, El Harrouch, Ain Bouziane, 36°36'05"N, 06°44'35"E, 377 m, 30 May 2020, *Saci* (photos). – *Delphinium sylvaticum* subsp. *purpureum* was recently described as a taxon native to N Tunisia by El Mokni & al. (2015). This subspecies is new to the flora of Algeria and constitutes a second report for the flora of N Africa (APD 2020) and for the Mediterranean area (Raab-Straube & al. 2014+). In Algeria, the discovery of this taxon is due to extensive botanical investigation during the last few years. R. El Mokni & A. Saci

Rhamnaceae

Ziziphus jujuba Mill.

A Tn: Tunisia: Mahdia, Chebba city, 35°41'59"N, 10°47'40"E, 20 m, roadsides, numerous juvenile individuals from seeds, 8 Dec 2019, referable to *Z. jujuba* Mill. var. *jujuba*, *El Mokni* (Herb. Univ. Monastir); ibid., Monastir, Teboulba, railway not far from Teboulba metro station, 35°38'14"N, 10°57'43"E, 20 m, several subshrubby individuals from seeds, 8 Dec 2019, referable to *Z. jujuba* var. *spinosa* (Bunge) Hu ex H. F. Chow, *El Mokni* (Herb. Univ. Monastir). – Casual alien species new for the alien flora of Tunisia. *Ziziphus jujuba* is a valuable and economically important fruit tree native to China. It is very common in some Middle Eastern countries. The species has been introduced in Madagascar and is invasive in the W part of the island (Döring 2020). It is known in the E part of Bulgaria and the E Caribbean, where it grows wild. Trees of the species are reported to exist in Jamaica, the Bahamas and Trinidad (Döring 2020). In Europe, this species is reported as alien or casual alien in Albania, Croatia, France, Greece, Italy and Spain (Henning & Raab-Straube 2016+b; Domina & al. 2018). In N Africa, *Z. jujuba* was known to occur only in Algeria, Libya and Morocco (Dobignard & Chatelain 2013; Henning & Raab-Straube 2016+b; APD 2020), as a casual alien. Therefore, the present records, with two different varieties, are the first for Tunisia. A key to the species found in the wild in Tunisia is given.

Key to the species of *Ziziphus* found in the wild in Tunisia

1. Shrubs with long, flexuous twigs; leaves rarely more than 1.5 cm long; drupe globose . . ***Z. lotus*** (L.) Lam.
– Trees or shrubs with spreading branches; leaves more than 2 cm long; drupe globose, oblong or narrowly ovoid **2**
2. Medium-sized trees; stipular spines in pairs, one erect, c. 2 cm long, the other recurved, 5–8 mm long, sometimes spines absent; leaves 2–6 × 1–4 cm, ovate-elliptic or suborbicular; pedicel woolly; calyx pubescent; drupe globose . . . . . ***Z. spina-christi*** (L.) Desf.
– Small trees or shrubs; stipular spines stout, straight, to 3 cm long; leaves 2–5 × 1–2.5 cm, obliquely oblong-ovate or lanceolate; pedicel and calyx glabrous; drupe oblong or narrowly ovoid . . . . . ***Z. jujuba***

R. El Mokni & G. Domina

Rubiaceae

Thliphthisa pusilla (Bory & Chaub.) J. Krieg., Del Guacchio & P. Caputo, **comb. nov.** ≡ *Sherardia pusilla* Bory & Chaub. in Bory & al., Expéd. Sci. Morée, Bot.: 51. 1832 [non *Galium pusillum* L., Sp. Pl.: 106. 1753; nec *Asperula pusilla* Hook. f. in London J. Bot. 6: 464 [bis]. 1847] ≡ *Galium boryanum* Walp. in Repert. Bot. Syst. 2: 454. 1843 ≡ *Asperula boryana* (Walp.) Ehrend. in Bot. J. Linn. Soc. 68: 269. 1974 ≡ *Thliphthisa boryana* (Walp.) P. Caputo & Del Guacchio in Pl. Biosyst. 154: 777. 2020, nom. superfl.

Within their recent proposal to treat *Asperula* sect. *Thliphthisa* (Griseb.) Ehrend. at generic level, Del Guacchio & Caputo (2020: 777) published the new combination *T. boryana*, based on *Galium boryanum*, and cited as a synonym the earlier name *Sherardia pusilla*, following Walpers (1843: 454). The epithet *pusilla* was not available in *Galium* due to the existence of *G. pusillum* L. *Galium boryanum* was not proposed an explicit substitute for *S. pusilla*, and it was not validated solely

Fig. 7. *Physalis peruviana* – A: whole plants; B, C: anterior and lateral view of flower from upper part of stem, showing characteristic vinaceous-coloured spots, bluish anthers and patent, villous calyx indumentum; D: unripe fruit from upper part of stem. – Bulgaria, Blagoevgrad district, Damyanitsa village, 11 Oct 2020, *Kunev* (SO 108058; SOM 177319), photographs by G. Kunev.

by reference to *S. pusilla*, because a diagnosis was provided (Turland & al. 2018: Art. 6.11, 6.12). Therefore, it could be treated as either a replacement name based on *S. pusilla* or the name of a new taxon (Turland & al. 2018: Art. 6.13). In the latter case, the new combination *T. boryana* would be not superfluous. However, it is accepted that the name *G. boryanum* was published as a replacement name (IPNI 2021). This is reasonable, supposing that Walpers examined the plate of *S. pusilla* (either in Bory de Saint-Vincent 1835–1836: t. 15, fig. 1 or in Chaubard & Bory de Saint-Vincent 1838: t. 16, fig. 1) and found that the illustrated plant, in his opinion, was indeed a *Galium* species. In fact, in the protologue of *G. boryanum*, Walpers (1843: 454) cited a plate that is original material for *S. pusilla*. In addition, Walpers certainly knew of the existence of the Linnaean *G. pusillum* and it can be assumed that for this reason he decided to refrain from the epithet *pusillum*. According to this interpretation, the name *T. boryana* is homotypic with *S. pusilla* and nomenclaturally superfluous, albeit not illegitimate because it has a basionym (Turland & al. 2018: Art. 52.1, 52.4); the correct combination in *Thliphthisa* is proposed here. The taxon is endemic to the mountains of southernmost Greece (Mts Taygetos and Parnonas in Peloponnisos). In recent floras, checklists and online databases (Tutin & al. 1976: 14; Strid & Tan 1991: 298; Euro+Med 2006+; Dimopoulos & al. 2013, 2019) its name in current use is *Asperula boryana*, thereby avoiding homonymy with *A. pusilla* Hook. f., a SE Australian species occurring in grassy woodland of SE New South Wales, E Victoria and N and C Tasmania (Thompson 2009: 67).

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Solanaceae

Physalis peruviana L. – Fig. 7.

A Bu: Bulgaria: Struma valley (south), Blagoevgrad district, Damyanitsa village, mouth of Bozhdovska river, 41°31'4.62"N, 23°15'27.20"E, 97 m, gravel bar, 11 Oct 2020, *Kunev* (SO 108058; SOM 177319) with flowers and fruits. – *Physalis peruviana* is native to South America (Puente & al. 2011), but it is cultivated in many regions of the world as a crop or ornamental plant. In Europe it is considered naturalized or a casual alien in several countries (Valdés 2012).

Physalis peruviana and its crop management in Bulgaria were discussed by Panayotov & Popova (2014). However, currently it is not known to what extent the species is cultivated in the country. So far, it has not been reported in Bulgaria outside of cultivated fields.

Physalis peruviana has been observed on gravel deposits along the Struma river in three adjacent populations, composed of three, five and seven individuals, respectively. The plants probably appeared after deposits of organic waste from gardens and greenhouses located near to the river. The observed plants were in the flowering and fruiting stage. Therefore, it could be possible for the plants to produce viable seeds and expand their distribution locally or even downstream to adjacent regions in N Greece.

G. Kunev

Umbelliferae (*Apiaceae*)

Pastinaca hirsuta Pančić

+ Al: Albania: Ostrovicë mountains, 1400 m, grassy places near a dairy farm, 13 Jul 1957, *Kitanov* (SO 103116; 103117). – According to Hand (2011), this species is distributed in Bulgaria, North Macedonia and Serbia; it has not yet been recorded for Albania (see Barina & al. 2018).

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