

From *Bullettino della Società Botanica Italiana* to *Italian Botanist*, passing through *Informatore Botanico Italiano*. A 128 years-long story

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In 1888, concomitant with the foundation of the Italian Botanical Society, a section called *Bullettino della Società Botanica Italiana* appeared in the last pages of each issue of volume 20 of the *Nuovo Giornale Botanico Italiano* (currently the international journal *Plant Biosystems*). Since the very beginning, this was the place where the formal proceedings of the Society and a summary of the scientific contents of the Society meetings were published. Since then, albeit without an autonomous numbering, the bulletin was regularly published several times a year. From 1894 and until 1926, along with the first volume of the new series of *Nuovo Giornale Botanico Italiano*, the bulletin started to appear only once a year, at the end of the last issue. Between 1927 and 1961 its name was changed to *Rendiconti delle Sedute e Brevi Comunicazioni*, but its publication continued. Further details on these intricate and puzzling first decades of the bulletin can be found in Maugini (1988). When, in 1962, the journal changed its name again to *Giornale Botanico Italiano*, the bulletin also changed its name back to *Bullettino della Società Botanica Italiana*, and remained as such up to 1968. During the Congress of the Italian Botanical Society held in Piacenza in September 1968, the General Assembly voted for a full separation of the bulletin from *Giornale Botanico Italiano*, so that it became an independent publication named *Informatore Botanico Italiano* (Pignatti et al. 1969; Fig. 1A). The first issue was published in April 1969. For about three decades, the journal consisted of three issues per year and, later, of only two issues with occasional supplements.

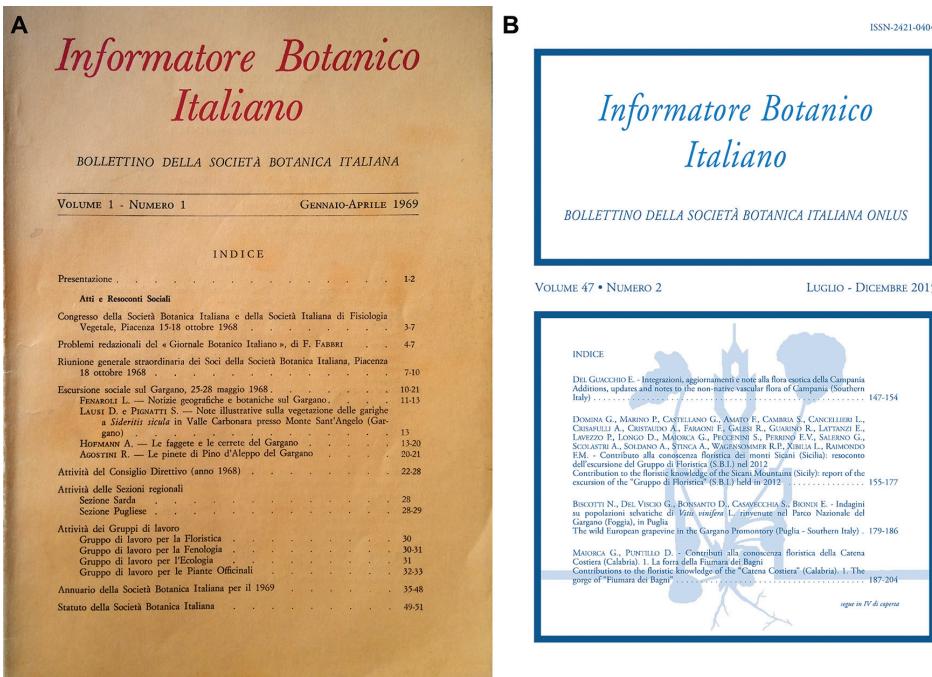


Figure 1. Front covers of the first issue of the “Informatore Botanico Italiano”, published in 1969 (**A**) and of the last issue of the “Informatore Botanico Italiano”, published in 2015 (**B**).

The initial focus of this journal was the same as that of the earlier bulletins, i.e., to publish the administrative and scientific proceedings of the Society, the yearbook of the members, but also *ad hoc* submitted scientific notes (for a synthesis of the topics published in its first ten years, see Meletti 1981). The year 1988 marked the centenary of the Italian Botanical Society. For the occasion, a monumental 331-page contribution appeared in the journal (Pedrotti 1990), while, in 1998, an Italian translation of the International Code of Botanical Nomenclature (Tokyo code) was published (Mazzola 1998). Over the years, scientific contributions began to prevail over proceedings, and several important scientific columns were introduced. These were *Numeri Cromosomici per la Flora Italiana*, reporting cytotaxonomic contributions on the Italian flora, in 1970 (for more information see Bedini et al. 2012); *Segnalazioni Floristiche Italiane*, hosting relevant new floristic records for Italy, in 1978 (for a synthesis and comments of the records published up to 1995, see Nepi 1997); *Notulae Cryptogamiae*, focused on algae, bryophytes, fungi and lichens, in 2010; *Schede per una Lista Rossa della Flora vascolare e crittogramica italiana*, concerning the IUCN protocol assessment of the Italian flora, in 2011. After publication of the checklist of the Italian vascular flora by Conti et al. (2005), the column *Segnalazioni Floristiche Italiane* became *Notulae alla checklist della flora vascolare italiana* and, after the publication of the inventory of the non-native flora of Italy by Celesti-Grapow et al. (2009), it hosted a sub-column concerning the record of alien plant species in

Italy, which eventually acquired the status of an independent column (*Notulae alla flora esotica d'Italia*) in 2015.

In recent years, an enormous number of floristic studies have been published, the major ones concerning large portions of the Italian territory, such as the Cilento (Moggi 2002), Lazio (Anzalone et al. 2010), Calabria (Bernardo et al. 2011), Emilia-Romagna (Alessandrini 2012), and the Province of Lucca (Pierini and Peruzzi 2014). Important taxonomic contributions have also appeared in the journal, such as those on *Festuca* L. and allied genera (Foggi et al. 2007, 2010), *Alchemilla* L. (Fröhner et al. 2012), and *Polygala* L. (Arrigoni 2014).

Since 1969, a total of 47 volumes and 117 issues of *Informatore Botanico Italiano* have been published (Fig. 1B). At the end of 2015, the Directive Council of the Italian Botanical Society decided to make some editorial changes. The administrative and scientific proceedings of the Society and other general information (meetings, exhibits, book reviews, excursions, etc.) will now appear in *Notiziario della Società Botanica Italiana*, an online newsletter in Italian. Meanwhile, in order to boost the scientific value and international visibility of *Informatore Botanico Italiano*, the choice has been to shift to an online, open access journal written in English and called *Italian Botanist*. In order to disseminate its contents more efficiently, it is published using the advanced technologies offered by the Pensoft platform. The journal is peer-reviewed, and hosts original research articles covering all fields of botany in its broader sense, from molecular to ecosystem levels, including mycology. The geographical coverage of *Italian Botanist* is specially focused on the Italian territory, but studies from other areas are also welcome.

Each issue will contain the following scientific columns:

Chromosome numbers for the Italian flora

Global and Regional IUCN Red List Assessments

Notulae to the Italian flora of algae, bryophytes, fungi and lichens

Notulae to the Italian native vascular flora

Notulae to the Italian alien vascular flora

Our hope is that this renewed version of the journal will serve the Italian – and foreign – botanical community more efficiently and provide readers worldwide with an easier access to knowledge concerning the Italian flora.

Lorenzo Peruzzi, Editor-in-Chief of *Italian Botanist*
Maria Consolata Siniscalco, President of the Italian Botanical Society

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Notulae to the Italian native vascular flora: I

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Abstract

In this contribution, new data concerning the Italian distribution of native vascular flora are presented. It includes new records, exclusions, and confirmations pertaining to the Italian administrative regions for taxa in the genera *Arundo*, *Bromopsis*, *Cistus*, *Crocus*, *Festuca*, *Galeopsis*, *Genista*, *Lamium*, *Leucanthemum*, *Nerium*, *Orobanche*, *Peucedanum*, *Pilosella*, *Polycnemum*, *Stipa* and *Viola*.

Keywords

Floristic data, Italy

How to contribute

The text for the new records should be submitted electronically to Chiara Nepi (chiara.nepi@unifi.it). The corresponding specimen has to be sent to FI Herbarium: Sezione di Botanica Filippo Parlatore del Museo di Storia Naturale, Via G. La Pira 4, 50121 Firenze (Italy). Those texts concerning nomenclatural novelties (typifications only for accepted names), exclusions, and confirmations should be submitted electronically to: Fabrizio Bartolucci (fabrizio.bartolucci@gmail.com). Each text should be within 2,000 characters (spaces included).

Floristic records

Arundo donaciformis (Loisel.) Hardion, Verlaque & B.Vila (Poaceae)

+ **TOS:** Monti Livornesi, Rosignano Marittimo (Livorno), Castiglioncello, Via Brenta (WGS84: 43.407385°N; 10.418388°E), habitat sinantropico, 45 m, no exp., 15 Nov 2015, V. *Lazzeri* (FI, MSNM); Monti Livornesi, Rosignano Marittimo (Livorno), loc. Spianate (WGS84: 43.421434°N; 10.414124°E), formazioni mono- o paucispecifiche su suolo argilloso, 119 m, W, 15 Nov 2015, V. *Lazzeri* (FI, MSNM); Monti Livornesi, Livorno (Livorno), loc. Calignaia (WGS84: 43.469900°N; 10.349901°E), formazioni mono- o paucispecifiche su suolo argilloso, 38 m, no exp., 7 Dic 2015, V. *Lazzeri* (FI); Monti Livornesi, Rosignano Marittimo (Livorno), loc. Case Nuove (WGS84: 43.410023°N; 10.428159°E), habitat sinantropico, 42 m, no exp., 16 Jan 2016, V. *Lazzeri* (FI). – Species new for the flora of Toscana.

Hardion et al. (2012) restored *A. donaciformis*, a Franco-Ligurian endemic that differs from the Italo-Balkan and morphologically similar *A. plinii* Turra (= *A. collina* Ten.); it differs for the hairy upper glumes and for a larger size of the plants. The discovery of *A. donaciformis* in Toscana broadens southwards the range of this taxon. However, it will be also useful to count the chromosome number of the Tuscan plants in order to ascertain if they are characterized by the same ploidy level of those from Provence and Liguria (i.e. $2n = 18x = 108$ chromosomes), as reported by Hardion et al. (2012, 2013, 2014).

V. Lazzeri, E. Banfi & G. Galasso

Bromopsis condensata (Hack.) Holub subsp. *microtricha* (Borbás) Jogan & Bačić
(Poaceae)

+ **LAZ:** Subiaco (Roma), Monti Simbruini, Campominio (WGS84: 41.955194°N; 13.187632°E), prateria, 1675 m, 2 June 2015, *G. Nicolella*, det. N.M.G. Ardenghi & E. Banfi (RO); Vallepietra (Roma), Monti Simbruini, Monte Autore (WGS84: 41.955199°N; 13.205139°E), lungo il sentiero, 1763 m, 2 June 2015, *G. Nicolella*, det. N.M.G. Ardenghi & E. Banfi (RO); Supino (Frosinone), Monti Lepini, Santa Serena, (WGS84: 41.602318°N; 13.167664°E), prateria, 1157 m, 11 June 2015, *G. Nicolella* & M. Latini, det. N.M.G. Ardenghi & E. Banfi (FI, RO). – Subspecies new for the flora of Lazio.

This subspecies was described from Slovenia (Mount Vremščica or Auremiano) and until today in Italy it was recorded only for Friuli Venezia Giulia (Poldini and Oriolo 2002) and Lombardia (Banfi and Galasso 2005). This is the first record for the Italian peninsula and marks the new southern limit of this taxon's distributional range. *Bromopsis condensata* subsp. *microtricha* can be distinguished from *B. erecta* (Huds.) Fourr. for the basal sheaths decaying into straight fibers (vs. entire) and the lack of marginal patent hairs in the proximal part of the leaf blades (vs. present). The younger and fresh sheaths are covered with a dense and short pubescence consisting of adpressed and antrorse hairs, enabling its separation from *B. condensata* subsp. *condensata* (provided with patent and longer hairs). On the contrary, the contraction of the panicle is not diagnostic since populations of *B. erecta* with narrow synflorescences can occasionally occur.

G. Nicolella, M. Latini, M. Iberite, E. Banfi & N.M.G. Ardenghi

Cistus albidus L. (Cistaceae)

– **TOS.** – Species to be excluded from the flora of Toscana.

Based on a putative record in the province of Florence by A. Borzì [“*Sotto Val-lombrosa a Donnini*”], Piccioli (1888) reported *Cistus albidus* L. in Toscana for the first time. It was also reported by Baroni (1897–1908), but was not confirmed by later au-

thors (Fiori 1924, Zangheri 1976). Rizzotto (1979) did not cite any herbarium specimen of *C. albidus* L. from Toscana: in fact, she stated that this species, in Italy, occurs along the Ligurian coasts and it is vicariated southwards by *Cistus creticus* L. subsp. *eriocephalus* (Viv.) Greuter & Burdet (cited as *Cistus incanus* L. by the author). Later, Pignatti (1982) reported *C. albidus* in Toscana without citing any locality, and this information was likely followed by Conti et al. (2005). It is possible that the occurrence reported by Pignatti (1982) was derived from Caruel (1860), although the same author corrected himself a few years later (Caruel 1870), because the locality [“*A Sarzana nel M. Caprione*”] actually falls in Liguria. We did not find any herbarium specimen collected by A. Borzì in Toscana in the herbaria of FI, PI, PAL and MS. In SIENA we found two specimens identified as *C. albidus* L.: one of these, from *Herbarium Ricasolianum*, collected in 1856 near Florence, resulted wrongly identified and attributable to *C. creticus* subsp. *eriocephalus*. The second one, collected in the same year, was correctly identified but the only information is the label's header (*Herbarium Tassi*) and neither locality nor collector were reported. Recently, the curators of the herbarium of Siena affixed a generic information on collection locality (Siena) on this label, assuming that the plant was collected by A. Tassi himself. Considering the distribution range of the species reported by Rizzotto (1979), we conclude that the occurrence of *C. albidus* L. in Toscana is unlikely and the specimen of Herbarium Tassi comes from a cultivated individual or from a locality outside of Toscana.

F. Roma-Marzio, G. Bonari, G. Bedini & L. Peruzzi

Crocus longiflorus Raf. (Iridaceae)

– PUG. – Species to be excluded from the flora of Puglia.

The species was indicated in Puglia at the end of the 19th century for the Murge plateau (Bianco 1962) and for the Gargano promontory (Fenaroli 1974), and recently confirmed for Gargano (Fiorentino and Russo 2002, Augello 2005, Licht 2008) and Lama Belvedere, in the province of Bari (Cavallaro et al. 2007).

All the autumn-flowering *Crocus* specimens that we collected in those areas were attributed to *C. thomasii* Ten. The pictures in Fiorentino and Russo (2002) and in Augello (2005), and the specimens in FI (Boschi alla Murgia di Ruvo di Puglia, 1897, *Palanza* sub *C. longiflorus*) and in BI (Lama Belvedere, Monopoli, 2005, *Angiulli* sub *C. longiflorus*), all belong to *C. thomasii*. Licht (2008) quoted Fenaroli (1974), Fiorentino and Russo (2002), and Augello (2005). Perhaps, the confusion between these two species was caused by the difficulty of observing the very small cilia along the leaf margins of *C. thomasii* and by the sometimes slightly fimbriated stigmas of the latter species. According to our observations, the only autumn-flowering *Crocus* species occurring in Puglia is *C. thomasii*.

R.P. Wagensommer, F. Angiulli, E.V. Perrino & G. Russo

Festuca rubra L. subsp. *juncea* (Hack.) K.Richt. (Poaceae)

+ **LAZ**: Vico nel Lazio (Frosinone), Monti Ernici, Campovano (WGS84: 41.822527°N; 13.373242°E), prateria di alta quota, 1880 m, 12 July 2015, *G. Nicolella*, det. *N.M.G. Ardenghi* (FI, RO). – Subspecies new for the flora of Lazio.

This subspecies is quite widespread in northern and central Italy (see Conti et al. 2005, Ardenghi et al. 2015), where it grows mostly in mountain grasslands, on acidic or superficially acidified basic soils (Foggi and Rossi 1996). However, its presence has probably been neglected due to confusion with *F. rubra* subsp. *commutata* (Gaudin) Markgr.-Dann., from which it can be safely separated based on tiller leaf blade anatomy and the presence of rhizomes (that, however, are difficult to sample).

G. Nicolella, M. Latini, M. Iberite & N.M.G. Ardenghi

Galeopsis bifida Boenn. (Lamiaceae)

+ **LIG**: Valbrevenna (Genova), Senarega (WGS84: 44.55715°N; 9.119247°E), orto incolto, 730 m, 9 September 2014, *M. Calbi* (FI). – Species new for the flora of Liguria.

It is a species with a Eurosiberic distribution. It was reported from Italy only in Lombardia, Trentino-Alto Adige, Veneto, Friuli Venezia Giulia and, doubtfully, in Piemonte (Conti et al. 2005); it was not yet recorded from Liguria.

G. Barberis & M. Calbi

Genista aetnensis (Biv.) DC. (Fabaceae)

+ (INV) **CAM**: Status change from naturalized to invasive alien in Campania.

Genista aetnensis is endemic to the Mt. Etna in Sicilia and some localities in Sardegna (Pignatti 1982). It was imported in the Vesuvian area (Campania) one century ago within a reforestation program aimed at mitigating soil erosion and increasing slope stability (Agostini 1959). Nowadays, this species has become the dominant plant species on the Vesuvius Grand Cone, where it forms continuous plant communities of shrubs. According to Stinca et al. (2015), over a period of approximately 40 years *G. aetnensis* has succeeded in accumulating considerable reserves of C, N, and P in the soil, thereby also modifying soil hydrological properties. For these reasons, this species should be considered invasive (“transformers” *sensu* Pyšek et al. 2004) in Campania.

A. Stinca

Lamium purpureum L. (Lamiaceae)

+ **CAL:** Serra San Bruno (Vibo Valentia), Monte Pecoraro (WGS84: 38.513735°N; 16.348555°E), ai bordi di un bosco di faggio e abete bianco, suolo acido derivato da disfacimento dei graniti, 1325 m, 10 May 2015, G. Pisani & F. Scutellà (FI). – Species new for the flora of Calabria.

Lamium purpureum is a species with Eurasian distribution (Pignatti 1982), occurring in Italy in almost all the administrative regions (Conti et al. 2005, Giardina and Raimondo 2007), but not recorded so far from Calabria. It is very frequent around Serra San Bruno (850 m), along roadsides and in the fields, but less common at higher elevations.

G. Pisani & F. Scutellà

Leucanthemum ligusticum Marchetti, R.Bernardello, Melai & Peruzzi (Asteraceae)

+ **EMR:** Bedonia (Parma), Segno Rosso di Val Gorotta (WGS84: 44.475964°N; 9.581916°E), radura con affioramenti rocciosi, 800 m, 12 August 2010, M. Adorni, A. Alessandrini & L. Ghillani (FI). – Species new for the flora of Emilia-Romagna.

The species was only recently described by Melai et al. (2012). The plant is diploid and, therefore, one of the “basic units” of the genus *Leucanthemum*. It was previously recorded only in siliceous outcrops in eastern Liguria (provinces of Genova and La Spezia). The population that we found consists of a few plants, located in the high Valley of the Taro river, not far from the border with Genova province and a few kilometers from the Ligurian populations.

M. Adorni, A. Alessandrini & L. Ghillani

Nerium oleander L. subsp. *oleander* (Apocynaceae)

+ (CAS) **MAR:** Cupra Marittima (Ascoli Piceno), bordo di un muro situato a ridotta distanza dal Mare Adriatico, presso Via R.Taffetani (WGS84: 43.035864°N; 13.857731°E), bordo di muro, ca. 4 m, 7 September 2015, N. Olivieri (FI). – Casual alien species new for the flora of Marche.

Some young plants of this taxon, sometimes able to blossom, have developed on the edge of the perimeter wall of a building, on the border with a paved area. The young individuals have grown from seeds produced by specimens grown as ornamentals in nearby gardens and subjected to wind dispersal. In Italy, *Nerium oleander* subsp. *oleander* is native in Sicilia, Sardegna, Calabria, Basilicata, Campania, Puglia, Toscana,

and Liguria (Conti et al. 2005), while it is recorded as alien species in Lazio, Abruzzo, Veneto, Lombardia, Trentino-Alto Adige, and Friuli Venezia Giulia (Pignatti 1982, Conti et al. 2005, Martini and Pavan 2008, Masin et al. 2009, Prosser et al. 2009).

N. Olivier

Orobanche reticulata Wallr. (Orobanchaceae)

+ **LIG**: Castelvecchio di Rocca Barbena (Savona), pendici orientali del Poggio Grande (WGS84: 44.107995°N; 8.157569°E), 653 m, 22 May 2015, *G. Barberis & M. Calbi*, det. *G. Domina* (FI). – Species confirmed for the flora of Liguria.

It is a species with European-Caucasian distribution (von Beck 1930), occurring in all the northern and central regions of Italy (Conti et al. 2005, Domina and Peruzzi 2010). The previous record from Liguria of *O. reticulata* (Peccenini et al. 2010) is wrong and to be referred to *O. gracilis* Sm. (Peccenini et al. 2012).

G. Barberis, M. Calbi & G. Domina

Peucedanum officinale L. subsp. *officinale* (Apiaceae)

+ **LAZ**: Latina (Latina), Strada Piccarello, presso area del mercato settimanale (WGS84: 41.458113°N; 12.916336°E), prati e inculti umidi inondati durante l'inverno, argini di fossati, 21 m, 10 July 2013, *M. Iberite* (FI, RO); *ibidem*, 20 September 2013 (FI, RO, *Herb. M. Iberite*); *ibidem*, 28 August 2015 (RO, *Herb. M. Iberite*). – Species new for the flora of Lazio.

This taxon is widespread in many administrative regions of Italy, with the exception of Trentino-Alto Adige, Marche, Umbria, Lazio, Sicilia and Sardegna it was mistakenly indicated for Valle d'Aosta and not confirmed for Campania and Calabria. Concerning Lazio, it has hitherto never been collected nor reported in the literature (Conti et al. 2005, 2007, Anzalone et al. 2010). In the studied area, between Strada della Rosa, Strada Piccarello, Via Rossetti and Via Isonzo (municipality of Latina), *P. officinale* occurs in two subpopulations distant about 700 m from one another. Overall, there are about 1,000 uneven-aged individuals that bloom and bear fruits regularly; occasional spring mowing does not prevent the plants from completing their phenological cycle. Contrary to a previous report by Pignatti (1982), the edaphic context is represented by sandy clayey soils, which are desiccated during the flowering/fruiting period of the species (July to September), but damp and often inundated during the winter months.

M. Iberite

Pilosella basifurca (Peter) Soják (Asteraceae)

+ **FVG:** Udine (Udine), M. Zoncolàn, Ovaro, derivazione per Malga Pozo (WGS: 46.501109°N; 12.912783°E), meadow, 1587 m, 25 June 2015, G. Gottschlich 64281 (FI, Herb. G. Gottschlich 64281). – Species new for flora of Friuli Venezia Giulia.

Pilosella basifurca is morphologically intermediate between *P. officinarum* Vaill. and *P. sphaerocephala* (Froel. ex Rchb.) F.W.Schultz & Sch.Bip. and perhaps of hybrid origin. It can be found within the distribution area of the eastern alpine *P. sphaerocephala*, and occurs in Italy in Lombardia, Trentino-Alto Adige, and Veneto (Conti et al. 2005).

G. Gottschlich

Polycnemum majus A.Braun (Amaranthaceae)

+ **TOS:** Chianni (Pisa), Monte Vitalba, sterrato sassoso lungo la strada che porta alla vetta, ca. 610 m (WGS84: 43.414047°N; 10.607888°E), June 2011, *Gestri G. & V. Lazzeri* (Herb. Museo di Storia Naturale del Mediterraneo di Livorno); Chianni (Pisa), Monte Vitalba strada sterrata nei pressi della vetta, ca. 644 m (WGS84: 43.414665°N; 10.598882°E), 8 September 2015, *G. Gestri & V. Lazzeri* (FI). – Species confirmed for the flora of Toscana.

The first reports of *P. majus* A.Braun for Toscana date back to Rossetti (1893) who listed some records from Livorno and from Garfagnana in addition to those of Levier for the river Arno and some older ones for the provinces of Lucca, Pisa, and Siena. Later, Fiori (1923) attributed to *P. majus* [sub *P. arvense* var. *majus* (A.Braun) Fiori] the same distribution of *P. arvense* L. [sub *P. arvense* var. *typicum* Fiori], Toscana included. This species was still considered as occurring in Toscana by Pignatti (1982) and by Jalas and Suominen (1988), but more recently *P. majus* was listed as a doubtful presence for this administrative region by Conti et al. (2005, 2007). In order to identify the plants from Mount Vitalba, the keys published by Jauzein (1995), Ball (1993), and Bolòs and Vigo (1990) were used, also taking into account the considerations made by Iamonico (2012).

G. Gestri, V. Lazzeri

Stipa capillata L. (Poaceae)

– **TOS.** – Species to be excluded from the flora of Toscana.

This species was recently recorded for Toscana (Lazzeri 2015), based on a large population discovered at Parco dei Poggetti (Rosignano Marittimo, Livorno). Further and more accurate analyses allowed us to attribute these plants to *Nassella neesiana* (Trin. & Rupr.) Barkworth.

V. Lazzeri

Viola alba Besser subsp. *scotophylla* (Jord.) Nyman (Violaceae)

+ **PUG:** Santeramo in Colle (Bari), loc. Lama di Lupo (UTM ED50: 33T 644340.4514020), at the base of a big rock in the Murgia, 455 m, 14 March 2015, G.N. Silletti (BI sub *V. alba* subsp. *alba*, scan in FI, *Herb. G.N. Silletti*). – Subspecies new for the flora of Puglia.

In Italy, *V. alba* occurs in all the administrative regions, in central and southern Italy usually as *V. alba* Besser subsp. *dehnhardtii* (Ten.) W. Becker (Conti et al. 2005). Recently, *V. alba* subsp. *scotophylla* was indicated for Tuscany (Pierini et al. 2009, included in *V. alba* subsp. *alba*), Lombardia (Martini et al. 2012), and Friuli Venezia Giulia (Erben 2014). A small population near Santeramo in Colle in Puglia has stolons, white flowers with violet spur, hairy capsule and other attributes of *V. alba* subsp. *scotophylla*. This taxon, not rare in northern Italy (e.g., Martini et al. 2012, Erben 2014) was included by Conti et al. (2005) in *V. alba* subsp. *alba*, but recognized by other authors, such as Valentine et al. (1968), Aeschimann et al. (2004), Martini et al. (2012), and Erben (2014). Our finding is the southernmost so far in Italy.

G.N. Silletti, R.P. Wagensommer, E.V. Perrino & F. Fenaroli

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Notulae to the Italian alien vascular flora: I

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Abstract

In this contribution, new data concerning the Italian distribution of alien vascular flora are presented. It includes new records, exclusions, and confirmations for Italy or for Italian administrative regions for taxa in the genera *Agave*, *Arctotheca*, *Berberis*, *Bidens*, *Cardamine*, *Catalpa*, *Cordyline*, *Cotoneaster*, *Dichondra*, *Elaeagnus*, *Eragrostis*, *Impatiens*, *Iris*, *Koelreuteria*, *Lamiastrum*, *Lantana*, *Ligustrum*, *Limnophila*, *Lonicera*, *Lycianthes*, *Maclura*, *Mazus*, *Paspalum*, *Pelargonium*, *Phyllanthus*, *Pyracantha*, *Ruellia*, *Sorghum*, *Symphytum*, *Triticum*, *Tulbaghia* and *Youngia*.

Keywords

Floristic data, Italy

How to contribute

The text for the new records should be submitted electronically to Chiara Nepi (chiara.nepi@unifi.it). The corresponding specimen has to be sent to FI Herbarium: Sezione di Botanica Filippo Parlatore del Museo di Storia Naturale, Via G. La Pira 4, 50121 Firenze (Italy). Those texts concerning nomenclatural novelties (typifications only for accepted names), exclusions, and confirmations should be submitted electronically to: Gabriele Galasso (gabriele.galasso@comune.milano.it). Each text should be within 2,000 characters (spaces included).

Floristic records

Agave fourcroydes Lem. (Asparagaceae)

+ (NAT) **SIC:** Favignana (Trapani), Arcipelago delle Egadi, Isola di Marettimo, tratto iniziale del sentiero tra il paese e il castello di Capo Troia (WGS84: 37.974208°N; 12.066014°E), gariga e macchia rada, 64 m, 20 March 2015, L. Cecchi, F. Selvi, I. Bettarini, G. Certini & F. Furini (FI). – Naturalized alien species new for the flora of Sicilia.

A small population (a few dozen adult individuals on an area of about 1 ha) settled in clearings of the garrigue, approx. 100 m from the village and next to a similar naturalized settlement of *Agave americana* L. Both remains of mature infructescences

and many vegetative propagules were observed all around the main population nucleus and along a nearby path, suggesting that the species is actively spreading.

L. Cecchi

***Arctotheca calendula* (L.) Levyns (Asteraceae)**

– **CAM.** – Alien species to be excluded from the flora of Campania.

Brundu et al. (2015) reported *Arctotheca calendula* for Campania, without indicating the literature source. This record is the result of an erroneous interpretation of Wilson's (1998) paper, which refers this alien plant to the Campania township in SE Tasmania. Therefore, this species is to be excluded from Campania, the administrative region of Italy.

A. Stinca & G. Brundu

***Berberis aquifolium* Pursh (Berberidaceae)**

≡ *Mahonia aquifolium* (Pursh) Nutt.

+ (CAS) **PUG:** Foggia (Foggia), Villa Comunale (UTM WGS84: 33T 546.4590), siepi e aiuole, ca. 64 m, 19 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Puglia.

The species is present with some young individuals in the context of hedges and flower beds in some shady areas of gardens on a calcareous alluvial vertisol. The collected specimens originated from seeds produced by some individuals cultivated for ornament in the Villa Comunale. The nomenclature is according to Adhikari et al. (2015).

N. Olivieri

***Bidens subalternans* DC. (Asteraceae)**

+ (CAS) **LAZ:** Genzano di Roma (Roma), loc. Ponte Tre Armi (UTM WGS84: 33T 310879.4616501), inculti e margini stradali, 265 m, 14 November 2015, M. Latini (FI, RO); Tivoli (Roma), nei tornanti della Via Tiburtina venendo da Roma (UTM WGS84: 33T 316.4646), 16 November 1997, G. Corazzi (RO sub *B. bipinnata*). – Casual alien species new for the flora of Lazio.

The samples collected are ascribed to *B. subalternans* on the basis of two characters, achenes and bristled awns (Tutin 1976, Bogosavljević and Zlatković 2015, PlantNET 2016+). A specimen was also found in RO (*Herb. B. Anzalone*, sub *B. bipinnata* L.).

Moreover photographic material, available on-line, already pointed out the occurrence of this species in Lazio (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?t=7679>), probably neglected due to confusion with *B. bipinnata*.

M. Latini, G. Nicolella & M. Iberite

***Bidens vulgata* Greene (Asteraceae)**

+ (NAT) **LIG**: Genova (Genova), Molini di Trensasco (WGS84: 44.452378°N; 8.961393°E), cunette e bordi stradali, 118 m, 29 November 2015, S. Peccenini (FI, GE). – Naturalized alien species new for the flora of Liguria.

The species occurs in several territories of Liguria, having been observed also in Castiglione Chiavarese (Genova) at 520 m (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=40&t=7131>), in Riva Ligure (Imperia) (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=40&t=67537>), and in Monte Gazzo (Genova municipality, Genova) at 308 m (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=40&t=81046>).

S. Peccenini & C. Cibei

+ (NAT) **SAR**: Villagrande Strisaili (Ogliastra), alveo del Torrente Bau Sa Teula (UTM ED50: 32S 548.4423), gretto, 80 m, 4 October 2015, G. Mereu, det. N. Ardenghi & G. Mereu (FI). – Naturalized alien species new for the flora of Sardegna.

Until now, *Bidens vulgata* has been recorded only from Friuli Venezia Giulia, Lombardia, and Emilia-Romagna (Celesti-Grapow et al. 2009, Verloove and Ardenghi 2015). After the record made by Verloove and Ardenghi (2015), the occurrence of the species has been ascertained also for other regions (http://www.actaplantarum.org/flora/flora_info.php?id=1211). *B. vulgata* (up to now misidentified with *B. frondosa* L.) may be more widespread than hitherto believed both across Sardegna and in the whole Italian territory.

G. Mereu & N.M.G. Ardenghi

+ (NAT) **TOS**: Collesalvetti (Livorno), loc. Nugola (WGS84: 43.587651°N; 10.439258°E), wetland along a path in a mixed oak wood at the border of a muddy area, 13 m, 9 October 2015, V. Lazzeri (FI); Pisa (Pisa), Le Piagge, lungo la sponda dell'Arno (WGS84: 43.707239°N; 10.411268°E), sponda fluviale, 3 m, 15 October 2015, B. Pierini & L. Peruzzi (PI). – Naturalized alien species new for the flora of Toscana.

The occurrence of *Bidens vulgata* in Italy was so far limited to Lombardia, Friuli Venezia Giulia and Emilia-Romagna (Verloove and Ardenghi 2015), and literature

cited therein). On the basis of the high similarity between *B. vulgata* and *B. frondosa* L., both in terms of morphology and ecology, *B. vulgata* may have been sometimes overlooked and confused with the latter, whose presence in the region is documented since a very long time (Caruel 1860).

V. Lazzeri, B. Pierini & L. Peruzzi

***Cardamine occulta* Hornem. (Brassicaceae)**

= *Cardamine debilis* D.Don, nom. illeg. ≡ *Cardamine hamiltonii* G.Don ≡ *Cardamine flexuosa* With. subsp. *debilis* O.E.Schulz

+ (CAS) **TAA:** Trento (Trento), Le Albere, Corso del Lavoro e della Scienza (UTM WGS84: 32T 663.5102), synanthropic habitat, 191 m, no exp., 20 November 2015, V. Lazzeri (FI). – Casual alien species new for the flora of Trentino-Alto Adige.

After several authors reported this taxon under different names, Marhold et al. (2016) clarified that the oldest name applicable for the so-called “Asian *Cardamine flexuosa*” is *C. occulta*. In Italy *C. occulta* was first found in Sardegna (Lazzeri et al. 2013, sub *C. flexuosa* With. subsp. *debilis* O.E.Schulz), then in other central and northern Italian regions (Toscana and Lombardia: Ardenghi and Mossini 2014, sub *C. flexuosa* subsp. *debilis*; Piemonte: Verloove and Ardenghi 2015, sub *C. hamiltonii* G.Don; Veneto: Marhold et al. 2016, sub *C. occulta*). The present finding broadens the distribution of *C. occulta* in northern Italy eastwards to Trentino-Alto Adige. As observed in Sardegna, *C. occulta* has been found growing together with the similar *C. hirsuta* L. in urban environments. Its presence in this region could date back to several years ago, moreover its distribution may be much broader than reported, given the possible confusion with *C. hirsuta*.

V. Lazzeri & K. Marhold

***Catalpa bignonioides* Walter (Bignoniaceae)**

+ (CAS) **ABR:** Pescara (Pescara), presso Viale G. D'Annunzio (UTM WGS84: 33T 435.4700), margine stradale, ca. 3 m, 20 September 2015, N.Olivieri (FI). – Casual alien species new for the flora of Abruzzo.

Some young individuals grow on a sandy substrate in a private courtyard adjacent to the road. The site is located between buildings in the urban area.

N. Olivieri

Cordyline australis (G.Forst.) Endl. (Asparagaceae)

+ (CAS) **MAR**: Cupra Marittima (Ascoli Piceno), Via Tommaso da Marano, giardino pubblico prossimo al litorale adriatico (UTM WGS84: 33T 406.4765), epifita su stipite di *Phoenix canariensis*, ca. 2 m, 12 November 2015, N. Olivieri (FI). – Casual alien species new for the flora of Marche.

Some young individuals have developed on the trunk of medium-sized *Phoenix canariensis* Chabaud in a public garden located close to the sea. *Cordyline australis* is cultivated in the surroundings, where it regularly flowers and fruits. As already observed for Campania (Stinca et al. 2013) and Abruzzo (Olivieri 2015), here too *C. australis* grows as an epiphyte on *P. canariensis*.

N. Olivieri

Cotoneaster coriaceus Franch. (Rosaceae)

– **ITALIA (ABR, LOM, TOS)**. – Alien species to be excluded from the flora of Italy (Abruzzo, Lombardia, and Toscana).

On the basis of the following Notula, this species is to be excluded from Italy. Probably also the recent record for the flora of Campania (Del Guacchio 2015) is to be referred to *Cotoneaster lacteus* W.W.Sm.

G. Galasso & E. Banfi

Cotoneaster lacteus W.W.Sm. (Rosaceae)

– *Cotoneaster coriaceus* auct., non Franch.

+ (NAT) **ITALIA (LOM)**: Laveno-Mombello (Varese), Punta San Michele, porzione N (UTM ED50: 32T 470.5085), rupi sul lago, ca. 197 m, NW, 22 June 2007, G. Galasso (MSNM sub *C. coriaceus*); Milano (Milano), Parco delle Cave (Baggio), incolti tra Via E. Quarti e Via P. Marchesi (Villa Marazzi) (UTM ED50: 32T 507.5035), vegetazione a *Robinia pseudoacacia* e *Rubus* spp., 125 m, no exp., 6 June 2010, G. Galasso (MSNM sub *C. coriaceus*). – Naturalized alien species new for the flora of Italy (Lombardia).

+ (CAS) **ABR**: San Vito Chietino (Chieti), loc. Marina, incolto al margine di strada urbana sul versante collinare rivolto verso il Mare Adriatico (UTM WGS84: 33T 454.4684), margine stradale, ca. 20 m, 7 September 2014, N. Olivieri (FI). – Casual alien species new for the flora of Abruzzo.

+ (NAT) **TOS**: Isola d'Elba, Marciana (Livorno), strada (Via di Lavacchio) tra Poggio e la Madonna del Buonconsiglio (UTM ED50: 32T 597.4737), bosco, 240 m, NE,

19 June 2008, *G. Galasso* (FI sub *C. coriaceus*, MSNM sub *C. coriaceus*); Montalbano, Serravalle Pistoiese (Pistoia), ex cava presso il Podere Selva Piana (UTM ED50: 32T 648.4862), versante scosceso di cava abbandonata, ca. 150 m, NE, 18 August 2010, *G. Gestri* (MSNM sub *C. coriaceus*). – Naturalized alien species new for the flora of Toscana.

Until now, *Cotoneaster lacteus* has been misidentified in Italy with *C. coriaceus* Franch., with the latter species having been recorded for Lombardia (Banfi et al. 2009, Banfi and Galasso 2010, Galasso 2010), Toscana (Galasso et al. 2011), and Abruzzo (Olivieri 2015). Indeed, Lu and Brach (2003) and Dickoré and Kasperek (2010) regard these names as heterotypic synonyms. Nevertheless, the monograph by Fryer and Hylmö (2009), followed by Stace (2010), considers them as distinct species. The specimens collected in Italy correspond to *C. lacteus* as they show its morphological features (Fryer and Hylmö 2009): new growth tomentose-villous, mostly remaining so, or only slowly glabrescent (*versus* new growth tomentose, very soon glabrescent), leaves on sterile shoots distichous, 42–120 × 20–60 mm, adaxially dull (*vs.* often spiralled, 34–52 × 16–24 mm, adaxially shiny). As stated by Tison and de Foucault (2014), if *C. coriaceus* and *C. lacteus* are regarded as distinct, then the plants cultivated and naturalized appear to be *C. lacteus*.

G. Galasso & E. Banfi

Cotoneaster pannosus Franch. (Rosaceae)

+ (CAS) **PUG**: Otranto (Lecce), Viale Rocamatura (UTM WGS84: 34T 797.4450), epifita sullo stipite di *Phoenix canariensis*, ca. 7 m, 20 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Puglia.

A single plant, identified according to Fryer and Hylmö (2011), has developed on the trunk of an individual of *Phoenix canariensis* Chabaud. The *Cotoneaster* specimen is small, but it is able to produce flowers and fruits.

N. Olivieri

Dichondra micrantha Urb. (Convolvulaceae)

+ (CAS) **CAL**: Scalea (Cosenza), in centro (UTM WGS84: 33S 567.4407), fessure della pavimentazione, 18 m, 15 August 2013, A. Stinca (PORUN); Montegiordano (Cosenza), loc. Marina, presso l'alveo del Canale Cardona (UTM WGS84: 33T 636.4431), pineta a *Pinus halepensis*, ca. 10 m, 21 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Calabria.

In Montegiordano, some individuals of this species occur in the sporadic herbaceous vegetation that colonizes the sandy soil with litter of needles inside an artificial

plantation of *Pinus halepensis* Mill., located at a short distance from the coast and characterized by sparse shrubs of *Vitex agnus-castus* L., *Cistus monspeliensis* L. *Pistacia lentiscus* L., and *Nerium oleander* L. subsp. *oleander*.

N. Olivieri & A. Stinca

Elaeagnus pungens Thunb. (Elaeagnaceae)

+ (CAS) **ABR**: Pescara (Pescara), margine della “Pineta Dannunziana” (UTM WGS84: 33T 437.4700), arbusteto rado sotto le chiome di esemplari di *Pinus halepensis*, ca. 2 m, 9 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Abruzzo.
+ (CAS) **PUG**: Otranto (Lecce), Viale Rocamatura (UTM WGS84: 34T 797.4450), epifita su stipite di *Phoenix canariensis*, ca. 7 m, 20 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Puglia.

In Abruzzo, a young individual of this species grows in a site that is partially shaded by the foliage of *Pinus halepensis* Mill. In Puglia, the plants have developed on the trunk of *Phoenix canariensis* Chabaud or within hedges of *Pittosporum tobira* (Thunb.) W.T.Aiton growing nearby.

N. Olivieri

+ (NAT) **EMR**: Cervia (Ravenna), Pineta di Cervia presso Milano Marittima (UTM WGS84: 33T 288.4906), pineta litoranea, 1 m, 18 October 2014, G. Faggi (BOLO); Langhirano (Parma), loc. Calicella (UTM WGS84: 32T 601.4948), scarpata boscata a dominanza di *Robinia pseudoacacia*, 250 m, 9 March 2015, M. Adorni (FI); *ibidem*, 17 October 2015, M. Adorni (FI). – Naturalized alien species new for the flora of Emilia-Romagna.

The population from Calicella comprises many individuals whose size varies from a few decimeters to several meters. The population from Pineta di Cervia, consisting of several scattered plants, was also reported on Acta Plantarum Forum (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?t=43711>).

M. Adorni, G. Faggi & L. Ghillani

Eragrostis mexicana (Hornem.) Link subsp. *virescens* (J.Presl) S.D.Koch & Sánchez Vega (Poaceae)

+ (NAT) **EMR**: Castelvetro Piacentino (Piacenza), Po a Castelvetro (UTM WGS84: 32T 578.4996), vegetazione spondale su sabbia, 33 m, 8 August 2011, E. Romani (FI); Monticelli d’Ongina (Piacenza), Stagni Maginot (UTM WGS84: 32T 576.4997), incolto erboso su suolo eutrofico, 33 m, 16 July 2013, E. Romani (FI); Roccabianca (Parma), confluenza tra i fiumi Taro e Po (UTM WGS84: 32T 599.4984), saliceto a

Salix alba, 31 m, 8 July 2015, *M. Adorni* (FI). – Naturalized alien subspecies new for the flora of Emilia-Romagna.

This subspecies is a Neotropical alien plant, whose presence in the Piacenza province was predicted by Banfi et al. (2005). Its occurrence in Emilia-Romagna was also reported in Acta Plantarum Forum (<http://www.actaplantarum.org/floraitaliae/view-topic.php?t=52672>). The observed populations are locally abundant.

E. Romani, M. Adorni, E. Banfi, G. Galasso & L. Ghillani

Impatiens glandulifera Royle (Balsaminaceae)

+ (NAT) **TOS**: Abetone (Pistoia), Val di Luce, Rio Le Pozze (UTM WGS84: 32T 630.4889), gravel river bed, 1350 m, no exp., 2 September 2015, *F. Sammartino* (FI). – Naturalized alien species new for the flora of Toscana.

Impatiens glandulifera is an important invader of riparian habitats (Hejda and Pyšek 2006, Cockel and Tanner 2012) which, in turn, are among the most susceptible to deterioration (Richardson et al. 2007). So far, the distribution of *I. glandulifera* in Italy was limited to the northern regions, where it exhibited mild to severe invasiveness (Celesti-Grapow et al. 2009). The present finding represents the first clue of its possible ongoing diffusion southwards. The plants that have been found in Rio Le Pozze have likely spread through hydrochory, thus suggesting a consolidated presence of *I. glandulifera* in Toscana. Further research will clarify the distribution and invasiveness of *I. glandulifera* in the region.

V. Lazzeri & F. Sammartino

Impatiens parviflora DC. (Balsaminaceae)

+ (NAT) **EMR**: Neviano degli Arduini (Parma), terrazzo fluviale del Torrente Enza, poco a valle della confluenza del Fosso della Massagna (UTM WGS84: 32T 604.4925), bosco riparale a dominanza di *Alnus incana*, 370 m, 8 June 2010, *A. Petraglia* (Herb. *A. Petraglia*); Palanzano (Parma), Torrente Enza a valle del ponte di Selvanizza (UTM WGS84: 32T 600.4922), bosco riparale a dominanza di *Alnus incana*, 445 m, 7 June 2013, *M. Adorni* (FI). – Status change from casual to naturalized alien for the flora of Emilia-Romagna.

Alessandrini et al. (2009) report the species as casual for Emilia-Romagna, but without further information (A. Alessandrini, *in litt.*). *Impatiens parviflora* was found in continuous and extensive populations within hygrophilous *Alnus incana* (L.) Moench woods at the middle course of the river Enza, which marks the border between the provinces of Parma and Reggio nell'Emilia.

A. Petraglia, M. Adorni & L. Ghillani

Iris albicans Lange (Iridaceae)

+ (NAT) **CAL**: Oriolo (Cosenza), lungo la SP481 nei pressi del km 19 (WGS84: 40.043177°N; 16.429091°E), incolto sul margine stradale, 640 m, 15 April 2014, *F. Roma-Marzio & P. Liguori* (FI). – Naturalized alien species new for the flora of Calabria.

Many shoots were found along the edge of the road, probably originating from rhizomes of cultivated plants growing in several neighbouring houses. Several plants were also observed in the nearby locality named Serra Salice (Oriolo municipality, Cosenza). According to Conti et al. (2005) and Celesti-Grapow et al. (2009), this species was so far recorded only for Lazio and Campania.

F. Roma-Marzio & P. Liguori

Koelreuteria paniculata Laxm. (Sapindaceae)

+ (CAS) **PUG**: Foggia (Foggia), Villa Comunale (UTM WGS84: 33T 546.4590), siepi e aiuole, ca. 64 m, 19 August 2015, *N. Olivieri* (FI). – Casual alien species new for the flora of Puglia.

Some young individuals grow interspersed with ornamental shrubs as part of some hedges and flower beds. They have originated from seeds produced by an adult specimen located in an area near the entrance of the gardens; they are sometimes able to bear fruit.

N. Olivieri

Lamiastrum argentatum (Smejkal) Soják (Lamiaceae)

\equiv *Lamium argentatum* (Smejkal) Henker ex G.H.Loops \equiv *Lamiastrum galeobdolon* (L.) Ehrend. & Polatschek subsp. *argentatum* (Smejkal) Stace

+ (NAT) **EMR**: Sant'Agata Feltria (Rimini), loc. Sapigno Pietra Bassa, fuori paese (UTM WGS84: 33T 275.4866), scarpatella al margine di strada, 402 m, 15 July 2012, *G. Faggi* (BOLO); Terenzo (Parma), loc. Cella di Palmia (UTM WGS84: 32T 592.4943), bosco mesofilo al margine di strada, 460 m, 5 November 2012, *L. Ghillani* (Herb. *L. Ghillani*); *ibidem*, 11 March 2014, *M. Adorni* & *L. Ghillani* (Herb. *L. Ghillani*); Salsomaggiore Terme (Parma), loc. Scipione Ponte (UTM WGS84: 32T 576.4965), margine di strada, 30 March 2015, *M. Adorni* (FI). – Naturalized alien species new for the flora of Emilia-Romagna.

All the observed populations cover the soil compactly. The population of Cellà di Palmia, the most extensive, has spread to several dozen meters from the roadside towards

the centre of the woods. It can, therefore, be considered naturalized. The population of Sapigno Pietra Bassa was also reported in Acta Plantarum Forum (<http://www.actaplantrum.org/floraitaliae/viewtopic.php?t=43830>).

M. Adorni, G. Faggi & L. Ghillani

Lantana camara L. subsp. *aculeata* (L.) R.W.Sanders (Verbenaceae)

+ (CAS) **ITALIA** (ABR): Pescara (Pescara), Piazza Italia (UTM WGS84: 33T 435.4701), bordo di selciato nei pressi di un palazzo, ca. 2 m, 30 July 2015, *N. Olivieri* (FI). – Casual alien subspecies new for the flora of Italy (Abruzzo).

Some young individuals grow in the spaces between the limestone blocks at the foot of a palace coated with the same material. *Lantana camara* subsp. *aculeata* is cultivated in the vicinity, with individuals bearing fruit regularly. It was identified according to Sanders (2012).

N. Olivieri

Ligustrum lucidum W.T.Aiton (Oleaceae)

+ (CAS) **CAL**: Montegiordano (Cosenza), loc. Marina, presso l'alveo del Canale Cardona (UTM WGS84: 33T 636.4431), pineta a *Pinus halepensis*, ca. 10 m, 21 August 2015, *N. Olivieri* (FI). – Casual alien species new for the flora of Calabria.

Some young individuals grow in a coastal pine forest of *Pinus halepensis* Mill. in rather cool, shaded areas, on sandy substrate covered by a litter of pine needles; in areas where it is less represented, the sparse undergrowth consists of *Vitex agnus-castus* L., *Cistus monspeliensis* L., *Pistacia lentiscus* L., and *Nerium oleander* L. subsp. *oleander*.

N. Olivieri

Limnophila ×ludoviciana Thieret (Plantaginaceae)

(*Limnophila indica* (L.) Druce × *L. sessiliflora* (Vahl) Blume)

+ (NAT) **VEN**: Porto Tolle (Rovigo), nei pressi di loc. Gnocca (MTB 1039/4) (UTM WGS84: 33T 288.4975), risaia, -1,5 m, 27 August 2013, *G. Favaro, R. Masin, B. Pellegrini & L. Tosetto* (Herb. *R. Masin*); *ibidem*, 13 September 2015 (Herb. *R. Masin*); Gazzo Veronese (Verona), 250 m a WSW della Turbina presso Corte Nuova, nel SIC “Palude

del Busatello" (MTB 0832/3) (UTM WGS84: 32T 663.4996), risaia, 15 m, 16 October 2015, A. Bertolli, F. Prosser, G. Tomasi & S. Andreatta (FI, ROV). – Naturalized alien nothospecies new for the flora of Veneto.

This hybrid was identified for the first time by Piccoli (1974) for Emilia-Romagna, based on populations discovered a few years earlier in rice fields in the Ferrara province (Codigoro and Jolanda di Savoia; see Buzzi 1973). He also provided a detailed description of the plant (Piccoli 1974). Viggiani et al. (2003) provided several color pictures of plants from the same areas. The plants collected in Veneto are identical to those of Ferrara province, according to the above-cited sources. Piccoli et al. (2014) indicated this hybrid as occurring in Italy only in the administrative region of Emilia-Romagna, specifically in Ferrara and Reggio nell'Emilia provinces (see also <http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=40&t=79251>). The new findings reveal a gradual expansion of the hybrid, which appears to be relatively slow, perhaps due to its estimated infertility or low fertility.

F. Prosser, R. Masin & A. Bertolli

Lonicera fragrantissima Lindl. & Paxton (Caprifoliaceae)

= *Lonicera standishii* Carrière f. *standishii* = *Lonicera standishii* Carrière f. *lancifolia* Rehder

+ (NAT) **ITALIA (VEN)**: Vidor (Treviso), riva sinistra del Fiume Piave (UTM WGS84: 33T 271.5082), terreno alluvionale, boscaglia chiara mista, 135 m, 10 February 2015, A. De Bastiani (FI). – Naturalized alien species new for the flora of Italy (Veneto).

Lonicera fragrantissima is a bushy, not climbing honeysuckle native to central China. It grows in forests and scrubs at elevations between 100 and 2,700 m (Yang et al. 2011). The species belongs to the same clade as *L. hispida* Pallas ex Schult., and possibly a few other Asian entities as suggested by Theis et al. (2008). It is sold as a garden shrub for winter flowering and flower fragrance. It is self-fertile and produces red berries (bibaccae, according to Spjut 1994) that are easily dispersed in late spring by birds, especially blackbirds.

E. Banfi & A. De Bastiani

Lycianthes rantonnetii (Carrière) Bitter (Solanaceae)

≡ *Solanum rantonnetii* Carrière

+ (CAS) **LIG**: Cogoleto (Genova), strada vicinale del Chiappino (WGS84: 44.396700°N; 8.636420°E), bordo strada, 160 m, 13 October 2015, M. Calbi (FI). – Casual alien species new for the flora of Liguria.

M. Calbi & S. Peccenini

Maclura pomifera (Raf.) C.K.Schneid. (Moraceae)

+ (CAS) **TOS**: Pisa (Pisa), Tenuta di San Rossore, Parco Regionale Migliarino, San Rossore, Massaciuccoli, Via Angroagna, poco dopo l'incrocio con Via Bicchi nei pressi della foce del Fiume Morto Nuovo (WGS84: 43.73180°N; 10.28179°E), retroduna al margine di un bosco con prevalenza di *Quercus ilex*, substrato sabbioso, 4 m, 7 October 2015, M. D'Antraccoli & F. Roma-Marzio (FI). – Casual alien species confirmed for the flora of Toscana.

Maclura pomifera is a deciduous and dioecious tree native to eastern USA (Burton 1990). It is planted worldwide as an ornamental. The species readily escapes from cultivation and invades disturbed areas (Burton 1990). At present, it is reported for all Italian regions except Valle d'Aosta and was recorded as doubtful in Toscana (Conti et al. 2005, 2007, Bacchetta et al. 2009, Celesti-Grapow et al. 2009). We found a single tree near the shoreline.

F. Roma-Marzio, M. D'Antraccoli, G. Bedini & L. Peruzzi

Mazus pumilus (Burm.f.) Steenis (Mazaceae)

+ (NAT) **LAZ**: Roma (Roma), Piazza Santa Maria in Trastevere (UTM WGS84: 33T 290.4640), nelle fessure della pavimentazione (sampietrini), 19 m, 16 May 2015, A. Selvaggi (FI, *Herb. A. Selvaggi*). – Naturalized alien species new for the flora of Lazio.

The presence of *M. pumilus* in Italy was recorded for the first time sub *Mazus japonicus* (Thunb.) Kuntze at the Botanical Garden of Pavia by Peccenini Gardini (1985), then in other localities of Lombardia (e.g. Desfayes 1997, Banfi and Galasso 2010, <http://www.actaplantarum.org/floritaliae/viewtopic.php?t=54117>). In Piemonte, it has been reported as casual in some localities (Antonietti and Dellavedova 2013), and as naturalized and widespread in others (Selvaggi and Dellavedova 2015). In Veneto, the species was collected and identified for the first time in 2011 by Francesco Di Carlo, and later confirmed by Galasso et al. (2013). In most of the above-mentioned Italian regions, and also in Roma, the species grows between the cracks of the stone paving of urban centres. The presence of *M. pumilus* in Lazio and Roma was not recorded by Anzalone et al. (2005, 2010) and Celesti-Grapow et al. (2013).

A. Selvaggi

Paspalum dasyploleum Kunze ex Desv. (Poaceae)

= *Paspalum pachyrrhizum* Steud.

+ (CAS) **ITALIA (LOM)**: Olgiate Molgora (Lecco), Pianezzo, tra Via Bagaggera e Via Pianezzo, di fronte alla fontanella presso la chiesa (WGS84: 45.709998°N;

9.394985°E), spigolo umido tra la strada e il muro, 280 m, NNW, 2003, S. Mauri (MSNM sub *P. dilatatum*, scan in FI). – Casual alien species new for the flora of Italy (Lombardia).

Recently, in the MSNM herbarium, we found a specimen collected in 2003 under the name *P. dilatatum* that was visibly different from the latter species, especially by having a greater number of racemes with smaller spikelets. Therefore, it was first thought to belong to *P. urvillei* Steud., a South American weed that is widely naturalized beyond its native distribution area, also in Europe (for instance in the Iberian Peninsula; e.g. Litzler 1979). However, on closer examination, it proved to differ also from this species. According to Zuloaga and Morrone (2005) these plants correspond to *P. dasyleurum*. A comparison with type material of this species as well as of *P. pachyrrhizum* Steud., a heterotypic synonym, both preserved in BR, confirmed our identification. This species is native to Argentina and Chile where it is a well-known forage grass or weed. To our knowledge, it has not been recorded before in the Old World. Field surveys conducted in 2015 could not confirm the current persistence of this species; therefore, it is considered a casual alien. However, it may have been overlooked so far in Italy or elsewhere in Europe. Therefore, a key for the members of the informal *Dilatata* group occurring in Europe is presented.

- 1 Panicle branches (2–)3–5(–7); spikelets 2.8–4.0 mm long; leaf sheath usually glabrous (in Europe) *P. dilatatum*
- Panicle branches more numerous, up to 30; spikelets 1.8–2.8 mm long; leaf sheath usually pubescent (in Europe) 2
- 2 Spikelets acute at apex; lower lemma and upper glume as long as fertile floret *P. dasyleurum*
- Spikelets acuminate at apex; lower lemma and upper glume markedly longer than fertile floret *P. urvillei*

F. Verloove, E. Banfi, G. Galasso & S. Mauri

Pelargonium zonale (L.) L'Hér. (Geraniaceae)

+ (CAS) PUG: Isole Tremiti (Foggia), Isola di San Domino, loc. Piana Grande (UTM WGS84: 33S 540.4663), incolto ai margini di un sentiero all'interno dell'isola, ca. 50 m, 27 July 2015, N. Olivier (FI). – Casual alien species new for the flora of Puglia.

Several individuals grow in uncultivated areas along trails at the edge of natural vegetation consisting of pine woods of *Pinus halepensis* Mill.

N. Olivier

Phyllanthus tenellus Roxb. (Phyllanthaceae)

+ (CAS) **LIG**: Genova (Genova), giardini fra Corso Dogali e Corso Carbonara (WGS84: 44.416718°N; 8.927880°E), aiuola, 50 m, May 2015, S. Peccenini (GE); *ibidem*, 20 September 2015, S. Peccenini (FI). – Casual alien species new for the flora of Liguria.

Native to the Mascarene Islands (Indian Ocean) and naturalized in tropical and subtropical areas (America, Australia), it grows since at least 20 years in the greenhouses of the Genova Botanical Garden, where it bears fruit and disseminates regularly. The recent climate changes has allowed it to spread to the urban environment. The species, so far known as naturalized only in Sicilia (Crisafulli et al. 2011), was identified according to Webster (1970).

S. Peccenini

Pyracantha crenulata (D.Don) M.Roem. (Rosaceae)

+ (CAS) **ABR**: Pescara (Pescara), “Pineta Dannunziana” (UTM WGS84: 33T 437.4700), radure in pineta, ca. 3 m, 9 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Abruzzo.

Several individuals of different sizes grow in clearings of the “Pineta Dannunziana”. The species is accompanied by *Pittosporum tobira* (Thunb.) W.T.Aiton, *Laurus nobilis* L., *Ficus carica* L., as well *Cortaderia selloana* (Schult. & Schult.f.) Asch. & Graebn.

N. Olivieri

Ruellia simplex C.Wright (Acanthaceae)

+ (CAS) **PUG**: Otranto (Lecce), presso Via M. Corti (UTM WGS84: 34T 797.4450), margini stradali e bordi di aiuole, ca. 7 m, 20 August 2015, N. Olivieri (FI). – Casual alien species new for the flora of Puglia.

Several individuals have developed on the edge of a road leading to a private court-yard. The plants were identified according to Wunderlin and Hansen (2008). According to the same authors, *R. simplex* is a perennial species native to Mexico, West Indies, western Bolivia, SW Brazil, Paraguay, Uruguay, and NW Argentina. In tropical and subtropical regions, it is grown as an ornamental plant and this has caused its spread into the wild in the southeastern regions of the United States (e.g., Florida) where it occurs as an invasive species (Wunderlin and Hansen 2008). Recently, it has been reported for Italy in Sardegna by Lazzeri et al. (2015).

N. Olivieri

Sorghum bicolor (L.) Moench (Poaceae)

+ (CAS) **PUG**: Casamassima (Bari), svincolo SS100 per Casamassima-Turi (WGS84: 40.948337°N; 16.930767°E), margine stradale, 220 m, 13 October 2015, G. Signorile & E.V. Perrino (BI, scan in FI). – Casual alien species new for the flora of Puglia.

Sorghum bicolor occurs in all regions of southern Italy (including Sicilia and Sardegna) (Conti et al. 2005), although, in the past, it was recorded in Campania and Abruzzo by mistake (Conti et al. 2007). It is an archaeophyte that does not usually form stable populations (Celesti Grapow et al. 2009).

G. Signorile & E.V. Perrino

Symphyotrichum pilosum (Willd.) G.L.Nesom (Asteraceae)

≡ *Aster pilosus* Willd.

+ (CAS) **EMR**: Varano de' Melegari (Parma), Torrente Ceno nei pressi di Viazzano (UTM WGS84: 32T 582.4949), greto ghiaioso, 170 m, 12 August 2011, M. Adorni (FI). – Casual alien species new for the flora of Emilia-Romagna.

The population consists of several plants distributed over an area of several dozen square meters.

M. Adorni, E. Banfi, G. Galasso & L. Ghillani

Triticum cylindricum (Host) Ces., Pass. & Gibelli (Poaceae)

≡ *Aegilops cylindrica* Host

+ (NAT) **EMR**: Fidenza (Parma), stazione ferroviaria di Castione Marchesi (UTM WGS84: 32T 582.4974), bordi di massicciata ferroviaria, 52 m, 22 May 2013, M. Adorni & L. Ghillani (FI); Terenzo (Parma), Rocca San Genesio, lungo una mulattiera nei pressi della Rocca (UTM WGS84: 32T 585.4943), lungo mulattiera, 500 m, 25 June 2014, L. Ghillani (FI). – Naturalized alien species new for the flora of Emilia-Romagna.

Triticum cylindricum is an archaeophyte of Pontic origin (Pignatti 1982, Celesti Grapow et al. 2009) reported in northern Italy but not in Emilia-Romagna (Perrino et al. 2014). According to the same authors, this species also occurs in Basilicata, Puglia, and Sardegna. At the time of discovery, both populations appear to be fairly large.

M. Adorni, E. Banfi, G. Galasso & L. Ghillani

***Tulbaghia violacea* Harv. (Amaryllidaceae)**

+ (CAS) **ITALIA (MAR)**: Cupra Marittima (Ascoli Piceno), al margine di Viale T. da Marano, in un'area prossima al Mare Adriatico (UTM WGS84: 33T 406.4765), epifita su stipite di *Phoenix canariensis*, ca. 4 m, 7 September 2015, N. Olivieri (FI). – Casual alien species new for the flora of Italy (Marche).

This species was identified according to Matthews (2011). It grows in isolation at the base of the trunk of a medium-sized individual of *Phoenix canariensis* Chabaud. The species was also observed in Emilia-Romagna in 2008 (<http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=40&t=45026&p=289861>).

N. Olivieri

***Youngia japonica* (L.) DC. subsp. *japonica* (Asteraceae)**

≡ *Crepis japonica* (L.) Benth.

+ (CAS) **ITALIA (LIG)**: Genova (Genova), giardini fra Corso Dogali e Corso Carbonara (WGS84: 44.416692°N; 8.928248°E), bordo strada, 50 m, 11 March 2015, S. Peccenini (FI, GE). – Casual alien species new for the flora of Italy (Liguria).

This species is native to East Asia, and is naturalized in warm areas of all continents. It was identified according to Shi and Kilian (2011).

S. Peccenini

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Chromosome numbers for the Italian flora: I

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Abstract

In this contribution new chromosome data obtained on material collected in Italy are presented. It includes 15 chromosome counts for *Carduus*, *Crepis*, *Picris*, *Taraxacum* (Asteraceae), *Ceratonia*, *Lathyrus* (Fabaceae), *Colchicum* (Colchicaceae), *Fritillaria* (Liliaceae), *Petrorhagia* (Caryophyllaceae), *Potentilla* (Rosaceae), *Quercus* (Fagaceae), *Reseda* (Resedaceae), and *Thymus* (Lamiaceae).

Keywords

Cytogeography, Cytotaxonomy, Karyotype

How to contribute

The text concerning new chromosome data should be submitted electronically to Lorenzo Peruzzi (lorenzo.peruzzi@unipi.it), including indications on voucher specimens and methods used.

Chromosome counts

Carduus personata (L.) Jacq. subsp. *personata* (Asteraceae)

Chromosome number. $2n = 20$ (Fig. 1)

Voucher specimen. ITALY. Toscana. Alpe della Luna, Appennino Aretino, faggeta di crinale del M. dei Frati, 1300–1400 m, 12 July 1988, *M. Raffaelli, M. Rizzotto, A. Maury & A. Formelli* (FI).

Method. Pretreatment of root tips with 8-hydroxyquinoline for 2 h, fixed in Carnoy, hydrolysis in 1N HCl at 60 °C, stain with 40% orcein.

Observations. Sixteen out of 41 specific and subspecific *Carduus* taxa growing in Italy are native to Tuscany. *Carduus personata* is a perennial species occurring in alpine and subalpine areas of central Europe, the Alps, and Carpathian Mountains (Gremaud 1979). It is distributed in northern and central, but not in southern Italy (Conti et al. 2005, Conti and Bartolucci 2013). Several chromosome counts of *Carduus* species are known from the literature (Gremaud 1979, Peruzzi et al. 2015), with occasional occurrence of B-chromosomes. Only a few examples of polyploidy have been reported so far (Gremaud 1979). It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it also represents a new cytotype for the *C. personata*, for which the following chromosome numbers were reported for other countries so far: $2n = 16, 18, 22$ (Rice et al. 2014). The population thriving on the Alpe della Luna occurs mostly on moist rocks or in open spots inside the beech forest. Chromosome size ranges from 1.2 to 2.6 μm .

Carduus nutans L. subsp. *nutans* (Asteraceae)

Chromosome number. $2n = 16$ (Fig. 2)

Voucher specimen. ITALY. Toscana. Alpe della Luna, Appennino Aretino da Pian delle Capanne alla Sella, fra M.te Maggiore e M.te dei Frati a 1000–1350 m, 22 August 1989, *M. Raffaelli & A. Formelli* (FI).

Method. Pre-treatment of root apices with 8-hydroxyquinoline for 2 h, fixed in Carnoy, hydrolysis in 1N HCl at 60 °C, staining with 40% orcein.

Observations. The species *Carduus nutans*, with six subspecies, is widespread throughout the Italian peninsula (Conti et al. 2005). The chromosome number found in plants from Alpe della Luna is the same as that found in plants from other Italian localities (Favarger 1973, Brullo et al. 1978, Bellomaria and Hruska 1983) and from populations of Eastern Europe (Rice et al. 2014). Chromosome size ranges from 2.6 to 2.8 μm .

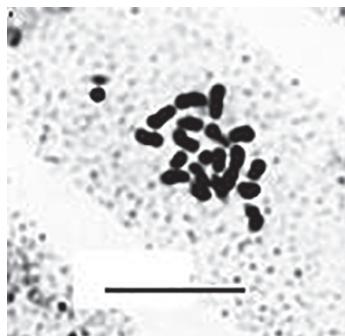


Figure 1. *Carduus personata* (L.) Jacq. subsp. *personata*, $2n = 20$. Scale bar: 10 μm .

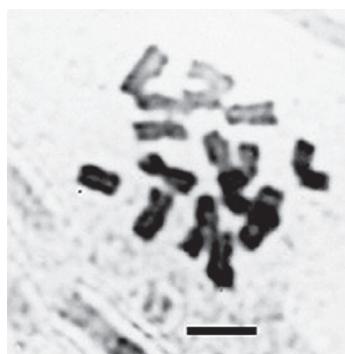


Figure 2. *Carduus nutans* L. subsp. *nutans*, $2n = 16$. Scale bar: 5 μm .

Reseda luteola L. (Resedaceae)

Chromosome number. $2n = 26$ (Fig. 3)

Voucher specimen. ITALY. Toscana. Alpe della Luna (Appennino Aretino), da Pian delle Capanne salendo al crinale di M.te dei Frati, 17 September 1987, *M. Raffaelli & A. Formelli* (FI).

Method. Pre-treatment of root apices with 8-hydroxyquinoline for 2 h, fixed in Carnoy, hydrolysis in 1N HCl at 60 °C, staining with 40% orcein.

Observations. *Reseda luteola* is widely distributed all over the Italian peninsula, Sicily and Sardinia (Conti et al. 2005). The population from Alpe della Luna occurs mostly in dry meadows below 1000 m of elevation (Raffaelli and Rizzotto 1991). It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards). This chromosome number was already reported, as the most frequent, for other countries, together with $2n = 24, 28$ (Fernández-Peralta et al. 1982, Rice et al. 2014). Chromosome size ranges from 1.8 to 3.5 μm .

M. Rizzotto

Colchicum bulbocodium Ker Gawl. subsp. *versicolor* (Ker Gawl.) K.Perss. (Colchicaceae)

Chromosome number. $2n = 22$ (Fig. 4)

Voucher specimen. ITALY. Abruzzo. Campo Felice (Lucoli, L’Aquila), pascoli, 1500 m, 19 May 2006, F. Conti & R. Soldati (APP, n. 30130).

Method. Squash preparations were made on root tips obtained from cultivated corms. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. The genus *Colchicum* L. exhibits a wide range of chromosome numbers and ploidy levels, from $2n = 14$ to $2n = \text{ca. } 216$ (Chacón et al. 2014). *Colchicum bulbocodium* subsp. *versicolor* is an east European taxon, occurring in Italy only in Abruzzo, Lazio and Umbria, doubtful in Valle d’Aosta (Conti et al. 2005, Miglio and Santucci 2011, Bovio 2014). It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with previous counts made in other countries (Wetschnig 1992, Persson 2009).

Fritillaria montana Hoppe ex W.D.J.Koch (Liliaceae)

Chromosome number. $2n = 18$ (Fig. 5)

Voucher specimen. ITALY. Abruzzo. Valle del Giovenco (L’Aquila), May 2008, F. Bartolucci & V. Impiccini (APP).

Method. Squash preparations were made on root tips obtained from cultivated bulbs. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. The chromosome count found is typical for this species, and was reported for several other localities from Italy and abroad (Bartolucci et al. 2009). Interestingly, $2n = 24$ was published for the same population studied here (Chichiriccò and Tammaro 1982, under the name *Fritillaria orsiniana* Parl.). Bartolucci et al. (2009) did not have the possibility to study these plants, so that the question was left open. Now, it is evident that the count by Chichiriccò and Tammaro (1982) is erroneous and/or referred to another taxon.

Lathyrus pannonicus (Jacq.) Garcke (Fabaceae)

Chromosome number. $2n = 14$ (Fig. 6)

Voucher specimen. ITALY. Abruzzo. Altopiano delle Rocche, nei pressi di Campo di Rovere (Rocca di Mezzo, L’Aquila), 24 May 2006, F. Bartolucci (APP, n. 34710).

Method. Squash preparations were made on root tips obtained from cultivated plants. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Car-

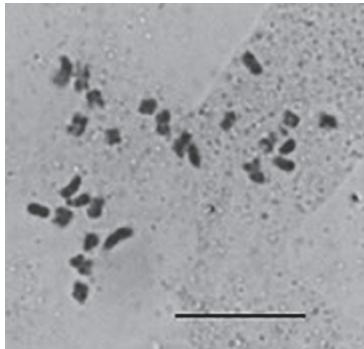


Figure 3. *Reseda luteola* L., $2n = 26$. Scale bar 5 μm .

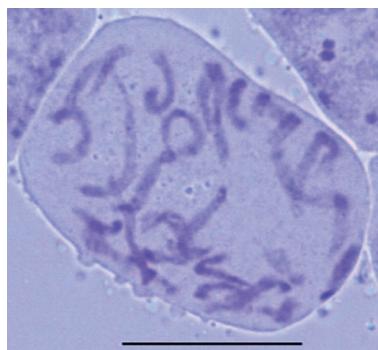


Figure 4. *Colchicum bulbocodium* Ker Gawl. subsp. *versicolor* (Ker Gawl.) K.Perss., $2n = 22$. Scale bar: 10 μm .



Figure 5. *Fritillaria montana* Hoppe ex W.D.J.Koch, $2n = 18$. Scale bar: 10 μm .

noy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. According to Schlee et al. (2011), this population (named “Rovere type”), as well as the populations from the National Park of Abruzzo (Conti and Bartolucci 2015), shows intermediate morphological traits among different subspecies, so



Figure 6. *Lathyrus pannonicus* (Jacq.) Garcke, $2n = 14$. Scale bar: $10 \mu\text{m}$.

that it is not possible to safely attribute it to any currently recognised subspecies. It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with previous counts made elsewhere (Rice et al. 2014).

Thymus striatus Vahl subsp. *acicularis* (Waldst. & Kit.) Ronniger (Lamiaceae)

Chromosome number. $2n = 26$ (Fig. 7)

Voucher specimen. ITALY. Abruzzo. Feudo d'Ugni, Parco Nazionale della Maja (Pennapiedimonte, Chieti), 2300 m, F. Conti & F. Bartolucci, August 2011 (APP).

Method. Squash preparations were made on root tips obtained from cultivated plants. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60°C , the tips were stained with leuco-basic fuchsin.

Observations. *Thymus straitus* s.l. shows several chromosome numbers, i.e. $2n = 26, 28, 42, 54, 56, 84$ (Bartolucci and Peruzzi 2014 and literature cited therein). The chromosome number found is typical for this subspecies, and was reported for other localities from central Italy (Bartolucci and Peruzzi 2014).

G. Astuti, F. Roma-Marzio, F. Bartolucci, F. Conti & L. Peruzzi

Ceratonia siliqua L. (Fabaceae)

Chromosome number. $2n = 24$ (Fig. 8)

Voucher specimen. ITALY. Puglia. C.da Serranova (Carovigno, Brindisi), nei pressi della masseria Grottamiranda, oliveto misto a *Ceratonia siliqua* su suolo calcareo con roccia affiorante, 68 m, 11 August 2015, F. Roma-Marzio & G. Roma-Marzio (PI).

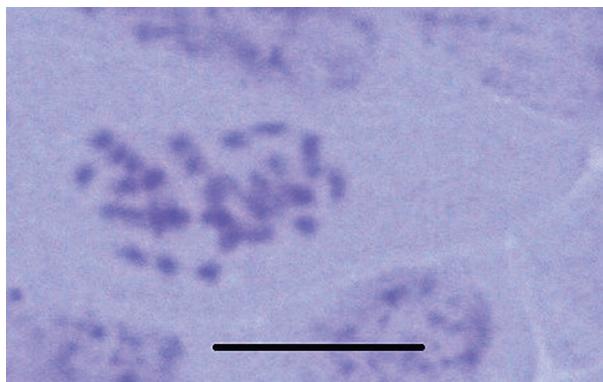


Figure 7. *Thymus striatus* Vahl subsp. *acicularis* (Waldst. & Kit.) Ronniger, $2n = 26$. Scale bar: 5 μm .

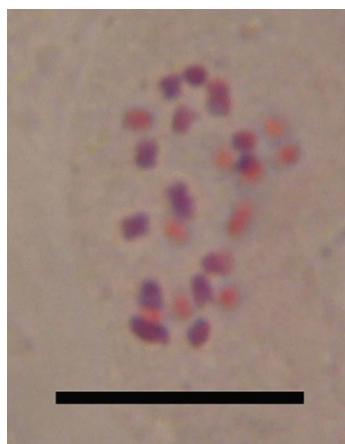


Figure 8. *Ceratonia siliqua* L., $2n = 24$. Scale bar: 10 μm .

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. *Ceratonia siliqua* is a Mediterranean species, native to Turkey, Cyprus, Syria, Lebanon, Palestine, southern Jordan, Egypt, Tunisia, and Libya; some authors believe that it was probably introduced to Greece, Italy, France, Spain, and Portugal in ancient times (Ballesteros et al. 2015). Conti et al. (2005, 2007), however, report this species as native in all the coastal regions of central-southern Italy, Sardinia, and Sicily. It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with most of the counts made in other countries (Rice et al. 2014), with the exception of two reports ($2n = 36$, $2n = 48$) from Israel (Bureš et al. 2004).

Quercus × pseudosuber Santi (Fagaceae)

Chromosome number. $2n = 24$ (Fig. 9)

Voucher specimen. ITALY. Toscana. versante settentrionale del M.te Vitalba, loc. Fontana del Vitalba (Chianni, Pisa), bosco misto su suolo calcareo argilloso, 512 m, 9 December 2015, F. Roma-Marzio & M. D'Antraccoli (PI).

Method. Squash preparations were made on root tips obtained from germinating acorns. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. According to Cristofolini and Crema (2005), the name *Q. ×pseudosuber* Santi should be exclusively applied to the systematic unit occurring from central Tuscany to southern Italy, whereas plants from northern Italy (including N Apennine) and SE France, should refer to the name *Quercus crenata* Lam. In our opinion, the two units can be hardly distinguished morphologically. However, according to Peruzzi et al. (2011), the studied population should be referred to *Q. ×pseudosuber*. It is the second chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with the report published by D'Emerico et al. (1995, under the name *Quercus crenata*) for southern Italy.

Quercus robur L. subsp. *robur* (Fagaceae)

Chromosome number. $2n = 24$ (Fig. 10)

Voucher specimen. ITALY. Toscana. Colline delle Cerbaie, loc. Le Pianore (Castelfranco di Sotto, Pisa), margine di bosco mesofilo, 50 m, 21 October 2015, F. Roma-Marzio & M. D'Antraccoli (absent; acorns collected in the field only).

Method. Squash preparations were made on root tips obtained from germinating acorns. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with other counts from abroad (Rice et al. 2014), confirming the high chromosome number stability in the genus *Quercus* L.

Francesco Roma-Marzio

Crepis rubra L. (Asteraceae)

Chromosome number. $2n = 10$ (Fig. 11)

Voucher specimen. ITALY. Campania. Vallone San Nicola (Trevico, Avellino), prato arido, 710–930 m, 4 June 2015, G. Astuti, L. Peruzzi & F. Roma-Marzio (absent; cypselae collected in the field only).

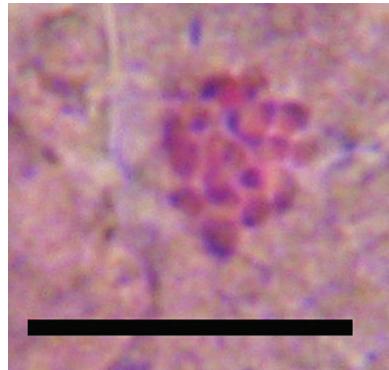


Figure 9. *Quercus x pseudosuber* Santi, $2n = 24$. Scale bar: 10 μm .

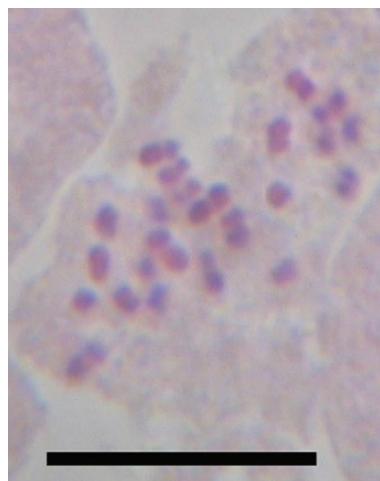


Figure 10. *Quercus robur* L. subsp. *robur*, $2n = 24$. Scale bar: 10 μm .



Figure 11. *Crepis rubra* L., $2n = 10$. Scale bar: 10 μm .

Method. Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. *Crepis rubra* is a species with a Mediterranean distribution (Pignatti 1982), occurring in Italy only in Campania, Puglia, Basilicata, and Calabria, doubtful in Molise (Conti et al. 2005). According to a recent taxonomic review of the genus *Crepis* L., based on molecular studies, this species (previously classified within *C.* sect. *Hostia* (Moench) Babc.) is now placed within *C.* sect. *Barkhausia* (Moench) Gaudin, along with other taxa previously included within *C.* sect. *Zacintha* (Mill.) Babc. and *C.* sect. *Berinia* (Brign.) Babc. (Enke 2009). It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with most of the counts made abroad, even though other chromosome numbers are also reported: $2n = 8$, $2n = 12$, and $2n = 16$ (Rice et al. 2014).

Petrorhagia dubia (Raf.) G.López & Romo (Caryophyllaceae)

Chromosome number. $2n = 30$ (Fig. 12)

Voucher specimen. ITALY. Campania. Vallone San Nicola, Trevico, Avellino, pendio rupestre, 710–930 m, 4 June 2015, G. Astuti, L. Peruzzi & F. Roma-Marzio (PI).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. *Petrorhagia dubia* belongs to *P.* sect. *Kohlrauschia* (Kunth) P.W.Ball & Heywood, which includes annual and self-compatible species characterized by a basic chromosome number $x = 15$ (Thomas and Murray 1983). Our chromosome number report is the first from peninsular Italy, and it agrees with a previous report from Sicily (Colombo and Trapani 1989, under the name *Petrorhagia velutina* (Guss.) P.W.Ball & Heywood) and with counts made elsewhere (Thomas and Murray 1983, Diaz Lifante and Parra Martin 2013, Rice et al. 2014).

Picris hieracioides L. subsp. *hieracioides* (Asteraceae)

Chromosome number. $2n = 10$ (Fig. 13)

Voucher specimen. SAN MARINO. San Marino, Monte Titano, sentiero roccioso sotto la torre “il montale”, 19 August 2014, D. Dolci (PI).

Method. Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

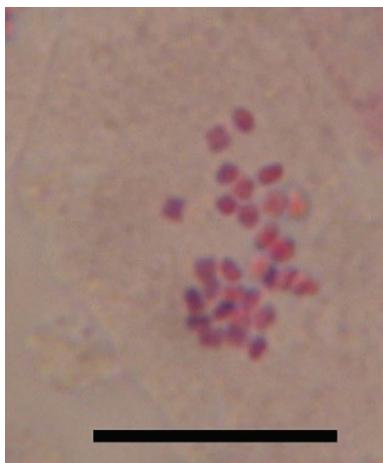


Figure 12. *Petrorhagia dubia* (Raf.) G.López & Romo, $2n = 30$. Scale bar: 10 μm .

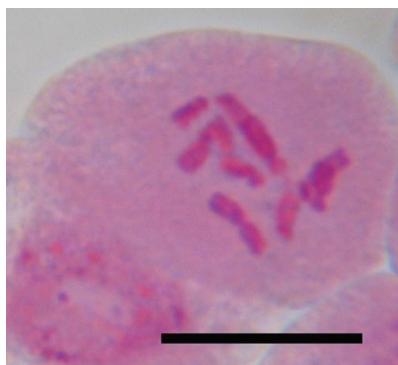


Figure 13. *Picris hieracioides* L. subsp. *hieracioides*, $2n = 10$. Scale bar: 10 μm .

Observations. In Italy, the genus *Picris* L. includes four species and only two subspecies are currently recognized within *P. hieracioides* (Slovák et al. 2012, Astuti et al. 2015). Our chromosome count agrees with other data from Italy and elsewhere (Slovák et al. 2007, Bedini et al. 2010 onwards, Rice et al. 2014, Astuti et al. 2015).

Potentilla pedata Willd. ex Hornem. (Rosaceae)

Chromosome number. $2n = 28$ (Fig. 14)

Voucher specimen. ITALY. Basilicata. versante lucano del Monte Sparviere (Terranova del Pollino, Potenza), pascolo, 1547 m, August 2015, F. Roma-Marzio & L. Peruzzi (PI).

Method. Squash preparations were made on root tips obtained from germinating seeds. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy

solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. This species was recently recorded for the locality studied by Roma-Marzio et al. (2016), and it is currently reported for most of the Italian regions (Falcinelli et al. 2015 and literature cited therein). It is the first chromosome count for this species in Italy (Bedini et al. 2010 onwards), and it agrees with counts made on Hungarian plants (Borhidi 1968, under the name *P. pedata* var. *pseudopedata* Borhidi). However, plants from Bulgaria were reported as having $2n = 35, 49, 56$ chromosomes (Markova and Goranova 1996).

Taraxacum olivaceum Soest (Asteraceae)

Chromosome number. $2n = 32$ (Fig. 15)

Voucher specimen. ITALY. Toscana. Monte Pratofiorito (Bagni di Lucca, Lucca), versante N-NE, prato al margine di bosco, 1117 m, 20 May 2015, F. Roma-Marzio, M. D'Antraccoli, G. Astuti & L. Peruzzi (PI).

Method. Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 h and then fixed in Carnoy solution for 1 h. After hydrolysis in 1N HCl at 60 °C, the tips were stained with leuco-basic fuchsin.

Observations. This species belongs to *Taraxacum* sect. *Palustria* (H.Lindb.) Dahlst. and it was identified according to the multi-access key published by Kirschner and Štěpánek (1998). Our chromosome count is the second one for Italy (Bedini et al. 2010 onwards); it agrees with that published by Aquaro et al. (2010), from Tuscany and with earlier counts made abroad (Kirschner and Štěpánek 1998).

F. Roma-Marzio, G. Astuti & L. Peruzzi



Figure 14. *Potentilla pedata* Willd. ex Hornem., $2n = 28$. Scale bar: 10 µm.

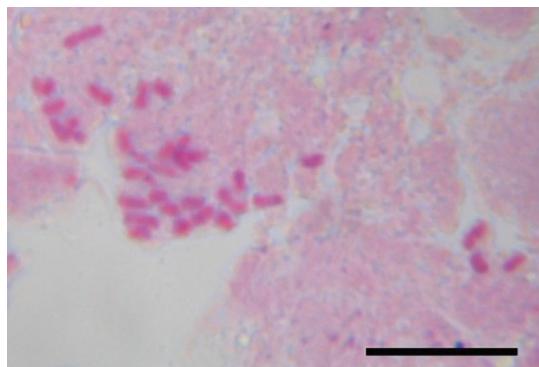


Figure 15. *Taraxacum olivaceum* Soest, $2n = 32$. Scale bar: 10 μm .

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Notulae to the Italian flora of algae, bryophytes, fungi and lichens: I

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Abstract

In this contribution, new data concerning lichens and bryophytes of the Italian flora are presented. It includes new records, exclusions, and confirmations to the Italian administrative regions for taxa in the lichen genera *Athallia*, *Ramonia*, *Thelotrema*, *Pertusaria*, *Bryoplaca* and in the bryophyte genera *Dicranella*, *Bryum*, and *Scorpiurium*.

Keywords

Bryopsida, floristic data, lichenized ascomycetes

How to contribute

The text of the records should be submitted electronically to: Cecilia Totti (c.totti@uni-vpm.it) for algae, Annalena Cogoni (cogoni@unica.it) for bryophytes, Alfredo Vizzini (alfredo.vizzini@unito.it) for fungi, Sonia Ravera (sonia.ravera@unimol.it) for lichens.

Floristic records

BRYOPHYTES

Dicranella rufescens (Dicks.) Schimp. (Dicranaceae)

+ **SAR:** Isola di Serpentara, Villasimius (Cagliari), on soil in the field with NNW exposure (UTM WGS84: 32S 552402.4332704), 30 m, 30 January 1998, A. Cogoni, C. Adamo (CAG No. SA2/ 32.1.3.1). – New species for the flora of Sardegna.

Dicranella rufescens was found on arenaceous and loam soils with a highly nitrified substrate caused by numerous seabird colonies in the northern sector of the island sheltered from the northwesterly winds and from marine aerosol, in temporarily soaked meadows. The island consists of Paleozoic lithologies with a porphyry granite crossed by a dyke system with NNW-SSE orientation. The macrobioclimate is Mediterranean pluviseasonal oceanic with isobioclimate lower thermomediterranean, lower dry, euoceanic strong (Canu et al. 2015). The vascular vegetation is a typical halo-nitrophytic ephemeral community composed of *Crassula tillaea* Lest.-Garl. and *Sagina apetala* Ard. (Biondi et al. 1993). The island is included in the “Marine Protected Area of Capo Carbonara”. Associate species include *Conocephalum conicum* (L.) Underw., *Fossumbronia husnotii* Corb., *Riccia sorocarpa* Bisch., *Bryum radiculosum* Brid., *Eurhynchiastrum pulchellum* (Hedw.) Ignatov & Huttunen, *Fissidens viridulus* (Sw.) Wahlenb., *Ptychostomum capillare* (Hedw.) D.T.Holyoak & N.Pedersen, *Scleropodium touretii* (Brid.) L.F.Koch, *Tortella flavovirens* (Bruch.) Broth., *Trichostomum crispulum* Bruch. *Dicranella rufescens* is a temperate species (Sergio et al. 2014), pioneer of open, acidic soil, usually growing nearby water in sites such as riversides and streamsides, the recently cut sides of ditches, and exposed mud next to ponds and reservoirs. This species was previously reported in Italy in the northern regions and in Sicilia (Aleffi et al. 2008). In Europe it is widespread but in several countries it is assessed as *Vulnerable*: Portugal, Netherlands, Switzerland, Bulgaria, Romania (Hodgetts 2015, Sergio et al. 2013).

Bryum ruderale Crundw. & Nyholm (Bryaceae)

+ **SAR:** Isola di Serpentara, Villasimius (Cagliari), on soil along a path (UTM WGS84: 32S 552367.4332786), 40 m, 18 February 2000, A. Cogoni, C. Adamo (CAG No. SA1/17.7.7.1). – New species for the flora of Sardegna.

Bryum ruderale is a hygro-mesophytic species growing on strongly basic to slightly acidic soil that prefers constantly humid environments and is typical of arable fields, banks, paths and roads, and sand dunes. Environmental characteristics of the stand are the same as those of *Dicranella rufescens* (described above). Associate species include *Conocephalum conicum* (L.) Underw., *Fossombronia husnotii* Corb., *Riccia beyrichiana* Hampe ex Lehm., *Bryum dichotomum* Hedw., *B. radiculosum* Brid., *Ptychostomum capillare* (Hedw.) D.T.Holyoak & N.Pedersen, *Tortula truncata* (Hedw.) Mitt. In Italy, this species mainly occurs in the southern-central regions (Aleffi 2008). In Europe, it is assessed as “Critically Endangered” (CR) in Romania and “Vulnerable” (VU) in Switzerland (Hodgetts 2015).

A. Cogoni, G. Filippino

Scorpiurium circinatum (Bruch) M.Fleisch. & Loeske (Brachytheciaceae)

+ **LOM:** Toscolano-Maderno (Brescia), presso i ruderi della villa romana (vicino alla chiesa), su un vecchio muro presso il lago (UTM WGS84: 32T 626132.5055807), 67 m, 22 March 2015, F. Prosser (Herb. Prosser). – Species confirmed for the flora of Lombardia.

In the open field, this species was noticed for its relatively small size and the strongly curved branches. On the old wall where the species was discovered there is a large population. According to Aleffi et al. (2008), the species was no longer found in Lombardia after 1950, while it seems more common in the southern and central parts of Italy, in accordance with its Mediterranean character (Augier 1966). In Lombardia, it was reported for Valle di Menaggio and Alpe Sobretta (Anzi 1877), Desenzano (Röll 1897 in “Riva del Garda”, then adjusted to “Desenzano” by Röll himself, *in litt.*, see Dalla Torre and Sarnthein 1904). Giacomini (1951) considered it among the xerothermic elements in the Insubric area, recording this species for several localities in Lombardia as: Sirmione, Tomini by Madonna della Neve, at Buco del Frate on the East of Brescia, Ronchi Bresciani, Marone, Toline, Lake Como, Lake Lugano, Lake Maggiore. The present discovery confirms the well-known Mediterranean character of Lake Garda.

F. Prosser

LICHENS

Athallia saxifragarum (Poelt) Arup, Frödén & Søchting (Teloschistaceae)

+ **CAL:** Monte Cozzo del Pellegrino, Pollino (Cosenza), su resti di *Saxifraga marginata* Sternb., tra le fessure di roccia calcarea, 1845 m, 7 April 2015, D. Puntillo (CLU No. 17444). – Species new for the flora of Calabria and southern Italy.

This species is usually found on *Saxifraga* L. or other plant debris in the Alps and the Apennines where, however, it is quite rare. This collection extends the southern limit of the species.

D. Puntillo

Ramonia subsphaeroides (Tav.) Vězda (Gyalectaceae)

- + **UMB:** Castagna (Terni) su scorza di *Quercus pubescens* Willd., in un nucleo residuo di lecceto con roverele sporadiche su suolo acido, (UTM WGS84: 33T 311620.4718087), 390 m, 30 September 2015, S. Ravera (Herb. Ravera No. 5065).
- Species new for the flora of Umbria and second record for Italy.

This species is a crustose lichen with *Trentepohlia* as photobiont. It has a light-green, smooth thallus and small urceolate and hemispherical apothecia (0.2–0.4 mm) more or less intense pink, which protrude slightly from the bark. The spores, acicular and multiseptate, are surrounded by a thick gelatinous sheath unlike those of *Ramonia chrysophaea* (Pers.) Vězda, the most similar species (Boqueras et al. 1993). This Mediterranean-Atlantic species is known for a few localities in Spain, Portugal, France, and Croatia but only one in Italy (Nascimbene and Ravera 2014). It is a characteristic and constant species of *Ramonio-Striguletum mediterraneae* Bricaud & Roux, a typical association of mesomediterranean sciaphilous oak woods with high levels of canopy coverage. Given its close affinity to semi-natural areas, it is considered as characterizing forests of *Quercus ilex* L. and *Quercus faginea* Lam. in Spain where it is included in the national “Important Plant Areas (IPAs)” (Atienza et al. 2004).

Thelotrema sueicum (H.Magn.) P.James (Graphidaceae)

- **CAL.** – sine loco in Nascimbene et al. (2013)
- + **CAM:** S. Biase, fraz. di Ceraso (Salerno) su tronco di *Castanea sativa* Miller, (UTM WGS84: 33T 524446.4449855), 680 m, 13 April 2011, G. Brunialti, V. Genovesi, S. Ravera (Herb. Ravera No. 5066). – Species new for the flora of Campania and second record for Italy.

The observation of this species in Calabria is a misprint corrected here. It appears in a table included in the Annex of the cited article, but in the next column to the one that refers to Campania, the region where the species is actually present. It is a rarely collected species, considered “Endangered” (EN) in Italy (Nascimbene et al. 2013), only recorded on bark of *Fagus sylvatica* L. in the most humid and shaded forests of the Lumiei valley (Tretiach 2004). It is difficult to identify in the field, where it can be easily confused with juvenile forms of the more common *Thelotrema lepadinum* (Ach.) Ach. The two species differ in spore septation (transverse in the former species, muri-form in the latter), and size, being considerably larger in *Th. lepadinum*.

S. Ravera

Pertusaria monogona Nyl. (Pertusariaceae)

+ CAL: Pietra Cappa, Natile Vecchio (Reggio Calabria) su conglomerato, (UTM WGS84: 33 590078.4217661), 715 m, 6 May 2015, *W. v. Brackel, D. Puntillo* (Herb. Brackel No. 7584). – Species new for the flora of Calabria.

Pertusaria monogona was not yet known from Calabria; there are only two records from Italy, namely from Sardegna and Elba Island (Pišút 1997). It is well characterized by the monosporous asci, large ascospores (ca. 130 × 50 µm), and the reactions of the thallus: K+ yellow then red, C-, P+ orange.

W. v. Brackel

Bryoplaca jungermanniae (Vahl) Søchting, Frödén & Arup (Teloschistaceae)

+ PIE: Passo San Giacomo in Val Formazza (Verbano Cusio Ossola) tra le rocce in pascolo, (UTM WGS84: 32T 457914.5145211), 2300 m s.l.m., 17 July 2014, Leg. E. Bocca, E. Matteucci, M. Morando. Det. D. Isocrone, E. Matteucci, M. Morando (TO, No. 3774). – New species for the flora of Piemonte.

It is a circumpolar arctic-alpine species, belonging to a small genus recently segregated from *Caloplaca* (Arup et al. 2013). *Bryoplaca jungermanniae* usually grows on terricolous mosses, plant debris and soil, mostly on calcareous substrata. It is rarely collected in Italy, hitherto known only for Lombardia and Trentino-Alto Adige (Nimis and Martellos 2008).

D. Isocrone, E. Matteucci, M. Morando

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Global and Regional IUCN Red List Assessments: I

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Abstract

In this contribution, the conservation status assessment of six plant species according to IUCN categories and criteria are presented. It includes the assessment at global level of *Linaria tonzigii* Lona, *Allium gariganicum* Brullo, Pavone, Salmeri & Terrasi, *Ferula arrigonii* Bocchieri, *Orchis patens* Desf. subsp. *patens* and *Armeria saviana* Selvi and the assessment at regional level (Italy) of *Viola jordanii* Hanry.

Keywords

Conservation, extinction risk, IUCN protocol, threats

How to contribute

The text of the national and global assessment should be submitted electronically to Simone Orsenigo (Simone.Orsenigo@unimi.it) or to Giuseppe Fenu (gfenu@unica.it); text up to 8000 characters in length (space included) must include a distribution map and a picture of the assessed species.

Red List assessments

Linaria tonzigii Lona

Global assessment

Taxonomy and nomenclature

Order: Lamiales Family: Plantaginaceae

Linaria tonzigii Lona, Natura (Milano) 40: 66 (1949)

Common name: Linajola bergamasca (Italian)

Geographic distribution range: *Linaria tonzigii* (Fig. 1) is an Italian endemic distributed in the Orobic southern Alps (Lombardy). The species is recorded for Pizzo Arera, Cima di Menna, Monte Ferrante and Monte Pegherolo (Crescini et al. 1983, Tagliaferri 1992; Fig. 2).

Distribution: Countries of occurrence: Italy

Biology: *Plant growth form:* perennial (hemicryptophyte)

Flowering time: from July to August depending on the altitude

Reproduction: no information on pollination, dispersal strategy nor seed germination is available.

Habitat and ecology: *Linaria tonzigii* grows exclusively on calcareous rocks (Esino Limestone). It is typical of unstable limestone screes between 1,600 and 2,400 m a.s.l. and is attributable to the alliance *Thlaspietum rotundifolii* Jenny-Lips 1930.

Population information: There is no detailed information available on population dynamics; however, due to its habitat, the population trend and the number of mature individuals can be considered stable.

Threats: 1.3. *Tourism and recreational areas:* the easternmost populations are threatened by projects aimed at developing and connecting skiing areas.

5.2.1. *Gathering terrestrial plants, Intentional use:* the plant is collected by botanists and amateurs for herbarium sheets.

6.1. *Recreational activities:* some populations grow on trails used by hikers and are, therefore, threatened by human trampling.

11.1. *Habitat shifting & alteration:* the plant is potentially threatened by natural habitat evolution (growth of grass and shrubs on partially stabilized debris); this process is particularly evident at lower altitudes.



Figure 1. *Linaria tonzigii* Lona in its *locus classicus* on Pizzo Arera (2000 m a.s.l., Bergamo, Italy). Photograph by S. Orsenigo.

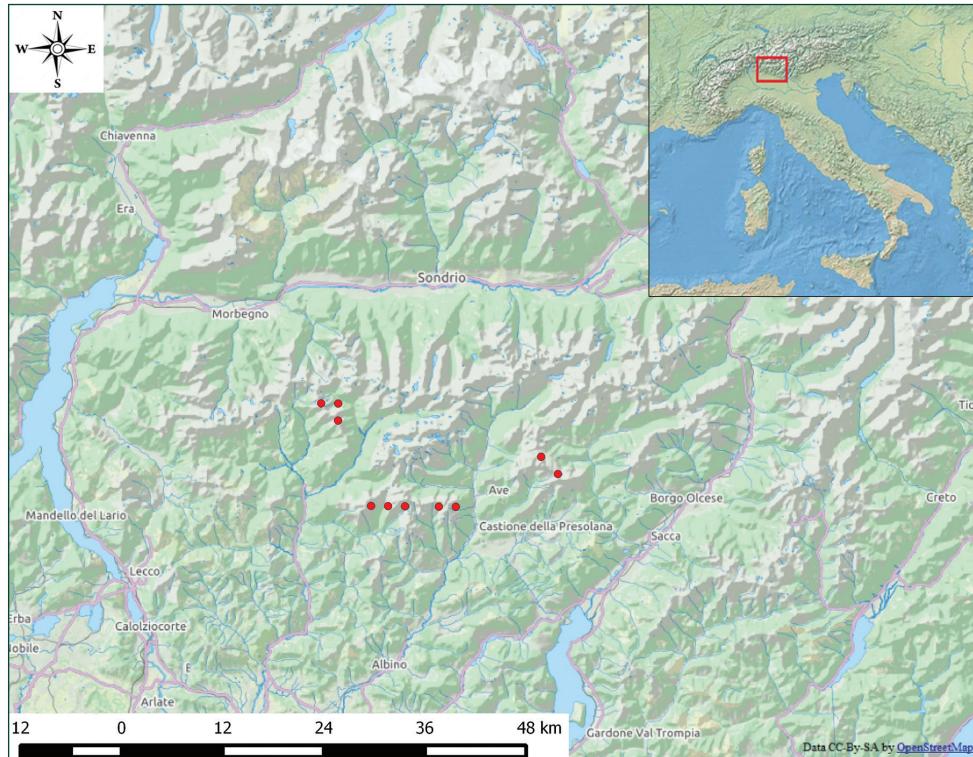


Figure 2. Geographic range and distribution map of *Linaria tonziggii*.

CRITERIA APPLIED:

Criterion B: **EOO:** 190 km² calculated with minimum convex hull in QGis 2.0
AOO: 40 km² calculated with a 2×2 km cell fixed grid

Decline: no documented decline in number of mature individuals, number of subpopulations, quality of the habitat, AOO, and EOO.

Red List category and Criteria (Global Assessment)

NT	Near Threatened
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Rationale for the assessment: *Linaria tonziggii* is an Italian endemic that is found in the southern calcareous Alps of Lombardy. It has an extent of occurrence of 190 km² and an area of occurrence of 40 km². The species occurs in four principal nuclei at altitudes ranging between 1,600 and 2,400 m a.s.l. (Martini et al. 2012). The populations are stable and not severely fragmented, however, the plants are potentially threatened by natural habitat evolution, human trampling, and by the expansion of skiing areas. Loss of any of the known populations could result in a sufficiently significant decline to make it eligible for a threat class. For these reasons, this species is

classed as Near Threatened with the expectation that it will be assigned to Endangered B1ab(iii)+B2ab(iii) if any populations are lost.

Previous assessment: at a global level, the species was previously assigned to the following categories: EN (D) in Bilz et al. (2011) and to NT in Rossi et al. (2015).

Conservation actions: *Linaria tonzigii* is listed in Annexes II and IV of the Habitats Directive 92/43/CEE and under Appendix I of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). The species is protected by a Regional Law (LR 10/2008, Lombardy Administrative Region). Some seed samples are stored *ex situ* at the Millennium Seed Bank (Royal Botanic Garden, Kew, UK).

Conservation actions needed: further monitoring and research activities are recommended in order to better understand its reproductive biology, which is currently almost unknown, and to plan translocation programmes if the skiing area projects will be executed.

Simone Orsenigo

Allium giganicum Brullo, Pavone, Salmeri & Terrasi

Global assessment

Taxonomy and nomenclature

Order: Asparagales *Family:* Amaryllidaceae

Allium giganicum Brullo, Pavone, Salmeri & Terrasi, Plant Biosyst. 143(suppl.): 78–84 (2009)

Common name: Aglio del Gargano, Aglio giganico (Italian)

Geographic distribution range: *A. giganicum* (Fig. 3) is an Italian endemic found in Apulia Region, in two different areas, the Gargano promontory and the Murge plateau. In Gargano, the species is recorded in the *locus classicus* near Peschici (Brullo et al. 2006, 2007, 2009), where we collected it in Monte Pucci, between Peschici and Vieste in Crovatico (MJG-Herbarium *Giganicum*), in Montenero at about 950 m a.s.l. (MJG-Herbarium *Giganicum*), and NNW of Manfredonia between Posta Manganaro and Scaloria (Perrino and Wagensommer 2012). In the Murge plateau the species is recorded near Santeramo in Colle (Perrino et al. 2013) (Fig. 4). Other sites indicated in Perrino and Wagensommer (2012) between Peschici and Mattinata (Torre Porticello, Molinella, Torre Usmai, Torre Calalunga, San Lorenzo, Torre del Segnale) are probably due to confusion with *Allium apulum* Brullo, Guglielmo, Pavone & Salmeri. It is possible that the reports sub *Allium flavum* L. from Gargano (Vieste, Cagnano, Vallone di Pulsano; see Fenaroli 1974) and from the Murge plateau (Bosco Jannuzzi alle Murge di Toritto, Pulicchio di Gravina; see Bianco 1962) have to be attributed to *A. giganicum*.



Figure 3. *Allium giganicum* Brullo, Pavone, Salmeri & Terrasi at a site NNW of Manfredonia (Apulia). Photograph by E.V. Perrino.

Distribution: Countries of occurrence: Italy

Biology: *Plant growth form:* perennial (geophyte)

Flowering time: from early June to late July

Reproduction: no information on pollination, dispersal strategy and seed germination is available

Habitat and ecology: *A. giganicum* grows on limestones, not only near the coast as in the *locus classicus*, but also at higher altitudes (in Montenero at almost 1000 m a.s.l.). At lower altitudes the species is usually a member of stony or rupestrian xerophilous grasslands dominated by *Brachypodium retusum* (Pers.) P.Beauv., attributed to the *Stachyo fragilis-Brachypodietum retusi* C. Brullo, S. Brullo, Giusso & Tomaselli 2006 of the alliance *Thero-Brachypodion ramosi* Br.-Bl. 1925 (Brullo et al. 2006, 2009). At higher altitudes it occurs in xerophilous communities.

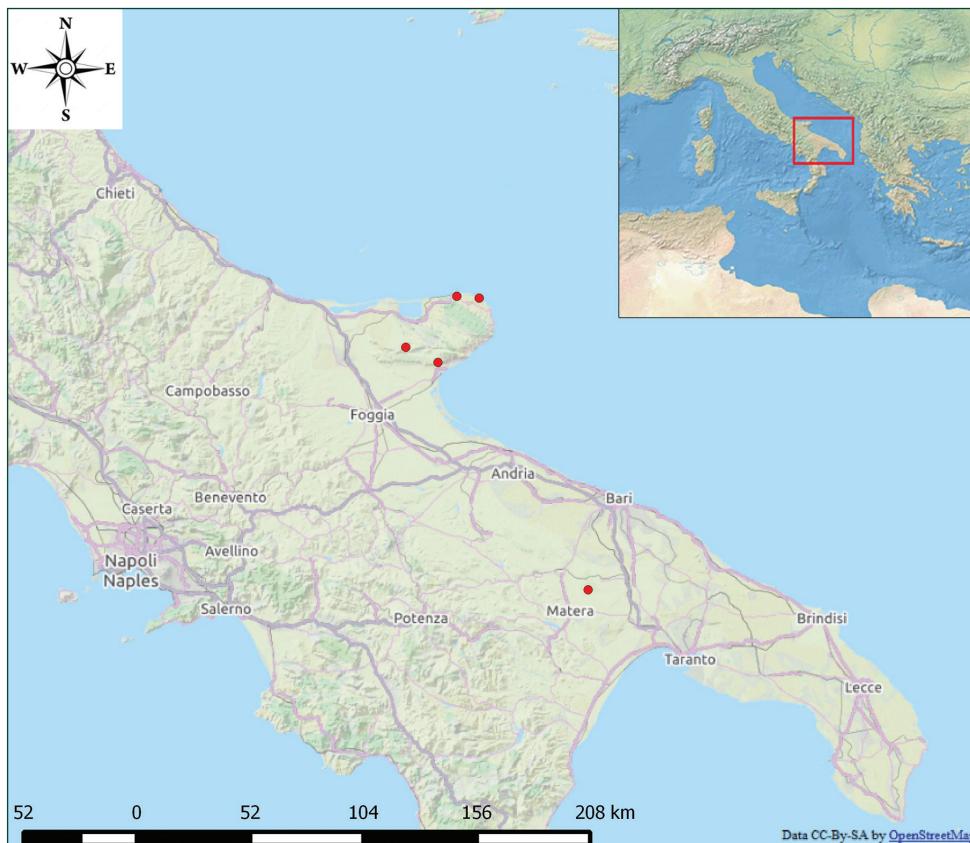


Figure 4. Geographic range and distribution map of *Allium giganicum*.

Population information: There is no detailed information available on population dynamics.

Threats: *2.3.1 Nomadic grazing:* the habitat of the species is sometimes affected by grazing.

6.1 Recreational activities: the populations near the coast (Peschici and Vieste) are affected by tourism in the summer, and threatened by human trampling during flowering and fruiting seasons.

7.1.1 Increase in fire frequency/intensity: an increase in fire frequency or intensity would negatively affect the populations.

12.1 Other threats (natural succession): natural succession, favoured by the occurrence of the populations in protected areas, represents a serious danger for the habitat conservation.

CRITERIA APPLIED:

Criterion B: **EOO:** 2938 km² calculated with minimum convex hull (with Google Earth Pro)

AOO: 20 km² calculated with a 2x2 km cell fixed grid

- a) Number of locations: five (according to threats 6.1 and 12.1)
- b) Decline expected in EOO (i), AOO (ii), area, extent and quality of the habitat (iii), number of subpopulations (iv), number of mature individuals (v).

Category: EN B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Criterion D: AOO: 20 km² calculated with a 2×2 km cell fixed grid

Number of locations: five (according to threats 6.1 and 12.1)

Plausible future threat that could drive the taxon to CR in a very short time: yes

Category: VU D2

Red List category and Criteria (Global Assessment)

EN	Endangered	B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
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Rationale for the assessment: *Allium garganicum* is an Italian endemic that is found only in the Region of Apulia. It has an EOO of 2,938 km² and an AOO of 20 km². Recent data indicates that the species occurs on five sites, four of them in the Gargano promontory and one in the Murge plateau, corresponding to five locations according to threats 6.1 (recreational activities) and 12.1 (natural succession). The subpopulations consist of very few individuals. Due to the identified threats, a decline is expected in EOO, AOO, area, extent and quality of the habitat, number of subpopulations, and number of mature individuals.

Previous assessment: at a global level, the species was not evaluated (NE) previously (Bilz et al. 2011, IUCN 2016).

Conservation actions: *Allium garganicum* is unprotected by international, national, and regional laws. Neither seed nor bulb collections exist in germplasm banks.

Conservation actions needed: research activities and a monitoring programme are recommended in order to better understand the reproductive biology and the population trend of the species, and in order to evaluate the effects of human activities on the subpopulations, especially those located in touristic areas. *Ex situ* gene resource banking is recommended, for possible plant translocation programmes aimed at increasing the very low number of individuals in the subpopulations.

Robert Philipp Wagensommer, Enrico Vito Perrino, Giuseppe Nicola Silletti,
Wolfgang Licht

Ferula arrigonii Bocchieri

Global assessment

Taxonomy and nomenclature

Order: Apiales *Family:* Apiaceae

Ferula arrigonii Bocchieri, Boll. Soc. Sarda Sci. Nat. 26: 309 (1988)

Common name: Ferula di Arrigoni (It); Férule d'Arrigoni (Fr); Fennel of Arrigoni (En)

Geographic distribution range: *Ferula arrigonii* (Fig. 5) is endemic of the Sardo-Corsican biogeographical province (Fenu et al. 2014); its distribution consists of 14 populations located in Sardinian coastal environments and only one population in Corsica (Fig. 6). The Sardinian populations (Bocchieri 1988, Dettori et al. 2014a) are located in the southeastern part of the island (Isola di Serpentara and Isola dei Cavoli), on the southwestern coasts (San Nicolò di Buggerru, Pranu Sartu and Capo San Marco), in the northwest (Capo Caccia and Isola Piana) and in the northeast (Isola di Tavolara, Isola di Razzoli, Isola di Budelli, Isola di Paduleddi, Abbatoggia, Isola di Santo Stefano and Capo Testa). The only Corsican population, originally reported in Camarda (1992), was located near Bonifacio (southern Corsica) and was studied in detail by Paradis and Piazza (2004).

Distribution: country of occurrence: Italy (Sardinia) and France (Corsica)

Biology: *Plant growth form:* perennial (rhizomatous geophyte)

Flowering and fruiting time: flowering from late April to June and fruiting in July

Reproduction: no information is available on pollination, dispersal strategy, and seed germination.

Habitat and ecology: *Ferula arrigonii* grows in coastal areas directly exposed to the marine aerosol, mainly on small islands, either on rocky cliffs and without an apparent substrate preference (Bocchieri 1988, Dettori et al. 2014a). The plant communities to which the species participates are the *Crithmo maritimi-Staticion* Molinier 1934 and, secondarily, the *Teucrion mari* Gamisans et Muracciole 1984 alliances.

Population information: There is no detailed information available on population dynamics. However, due to its habitat, the population trend and the number of mature individuals can be considered stable.

Threats: 1.1 *Housing & Urban areas:* the Corsican population is located in a natural area inside the city of Bonifacio, but future urban developments (i.e., construction of roads, buildings, and parking areas) could represent a potential threat to the population.

6.1. *Recreational activities:* some populations grow in or near touristic localities (e.g., Isola dei Cavoli, Capo San Marco, Capo Caccia, Capo Testa and Isola di Tavolara) with many visitors during the summer, and could, therefore, be affected by human trampling.

CRITERIA APPLIED:

Criterion B: **EOO:** 22,960 km² calculated with minimum convex hull in ArcGis 2.0

AOO: 60 km² calculated with a 2×2 km cell fixed grid

Decline: no documented decline in EOO, AOO, number of subpopulations, quality of the habitat, and number of mature plants.

Red List category and Criteria (Global Assessment)

LC	Least Concern
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Figure 5. *Ferula arrigonii* Bocchieri in its *locus classicus* on Isola di Serpentara (Sardinia). Photograph by G. Bacchetta.

Rationale for the assessment: *Ferula arrigonii* is a Corso-Sardinian endemic forming 15 distinct populations, mainly concentrated in Sardinia. It has an extent of occurrence of ca. 23,000 km² and an area of occurrence of 60 km². The populations are

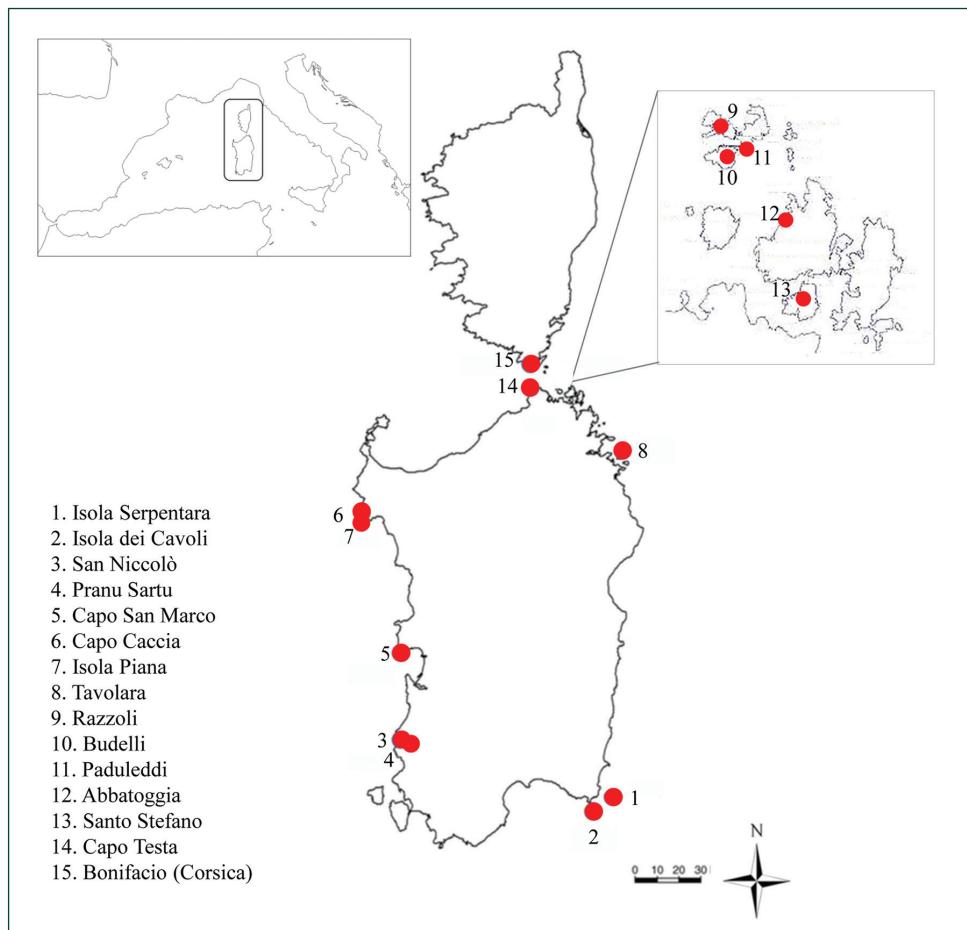


Figure 6. Geographic range and distribution map of *Ferula arrigonii*.

generally stable and no severe threats affect this plant; the single Corsican population is the only potentially threatened one by the expansion of urban areas. The threat analysis shows no real risks of decline for populations, even those located in tourist areas. For this reason, this plant is considered as Least Concern at a global level.

Previous assessment: the species was previously assigned to the following categories at regional level: Lower Risk (LR) in Conti et al. (1997) and Least Concern (LC) in Dettori et al. (2014a); at a global level the species was previously not evaluated (NE) (IUCN 2016).

Conservation actions: *Ferula arrigonii* is unprotected by international, national, and regional laws. Seeds collected from ten Sardinian populations were stored *ex situ* at the Sardinian Germplasm Bank (BG-SAR, Cagliari, Italy); *duplicata* of these were also sent to the Millennium Seed Bank (Royal Botanic Garden, Kew, UK).

Conservation actions needed: research activities are recommended in order to better understand the species' reproductive biology; monitoring programmes aimed

at evaluating the effects of human activities on populations, especially the Corsican population and those located in touristic areas, are recommended.

Notes: *F. arrigonii* was for a long time considered a naturalized species of Sardinian provenance (Jeanmonod and Gamisans 2013). An introduction to Corsica from Sardinia was initially hypothesized by Paradis and Piazza (2004); these authors also suggested, as an alternative hypothesis, that the species could have diversified in ancient times, that it was once more widespread and that its distribution is currently declining. A recent genetic study carried out on nine populations, covering the whole distribution range of this plant (Dettori et al. 2014b), indicated that it is uncertain that the Corsican population is the result of an introduction from Sardinia. Rather, the high values of genetic diversity suggest that *F. arrigonii* was once more widespread than it is at present and that the existence of larger populations in the past could partially explain the current high levels of genetic diversity at specific level (Dettori et al. 2014b). These findings suggest that particular attention should be paid to the Corsican population when conservation strategies are planned, since it is probably of natural origin, and, therefore, has a high conservation value *per se* (Dettori et al. 2014b).

Giuseppe Fenu, Donatella Cogoni, Maria Silvia Pinna, Gianluigi Bacchetta

Armeria saviana Selvi

Global Assessment

Taxonomy and nomenclature

Order: Caryophyllales *Family:* Plumbaginaceae

Armeria saviana Selvi, Nordic J. Bot. 27(2): 126. 2009

Common name: Armeria di Savi (It)

Geographic distribution range: *A. saviana* (Fig. 7) is endemic of the M. Amiata massif (Tuscany, Italy); currently six subpopulations have been located (M. Labbro; Poggio all'Olmo; M. Aquilaia; M. Buceto; Poggio Le Volturaie; Poggio La Torretta; Fig. 8).

Distribution: country of occurrence: Italy

Biology: *Plant growth form:* perennial (hemicryptophyte)

Flowering and fruiting time: *A. saviana* flowering from May to June and fruiting in July

Reproduction: no information on pollination, dispersal strategy and seed germination is available

Habitat and ecology: *A. saviana* grows in xerophilous herbaceous communities characterized by low cover typical of the stony pastures or on the rocky slopes with slight declivity, at an altitude of 900-1000 m a.s.l. It prefers the calcareous soil but it can occur also on the arenaceous-marl substratum (Angiolini and De Dominicis, 1999, Selvi 2009, 2010).



Figure 7. *Armeria saviana* Selvi in Monte Labbro (Tuscany). Photograph by F. Selvi.

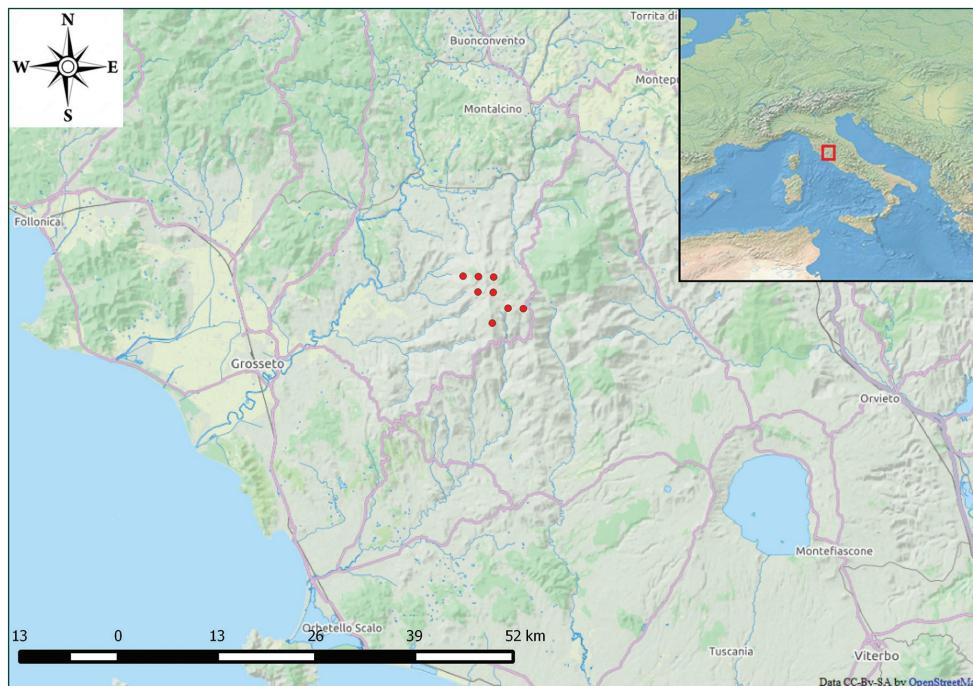


Figure 8. Geographic range and distribution map of *Armeria saviana*.

Population information: there is no detailed information available on population dynamics, trend and the number of mature individuals.

Threats: 7.3 *Other ecosystem modifications*: in the last decades, a reduction in grazing activity has led to the closure of the habitat and represents a serious threat for its conservation.

CRITERIA APPLIED:

Criterion B: **EEO:** 32 km² calculated with minimum convex hull in QGis 2.0

AOO: 32 km² calculated with a 2×2 km cell fixed grid

- a) Number of locations: five locations (Poggio La Torretta, M. Buceto, Poggio all’Olmo-M. Aquilaia, Poggio Le Volturaie and M. Labbro) have been identified according to threat 7.3
- b) Decline in extent and quality of the habitat (iii)

Red List category and Criteria (Global Assessment)

EN	Endangered	B1ab(iii)+2ab(iii)
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Rationale for the assessment: *A. saviana* is an endemic plant threatened by habitat loss: it has an extent and area of occurrence of ca. 32 km². The populations are generally constituted by few individuals and although no severe threats affect these plants, the considerable decrease in grazing activity entails habitat reduction.

Previous assessment: *A. saviana* was not evaluated (NE) previously (IUCN 2016).

Conservation actions: *A. saviana* [sub *A. denticulata* (Bertol.) DC] is protected at regional level (LR 56/2000) but not by any international or national laws. Some stations are included in the SCI IT51A0018 “Monte Labbro e Alta Valle dell’Albegna” as defined in the European Habitats Directive (92/43/EEC).

Conservation actions needed: further monitoring and research activities are recommended in order to better understand the reproductive biology and population trend of the species.

Matilde Gennai, Daniele Viciani

Orchis patens Desf. subsp. *patens*

Global assessment

Taxonomy and nomenclature

Order: Orchidales *Family:* Orchidaceae

Orchis patens Desf. Fl. Atlant. 2: 318 (1799)

= *Orchis brevicornis* Viv., Ann. Bot. (Genoa) 1(2): 184 (1804)

Common name: orchidea patente (Italy), orchis ouvert (Tunisia), orchis étalée (Algeria), green spotted orchid (UK)

Geographic distribution range: the distribution range of *Orchis patens* (Fig. 9) is still under debate, due to unresolved taxonomic issues (see *Notes*). According to different authors, this species could be considered endemic (western Mediterranean endemism occurring in NW Italy and North Africa) or subendemic of the Mediterranean basin (occurring also in the Canary Islands, except Fuerteventura and Lanzarote). Molecular analyses should resolve the issue. In the meantime, the present assessment concerns the Mediterranean populations of the species *O. patens* subsp. *patens*. *O. patens* subsp. *patens* has a peculiar and strongly fragmented distribution. It occurs in NW Italy (Liguria administrative region) and in several sites of the Tell Atlas in North Africa (Fig. 10), mostly in Algeria and partially in Tunisia, where the species has been found again only in recent times (Martin et al. 2015).

Distribution: Countries of occurrence: Italy, Algeria, Tunisia

Biology: *Plant growth form:* perennial (bulbous geophyte)

Flowering time: from April to May (June), depending on altitude

Reproduction: investigations on seed germination and pollination strategy are in progress.

Habitat and ecology: *O. patens* subsp. *patens* grows in open habitats with high or medium brightness, such as rocky grasslands, clearings, and scarcely dense woods of chestnut (*Castanea sativa* Mill.), oak (*Quercus* sp. pl.) or cedar trees (*Cedrus atlantica* (Endl.) Carrière), including cultivated olive tree groves (*Olea europaea* L.). The species lives both on limestone



Figure 9. Flower spike of *Orchis patens* Desf. subsp. *patens*. Photograph by J. Calevo.

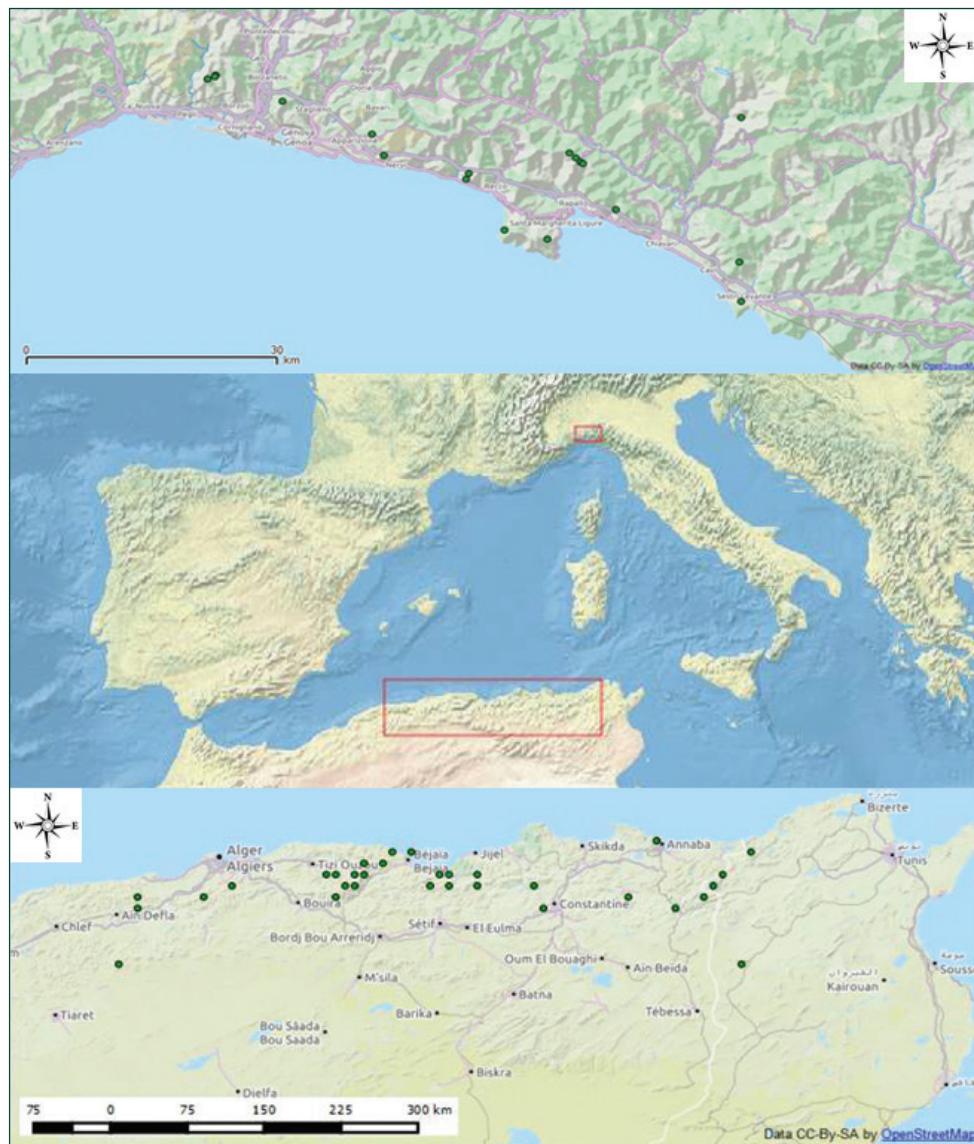


Figure 10. Geographic range and distribution map of *Orchis patens* subssp. *patens*.

and siliceous substrates. Currently, it occurs both at the edge of cities, in rural areas (in Italy), and in natural environments. Its altitudinal range goes from 100 to 1,700 m a.s.l.

Population information: *O. patens* is usually found at very low densities (less than 20 individuals per site) and is often rare.

Threats: *1.1 Housing & urban areas:* in the past, urban development probably brought *O. patens* subsp. *patens* close to extinction in several sites (e.g., Algiers and surroundings) and is an ongoing threat for habitat quality, causing extinction events locally (Italy).

2.1.2 Small-holder farming: locally (Italy) the biological cycle of the species is affected by inadequate agricultural practices (e.g., weeding during flowering).

2.3.1 Nomadic grazing: several sites are threatened by overgrazing (North Africa).

4.1 Road and railroads: recently the building of a new track in Algeria (near Souk-Ahras) has strongly reduced the number of individuals of the only extant population of the site (L. Boutabia Telailia, *pers. comm.*).

5.2.1 Intentional use (species is the target): due to its pretty flowers, the plant is sometimes collected (Italy). In North Africa, the tuber is used for traditional medicine and in witchcraft, and like all other tuberous orchids locally named “*al hayia wa al mayta*” (the living and the dead).

7.3 Other ecosystem modifications: the lack of adequate agricultural practices and forest management leads to closure of the habitat (Italy).

8.2 Problematic native species: in Italy, wild boars (*Sus scrofa* L.) damage the plants.

CRITERIA APPLIED:

Criterion B: **EEO:** 308730 km² calculated with minimum convex hull in QGis 2.2.
AOO: 168 km² calculated with a 2×2 km cell fixed grid.

- a) The species has a severely fragmented distribution (number of locations > 10)
- b) Decline in quality of the habitat (iii) and number of mature individuals (v) has been directly observed and expected to continue in the future

Category: EN B2ab(iii,v)

Criterion C: small population size (<10.000 in total), an estimated continuing decline and

- a) (i) number of mature individuals in each subpopulation <1,000

Category: VU C2a(i)

Red List category and Criteria (Global Assessment)

EN	Endangered	EN B2ab(iii,v)
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Rationale for the assessment: *O. patens* subsp. *patens* has a severely fragmented distribution and is characterized by quite small populations, threatened above all by the declining area and quality of suitable habitats. Several sites recorded in the past are not confirmed today, but extinction events are quite ancient and no recent decrease of the range of *O. patens* subsp. *patens* has been recorded in the last 10 years or three generations of the species. Recently, local extinctions (decrease of mature individuals) have been recorded. At global level *O. patens* subsp. *patens* (excluding Canary Islands populations) is classed as EN B2ab(iii,v).

Previous assessment: at the European level, the species was assigned to EN B1ab(iii,v) in Bilz et al. (2011); at a global level, the species was not evaluated (NE) previously (IUCN 2016).

Conservation actions: *O. patens* is listed in Appendices II (Annex B) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and protected by local (Liguria administrative region in Italy) and national

(Algeria) laws. In Italy, the Red List assessment of *O. patens* at the national level is still in progress. Several sites of *O. patens* subsp. *patens* fall within protected areas. Preliminary taxonomic studies on its global range are in progress.

Conservation actions needed: research is required to clarify taxonomic uncertainties (species and subspecies) and further in-depth field studies are recommended to better define the distribution of *O. patens* (in particular in the Canary Islands and North Africa); a coordinated global monitoring plan and local interventions to stem threats to habitat and species, including *ex situ* conservation actions, are desirable.

Notes: for some authors, *O. patens* occurs in the Mediterranean basin as *O. patens* Desf. subsp. *patens* and in the Canary Islands as *O. patens* subsp. *canariensis* (Lindl.) Asch. & Graebn. (Euro+Med 2006; Kretzschmar et al. 2007, WCSP 2016). According to other sources, *O. canariensis* Lindley is an *O. patens* sister species (Bateman et al. 2003, Bernardos et al. 2006). Past collections of *O. patens* in the Iberian Peninsula have to be attributed to *O. cazorlensis* Lacaita or *O. spitzelii* Saut. ex W.D.J.Koch (Hautzinger 1978, Castroviejo et al. 2005), although further studies are necessary. *O. patens* often shares habitat and range of distribution with other closely related orchids, such as taxa of the *O. spitzelii* group (e.g., sites on the Zaccar and Meddad mountains). Hybrids of *O. patens* with *O. spitzelii* or other orchids, such as *O. provincialis* Balb. ex Lam. & DC., have been recorded.

Chiara Montagnani, Jacopo Calevo, Errol Vela

Viola jordanii Hanry

Regional assessment (Italy)

Taxonomy and nomenclature

Order: Malpighiales *Family:* Violaceae

Viola jordanii Hanry, Prodr. Hist. Nat. Var: 169 (1853)

Common name: Viola di Jordan (It); Violette de Jordan (Fr); Jordans Veilchen (De)

Geographic distribution range: *Viola jordanii* (Fig. 11) is a south European/southwest Asiatic species (Aeschimann et al. 2004), with the main distribution area centred in southeastern Europe. In Italy, it is recorded from Liguria and Friuli Venezia Giulia (Pignatti 1982, Aeschimann et al. 2004, Conti et al. 2005, Castello et al. 2015). In Liguria, *V. jordanii* is restricted to the westernmost part of the Region near the border with France, where it occurs in a single small site in the southern Maritime Alps, in the valley of Rio Giaurusso (Olivetta San Michele, IM), where it was reported for the first time by Martini (1985), and included in Natura 2000 SCI IT1315717 “M. Grammondo – Torrente Bevera”. In Friuli Venezia Giulia, the species was found in 2010-2013 in four sites of the Karst area; two populations occur in the SAC IT3340006 “Carso Triestino e Goriziano” (Fig. 12). Revision of herbarium specimens revealed that *V. jordanii* has been present at one of these sites, i.e., Lake



Figure 11. *Viola jordanii* from Lake Doberdò (Friuli Venezia Giulia). Photograph by M. Castello.

Doberdò, since the 1950s (C. Zirnich's herbarium specimens collected in 1954-1956, TSM), but it was identified and reported by Cohrs (1963) as the hybrid *V. medelii* W. Becker (Castello et al. 2015).

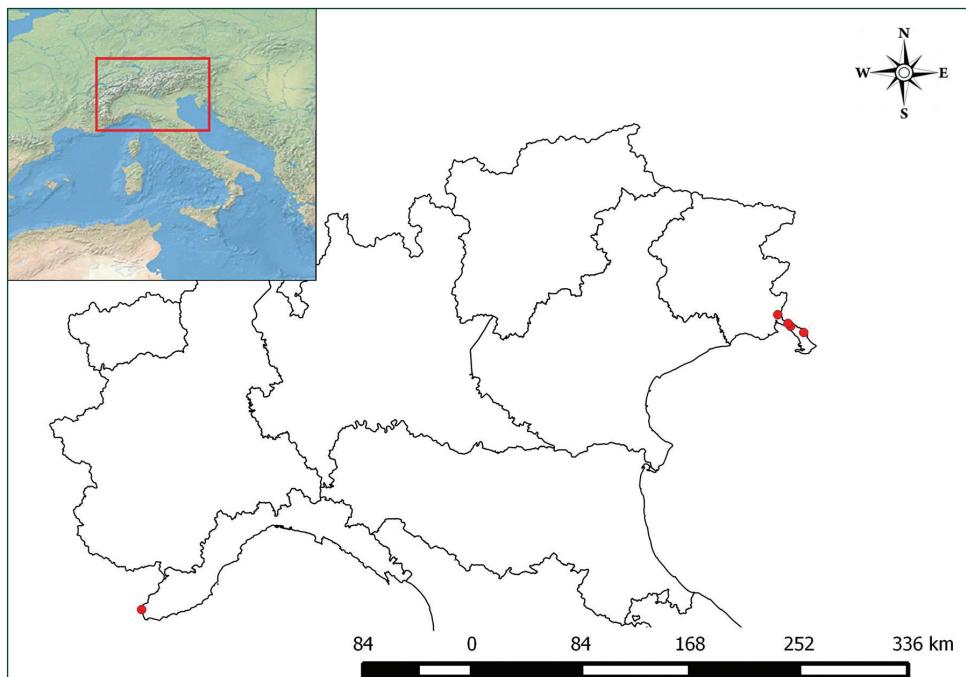


Figure 12. Distribution map of *Viola jordanii* in Italy.

Distribution: Countries of occurrence: Bulgaria, France, Greece, Hungary, Iran, Italy, Macedonia, Moldova, Romania, Serbia, Turkey, Ukraine.

Biology: Plant growth form: perennial (hemicryptophyte)

Flowering time: from late April to July

Reproduction: production of chasmogamous, insect-pollinated flowers and cleistogamous, self-pollinating flowers; autochorous and myrmecochorous seed dispersal (Landolt et al. 2010).

Habitat and ecology: *V. jordanii* thrives mainly in xerophile or meso-xerophile mixed oak woods, and in the mantles, hedgerows and fringes connected to them, from the plains to the hilly and lower montane belt. It is found on dry calcareous soils and brown forest soils; in eastern Europe, it also grows on loess and dry silicate soils (Aeschimann et al. 2004, Castello et al. 2015). In Italy, it occurs in mesophilous aspects of thermophilous mantles and hedgerows of the alliance *Berberidion vulgaris* Br.-Bl. 1950 and their hemis, connected to the sub-Mediterranean mixed oak woods with *Quercus pubescens* Willd., and in open woods and pre-woods of *Quercus pubescens* and *Ostrya carpinifolia* Scop. (order *Quercetalia pubescenti-petraeae* Klika 1933). In the Karst region it also grows in the meso-hygrophilous margins of riparian woods with *Ulmus minor* Mill., *Fraxinus* sp. pl. and *Populus nigra* L., corresponding to the phytocoenon with *Paliurus spina-christi* Mill. and *Ulmus minor* (Poldini and Vidali 1995). It can be regarded as an ecotonal species with a mesic character; it prefers light shade or moderate light, avoiding areas of scrubs or woods where the vegetation cover becomes dense (Castello et al. 2015).

Population information: In Italy, the species is known from five small sites located in two distant regions. The estimated Italian population size is 850 individuals. There is no detailed information available on population dynamics; however, on the basis of habitat conditions, the population trend can be considered in decline.

Threats: *5.2.1 Intentional Use (species is the target):* the species is very rare in Italy and has a certain ornamental value; it can, therefore, be threatened by intentional gathering by collectors, botanists, and/or amateurs.

6.1 Recreational activities: the plant species typically grows along paths and can be threatened by hikers (human trampling).

7.3 Other Ecosystem Modifications: the species is threatened by habitat loss arising from natural dynamic processes of shrub encroachment and regeneration of woods due to abandonment of traditional agricultural, grazing, and wood harvesting practices and reduction of path management.

CRITERIA APPLIED:

Criterion B: **EOO:** 4,938 km² calculated with minimum convex hull in ArcGis 2.0
AOO: 24 km² calculated with a 2×2 km cell fixed grid

- a) Number of locations: five (according to threat 7.3)
- b) Continuing decline observed, estimated and projected in extent and/or quality of the habitat (iii)

Category: EN B1ab(iii)+2ab(iii)

Criterion D: Number of mature individuals <1,000

Category: VU D1

Red List Category and Criteria (National Assessment)

EN	Endangered	EN B1ab(iii)+2ab(iii)
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Rationale for the assessment: In Italy, *V. jordanii* is listed as Endangered under Criterion B due to its reduced EOO (4938 km²) and AOO (24 km²), the number of locations (5) considering the serious threat posed by habitat loss, and a continuing decline of the habitat as result of land abandonment. Populations from NE Italy are isolated from those of the Balkans while the NW Italian population is close to France, where the species is considered rare; therefore, also considering the dispersal strategy, downlisting was not applied.

Previous assessment: previously listed at national (Italy) level as EN (Conti et al. 1997); at a global level the species was not evaluated previously (NE; IUCN, 2016).

Conservation actions: In France, *V. jordanii* is considered a rare species, protected at the regional level in both regions where it occurs (i.e., Provence-Alpes-Côte d'Azur and Rhônes-Alpes); it is included in the Provisional List of the Red Book of Endangered Species of France (Olivier et al. 1995). In Italy, it is protected by Regional Law 28/2009 of the Liguria administrative region. Seeds from the Ligurian population

are stored in the Laboratorio per la Conservazione della Diversità Vegetale Ligure (Ventimiglia, Italy).

Conservation actions needed: further monitoring and research activities are recommended in order to better understand the distribution, reproductive biology, and population trend of the species. *V. jordanii* is favoured by actions aimed at maintaining habitat mosaic, reintroduction of traditional grazing activities, and path management.

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