

New records of interesting xenophytes in the Iberian Peninsula.

VII.

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Summary: Our previous research on the xenophytes vascular flora of the Iberian Peninsula was continued in 2016-2017. Several new provincial or regional data are presented (18 taxa), especially for the provinces of Alicante, Huelva and Sevilla (Spain), and Algarve and Estremadura regions (Portugal). Special interest was paid to the naturalized flora of the Natural Park of Sintra-Cascais. For each taxon details are given about the distribution, occupied habitats, ecology, previous citations, the degree of naturalization, etc. *Adiantum raddianum*, *Ageratina ligustrina*, *A. riparia* and *Fuchsia boliviana*, are possibly mentioned for the first time in the Iberian Peninsula. The naturalization and spread of *Blechnum cordatum* is confirmed in Sintra (Estremadura, Portugal). Local novelties for Estremadura include *Cenchrus setaceus*, *Cyperus papyrus* and *Nassella tenuissima* are reported from Huelva, probably for the first time for Andalusia (Spain). *Lemna minuta* is possibly first recorded for the Algarve (Portugal), while *Soliva sessilis* is new for the provinces of Sevilla (Western Andalusia) and Algarve (Portugal). *Elaeagnus angustifolia* and *Senecio angulatus* turn out to be new for the province of Huelva. Finally, *Leucaena leucocephala*, *Oenothera lindheimeri*, *Parthenocissus inserta* and *Tipuana tipu* have been observed for the first time from Alicante province.

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Key words: Spain, Portugal, Xenophytes.

Resumen: Como continuación de una investigación previa sobre la flora vascular xenofítica de la Península Ibérica, se ha procedido en 2016-2017. Se presentan 18 nuevas citas provinciales o regionales, especialmente para la provincia de Alicante, Huelva y Sevilla (España), y el Algarve y Estremadura (Portugal), centrándonos especialmente en el Parque Natural de Sintra-Cascais. Para cada taxón se dan detalles sobre la distribución, los hábitats ocupados, la ecología, las citas anteriores, el grado de naturalización, etc. *Adiantum raddianum*, *Ageratina ligustrina*, *A. riparia*, y *Fuchsia boliviana*, se mencionan posiblemente por primera vez para la Península Ibérica. Se confirma la permanencia actual y expansión de *Blechnum cordatum* en Sintra (Estremadura, Portugal), y citamos como novedad para Estremadura *Cenchrus setaceus*. *Cyperus papyrus* y *Nassella tenuissima* se citan probablemente por primera vez para Andalucía (España) en Huelva. *Lemna minuta*, posiblemente sea novedad para el Algarve (Portugal), mientras que *Soliva sessilis* lo es para la provincia de Sevilla (Andalucía Occidental) y el Algarve (Portugal). *Elaeagnus angustifolia* y *Senecio angulatus*, resultan ser nuevos para la provincia de Huelva. Por último, *Leucaena leucocephala*, *Oenothera lindheimeri*, *Parthenocissus inserta* y *Tipuana tipu* han sido observado por primera vez en la provincia de Alicante (España).

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Palabras clave: España, Portugal, Xenofitos.

Introduction:

The introduction of invasive alien species, and the impact and disruption they cause in the natural environment, with a modification of the taxonomic and chorological spectrum of the local biota, or loss of environmental quality with banalization of ecosystems is an issue of major concern nowadays. It is obvious that, as a result of world globalization, there is an increasing, seemingly unstoppable input of xenophytes (introduced by the ornamental trade, traffic, etc.). In this new note we report about the presence and ecology of 17 newly introduced species in the Iberian Peninsula, mostly recorded between 2016 and 2017, as a continuation of previous research on non-native vascular plants in the Iberian Peninsula (Sánchez Gullón & Verloove 2008 2009, 2013, 2016; Silva & al., 2012, 2015a, 2015b; Silva, 2015; Verloove & Sánchez Gullón, 2008, 2012).

Material and methods:

The floristic novelties here presented are mainly the result of fieldwork in various parts of the Iberian Peninsula (Spain as well as Portugal), mostly in 2016 and 2017. Particular attention was paid to the naturalized flora of the Natural Park of Sintra-Cascais, a location where numerous ornamental plants were introduced in the 19th century (Oates, 1929; Luckhurst, 2014). Sintra is located in the transition zone between north-Atlantic and south-Mediterranean climates (Rivas-Martínez et al. 2001) and offers ideal circumstances for the naturalization of species from warm-temperate to even sub-tropical regions. Voucher specimens of most taxa are preserved in the private herbarium of the first author. Other vouchers and duplicates were deposited in the herbarium of the Botanic Garden of Meise, Belgium (BR), the School of Agriculture, University of Lisbon (LISI), the Universidad de Sevilla (SEV), and/or the Real Jardín Botánico de Madrid (MA) (Thiers, 2017).

For each taxon, alphabetically arranged here under, the following details are provided: currently accepted name and family (in accordance with Angiosperm Phylogeny Group III 2009), homo- or heterotypic synonyms (if useful), type of chorological novelty, additional comments on recognition, degree of naturalization, etc. For each taxon the xenotype is indicated following Kornás (1990). Finally, the data from the herbarium labels are also provided.

Chorological data in the Iberian Peninsula for the species presented were extracted from ANTHOS database (<http://www.anthos.es>), Flora-on (<http://flora-on.pt/>) and Flora Iberica (<http://www.floraiberica.es/>). Further distributional information was obtained from, among others, Dana & al. (2005a), Sanz Elorza & al. (2004), Almeida (1999) and Almeida & Freitas (2012).

UTM coordinates for all localities were assessed using Google Earth.

Results:

Acacia cyclops A. Cunn. ex G. Don, *Gen. Hist.*, 2: 404. 1832. (FABACEAE)

A neophyte from western Australia, this species has naturalized in the southeastern and western parts of the Iberian Peninsula (Paiva, 1999), as well as in the Canary Islands, where it is considered an invasive species (Acebes Ginovés & al., 2010). It is also known from Israel (DAISIE, 2017). Up to present, only two species of *Acacia* have been reported from the province of Huelva: *Acacia karroo* Hayne and *Acacia dealbata* Link. However, this genus is not well-studied in western Andalusia, despite the fact that many species are reputed invaders. In Andalusia *A. cyclops* is known from Almería (Sagredo, 1987; Ruíz, 2006; Peñas, 2009). It is located in coastal dune systems and roadsides as a relic of old forest plantations (dune fixation). It is classified as an ergasiophyte.

Acacia cyclops is easily distinguished from similar species in the Iberian Peninsula by its small phyllodes with several longitudinal veins.

Material studied:

SPAIN (Hs): P.N. Marismas del Odiel (Huelva), cuneta carretera. WGS84 29S 0680516; 4123226. 15-2-2017. E. Sánchez Gullón (BR, personal herbarium E. Sánchez Gullón: ESG 514).

***Acacia pycnantha* Benth., *London J. Bot.*, 1: 351. 1842. (FABACEAE)**

This species, officially proclaimed as Australia's National Floral Emblem in 1988, is originally native in western Australia and Tasmania. As an escape from cultivation, it has been cited from France, Italy, Sardegna and Madeira (DAISIE, 2017). In the Iberian Peninsula it is dispersed alongside the northern Atlantic coast (Paiva, 1999). It is here reported for the first time for Andalusia in the province of Huelva, as ergasiophyte. It is quite frequent in ditches of the Natural Park 'Marismas del Odiel', possibly as a remnant of the former British presence in the 19th century. Many ornamentals were then introduced along railroad tracks in the mining basin of Huelva.

Acacia pycnantha differs from similar species in the Iberian Peninsula (e.g. *A. saligna* (Labill.) H.L. Wendl.), in having phyllodes that are very oblique at base and muticous at apex and by its racemes with more numerous glomerules.

Material studied:

SPAIN (Hs): P.N. Marismas del Odiel (Huelva), cuneta carretera isla de Bacuta. WGS84 29S 0680539; 4123188. 15-2-2017. E. Sánchez Gullón (BR, personal herbarium E. Sánchez Gullón: ESG 506).

***Adiantum raddianum* C. Presl, *Tent. Pterid.*: 158. 1836. (PTERIDACEAE) (Syn.: =*Adiantum cuneatum* G. Forst.)**

This fern, naturally occurring from Mesoamerica to South America, and in Tropical Africa, has not been cited before from the Iberian Peninsula (Franco, 1984; Muñoz Garmendía, 1987; Almeida & Freitas, 2012). It is naturalized in the Azores and Macaronesia (Franco, 1971; Hansen & Sunding, 1993) and in parts of Europe (Lambinon & Verloove, 2012). In 2015 it was discovered in Sintra, apparently for the first time in continental Portugal and the Iberian Peninsula. It was found on a wall of a stone fence, next to the road, possibly as an ergasiophyte or ephemerophyte.

Material studied:

PORTUGAL (Lu): Estremadura (E): Sintra, rupícola en muro de piedra junto carretera. WGS84 29S 464965; 4293839. 26-09-2015. E. Sánchez Gullón (BR, personal herbarium E. Sánchez Gullón: ESG 464).

***Ageratina ligustrina* (DC.) R.M. King & H. Rob., *Phytologia*, 19: 223. 1970. (COMPOSITAE) (Syn.: = *Eupatorium ligustrinum* DC.)**

Ageratina comprises ca. 250 New World species, mostly in subtropical and warm-temperate regions of South and Central America (Mabberley, 2008). A widespread species in Mexico and Central America, *Ageratina ligustrina* is widely cultivated as an ornamental in warm-temperate areas worldwide. It has been detected as an alien in the forest of Park of Sintra-Cascais, apparently for the first time in Portugal and the Iberian Peninsula as a whole. Its invasive behaviour is uncertain: it may either be considered an ephemerophyte or an ergasiophyte.

Material studied:

PORTUGAL (Lu): Estremadura (E): Sintra, sotobosque húmedo parque forestal. WG84 29S 466090; 4294029. 26-09-2015. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 466).

***Ageratina riparia* (Regel) R.M.King & H.Rob., *Phytologia*, 19: 216. 1970. (COMPOSITAE) (Photo 1) (Syn.: = *Eupatorium riparium* Regel)**

This Mexican species is naturalized in laurel forest in the Canary Islands (La Gomera, La Palma) and Madeira (Kunkel, 1975; Dalgaard, 1986; Romero Manrique, 1990; Hansen & Sunding, 1993; Pérez de Paz & al., 1994). It has not been cited before for the Iberian Peninsula (Franco, 1984; Almeida & Freitas, 2006, 2012). This record represents the first reference for the Iberian Peninsula. It grows inside the temperate forest of Sintra, as ergasiophyte or ephemerophyte.

In Sintra three species of *Ageratina* have been able to naturalize in the past decades. In addition to the two species here reported, *A. adenophora* (Spreng.) R.M.King was already known to occur there (Almeida, 1999). All these species are morphologically similar and are easily confused. For convenience a key for their separation is presented here under.

A key for the species of the genus *Ageratina* present in Sintra is provided below:

- 1.- Corolla glabrous or rarely with a few short hairs. Leaf margin (at least in the Sintra populations) subentire and slightly to strongly revolute. Lower leaf surface with glandular dots (high magnification) *Ageratina ligustrina*.
 1.- Corolla (especially lobes) pubescent with at least a few multiseptate long hairs. Leaf margin coarsely serrate. Lower leaf surface without glandular dots 2.
 2.- Leaf blade 3-6 times as long as wide, attenuate at base *Ageratina riparia*.
 2.- Leaf blade slightly longer than wide, obtuse to cuneate at base *Ageratina adenophora*.

Material studied:

PORTUGAL (Lu): Sintra, Volta do Duche, growing spontaneously on moist rocky sites, WGS84 29S 466432; 4294252. 02-04-2017. V. Silva & S. Saraiva (LISI 587/2017).



Lamina 1.- Images of *Ageratina riparia* (Regel) R.M.King & H.Rob. (1), and *Blechnum cordatum* (Desv.) Hieron (2).

***Blechnum cordatum* (Desv.) Hieron., *Hedwigia*, 47: 239. 1908. (BLECHNACEAE)**

(Photo 2) (Syn.: = *Blechnum capense* Burm.f.; = *Blechnum chilense* (Kaulf.) Mett.; = *Lomaria chilensis* Kaulf.; = *Lomaria cordata* Desv.; = *Parablechnum cordatum* (Desv.) Gasper & Salino)

Blechnum cordatum has a complicated taxonomic status and has a pantropical distribution (Tryon & Stolze, 1993; Prada & al., 2008). Its presence in the Iberian Peninsula has been known since the 19th century (Archer, 1870; Daveau, 1878). According to these authors it was initially planted in the lake cascades in the historic garden of Quinta of Monserrate under the name *Lomaria chilensis* [= *Blechnum chilense*], and lately determined as *Blechnum capense* (cf. <http://invasoras.pt/wp-content/uploads/2012/10/List-of-Exotic-Species.pdf>, as well as herbarium vouchers; cf. Material studied]. Its presence in Sintra is due to plants escaped from Monserrate park (Bacelar & al., 1987). Although it was considered an ephemerophyte or even extinct (Almeida 1999), it currently is competing with various native ferns, sedges and heliophytes (*Osmunda regalis* L., *Carex paniculata* subsp. *Iusitanica* (Willd.) Maire, *Potamogeton polygonifolius* Pourr., etc.) and forms extensive colonies in hygrophilous vegetations, as ergasiophyte.

Recent studies combine this species in the genus *Parablechnum* (Gasper & al., 2016). However, further studies on the generic delimitation of *Blechnum* s.l. are necessary (Christenhusz & al., 2011).

Material studied:

PORTUGAL (Lu): Estremadura (E): Quinta de Monserrate, 23-06-1971, I. Melo & F. Augusto (LISU 145464); Estremadura (E): Sintra, Monserrate vs. Tapada das Roças, ad fossulis solo humoso humido sabuloso-granítico advenum, 300 m.a.s.l., 05-09-1985, A.R. Pinto da Silva, F.M. Catarino, A. Silva e Costa & A.I. Correia (ASC 2316: LISU 147452); Estremadura (E): Sintra, Parque de Monserrate, 20-11-2008, T. Vasconcelos (LISI 451/2009); Estremadura (E): Sintra, proximidades Quinta Monserrate en suelos higroturbosos com *Osmunda regalis* L., *Carex paniculata* subsp. *Iusitanica*, etc.. WGS84 29S 463558; 4293649. 26-09-2015. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 424).

Cenchrus setaceus (Forssk.) Morrone, *Ann. Bot. (Oxford)*, 106: 129. 2010. (POACEAE)
(Photo 3) (Syn.: = *Pennisetum setaceum* (Forssk.) Chiov.)

Cenchrus setaceus locally forms dense thickets with another introduced grass, *Ampelodesmus mauritanicus* (Poir.) T.Durand & Schinz (Silva, 2015), and displaces native vegetation dominated by *Hyparrhenia sinaica* (Delile) Llauradó ex G.López. This behavior, threatening local biodiversity, has already been noticed in other ecosystems (D'Antonio & Vitousek 1992). In Portugal, it was previously indicated for the Alto Alentejo (Bejarano & al., 2011) and Algarve provinces (Marchante et al., 2014). Despite all the warnings that came from Spain and other Mediterranean areas (Dana & al., 2005b; Devesa & Arnelas, 2006; EPPO, 2009), gardens in urban areas like Cascais and Algarve (Marchante & al., 2014) continue to be planted with this species. The ease with which this species is escaping from the green spaces is notorious and in the short term it becomes a genuine threat to the native flora and natural habitats. This species has recently been included on the List of Invasive Alien Species of Union concern (EU, 2017).

Another species from this genus has the same invasive potential and should be closely monitored: *Cenchrus longisetus* M.C. Johnst. (syn.: *Pennisetum villosum* R.Br. ex Fresen.) (Almeida & Freitas, 2006). It was initially reported from Cascais by Bacelar et al. (1987) as escaped. Several records as naturalized are known in almost all Portuguese provinces (Bacelar & al., 1987; Franco & Afonso, 1998; Marchante & al., 2014; Silva, 2017) as well as in parts of Spain as agriophyte.

These two species were accommodated in *Pennisetum* for quite a long time and are best known under their respective names in that genus. Molecular studies, however, have shown that *Pennisetum* is nested in *Cenchrus* and is best merged with it (Chemisquy & al., 2010).

Material studied:

PORTUGAL (Lu): Estremadura (E): Cascais, on a slope of the marginal road, near the Palmela Park. WGS84 29S 464285; 4283791, 1-5-2017, V. Silva & S. Saraiva (LISI 706/2017). Cascais, Guia, between the lighthouse and the Guia Marine Laboratory, WGS84 29S 460951; 4283105, 10-6-2017, V. Silva (LISI 720/2017).



Lamina 2.- Images of *Cenchrus setaceus* (Forssk.) Morrone (3), and *Fuchsia boliviana* Carrière (4).

Cyperus papyrus L., *Sp. Pl.*, 1: 47. 1753. (CYPERACEAE)

Introduced in the warmest parts of Europe in ancient times (Walters, 1984; Verloove, 2014), the first reference of this alien sedge in the Iberian Peninsula is from the mid 20th century in Santander (Guinea, 1953). Later, it was also reported from near the coast in the east in Tarragona and Valencia (Peña & al., 2003; Royo, 2006). We here cite it as an ephemerophyte in the province of Huelva (Western Andalusia), where it is found very close to a wetland and saltmarsh. In very similar circumstances (but considered a mere relic of cultivation by Castroviejo, 2007), it has already been recorded in other parts of the Iberian Peninsula. For now, where it has been located, it has been eradicated in order to prevent an incipient invasion.

Material studied:

SPAIN (Hs): La Alquería (Huelva), borde arroyo junto restos de podas. WGS84 29S 688367; 4130439. 10-03-2017. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 4518).

Fuchsia boliviana Carrière, Rev. Hort., 48: 150. 1876. (ONAGRACEAE) (Photo 4)

A native of South America (Bolivia, Peru and Argentina), *Fuchsia boliviana* is grown as an ornamental species, also in Europe (Brown & Berry, 2011; Argimon, 2005). Already at the end of the 19th century it was cited from the gardens of Sintra (Daveau, 1878) (sub *Fuchsia corymbiflora* Ruiz & Pav.). This latter name was misapplied to this species in subsequent literature, both for cultivated (Oates, 1929; Caixinhas, 1994) and for naturalized plants (e.g. Azores; Franco, 1973-74) in Portugal. However, the name was corrected for Macaronesia (cf. Hansen, 1972; Sequeira & al., 2011).

F. boliviana can be distinguished from *F. corymbiflora* by its elongated racemes, reflexed sepals and longer cylindrical fruits (Berry, 1982).

As already noticed by Silva (1989), *Fuchsia magellanica* Lam. is another species that is naturalized in Sintra. In addition, the species of *Fuchsia* from the historic parks of Sintra are well represented in herbaria [e.g. *F. microphylla*, J. Gomes Pedro (LISI) from Monserrate; *F. arborescens*, J. Amaral Franco (LISI) from Parque da Pena] and continue to be of great interest for those who visit them (Luckhurst, 2014).

The naturalization of *F. boliviana* in riparian habitats in natural environments of Sintra Park is here reported, possibly as ergasiophyte.

A key for the species of the genus *Fuchsia* present in Sintra is provided below:

- 1.- Inflorescence with flowers erect in well developed panicles*Fuchsia arborescens*.
- 1.- Inflorescence with flowers suberect or pendent, solitary, or in racemes or little developed panicles 2.
- 2.- Stamens opposite petals reflexed and included in hypanthium *Fuchsia microphylla*.
- 2.- Stamens all erect 3.
- 3.-Hypanthium 7-15 mm long, shorter than the sepals. Sepals connate at base *Fuchsia magellanica*.
- 3.-Hypanthium 14-65 mm long, longer than the sepals. Sepals free at base4.
- 4.-Petiole 2-5 cm long..... *Fuchsia boliviana*.
- 4.-Petiole 0,4-2 cm long.....5.
- 5.-Hypanthium tube 40-65 mm long *Fuchsia corymbiflora*.
- 5.-Hypanthium tube 20-40 mm long *Fuchsia triphylla*.

Material studied:

PORTUGAL (Lu): Estremadura (E): Sintra, orilla curso fluvial estacional. WG84 29S 466300; 4294249. 26-09-2015. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón (ESG 458). Sintra, Volta do Duche, grow spontaneously on the rocky walls. WGS84 29S 466430; 4294285. 02-04-2017. V. Silva & S. Saraiva (LISI 588/2017). Idem, Parque Monserrate. 29-04-2009. T. Vasconcelos (LISI 1586/2009).

Elaeagnus angustifolia L., Sp. Pl., 1: 121. 1753. (ELAEAGNACEAE)

This shrub is widely grown as ornamental and is native to Central and western Asia, locally extending to southeastern Europe. Today it is naturalized in ravines and riverbanks in stony or sandy soils in the Mediterranean region and South America. It has scattered occurrences in the Iberian Peninsula (Fernández & Castroviejo, 1997). Within its native range it occurs primarily in coastal dunes, riparian areas and other relatively moist habitats (Carapeto, 2016), habitats that are very similar to that in which it was detected in the province of Huelva in contact zones of the coast close to marshes, possibly as ergasiophyte.

Material studied:

SPAIN (Hs): Paraje Natural Marismas del Odiel (Aljaraque), en borde de marisma continentalizada. WGS84 29S 676509; 4127610. 15-05-2017. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 527).

Lemna minuta Kunth, *Nov. Gen. Sp.*, 1: 372. 1817. (ARACEAE)

Lemna minuta is widely naturalized in Europe, Asia and Africa, although there are very few records for the Iberian Peninsula (e.g. Galán de Mera, 2007; Galán & Castroviejo, 2005; Aymerich, 2012; Sánchez Gullón & Galán de Mera, 2010; 2014). In Portugal it was recently reported from Estremadura (Sánchez Gullón & Verloove, 2016). We here present a new location, this time in the Algarve region. It has been detected as hemiagriophyte in a tributary of the Guadiana river, accompanied by *Azolla filiculoides* Lam., completely invading water surfaces.

Material studied:

PORTUGAL (Lu): Odeleite (Algarve), orilla arroyo con *Azolla filiculoides*. WGS84 29S 634504; 4133662. 20-03-2017. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 519).

Leucaena leucocephala (Lam.) de Wit, *Taxon*, 10(2): 54. 1961. (FABACEAE) (Photo 5)

This small shrub from Mexico and Central America is grown as an ornamental in many warm-temperate and subtropical regions of the world. It easily reproduces from seed and establishes itself in any suitable habitat. As such, it has naturalized in many areas in recent years, increasingly so in the Mediterranean area as well. Euro+Med Plantbase provides data from Egypt, Lebanon and Portugal (incl. Madeira) (ILDIS 2017). In addition, it has also naturalized in mainland Spain (Dana & al., 2003; Sánchez Gullón & al., 2006; Herrero-Borgoñón, 2007), Italy (Sicily) (Raimondo & Domina, 2007), and the Canary Islands (Padrón-Mederos & al., 2009), Verloove & Reyes-Betancort, 2011). It is considered one of the 100 worst environmental weeds worldwide and, although a relatively recent newcomer in Europe, this seems to apply here as well.

We here report two occurrences in the Alicante area, from where it had not been mentioned before. In addition to the sole tree seen in Santa Faz, *Leucaena leucocephala* is prolifically reproducing from seed and locally naturalizing in Santa Pola del Este. It is also confirmed here (second record) for the province of Huelva, where it is possibly an ergasiophyte.

Material studied:

SPAIN (Hs): Alicante, Santa Faz, N-332 at viveros Las Palmeras, roadside near abandoned garden center. WGS84 30S 722845; 4251743. 12-5-2017. F. Verloove 12874 (BR, dupl. MA). Huelva, La Rábida (Palos de la Frontera), en Císto-Lavanduletea. WGS84 29S 684817; 4119211. 17-05-2017. E. Sánchez Gullón (BR, Herbario particular E. Sánchez Gullón: ESG 527).

Nassella tenuissima (Trin.) Barkworth, *Taxon*, 39: 612. 1999. (POACEAE) (Bas.: =*Stipa tenuissima* Trin.)

Nassella tenuissima is native to the southwestern U.S.A., Mexico, Chile and Argentina where it inhabits dry areas (Connor & Ford, 1996). It is grown as an ornamental in many warm-temperate and subtropical regions of the world, also in many parts of Europe. It has been reported as a naturalizing escape in southern France (Verloove, 2005) and was recently reported for the first time from Spain in the Iberian Peninsula (Álvarez & al., 2016). It is sometimes considered invasive and is also naturalized in Australia, New Zealand, South Africa and the United States (GISD, 2006). In Huelva, it was recorded as an escape from cultivation in subcoastal zones, either as ephemerophyte or in process of naturalization.

Material studied:

SPAIN (Hs): Mazagón (Huelva). WGS84 29S 466300; 4294249. 26-09-2015. E. Sánchez Gullón (BR, MA, SEV, Personal herbarium E. Sánchez Gullón: ESG 525).



Lamina 3.- Images of *Leucaena leucocephala* (Lam.) de Wit (5), and *Oenothera lindheimeri* (Engelmann et A. Gray) W.L. Wagner & Hosch (6).

Oenothera lindheimeri (Engelmann et A. Gray) W.L. Wagner & Hosch, *Syst. Bot.*

Monogr., 83: 213. 2007. (ONAGRACEAE) (Photo 6) (Bas.: =*Gaura lindheimeri* Engelmann et A. Gray)

Originally native in the southern United States, *Oenothera lindheimeri* is commonly grown as an ornamental and easily escapes from cultivation. In the Iberian Peninsula it was recently reported from Portugal (Verloove & Sánchez Gullón, 2012) and Spain (Sánchez Gullón & Verloove, 2015). It is here reported for the first time from Alicante (Spain). Although a future naturalization is likely, it is currently considered an ephemerophyte.

Material studied:

SPAIN (Hs): Alicante, Babel, N-332 close to its junction with A-31 motorway, abandoned railway track, close to the port, a single individual. WGS84 30S 718290; 4245978. 12-05-2017, F. Verloove 12872 (BR, dupl. MA).

Parthenocissus inserta (A. Kern.) Fritsch, *Excursionsfl. Oesterreich*: 321. 1922. (VITACEAE) (Photo 7)

This ornamental vine from North America is frequently cultivated in Europe and easily escapes. It is much increasing in recent times and is often considered an invasive species (e.g. Végh & al., 2015). In Spain it has been known from the provinces Álava, Gerona, Tarragona, Vizcata, Zamora and Zaragoza (see ANTHOS). It is here reported for the first time from the province of Alicante. A well-established population was found in a shallow ravine in Santa Pola, where it was growing next to other invasive vines like *Lonicera japonica* Thunb. ex Murray and *Senecio angulatus* L. f.

Material studied:

SPAIN (Hs): Alicante, Santa Pola, Avenida del Mediterrani, shallow ravine, locally established, WGS84 30S 716718; 4233876. 11-05-2017, F. Verloove 12875 (BR).

Senecio angulatus L. f., *Suppl.*: 369. 1782. (COMPOSITAE)

This is a South Africa composite that is cultivated as a creeping or climbing ornamental. In Andalusia it has been mentioned in Cadiz and Granada, in Levant in Murcia, Alicante, Valencia, Barcelona, and the Balearic Islands (Menorca) and in the northern part of the peninsula in the Basque Country (Aizpuru & al., 2001; Fraga & al., 2004; García de Lomas & al., 2011; Guillot & Van Der Meer, 2004; Sánchez & al., 2011; Serra Laliga, 2007; Pyke, 2008). In Portugal it is well know in Estremadura (Silva & al., 2015a) and it was also indicated for Minho (Marchante & al., 2014) and for other coastal provinces (cf. Clamote & al., 2017). As ergasiophyte it has been detected in landfills and transformed areas near residential areas. Most wild populations result from the uncontrolled dumping of gardening pruning. The population detected in El Astur is likely a relic of abandoned cultivation within the Natural Park Marismas del Odiel.

Material studied:

SPAIN (Hs): El Astur (Punta Umbría), Paraje Natural Marismas del Odiel, en seto de cactáceas. WGS84 29S 678536; 4119550. 17-05-2016. E. Sánchez Gullón (BR, SEV, Personal herbarium E. Sánchez Gullón: ESG 517).

Soliva sessilis Ruiz & Pav., *Fl. Peruv. Prodr.*: 113, pl. 24. 1794. (COMPOSITAE) (Syn.: =*Soliva pterosperma* (Juss.) Less.; = *Gymnostyles pterosperma* Juss.; = *Soliva daucifolia* Nutt.)

A native of South America, this Asteraceae is today naturalized in part of the Old World. In the Iberian Peninsula it has been cited in Basque Country (Aizpuru & al., 2007), Huelva (Sánchez Gullón & Verloove, 2009), and northeaster Spain and Portugal (Tutin, 1976; Pyke, 2013). We here confirm its presence in the province of Seville in Western Andalusia, and in the Algarve in Portugal, where it is associated with ornamental lawns and gardens. Its ecological behaviour is agriophyte. A further expansion in this area is predictable.

Material studied:

PORTUGAL (Lu): Villa Real Sto Antonio (Algarve), en césped ornamental. WGS84 29S 640816; 4117361. 13-04-2017. E. Sánchez Gullón (BR, Personal herbarium E. Sánchez Gullón: ESG 508).

SPAIN (Hs): Parque de Maria Luisa (Sevilla), en césped ornamental. WG84 29S 235428; 4140929. 21-05-2017. E. Sánchez Gullón (BR, SEV, Personal herbarium E. Sánchez Gullón: ESG 509).



Lamina 4.- Images of *Parthenocissus inserta* (A. Kern.) Fritsch (7), and *Tipuana tipu* (Benth.) Kuntze (8).

Tipuana tipu (Benth.) Kuntze, *Revis. Gen. Pl.*, 3(3): 72. 1898. (FABACEAE) (Photo 8)

This South American species is frequently planted as a street tree in warm-temperate and subtropical regions. It produces lots of conspicuously winged seeds and these may travel a substantial distance. *Tipuana tipu* has become an unwanted weed in many areas where it was once introduced as an ornamental, for instance in South Africa and Australia (numerous references on the internet). Recently, it also started escaping in the Canary Islands (Verloove 2013, 2017). Its presence in Spain (unspecified locality) was recently reported (DAISIE 2017). In Alicante, a single young tree grows alongside an abandoned railway track, along with other escaped trees and shrubs like *Acacia saligna* (Labill.) H.L. Wendl., *Cercis siliquastrum* L., *Washingtonia spec.*, etc. It is, at least at present, considered an ephemerophyte although a future naturalization seems likely.

Material studied:

SPAIN (Hs): Alicante, Babel, N-332 at its junction with A-31 motorway, abandoned railway track, close to the port, a single individual, WGS84 30S 718082; 4245790. 12-05-2017, F. Verloove 12871 (BR, dupl. MA).

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References:

- Acebes Ginovés, J.R., León Arencibia, M.C., Rodríguez Navarro, M.L. et al. 2010. *Pteridophyta, Spermatophyta*. In Arechavaleta, M., Rodríguez, S., Zurita, N. & García, A. (eds.), *Lista de especies silvestres de Canarias (hongos, plantas y animales terrestres)*. (2nd ed.). Gobierno de Canarias, La Laguna.
- Aizpuru, I., Aperribay, J.A., Garin, F., Oianguren, I., Olariaga, I. & Vivant, J. 2001. Contribuciones al conocimiento de la flora del País Vasco, IV, *Munibe*, 51: 41-58.
- Aizpuru, I., Aseginolaza, C., Uribe-Echebarria, P.M., Urrutia, P. & Zorrakin, I. 2007. *Claves ilustradas de la Flora del País Vasco y territorios limítrofes*. Departamento de Agricultura y Pesca (Eusko Jaurlaritz-Gobierno Vasco), Vitoria-Gasteiz.
- Almeida J.D. 1999. *Flora exótica subespontânea de Portugal continental (plantas vasculares)*. 2nd ed. Universidade de Coimbra, Coimbra.
- Almeida, J.D. & Freitas, H. 2006. Exotic flora of continental Portugal - a reassessment. *Bot. Complutensis*, 30: 117–130.
- Almeida, J.D. & Freitas, H. 2012. Exotic flora of continental Portugal – a new assessment. *Bocconeia*, 24: 231–237.
- Álvarez, H., Ibáñez, N. & Gómez-Bellver, C. 2016. Noves aportacions al coneixement de la flora al·lòctona de la comarca del Baix Llobregat (Catalunya, Espanya). *Collect. Bot. (Barcelona)*, 35: 1-15.
- Angiosperm Phylogeny Group III. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants. APG III. *Bot. J. Linn. Soc.*, 161(2): 105-121.
- Archer, T.C. 1870. II. Botanical notes on the garden of Montserrat, Portugal. *Transactions and Proceedings of the Botanical Society of Edinburgh*, 10: 414–420.
- Argimon, X. 2005. *Onagraceae* In: Sánchez de Lorenzo, J.M. (coord.) *Flora ornamental española*. Junta de Andalucía. Consejería de Agricultura y Pesca. Sevilla.
- Aymerich, P. 2012. *Lemna minuta* Kunth, espècie nova per a la flora de Catalunya. *Butll. Inst. Cat. Hist. Nat.*, 77: 137-138.
- Bacelar, J.J.A.H., Correia, A.I.D., Escudeiro, A.C.S., Silva, A.R.P. & Rodrigues, C.M.A. 1987. Novidades da flora Sintrana. *Bol. Soc. Brot., Ser. 2*, 60: 147–162.
- Bejarano, A., Gutiérrez, A. & Vázquez, F.M. 2011. Aproximación al conocimiento de flora neófita en la cuenca del Guadiana Internacional a su paso por Extremadura (España) Alentejo (Portugal). *Folia Bot. Extremadurensis*, 5: 5–29.
- Berry, P.E. 1982. The Systematics and Evolution of *Fuchsia* Sect. *Fuchsia* (Onagraceae). *Annals of the Missouri Botanical Garden*, 69(1): 1–198.
- Brown, N. & P.E. Berry. 2011. *Fuchsia* In: Cullen, J., S.G. Knees & H.S. Cubey (eds.) *The European Garden Flora 4. Dicotyledons: Aquifoliaceae to Hydrophyllaceae*. Cambridge University Press.
- Caixinhas, M.L. 1994. *Flora da Estufa Fria de Lisboa*. Verbo, Lisboa.
- Carapeto, A. 2016. New records of alien vascular plant species in mainland Portugal. *Acta Botanica Malacitana*, 41: 281-286.
- Castroviejo, S. 2007. *Cyperus*. In: Castroviejo, S. (coord.). *Flora Iberica*, 18: 8-27. Real Jardín Botánico, CSIC. Madrid.
- Chemisquy, M.A., Giussani, L.M., Scataglieni, M.A., Kellogg, E.A. & Morrone, O. 2010. Phylogenetic studies favour the unification of *Pennisetum*, *Cenchrus* and *Odontelytrum* (Poaceae): a combined nuclear, plastid and morphological analysis, and nomenclatural combinations in *Cenchrus*. *Annals of Botany*, 106: 107–130.
- Christenhusz, M.J.M., Zhang, X. & Schneider, H. 2011. A linear sequence of extant families and genera of lycophytes and ferns. *Phytotaxa*, 19: 7-54.
- Clamote, F., Silva, V. & Almeida, J.D. 2017. *Senecio angulatus* L.f. - mapa de distribuição. *Flora-On: Flora de Portugal Interactiva*, Sociedade Portuguesa de Botânica. <http://www.flora-on.pt/#wSenecio+angulatus> [Accessed June 2017].
- Connor, H.E. & Ford, K. 1996. *Stipa tenuissima*, and name changes in stipoid grasses. *Weed Identification News*, 20: 1–5.
- D'Antonio, C.M. & Vitousek, P.M. 1992. Biological Invasions by Exotic Grasses, the Grass/Fire Cycle, and Global Change. *Annual Review of Ecology and Systematics*, 23: 63-87.
- DAISIE (European Invasive Alien Species Gateway) 2017. <http://www.europe-alien.org/>. [Accessed June 2017].
- Dalgaard, V. 1986. Chromosome numbers in flowering plants from Madeira. *Willdenowia*, 16(1): 221-240.
- Dana, E., Randall, R.P., Sanz-Elorza, M. & Sobrino, E. 2003. First evidence of the invasive behaviour of *Leucaena leucocephala* in Europe. *Oryx*, 37(1): 14.
- Dana, E.D., Sanz, M., Vivas, S. & Sobrino, E. 2005a. *Especies vegetales invasoras en Andalucía*. Consejería de Medio Ambiente. Junta de Andalucía. pp. 232.
- Dana, E.D., Sobrino, D. & Sanz, M. 2005b. Cuatro neofitos interesantes para la flora de Andalucía. *Lagascalia*, 25: 170-175.
- Daveau, J. 1878. Les jardins de Cintra (Portugal) au 5 janvier. *Revue Horticole.*, pp. 125-127.

- Devesa, J.A. & Arnelas, I. 2006. *Pennisetum setaceum* (Forssk.) Chiov. (Poaceae), nueva localidad para la flora Ibérica. *Acta Botanica Malacitana*, 31: 190-191.
- EPPO 2009. European and Mediterranean Plant Protection Organization Reporting Service, 4. Paris, France: EPPO. http://archives.eppo.int/EPPOreporting/2009/Rse-0904.pdf?utm_source=archives.eppo.org&utm_medium=int_redirect [Accessed June 2017].
- EU [European Union] 2017. *Comission implementing regulation (EU) 2017/1263 of 12 July 2017 updating the list of invasive alien species of Union concern established by Implementing Regulation (EU) 2016/1141 pursuant to Regulation (EU) No 1143/2014 of the European Parliament and of the Council*. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R1263> [accessed July 2017].
- Fernández, M.I. & Castroviejo, S. 1997. *Elaeagnus* L. In Castroviejo, S. (coord.) *Flora Iberica*, 8 : 140-142. Real Jardín Botánico, CSIC. Madrid.
- Fraga, P., Mascaró, C., Carreras, D., García, O., Pallixer, X., Pons, M., Seoane, M. & Truyol, M. 2004. *Catàleg de la flora vascular de Menorca*, Institut Menorquí d'Estudis, Menorca.
- Franco, J.A. 1971. *Nova Flora de Portugal*, vol. I *Lycopodiaceae—Umbelliferae*. Edição do Autor, Lisboa.
- Franco, J.A. 1973-74. New plant records from Azores. *Bol. Soc. Brot.*, 47: 71–84.
- Franco, J.A. 1984. *Nova Flora de Portugal*, vol. II *Clethraceae—Compositae*. Edição do Autor, Lisboa.
- Franco, J.A. & Afonso, M.L.R. 1998. *Nova Flora de Portugal (Continente e Açores)*, vol. III(II) *Gramineae*. Escolar Editora. Lisboa.
- Galán de Mera, A. 2007. *Lemna* L. In Castroviejo, S. (Coord.) *Flora Iberica*, 18: 312-315. Real Jardín Botánico, CSIC. Madrid.
- Galán de Mera, A. & Castroviejo, S. 2005. Acerca del tratamiento de Lemnaceae en Flora Iberica. *Acta Botanica Malacitana*, 30: 248-249.
- García-de-Lomas, J., Sánchez-García, I., Cózar, A., Dana, E.D. & Delgado, A.J. 2011. Nuevas aportaciones a la xenoflora de la provincia de Cádiz. *Lagascalía*, 31: 220-229.
- Gasper, A.L., Dittrich, V.A.O., Smith, A.R. & Salino, A. 2016. A classification for *Blechnaceae* (*Polypodiales: Polypodiopsida*): New genera, resurrected names, and combinations. *Phytotaxa*, 275: 191–227.
- GISD (Global Invasive Species Database) 2006. <http://www.issg.org/database>. [Accessed June 2017].
- Guillot Ortiz, D. & Van Der Meer, P. 2004. Algunas citas de neófitos en la Comunidad Valenciana. *Fl. Montiber.* 27: 5-7.
- Guinea, E. 1953. *Geografía botánica de Santander*. Santander.
- Hansen, A. 1972. Contributions to the flora of the Azores II. *Bol. Soc. Brot.*, 46: 218-238.
- Hansen, A. & Sunding, P. 1993. Flora of Macaronesia, Checklist of vascular plants, 4. rev. ed. *Sommerfeltia*, 17: 1–295.
- Herrero-Borgoñón, J.J. 2007. Dos Mimosoideas (Leguminosae) nuevas para la flora castellonense. *Flora Montiber.*, 37: 26-28.
- ILDIS 2017. *Leucaena*. In: Euro+Med Plantbase at <http://ww2.bgbm.org/EuroPlusMed/PTaxonDetail.asp?NameCache=Leucaena&PTRefFk=8500000> [Accessed 9 June 2017].
- Kornás, J. 1990. Plant invasions in Central Europe: historical and ecological aspects. In: F. di Castri, A.J. Hansen & M. Debussche (eds.), *Biological invasions in Europe and the Mediterranean Basin*. Kluwer Academic Publishers, Dordrecht: 19-36.
- Kunkel, G. 1975. Novedades y Taxones críticos en la Flora de La Gomera, *Cuad. Bot. Canaria*, 25: 17-49.
- Lambinon, J. & Verloove, F. 2012. *Nouvelle flore de la Belgique, du Grand-Duché de Luxembourg, du Nord de la France et des Régions Voisines*. Jardin Bot. National de Belgique. Meise. Pp.: 18.
- Luckhurst, G. 2014. Monserrate: Sir Francis Cook and the acclimatisation of exotic plants in 1861. In: A.D. Rodrigues (ed.), *The Garden as a Lab: where cultural and ecological systems meet in the Mediterranean context*, Évora: CHAIA, Universidade de Évora, pp. 91–108.
- Mabberley, D.J. 2008. *Mabberley's Plant-Book*. Cambridge. University Press.
- Marchante, H., Morais, M., Freitas, H. & Marchante, E. 2014. *Guia prática para a identificação de Plantas Invasoras em Portugal*. Imprensa da Universidade de Coimbra, Coimbra.
- Muñoz Garmendía, F. 1987. *Adiantum* L. In: Castroviejo, S. (coord.) *Flora Iberica*, 1: 61-62. Real Jardín Botánico, CSIC. Madrid.
- Oates, W. 1929. Monserrate. *The Gardeners' Chronicle: a weekly illustrated journal of horticulture and allied subjects* 86: 90–93.
- Padrón-Mederos, M.A., Guma, I.R., Santos-Guerra, A. & Reyes-Betancort, J.A. 2009. Apuntes florísticos y taxonómicos para la flora de las Islas Canarias. *Acta Botanica Malacitana*, 34: 242-251.
- Paiva, J. 1999. *Acacia* Mill. In: Castroviejo, S. (coord.) *Flora Iberica*, 7(1): 11-25. Real Jardín Botánico, CSIC. Madrid.
- Peña, C., Sebastián, A. & Laguna, E. 2003. *Cyperus papyrus* L. en la Albufera de Valencia, *Fl. Montiber.*, 23: 44-45.
- Peñas, J. 2009. *Acacia* Mill. In Blanca, G. & al. (eds.) *Flora Vascular Andalucía Oriental*, 2 : 459. Consejería de Medio Ambiente. Junta de Andalucía. Sevilla.
- Pérez de Paz, P.L., Del Arco Aguilar, M.J., Rodríguez Delgado, O., Acebes Ginoves, J.R., Marrero Gomez, M.V. & Wildpret de la Torre, Y.W. 1994. *Atlas Cartografico de los Pinares Canarios: III. La Palma*, Viceconsejería de Medio Ambiente. Consejería de Política Territorial. Gobierno de Canarias. Santa Cruz.
- Prada, C., Rolleri, C.H., & Passarrelli, L. 2008. Morfología, caracterización y distribución geográfica de *Blechnum cordatum* (Blechnaceae-Pteridophyta). *Acta Botanica Malacitana*, 33: 29-46.
- Pyke, S. 2008. Contribución al conocimiento de la flora alóctona catalana. *Collect. Bot. (Barcelona)*, 27: 95-104.
- Pyke, S. 2013. Notes on xenophytes detected in Catalonia, Spain. *Collect. Bot. (Barcelona)*, 32: 83-86.
- Raimondo, F. M. & Domina, G. 2007. Two new Mimosaceae naturalized in Italy. *Fl. Medit.*, 17: 209-216.
- Rivas-Martínez, S., Fernández-González, F., Loidi, J., Lousã, M. & Penas, A. 2001. Syntaxonomical checklist of vascular plant communities of Spain and Portugal to association level. *Itinera Geobot.*, 14: 5-341.

- Romero Manrique, P. 1990. Aportaciones a la flora vascular de La Palma (Islas Canarias). Notas corológico-ecológicas, *Vieraea*, 18: 3-15.
- Royo Pla, F. 2006. *Flora i vegetació de les planes i serres litorals compreses entre el riu Ebro i la serra d'Irta* [Base de datos de la tesis], Universitat de Barcelona, Facultat de Biologia.
- Ruiz de la Torre, J. 2006. *Flora Mayor*. Madrid.
- Sagredo, R. 1987. *Flora de Almería*. EIA. Almería.
- Sánchez, P., Guerra, J., Carrión, M.A., Coy, E., Fernández, S., Hernández, A., Jiménez, J.F., López, J.A. & Vera, J.B. 2011. *Nueva Flora de Murcia*. Murcia.
- Sánchez Gullón, E. & Galán de Mera, A. 2010. Contribución al estudio de las lemnáceas de Huelva (Andalucía Occidental, España). *Lagascalía*, 30: 29-37.
- Sánchez Gullón, E. & Galán de Mera, A. 2014. *Lemna minuta* (Araceae, Lemneae), nuevo xenófito para la flora de Andalucía. *Acta Botanica Malacitana*, 39: 246-248.
- Sánchez Gullón, E., Macías, F.J. & Weickert, P. 2006. Algunas especies adventicias o naturalizadas en la provincia de Huelva (SO de España). *Lagascalía*, 26: 180-187.
- Sánchez Gullón, E. & Verloove, F. 2009. New records of interesting xenophytes in Spain. II. *Lagascalía*, 29: 281-291.
- Sánchez Gullón, E. & Verloove, F. 2013. New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. IV. *Fol. Bot. Extremadurensis*, 7: 29-34.
- Sánchez Gullón, E. & Verloove, F. 2015. New records of interesting xenophytes in the Iberian Peninsula. V. *Lazaroa*, 36: 43-50.
- Sánchez Gullón, E. & Verloove, F. 2016. New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. VI. *Folia Bot. Extremadurensis*, 10: 49-56.
- Sanz-Elorza, M., Dana Sánchez, E.D. & Sobrino Vesperinas, E. (eds.) 2004. *Atlas de las Plantas Alóctonas Invasoras en España*. Dirección General para la Biodiversidad. Madrid, Pp. 384.
- Sequeira, M., Espírito-Santo, M.D., Aguiar, C., Capelo, J. & Honrado, J. (Coords.) 2011. *Checklist da flora de Portugal (Continental, Açores e Madeira)* [online]. Associação Lusitana de Fitosociologia (ALFA). http://bibdigital.rjb.csic.es/PDF/Sequeira_y_al_Checklist_Flora_Portugal_2011.pdf [Accessed May 2017].
- Serra Lliga, L. 2007. Estudio crítico de la flora vascular de la provincia de Alicante: aspectos nomenclaturales, biogeográficos y de conservación, *Ruizia*, 19: 1-1414.
- Silva, A.R.P. 1989. A flora da Serra de Sintra. Catálogo. *Portugaliae Acta Biol., Sér. B, Sist.*, 15: 5–258.
- Silva, V. 2015. Notas do Herbário Florestal do INIAV (LISFA): Fasc. XL. Novas localidades na Estremadura para flora exótica estabelecida e outras novidades para Portugal. *Silva Lusitana*, 23(1/2): 110-123.
- Silva, V. 2017. *Pennisetum villosum* R.Br. ex Fresen. - mapa de distribuição. Flora-On: Flora de Portugal Interactiva, *Sociedade Portuguesa de Botânica*. <http://www.flora-on.pt/#wPennisetum+villosum> [Accessed May 2017].
- Silva, V., Figueiredo, E. & Smith, G.F. 2015a. Alien succulents naturalised and cultivated on the central west coast of Portugal. *Bradleya*, 33: 58-81.
- Silva, V., Laguna, E. & Guillot-Ortiz, D. 2015b. Algunos datos sobre neófitos en Portugal. *Bouteloua*, 20: 76-96.
- Silva, V., Saraiva, S. & Correia, I. 2012. Adições corológicas de espécies não indígenas naturalizadas na Estremadura portuguesa. *Acta Bot. Malacitana*, 37: 185-186.
- Thiers, B. 2017. *Index Herbariorum: A global directory of public herbaria and associated staff*. New York Botanical Garden's Virtual Herbarium. <http://sweetgum.nybg.org/science/ih/>. [Accessed May-2017].
- Tryon, R.M. & Stolze, R.G. 1993. Pteridophyta of Peru. Part. V. 18. *Aspleniaceae* 21. *Polypodiaceae*. *Fieldiana, Bot. n.s.*, 32: 1-190.
- Tutin, T. 1976. *Soliva*. In: Tutin, T. Heywood, V. H., Burges, N. A. & Valentine, D. H. (Eds.), *Flora Europaea* 4: 178. Cambridge University Press, Cambridge.
- Végh, B., Schmidt, G & Diószegi, M. 2015. Characteristics of invasive taxa of *Partehnocissus* in the Buda Srboretum, Hungary. *Scientific Papers. Series B, Horticulture*. LIX: 427-434.
- Verloove, F. 2005. A synopsis of *Jarava* Ruiz & Pav. and *Nassella* E. Desv. (*Stipa* L. s.l.) (Poaceae: *Stipeae*) in southwestern Europe. *Candollea*, 60(1): 97-117.
- Verloove, F. 2013. New xenophytes from Gran Canaria (Canary Islands, Spain), with emphasis on naturalized and (potentially) invasive species. *Collect. Bot.*, 33: 59-82.
- Verloove, F. 2014. A conspectus of *Cyperus* s.l. (Cyperaceae) in Europe (incl. Azores, Madeira and Canary Islands), with emphasis on non-native naturalized species. *Webbia*, 69: 179-223.
- Verloove, F. 2017. New xenophytes from the Canary Islands (Gran Canaria and Tenerife; Spain). *Acta Bot. Croatica*, (in press).
- Verloove, F. & Reyes-Betancort, J.A. 2011. Additions to the flora of Tenerife (Canary Islands, Spain). *Collectanea Botanica*, 30: 63-78.
- Verloove, F. & Sánchez Gullón, E. 2008. New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. *Acta Bot. Malacitana*, 33: 147-167.
- Verloove, F. & Sánchez Gullón, E. 2012. New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. II. *Fl. Medit.*, 22: 5-24.
- Walters, S.M. 1984. *Cyperaceae* In Cullen, J. & al. (Eds.) *European Garden Flora*, 2: 114-117. Cambridge University Press. Cambridge.