

F. Conti, G. Cangelmi, J. Da Valle, E. De Santis, V. Giacanelli, L. Gubellini, N. Hofmann, R. Masin, M. Miglio, D. Palermo, B. Santucci & F. Bartolucci

Additions to the vascular flora of Italy

Abstract

Conti, F., Cangelmi, G., Da Valle, J., De Santis, E., Giacanelli, V., Gubellini, L., Hofmann, N., Masin, R. R., Miglio, M., Palermo, D., Santucci, B. & Bartolucci, F.: Additions to the vascular flora of Italy. — Fl. Medit. 33: 177-191. 2023. — ISSN: 1120-4052 printed, 2240-4538 online.

In this paper new floristic records for 41 taxa (species and subspecies) are reported. In particular, 30 taxa are natives and 11 aliens. Among the natives 1 is new for Veneto, 7 are new or confirmed for Marche, 1 is new for Lazio, 9 are new or confirmed for Abruzzo, 2 are new or confirmed for Molise; 13 aliens taxa are new for Abruzzo, Lazio and Marche. Some findings are very interesting from a phytogeographic and/or conservation point of view, such as *Allium guttatum* subsp. *dalmaticum* new for Italy, *Astragalus austriacus* and *Myosotis minutiflora* subsp. *minutiflora* new for the Apennines, and, a species deserving urgent conservation actions, of which we report the second location at national scale. Furthermore, we report some new locations for very rare species.

Key words: native taxa, alien taxa, Apennines, biodiversity, floristics.

Introduction

In the last decades the study of the flora of Italy has seen important contributions, as the development of the Portal to the Flora of Italy (2023) with the associated database (Martellos & al. 2020), and the publication of two checklists relative to native and alien plant species (Bartolucci & al. 2018; Galasso & al. 2018). The checklists are updated twice a year concerning the systematics, taxonomy and distribution of plants based, mainly, on the “Notulae to the Italian native and alien vascular Flora” (Bartolucci & al. 2021, 2023). An important role in the study of plant’s distribution and systematics is played by the Centro Ricerche Floristiche dell’Appennino (University of Camerino – Parco Nazionale del Gran Sasso e Monti della Laga) which represents a junction in the Italian floristic network and carries out abundant national and international investigations and collaborations (Conti & al. 2023a, 2023b).

The present paper contributes mainly to the knowledge of the flora of central Italy with unpublished floristic findings including different discoveries of phytogeographic interest,

as disjunct populations of northernmost or easternmost distributed species or new localities of restricted endemics (POWO 2023; Portal to the Flora of Italy 2023).

Materials and Methods

The investigated area located in the central and northern Italy comprises the territories of Marche, Lazio, Abruzzo, Molise and Veneto administrative regions. Floristic data were mainly collected through field investigations carried out during 2022 and 2023; some other specimens gathered in the past have been revised. Herbarium specimens are preserved in APP, FI, and PESA (code follows Index Herbariorum 2023+).

Nomenclature follows the checklists of the Italian native (Bartolucci & al. 2018) and alien (Galasso & al. 2018) vascular flora and subsequent updates summarized in the Portal to the Flora of Italy (2023; see also Martellos & al. 2020). Taxa are categorized in native and aliens and ordered alphabetically.

For each taxon, the following information is provided: current accepted name; family; reason(s) for its inclusion in the list; current invasiveness status (only for the alien units); examined herbarium materials, with details about the location (in Italian, according to the information reported on the herbarium label), UTM coordinates (datum WGS84) when available, altitude, habitat, collection date, collector(s), and herbarium storage code; any additional notes.

Results

Natives

Aira multiculmis Dumort. (*Poaceae*)

Species new for the flora of Lazio.

Anagni (Frosinone), loc. Radicine, UTM WGS84 33T 349995 E 4616927 N, fosso tra campi coltivati, 240 m, 29.04.2023, *E. De Santis s.n.* (APP No. 69573).

The species is distributed in Central-Western Europe, with disjunct populations in Greece (POWO 2023). In Italy, until now, was reported along the Thyrrenian regions with exception of Lazio (Portal to the Flora of Italy 2023).

Allium guttatum subsp. *dalmaticum* (A.Kern. ex Janch.) Stearn (*Alliaceae*)

Subspecies new for the flora of Italy and Veneto.

Battaglia Terme (Padova), M. Croce, UTM WGS84 32T 717334 E 5019369 N ± 100 m, prati e arbusteti termofili, 90 m, 06.06.2023, *R.R. Masin s.n.* (APP No. 69569); Battaglia Terme (Padova), loc. fra il M. Croce e Spinefrasse, UTM WGS84 32T 717153 E 5019680 N ± 100 m, prati e arbusteti termofili, 100 m, 26.06.2023, *R. Masin s.n.* (APP Nos. 69564, 69565, 69566, 69567, 69568).

The observation of some photos of *Allium guttatum* from the Colli Euganei population with pink to purple tepals, previously identified as *A. sardoum* Moris (Masin & Ghirelli 2003; Masin & Tietto 2005, 2006) gave rise to the suspicion that they belong to *A. gutta-*

tum subsp. *dalmaticum*. Field research undertaken in Colli Euganei in the last years and particularly in 2023 confirmed this character to the whole population. According to the relevant literature (Stearn 1978), we were able to identify the plants collected on M. Croce (housed in APP) as *A. guttatum* subsp. *dalmaticum*, which results as new to Italy. Thus, *A. sardoum* should be excluded from the flora of Veneto. *A. guttatum* subsp. *dalmaticum* was reported for Balkan Peninsula and Turkey (Stearn 1978; POWO 2023).

It is very common on sunny stony soils in clearings, meadows and thermophilous bushes. It has probably been confused for centuries with *A. sphaerocephalon* L. subsp. *sphaerocephalon*, a species with which it sometimes coexists. It grows up the summit of Mount Ceva at 250 m a.s.l. It is also common in the surrounding mountains: Croce, Spinefrasse and Nuovo, in the municipality of Battaglia Terme. It grows in the municipality of Montegrotto on the Ca' Vecchia hill and with a small population on Mount Trevisan. It thrives on both latitic and rhyolitic substrates.

The new finding appears to be very interesting from a phytogeographical point of view as it is the westernmost of its range, similarly to *Haplophyllum patavinum* (L.) G. Don, an illyric species considered a relic of a wider and continuous past distribution which became fragmented due to the alternate climate changes in the post glacial periods (Tietto 2022).

***Allium permixtum* Guss. (Alliaceae)**

New finding for the flora of Abruzzo.

Ovindoli (L'Aquila), Piana di Ovindoli presso il rifugio degli Alpini, UTM WGS84 33T 378277 E 4667395 N, zona umida, prati, 1345 m, 06.06.2022, *F. Bartolucci, F. Conti & B. Santucci s.n.* (APP No. 66503).

Species described from Sicily, where it is extinct. In Italy it is confirmed only in Abruzzo, where it is recorded for the National Park of Abruzzo, Lazio e Molise (Cicerana, Valle Chiara, Passo Godi) (Conti 1995, 1998), Gran Sasso (Votigno, Fossa di Paganica) (Conti 1998; Ballelli 1999), Mt. Ocre at Settacque (De Santis & Soldati 2019). The newly found population improves the knowledge about this rare species and helps to better plan the conservation efforts in its regards.

***Anacamptis berica* Doro (Orchidaceae)**

Species new for the flora of Gran Sasso and Monti della Laga National Park.

Valle Castellana (Teramo), M. dei Fiori, San Giacomo, UTM WGS84 33T 383140 E 4739735 N ± 1 Km, pascoli, 1100 m, 28.05.2000, *G. Capecci s.n.* (APP No. 18201).

The species was recently recorded for the first time in Abruzzo (Pica & al. 2023).

***Anacamptis papilionacea* (L.) R.M. Bateman, Pridgeon & M.W. Chase (Orchidaceae)**

Species new for the flora of National Park of Abruzzo, Lazio and Molise.

Cocullo (L'Aquila), Valico di Olmo di Bobbi, UTM WGS84 33T 395927 E 4656008 N, 1244 m, 19.05.2023 (observed by L. Vitale but not collected).

The species was not reported for National Park of Abruzzo, Lazio and Molise (Conti & Bartolucci 2015, 2022). It was observed, but not collected, at Passo Olmo di Bobbi by Luciano Vitale who took a picture.

***Anisantha rigida* (Roth) Hyl. (Poaceae)**

Species new for the flora of Marche.

Pesaro (Pesaro e Urbino), dintorni di Pesaro, presso Muraglia, UTM WGS84 33T 333491 E 4861930 N, luoghi erbosi incolti, suolo argilloso-sabbioso, humus nullo, ca. 20 m, 12.05.1982, *A.J.B. Brilli-Cattarini s.n.* (PESA); Fano (Pesaro e Urbino), dintorni del paese, lungo il litorale di Torrette di Fano, UTM WGS84 33T 346989 E 4850924 N; campi coltivati e luoghi erbosi incolti, suolo prevalentemente argilloso-sabbioso, 3 m, 05.05.1973, *A.J.B. Brilli-Cattarini, E. Murch & R. Sialm s.n.* (PESA); Porto Recanati (Macerata), agli Scossicci, UTM WGS84 33T 389998 E 4813970 N; luoghi erbosi incolti, suolo prevalentemente argilloso-sabbioso, humus subnullo, 3 m, 07.05.1980, *A.J.B. Brilli-Cattarini s.n.* (PESA); S. Angelo in Pontano (Macerata), tra il Cimitero e il Fosso della Girola, UTM WGS84 33T 369349 E 4773356 N, luoghi erbosi incolti, suolo arenaceo, humus nullo o subnullo, 450-475 m, 20.05.1982, *A.J.B. Brilli-Cattarini & L. Gubellini s.n.* (PESA).

In Italy the species is already reported for all the Italian regions except for Valle d'Aosta, Marche, Basilicata and Sardegna, of doubtful presence in Trentino-Alto Adige (Portal to the Flora of Italy 2023). The mentioned herbarium specimens stored in PESA confirm its presence in Marche.

***Astragalus austriacus* Jacq. (Fabaceae)**

Species new for the flora of the Apennines and Abruzzo.

San Pio delle Camere (L'Aquila), lungo la strada Prov. 8 (Peltuinata) verso Carapelle Calvisio, UTM WGS84 33T 389122 E 4684213 N, margine di rimboschimenti a *Pinus nigra* e *P. sylvestris* e querceti a roverella, 1006 m, 23.09.2023, *F. Conti, B. Santucci, V. Giacanelli & M. Miglio s.n.* (APP Nos. 69559, 69560, 69561, 69562, 69563).

In Italy the species is already known only for Piemonte (Portal to the Flora of Italy 2023), so the new finding represents the southernmost distribution limit of the species in our country, as well as a disjuncted population of a pontic, sud-siberian species generally associated with continental climate conditions. The Abruzzo region comprises continental internal basins that host the habitat "6240 Sub-pannonic steppic grasslands" (Filibeck & al. 2022) with a rich contingent of steppic plants of considerable scientific and phytogeographic interest, such as the disjunction with Eastern Europe, e.g., *Adonis vernalis* L., *Alyssum desertorum* Stapf, *Androsace maxima* L., *Astragalus exscapus* L. subsp. *exscapus*, *Festuca valesiaca* Schleich. ex Gaudin subsp. *valesiaca*, *Salvia aethiopsis* L., *Spiraea hypericifolia* L. subsp. *hypericifolia* and *Stipa capillata* L. (Bartolucci & Conti 2016; Cancellieri & al. 2017; Filibeck & al. 2020; Conti & Bartolucci 2023). Moreover, some Italian endemics, living in the same areas, must be considered of steppic origin, such as *Goniolimon tataricum* (L.) Boiss. subsp. *italicum* (Tammaro, Pignatti & Frizzi) Buzurović, *Astragalus aquilanus* Anzal. (Morretti & al. 2015; Buzurović & al. 2020) and *Adonis fucensis* F.Conti & Bartolucci (Conti & al. 2023c).

***Astragalus cicer* L. (Fabaceae)**

Species new for the flora of Abruzzo.

Cerchio (L'Aquila), località Vitellino, UTM WGS84 33T 384553 E 4653350 N, incolti, 671 m, 16.06.2023, *F. Conti & B. Santucci s.n.* (APP Nos. 68471, 68472, 68473).

In Italy it was reported only for the administrative regions northern to Toscana and doubtfully in Campania (Portal to the Flora of Italy 2023).

Barbarea sicula C.Presl (*Brassicaceae*)

Species new for the flora of Abruzzo.

Campotosto (L'Aquila), Lago di Campotosto, loc. Piano delle Macchie, UTM WGS84 33T 367084 E 4711753 N \pm 500 m, incolti e ruderi in ambienti umidi, 1315-1350 m, 23.05.1999, *F. Conti & D. Tinti s.n.* (APP No. 3326); Rocca di Mezzo (L'Aquila), Piani di Pezza, UTM WGS84 33T 373568 E 4670899 N \pm 200 m, zone umide, 1460 m, 05.06.2004, *F. Bartolucci s.n.* (APP No. 66734); Rocca di Mezzo (L'Aquila), Altopiano delle Rocche, loc. Prati della Madonna, UTM WGS84 33T 378708 E 4675514 N \pm 200 m, 14.05.2013, *F. Bartolucci & F. Conti s.n.* (APP Nos. 68098, 68099).

The previous records as *Barbarea intermedia* Boreau for Campotosto (Conti & Tinti 2008) and Campo Felice (De Santis & Soldati 2011) should be referred here.

The species shows a very fragmented distribution, including Lebanon, Syria, Greece and Italy, where it was recorded only for Sicilia and Calabria administrative regions (POWO 2023; Portal to the Flora of Italy 2023). The new findings constitute new important localities for such fragmented species and the northernmost limit of its distribution.

Barbarea intermedia Boreau (*Brassicaceae*)

Species to be excluded from the flora of Abruzzo.

See the previous species.

Calamagrostis pseudophragmites (Haller f.) Koeler subsp. ***pseudophragmites*** (Poaceae)

Species confirmed for the flora of Abruzzo.

Celenza sul Trigno (Chieti), riva sinistra del Trigno, poco a valle di Madonna del Canneto, UTM WGS84 33T 466692 E 4635026 N, argille plioceniche, 175 m, 04.07.2010, *F. Conti & A. Manzi s.n.* (APP No. 67267).

In Abruzzo, a record by Tenore (1830) as *Arundo halleriana* Gaudin for “S. Nicola a Monte Corno”, wrongly attributed to *Calamagrostis pseudophragmites* (Conti 1998), should have been referred to *Calamagrostis varia* (Schrad.) Host, so the presence of *C. pseudophragmites* in Abruzzo has been considered erroneous (Bartolucci & al. 2018).

Centaurea collina L. subsp. ***collina*** (*Asteraceae*)

Species new for the flora of Marche.

Fiastra (Macerata), lungo la strada da San Lorenzo di Fiastra a Bolognola presso Fiume di Fiastra, UTM WGS84 33T 350675 E 4766394 N, pendici erbose asciutte o subaride, suolo calcareo, humus scarso o subnullo, ca. 675 m, 16.07.1986, *A.J.B. Brilli-Cattarini & L. Gubellini s.n.* (PESA).

Centaurea collina is a southwestern-European species, widespread from Spain to Italy, where it is reported up to now exclusively for Liguria, Puglia and, as casual alien, for Trentino-Alto Adige (recorded by mistake also in Valle d'Aosta) (Portal to the Flora of Italy 2023). It is now reported for the first time also in Marche region on the basis of herbarium specimens preserved in (PESA).

Centaurea tommasinii A. Kern. (*Asteraceae*)

Species extinct for the flora of Abruzzo.

In Abruzzo this species was recorded for Roseto as *C. paniculata* L. (Zodda 1954 quotes Di Giuseppe) and Giulianova as *C. paniculata* var. *maculosa* (Lam.) Briq. (Chiosi 1975 from a specimen collected by Marchesetti in 1875 as *C. paniculata* L.). The revision of the specimen hosted in FI, allowed us to more correctly attribute it to *C. tommasinii* as doubtfully suggested by Pignatti (1982). Along the Abruzzo coasts it is no longer present and is to be considered extinct due to the almost complete anthropization.

Cyperus michelianus (L.) Delile (*Cyperaceae*)

Species extinct for the flora of Abruzzo.

In Abruzzo this species was recorded between the mouth of the Piomba and Francavilla in the loc. Pretara (Tammaro & Pirone 1979) where it is no longer present and is to be considered extinct due to the almost complete anthropization of the coast. Land use change in coastal environment is one of the main threats to the conservation of flora. This report in addition to the status of “no longer found” for Campania (Portal to the Flora of Italy 2023) highlights the ongoing fragmentation of the distribution area of this species in Italy.

Epilobium roseum Schreb. subsp. *roseum* (*Onagraceae*)

Species confirmed for the flora of Marche.

Montegallo (Ascoli Piceno), Gruppo del Monte Ceresa, versante NW del M. Ceresa lungo il Fosso del Fluvione, UTM WGS84 33T 364286 E 4741453 N, luoghi erbosi umidi, suolo arenaceo, humus scarso, ca. 1000 m, 26.07.1982, *A.J.B. Brilli-Cattarini & L. Gubellini s.n.* (PESA).

This eurasiatic species is widespread in central-northern Italy and Lazio, doubtful present in Marche, Abruzzo, Puglia and Sardegna (Portal to the Flora of Italy 2023). The specimens preserved in PESA confirm its presence in Marche.

Festuca bosniaca Kumm. & Sendtn. subsp. *bosniaca* (*Poaceae*)

Species new for the flora of National Park of Gran Sasso and Monti della Laga.

L'Aquila (L'Aquila), Gran Sasso, Vado di Corno, UTM WGS84 33T 384643 E 4701103 N ± 300 m, pascoli sassosi, 1933 m, 13.06.2003, *F. Conti & al. s.n.* (APP No. 6967).

Genista radiata (L.) Scop. (*Fabaceae*)

Species confirmed for the flora of Abruzzo.

Rocca di Mezzo (L'Aquila), cretina sopra Valle Ortica, tra Piani di Pezza e Cimata di Pezza, UTM WGS84 33T 371097 E 4672251 N, pendii rupestri, 1770 m, 18.06.2023, *F. Conti & V. Giacanelli s.n.* (APP No. 68389); *ibidem*, 06.07.2023, *F. Conti, F. Bartolucci, B. Santucci & J. Da Valle s.n.* (APP No. 67914); Villavallelonga (L'Aquila), Vallone Martino, UTM WGS84 33T 387806 E 4631258 N, arbusteti, 1764 m, 10.10.2023, *F. Conti, G. Cangelmi & L. Vitale s.n.* (APP No. 69646).

In Abruzzo it was recorded generically “sugli alti gioghi” (Tenore 1820) and for the Villavallelonga territory (Grande 1910) in the National Park of Abruzzo, Lazio and Molise. According to Grande (1910) Tenore’s report comes from the Colonna (1606) report: “Aequicolorum montibus, Cornino”, currently in Lazio region. On Mt. Nuria, on the eastern slopes over Cornino plateau we confirm its presence up to now.

Juncus atratus Krock. (*Juncaceae*)

Species new for the flora of Abruzzo

Rocca di Mezzo (L'Aquila), Prato della Madonna, UTM WGS84 33T 378708 E 4675514 N ± 300 m, moliniato, 10.07.2018, *F. Bartolucci, D. Angeloni & E. Proietti s.n.* (APP Nos. 60340, 60341).

It is a Central European – South Siberian species with an highly fragmented distribution range. In Italy it was previously recorded only in Veneto where it is extinct (Portal to the Flora of Italy 2023) and recently in Umbria (Bartolucci & al. 2019; Bonini & al. 2020). The newly discovered populations in central Italy represents an important disjunction at the western limit of the species distribution (see POWO 2023) and the second location at national scale.

Malva trimestris (L.) Salisb. (*Malvaceae*)

Cryptogenic species new for the flora of Marche.

Porto San Giorgio (Fermo), dintorni del paese, campi incolti nel litorale di Marina Palmense, UTM WGS84 33T 403249 E 4778715 N, suolo prevalentemente argilloso, humus nullo, 2 m, 06.06.1980, *A.J.B. Brilli-Cattarini & L. Gubellini s.n.* (PESA).

Malva trimestris is a stenomediterranean species recorded as native in Friuli Venezia Giulia, Lazio, Abruzzo, Molise, Campania, Calabria, Sardegna and Sicilia, as casual alien in Trentino-Alto Adige, Lombardia and Veneto and, as cryptogenic, in Toscana; moreover, historical records are reported for Liguria and Emilia-Romagna (Portal to the Flora of Italy 2023).

The presence in the region of a single small population (not confirmed recently) and the ornamental use of the species, suggest that *Malva trimestris* is probably to be considered cryptogenic in Marche.

Myosotis minutiflora Boiss. & Reut. subsp. *minutiflora* (*Boraginaceae*)

Species new for the flora of Apennines and Abruzzo

Gagliano Aterno (L'Aquila), M. Briccialone, UTM WGS84 33T 389681 E 4663500 N, sgrottamenti, 1637 m, 04.07.2012, *F. Conti, F. Bartolucci, P. Paris & S. Scivola s.n.* (APP No. 67171); *ibidem*, 12.06.2023, *F. Conti, F. Bartolucci & G. Cangelmi s.n.* (APP Nos. 67389, 67390, 67391); Lucoli (L'Aquila), M. Cefalone, UTM WGS84 33T 371586 E 4676951 N, sgrottamento, 1962 m, 19.07.2023, *F. Conti, F. Bartolucci & G. Cangelmi s.n.* (APP Nos. 67440, 67441).

It is an Irano-Turanian species, rare and fragmented in the Mediterranean basin (Spain, Greece Bulgaria, Cyprus and Turkey) (POWO 2023). In Italy it was recorded only in Trentino-Alto Adige and Veneto (Prosser 2006; Bertolli & Prosser 2013).

Oloptum miliaceum (L.) Röser & H.R. Hamasha (*Poaceae*)

Species new for the flora of Molise

San Giacomo degli Schiavoni (Campobasso), su argine Strada Provinciale 112 in esposizione S-SW, UTM WGS84 33T 495150 E 4646827 N, su costone roccioso incoerente di arenaria con *Pistacia lentiscus* L., *Colutea arborescens* L., *Asparagus acutifolius* L., *Cistus salvifolius* L., *Ampelodesmos mauritanicus* (Poir.) T.Durand & Schinz e la congenera *O. thomasii* (Duby) Banfi & Galasso, 150 m, 16.08 2023, *D. Palermo s.n.* (APP Nos. 69607, 69608, 69609, 69610).

***Ononis alba* Poir. subsp. *alba* (Fabaceae)**

Species confirmed for the flora of Molise.

Termoli (Campobasso), loc. Fornace, UTM WGS84 33T: 497193 E 4647983 N, incolto sterile a ridosso di un piccolo torrente, substrato argilloso e spesso impaludato sino a fine primavera, le piante raggiungono il metro di altezza e formano popolamenti compatti, 50 m, 04.07.2023, *D. Palermo s.n.* (APP Nos. 69611, 69612, 69613, 69614, 69615, 69616).

This species is generically reported “ne’ campi sterili” of the Molise region (Tenore 1820; Villani 1911 quoted Tenore), where it is not confirmed by Lucchese (1995) and doubtfully reported by the Portal to the Flora of Italy (2023). Contrary to what was stated by Pignatti (2019) who in a dichotomous key reported *O. alba* as glabrous and devoid of glands, the plants are densely hairy and glandular. In the protologue the plant is described as viscous.

The species is present in Morocco, Algeria, Tunisia and Italy, where it grows south of Lazio and Abruzzo. This record close the distribution gap with the Molise administrative region.

***Orobanche amethystea* Thuill. (Orobanchaceae)**

Species confirmed for the flora of Marche.

Pesaro (Pesaro e Urbino), tra Candelara e Ginestreto, lungo la strada della Blilla, UTM WGS84 33T 325925 E 4857276 N, margini di siepi, su *Eryngium campestre* L., suolo argilloso, humus nullo, ca. 160 m, 15.05.2023, *L. Gubellini s.n.* (PESA, FI).

In Italy the species is present in all regions except in Valle d’Aosta, Friuli Venezia Giulia, Emilia-Romagna, Umbria, Molise and Calabria. Its presence is now confirmed also for Marche region, where it was already indicated as doubtful presence (Portal to the Flora of Italy 2023).

***Orobanche ebuli* Huter & Rigo (Orobanchaceae)**

Species new for the flora of Marche

Montefortino (Fermo), versante E-NE del M. Priora, UTM WGS84 33T 359927 E 4756045 N, boschi mesofili, radure, suolo calcareo, humus abbondante, ca. 1100 m, 07.09.2009, *L. Gubellini & N. Hofmann s.n.* (PESA).

Orobanche ebuli is an Italian endemic exclusive to central Italy, known up to now only for Lazio and Abruzzo (Corazzi & al. 2003; Domina & al., 2018; Portal to the Flora of Italy 2023). It is now reported for the first time also in Marche, where it grows on the edge of beech woods, in clearings, on calcareous soil, with abundant humus, host of *Sambucus ebulus* L. The location of the discovery is the northernmost of the distribution area.

***Pseudopodospermum hispanicum* subsp. *neapolitanum* (Grande) Bartolucci, Galasso & F.Conti (Asteraceae)**

Subspecies new for the flora of Abruzzo.

Roccascalegna (Chieti), Rio Secco, prati aridi, 21.02.1998, *A. Manzi s.n.* (APP Nos. 60043, 60044, 60045); Altino (Chieti), Rio Secco alla confluenza con l’Aventino, UTM WGS84 33T 445502 E 4663407 N ± 300 m, prati aridi, 07.03.1998, *F. Conti s.n.* (APP Nos. 60038, 60039, 60040, 60041, 60042); Furci (Chieti), Valle del Treste, UTM WGS84 33T 470621 E 4652184 N ± 300 m, calanchi su argille, 175 m, 30.04.2001, *F. Conti s.n.* (APP Nos. 60036, 60037); Lentella (Chieti), Valle del Treste sotto Lentella, UTM WGS84

33T 472523 E 4651432 N ± 300 m, 145 m, 30.04.2001, *F. Conti s.n.* (APP Nos. 60049, 60050); Casoli (Chieti), Grotta Rimposta, UTM WGS84 33T 440894 E 4659959 N ± 300 m, 11.06.2009, *A. Manzi s.n.* (APP Nos. 60046, 60047, 60048); Roccascalegna (Chieti), loc. Fontacciaro, UTM WGS84 33T 442863 E 4660340 N ± 300 m, argille oligoceniche, 03.05.2014, *A. Manzi s.n.* (APP Nos. 56232, 56233), *ibidem* 21.05.2014, *A. Manzi s.n.* (APP Nos. 56228, 56230).

This subspecies is endemic to southern and central Italy and until now it is known only for the Tyrrhenian side of the peninsula up to Lazio region. The new findings are at the northern limit of the species distribution range in Italy.

***Ranunculus lateriflorus* DC. (*Ranunculaceae*)**

New records for the flora of Abruzzo.

Santo Stefano di Sessanio (L'Aquila), il Prato, sotto Lago S. Pietro, UTM WGS84 33T 389926 E 4692447 N, rive, 1500-1510 m, 15.06.2022, *F. Conti & F. Bartolucci s.n.* (APP No. 67514); Rocca di Mezzo (L'Aquila), Campo di Rovere, UTM WGS84 33T 379242 E 4671109 N ± 100 m, fosso, 23.06.2022, *F. Conti & F. Bartolucci s.n.* (APP No. 67717).

In Italy it is recorded only in Abruzzo, Lazio, Sicilia and Sardegna (Portal to the Flora of Italy 2023). In Abruzzo it was previously recorded for Altopiano delle Cinquemiglia, Quarto di Santa Chiara, Quarto del Barone and Piano di S. Nicola (Conti & al. 2008, 2019).

***Ranunculus polyanthemophyllus* W. Koch & H.E. Hess (*Ranunculaceae*)**

Species new for the flora of Abruzzo.

Pietracamela (Teramo), Prati di Tivo, UTM WGS84 33T 381547 E 4705990 N ± 300 m, pascoli, 1500 m, 13.06.2022, *F. Conti & F. Bartolucci s.n.* (APP Nos. 67971, 67972, 67973, 67974, 67975, 67976, 67977, 67978).

The new finding represents the southern limit of the species distribution range in Italy.

***Salicornia perennis* Mill. subsp. *perennis* (*Amaranthaceae*)**

Species extinct for the flora of Abruzzo.

In Abruzzo, this species was recorded between the mouths of the rivers Piomba and Saline (Tammaro & Pirone 1979), where it is to be considered extinct due to anthropization.

This loss added to the status of “no longer found” for Campania (Portal to the Flora of Italy 2023), highlights the ongoing fragmentation of the distribution range of this species, mainly caused by the wide expansion of urban centers and by the alteration of coastal erosion balance.

***Sempervivum riccii* Iberite & Anzalone (*Crassulaceae*)**

Species confirmed for the flora of Marche.

Matelica (Macerata), Gruppo del M. San Vicino, nel vers. SW del M. San Vicino, UTM WGS84 33T 342519 E 4799325 N, pendici erboso-pietrose, suolo calcareo, humus da scarso a +/- abbondante, 1300-1350 m, 26.07.1991, *A.J.B. Brillì-Cattarini, S. Di Massimo & L. Gubellini s.n.* (PESA).

In Italy this species is reported only for Abruzzo, Lazio, Molise and as doubtful record for Marche (Portal to the Flora of Italy 2023).

This record confirms the presence of the species in the Marche, where Mt. San Vicino represents the northernmost locality of its distribution range.

Soldanella minima subsp. ***samnitica*** Cristof. & Pignatti (*Primulaceae*)

Subspecies new to Gran Sasso, second finding for Italy

Pietracamela (Teramo), sentiero fra “La Madonnina” e il Rif. Franchetti, UTM WGS84 33T 382126 E 4704093 N, rupi calcaree, 2200–2250 m, 31.07.2023, *F. Conti, G. Cangelmi, R. Di Pietro & F. Di Pietro s.n.* (APP Nos. 67359, 67360).

The subspecies was considered endemic to the Maiella National Park (Cristofolini & Pignatti 1962) where it grows in few sites with specific microclimatic cold-wet conditions. The new population, located in comparable site conditions, in the National Park of Gran Sasso and Monti della Laga, represents a step forward towards its conservation.

Aliens

Achillea ligustica All. (*Asteraceae*)

Naturalized regional alien species new for the flora of Marche.

Camerino (Macerata), Via Leopardi 12, UTM WGS84 33T 343069 E 4777707 N, aiuola, 620 m, 22.07.1995, *F. Conti s.n.* (APP No. 62534); Camerino (Macerata), sulla strada per l’Orto Botanico sopra al gommista di Via Leopardi, UTM WGS84 33T 342972 E 4777600 N, siepe a *Ligustrum sinense* Lour., 630 m, 06.09.2023, *F. Conti s.n.* (APP No. 68898).

Aubrieta deltoidea (L.) DC. (*Brassicaceae*)

Naturalized alien species new for the flora of Marche.

Mercatello sul Metauro (Pesaro e Urbino), vecchie mura lungo Via IV Novembre, UTM WGS84 33T 285103 E 4836147 N, ca. 425 m, 16.04.2023, *L. Gubellini* (PESA, FI).

Aubrieta deltoidea is native to South-Est Europe and Caucasus and spread in central-western Europe, for ornamental purposes. In Italy it is reported as a casual alien species in Abruzzo, Emilia-Romagna, Lombardia, Piemonte and Trentino-Alto Adige, and as a naturalized alien in Toscana (Portal to the Flora of Italy 2023). According to Pignatti (2017), the detected species could refer to a cultivated form with intermediate characters between *A. columnae* Guss. and *A. deltoidea*, probably resulting from hybridization between Italian species and other of the Balkan Peninsula and Greece.

Capparis spinosa L. (*Capparaceae*)

Naturalized regional alien species to be excluded from the flora of Molise.

Capparis spinosa L. has been recorded for Termoli (Conti & al. 2023a) but it should be referred to *C. orientalis* Vell.

Cedrus deodara (Roxb.) G. Don (*Pinaceae*)

Casual alien species new for the flora of Marche.

Camerino (Macerata), presso S. Gregorio, UTM WGS84 33T 345758 E 4779501 N ± 200 m, castagneto, ca. 700 m, 13.06.2023, *F. Conti s.n.* (APP Nos. 68327, 68328).

Centaurea diluta Aiton (*Asteraceae*)

Naturalized alien species new for the flora of Lazio.

Anagni (Frosinone), Via S. Filippo, UTM WGS84 33T 343736 E 4625403 N, prato a pascolo, 230 m, 14.07.2023, *E. De Santis* (APP No. 69574).

Native to Spain, Morocco, Algeria and Tunisia, it is now spread across all central-northern Europe and in some states of the USA (POWO 2023).

***Erigeron annuus* subsp. *strigosus* (Muhl. ex Willd.) Wagenitz (Asteraceae)**

Naturalized alien subspecies new for the flora of Abruzzo.

Tossicia (Teramo), Gran Sasso, fosso presso il paese, UTM WGS84 33T 389595 E 4711554 N ± 300 m, fosso, ca. 350 m, 20.08.1999, *F. Conti & A. Manzi s.n.* (APP Nos. 17963, 17964); Molina Aterno (L'Aquila), Lago Acquaviva, Fiume Aterno presso Molina, UTM WGS84 33T 394727 E 4667161 N ± 300 m, rive, 418 m, 19.07.2007, *F. Conti & K. Cianfaglione s.n.* (APP No. 27206); L'Aquila (L'Aquila), via Bazzanese 96, Palombara, UTM WGS 84 33T 370580 E 4688996 N ± 200 m, incolti, 700 m, 09.09.2016, *F. Bartolucci s.n.* (APP No. 66759).

Native from North America is now widespread across all Europe and Eastern Asia (POWO 2023). Already reported for northern regions of Italy (Piemonte, Lombardia and Veneto) the new findings are the first for Central Italy.

***Erigeron lilacinus* (Sennikov & Kurtto) Sennikov (Asteraceae)**

Naturalized alien species new for Marche, Lazio and Abruzzo.

Montegallo (Ascoli Piceno), M. Ceresa: tra Abetito e Monte Pianamonte, UTM WGS84 33T 366325 E 4742410 N ± 500, margine del bosco, su arenaria, 1100 m, 02.08.2004, *D. Tinti, L. Gubellini & F. Ventrone s.n.* (APP No. 12128); Montegallo (Ascoli Piceno), sotto il paese verso Ascoli, 07.06.2011, *F. Conti s.n.* (APP No. 62255); Morino (L'Aquila), presso la cascata di Zompo lo Schioppo, UTM WGS84 33T 367471 E 4634400 N ± 300 m, radure, 700 m, 27.06.2002, *F. Conti s.n.* (APP No. 52159); Cittareale (Rieti), Colle Centoscudi, dall'abitato di S. Croce lungo pista forestale verso M. Verrico, UTM WGS84 33T 348137 E 4714223 N ± 500 m, radure, 771-1117 m, 16.06.2016, *F. Conti, F. Bartolucci & R. Pennesi s.n.* (APP No. 57579).

***Ficus pumila* L. (Moraceae)**

Casual alien species new for the flora of Lazio.

Roma (Roma), Villa Ada, ponticello presso il Tempio di Flora, UTM WGS 84 33T 292869 E 4644337 N, muro a mattoni, 29.04.2023, *F. Conti, V. Giacanelli s.n.* (APP No. 68403).

***Kalanchoë ×houghtonii* D.B. Ward (Crassulaceae)**

Casual alien species new for the flora of Abruzzo.

Ortona (Chieti), Passeggiata Orientale, UTM WGS84 33T 451085 E 4689648 N, 11.06.2023 (observed by F. Conti but not collected).

***Senecio angulatus* L.f. (Asteraceae)**

Naturalized alien species new for the flora of Marche.

Potenza Picena (Macerata), presso Porto Potenza Picena, UTM WGS84 33T 393975 E 4803312 N, siepe, 4 m, 05.11.2019, *F. Conti, L. Bracchetti, L. Gubellini, N. Hofmann s.n.* (APP No. 69575).

Native from South Africa and recently spread in western Europe, Algeria and Australia (POWO 2023) for ornamental purposes. In Italy it is reported for all the southern regions

and all the Thyrrenian ones and considered as invasive in the northern (Liguria, Toscana and Sardegna) and naturalized in the south (Sicilia, Calabria, Basilicata, Puglia, Campania and Molise) (Portal to the Flora of Italy 2023).

Trifolium mutabile Port. (*Fabaceae*)

Casual regional alien species new for the flora of Abruzzo.

Lucoli (L'Aquila), Piana di Campo Felice, vicino recinto costruito per *Klasea lycopiifolia* (Vill.) Á.Löve & D. Löve nell'ambito del Life Floranet, UTM WGS84 33T 369730 E 4676910 N, 1550 m, 19.07.2023, F. Conti, F. Bartolucci & G. Cangelmi s.n. (APP No. 67674).

Considered native from Balkan peninsula and Southern Italy even if “no longer found” in Campania and Basilicata (POWO 2023; Portal to the Flora of Italy 2023). Its presence in central Italy has been associated to volunteer or accidental dispersion by humans.

Acknowledgements

We wish to thank the Director and curators of Herbarium FI, and our friends Daniele Angeloni, Luca Bracchetti, Gianluca Capecci, Kevin Cianfaglione, Francesco e Romeo Di Pietro, Aurelio Manzi, Germano Palozzi, Pasqualino Paris, Riccardo Pennesi, Elisa Proietti, Stefano Scivola, Daniela Tinti, Luciano Vitale for good company and help during the field investigations. We thanks our friend Silvio Fici for the correct identification of *Capparis* specimens.

References

- Ballelli, S. 1999: Entità floristiche di notevole interesse rinvenute sull'Altopiano di Campo Imperatore e zone limitrofe (Gran Sasso d'Italia). In: Biondi E. (ed.), Ricerche di Geobotanica ed Ecologia Vegetale di Campo Imperatore (Gran Sasso d'Italia). – *Braun-Blanquetia* **16**: 33-51.
- Bartolucci, F. & Conti, F. 2016: *Alyssum desertorum* Stapf (*Brassicaceae*), new for the Italian flora. – *Acta Bot. Croat.* **75**: 149-152.
- , Peruzzi, L., Galasso, G., Albano, A., Alessandrini, A., Ardenghi, N. M. G., Astuti, G., Bacchetta, G., Ballelli, S., Banfi, E., Barberis, G., Bernardo, L., Bouvet, D., Bovio, M., Cecchi, L., Di Pietro, R., Domina, G., Fascetti, S., Fenu, G., Festi, F., Foggi, B., Gallo, L., Gottschlich, G., Gubellini, L., Iamonico, D., Iberite, M., Jiménez-Mejías, P., Lattanzi, E., Marchetti, D., Martinetto, E., Masin, R. R., Medagli, P., Passalacqua, N. G., Peccenini, S., Pennesi, R., Pierini, B., Poldini, L., Prosser, F., Raimondo, F. M., Roma-Marzio, F., Rosati, L., Santangelo, A., Scoppola, A., Scortegagna, S., Selvaggi, A., Selvi, F., Soldano, A., Stinca, A., Wagensommer, R. P., Wilhalm, T. & Conti, F. 2018: An updated checklist of the vascular flora native to Italy. – *Pl. Biosyst.* **152(2)**: 179-303. <https://doi.org/10.1080/11263504.2017.1419996>
- , Domina, G., Ardenghi, N.M.G., Bacaro, G., Bacchetta, G., Ballarin, F., Banfi, E., Barberis, G., Beccarisi, L., Bernardo, L., Bonari, G., Bonini, F., Brullo, S., Buono, S., Buono, V., Calbi, M., Caldararo, F., Calvia, G., Cancellieri, L., Cannavò, S., Dagnino, D., Esposito, A., Fascetti, S., Filibeck, G., Fiorini, G., Forte, L., Galasso, G., Gestri, G., Gigante, D., Gottschlich, G., Gubellini, L., Hofmann, N., Lastrucci, L., Lonati, M., Lorenz, R., Lunardi, L., Magrini, S., Mainetti, A., Maiorca, G., Mereu, G., Messa Ballarin, R.T., Minuto, L., Mossini, S., Musarella, C.M., Nimis, P. L., Passalacqua, N.G., Peccenini, S., Petriglia, B., Podda, L., Potenza, G.,

- Ravetto Enri, S., Roma-Marzio, F., Rosati, L., Ruggero, A., Spampinato, G., Stinca, A., Tiburtini, M., Tietto, C., Tomaselli, V., Turcato, C., Viciani, D., Wagensommer, R. P. & Nepi, C. 2019: Notulae to the Italian native vascular flora: 8. – *Italian Botanist* **8**: 95-116. <https://doi.org/10.3897/italianbotanist.8.48626>
- , Galasso, G., Peruzzi, L. & Conti, F. 2021: Report 2020 on plant biodiversity in Italy: native and alien vascular flora. – *Nat. Hist. Sci.* **8(1)**: 41-54. <https://doi.org/10.4081/nhs.2021.520>
- , —, — & — 2023: Report 2021 on plant biodiversity in Italy: native and alien vascular flora. – *Nat. Hist. Sci.* **10(1)**: 41-50. <https://doi.org/10.4081/nhs.2022.623>
- Bertolli, A. & Prosser, F. 2013: Notulae alla checklist della flora vascolare italiana. 1977. *Myosotis minutiflora* Boiss. & Reut. (*Boraginaceae*). – *Inform. Bot. Ital.* **45(1)**: 99.
- Bonini, F., Lastrucci, L. & Gigante, D. 2020: *Juncus atratus* Krock. (*Juncaceae*) rediscovered in Italy: a species deserving urgent conservation actions. – *Biologia* **75**: 1519-1527. <https://doi.org/10.2478/s11756-020-00490-2>
- Buzurović, U., Tomović, G., Niketić, M., Bogdanović, S. & Aleksić, J. M. 2020: Phylogeographic and taxonomic considerations on *Goniolimon tataricum* (*Plumbaginaceae*) and its relatives from south-eastern Europe and the Apennine Peninsula. – *Pl. Syst. Evol.* **306**: 29. <https://doi.org/10.1007/s00606-020-01636-0>
- Cancellieri, L., Spernadii, M., & Filibeck, G. 2017: First record of the steppic relict *Astragalus exscapus* L. subsp. *exscapus* in the Apennines (Abruzzo, Italy), and biogeographic implications. – *Pl. Biosyst.* **151(6)**: 944-948. <https://doi.org/10.1080/11263504.2017.1311963>
- Chiosi, R. 1975: Su alcune raccolte botaniche del Dr. Carlo Marchesetti, giacenti nell'Erbario Centrale Fiorentino. – *Itin. Passato, Quad.* **13(1-5)**: 1-53.
- Colonna, F. 1606: Minus cognitarum rariorumque nostro coelo orientium stirpium [ekphrasis]: qua non paucae ab antiquioribus Theophrasto, Dioscoride, Plinio, Galeno alijs[que] descriptae praeter illas etiam in [Phytobasano] editas disquiruntur ac declarantur. Item de aquatilibus aliisque nonnullis animalibus libellus. – Roma.
- Conti, F. 1995: Prodromo della Flora del Parco Nazionale d'Abruzzo. – Roma.
- 1998: An annotated checklist of the flora of the Abruzzo. – *Boccone* **10**: 5-262.
- & Bartolucci, F. 2015: The Vascular Flora of the National Park of Abruzzo, Lazio and Molise (Central Italy). An Annotated Checklist. – Cham.
- & — 2016: The vascular flora of Gran Sasso and Monti della Laga National Park (Central Italy). – *Phytotaxa* **256(1)**: 1-119.
- & — 2022: La Flora vascolare del Parco Nazionale d'Abruzzo, Lazio e Molise. – Acquaviva Picena.
- & — 2023: Taxonomy and distribution of *Spiraea hypericifolia* in Italy and typification of the name *S. flabellata* (*Rosaceae*). – *Plants* **12**: 536. <https://doi.org/10.3390/plants12030536>
- & Tinti, D. 2008: Il Lago di Campotosto e la sua Flora. – Sambuceto di S. Giovanni Teatino (Chieti).
- , Bartolucci, F., Manzi, A., Miglio, M. & Tinti, D. 2008: Aggiunte alla Flora d'Abruzzo: III contributo. – *Ann. Mus. Civ. Rovereto, Sez.: Arch., St., Sc. Nat.* **23(2007)**: 127-140.
- , Ciaschetti, G., Di Martino, L. & Bartolucci, F. 2019: An annotated checklist of the vascular flora of Majella National Park (Central Italy). – *Phytotaxa* **412(1)**: 1-90. <https://doi.org/10.11646/phytotaxa.412.1.1>
- , Palermo, D., Santucci, B., Miglio, M., Paolucci, M., De Santis, E., Giacanelli, V. & Bartolucci, F. 2023a: Additions to the vascular flora of the central and southern Italy. – *Fl. Medit.* **33**: 83-89. <https://doi.org/10.7320/FIMedit33.083>
- , Falcinelli, F., Giacanelli, V., Santucci, B., Miglio, M., Manzi, A. & Bartolucci, F. 2023b: New floristic data of vascular plants from central Italy. – *Nat. Hist. Sci.* **10(1)**: 51-56.

- , Oberprieler, C., Dorfner, M., Schabel, E., Nicoara, R. & Bartolucci, F. 2023c: *Adonis fucensis* (*A.* sect. *Adonanthe*, *Ranunculaceae*), a new species from the Central Apennines (Italy). – *Biology* **12**: 118. <https://doi.org/10.3390/biology12010118>
- Corazzi, G., Lattanzi, E. & Tilia, A. 2003: Note su *Orobanche ebuli* Huter et Rigo. – *Inform. Bot. Ital.* **35**(1): 3-6.
- Cristofolini, G. & Pignatti, S. 1962: Revisione delle forme italiane del genere *Soldanella* L. – *Webbia* **16**(2): 443-475.
- De Santis, E. & Soldati, R. 2011: Guida fotografica alla flora di Campo Felice. – L'Aquila.
- & — 2019: Lucoli e i suoi fiori. La flora spontanea del territorio. – L'Aquila.
- Domina, G., Scaffidi, F., Gargano, M. L. 2018: Typification of the name *Orobanche ebuli* Huter & Rigo (*Orobanchaceae*) and its taxonomic implications. – *Phytotaxa* **344**(2): 198-200. [[10.11646/phytotaxa.344.2.9](https://doi.org/10.11646/phytotaxa.344.2.9)].
- Filibeck, G., Cancellieri, L., Bartolucci, F., Becker, U., Conti, F., Maestri, S., Mürz, M., Schommer, E., Sperandii, M.G. & Becker, T. 2020: *Festuca valesiaca* Schleich. ex Gaudin newly discovered in the Central Apennines (Italy): a further example of steppe relict in the Abruzzo “dry valleys”. – *Pl. Biosyst.* **154**(5): 593-600.
- , Cancellieri, L. & Rosati, L. 2022: Carta dei Tipi di Habitat di Interesse Comunitario (Direttiva 92/43/CEE) del Parco Nazionale d'Abruzzo, Lazio e Molise e dei siti Natura 2000: ZSC IT7110205, ZPS IT7120132, ZSC IT6050018, ZSC IT6050020, ZSC IT7212121–Viterbo.
- Galasso, G., Conti, F., Peruzzi, L., Ardenghi, N. M. G., Banfi, E., Celesti-Grapow, L., Albano, A., Alessandrini, A., Bacchetta, G., Ballelli, S., Bandini Mazzanti, M., Barberis, G., Bernardo, L., Blasi, C., Bouvet, D., Bovio, M., Cecchi, L., Del Guacchio, E., Domina, G., Fascetti, S., Gallo, L., Gubellini, L., Guiggi, A., Iamonico, D., Iberite, M., Jiménez Mejías, P., Lattanzi, E., Marchetti, D., Martinetto, E., Masin R. R., Medagli, P., Passalacqua, N. G., Peccenini, S., Pennesi, R., Pierini, B., Podda, L., Poldini, L., Prosser, F., Raimondo, F. M., Roma Marzio, F., Rosati, L., Santangelo, A., Scoppola, A., Scortegagna, S., Selvaggi, A., Selvi, F., Soldano, A., Stinca, A., Wagensommer, R. P., Wilhelm, T. & Bartolucci, F. 2018: An updated checklist of the vascular flora alien to Italy. – *Pl. Biosyst.* **152**(3): 556-592. <https://doi.org/10.1080/11263504.2018.1441197>
- Grande, L. 1910: Note di Floristica Napoletana. – *Bull. Orto Bot. Napoli* **2**: 513-520.
- Index Herbariorum 2023+: Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. – <http://sweetgum.nybg.org/science/ih> [accessed 03.10.2023]
- Lucchese, F. 1995: Elenco preliminare della Flora spontanea del Molise. – *Ann. Bot. (Roma)* **53**(Suppl.12): 1-386.
- Martellos, S., Bartolucci, F., Conti, F., Galasso, G., Moro, A., Pennesi, R., Peruzzi, L., Pittao, E. & Nimis, P.L. 2020: FlorItaly – the portal to the Flora of Italy. – *PhytoKeys* **156**: 55-71. <https://doi.org/10.3897/phytokeys.156.54023>
- Masin, R. & Ghirelli, L. 2003: Il sentiero naturalistico Villa Draghi- Monte Ceva. Flora della propaggine orientale dei Colli Euganei e della pianura limitrofa. – Miele Abano Terme.
- & Tietto, C. 2005: Flora dei Colli Euganei e della pianura limitrofa. – Padova.
- & — 2006: Flora vascolare della Provincia di Padova. – *Nat. Vicentina* **9**(2005): 7-103.
- Morretti, F., Puppi, G., Giuliani, C. & Conti, F. 2015: Heterostyly in *Gonolimon italicum* (*Plumbaginaceae*), endemic to Abruzzo (central Apennines, Italy). – *Anal. Jard. Bot. Madrid* **72**: e014.
- Pica, A., Berardi, D. & Ciaschetti, G. 2023: Prime segnalazioni di *Anacamptis berica* in Abruzzo e in Molise. – *GIROS Orchid. Spont. Europ.* **66**(1): 78-85.
- Pignatti, S. 1982: Flora d'Italia, **3**. – Bologna.
- 2017: Flora d'Italia, 2° ed, **2**. – Milano.

- 2019: Flora d'Italia, 2° ed, **4**. – Milano.
- Portal to the Flora of Italy, 2023: Portale della Flora d'Italia/Portal to the Flora of Italy. 2023.1. – <http://dryades.units.it/floritaly/> [accessed 03.10.2023].
- POWO 2023: Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. – <http://www.plantsoftheworldonline.org/> [accessed 10.01.2023]
- Prosser, F. 2006: *Myosotis* gruppo *stricta*. – P. 22 in: Lasen C. (ed.), Progetti di cartografia floristica. Verbale 13° incontro floristi Nordest. Vicenza 12.3.2006. – Not. Flor. F.A.B. **15**.
- Stearn, W. T. 1978: European species of *Allium* and allied genera of *Alliaceae*. A synonymic enumeration. – Ann. Mus. Goulandris **4**: 83-198.
- Tammaro, F. & Pirone, G. 1979: La flora del litorale pescarese come indicatore biologico dello stato ambientale e delle sue trasformazioni. – Giorn. Bot. Ital. **113 (1-2)**: 33-67.
- Tenore, M. 1820 Flora Napolitana, **1(2)**. – Napoli.
- 1830: Succinta relazione del viaggio fatto in Abruzzo ed in alcune parti dello Stato Pontificio dal Cavalier Tenore nell'Està del 1829. – Napoli.
- Tietto, C. 2022: *Haplophyllum patavinum* in its relic habitats on the Euganean Hills (northeastern Italy), 300 years after its discovery (1722–2022). – Ital. Bot. **13**: 19-26. <https://doi.org/10.3897/italianbotanist.13.83174>
- Villani, A. 1911: Aggiunte alla Flora della provincia di Campobasso. Nota settima. – Bull. Soc. Bot. Ital. **3**: 41-45.
- Zodda, G. 1954: La Flora Teramana. – Webbia **10(1)**: 1-317.

Addresses of the authors:

Fabio Conti¹, Giacomo Cangelmi¹, Jamila Da Valle¹, Enzo De Santis², Valeria Giacanelli³, Leonardo Gubellini⁴, Nicole Hofmann⁵, Rizzieri Masin⁶, Marinella Miglio⁷, Donato Palermo⁸, Bruno Santucci⁹, & Fabrizio Bartolucci^{1*},

¹Centro Ricerche Floristiche dell'Appennino (Università di Camerino - Parco Nazionale del Gran Sasso e Monti della Laga), Via Prov.le km 4,2 - San Colombo, 67021 Barisciano (L'Aquila), Italy.

²Via di Grottarossa 18, 00189 Roma, Italy.

³Dipartimento per il monitoraggio e la tutela dell'ambiente e per la conservazione della biodiversità, Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA), Via V. Brancati 60, 00144 Roma, Italy.

⁴Centro Ricerche Floristiche Marche, Provincia di Pesaro, Via Barsanti, Pesaro, Italy.

⁵Università Politecnica delle Marche, Ancona, Italy.

⁶Via Regazzoni, 3 - 35036 Montegrotto Terme (PD), Italy.

⁷Via dei Merletti 8, 67100 L'Aquila, Italy.

⁸Via Pisa 73, 86039 Termoli (Campobasso), Italy.

⁹Via Fonte di Là 2, 67062 Magliano de' Marsi (L'Aquila), Italy.

*Corresponding author: fabrizio.bartolucci@gmail.com

