Article

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New additions to the vascular flora of central and southern Italy

Abstract

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New or revised plant records of 27 taxa (species and subspecies) are reported for central and southern Italy, of which 13 are natives and 14 aliens. Two native taxa are new for the Apennines, one is new for central Italy, nine are new or confirmed for Abruzzo and one is new for Marche. We excluded one previously accepted species from Umbria, one from Abruzzo, one from Molise, and one from Campania. Among the aliens, two species are new for Italy, six for Umbria, four for Abruzzo, two (one confirmed) for Lazio and one for Molise. Furthermore, we propose to change alien status from casual to naturalized for three taxa. Some discoveries are very interesting from a phytogeographical and/or conservation point of view. Additionally, several new locations for very rare species are reported.

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

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Introduction

The establishment of the Floristic Research Center of the Apennines has had a positive impact on our knowledge of the Italian flora due to its work in coordinating the checklist of the Italian flora (Conti & al. 2005; Bartolucci & al. 2018, 2024; Galasso & al. 2018, 2024) and in developing the Portal to the Flora of Italy (Martellos & al. 2020 available at https://dryades.units.it/floritaly/). Furthermore, the establishment and development of the Herbarium Apenninicum (APP) stimulated the growth in floristic knowledge especially of the Abruzzo region and central Italy (Conti & al. 2024). This paper contributes to the knowledge of the flora of central Italy reporting unpublished records for several taxa, including some discoveries of phytogeographical interest, such as disjunct populations of species with a northern distribution or new localities of rare taxa.

Materials and Methods

The area investigated is located in central southern Italy and comprises the territories of Umbria, Lazio, Abruzzo, Molise and Campania administrative regions. Floristic data were collected during field work carried out in 2023 and 2024, while some specimens collected in the past have been revised. Herbarium specimens collected are deposited in APP and the herbaria AQUI and VER were also consulted (codes follow Thiers 2025).

Nomenclature follows the checklists of the Italian native (Bartolucci & al. 2024) and alien (Galasso & al. 2024) vascular flora and subsequent updates summarized in the Portal to the Flora of Italy (2024). Taxa are categorized as native and alien and alphabetically listed.

For each taxon, the following information is provided: current accepted name; family; reason(s) for its inclusion in the list; current invasive status (for aliens only); herbarium material revised with details about the collection locality (in Italian, according to the information reported on the herbarium label), UTM coordinates (datum WGS84) when available, altitude, habitat, collection date, collector(s), herbarium code, additional notes.

DNA for the *Ipomoea* sample was extracted using the Qiagen DNEasy extraction kit. Amplification of the *rpl32-trnL* non-coding chloroplast region was performed using the primers VR27-F (5'-GTAATACAATAAGGCGGATA) and VR27-R (5'-ATTACATGACAAGATAGTCTTG) (Muñoz-Rodríguez & al. 2022; Supplementary Material) in a reaction volume of 15 µl containing 7.3 µl H_2O, 3 µl buffer, 0.7 µl $MgCl_2$, 0.3 µl of each primer (10× concentration), 0.5 µl dNTPs, 1 µl BSA, 0.4 µl Taq polymerase, and 1.5 µl sample DNA. The PCR conditions were as follows: an initial denaturation step of 5 minutes at 80°C, followed by 30 cycles of 1 minute at 95°C, 1 minute at 50°C, and 4 minutes at 65°C, with a final extension of 4 minutes at 65°C. The PCR product was purified using the GeneJET PCR purification kit and sequenced using Sanger sequencing. The resulting sequence has been deposited in GenBank under accession number PQ863735.

Results

Native taxa

Colchicum bivonae Guss. (*Colchicaceae*)
Species not confirmed for the flora of Abruzzo.

Species recorded in Abruzzo from a specimen collected by Tenore on Abruzzo mountains and housed at G (D'Amato 1957). The species was not reported for the region by Bartolucci & al. (2024) and recent evidence of its presence in Abruzzo region is lacking.

Dichodon viscidum (M.Bieb.) Holub (*Caryophyllaceae*)
Species confirmed for the flora of Abruzzo.
San Panfilo d'Ocre (L'Aquila), loc. Prati del Lago (WGS84: 33T 373774E, 4683340N), prati mesofili, 761 m, 06.04.2024, *F. Bartolucci* (APP No. 73008).

This species was recorded for Abruzzo in the Sulmona territory (Gravina 1812) and the Natural Reserve "Sorgenti del Pescara (Pirone & al. 1997), but we have not re-found the

species and there are no herbarium specimens kept at AQUI, where the collections cited by Pirone & al (1997) should be preserved.

Eryngium alpinum L. (*Apiaceae*)
Species new for the flora of the Apennines (Abruzzo).
Isola del Gran Sasso (Teramo), Vallone Fossaceca, praterie, 1795 m, 03.09.2024, *F. Bartolucci & F. Conti* (observed but not collected).

Eryngium alpinum is an endangered alpine species, distributed in France, Italy, Austria, Switzerland and the Balkan Peninsula (Wörz 2011, POWO 2024). It is included in Annex II and IV of Habitats Directive (92/43/EEC), and is assessed by the IUCN as NT (Gygax & al. 2011). The discovery of this species in the Central Apennines is of considerable phytogeographical and conservation interest. Unfortunately, we found only one individual, of which we collected a small basal leaf for molecular analysis, but no herbarium specimen was collected for conservation reasons, and we prefer not to indicate the exact coordinates of the locality. Next year we will attempt to better assess the population size and possibly collect some plant material or information to characterise this population morphologically, as it is extremely isolated from main range of the species.

Galeopsis bifida Boenn. (*Lamiaceae*)
Species new for the flora of central Italy (Abruzzo).
Ovindoli (L'Aquila), Piana di Ovindoli presso il rifugio degli Alpini in loc. Le Conche (WGS84: 33T 377912E 4667388N), prati, 1354 m, 28.08.2024, *F. Bartolucci* (APP No. 72961).

This species is distributed in northern Italy as far south as Emilia-Romagna (Bartolucci & al. 2024). The population found in Abruzzo, due to its separation from the main Italian range, has considerable phytogeographical and conservation importance.

Loncomelos pyrenaicum subsp. ***sphaerocarpum*** (A.Kern.) Holub (*Asparagaceae*)
Subspecies new for the flora of Abruzzo.
Isola del Gran Sasso d'Italia (Teramo), boschi sopra Casale San Nicola (WGS84: 33T 385016E, 4704380N), 05.06.2016, *F. Conti & A. Mainetti* (APP No. 68515).

The locality where this species was found in Abruzzo represents the southern limit in the range of this subspecies in Italy (Bartolucci & al. 2024).

Lotus creticus L. (*Fabaceae*)
Species new for the flora of Marche.
Porto d'Ascoli (Ascoli Piceno), Riserva Naturale Regionale Sentina (WGS84: 33T 411293E, 4749905N), spiaggia, 1 m, 17.10.2024, *F. Conti & L. Bracchetti* (APP No. 72858).

The population found in Marche region marks the northern limit of the distribution of this species along the Adriatic coast in Italy (Bartolucci & al. 2024).

Lycopsis arvensis L. (*Boraginaceae*)
Species to be excluded from the flora of Umbria and not confirmed for the flora of Abruzzo.

The previous records for Umbria (Pian Grande di Castelluccio) (Falcinelli & al. 2015) and the recent ones for Abruzzo (Piano Laroma, Colle Truscino) (Conti & al. 2002, 2022) should be referred to *L. orientalis* L. (see below). The presence of *L. arvensis* in Abruzzo needs to be confirmed as it is based only on ancient data (Di Giuseppe 1909; Zodda 1954). The record cited by Tammaro (1983) for Gran Sasso without locality is probably based on these previous records.

Origanum vulgare subsp. ***viridulum*** (Martrin-Donos) Nyman (*Lamiaceae*)
Subspecies confirmed for the flora of Abruzzo.
Pettorano sul Gizio (L'Aquila), M. Genzana a Valle Frevana (WGS84: 33T 412821E, 4645921N), 600-700 m, 02.08.1997, *F. Conti* (APP No. 35794).

This subspecies was recorded in Abruzzo only for the Gran Sasso Massif at Ruzzo (Zodda 1967), where, however, we observed and collected only *O. vulgare* L. subsp. *vulgare*.

Rumex thyrsiflorus Fingerh. (*Polygonaceae*)
Species new for the flora of Abruzzo.
Ovindoli (L'Aquila), Laghetto d'Arano, ambienti umidi, 1260 m, 09.07.1997, *F. Conti* (APP No. 28596).

This species is considered native to Eurasia, including Italy (POWO 2024), although in Galasso & al. (2024) it was treated as alien to Italy, and recorded from Trentino-Alto Adige, Emilia-Romagna and Toscana. Given its wide Eurasian range this new record from naturally occurring meadows leads us to believe that it should be considered native, as many other Eurasian plants reach the Abruzzo region.

Salvia pratensis L. (*Lamiaceae*)
Species to be excluded from the flora of Molise.

Reported by mistake for Molise by Conti & al. (2018). Revision of the specimen allowed us to re-identify it as *S. haematodes* L.

Seseli annuum L. subsp. ***annuum*** (*Apiaceae*)
Species new for the flora of the Apennines (Abruzzo).
Terranera (L'Aquila), nei pressi dell'abitato lungo la SP38 (WGS84: 33T 378639.73E, 4677209.71N), pascoli aridi pietrosi, 1292 m, 23.09.2024, *F. Bartolucci* (APP No. 72771).

A species with a European range (POWO 2024), present in Italy only in northern regions (Bartolucci & al. 2024). This discovery is of considerable phytogeographical and conservation importance, since it represents a significant disjunction from the main range of the species.

Seseli peucedanoides (M.Bieb.) Koso-Pol. (*Apiaceae*)
Species to be excluded from the flora of Abruzzo.

It has been recorded for Abruzzo at Velino (Petriccione 1993), Serra Rocca Chiarano (Di Pietro & al. 2004) and for the territory of Lucoli (De Santis & Soldati 2019, 2021) but these records are not supported by herbarium specimens. The images of this taxon showed by De Santis & Soldati (2019, 2021) should be referred to *Carum carvifolium* (DC.) Arcang. We argue that the record from Serra Rocca Chiarano should also be attributed to

C. carvifolium, since it was recorded in a high-altitude scree, a type of habitat that it is not favourable for *S. peucedanoides* but is preferred by *C. carvifolium*.

Veronica fruticans Jacq. (*Plantaginaceae*)
Species to be excluded from the flora of Campania.
Veronica fruticans is distributed in Greenland and Europe (POWO 2024). In Italy it is a rare species known only from the Alps and mistakenly recorded from the central Apennines (Bartolucci & al. 2024). The species has been reported in Campania only for Matese (Bianchini 1897), but in VER, where Bianchini's herbarium is preserved, there are no specimens referable to *V. fruticans* (S. Andreatta, pers. comm.). Considering the distribution of the species in Italy and the erroneous records for the central Apennines, we believe that *V. fruticans* has been listed in Campania as a result of confusion with other species.

Alien taxa

Abies pinsapo Boiss. subsp. ***pinsapo*** (*Pinaceae*)
Casual alien species new for the flora of Italy (Abruzzo).
L'Aquila (L'Aquila), loc. Monte Luco di Roio (WGS84: 33T 366288.15E, 4688791.08N), pineta, ca. 980 m, 26/09/2024, *F. Bartolucci* (APP Nos. 72755, 72760).

Many sterile individuals of different ages , have been observed occurring spontaneously in a restricted part of a reforestation area dominated by *Pinus sylvestris* L. and *P. nigra* J.F.Arnold subsp. *nigra*.

Aesculus hippocastanum L. (*Sapindaceae*)
Status change from casual to naturalized alien for the flora of Italy (Abruzzo).
Goriano Sicoli (L'Aquila), base di Monte Ventola, lungo un fosso a margine della SP 9 presso il cimitero di Goriano Sicoli (WGS84 33T: 398157E, 4660070N), fosso, 660 m, 29.04.2024, *F. Bartolucci, F. Conti* (APP No. 72943).

We observed many individuals of different ages growing spontaneously along a ditch in a mixed broadleaf forest.

Cotoneaster thymifolius Lindl. (*C. thymifolius* Hort. ex Baker, nom. illeg.) (*Rosaceae*)
Casual alien species new for the flora of Italy (Abruzzo).
L'Aquila (L'Aquila), loc. Monte Luco di Roio (WGS84: 33T 366288.15E, 4688791.08N), pineta, ca. 980 m, 26.09.2024, *F. Bartolucci* (APP No. 72759).

This species was identified following Fryer and Hylmö (2009 sub *C. thymifolius* Baker) and Stace (2010 sub *C. thymifolius* Wall. ex Lindl.). It is regarded as a synonym of *C. integrifolius* (Roxb.) G.Klotz by Dickoré & Kasperek (2010) and POWO (2024), whereas Kurtto & al. (2013, sub *C. thymifolius* Baker) regard it as a distinct taxon. According to Fryer & Hylmö (2009) *C. thymifolius* is native to India and Nepal. It has narrowly oblong or oblong-ovate to linear-lanceolate leaves, 1.5–5.0(–7.0) mm width (see also Lu & Brach 2003, sub *C. microphyllus* var. *thymifolius* (Baker) Koehne). The name *C. thymifolius* Lindl. (in Paxton's Fl. Gard. 2: 132. 1851) has priority over the illegitimate later homonym *C. thymifolius* Hort. ex Baker (Refug. Bot. [Saunders] i. t. 50. 1869). We

detected two individuals grown naturally in a reforestation area dominated by *Pinus sylvestris* L. and *P. nigra* J.F.Arnold subsp. *nigra*.

Eschscholzia californica Cham. subsp. ***californica*** (*Papaveraceae*)
Casual alien species new for the flora of Umbria.
Assisi (Perugia), Tordandrea, via Guido Sorignani (WGS84: 33T 300798E, 4767410N), margine stradale, 195 m, 24.05.2023, *F. Falcinelli* (APP No. 69680).

We observed a few individuals close to a garden where they are cultivated.

Gazania* ×*splendens Hend. & Andr.Hend. (*Asteraceae*)
Casual alien hybrid new for the flora of Umbria.
Assisi (Perugia), via della Cooperazione (WGS84: 33T 306790E, 4770709N), parcheggio asfaltato, 455 m, 22.05.2023, *F. Falcinelli* (APP No. 69679).

We observed a few individuals close to a garden where they are cultivated.

Ipheion uniflorum (Lindl.) Raf. (*Amaryllidaceae*)
Casual alien species new for the flora of Umbria.
Foligno (Perugia), Strada Statale n. 77 Della Val di Chienti nei pressi del km 11 e nelle vicinanze del centro abitato di Scòpoli (WGS84: 33T 320873E, 4760512N), margine stradale, 515 m, 02.04.2023, *F. Falcinelli* (APP No. 69682).

We observed a few individuals close to a garden where they are cultivated.

Ipomoea triloba L. (*Convolvulaceae*)
Casual alien species new for the flora of Lazio.
Anagni (Frosinone), loc. Famelica, margine di campo, 309 m, 29.10.2023, *E. De Santis* (APP No. 72044).

We observed this species only in a small area (4 m^2) of roadside where organic fertilizer had accumulated. The morphological characteristics suggest that the sample belongs to the Batatas clade (Wood & al. 2020) and phylogenetic analysis using the *rpl32-trnL* non-coding chloroplast region indicated it to be *Ipomoea triloba*, a species of American origin now widespread in various Mediterranean countries, including Spain (Silvestre 2012), Turkey (Yazlik & al. 2018) and Italy. In Italy, *I. triloba* was previously recorded only in Lombardia as a casual alien (Villa & al. 2017, Galasso & al. 2024). This record suggests that the distribution of this species across the Mediterrranean basin is expanding.

Larix decidua Mill. (*Pinaceae*)
Status change from casual to naturalized alien for the flora of Abruzzo.
Castel del Monte (L'Aquila), Campo Imperatore (WGS84: 33T 397919.18E 4693043.13N), pascoli tra la strada e il rimboschimento, 1470 m, 11.09.2024, *F. Conti & F. Bartolucci* (observed but not collected).

In Campo Imperatore we have noticed a great population expansion starting from the areas affected by reforestation into surrounding meadows.

Lycopsis orientalis L. (*Boraginaceae*)
Naturalised alien species new for the floras of Umbria, Abruzzo and Molise.

Palombaro (Chieti), Piano Laroma (WGS84: 33T 438647E, 4665340N), incolti, 460 m, 09.04.1999, *F. Conti & A. Manzi* (APP No. 13151); Gioia dei Marsi (L'Aquila), Colle Truscino (WGS84: 33T 390419E, 4647919N), 06.06.2017, *F. Bartolucci, F. Conti & L. Di Martino* (APP No. 59723); Cerchio (L'Aquila), Campo dell'Olmo (WGS84: 33T 383795E, 4656069N), 688 m, 21.07.2021, *F. Conti & B. Santucci* (APP No. 68377); Norcia (Perugia), Pian Grande di Castelluccio (WGS84: 33T 354427E, 4742520N), sito erboso, 1306 m, 01.07.2014, *F. Conti* (APP No. 55055); Campomarino (Campobasso), loc. Ramitelli (WGS84: 33T, 509995E, 4641702N), incolto sabbioso, 2 m, 20.10.2023, *D. Palermo* (APP No. 69678).

The records for Umbria at Pian Grande di Castelluccio (Falcinelli & al. 2015 sub *L. arvensis* L.) and the recent ones for Abruzzo (Piano Laroma, Colle Truscino) (Conti & al. 2002, 2022 sub *L. arvensis* L.) should be referred to this species.

Opuntia phaeacantha Engelm. (*Cactaceae*)
Casual alien species new for the flora of Umbria.
Baschi (Terni), tra Morre e Casa Cerqueto lungo S.P. 34 Montecchio per Todi (UTM WGS84: 33T 281915E 4731351N), margine stradale, suolo calcareo, 530 m, 20.10.2024, *F. Falcinelli* (APP No. 73305).

We observed a few individuals close to a garden where they are cultivated.

Opuntia robusta H.L.Wendl. ex Pfeiff. (*Cactaceae*)
Casual alien species new for the flora of Umbria.
Montecchio (Terni), Monti Amerini, Monte Boccialone versante sud-ovest (UTM WGS84: 33T 279218E 4727501N), margine stradale, suolo calcareo, 630 m, 30.10.2024, *F. Falcinelli* (APP No. 73306).

A few naturalised individuals over 3–4 m^2.

Picea abies (L.) H.Karst. (*Pinaceae*)
Status change from casual to naturalized alien for the flora of Abruzzo.
Castel del Monte (L'Aquila), Campo Imperatore (WGS84: 33T 397580.79E 4693206.60N), pascoli tra la strada e il rimboschimento, 1470 m, 11.09.2024, *F. Conti & F. Bartolucci* (observed but not collected).

At Campo Imperatore we have noticed a great expansion of the population with young individuals spreading from areas affected by reforestation into the surrounding meadows.

Solanum elaeagnifolium Cav. (*Solanaceae*)
Casual alien species new for the flora of Abruzzo.
Fossacesia (Chieti), loc. Piana di Fossacesia, 10 m, 19.11.2023, *A. Manzi* (observed but not collected).

Abundant as a weed in tomato fields. No specimen was seen but photographic documentation exists.

Tulipa raddii Reboul (*Liliaceae*)
Casual alien species confirmed for the flora of Lazio.
Anagni (Frosinone), nei pressi del cimitero (WGS84: 33T 347267E, 4623121N), 429 m, 31.03.2023, *E. De Santis* (APP No. 69725).

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