New distributional records of non-native vascular plants in northern Italy

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Abstract - New distributional records of non-native vascular plants are provided for the Italian regions Piemonte, Lombardia and Emilia-Romagna. *Panicum barbipulvinatum* is reported for the first time from Italy.

Key words: alien plants, distribution, Italy.

Riassunto - *Nuove segnalazioni di piante vascolari alloctone per l'Italia settentrionale.* Vengono forniti nuovi dati distributivi relativi ad alcune specie esotiche per le regioni Piemonte, Lombardia ed Emilia-Romagna. *Panicum barbipulvinatum* viene segnalato per la prima volta in Italia.

Parole chiave: distribuzione, Italia, piante alloctone.

INTRODUCTION

Invasive Alien Species (IAS) threaten biodiversity, society, human-health, well-being and economy. The annual economic impact to Europe is estimated € 12.5 to 20 billion. Prompt detection of new invasive species as well as their correct taxonomic identification is widely considered to be of the utmost importance (Genovesi *et al.*, 2010). Although the non-native, potentially invasive flora of Italy received a lot of attention in recent years (*e.g.* Celesti-Grapow *et al.*, 2009a, b; Celesti-Grapow et *al.*, 2010), and the knowledge evolved accordingly, the work is never accomplished and updates are constantly required (see *e.g.* Ardenghi *et al.*, 2014). In our globalized world the influx of new alien species seems to be infinite. Also, the taxonomic knowledge of researchers and field workers constantly improves which enable them to better assess the exact identity of newly detected and already present invaders.

With that purpose the first author visited in September 2014 riparian habitats in the plain of river Po and its many tributaries, primarily in order to improve the knowledge on *Cyperus* in northern Italy (Verloove, 2014; Verloove & Saiani, 2015). This scientific mission fits in COST Action TD1209 'European Information System for Alien Species' (http://www.cost.eu/COST_Actions/fa/Actions/TD1209, retrieved on December 2014) and facilitates enhanced knowledge gathering and sharing through a network of experts, providing support to a European IAS information system. This, in turn, enables effective and informed decision-making in relation to IAS. On that occasion he was hosted by the University of Pavia where, in collaboration with the second author, field work was performed, among others, in the region Lombardia.

In the present paper new distributional records for the Italian regions Piemonte, Lombardia and Emilia-Romagna are presented for sixteen non-native species of vascular plants (others than *Cyperus*). One species, *Panicum barbipulvinatum* Nash, is reported for the first time from Italy.

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MATERIALS AND METHODS

The taxa are arranged in alphabetical order. Each entry includes the currently accepted name of the taxon and the family to which it belongs (according to APG III, 2009), its status and distribution in Italy (following Celesti-Grapow *et al.*, 2009a, 2009b), data from the herbarium label (for acronyms see Thiers, 2014 onwards) and additional notes about its native and secondary distribution area, invasive behavior, ecology and, if relevant, identification aids and taxonomical and nomenclatural comments.

Original photographs are provided for some of the taxa.

RESULTS

Amaranthus palmeri S.Watson, *Proc. Amer. Acad. Arts*, 12: 274. 1877.
(Amaranthaceae)

Naturalized neophyte new to the flora of Piemonte (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a; Iamonico *et al.*, 2015; Iamonico, 2015).

ITALY. Piemonte. Prov. Alessandria: Tortona, river Scrivia at railway bridge, gravelly riverbed, locally, along with *A. tuberculatus*, 09.09.2014, *F. Verloove 11206* (BR).

A native of the southwestern U.S.A. and Mexico, *Amaranthus palmeri* now occurs as a weed in Europe, Asia and Australia (Mosyakin & Robertson, 2003). In Italy it was recently discovered in Emilia-Romagna, in the province of Ravenna (Iamonico *et al.* 2015; Iamonico, 2015). While for many decades it remained strictly casual in Europe (often associated with imported cereals or soybeans; e.g. Verloove & Vandenberghe, 1993), it managed to naturalize locally in recent times, especially in the Mediterranean area. In Spain naturalized populations were detected around Lleida in 2007 (Verloove & Sánchez Gullón, 2008) and soon afterwards it proved to have become a troublesome agricultural weed in maize fields there (Recasens *et al.*, 2013). Elsewhere in the Mediterranean area stable populations are known from Israel and Greece (Raus & Raabe, 2006). In Ravenna province the plant was regarded as casual (Iamonico *et al.*, 2015; Iamonico, 2015), even though the species was confirmed for at least two years consecutively in the same site (see http://www.actaplantarum.org/floraitaliae/viewtopic.php?f=106&t=67866, retrieved on December 2014); in Tortona the population is clearly naturalized.

Amaranthus palmeri is a dioecious species. In Italy a related species, *A. tuberculatus* (Moq.) J.D.Sauer, has been known since 1975 (Soldano, 1982). It now has become an invasive species in riparian habitats and cultivated fields (Banfi & Galasso, 2010), especially in the plain of river Po and its tributaries. Since *A. palmeri* is equally aggressive and occurs in the same type of habitats, similar behavior is predictable. Both species are rather alike and may have been confused. *A. palmeri* has much longer bracts and tepals, the inflorescence therefore being stiff and prickly in appearance. In Tortona, along Scrivia river, both grow sympatrically.

Bidens connatus Muhl. ex Willd., *Sp. Pl., ed. 4 [Willdenow]*, 3 (3): 1718 (-1719). 1803. [Fig. 1]
(Asteraceae)

Naturalized neophyte new to the flora of Piemonte (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a; Banfi & Galasso, 2010).

ITALY. Piemonte. Prov. Alessandria: Villanova Monferrato, W of motorway E25, rice fields, 12.09.2014, *F. Verloove 11101* (BR).

Bidens connatus is originally native in North America but known as a more or less widely naturalized xenophyte in Europe (e.g. Schumacher, 1941; Debray, 1963). In Italy it was known so far from Lombardia, Emilia-Romagna, Friuli-Venezia Giulia, Marche and Veneto, either as a casual, naturalized or invasive alien (Celesti-Grapow *et al.*, 2009a; Ardenghi, 2015).

In fact, its genuine distribution and degree of naturalization should be critically reassessed, the species being much reminiscent of native *B. tripartitus* L. It is best distinguished from the latter by leaves usually undivided and cypselae 4-angled (not flattened) with usually tuberculate faces (Strother & Weedon, 2006).

In September 2014 *Bidens connatus* was recorded on several occasions. In addition to the locality cited above, it was also seen in Valenza, Bastida Pancarana, Boretto, Ficarolo, Mezzano, Piacenza, Ravalle, San Rocco al Porto and Viadana (all along river Po) and in Serravalle Scrivia (along river Scrivia). It is obviously much more widespread, firmly established but widely overlooked.

It should be recalled that according to Art. 62.2(a) of the International Code of Nomenclature (McNeill *et al.*, 2012), *Bidens* should be treated as a compound, "*Bi-dens*", the last word (*dens*, *dentis*) being male; then the specific epithet should be "*connatus*" instead of "*connata*" (see also next species). Even though initially recommended by the Report of the Committee for Spermatophyta (Brummitt, 2000), the proposal to conserve the name *Bidens* with a conserved gender (Harriman, 1998), was finally not upheld (McNeill *et al.*, 2006, App. III) (Banfi & Galasso, 2010).

Fig. 1 - *Bidens connatus*, Bastida Pancarana (PV), September 2014 (Photo: N. Ardenghi).

Bidens vulgatus Greene, *Pittonia*, 4 (21): 72. 1899. [Fig. 2]
(Asteraceae)

Naturalized neophyte new to the flora of Lombardia and Emilia-Romagna (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a; Banfi & Galasso, 2010).

ITALY. Lombardia. Prov. Cremona: Casalmaggiore, river Po, damp track in woodland, locally frequent, 14.09.2014, *F. Verloove 11090* (BR, MSNM); Prov. Pavia: Gambolò, Cascina Portalupa (UTM ED50: 32T 495784.5013034), margine di sentiero in querco-carpineto, con *Erigeron canadensis*, *Prunella vulgaris*, *Glechoma hederacea*, 73 m, 17.10.2014, *N. Ardenghi, P. Cauzzi & S. Pedrini* (MSNM); Prov. Pavia: Stradella, San Zeno, sponda destra del torrente Versa all'incirca all'altezza della rotonda tra viale Resistenza e la SP201 (UTM ED50: 32T 524108.4989963), vigneto, 86 m, 18.10.2014, *N. Ardenghi* (MSNM); Prov. Milano: Milano, stazione FFSS di Milano-Rogoredo (UTM ED50: 32T 518642.5031188), aiuola, 109 m, 28.11.2014, *N. Ardenghi* (MSNM).

This is a widespread species in North America (Strother & Weedon, 2006). Like the preceding, it is poorly known and overlooked in Europe, although known since many decades (e.g. Schumacher, 1941; Debray, 1963). Up to present it was known in Italy only from Friuli-Venezia Giulia (Celesti-Grapow *et al.*, 2009a). *Bidens vulgatus* is much reminiscent of *B. frondosus* L. but often more robust with larger flower heads and with a higher number of calyculi (10-16 vs. usually 8).

In addition to the localities cited above, it was also detected along river Po in Boretto (Emilia-Romagna). It may have been widely overlooked elsewhere.

Cardamine hamiltonii G.Don, *Gen. Hist.*, 1: 167. 1831.
≡ *Cardamine debilis* D.Don, *Prodr. Fl. Nepal.*: 201. 1825, nom. illeg.
≡ *Cardamine flexuosa* With. subsp. *debilis* O.E.Schulz, *Bot. Jahrb. Syst.*, 32 (4): 478. 1903.
(Brassicaceae)

Naturalized neophyte new to the flora of Piemonte (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a; Ardenghi & Mossini, 2014).

ITALY. Piemonte. Prov. Vercelli: Arborio, river Sesia N of the bridge, exposed river bank, 06.09.2014, *F. Verloove 11043* (BR).

Cardamine hamiltonii is a poorly known but widely spread species in many parts of Europe. It has long been confused with *C. flexuosa* but molecular data have demonstrated that it is a distinct entity, apparently native in East Asia (e.g. Lihová *et al.*, 2006; Bleeker *et al.*, 2008). It is distinguished from the latter by the absence at flowering of a distinct basal rosette and the markedly trilobed leaflets that usually have a glabrous upper leaf surface (cfr. Mansanet-Salvador *et al.*, 2015).

Fig. 2 - *Bidens vulgatus*, Martignana di Po (CR), September 2014 (Photo: F. Verloove).

Al-Shehbaz *et al.* (2010) referred to this taxon as *Cardamine flexuosa* subsp. *debilis* but agreed that it should be recognized at species level and its correct name be sought. In recent times it became clear that the name *C. hamiltonii* probably can be applied for these plants (e.g. Bomble, 2014; Ardenghi *et al.*, 2015; Dirkse *et al*., 2015).

For Italy this species was recently reported for the first time from Lombardia and Toscana (Ardenghi & Mossini, 2014). In September 2014 it was seen in Arborio alongside river Sesia (see above), in an area from where it had been claimed before (Dienst, 2007). It was also seen as an urban weed in Vercelli and in rice fields in Albano Vercellese and Robbio. It is well-established, weedy and doubtlessly widely overlooked elsewhere in Italy.

Cucurbita maxima Duchesne, *Essai Hist. Nat. Courges*: 7. 1786.
(Cucurbitaceae)

Confirmation of casual neophyte for the flora of Piemonte (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a).

ITALY. Piemonte. Prov. Vercelli: Vercelli, city center close to river Sesia, roadside, 07.09.2014, *F. Verloove 11069* (BR).

Doubtlessly an ephemeral alien, this species unlike in other parts of Europe, is frequently cultivated in northern Italy, its fruits being used in different traditional dishes. It is distinguished from the latter by its peduncle that is terete and becoming corky in fruit. Its leaves are almost entire or very shallowly lobed and softly hairy above. *C. pepo*, in contrast, has peduncles that are deeply furrowed in fruit (conspicuously angled, not corky) and its leaves are deeply 5-lobed and hirsute hairy above.

Cucurbita maxima was considered doubtful for Piemonte by Conti *et al.* (2005) and not listed from that region by Celesti-Grapow *et al.* (2009a).

Digitaria violascens Link, *Hort. Berol. [Link]*, 1: 229. 1827.
(Poaceae)

Naturalized neophyte new to the flora of the province of Alessandria (Piemonte) (Verloove *et al.*, 2011).

ITALY. Piemonte. Prov. Alessandria: Valenza, river Po S of the bridge, sandy river bank, 07.09.2014, *F. Verloove 11088* (BR).

A native from the Old World tropics *Digitaria violascens* has long been overlooked in southern Europe. Verloove (2008) cited records from France and Italy (prov. Novara in Piemonte), subsequently also from Spain (Verloove & Sánchez Gullón, 2008). Later, it turned out to be much more widespread in northwestern Italy (Verloove *et al.*, 2011). In Piemonte it was previously recorded in the provinces Biella, Torino, Verbano-Cusio-Ossola and Vercelli (Verloove *et al.*, 2011) and in September 2014 it was also seen along river Po near Valenza, apparently for the first time in the province of Alessandria.

Muhlenbergia frondosa (Poir.) Fernald, *Rhodora*, 45 (534): 235. 1943.
(Poaceae)

Naturalized neophyte new to the flora of Emilia-Romagna (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a).

ITALY. Emilia-Romagna. Prov. Reggio nell'Emilia: Boretto, river Po E of the bridge, riparian woodland, locally, 13.09.2014, *F. Verloove 11000* (BR, MSNM).

Muhlenbergia frondosa is a native species in southern Canada and the contiguous U.S.A. (Peterson, 2003). It is only rarely seen outside of its native distribution range. However, in Italy it is known since several decades from Piemonte (Soldano, 1977) where it is naturalized, for instance in riparian woodland alongside river Sesia. In recent years it seems to spread in northern Italy: Bertolli & Prosser (2013) reported about its discovery in Trentino-Alto Adige and in September 2014 it was also detected alongside river Po in Boretto. This species is rather inconspicuous and often very reluctant to flower; it may be more widespread but overlooked.

Oenothera pedemontana Soldano, *Rivista Piemont. Storia Nat.*, 4: 131. 1983. [Fig. 3]
(Onagraceae)

Naturalized neophyte new to the flora of Lombardia (Soldano, 1983; Soldano, 1993; Banfi & Galasso, 2010).

ITALY. Lombardia. Prov. Pavia: Bereguardo, river Ticino close to the bridge, sandy river bank, 11.09.2014, *F. Verloove 11016* (BR).

This microspecies from the *Oenothera biennis* aggregate (possibly a hybrid of the latter; Dietrich *et al.*, 1997) was originally described from Piemonte, the type being from Saluggia in Torino province (Soldano, 1983). It is now more or less widely dispersed in Piemonte (see map in Cecere *et al.*, 2012) but had never been recorded outside of this region (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a). In September 2014 this species was found growing in abundance on the sandy banks of river Ticino in Bereguardo.

Characteristic features of *Oenothera pedemontana* are its tall habit (stem up to 230 cm long), late flowering, presence of glandular hairs on the hypanthium, petals wider than long (ca. 26×17-23 mm) and relatively small capsules ca. 18-33 mm long with emarginate capsule teeth (e.g. Soldano, 1993).

Panicum barbipulvinatum Nash, *Mem. New York Bot. Gard.*, 1: 21. 1900.
= *P. riparium* H.Scholz, *Feddes Repert.*, 113 (3-4): 275. 2002.
(Poaceae)

Naturalized neophyte new to the flora of Italy (Piemonte) (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a).

ITALY. Piemonte. Prov. Alessandria: Valenza, river Po S of the bridge, sandy river bank, very common, 07.09.2014, *F. Verloove 11060* (BR); Prov. Alessandria: Arquata Scrivia, river Scrivia N of the bridge, gravelly river bed, frequent, 09.09.2014, *F. Verloove 11062* (BR).

Panicum barbipulvinatum is an enigmatic species originating in temperate North America. Its taxonomic status is debated: in its area of origin it is merely included in the variability of *P. capillare* L. by modern authors (e.g. Freckmann & Lelong, 2003). In Europe, however, where

only part of the genetic diversity of the latter is present, it is easily distinguished. This inspired Scholz (2002) to describe it as a neo-endemic species new to science, *P. riparium*. Recently, Amarell (2013) demonstrated that Scholz' new species in fact perfectly corresponds with the American *P. barbipulvinatum*. Moreover, he advocated, like Scholz, that this taxon should be accepted at species rank (as is, for instance, *P. hillmanii* Chase from the same species complex). His point of view was followed in the recently published Flora Gallica (Tison & de Foucault, 2014).

Panicum barbipulvinatum has a laxer inflorescence with spikelets on short pedicels that are tightly appressed. The narrower spikelets are long-acuminate at apex. This particular combination of features renders the plant a characteristic jizz that is fairly different from that of *P. capillare*.

In September 2014 *Panicum barbipulvinatum* was seen on several occasions in Piemonte, always on exposed sandy or gravelly banks of rivers Po and Scrivia.

Panicum philadelphicum Bernh. ex Trin., *Gram. Panic. [Trinius]*: 216. 1826.
= *Panicum gattingeri* Nash, *Fl. S.E. U.S. [Small]*, 92 (1327). 1903.
(Poaceae)

Confirmation of naturalized neophyte for the flora of the province of Alessandria (Piemonte) (Soldano & Verloove, 2007).

Fig. 3 - *Oenothera pedemontana*, Bereguardo (PV), September 2014 (Photo: N. Ardenghi).

ITALY. Piemonte. Prov. Alessandria: Valenza, river Po S of the bridge, sandy river bank, few individuals, 07.09.2014, *F. Verloove 10990* (BR).

This North American species was only known from a single, historical record in Alessandria province (Soldano & Verloove, 2007). Its present-day presence is here confirmed. In Piemonte, it is also known from Torino province (Verloove & Selvaggi, 2011), also along river Po.

Panicum philadelphicum is much reminiscent of *P. capillare* and both possibly have been confused in parts of Europe. It is readily distinguished by its panicles that are only ca. 1/3 the total height of the plant, the base of the peduncle that is not breaking at maturity and the slightly smaller spikelets that are acute at apex, not acuminate.

Perilla frutescens (L.) Britton, *Mem. Torrey Bot. Club*, 5 (18): 277. 1894. [Fig. 4]
(Lamiaceae)

Casual neophyte new for the flora of Piemonte (Conti *et al.*, 2005; Celesti Grapow *et al.*, 2009a).

ITALY. Piemonte. Prov. Alessandria: Basaluzzo, torrente Lemme close to SP 160, gravelly riverbed, 4 individuals, 08.09.2014, *F. Verloove 11085* (BR).

Perilla frutescens from Asia is widely cultivated as an ornamental or as an oilseed crop. Up to present it has been recorded in Italy in Lombardia and Veneto, always as a casual alien (Celesti-Grapow *et al.*, 2009a). It is here reported for the first time from Piemonte. In addition to the locality cited above, it was also seen in Arquata Scrivia along river Scrivia. It does not seem to naturalize (yet).

Persicaria pensylvanica (L.) M.Gómez, *Anales Inst. Segunda Enseñ.*, 2: 278. 1896.
(Polygonaceae)

Naturalized neophyte new for the flora of the province of Mantova (Lombardia) (Banfi & Galasso, 2010).

ITALY. Lombardia. Prov. Mantova: Viadana, river Po W of the bridge, sandy river bank, few plants, 15.09.2014, *F. Verloove 11058* (BR).

A native of North America, this species became naturalized in Europe, especially in riparian habitats. In Italy it is known from the northernmost regions (Celesti-Grapow *et al.*, 2009a). It is here reported for the first time from Mantova province in Lombardia.

Fig. 4 - *Perilla frutescens*, Basaluzzo (AL), September 2014 (Photo: F. Verloove).

This species is obviously naturalized along river Po but usually occurs in small populations. It does not seem to be an aggressive invader.

Populus deltoides W.Bartram ex Marshall, *Arbust. Amer.*: 106. 1785. [Fig 5]
(Salicaceae)

Casual neophyte new to the flora of the province of Lodi (Lombardia) (Banfi & Galasso, 2010).

ITALY. Lombardia. Prov. Lodi: San Rocco al Porto, river Po W of the bridge, river bank, several young, self-sown trees, 13.09.2014, *F. Verloove 11059* (BR).

This North American native is widely planted in Europe, although much less so than *P.* ×*canadensis* Moench (pro sp.), its hybrid with native *P. nigra* L. It is reported to be an exceptional escape from cultivation in Lombardia, only being known from three localities in the Pavia area since 1905 (Banfi & Galasso, 2010; Ardenghi, 2013). In San Rocco al Porto several young, obviously self-sown trees were seen on the sandy banks of river Po.

Populus deltoides is a distinct species with leaves up to 18 cm long or even longer, provided with more prominent and hooked marginal teeth. These features distinguish it from juvenile individuals of *P.* ×*canadensis*, which usually bear leaves larger than those of the adult trees (see Eckenwalder, 2010).

Rotala ramosior (L.) Koehne, *Fl. Bras. (Martius)*, 13 (2): 194. 1877.
(Lythraceae)

Naturalized neophyte new to the flora of the province of Alessandria (Piemonte) (Celesti Grapow *et al.*, 2009a).

ITALY. Piemonte. Prov. Alessandria: Villanova Monferrato, rice fields, 12.09.2014, *F. Verloove 11079* (BR).

Rotala ramosior originally is an American species but it occurs in the Old World as a weed of rice fields, for instance in Italy and the Philippines (Cook, 1979). In Italy it was first discovered in Piemonte in 1972 (Cook, 1973), subsequently also in Lombardia (Banfi & Galasso, 2010). In the past decades it has repeatedly been confirmed from Piemonte (e.g. Soldano, 1977; Abbà, 1980; Varalda *et al.*, 1984; Desfayes, 2005) but it seemed to be confined to the province of Vercelli, from where it was originally reported by Cook (1973). In September 2014 it was found, apparently for the first time, in the province of Alessandria. It was found growing in quantity, with *Ammannia coccinea* Rottb. and other weeds, in a rice field near Villanova Monferrato.

Fig. 5 - *Populus deltoides*, San Rocco al Porto (LO), September 2014 (Photo: F. Verloove).

Symphyotrichum pilosum (Willd.) G.L.Nesom var. ***pringlei*** (A.Gray) G.L.Nesom, *Phytologia*, 77 (1994, 3): 289. 1995.
(Asteraceae)

Naturalized neophyte new to the flora of Piemonte (Conti *et al.*, 2005; Celesti-Grapow *et al.*, 2009a).

ITALY. Piemonte. Prov. Vercelli: Ghislarengo, ca. 1.5 km SW of the village, abandoned gravel pit, common, 06.09.2014, *F. Verloove 10985* (BR, MSNM).

Symphyotrichum pilosum is native in eastern North America (Brouillet *et al.*, 2006) but widely cultivated as an ornamental in Europe. It is a poorly known species that has been confused with *S. ericoides* (L.) G.L.Nesom, *S. lateriflorum* (L.) Á.Löve & D.Löve and even *S. lanceolatum* (Willd.) G.L.Nesom. Italian claims of the first two species are mostly erroneous and referable to *S. pilosum* (Banfi & Galasso, 2010). The latter is fairly characteristic in having pedicels with numerous linear to subulate bracts and phyllaries with acute, spinulose apices. Stems and leaves may be either pilose to hirsute (var. *pilosum*) or glabrous (var. *pringlei*).

In Italy *Symphyotrichum pilosum* was only known with certainty from Lombardia (Banfi & Galasso, 2010) although it may have been overlooked elsewhere. In Ghislarengo it has invaded rough ground in an abandoned quarry. It looks perfectly established there.

Symphyotrichum squamatum (Spreng.) G.L.Nesom, *Phytologia*, 77 (1994, 3): 292. 1995.
(Asteraceae)

Naturalized neophyte new to the flora of the province of Alessandria (Piemonte) (Pistarino *et al.*, 1999).

ITALY. Piemonte. Prov. Alessandria: Tortona, bridge over river Scrivia, at entrance of A7 motorway, rough, bare ground, 09.09.2014, *F. Verloove 11037* (BR).

This South American species is fast spreading and considered invasive in large parts of the Mediterranean area, including Italy (Celesti-Grapow *et al.*, 2009a). In the Piemonte region it was known from Torino and Cuneo provinces (Pistarino *et al.*, 1999) but not yet from Alessandria.

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