New additions to the flora of Prespa, Greece

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Abstract. Based on Pavlides (1985) and Strid & al. (2017), as a result of three further years of field research (2017–2019), a new update of the reference lists of vascular plants of the Prespa National Park, Greece, is presented. It features 259 taxa, of which 178 are new area records and the rest are 21st century reconfirmations. Nineteen taxa are reported and validated for the first time for Greece, viz.: Acinos majoranifolius, Centaurea galicicae, Centaurea tomentosa, Chamaecytisus frivaldsskyanu, Chamaecytisus pseudojankae, Dianthus pancicii, Ficaria verna subsp. verna, Hieracium transiens subsp. pycnenodium, Hieracium vladimirovi, Polypodium xshivasi, Populus canescens, Potentilla velenovskii, Ranunculus orefilus subsp. balcanicus, Rhamnus saxatilis subsp. tinctoria, Rumex acetosa subsp. acetosa, Scabiosa cinerea, Viola tricolor, and Xanthium orientale subsp. saccharatum. Leontodon asperinus is new for the European flora. Collection data include locality, date, habitat, specimen numbers, herbarium, as well as floristic and taxonomic annotations.

Key words: Balkan flora, flora of Greece, Lake Prespa, Mount Devas, Mount Triklario, Mount Varnous, Prespa National Park, vascular plants.

Introduction and study area

More than 30 years after the floristic catalogue by Pavlides (1985) on the vascular plants of the Prespa National Park, Northwest Greece, Strid & al. (2017) provided a critical revision and update. Already now, only three years later, a new update becomes necessary, as field research in the period of 2017 to 2019, with many new records and reconfirmations revealed a more comprehensive picture. Collection data on hitherto overlooked and important reconfirmed species are presented in this paper.

The Prespa National Park (PNP) is situated in the municipality of Prespes in the Florina regional unit, Greece. The area under study in the trijunction formed by Albania, Greece and North Macedonia reaches slightly beyond the present PNP borders and covers about 400 km² (Fig. 1). It comprises mainly the Natura 2000 sites, Ori Varnounta (GR1340003) and Ethnikos Drymos Prespon (GR1340001), as well as Ori Varnounta – Evryteri Periochi (GR1340009) and Ethnikos Drymos Prespon – Evryteri Periochi (GR1340010), including the Greek sections of the lakes Mikri Prespa and Megali Prespa. The area has a
submediterranean-subcontinental climate, with considerable mesoclimatic variation caused by major differences in topography, the lakes’ mitigating climatic influences and elevation difference of almost 1500 metres (850 m to 2330 m above sea level). The geology of PNP comprises Palaeozoic igneous and metamorphic base-poor rocks such as granites, gneisses, schists, and phyllites, as well as Mesozoic and Neogene sedimentary rocks such as marls, limestones and dolomitic limestones, which generate base-rich soils. In the Prespa basin, especially near Lake Mikri Prespa, fluvial and alluvial deposits and marshy ground adds to the study area’s geodiversity.

Prespes is thinly populated. Apart from the lakes, the landscapes’ main vegetation features are oak and other mixed deciduous forests on the lower slopes and beech forest higher up. Formerly transhumant, now largely sedentary pastoralism, with cattle and to a lesser extent sheep and goats, shapes the grazing grounds. Agriculture is the main source of livelihood. Arable farming was traditionally focused on rainfed winter cereals such as rye, barley and wheat. Presently, chiefly beans are cultivated in the lacustrine plain, irrigated by surface-flooding with water pumped from Lake Mikri Prespa and from the streams running down Mount Varnous. The latter is a granite-gneiss massif east of the Lake. In sharp geological and ecological contrast, on the southern and western sides of Lake Mikri Prespa, Mount Triklario (Sfika), Mount Vrondero and Mount Devas are composed of limestone and their environment is much drier (Fig. 1).

More information on the geological, settlement, land-use and botanical research history, as well as on the natural and cultural environment can be found in the works of Crivelli & Catsadorakis (1997), Catsadorakis (1999), Standring & al. (2009), Strid & al. (2017) and Strid & al. (in press).

**Material and methods**

Most of the floristic data listed below have been gathered during the authors’ field research in the years 2017, 2018 and 2019, performed chiefly in the months (May-...
June–July. A few relevant records by others, overlooked in the previous Additions (Strid & al. 2017), are also included. The field research by E.B. and A.S. was made mainly for the purposes of collecting baseline data to be used for a botanical guidebook on the flora and vegetation of PNP (Strid & al. 2020), while that carried out by F.N.S. and C.S. was within the framework of various projects related to the conservation of lakeside wetlands. The collected data have been registered in the Flora Hellenica Database administered by A.S. and in the Flora of Prespa Database of F.-N.S. (Sakellarakis & al. 2019). Collected specimens indicated in the records communicated below are kept in the given public herbaria and/or in the authors’ private herbaria. If not otherwise indicated, specimens of E.B. are kept in the author’s private herbarium in Göttingen. The names of private herbaria are abbreviated as follows: Bergmeier (Be), Gottschlich (Go), Greuter (Gr), Kit Tan (Kit), Sakellarakis (Sa), Schuler (Sch), Strid (St), Swinkels (Sw). Names of public herbaria are indicated by their standard abbreviations (Thiers 2019). Records are referred to as new in the phytochorion of North Central Greece (NC) if not given for NC in Dimopoulos & al. (2013; 2016) unless otherwise stated. The delimitation of the phytochoria follows Strid (1986). APG IV (Angiosperm Phylogeny Group 2016) plant family names are used, with few exceptions retained (Dicraneae, Valerianaceae).

The floristic data included in this paper are limited to
(1) Findings of species new for PNP (new area records)
(2) Findings of species not recorded after 2000 (PNP 21st century confirmations).

The order of plant names is family-wise alphabetical, then genus-wise and species-wise alphabetical. The information given per record includes the
- Scientific plant name, with synonym if deviating from Dimopoulos & al. (2013; 2016) and/or Strid & al. (in press)
- Locality, with elevation
- Habitat
- Date of collection or observation
- Collector (with collection number, if any) or observer (obs.)
- Further information of floristic or taxonomic relevance.

Results

The list includes records of 259 taxa, of which about 178 represent new area records. Some of them are phyto-geographically interesting as being new for Greece or for the phytochorion of North Central Greece. The Prespa area, already renowned for its outstanding bird, mammal, fish, reptile, and invertebrate wildlife, is also floristically rich and interesting, with perhaps the highest botanical diversity in Greece. The following taxa have their only known Greek localities in the Prespa area (cf. Dimopoulos & al. 2013, 2016):

Acinos majoranifolius, Aldrovanda vesiculosa, Anthriscus sylvestris subsp. fumaroides, Centaurea devasiana, Centaurea galicicae, Centaurea soskae subsp. soskae, Centaurea tomorosii, Centaurea trinitifolia subsp. campylacme, Chamaecytisus frivaldszkyanus, Chamaecytisus pseudojankae, Dianthus pancyici, Eryngium palmaum, Ficaria verna subsp. verna, Heracleum orphanidis, Hieracium retyezentense, Hieracium transiens subsp. pycnadenium, Hieracium vladirovii, Hyssopus officinalis subsp. aristatus, Klasca radiata subsp. cetinjensis, Leontodon asperimus, Oxysbasis rubra, Phelypeaea boissieri, Polypodium ×shivasiae, Populus canescens, Potentilla velenovskyi, Rhamnus saxatilis subsp. tinctoria, Rumex acetosella subsp. acetosella, Scabiosa cinerea, Schoenoplectus supinus, Sedum aetnense and Sempervivum ciliobium subsp. octopodes.

AMARANTHACEAE

Polychnemum arvense L.

Populations in arable fields appear to decline in Greece and the species has been characterized as Near Threatened in the country (Bergmeier & Strid 2014).

AMARYLLIDACEAE

Allium amethystinum Tausch
Just NW of Lefkonas, 900 m. Grassland near road. 2018-06-14, Bergmeier 18-346.

First record since 1972-06-22: Stamatiadou 15850 (ATH, BM).
**Allium flavum** L. subsp. **tauricum** (Rchb.) K. Richt. 0.5 km SW of Vrondero, 1115 m. 2018-07-10, Bergmeier (obs.) – Above Oxya, 1220 m. Limestone rock outcrops. 2018-07-11, Bergmeier (obs.).

**APIACEAE**

**Caucalis platycarpos** L. 

First record since Pavlides (1985: 258).

**Chaerophyllum aromaticum** L. 

First record since Zaganiaris (1940), cited by Pavlides (1985: 258).

**Conium divaricatum** Boiss. & Orph. 
Koula at western end of sandy spit between the two lakes, 855m. 2016-06-03, Strid 58323 (herb. St). – Isthmus N of Vromolimni, near road, 852 m. 2018-07-14, Bergmeier 18-551.

**Falcaria vulgaris** Bernh. 
Mt. Devas, E of summit, 1270 m. Edge of deciduous forest. 2019-06-10, Bergmeier 19-304.

**Hellenocarum strictum** (Griseb.) Kljuykov 
Cape Roti, W of Psarades, 890 m. Calcareous stony ground in open woodland. 2018-07-09, Bergmeier 18-357.

First record since 1972-06-23: Stamatiadou 15906 (ATH).

**Oenanthe fistulosa** L. 
Slatina Laimou, c. 3.5 km SE of Ag. Laimos, seasonally flooded hay meadow. 2018-06-11, Swinkels s.n. (Sw), Bergmeier 18-294. – Ibid. 2018-07-14, Bergmeier 18-552.

In the area apparently only recently introduced and as yet casual; naturalized in parts of W, C & S Europe. New for NC Greece. In Greece it was first recorded by Th. Raus in 1988 in the Nestos River delta, and has subsequently been found also elsewhere in NE Greece, as well as in Crete. It is likely to continue spreading.

**ASPARAGACEAE**

**Ornithogalum brevistylum** Wolfner 


**Ornithogalum kochii** Parl. s.l. 
Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. Subalpine grassland. 2018-06-09, Bergmeier 18-232.

The *sensu lato* application of the name is preliminary. In its strict sense, *O. kochii* belongs to a species that is probably restricted to the S Alps. First record in the Prespa area since 1972-06-26: Stamatiadou 16133 (ATH) (Zahariadi, Stamatiadou & Dima 1982: 146; Strid & al. 2017: 244), but reports of *O. divergens* Boureau and *O. gussonei* Ten. from high-altitude Mt Varnous are almost certainly misapplied and may refer to *O. kochii* s. l.

**Ornithogalum sphaerocarpum** A. Kern. (syn.: *Ornithogalum pyrenaicum* L. subsp. *sphaerocarpum* (A. Kern.) Asch. & Graebn.) 
C. 4–5 km N of Vrondero, 960–1085 m. 2017-06-08, Bergmeier 17-193. – Mt. Devas, 1300 m. 2017-06-10,
Bergmeier (obs.). All sites refer to oak forest over limestone.


Polygonatum latifolium (Jacq.) Desf.
Mikrolimni stream NE of Oxya, 865 m. Alnus gallery riparian forest. 2018-07-14, Bergmeier 18-578.

Aspleniaceae

Asplenium lepidum C. Presl subsp. lepidum
Lake Megali Prespa, SW of Psarades, near the Hermitage of Metamorfosis, 855 m. Shaded crevices of overhanging limestone cliffs. 2018-07-09, Bergmeier 18-377.

Asplenium ruta-muraria L.

Asteraceae

Achillea distans Willd. subsp. distans
Mt. Triklario, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. Subalpine grassland. 2018-07-11, Bergmeier 18-377.

Anthemis austriaca Jacq. (syn.: Cota austriaca (Jacq.) Sch. Bip.)

Anthemis tinctoria L. subsp. parnassica (Boiss. & Heldr.) Nyman (syn.: Cota parnassica Boiss. & Heldr.) Mt. Varnous, above Siroka valley, c. 7 km ENE of Ag. Germanos, 1900 m. Ruderal site. 2018-07-13, Bergmeier 18-516.

Apparantly not recorded in the area since Formánek (“M. Peristeri in Macedonia”; revised by Vandas 1909: 283) whose locality was probably north of the present border.

Artemisia alba Turra
Mt. Triklario, Agioneri, 1510 m. Rocky wayside, limestone. 2018-07-11, Bergmeier 18-434/435. – 1 km SW of Mikrolimni, towards Latsitsa, 900 m. Dry rocky grassland, limestone. 2018-07-12, Bergmeier (obs.).

First records since Pavlides (1985: 179), “between Dikorfo and Agioneri”.

Artemisia scoparia Waldst. & Kit.
Between Laimos and Koula, 855 m. Roadside, sand. 2017-06-13, Bergmeier 17-397; 2017-07-12, Bergmeier (obs.).

Carduus kerneri Simonk.
Mt. Triklario, 3 km S of Oxya, 1450 m. Rocky limestone slope in opening of Fagus forest. 2017-06-07, Strid (photo).


Carduus personata (L.) Jacq. subsp. albidus (Adamović) Kazmi
Mt. Varnous, c. 3 km SE of Ag. Germanos, 1530 m. Tall-herb vegetation near stream. 2017-07-19, Bergmeier 17-665.

Otherwise known in Greece only from the Rodopi Mts and in 2011 found on Mt. Tzena in a similar habitat (Chasapis & al. 2019).

Centaurea devasiana Bergmeier & Strid

A local endemic apparently restricted to the given location (Bergmeier & Strid 2019).
**Centaurea galicicae** Micevski (Fig. 2)
Near Psarades village, 860 m. Limestone cliffs. 2000-06-08, Schuler 00/156 (C, Sch); 2006-07-15, Schuler 2048 (Kit). – 0,4 km SW Psarades, Randbereich des Prespa-Sees, 860 m. Felsen. 2013-07-03, Gregor 10567, 10569, 10570 & Meierott (FR, 10567 also in GOET); Meierott 2013/501-504 & Gregor (M); Meierott 2013/501, 502, 505 & Gregor (GOET). – Lake Megali Prespa, SW of Psarades, near the Hermitage of Metamorfosis, 860 m. Limestone cliffs. 2018-07-09, Bergmeier 18-358, Bergmeier 18-381.

New for Greece. A narrow endemic restricted to the Albanian, Greek and North Macedonian limestone cliffs of Lake Megali Prespa (Shuka & Tan 2013; Wagenitz & al. 2018).

**Centaurea tommorosii** Micevski

New for Greece. A narrow endemic known otherwise only from its locus classicus Mt. Galičica (Wagenitz & al. 2018).

**Centaurea triniiifolia** Heuff. subsp. **campylacme** (Bornm.) Wagenitz

A narrow endemic, otherwise known only from limestone cliff habitats in the Prespa area of Albania and North Macedonia (Wagenitz & al. 2018).

**Centaurea tymphaea** Hausskn.
Above Oxya, 1140 m. Rocky wayside, limestone outcrops. 2018-07-11, Bergmeier 18-431.

**Dittrichia graveolens** (L.) Greuter

**Filago minima** (Sm.) Pers.

**Hieracium bracteolatum** Sm. subsp. **reinholdii** (Heldr. & Sart. ex Boiss.) Zahn

**Hieracium camkorijense** Zahn subsp. **boreograecum** Gottschl. & Dunkel

New for NC Greece. The subspecies was recently described by Gottschlich & Dunkel (2018) based on collections from NE Greece.

**Hieracium jankae** R. Uechtr. subsp. **wagneri** Zahn
Pervali, 2.5 km ESE of Karyes, 1130 m. Steep sunny roadside bank, grus (together with **Hieracium neodivergens** Gottschl.). 2017-07-21, Bergmeier 17-689 (det. G. Gottschlich; dupl. as Go 69110).

Recently reported as rather widespread in N Greece and collected among others in the very same site near Pervali by Dunkel & Gottschlich (2018: 219; Go-68114, Du-34536).

**Hieracium murorum** L.
Above Oxya, towards Sfika, 1225 m. Beech forest, steep wayside, granite. 2018-06-10, Bergmeier 18-256. – 2 km SE of Agios Germanos, 1380 m. Beech

Hieracium murorum L. subsp. obesiglandulum Zahn

New for NC Greece.

Hieracium pannosum Boiss.

First record since Pavlides (1985: 186) citing a collection by Greuter 11537 near the village of Plati.

Hieracium racemosum Willd.
About 3 km SE of Ag. Germanos, E of Potistra, 1530 m. Mixed beech forest, steeply sloped, granitic boulders. 2017-07-17, Bergmeier 17-651 (det. G. Gottschlich; dupl. as Go 69106).

First record since Pavlides (1985: 186) citing a collection by Greuter 11537 near the village of Plati.

Hieracium sparsum Friv. subsp. macedonicum (Boiss. & Orph.) Zahn in Engl.

New for NC Greece.

Hieracium sparsum subsp. schultzianum (Pančić & Vis.) Zahn in Engl.

New for Greece. A recently described species (Szeląg 2018) that was known only from its type locality in the Bulgarian Stara Planina. It has subsequently been found also in NE Greece.

Hieracium taygeteum Boiss. & Heldr. (syn.: H. pannosum subsp. taygeteum (Boiss. & Heldr.) Greuter)

New for NC Greece.

Hieracium umbrosus subsp. abietinum (Boiss. & Heldr.) Greuter

New for NC Greece.

Hieracium umbrosus subsp. leilae (Rech. f. & Zahn) Greuter in Greuter & Raab-Straube

New for NC Greece.

Hieracium umbrosus subsp. pycnadenium (Degen & Zahn) Greuter

New for Greece.

Hieracium umbrosus subsp. vladimirovii Szeląg
Mt. Varnous, below Toumba summit, 2110 m. Gran-ite boulders. 2017-07-20, Bergmeier 17-686 (det. G. Gottschlich; dupl. as Go 69103).

New for Greece.

Lactuca hispida DC.
Mt. Devas, E of summit, 1270 m. Edge of deciduous forest. 2019-06-10, Bergmeier 19-299.

Leontodon asperrimus (Willd.) Endl.
Pervali, 2.5 km E of Karyes, 1295 m. Dry grassland, granitic grus. 2018-06-07, Bergmeier 18-156. –Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-173. New for Greece and the Euro-pean flora. Earlier reports by Halácsy (1902) and Hayek (1928-1931) have been assumed erroneous for L. crispus subsp. asper (Dimopoulos & al. 2013). The latter is common in the PNP area (see below). L. asperrimus differs strikingly from L. crispus s.l. by its much larger involucre (to 28 mm), larger achenes (to 17 mm), brac-teose scape, and by leaves with 3–7-fid hairs. The PNP population consists of rather few (<25) flowering plants distributed in two sites about 6.5 km apart.
**Leontodon crispus** Vill. subsp. *asper* (Waldst. & Kit.) Rohlена (syn.: *L. biscutellifolius* DC.)

**Picris pauciflora** Willd.
3.5 km SW of Psarades, towards Pyxos, 1065 m. 2017-06-08. – Ag. Georgios, 1105 m. 2017-06-10. – 1 km SE of Psarades, 890 m. 2017-06-12. Bergmeier (obs.); all in dry rocky calcicolous grassland.


All records on base-rich calcareous ground; another subspecies, *Pilosella cymosa* subsp. *sabina* (Sebast.) H.P. Fuchs, is silicolous and occurs on Mt. Varnous.


**Xanthium orientale** L. subsp. *saccharatum* (Wallr.) B. Bock (syn.: *X. saccharatum* Wallr.) Lakeshore Megali Prespa, S of Cape Roti, 850 m. Pebble beach. 2018-07-09, Bergmeier 18-390. The identification is based on a specimen of the year before and the record should be confirmed on more complete plants. New for Greece. *X. orientale* subsp. *italicum* (Moretti) Greuter is very similar and common in the area (Strid & al. 2017: 222). The species *sensu lato* has been recorded by Willing & Willing (2018: 162) 2014-10-09 N of Lefkonas, 875 m (Willing 250266).

**BERBERIDACEAE**

**Berberis vulgaris** L. Mt Triklario, near the summit, c. 1720 m. Limestone outcrop. 2018-09-28, Sakellarakis s.n. (Sa). New for NC Greece.

**BORAGINACEAE**


First records since 1972-06-24: Stamatiadou 16024 (ATH); 1975-05-10: Stamatiadou 18539 (ATH); 1982-07-08: Lippert 18483 (C, M); Pavlides (1985: 163).

**Myosotis refracta** Boiss. Lakeshore Megali Prespa near Koula, 850 m, humus-rich sand. 2019-06-07, Bergmeier 19-223.

First record since reported by Quézel & Contandriopoulos (1968: 30) and Pavlides (1985: 163).

**BRASSICACEAE**

**Arabis laxa** Sm. (syn.: *Turritis laxa* (Sm.) Hayek) Above Ag. Germanos, towards Potistra, 1330–1370 m.
Beech forest, steep wayside, gneiss. 2019-06-09, Bergmeier 19-283.

First record since 1990-07-25: Kit Tan & G. Vold 8137 (C, G).

**Brassica rapa** (L.) Clapham
2 km WSW of Plati, near Kallithea stream, 855 m. Wayside edge of meadow, disturbed ground. 2019-06-06, Bergmeier 19-196.

Two collections of *B. rapa* in about the same area (NW Plati, 880 m. Krautfluren an Maisfeld, Wassergaben. 2014-10-09, 250283, 250287) by Willing & Willing (2018: 70) likely to belong here.

**Erysimum cuspidatum** (M. Bieb.) DC.
Néo, 2 km NW of Laimos, 850 m. Sand grassland. 2018-06-09, Bergmeier 18-194.

The record confirms field notes by G. Fotiadis.

**CAMPANULACEAE**

**Asyneuma canescens** (Waldst. & Kit.) Griseb. & Schenk
Mt. Triklario, 1640 m. Limestone rock ledges. 2018-07-11, Bergmeier 18-484.

**Campanula bononiensis** L.


**Campanula phrygia** Jaub. & Spach.

**CARYOPHYLLACEAE**

**Cerastium banaticum** (Rochel) Steud. subsp. speciosum (Boiss.) Jalas
1.5 km NE of Kallithea, 1395 m. Juniperus scrub, gneiss. 2019-06-12, Bergmeier 19-359.


**Cerastium glutinosum** Fr. (syn.: *C. pumilum* Curtis subsp. *glutinosum* (Fr.) Jalas)
2 km SE of Ag. Germanos, 1355 m. Dry grassland, gneiss. 2018-06-12, Bergmeier 18-322a.

Lippert 18477 (M, St), collected 1982-07-08 on Mt. Varnous and first identified as *C. glutinosum*, belongs in fact to *C. rectum* subsp. *petricola*.

**Cerastium semidecandrum** L.

Also in field notes by G. Fotiadis.

**Dianthus formanekii** Borbás ex Formánek
Ag. Ioannis hill, 1.5 km NW of Laimos, 880 m. Dry grassland, gneiss grus. 2017-06-04, Bergmeier 17-98.

**Dianthus integer** Vis. subsp. *minutiflorus* (Halácsy) Bornm. ex Strid
Mt. Triklario, 3 km S of Oxya, 1450 m. 2017-06-07, Strid (photo). – Mt. Triklario, 1660 m. 2017-06-09, Bergmeier 17-230. Both sites are rocky limestone slopes.

First record since Pavlides (1985: 169), who referred to the same area. Also collected 1981-07-08 on Mt. Boutsi, just S of PNP (Strid 18750, C).

**Dianthus sylvestris** Wulfen subsp. *sylvestris*
Above Oxya, towards Agioneri, 1220 m. Limestone rock outcrops. 2017-07-21, Bergmeier 17-698. Also collected 1981-07-08 on Mt. Boutsi, just S of PNP (Strid 18760, C).

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Fig. 3. *Campanula phrygia* on sandy soil at the margin of a rye field W of Laimos. U. Bergmeier, 2019-06-07.
**Dianthus pancicii** Velen., non E.N. Williams (*D. tristis* Velen.)

Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. 2018-06-09, Bergmeier 18-247. – Just N of summit Bela Voda, 2125–2130 m. All sites in alpine and subalpine grassland. 2018-07-13, Bergmeier (obs.).

New for Greece. Reported as *D. tristis* already by Quézel & Contandriopoulos (1968) and Strid (1986: 199) from NC Greece but disregarded by Strid & Tan (1997) and Dimopoulos & al. (2016), and deemed dubious by Strid & al. (2017: 229). Records of *D. stenopetalus* Griseb. (Phitos & Kamari 16245 (UPA), 1977-08-08; Strid & al. 18118 (B, G, KOR, R, UPA), 1981-06-26; Lippert 18428 (C, M) & Podlech 37423 (C), 1982-07-08) and *D. cruentus* Griseb. (Stamatiadou 16111, 16137 (ATH, G), 1972-06-26; Greuter 14242, 14264 (B, C, Gr, UPA) 1976-08-03; Phitos & Kamari 16252 (UPA), 1977-08-08; Stamatiadou 22171 (ATH), 1981-06-27) from subalpine and alpine levels of Mt. Varnous most likely refer to *D. pancicii*. Taxonomy follows Dimopoulos & al. (2016: 338) who consider the younger *D. tristis* Velen. 1890 as conspecific with *D. pancicii* Velen. 1986.

**Minuartia attica** (Boiss. & Spruner) Vierh. subsp. *attica*


First record since 1990-05-05: Phitos & Kamari 22263 (UPA); 1990-08-26: Pirker & al. 325 (B); 1998-06-30: Snogerup 15833 (LD).

**Minuartia hirsuta** (M. Bieb.) Hand.-Mazz. subsp. *fal cata* (Griseb.) Mattf.


**Minuartia verna** (L.) Hiern subsp. *verna*


**Petrothagia obcordata** (Margot & Reut.) Greuter & Burdet

0.5 km SW of Vrondero, 1115 m. Limestone rock outcrop. 2018-07-11, Bergmeier 18-422. – Just S of Oxýa, 890 m. *Agrostis castellana* grassland, granitic grus. 2018-07-16, Bergmeier 18-618.

**Scleranthus verticillatus** Tausch

5 km N of Vrondero (Pyxos sheepfolds), 955 m. Arable field. 2017-06-08, Bergmeier 17-207.

Confirms Vandas (1909: 214) who cited a collection by Formánek from “M. Peristeri in Macedonia” which is probably N of the present border.

**Silene armeria** L. (syn.: *Atocion armeria* (L.) Raf.)

Néo, 2 km NW of Laimos, 855 m. Sand grassland, disturbed. 2018-06-08, Bergmeier 18-183. – Above Ag. Germanos, towards Potistra, 1340 m. Beech forest, steep wayside, gneiss. 2019-06-09, Bergmeier (obs.).

First recorded in the area 1990-07-25 just outside PNP, along road to Ag. Trias, 3 km from Antartiko, 2 km from Pisoderi, at 1250 m, by Kit Tan & G. Vold 8148 (C, E, G, RSA).

**Silene bupleuroides** L. subsp. *staticifolia* (Sm.) Chowdhuri

Mt. Triklario, 1610 m. Dry calcicolous rocky grassland. 2018-07-09, Bergmeier 18-471.

First record in the area since 1972-06-23 (Stamatiadou 15915, ATH).

**Silene gigantea** L. subsp. *rhodopea* (Janka) Greuter

Above lakeshore Megali Prespa, S of Cape Roti, 850–890 m. Pebble beach and among limestone boulders. 2018-07-09, Bergmeier 18-382.

**CISTACEAE**

**Fumana procumbens** (Dunal) Gren. & Godron

**Helianthemum nummularium** (L.) Mill. subsp. *nummularium*
Mt. Devas, 1360 m. Dry rocky calcicolous grassland. 2017-06-10, Bergmeier 17-293.

This subspecies differs from plants of subsp. *tomentosum* (Scop.) Schinz & Thell. by its narrower leaves and smaller flowers. It was found on calcareous soil while subsp. *tomentosum* has been recorded in PNP in silicolous dry grassland.

**CONVOLVULACEAE**

**Ipomoea purpurea** (L.) Roth
0.5 km S of Pyli, 855 m. Edge of reedbed. 2018-07-10, Bergmeier 18-396. – Ibid. 2018-08-11, Sakellarakis s.n. (Sa).

A xenophyte native to Central America; new to NC Greece.

**CRASSULACEAE**

**Sedum alpestre** Vill. subsp. *erythraeum* (Griseb.) ’t Hart

First record since Strid (1986: 348) where a confirmed record from “Varnous” is cited; the latter may have been based on a collection by Formánek from “M. Peristeri in Macedonia”.

**Sedum annuum** L.


**Sedum magellense** Ten. subsp. *olympicum* (Boiss.) Greuter & Burdet
Mt. Triklario, 1700 m. Limestone rock crevices. 2018-07-11, Bergmeier 18-469.

First record since reported in Strid (1986: 353) from “Varnous” without further details.

**Sedum stefco** Stef.
Mt. Varnous, 4 km NE of Agios Germanos, 1377 m. Gneiss outcrop next to the dirt road. 2017-6-15, Goula 2164 & Sakellarakis (ATHU).

Listed as Near Threatened in the *Greek Red Data Book* (Eleftheriadou & al. 2009).

**Sempervivum ciliostum** Craib subsp. *octopodes* (Tur-rill) Zonn. (syn.: *Sempervivum octopodes* Turrill)

New for Greece. Described from Mt. Pelister, just N of the border to North Macedonia. *S. ciliostum* (probably subsp. *ciliostum*) was collected 1981-07-08 by Strid (18724, B, G, St) on Mt. Boutsi just S of PNP; in 2016 sterile specimens, presumably of the same taxon, from Mt. Triklario were transplanted to Ørbæk, Denmark, as Strid 58451; they were still not flowering in 2019. In 2018, the small population on Mt. Triklario interpreted as subsp. *ciliostum* was again sterile (Bergmeier, obs.).

**CYPARACEAE**

**Carex digitata** L.
2 km SE above Ag. Germanos, 1290 m. Damp beech forest, ravine, steep wayside slope. 2019-06-09, Bergmeier 19-276.

**Carex distachya** Desf.
Psarades towards Pyli, 940 m. Juniper woodland, limestone. 2017-06-12, Bergmeier 17-370. – Just N of Karyes, 980 m. Oak forest, schistose soil. 2017-07-18, Bergmeier (obs.).

**Carex divulsa** Stokes
Ag. Ioannis hill, 1.5 km WNW of Laimos, 890 m. Oak woodland. 2017-06-04, Bergmeier 17-113. – W of Laimos, near Lake Megali Prespa, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-172.
It is not clear whether a record of this species by Pavlides (1985: 265) as well as a field note by G. Fotiadis belong to this species or to Carex polyphylla (C. divulsa subsp. leersii). The latter is more common in the area than C. divulsa.

**Carex liparocarpos** Gaudin subsp. **liparocarpos**
Mt. Triklario, 1500–1700 m. Dry grassland, limestone. 2017-06-09, Bergmeier 17-229.  
C. liparocarpos is scattered southwards to Sterea Ellas, but much less common than the similar C. carystophylea Latourr.

**Carex pendula** Huds.
2.5 km W of Pisoderi, above Mon. Agia Triada, 1410 m. Beech forest, ravine. 2019-06-13, Bergmeier 17-367.  
With whitish ligule and smooth peduncle of the lowermost spike, the specimen has been identified as C. pendula s. str., not as Carex agastachys L. f., which is said to occur in the eastern part of the range of the C. pendula aggregate (Miguez & al. 2018).

**Carex phyllostachys** C.A. Mey.
1 km E of Vrondero, 1180 m. Juniper woodland, limestone, stony ground. 2017-06-13, Bergmeier 17-385. – Above Daseri, 925 m. Edge of deciduous forest, limestone. 2019-06-08, Bergmeier 19-236.

**Carex polyphylla** Kar. & Kir. (syn.: C. leersii F.W. Schultz)
Mt. Triklario, Agioneri, 1500 m. Brachypodium grassland, limestone. 2017-06-09, Bergmeier 17-240. – 0.5 km N of Karyes, 980 m. Red colluvial soil. 2017-06-18, Bergmeier 17-629 and 17-631. – Mt. Varnous, c. 3 km SE of Ag. Germanos, 1535 m. Forest opening, gneiss. 2017-07-19, Bergmeier 17-667. – Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. Subalpine grassland. 2018-06-09, Bergmeier 18-238. – 1.6 km W of Plati, 850 m, wet-dry meadows. 2019-06-06, Bergmeier 19-189 and Bergmeier 19-200. – Daseri, 895 m. Mesic grassland. 2019-06-08, Bergmeier 19-251.

**CYSTOPTERIDACEAE**

**Cystopteris fragilis** (L.) Bernh.
First record since 1972-07-09: Haristos 4118 (ATH); 1972-06-21: Stamatiadou 15705 (ATH); 1975-05-09: Stamatiadou 18484, 18494, ATH); 1981-06-27: Stamatiadou 22127 (ATH); also reported by Pavlides (1985: 156).

**DIPSACACEAE**

**Knautia midzorensis** Formánek
2 km SE of Agios Germanos, 1380 m. Grassy opening in beech forest, gneiss. 2018-06-12, Bergmeier 18-304
First record since reported by Quézel & Contandriopoulos (1968: 33) and Pavlides (1985: 200), perhaps erroneous for Knautia magnifica Boiss. & Orph., described on a collection by Orphanides from Mt. Pelister, just N of the present border; the latter has been collected several times also on the Greek side on Mt. Varnous, where it is a fairly uncommon sight. K. midzorensis was described from Mt. Midzor in Serbia, and there are scattered records from northern Greece. The overall and local variation of the two species needs further study.

**Pterocephalus plumosus** (L.) Coul.  
First record since 1998-07-30: Willing 71584 (B). More recently also reported by G. Fotiadis.

**Scabiosa cinerea** Lam.
Mt. Triklario, 1650 m. Dry grassland with limestone rock outcrops. 2018-07-11, Bergmeier 18-475.  
New for Greece. The southernmost known locality.

**EUPHORBIACEAE**

**Euphorbia falcata** L.
Pyxos, 1060 m. barley field. 2018-07-10, Bergmeier 18-404.

**FABACEAE**

**Anthyllis vulneraria** L. subsp. **pindicola** Cullen
Mt. Triklario, 1450–1600 m. 2017-06-07, Strid (photo); 2017-06-09, Bergmeier 17-225; 2018-06-10, Bergmeier (obs.). All sites are dry grassland with limestone rock outcrops.

**Anthyllis vulneraria** L. subsp. **scardica** (Wettst.) Bergmeier

**Astragalus tymphresteus** Boiss. & Spruner
1 km SE of Psarades, 890 m. Dry juniper woodland with openings, limestone. 2017-06-12, Bergmeier 17-


**Chamaecytisus frivaldszkyanus** (Degen) Kuzmanov


New for Greece. Specimens from the area identified as **Chamaecytisus eriocarpus** (Boiss.) Rothm. appear to belong to **C. frivaldszkyanus**. **C. eriocarpus** s. str. has been described from W Turkey and is scattered in the Balkans with westernmost occurrences in Albania (Pifkó & Barina 2016; Barina & al. 2017). It remains to be established to what extent populations of **C. eriocarpus** in N Greece (southward to c. 39°30'N) belong to this species or to **C. frivaldszkyanus**. The latter has been synonymized with **Chamaecytisus lasio - semius** (Boiss.) Pifkó but is considered a separate species by D. Pifkó, who identified the specimens from Prespa given above.

**Chamaecytisus pseudojankae** Pifkó & Barina


Records of **Chamaecytisus austriacus** (L.) Link from the area (see Strid & al. 2017: 238) appear to refer to **C. pseudojankae** which has been described as new by Pifkó & Barina (2016) and was known hitherto only from the mountain ranges Mali i Thaț and Galićica in nearby Albania and North Macedonia, respectively (Barina & al. 2017). All collections given above were identified by D. Pifkó.

**Chamaecytisus triflorus** (Lam.) Skalická (syn.: **Cyt - isus hirsutus** auct. non L.)


Records from Mt. Varnous of **Chamaecytisus hirsutus** (L.) Link and **Chamaecytisus polytrichus** (M. Bieb.) Rothm. refer to **C. triflorus**, e.g., 1972-06-25: Stamatiadou 16066 (ATH, G) and 1981-06-27: Stamatiadou 22146 (ATH). The collections cited above were revised by D. Pifkó. The taxonomy follows Skalická (1986). **C. triflorus** was lumped together with **C. hirsutus** by Dimopoulos & al. (2013: 268).

**Lathyrus hirsutus** L.

0.5 km S of Pyli, 860 m. Damp ruderalized open site between wayside and reeds. 2018-07-10, Bergmeier 18-392. First record since 1972-06-21: Stamatiadou 15773 (ATH).

**Lens culinaris** Medik.

5 km N of Vrondero (Pyxos sheepfolds), 955 m. Arable field. 2017-06-08, Bergmeier 17-184. Probably a relict of former cultivation mixed in current local seed corn.

**Melilotus neapolitanus** Ten.


**Securigera elegans** (Pančić) Lassen

2 km SE of Agios Germanos, 1380 m. Beech forest, steep-sloped wayside, gneiss. 2018-06-12, Bergmeier 18-305.

**Trifolium dubium** L.

Near Oxya, 860 m, wet-dry hay meadow. 2017-06-07, Strid (photo) and Bergmeier. – In meadows just N (Koula), NE (Slatina) and E (N of Mikrolimni) of Lake Mikri Prespa. 2018-06-11, Swinkels & Bergmeier (obs.). First records since 1998-07-29: Willing 71263 (B).

**Trifolium incarnatum** L. subsp. **incarnatum**

1.6 km W of Plati, 850 m, wet-dry hay meadow. 2019-06-06, Bergmeier 19-197.

Apparently indigenous and not introduced and sown for fodder or meadow improvement as is often done in Europe and overseas. **T. incarnatum** subsp. **molinieri** (Hornem.) Syme, with corollas whitish to
pale-pink, is also known in the area and has been found in similar grassland habitats.

**Trifolium pallidum** Waldst. & Kit.
5 km N of Vrondero (Pyxos sheepfolds), 960 m. Arable field. 2017-06-08, Bergmeier 17-197.

**Trifolium retusum** L.
1.5 km W of Plati, 850 m, wet-dry sandy wayside. 2019-06-06, Bergmeier 19-187.

First record in the area since 1998-06-15: Strid & al. 46625 (G, Kit, LD, St), 3 km SSW of Andartiko, 950 m.

**Trifolium trichopterum** Pančić

**Vicia dalmatica** A. Kern.

Not reported since Pavlides (1985: 224), although a record of “*Vica tenuifolia*” from 2016-06-16 by Kit Tan & al. 32201 (Kit) may belong here.

**Vicia lutea** L. subsp. *lutea* (Thuill.) Ces.
1.5 km WSW of Plati and Slatina, c. 4 km SW of Laimos, 855 m. 2019-06-06, Bergmeier 19-202 and Bergmeier 19-206. Both sites wet-dry meadows.


**Vicia serratifolia** Jacq.
Between Karies and Lefkonas, 900 m (Strid & al. 2017: 242, as *V. narbonensis*). 2016-04-28, Strid 58308 (St). – 1.5 km W of Plati, 850 m. Fallow field, deep alluvial soil. 2019-06-06, Bergmeier 19-190.

**Vicia tenuifolia** Roth
Mt. Devas, E of summit, 1270 m. Edge of deciduous forest. 2019-06-10, Bergmeier 19-301.

Similar are *V. dalmatica* A. Kern. and *V. incana* Gouan, both of which occur in the area. Reported by Pavlides (1985: 224); a record from 2 km SW of Psarades at 2016-06-16 by Kit Tan & al. 32201 (Kit) probably refers to *V. dalmatica*.

**Vicia villosa** Roth

First records of the species *sensu stricto* since reported by Pavlides (1985: 224) and collected 1998-07-30 by Willing (71624, B).
FAGACEAE

Quercus petraea (Mattf.) Liebl. subsp. petraea
1.8 km SSE above Ag. Germanos, towards Potistra, 1390 m. Beech-oak forest. 2017-07-14, Bergmeier 17-530. – Above Oxya, towards Sfika, 1000–1150 m. Mixed oak forest. 2017-07-21, Bergmeier 17-694+695. – Above Oxya, towards Bela Zemia, 1070 m. Mixed beech forest. 2018-07-16, Bergmeier 18-633. All sites over granitic bedrock.

The subspecies petraea was first recorded 2000-07-22 in the area by Schuler (00/397; Schuler 2007: 234).

Quercus petraea (Matt.) Liebl. subsp. polycarpa (Schur)
2.5 km ENE of Ag. Germanos, lower N slope of summit Kotsifa, 1260 m. Edge of beech forest. Quartzitic bedrock. 2017-07-18, Bergmeier 17-620. – Above Oxya, towards Sfika, 1200 m. Mixed deciduous forest, steep slope, limestone screes. 2018-07-16, Bergmeier 18-629. This is the more common subspecies in the area which was first identified in Prespa in 2000 by Schuler (2007: 234; as subsp. medwediewii (A. Camus) Menitsky). The Central European subsp. petraea and the Balkan/Anatolian subsp. polycarpa (syn.: Q. polycarpa Schur) meet in N Greece and the PNP area. The former has flat cupule scales and ± irregular and deeply lobed leaf blades, while subsp. polycarpa has usually ± regular, shallow leaf lobes and tuberculate cupule scales. Whether the latter can be further differentiated in subsp. polycarpa s. str. and “Q. dalechampii” auct., non Ten. (tuberculate cupule scales, ± irregularly, deep lobed leaves) is an unresolved question.

Quercus robur L. subsp. pedunculiflora (K. Koch) Menitsky

Acinos alpinus (L.) Moench subsp. hungaricus (Simonk.) Sojak (syn.: Clinopodium alpinum subsp. hungaricum (Simonk.) Govaerts)

GERANIACEAE

Erodium hoefftianum C.A. Mey.
Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-07-14, Bergmeier 18-185.

Geranium versicolor L.

JUNCACEAE

Juncus anceps Lahrpe
Slatina, c. 3.5 km SW of Laimos, seasonally flooded meadow. 2018-07-11, Bergmeier (obs.). Records of Juncus acutiflorus Ehrh. ex Hoffm. (Strid & al. 2017: 245) and J. alpinoarticulatus × articulatus (Stamatiadou 13640, ATH, 1971-07-29; Schuler 99/1418, B, 1999-08-23), all in about the same area, may refer to the same taxon that is here identified as J. anceps. The alpinoarticulatus-anceps complex needs further study.

LAMIACEAE

Acinos alpinus (L.) Moench subsp. hungaricus (Simonk.) Sojak (syn.: Clinopodium alpinum subsp. hungaricum (Simonk.) Govaerts)

Ballota nigra L. subsp. sericea (Vandas) Patzak
Lefkonas, 930 m. 2014-10-09, Willing 250257 (B) (Willing & Willing 2018: 66). – Above lakeshore of Megali
Prespa, S of Cape Roti, 855 m. On limestone pebbles under an overhanging cliff. 2018-07-09, Bergmeier 18-385.

**Ballota nigra** L. subsp. *ruderalis* (Sw.) Briq. (syn.: *Ballota nigra* subsp. *uncinata* (Fiori & Bég.) Patzak)


**Calamintha nepeta** (L.) Savi subsp. *glandulosa* (Req.) P. W. Ball (syn.: *Clinopodium nepeta* subsp. *nepeta* var. *glandulosum* (Req.) B. Bock)


**Galeopsis ladanum** L.

1 km NW of Vrondero, 1120 m. Arable field. 2017-06-11, Bergmeier 17-332; 2017-07-12, Bergmeier 17-440.

A rare species in Greece, confined to the north-central mainland, in decline due to agricultural intensification and field abandonment, characterized as Endangered (Bergmeier & Strid 2014).

**Micromeria juliana** (L.) Rchb.


First records since 1971-07-28: Stamatiadou 13608 (ATH), and Pavlides (1985: 212).

**Nepeta nuda** L. subsp. *nuda* (syn.: *N. pannonica* L.)


**Sideritis scardica** Griseb.

Mt. Devas, near the summit, 1200–1300 m. Rocky limestone slopes with open woodland of *Quercus trojana* and Juniperus. 2014-07-12, Strid 58094. – Mt. Vrondero, 2.5 km E of Vrondero, 1280–1300 m. 2018-07-15, Bergmeier 18-600. – Mt. Devas, summit ridge, 1350 m. 2019-06-10, Bergmeier 19-318.

All sites refer to dry rocky calcicolous grassland habitats.

Previously reported by Pavlides (1985: 215) and collected 1999-07-05 by Schuler 99/854 (B, Sch).

**Thymus praecox** Opiz subsp. *jankae* (Čelak.) Jalas

Mt. Varnous, c. 8 km E of Ag. Germanos and 4 km N of Pisoderi, 1900 m. 2017-07-13, Bergmeier 17-516. – Mt. Vrondero, summit above Siroka valley, 2100 m. Both sites refer to alpine granitic grassland. 2017-07-20, Bergmeier 17-676.

**Thymus stojanovii** Degen

Mt. Varnous, just E of summit Bela Voda, 2040 m. Snow-rich slope concavity. – 2018-07-13, Bergmeier (obs.).

First records since Quézel & Contandriopoulos (1968: 32), Quézel (1969) and 1976-08-01: Greuter 14130 (Gr, St).

**LINACEAE**

**Linum flavum** L. subsp. *albanicum* (Janch.) Hartvig


Strid 58464 (G, St) from 2016-06-07, reported as *Linum elegans* Spruner ex Boiss. (Strid & al. 2017: 248), belongs to *L. flavum*.

**LYTHRACEAE**

**Lythrum portula** (L.) D.A. Webb

1.5 km E above Ag. Germanos, 1390 m. Wet wayside. 2018-06-12, Bergmeier 18-330. – 1 km NE of Oxya, 890 m. Edge of seasonal in sand pit. 2018-07-14, Bergmeier 18-564.

First records since 1998-08-07: Strid & Kit Tan 47619 (ATH, G, St).

**MALVACEAE**

**Malva moschata** L.

Confirms Vandas (1909: 117) who identified and cited a collection by Formánek from “M. Peristeri in Macedonia”.

*Tilia cordata* Mill.
Néo, 2.5 km NW of Laimos, 855 m. Edge of *Populus-Betula* pioneer forest. 2018-06-08, Bergmeier 18-181.

New to NC Greece although given for NC in Dimopoulos & al. (2013) based on unconfirmed records. Elsewhere in Greece known with certainty only from the Rodopi Mountain Range. This first record in PNP refers to a single mature tree, obviously spontaneously established. Reports by Pavlides (1985: 256) between Vrondero and Agathoto and between Oxya and Sfikas are most likely in error for *T. platyphyllos* subsp. *Pseudorubra*, which occurs in the indicated sites (see below).


**MONTIACEAE**

*Montia fontana* L. subsp. *amporitana* Sennen
Mt. Varnous, c. 3.5 km E of Ag. Germanos, towards Vigla, 1340 m. Spring, 2017-07-18, Bergmeier 17-617. – Mt. Varnous, Siroka valley, c. 3 km NE of Ag. Germanos, 1365 m. Rivulet. 2018-06-09, Bergmeier 18-249. – 0.5 km E above Ag. Germanos, 1080 m. Gully, wet-dry siliceous soil. 2018-06-12, Bergmeier 18-309.

This and the similar *Montia arvensis* Wallr. (Strid & al. 2017: 258) occur in the same area at overlapping elevation ranges but have not been found growing together.

**ONAGRACEAE**

*Epilobium lanceolatum* Sebast. & Mauri
Above Oxya, Sfika pass, 1270 m. Wayside, siliceous grus. 2018-07-16, Bergmeier 18-624.

First record since 1972-06-21: Rechinger 44860 (W) and Stamatiadou 15711 (ATH); also reported by Quézel & Contandriopoulos (1968: 26) and Pavlides (1985: 227).

**OPHIOGLOSSACEAE**

*Ophioglossum vulgatum* L.
Koula, wet-dry grassland. 2018-06, Swinkels (photo).
A population of about 5 individuals was encountered.

**ORCHIDACEAE**

Slatina Laimou, c. 3.5 km SW of Laimos, seasonally flooded meadow. 2018-06-11, Swinkels (photo) & Bergmeier (fragment as 18-295). A single flowering plant has been found.

*Epipactis palustris* (L.) Crantz
S of Pyli, near karst spring Neraidopigi, 855 m. Wet grassland in semi-shade. 2018-06, Swinkels (photo); 2018-07-10, Bergmeier (obs.). A population of c. 35 aerial stems close together (with c. 20 fruiting) was found.

*Corallorhiza trifida* Châtel.
Mt. Varnous, 3 km SE of Ag. Germanos, between Potistra and Moutsara. *Fagus-Abies* forest. 2017-07-14, Bergmeier 17-532 (photo of fruiting plant).

Previously known just outside PNP above Vigla (Strid & al. 2017: 249).

**OROBANCHACEAE**

*Euphrasia salisburgensis* Hoppe
Mt. Triklario, 1640 m. Limestone rock ledges. 2018-07-11, Bergmeier 18-483.

*Lathraea squamaria* L.

Included in the Greek *Red Data Book* as Data Deficient (Constantinidis & al. 2009).

*Orobanche minor* Sm.
2–3 km from Psarades along road to Vrondero, 900–950 m. Rocky limestone slopes in open deciduous woodland. 2017-06-05, Strid (photo).
**PAPAVERACEAE**

*Fumaria petteri* Rchb.

Previously found “just outside PNP […] at c. 800 m” (Strid & al. 2019).

*Papaver albiflorum* (Elkan) Pacz.


*Papaver argemone* L.
Isthmus between Laimos and Koula, 855 m. Edge of arable field, rye sown, sand. 2017-07-14, Bergmeier 17-426 (photo).

New for NC Greece. Very rare in the country, reaching its southern limits of distribution in northernmost Greece, associated with traditional agriculture (Bergmeier & Strid 2014).

*Papaver dubium* subsp. *dubium*

*P. dubium* subsp. *lecoquii* (Syme) Lamotte occurs also in the area (Strid & al. 2017: 252); earlier records of *Papaver dubium* s.l. may belong to either of the two taxa.

**PLANTAGINACEAE**

Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. 2018-06-09, Bergmeier 18-244.

First record since 1975-05-10: Stamatiadou 18513 (ATH).

*Veronica polita* Fr.
S of Vrondero, 1075 m. Cereal field. 2017-07-12, Bergmeier 17-450.

*Veronica praecox* All.

*Veronica teucrioides* Boiss. & Heldr. (syn.: *V. orsiniana* Ten. subsp. *teucrioides* (Boiss. & Heldr.) M.A. Fisch.)
Above Oxya, towards Agioneri, 1220 m. Limestone rock outcrops. 2018-07-11, Bergmeier 18-441.

Stamatiadou 18481 (ATH), found 1975-05-09 by the Greek-Albanian frontier, SW of the village of Vrondero, (Strid & al. 2017: 266) was identified by M.A. Fischer as *V. orsiniana* Ten., but site and habitat are more indicative for *V. teucrioides*.

*Veronica triloba* (Opiz) Wiesb.
5 km N of Vrondero (Pyxos sheepfolds), 955 m. Arable field. 2017-06-08, Bergmeier (obs., photo).

Other plant records of the *V. hederifolia* aggregate in the area belong to *V. hederifolia* L. s. str. *V. triloba* has been assessed Near Threatened in Greece (Bergmeier & Strid 2014).
PLATANACEAE

Platanus orientalis L.
Néo, 2.5 km NW of Laimos, 855 m. Single tree at edge of Populus-Betula pioneer forest. 2018-06-08, Bergmeier 18-182.

First record of a definitely spontaneously established mature tree in PNP. Pavlides (1985: 230) reported P. orientalis by the filakio at Koula, probably referable to planted trees.

POACEAE

Alopecurus arundinaceus Poir. subsp. arundinaceus
Slatina, c. 3.5 km SW of Laimos, seasonally flooded meadow. 2018-06-11, Bergmeier 18-297 & Swinkels. – Ibid. 2018-07-14, Bergmeier 18-556.

Confirmed for NC Greece; indicated as doubtfully present by Dimopoulos & al. (2013: 122).

Avena fatua L.
1 km NW and just N and S of Vrondero, 1080–1120 m. Cereal fields. 2017-06-11, Bergmeier 17-331+343; ibid., 2017-07-12, Bergmeier 17-441, Bergmeier 17-453. – 5 km N of Vrondero (Pyxos sheepfolds), 960 m. Arable fields. 2017-06-12, Bergmeier 17-352.

Avenula pubescens (Huds.) Dumort.
Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. Subalpine grassland. 2018-06-09, Bergmeier 18-372.

First record since 1972-06-26: Stamatiadou 16151 (ATH, G); 1976-08-01: Greuter 14192 (C, Gr); and 1982-07-08, Lippert 18450 (C); also reported by Quézel & Contandriopoulos (1968) and Quézel (1969).

Bromus cappadocicus Boiss. & Balansa subsp. lacmonicus (Hausskn.) P. M. Smith (syn.: Bromopsis cappadocica subsp. lacmonica (Hausskn.)) H. Scholz & Valdés

While B. commutatus subsp. commutatus appears to be rare in the Prespa area, subsp. decipiens (Bomble & H. Scholz) H. Scholz is locally common in cereal fields (Strid & al. 2017: 254). Whether Bromus commutatus subsp. neglectus (Parl.) P. M. Sm. (Laurentiades 1956: 77, as B. racemosus var. neglectus (Parl.) Asch. & Graebn., “pr. Antartikon”) indeed occurs in the area, is an unresolved question.

Bromus hordeaceus L. subsp. hordeaceus
5 km N of Vrondero (Pyxos sheepfolds), 955 m. Arable field. 2017-06-08, Bergmeier 17-206. – 2 km SE of Ag. Germanos, 1355 m. Dry grassland, gneiss. 2018-06-12, Bergmeier 18-329.

Perhaps common in the area but subspecies identity is unknown in most records of B. hordeaceus.

Bromus racemosus L. subsp. racemosus
Near the village of Oxya, 880 m. Wet meadows. 2016-06-06, Strid 58409 (St); ibid. photo 2017-06-07. – N (Koula) and NW (Slatina) of Lake Mikri Prespa, 855 m. Wet-dry meadows. 2018-06, Swinkels s.n. (Sw); 2018-06-11, Bergmeier 18-286, Bergmeier 18-293.

Bromus riparius Rehmann subsp. riparius (syn.: Bromopsis riparia (Rehmann) Holub subsp. riparia) Mt. Varnous, 1.7 km E of summit Bela Voda, c. 3.3 km W of Kratero, 1710 m. Waterlogged slope. 2018-06-09, Bergmeier & al. 18-212.


Cleistogenes serotina (L.) Keng (syn.: Kengia serotina (L.) Packer)
1 km SW of Mikrolimni, towards Latsitsa, 900 m. Dry rocky grassland, limestone. 2018-07-12, Bergmeier 18-498.

Echinaria capitata (L.) Desf.
1.5 km SE of Psarades, towards Ag. Georgios, 990 m. Dry calcicolous grassland. 2017-06-07, Bergmeier 17-359.

Echinaria capitata (L.) Desf.
1.5 km SE of Psarades, towards Ag. Georgios, 990 m. Dry calcicolous grassland. 2017-06-12, Bergmeier 17-359.

First record since 1972-06-22: Stamatiadou 15814 (ATH).

Elytrigia intermedia (Host) Nevski subsp. trichophora (Link) Á. Löve & D. Löve
Elytrigia repens (L.) Nevski subsp. repens

Festuca cyllenica Boiss. & Heldr.
Mt. Triklario, 1650–1680 m. Dry grassland with lime stone rock outcrops. 2017-06-09, Bergmeier 17-264. Records of “F. varia” from Mt. Triklario and the Vrondero area (e.g. Pavlides 1985: 273; Strid 58469 (G, St), 2016-06-07) belong to F. cyllenica. F. varia s. str. does not occur in Greece (Dimopoulos & al. 2013: 275).


Festuca gigantea (L.) Vill. (syn.: Schedonorus giganteus (L.) Holub) 2.5 km WNW Laimos, 855 m. Edge of riparian forest. 2017-07-18, Bergmeier 17-627. – Mt. Varnous, c. 3 km SE of Ag. Germans, 1530 m. Tall-herb vegetation near stream. 2917-07-18, Bergmeier 17-650. First record since 1999-07-05 (Schuler 99/859, B), above Oxya.

Festuca kozanensis Foggi & Joch. Müll.

Festuca peristerea (J. Vetter) Markgr.-Dann.

Festuca peristerea (J. Vetter) Markgr.-Dann.

Hordeum geniculatum All.
5 km N of Vrondero (Pyxos sheepfolds), 955 m. Arable field. 2017-06-08, Bergmeier 17-202. – Slatina-Plateos SW of Laimos, 850 m. Wet-dry hay meadows. 2018-06, Swinkels s.n. (Sw).

Koeleria pyramidata (Lam.) P. Beauv.

Lolium multiflorum Lam.

Melica ciliata (L.) Vill. (syn.: Schiedonorus ciliatus (L.) Holub) 1 km SE of Psarades, 890 m. Dry juniper woodland with openings, limestone. 2017-06-12, Bergmeier 17-377. – Isthmus between Laimos and Koula, 855 m. Sand grassland. 2017-06-13, Bergmeier 17-409. – Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-190. – 1 km SW of Mikrolimni, towards Latsitsa, 900 m. Dry rocky grassland, limestone. 2018-07-12, Bergmeier 18-501. Apparently the only subspecies of M. ciliata in the area; a specimen believed to be subsp. ciliata (Bergmeier 16-172; Strid & al. 2017: 255) refers to subsp. taurica.

Melica cretica Boiss. & Heldr. subsp. taurica (K. Koch) Tzvelev 1 km SE of Psarades, 890 m. Dry juniper woodland with openings, limestone. 2017-06-12, Bergmeier 17-377. – Isthmus between Laimos and Koula, 855 m. Sand grassland. 2017-06-13, Bergmeier 17-409. – Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-190. – 1 km SW of Mikrolimni, towards Latsitsa, 900 m. Dry rocky grassland, limestone. 2018-07-12, Bergmeier 18-501. Apparently the only subspecies of M. ciliata in the area; a specimen believed to be subsp. ciliata (Bergmeier 16-172; Strid & al. 2017: 255) refers to subsp. taurica.

**Melica transsilvana** Schur subsp. **klokovii** Tzvelev
Mt. Varnous, c. 2 km SE of Ag. Germanos, below Potistra, 1350 m. Dry grassland, gneiss. 2017-07-15, Bergmeier 17-557. – 2.5 km WNW of Laimos, 850 m. Sand grassland. 2017-07-16, Bergmeier 17-610. – 1.5 km NE of Agios Germanos, 1080 m. Dry grassland, gneiss. 2018-06-12, Bergmeier 18-313.

**Phleum subulatum** (Savi) Asch. & Graebn.
A specimen cited in Strid & al. (2017: 256), Strid 58351 (G, St), refers to **P. exaratum** Griseb.

**Poa angustifolia** L.
Near the village of Oxya, 880 m. Wet meadows. 2016-06-06, Strid 58408 (G, St). – Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. Subalpine grassland. 2018-06-09, Bergmeier & al. 18-220. – Koula, 855 m. Wet-dry meadow. 2018-06-11, Bergmeier 18-279 & Swinkels.

**First records since 1972-06-21: Stamatiadou 15710 (ATH, G).**

**Poa palustris** L.
Laimos, Ag. Germanos river, 890 m. Riparian habitat, stony alluvium. 2017-06-06, Bergmeier 17-318. – 0.5 km E above Ag. Germanos, 1080 m. Wayside, gneiss grus. 2018-06-12, Bergmeier 18-312.

**Vulpia bromoides** (L.) Gray
Oxya, 860 m. Wet-dry meadow. 2017-06-07, Bergmeier 17-517.

**Vulpia ciliata** Dumort.
Ag. Ioannis hill, 1.5 km WNW of Laimos, 900 m. Dry grassland, gneiss. 2017-06-04, Bergmeier (obs.). – Pervali, 2.5 km ESE of Karyes, 1150 m. Dry silicolous grassland. 2018-06-07, Bergmeier (obs.). – Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-188.

**First record since 1998-06-15: Strid & al. 46631 (ATH, G, LD).**

**Vulpia fasciculata** (Forssk.) Fritsch
Néo, 2 km NW of Laimos, 855 m. Sand grassland. 2018-06-08, Bergmeier 18-198.

**POLYGONACEAE**

**Polygonum aviculare** L. subsp. **rurivagum** (Boreau) Berher

**Rumex acetosella** L. subsp. **acetosella**

New for Greece. Confined to (sub)alpine levels with long-lasting snow cover; the species is represented...
elsewhere in the area at all levels by subsp. acetoselloides (Balansa) Nijs. Both subspecies are gymnocarpous.


POLYPodiaceae

Polypodium cambricum L.
Above Oxya towards Sfika, 1220 m. Steep wooded slope, limestone rock debris. 2018-07-16, Bergmeier (obs.).

Polypodium ×shiviasiae Rothm.

New for Greece. Hybridogenic and intermediate between the diploid P. cambricum and the hexaploid P. interjectum. The latter is yet to be found in PNP as well as in Greece and the Balkans.

Polypodium vulgare L.

First record since Quézel (1969; cited by Pavlides 1985: 157); 1976-08-01: Greuter 14117 (C, G, Gr, UPA); 1981-06-27: Stamatiadou 22102 (ATH) and Strid & al. 18232 (B, C).

PRIMULACEAE

Anagallis foemina Mill.

This species, with populations on arable fields declining, has been rated Vulnerable in Greece (Bergmeier & Strid 2014).

Anagallis minima (L.) E.H.L. Krause (syn.: Centunculus minimus L.)
0.5 km E above Ag. Germanos, 1080 m. Gully, wet-dry siliceous soil. 2018-06-12, Bergmeier 18-310.

New for NC Greece.

Ranunculus oreophilus M. Bieb. subsp. balcanicus Micevski
Mt. Varnous, 3 km N of Pisoderi, 1980 m. 2017-07-13, Bergmeier 17-508. – Mt. Varnous, 8 km W of Ag. Germanos, below summit of Bela Voda, 2065 m. 2017-07-20, Bergmeier (obs.). – Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1825 m. 2018-06-09, Bergmeier 18-243. All sites are siliceous alpine grassland habitats.


Thalictrum aquilegiifolium L.
About 3 km SE of Ag. Germanos, 1530 m. Tall-herb vegetation near stream. 2017-07-19, Bergmeier (obs.).


RHAMNACEAE

Paliurus spina-christi Mill.
Kalé hill, c. 960 m. Deciduous scrub on rocky slope. 2017-07, Sakellarakis (obs.).

Rhamnus saxatilis Jacq subsp. tinctoria Nyman
Mt. Triklario, 1700 m. Limestone rock outcrop. 2018-07-12, Bergmeier 18-460.

New for Greece. Confirms entries by Halácsy (1900: 318) and Hayek (1925: 612) deemed incorrect (Dimopoulos & al. 2013: 293).


ROSACEAE

Alchemilla acutiloba Opiz
5 km ENE of Ag. Germanos, 1500–1600 m. Subalpine grassland and rocky granitic slopes above small stream. 2016-06-17, Kit Tan & al. 32216. – Mt. Varnous, 6 km E of Ag. Germanos, Kaloneri valley, 1610 m. Wet grassland. 2017-07-15, Bergmeier 17-581.

First records since 1981-07-16: Frost-Olsen 3999a (AAU, C).

Amelanchier ovalis Medik. subsp. ovalis

Plants in the same area have been identified as subsp. integrifolia (Boiss. & Hohen.) Bornm. (Strid & al. 2017: 261) but may refer to subsp. ovalis.

Cotoneaster parnassicus Boiss. & Heldr.
Mt. Triklario, 1650–1700 m. Limestone rock outcrops. 2017-06-09, Bergmeier 17-246. – Mt. Triklario, 1640–1740 m. 2018-07-11, Bergmeier 18-482. – Above Oxya, towards Sfika ruins, 1220 m. 2018-07-16, Bergmeier 18-625. All sites are limestone rock outcrops and boulders.

Confirms undocumented reports from the same area by Pavlides (1985: 239) and Fotiadis & al. (2012).

Malus florentina (Zucc.) C.K. Schneid.
N foot of Ag. Ioannis hill, 1.5 km WNW of Laimos, 865 m. Oak woodland. 2017-06-04, Bergmeier 17-130 & Sakellarakis.

A rare species of which only two shrubs have been discovered in the area.

Potentilla inclinata Vill.
Mt. Varnous, c. 3 km SE of Ag. Germanos, 1535 m. Forest opening, gneiss.2017-07-19, Bergmeier 17-663. – 1.5 km NE of Kallithea, S slope of Vasilopigi, 1375 m. Dry silicolous grassland, gneiss. 2019-06-12, Bergmeier 19-366.

Reported by Pavlides (1985: 241) and in 1998, outside PNP, N of Prasino and E of Pisodheri, collected by Willing (71214, B; 72087, B).

Potentilla laciniosa Nestl. (syn.: P. recta L. subsp. laciniosa (Nestl.) Nyman)

Potentilla macedonica Micevski (syn.: P. recta L. subsp. pilosa (Poir.) Jáv.)
Mt. Devas, 1360 m. Dry rocky calcicolous grassland. 2017-06-10, Bergmeier 17-301.

New for NC Greece.

Potentilla neglecta Baumg.

Potentilla pindicola Hausskn.

Fig. 7. Malus florentina in an oak woodland just N of Ag. Ioannis WNW of Laimos. E. Bergmeier, 2017-06-04.
Mt. Varnous, 1.7 km E of summit Bela Voda, 3 km W of Kratero, 1710–1825 m. Subalpine grassland. 2018-06-09, Bergmeier 18-203+204. – Mt. Varnous, below summit Bela Voda, 2040 m. Alpine grassland, granite. 2018-07-13, Bergmeier 18-548. – 1.5 km NE of Kallithea, S slope of Vasilopigi, 1375 m. Dry silicolous grassland, gneiss. 2019-06-12, Bergmeier 19-360.

Plants from Mt. Varnous representing *P. pindicolor* have been variously named “*P. detommasii*” or suspected hybrid of *P. astracanica* and *P. laciniosa* or *P. recta*. *P. detommasii* Ten. occurs in PNP in dry calcicolous grasslands.

**Potentilla velenovskyi** Hayek
Mt. Triklario, 1650 m. Dry grassland with limestone rock outcrops. 2018-07-11, Bergmeier 18-472.

New for Greece. The species differs from similar species of the *recta* group by the nearly glabrous lower part of stem and the leaflets, of which there are commonly 7, being glabrous above, pilose at the margins and shortly glandular-pubescent beneath.

**Pyrus pyraster** (L.) Burgsd. (syn.: *P. communis* L. subsp. *pyraster* (L.) Ehrh.)

It is not clear whether reports of *Pyrus communis* L. from Agathoto, Kalé and Karyes belong to *P. pyraster* or *P. communis* s. str., the cultivated pear that sometimes occurs as an escape.

**Rosa corymbifera** Borkh.

**Rosa gallica** L.

**Rosa glauca** Pourr.
Above Oxya, towards Sfika ruins, 1110 m. Limestone rock outcrops. 2018-07-11, Bergmeier 18-433.

**Rosa heckeliana** Tratt.

First records since 1982-07-08: Podlech 37418 (St) (Strid & al. 2017: 262).

**Rosa montana** Chaix

**Rubus praecox** Bertol.
Pervali, c. 2.5 km ESE of Karyes, viewpoint, parking bay, 1120 m. Deciduous scrub. 2018-07-08, Bergmeier 18-353.

Reports of *Rubus candicans* Rchb. by Pavlides (1985: 244) may refer to *R. praecox*. After revision of the South Central and West European distribution of the *R. praecox-procerus* complex (Matzke-Hajek 2016) the Balkanic populations obviously remain in need of further study.

**Sorbus aria** (L.) Crantz
Above Oxya, towards Sfika, 1000–1150 m. Mixed deciduous forest. 2017-07-21, Bergmeier 17-697.
Confirms reports by Pavlides (1985: 245) and a record by Strid 56173 in 2006-10-14. The similar *Sorbus graeca* (Spach) Lodd. ex S. Schauer and *Sorbus umbellata* (Desf.) Fritsch also occur in the area.

**Rubiaceae**

*Galium avascense* Krendl

New for NC Greece. Unexpected find, as hitherto known only from Thrace. The plants are glabrous, with linear leaves without marginal teeth; flowers white; inflorescence long with partial inflorescences shorter than internodes. Apparently indistinguishable from the Thracian plants as described by Krendl (1988: 80). It is different from *G. agrophilum* Krendl with which it has been synonymized (Dimopoulos & al. 2013).

*Galium elongatum* C. Presl

*Galium hellenicum* Krendl
Koula, 860 m. Limestone rock ledge. 2017-06-05, Bergmeier 17-145.

*Galium parisiense* L.
Mt. Vrondero, 2.5 km E of Vrondero, 1280–1300 m. 2018-07-15, Bergmeier 18-584.

*Galium rigidifolium* Krendl
1.5 km NE of Kalithea, S slope of Vasilopigi, 1380 m. Dry silicolous grassland, gneiss. 2019-06-12, Bergmeier 19-354.

First record in the area since 1978-07-05: Krendl 3037 (C, WU).

*Galium verticillatum* Danthoine
Koula, 855 m. Sandy wayside. 2017-06-05, Bergmeier 17-143, Strid (photo).

**Santalaceae**

*Thesium bavarum* Schrank

*Thesium parnassi* A. DC.

First record since Zaganiaris (1940), cited by Pavlides (1985: 249).

![Fig. 9. Tiny Thesium parnassi, Mt. Varnous, summit area near Bela Voda. U. Bergmeier, 2018-07-13.](image-url)

**Saxifragaceae**

*Populus canescens* (Aiton) Sm.

New for Greece. In riparian woodland by Lake Megali Prespa, locally more common than both its parent species *P. alba* L. and *P. tremula* L. Not reported from natural habitats elsewhere in Greece but likely overlooked and mistaken for *P. alba*.

*Thesium ramosum* Hayne (syn.: *T. arvense* Horvá-tovszky)
Mt. Vrondero, 2.5 km E of Vrondero, 1280–1300 m. 2018-07-15, Bergmeier 18-585.

**Saxifragaceae**

*Saxifraga paniculata* Mill.

Also in field notes by G. Fotiadis.
SCROPHULARIACEAE

Scrophularia laciniata Walldst. & Kit.
Lake Megali Prespa, SW of Psarades, near the Hermitage of Metamorofosis, 855 m. Shaded crevices of overhanging limestone cliffs. 2018-07-09, Bergmeier 18-368.
Not reported since Pavlides (1985: 252).

Verbascum chaixii Vill. subsp. austriacum (Röem. & Schult.) Hayek
Above Oxya, towards Agioneri, 1350 m. Wayside in beech forest. 2018-07-11, Bergmeier 18-446.

Verbascum speciosum Schrad. subsp. speciosum
2 km NE above Ag. Germanos, 1170 m. Wayside and valley, locally common. 2017-07-15, Bergmeier 17-548.
New for NC Greece. Also reported by Strid, in 2014-07-13, from near Andartiko, just outside PNP.

THYMELAEACEAE

Thymelaea passerina (L.) Coss. & Germ.
First record since 1985-07-20: Stamatiadou 22885 (ATH), in about the same locality.

ULMACEAE

Ulmus glabra Huds.
First record since Pavlides (1985: 256).

URTICACEAE

Parietaria judaica L.
Above lakeshore of Megali Prespa, Giantsa, S of Cape Roti, 855 m. On limestone pebbles under an overhanging cliff. 2018-07-09, Bergmeier 18-386.

VALERIANACEAE

Valeriana officinalis L. subsp. officinalis
Between Mikrolimni and Karyes, 860 m. Irrigation ditch. 2018-06-11, Bergmeier 18-299.
First record since Pavlides (1985: 262).

Valerianella costata (Steven) Betcke
Not found since Pavlides (1985: 262) who reported it at about the same locality, “from the shores of Lake Megali Prespa”; his record, however, has been revised to V. carinata Loisel. (Strid & al. 2017: 265).

Valerianella dentata (L.) Pollich
S of Vrondero, 1080 m. Cereal field. 2017-06-11, Bergmeier 17-342.
Although often mistaken for related species and thus with limited evidence it may be concluded that populations in arable fields appear to decline in Greece. The species was tentatively assessed Near Threatened in the country (Bergmeier & Strid 2014).

VIOLACEAE

Viola tricolor L.
Near ruins of Sfika, 1175 m, fallow field. 2018-06-10, Bergmeier 18-261.
New for Greece. Reported for PNP by Pavlides (1985: 264) and by Willing 1998-07-297 (71327) and 1998-08-01 (71964, 72010) (all B), but it is not clear whether these refer to V. tricolor s. str. or to Viola macedonica Boiss. & Heldr. (V. tricolor subsp. macedonica (Boiss. & Heldr.) A. Schmidt; the latter is by far more common in the area. Excluded from the Greek flora by Dimopoulos & al. (2016: 321, 347) as, according to Erben (1985: 651), Greek records of V. tricolor in earlier floristic literature are referable to V. macedonica. The above collection differs from V. macedonica in its smaller corolla (incl. spur to 16 mm), shorter peduncles (to 7 cm) and non-tufted, mostly single-stemmed annual habit.

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References


