

New records of interesting xenophytes in the Iberian Peninsula. V

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Abstract: Sánchez Gullón, E. & Verloove, F. *New records of interesting xenophytes in the Iberian Peninsula. V. Lazaroa 36: 43-50 (2015).*

As a continuation of previous research on the naturalization of non-native vascular plants in the Iberian Peninsula new chorological data are presented for 16 xenophytes recorded between 2010 and 2014, mostly in the provinces of Huelva and Barcelona (Spain) and in the Algarve and Estremadura (Portugal). For each taxon details about distribution, habitats occupied, previous records, degree of naturalization, etc. are provided. *Lachenalia bulbifera* and *Cyperus albostratus* are probably reported for the first time in the wild in Europe, as are *Gamochaeta filaginea*, and *Dysphania anthelmintica* and *Oenothera lindheimeri* for Portugal and Spain respectively. *Cosmos bipinnatus* is cited as a novelty for the Algarve (Portugal). Newly reported or confirmed for the province of Huelva are: *Amaranthus hypochondriacus*, *Epilobium brachycarpum*, *Nephrolepis cordifolia*, *Ficus microcarpa*, *Tamarix parviflora* and *Tamarix ramosissima*, while *Atriplex semibaccata*, *Chloris truncata*, and *Elymus elongatus* subsp. *ponticus* are new for Barcelona. Finally, *Passiflora caerulea* is a novelty for both Barcelona and Huelva provinces.

Keywords: Spain, Portugal, Xenophytes.

Resumen: Sánchez Gullón, E. & Verloove, F. *Nuevas citas de xenofitos interesantes en la Península Ibérica. V. Lazaroa 36: 43-50 (2015).*

Como continuación de investigaciones previas sobre la naturalización de plantas vasculares aloctonas en la Península Ibérica se presentan como novedades corológicas 16 xenofitos detectados entre 2010 y 2014, sobre todo, en las provincias de Huelva y Barcelona (España) y en el Algarve y Estremadura (Portugal). Para cada taxon se aportan detalles acerca de la distribución, los hábitats ocupados, las citas anteriores, el grado de naturalización, etc. *Lachenalia bulbifera* y *Cyperus albostratus* se citan probablemente por primera vez naturalizadas en el medio natural en Europa, como lo son *Gamochaeta filaginea* y *Dysphania anthelmintica*, y *Oenothera lindheimeri* para Portugal y España, respectivamente. *Cosmos bipinnatus* se cita como novedad para el Algarve (Portugal). Nuevas citas para la provincia de Huelva o confirmación de otras ya conocidas son las siguientes: *Amaranthus hypochondriacus*, *Epilobium brachycarpum*, *Nephrolepis cordifolia*, *Ficus microcarpa*, *Tamarix parviflora* y *Tamarix ramosissima*. *Atriplex semibaccata*, *Chloris truncata*, y *Elymus elongatus* subsp. *ponticus* suponen nuevas citas para Barcelona. Finalmente se ha localizado *Passiflora caerulea* en las provincias de Barcelona y Huelva.

Palabras clave: España, Portugal, xenofitos.

INTRODUCTION

As a continuation of previous research on non-native vascular plants in the Iberian Peninsula (VERLOOVE & SÁNCHEZ GULLÓN, 2008, 2012; SÁNCHEZ GULLÓN & VERLOOVE, 2009, 2013) the authors present new chorological data for 16 alien taxa that were recorded between 2010 and 2014.

The dispersal of seeds, spores, or fruit by humans constitutes one of the most important elements that enhance the introduction of xenophytes on planet Earth. Especially gardening is considered one of the main vectors for the entry of new, potentially invasive plant species in the Mediterranean area (e.g. DANA & *al.*, 2005; SANZ-ELORZA & *al.*, 2004, 2010). Many of these ornamentals readily adapt to the local climate,

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reproducing soon after their initial introduction and starting to spread, sometimes to natural, highly vulnerable ecosystems. Likewise, highly human mediated habitats like roadsides and peri-urban areas are susceptible to the installation and colonization of exotic nitrophilous species. Moreover, traffic roads act as an ideal vehicle for their further spread to suitable neighbouring areas. The early detection of such new introductions in the natural environment is essential since it enables us to mitigate negative environmental impacts and develop strategies for their control or monitoring (CAMPOS & HERRERA, 2009).

In this respect, data are here presented for several aliens that have been found in the natural environment in the past years. Two species were probably introduced unintentionally following afforestation and some others are possibly associated with road traffic. The degree of naturalization of these species varies: some doubtlessly are mere ephemerals, while others tend to naturalize or may become local pests.

MATERIAL AND METHODS

The floristic novelties here presented are mainly the result of fieldwork by both authors in various parts of the Iberian Peninsula between 2010 and 2014. Voucher specimens of all taxa are preserved in the private herbarium of the first author. Duplicates were deposited in the herbarium of the Botanic Garden of Meise, Belgium (BR), the Institut Botànic de Barcelona (BC), the Universidad de Sevilla (SEV), the Real Jardín Botánico de Madrid (MA) and/or the Museo de La Plata (LP).

For each taxon, alphabetically arranged here under, the following details are provided: currently accepted name and family (in accordance with APG 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.

UTM coordinates and altitude for all localities were assessed using Google Earth.

RESULTS

Amaranthus hypochondriacus L., Sp. Pl. 2: 991 (1753) (Amaranthaceae)

Spain: Huelva: El Portil (Punta Umbría), sidewalk, WGS84: 29S 673083; 4120526, 12 m, 08.08.2013, E. SÁNCHEZ GULLÓN 397 (BR, SEV 285493).

An ornamental from the Americas, *Amaranthus hypochondriacus* is widely cultivated in the Iberian Peninsula (CARRETERO, 1990a: 562). It is here reported for the first time from the province of Huelva (Spain), probably as a mere casual alien (ergasiophygyte).

Atriplex semibaccata R. Brown, Prodr. 406 (1810) (Amaranthaceae)

Spain: Barcelona: Castellbisbal, river Llobregat, waste area, alongside river, WGS84: 31T 413868; 4591437, 38 m, 18.08.2013, F. VERLOOVE 10430 (BC).

This species is originally native to Australia but has widely been introduced in warm-temperate regions of the world. High tolerant to salt, it is an excellent colonizer of coastal habitats. In Spain it was long restricted to the provinces of Alicante and Murcia (CASTROVIEJO, 1990b: 511; VERLOOVE, 2005: 142) but in the past decades it has further spread to Almeria (DANA & *al.*, 1998: 253) and Zaragoza (e.g. MATEO SANZ & PYKE 1997: 50-51). In 2013 it was also recorded on rough ground adjacent to river Llobregat in Castellbisbal (Spain), apparently for the first time in the province of Barcelona. It is considered an epocophyte.

Chloris truncata R. Brown, Prodr. 186 (1810) (Poaceae)

Spain: Barcelona: Caldes de Montbui towards Sentmenat (C1413), WGS84: 31T 429163;

4607738, 196 m, arid roadside, few plants, 19.08.2013, F. VERLOOVE 10499 (BR, BC); **Barcelona:** Terrassa, riera de les Arenes at Poligon Industrial del Nord (left bank), WGS84: 31T 418848; 4604089, 361 m, gravelly river bank, several tens but only locally, 23.08.2013, F. VERLOOVE 10545 (BR).

Also of Australian provenance, *Chloris truncata* has widely been deliberately introduced as a pasture species. In Spain, located within the fundamental climatic niche for this species, it is known since 2003 from Cambrils (MICHAEL & *al.*, 2012) (province of Tarragona) where it has been recorded on several occasions (VERLOOVE, 2005: 143; VERLOOVE & SÁNCHEZ GULLÓN, 2008: 153). It also looks firmly established in the northernmost parts of the Cáceres province (VÁZQUEZ, 2008: 59-62). In 2013 it was recorded twice in the wide surroundings of Barcelona (see above), apparently for the first time in this province. It is considered an epocophyte.

Cosmos bipinnatus Cav., Icon. I (10) t. 14 (1791) (Asteraceae)

Portugal: Algarve: Tavira, roadside, WGS84: 29S 621923; 4110775, 24 m, 05.05.2013, E. SÁNCHEZ GULLÓN 395 (BR, SEV 285494).

This species, a native from Mexico and Arizona, is widely cultivated as an ornamental. In the Iberian Peninsula it has been recorded in several, widely scattered localities (e.g. SANZ-ELORZA & *al.*, 2003: 85; SANZ-ELORZA & *al.*, 2011: 105). From Portugal it has been reported before but chorological details are lacking (ALMEIDA & FREITAS, 2012: 233). It is here confirmed from the Algarve province where it is considered an ergasiophygyte.

Cyperus albostriatus Schrad., Anal. Fl. Cap. 1: 7 (1832) (Cyperaceae)

Spain: Huelva: Mazagón, roadside A-494, WGS84: 29S 693451; 4112683, 40 m, 20.06.2012, E. SÁNCHEZ GULLÓN 400 (BR, SEV 285492, MA 871478).

This *Cyperus* from South Africa is frequently cultivated as an ornamental in warm-temperate regions of the world, often under its vernacular name “Dwarf umbrella grass” (WALTERS, 1984: 116; GLEN, 2002: 32). In recent times it is escaping and naturalizing locally, for instance in Florida (ROSEN & *al.*, 2012). To our knowledge it has not been recorded so far in the wild in Europe (e.g. VERLOOVE, 2014). In Huelva (Spain) *Cyperus albostriatus* was found in a highly disturbed habitat. At least for now, it is best considered an ephemeral alien (ergasiophygyte) although a future naturalization cannot be ruled out.

Dysphania anthelmintica (L.) Mosyakin & Clemants, Ukrajins’k. Bot. Žurn. 59(4): 382 (2002) (Amaranthaceae)

=*Chenopodium anthelminticum* L., Sp. Pl. 1: 220 (1753)

Spain: Barcelona: Ripollet, river Ripoll, WGS84: 31T 429263; 4593940, 62 m, dry, gravelly riverbed, 21.08.2013, F. VERLOOVE 10414 (BC).

This South American species from the *Dysphania ambrosioides* complex is accepted as a distinct species by most recent taxonomists (e.g. CLEMANTS & MOSYAKIN, 2003: 270; IAMONICO, 2011). It is distinguished by its long inflorescences that are not leafy but bear much reduced leaflike bracts that are never longer than the glomerules. In the Canary Islands it is much more widespread and it obviously is much more xerophytic than *D. ambrosioides* (VERLOOVE, 2013: 65-66). Its genuine distribution in the Iberian Peninsula is unknown since it has not been separated before from *D. ambrosioides*. Elsewhere in southern Europe, it is known for instance from Italy (IAMONICO, l.c.). It is here reported from the Barcelona province in Spain but probably occurs in other climatologically suitable areas in the Iberian Peninsula. It appears to be an epocophyte and is established only in ruderal or weed communities.

Elymus elongatus (Host) Runemark subsp. ***ponticus*** (Podp.) Melderis, Bot. J. Linn. Soc. 76(4): 377 (1978) (Poaceae)

= *Elymus ponticus* (Podp.) N. Snow, *Phytologia* 89(2): 224 (2007).

= *Thinopyrum ponticum* (Podp.) Barkworth & D.R. Dewey, *Amer. J. Bot.* 72(5): 772 (1985)

= *Elytrigia elongata* (Host) Nevski subsp. *pontica* (Podp.) Gamisans, *Cat. Pl. Vasc. Corse*, ed. 2: 243 (1993)

= *Elytrigia pontica* (Podp.) Holub, *Folia Geobot. Phytotax.* 8(2): 171 (1973)

= *Lophopyrum ponticum* (Podp.) Á. Löve, *Feddes Repert.* 95(7-8): 489 (1984)

Spain: Barcelona: Montcada, river Ripoll (near junction with river Besòs), WGS84: 31T 432278; 4593229, 40 m, dry, gravelly riverbed, 22.08.2013, F. VERLOOVE 10413 (BC).

In northeastern Spain previously recorded in Girona, Huesca and Lérida (PYKE, 2008: 97) and here reported for the first time from Barcelona. It is originally native in southeastern Europe and adjacent areas in Asia. Planted along roadsides for soil stabilization, it readily escapes subsequently. A future, wider naturalization in the Iberian Peninsula is very likely. It behaves as an epoeophyte.

Epilobium brachycarpum C. Presl, *Reliq. Haenk.* 2(1): 30 (1831) (Onagraceae)

Spain: Huelva: Encinasola, roadsides of C-439 and EX301, WGS84: 29S 692363; 4226154, 548 m, 15.08.2013, E. SÁNCHEZ GULLÓN 398 (BR, SEV 285495).

This North American therophyte has a high invasive potential as has been shown in various parts of Europe (e.g. SANZ-ELORZA & *al.*, 2006: 111; GREGOR & *al.*, 2013). In the Iberian Peninsula it is known from the Central-western parts (NIETO FELINER, 1997: 129). It is here reported for the first time from Huelva province in Spain. It is an agriophyte in arid roadsides and has, as such, colonized large parts of the Parque Natural Sierra de Aracena. A further expansion in this area is predictable. In recent times, *Epilobium brachycarpum* was also recorded in other parts of Andalucía, e.g. in the

provinces of Cádiz, Cordoba and Jaen (ROMERO, 2009: 247; VÁZQUEZ PARDO & PALACIOS GONZÁLEZ, 2013: 61; LÓPEZ TIRADO & JIMÉNEZ CONEJO, 2014: 72; SÁNCHEZ GARCÍA & OTERO, 2014: 44).

Ficus microcarpa L. f., *Suppl. Pl.* 442 (1782) (Moraceae)

Spain: Huelva: Calatilla, Paraje Natural Marismas del Odiel, epiphytic on *Eucalyptus camaldulensis*, WGS84: 29S 680232; 4124827, 14 m, 15.06.2013, E. SÁNCHEZ GULLÓN 401 (BR, MA 871485, SEV 285496).

This Asian phanerophyte is widely cultivated as an ornamental tree, in Spain predominantly in the eastern and southern parts of the country. It has been repeatedly recorded as an escape in the past years, in the Iberian Peninsula as well as in the Canary Islands (e.g. GUILLOT & LAGUNA, 2012: 49; PÉREZ & *al.*, 2008: 12; JIMÉNEZ & *al.*, 2010: 474; VERLOOVE & REYES-BETANCORT, 2011: 67). It is often seen as an epiphyte on *Phoenix* but also on *Eucalyptus* as observed in Huelva (Spain). It is considered an ergasiophygyte.

Gamochaeta filaginea (DC.) Cabrera, *Bol. Soc. Argent. Bot.* 9: 371 (1961) (Asteraceae)

= *Gnaphalium filagineum* DC., *Prodr.* 6: 234 (1837[1838]).

Portugal: Estremadura: Caparica (Costa da Caparica), WGS84: 29S 479637; 4277718, 13 m, bare, sandy area close to the sea, frequent, 13.06.2010, F. VERLOOVE 10024 (BR, LP).

A therophyte from South America (Argentina, Brazil, Uruguay) (FREIRE & IJARLEGUI 1997: 29), *Gamochaeta filaginea* was known in the Iberian Peninsula from Cáceres province only (GIRÁLDEZ FERNÁNDEZ & RICO HERNÁNDEZ, 1985). It is here reported for the first time from Portugal where, in the surroundings of Caparica, it looks firmly established (epoeophyte).

This species is much reminiscent of *Gamochaeta antillana* (Urban) Anderberg and *G. calviceps* (Fernald) Cabrera. It is distin-

guished from both by its inner phyllaries that are acute at apex (vs. obtuse to rounded).

Lachenalia bulbifera Engl. in Aschers. & Graebn., Syn. Mitteleur. Fl. III: 279 (1899) (Asparagaceae)

Spain: Huelva: Mazagón, in sandy soils under *Pinus pinea*, WGS84: 29S 695329; 4111184, 40 m, 19.02.2014, E. SÁNCHEZ GULLÓN 420 (BR, SEV 285497).

This geophyte is endemic to the western Cape region in South Africa, the centre of diversifica-

tion of the genus *Lachenalia* (KLEYNHANS & *al.*, 2012: 99; KLEYNHANS, 2013: 5). It naturally occurs in coastal areas on various types of soil. It was apparently first introduced in Europe in 1774 by Thunberg and cultivated in Kew Gardens (sub *Lachenalia pendula* Aiton) (DUNCAN, 2012). In Europe 15 species from this genus are grown as ornamentals (GLEN, 2002). *Lachenalia bulbifera* is here probably reported for the first time from Europe. It was found growing in paleo dunes under *Pinus pinea* L. on the Huelva coast near Mazagón (Spain, Figure 1) and is considered a hemiagriophyte. It was probably originally introduced with garden waste.



Figure 1. — *Lachenalia bulbifera*. Mazagón, *Pinus pinea* woodlandes, February 2014. (E. Sánchez Gullón).

Nephrolepis cordifolia (L.) C. Presl, Tent. Pterid.: 79 (1836) (Davalliaceae)

Spain: Huelva: Mazagón, epiphytic on *Phoenix canariensis* and in lawn, WGS84: 29S 693073; 4112009, 28 m, 20.06.2014, E. SÁNCHEZ GULLÓN 392 (BR, SEV 285498).

This pantropical fern is frequently cultivated as an ornamental (KUNKEL, 1967: 89; SALVO TIERRA, 1998: 351). From *Nephrolepis exaltata* (L.) Schott, another increasing escape, it is distinguished by the presence of

tuberiferous rhizomes. It has been recorded so far in Spain in Alicante and Valencia (HERRERO-BORGOÑÓN & *al.*, 1997: 81; SEGARRA MORAGUES, 2001: 247), but also in Gibraltar (SÁNCHEZ GARCÍA & *al.*, 2009: 310) and Barcelona (PYKE, 2008: 100). It is here reported for the first time from the province of Huelva (Spain) where it is at present considered an ergasiofigophyte.

Oenothera lindheimeri (Engelm. & A. Gray) W.L. Wagner & Hoch, Syst. Bot. Monogr. 83: 213 (2007) (Onagraceae)

= *Gaura lindheimeri* Engelm. & A. Gray, Boston J. Nat. Hist. 5(2): 217-218 (1845).

Spain: Huelva: Huelva, abandoned urban area, WGS84: 29S 684020; 4125527, 6 m, 23.08.2013, J. A. ORTEGA & E. SÁNCHEZ GULLÓN 405 (BR, SEV 285499, MA 871468).

A hemicryptophyte from the southern parts of the U.S.A., *Oenothera lindheimeri* is frequently cultivated as an ornamental in Europe. In recent times it is increasingly escaping from cultivation and locally naturalizing (e.g. TISON, 2012: 316). In the Iberian Peninsula it has been previously reported from the Algarve (Portugal) (VERLOOVE & SÁNCHEZ GULLÓN, 2012: 15). In 2013 it was also observed for the first time in western Andalucía (Spain). In Huelva it was found on a landfill where it was probably introduced with garden waste. At least for the time being, it is considered an ephemerophyte.

Passiflora caerulea L., Sp. Pl. 2: 959–960 (1753) (Passifloraceae)

Spain: Barcelona: Barbera del Vallès, Moli d'en Santo, WGS84: 428006; 4597534, 106 m, riverlet close to riu Ripoll, twining in *Arundo donax*, 21.08.2013, F. VERLOOVE 10539 (BC). **Huelva:** Paraje Natural Estero Domingo Rubio (Palos de la Frontera), scrub on the edge of marshland, WGS84: 29S 684216; 4119269, 2 m, 10.12.2014, E. Sánchez Gullón 423 (SEV).

This ornamental vine from Brazil has been recorded as an escape in rather numerous, widely scattered localities in Spain (URIBE-ECHEBARRÍA, 2003: 189; DURÁN, 2014: 182) and Anthos (<http://www.anthos.es/>) summarizes records from the provinces Álava, Cáceres, Huesca, Islas Baleares (Menorca), Pontevedra, Salamanca, Santander, Teruel, Vizcaya, Zamora and Zaragoza. It is here reported for the first time from the provinces of Barcelona and Huelva. In both provinces it is probably dispersed by berry-eating birds. It has some invasive potential and can be considered an ergasio-phyte.

Tamarix parviflora DC., Prodr. 3: 97 (1828) (Tamaricaceae)

Spain: Huelva: Huelva, Calatilla, P.N. Marismas del Odiel, pond margin, WGS84: 29S 680171; 4125006, 1 m, 16.03.2013, E. SÁNCHEZ GULLÓN 414 (BR, SEV 285500).

A phanerophyte from the eastern Mediterranean and North Africa, *Tamarix parviflora* is widely cultivated as an ornamental in other parts of the world. It has been recorded before in Huelva in Spain (CIRUJANO, 1991: 441). We here confirm its naturalization in the 'Paraje Natural Marismas del Odiel', where it was possibly introduced inadvertently on the edges of marshes and brackish lagoons following afforestation. It can be classified as a hemiagriophyte.

Tamarix ramosissima Ledeb., Fl. Altaic. 1: 424-426 (1829) (Tamaricaceae)

Spain: Huelva: Aljaraque, Marismas del Odiel, naturalized on the edge of saltmarshes, WGS84: 29S 677210; 4126046, 2 m, 21.05.2014, E. SÁNCHEZ GULLÓN 415 (BR, MA 871469, SEV 285501).

This Eurasian ornamental shrub is widely naturalized worldwide (NATALE & *al.*, 2008: 138). It is considered one of the world's most invasive plant species. In Spain it has been known only from the provinces of Ciudad Real and Alicante (CIRUJANO & CASTILLO, 1991: 274; SERRA, 2007: 298). It is here reported for the first time from Huelva in the 'Paraje Natural Marismas del Odiel' where, like the preceding species, it was possibly introduced inadvertently on the edges of marshes and brackish lagoons following afforestation. It is considered a hemiagriophyte.

This species starts flowering in late spring, while *Tamarix parviflora* already flowers as early as March.

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