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New records of interesting vascular plants (mainly xenophytes) in the Iberian Peninsula. II

Abstract

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Further investigations on the (mainly non-native) vascular flora in the Iberian Peninsula, especially between 2008 and 2010, yielded, once again, numerous chorological novelties. *Acanthostyles buniifolius* and *Sphagneticola trilobata* are probably reported for the first time in Europe. *Boltonia asteroides, Cardamine flexuosa* subsp. *debilis*, *Oenothera lindheimeri* and *Sisyrinchium rosulatum* are new for the Iberian Peninsula, while *Eragrostis mexicana* and *Symphyotrichum laeve* were recorded for the first time in Portugal. Finally, new provincial records include *Bothriochloa barbinodis* (Huelva), *Camelina microcarpa* (Huelva), *Cyclospermum leptophyllum* (Huelva), *Cyperus esculentus* (Alto Alentejo), *Ehrharta erecta* (Algarve), *Eleocharis flavescens* (Baixo Alentejo), *Eragrostis curvula* (Alto Alentejo), *Kochia scoparia* (Huelva), *Linaria maroccana* (Huelva), *Oenothera affinis* (Huelva), *O. indecora* (Huelva), *Pteris vittata* (Lisbon), *Rorippa palustris* (Huelva), *Setaria verticilliformis* (Huelva), *Veronica peregrina* (Huelva) and *Viola tricolor* (Huelva). The presence in Spain of *Consolida regalis* is confirmed and *Stenotaphrum secundatum* is reported as an aggressive environmental weed in several natural areas in Huelva.

Key words: alien vascular plants, Iberian Peninsula, new records.

Introduction

New fieldwork in the past years in various regions of the Iberian Peninsula by both authors yielded several records of new and other interesting vascular plants. In the present paper, which is a sequel to Verloove & Sánchez Gullón (2008), 27 taxa are dealt with. Most are non-native species.

As shown before (see also Bartoli & al. 2007; Verloove & Sánchez Gullón 2008; Sánchez Gullón & Verloove 2009) a large majority of the xenophytes reported in this paper is of American origin. However, several Eurasian weeds are also included most of which seem to be associated with the grain processing industry around Huelva. Some species (incl. *Rorippa palustris*) are native in parts of the Iberian Peninsula but are here reported outside their original distribution range. New xenophytes include in part unintentional introductions (weeds)

but the number of deliberate introductions that is running wild (from gardens, but also from plantations for erosion control, lawns, etc.) is markedly on the increase.

The invasion status of the species in this paper is very variable: many are reputed environmental weeds (for instance *Sphagneticola trilobata* or *Stenotaphrum secundatum*) while others are only locally more or less naturalised. A minority is, at least for the time being, probably merely ephemeral or only temporarily established. The inclusion of such records is nonetheless important: these may well be the first attempts of new alien species to become established in the Iberian Peninsula. A thorough documentation of such new introductions is therefore essential.

It is obvious that, as a result of the tremendously booming international (especially intercontinental) traffic and trade, the number of new introductions is still increasing. Inevitably, the Iberian Peninsula will have to cope with new aggressive invaders in the years to come!

Materials and methods

The floristic novelties here presented are mainly the result of fieldwork by both authors in various parts of the Iberian Peninsula between 2008 and 2010. Voucher specimens of all taxa are preserved in the private herbaria of the authors (Filip Verloove and Enrique Sánchez Gullón, further abbreviated as FV and ESG respectively). Duplicates were mostly deposited in other relevant herbaria, mainly those of the University of Sevilla (SEV), the University of Malaga (MGC), the Botanic Garden of Coimbra (COI), the Royal Botanical Garden of Madrid (MA) and/or the National Botanic Garden of Belgium (BR).

Familial and generic classifications are in accordance with APGIII (2009). For the taxa treated here this means that *Kochia* is included in *Amaranthaceae* and *Linaria* and *Veronica* in *Plantaginaceae*.

Results

All taxa are presented in alphabetical order. Each entry includes the scientific name of the taxon (if useful accompanied by one or more synonyms), the family to which the taxon belongs (see above), the estimated degree of naturalisation (sensu Kornás 1990), enumeration of herbarium collections and, finally, information on its origin, actual occurrence in the Iberian Peninsula, taxonomical and/or nomenclatural remarks, identification aids, etc.

Acanthostyles buniifolius (Hook. & Arn.) R.M. King & H. Rob., Phytologia 22(2): 111, 1971.
(syn.: *Eupatorium buniifolium* Hook. & Arn.)
(*Asteraceae*)
Ephemerophyte (?).

SPAIN: Huelva: San Juan del Puerto (UTM 29SPB8629), cuneta carretera, 15.07.2008, *E. Sánchez Gullón* (priv. herb. ESG 126; dupl. priv. herb. FV, SEV 233478, SEV 256689,

MGC 69267); San Juan del Puerto, cuneta carretera en medio ruderal, 15.09.2009, *E. Sánchez Gullón* (priv. herb. ESG 237; dupl. priv. herb. FV).

Acanthostyles buniifolius is a South American shrub-like perennial, apparently reported here for the first time in Europe. In San Juan del Puerto a single specimen persists since 2008 but it highly suffers from road maintenance actions. In the very same area several other South American xenophytes were detected in the past years: *Grindelia pulchella* subsp. *pulchella, Baccharis articulata, Eryngium horridum, Jarava plumosa,* etc.) (see Bartoli & al. 2007).

The vector of its introduction in San Juan del Puerto is unclear. To our knowledge *Acanthostyles buniifolius* is not cultivated as an ornamental. An unintentional introduction, with South American cereals or wood, seems most likely: at least in Uruguay *Acanthostyles buniifolius* is an important weed (see for instance Holm & al. 1979).

Acanthostyles buniifolius was traditionally accommodated in the very large and polyphyletic genus *Eupatorium*. It is in fact very distinct in having pink funnelform corollas with long exserted filaments, heteromorphous leaves (in part with nearly linear segments), etc. King & Robinson (1987) created a new genus *Acanthostyles* with two South American species, including *A. buniifolium*. Their taxonomic framework now has become widely accepted (see for instance Mabberley 2008).

Boltonia asteroides (L.) L'Hérit., Sert. Angl. 27, 1789. (det. J. Lambinon)
(*Asteraceae*)
Holoagriophyte (?).

SPAIN: Huesca: Graus, Pantano Barasona (UTM 31TBG8072), al fondo del barranco, 450m, 05.11.1989, *J.V. Ferrandez* 845 (JACA 0281490; dupl. LG; sub *Aster pilosus* Willd.)

Boltonia asteroides, a native of North America, is at a glance very reminiscent of *Symphyotrichum pilosum* (Willd.) G.L. Nesom (especially the glabrous var. *pringlei* (A. Gray) G.L. Nesom of the latter). Both genera are best distinguished on the characteristics of their pappi: these are made up of numerous long bristles in *Symphyotrichum* and of 2-3 scale-like awns (sometimes with some additional minute bristles or scales) in *Boltonia* (Karaman-Castro & Urbatsch 2006).

In Graus *Boltonia asteroides* was collected in 1989 in a dry riverbed close to an artificial lake (as "*Aster pilosus*"). To our knowledge this species has not been recorded before in the Iberian Peninsula. Its actual degree of naturalisation and local distribution should be assessed. In northeastern Spain *Symphyotrichum pilosum* has become a rather widespread and well-established xenophyte in the past decades (Casasayas i Fornell 1989): it would be interesting to check whether *Boltonia asteroides* is still present in the surroundings of Graus (very likely, given its capacities as a coloniser) and whether it has been confused with *Symphyotrichum pilosum* elsewhere in northeastern Spain (or beyond).

The vector of introduction of *Boltonia asteroides* in Graus is uncertain. However, since it is sometimes cultivated as an ornamental in Europe (see Akeroyd 2000, Jäger & al. 2008) it most likely is an escape from cultivation.

Bothriochloa barbinodis (Lag.) Herter, Revista Sudamer. Bot. 6: 135, 1940.
(*Poaceae*)
Ephemerophyte (?)

SPAIN: Huelva, Aljaraque (UTM 29SPB7626), cuneta carretera, 16.09.2010, *E. Sánchez Gullón* (priv. herb. ESG 262; dupl. BR, SEV 256681).

Bothriochloa barbinodis is native in large parts of America (Argentine, Bolivia, Brazil, Colombia, Mexico, Paraguay, Peru, Uruguay and also in the southern United States; see Vega 2000). Outside its primary distribution range it has been introduced in various parts of the world as a pasture grass (commonly as "Cane bluestem"), possibly also as an ornamental (Allred 2003).

In Europe *Bothriochloa barbinodis* is a rare introduction, known since the 1970's from southern France (Auriault 1975; as *B. imperatoides* (Hack.) Herter). In the past years it became clear that the correct name for these French populations is *Bothriochloa barbinodis* (Verloove & Lambinon 2008). It now is a fast spreading roadside weed in large parts of France. A very similar species, *Bothriochloa laguroides* (DC.) Herter, is known from northwestern Italy and southeastern France (see Verloove & Lambinon l.c. for their separation). Both *Bothriochloa barbinodis* and *B. laguroides* were recently reported for the first time in the Iberian Peninsula (Pyke 2010).

A recently discovered population of *Bothriochloa* near Aljaraque has distinctly hairy nodes and sessile spikelets ca. 4,5 mm long and obviously belongs with *B. barbinodis*. This species was also discovered in Vallès Orientals, near Barcelona (Pyke l.c.) and is here reported for the first time from Huelva province. Given its recent spread in France (after a lag time of ca. 25 years) a future global naturalisation of *Bothriochloa barbinodis* in the Iberian Peninsula is predictable.

Camelina microcarpa Andrz. ex DC. Syst. Nat. 2: 517, 1821.
(Syn.: *Camelina sativa* (L.) Crantz subsp. *microcarpa* (Andrz. ex DC.) Hegi & Em. Schmid)
(*Brassicaceae*)
Ephemerophyte.

SPAIN: Huelva: Palos de la Frontera (UTM 29SPB8418), ruderal cunetas carretera, 04.06.2009, *E. Sánchez Gullón* (priv. herb. ESG 194; dupl. BR).

Camelina microcarpa is a Eurasian weed of agricultural fields. It is widely dispersed in the Iberian Peninsula (see García Adá 1993). In Andalucia it was known so far from the eastern provinces (Almeria, Granada, Jaen and Sevilla). It is here reported for the first time from Huelva and Andalusía Occidental. It most likely is an ephemeral alien, obviously associated with the cereal processing industries in Palos de la Frontera (see also *Consolida regalis*, *Kochia scoparia* and others).

Cardamine flexuosa With. subsp. ***debilis*** O. E. Schulz, Bot. Jahrb. 32: 478, 1903.
(syn.: "Asian" *Cardamine flexuosa*)
(*Brassicaceae*)
Epoecophyte.

SPAIN: Huelva: Nuevo Portil (UTM 29SPB7220), arvense césped campo de golf, 11.8.2010, *E. Sánchez Gullón* (priv. herb. ESG 263; dupl. BR).

The taxon here concerned is an enigmatic weed from southeastern Asia. It is probably widely naturalised as an agricultural and horticultural weed in many parts of the world but still very poorly known and doubtlessly largely overlooked. At present it is known from Australia, Europe and North America (Lihová & al. 2006; Bleeker & al. 2008).

This Asian taxon belongs to a critical group of weedy, annual (or short-lived perennial) species. According to Al-Shehbaz (2010) the plant here concerned corresponds with *Cardamine flexuosa* subsp. *debilis*. Nevertheless, this taxon should be recognised at species level and its correct name should be sought. From this complex *Cardamine hirsuta* and "genuine" (European) *C. flexuosa* have been recorded so far in the Iberian Peninsula (Rico 1993), although previous confusion with *C. flexuosa* subsp. *debilis* cannot be ruled out. In general appearance this enigmatic taxon is reminiscent of *Cardamine flexuosa* s.str. but it is subglabrous and its leaflets are, at least in part, trilobed. From *Cardamine hirsuta* it is furthermore distinguished by the absence of a basal leaf rosette. Pending further studies, these three taxa are provisionally distinguished as follows:

1 Annual plant with distinct rosette of basal leaves at anthesis .....***Cardamine hirsuta***
Biennial or annual without rosette of basal leaves at anthesis (often present in a young stage but withered at anthesis) **2**
2 Stem distinctly hairy, especially towards base. Leaflets entire to dentate .... ***C. flexuosa* subsp. *flexuosa***
Stem subglabrous. Leaflets, at least in part, distinctly trilobed .... ***C. flexuosa* subsp. *debilis***

The origin of *Cardamine flexuosa* subsp. *debilis* in Huelva is uncertain. However, in western Europe (for instance in Belgium; pers. obs. FV) it is a rather regular weed in plant nurseries. It is very likely that it is widely dispersed as a weed of container plants in many other parts of the world. In the golf court in Nuevo Portil *Cardamine flexuosa* subsp. *debilis* is a common weed in irrigated lawns ("green") and perfectly naturalised. It is furthermore widely dispersed in coastal areas in Huelva province (and doubtlessly widely overlooked elsewhere). In 2010 it was furthermore recorded for the first time in Tenerife (Canary Islands; Verloove & Reyes-Betancort 2011).

Consolida regalis S.F. Gray, Nat. Arr. Brit. Pl. 2: 711, 1821.
(*Ranunculaceae*)
Ephemerophyte.

SPAIN: Huelva: Palos de la Frontera (UTM 29SPB8418), ruderal cunetas carretera, 04.06.2009, *E. Sánchez Gullón* (priv. herb. ESG 193; dupl. SEV 256689, BR).

Consolida regalis, a native (or perhaps archaeophyte) in large parts of Eurasia, was surprisingly omitted in Flora Iberica (Molero & Blanché 1986) although it is known since at least 1804 from Portugal (Almeida 1999; Almeida & Freitas 2006). Its presence in Spain (as a xenophyte) was also confirmed by Chater (1993) and now once again from Huelva. In Palos de la Frontera it is an ephemeral alien, obviously associated with the cereal processing industries (see also *Camelina microcarpa*, *Kochia scoparia* and others).

Cyclospermum leptophyllum (Pers.) Sprague ex Britton & P.G. Wilson, J. Bot. 61: 131, 1923.
(*Apiaceae*)
Epoecophyte.

SPAIN: Huelva: Nuevo Portil (Cartaya) (UTM 29SPB7220), arvense campo golf, 15.08.2009, *E. Sánchez Gullón* (priv. herb. ESG 268; dupl. BR, MA 819068, SEV 256687).

Cyclospermum leptophyllum is originally native in the New World but it has become a widespread weed in many warm-temperate and subtropical areas of the world. In the Iberian Peninsula it was long restricted to the provinces of Barcelona and Valencia in Spain and Estremadura and Minho in Portugal (Knees 2003). It was recently recorded for the first time in Andalucia in Chipiona (Sánchez García & al. 2009). The present record from Nuevo Portil represents the first for Huelva and the second for Andalusia.

Cyclospermum leptophyllum is fully naturalised as a troublesome weed in irrigated lawns ("green") in the golf court in Nuevo Portil.

Cyperus esculentus L., Sp. Pl.: 45, 1753.
(*Cyperaceae*)
Holoagriophyte.

PORTUGAL: Alto Alentejo: Couço, ribeira da Raia (UTM 29S561 431), sandy riverbank, common, 14.06.2010, *F. Verloove* 8077 (COI).

Cyperus esculentus is widely dispersed in most of the Iberian Peninsula (see Luceño & al. 2007 for an overview). However, it was apparently not yet recorded from Alto Alentejo. In Couço, it is locally common on the sandy banks of river Raia.

Ehrharta erecta Lam., Encycl. 2: 347, 1786.
(Poaceae)
Ephemerophyte (?).

PORTUGAL: Algarve: Cacela Velha (E-Tavira) (UTM 29S629 411), rocky slope near the sea, locally (few specimens), 21.06.2010, *F. Verloove* 8078 (priv. herb. FV, dupl. COI).

Ehrharta erecta was originally restricted to South Africa but now is a widespread weed in many warm-temperate and subtropical areas of the world. In Portugal it is solely known from Beira Litoral (surroundings of Coimbra) (Almeida 1999). *Ehrharta erecta* is not known from neighbouring territories in Spain (Dana & al. 2005). In the Mediterranean area *Ehrharta erecta* is furthermore known from Israel (Danin & Scholz 1999), Italy (Ricciardi & Anzalone 1988). It is obviously on the increase: Pyke & al. (2008) and Dobignard (2009) added *Ehrharta erecta* for Morocco and it was recently also discovered in southern France (pers. comm. H. Michaud). Pyke (2008) furthermore reported about a recent record in Barcelona (Montjuïc 2003).

Eleocharis flavescens (Poir.) Urban, Symb. Antill. 4: 116, 1903.
(*Cyperaceae*)
Holoagriophyte.

PORTUGAL: Baixo Alentejo: Galeado (Serra do Cercal), between São Luis and Vila Nova de Milfontes (UTM 29S523 417), damp meadow, locally very common, with *Cotula coronopifolia*, 23.06.2010, *F. Verloove* 8079 (priv. herb. FV; dupl. BR, COI).

Eleocharis flavescens, native in the warm-temperate and (sub-) tropical regions of the New World, occurs as an environmental or agricultural weed in parts of southern Europe. In northern Italy it once was a widespread weed of rice fields but now mostly seems restricted to heaths (Verloove & Soldano 2011). In the Iberian Peninsula it was reported by Luceño & al. (2007) from the Portuguese provinces Beira Litoral, Estremadura and Ribatejo and also from the Balearic Islands. However, Verloove & Sánchez Gullón (2010) pointed out that two species were largely confused in the Iberian Peninsula: the Old World *Eleocharis caduca* (Delile) Schult. and the New World *E. flavescens*. The latter was confirmed from Ribatejo (Chamusca) and reported for the first time from the Portuguese province Baixo Alentejo (Alcacer do Sal and Grândola). All other Iberian records turned out to be assigned to *Eleocharis caduca*.

In 2010 the actual presence of *Eleocharis flavescens* in Baixo Alentejo was confirmed. In Galeado, the species locally forms nearly monospecific stands in damp meadows relatively close to the sea.

Achenes in this population are olive green to golden brown, a character of var. *olivacea* (Torrey) Gleason (Smith & al. 2002).

Eragrostis curvula (Schrad.) Nees, Fl. Afr. Austr. Ill. 397, 1841.
(*Poaceae*)
Epoecophyte.

PORTUGAL: Alto Alentejo: Montemor-o-Novo (UTM 29S569 428), N2 towards Mora, road verges, abundant, especially in the surroundings of Brotas, 14.06.2010, *F. Verloove* 8122 (BR, COI).

Eragrostis curvula, originally native in southern Africa, is a fast spreading xenophyte in many parts of southern Europe. In the Iberian Peninsula it is by now well known for instance from northeastern Spain (Casasayas i Fornell & Farràs i De Blàs 1985; Verloove 2003), the surroundings of Madrid (Nieto Feliner 1985) and Andalucia (e.g. Valdés & al. 2007). In Portugal *Eragrostis curvula* was known so far from Beira Litoral and Estremadura (Almeida 1999). In June 2010 *Eragrostis curvula* was recorded in abundance in several places in Alto Alentejo as well, apparently for the first time. In addition to the locality cited above, it was furthermore observed north and south of São Geraldo (N2), between Brotas and Mora (road verges of N2, abundant) and between Mora and Montargil. It is obviously well established in this area.

Eragrostis mexicana (Hornem.) Link, Hort. Berol. I: 190, 1827 (s.l.; incl. *E. virescens*)
(*Poaceae*)
Epoecophyte.

PORTUGAL: Alto Alentejo: Montargil (NE-Mora) (UTM 29S571 432), barragem, gravelly roadverge, abundant, 16.06.2010, *F. Verloove* 8141 (BR, COI).

Eragrostis mexicana, originally native in large parts of the New World, is not mentioned by Almeida (1999) and Almeida & Freitas (2006) and seems to be first recorded from Portugal. It was found in abundance in a gravelly roadside by an artificial lake in Montargil in June 2010.

Eragrostis mexicana is here treated in a broad sense as to include *E. virescens* J. Presl. The latter is usually readily distinguished (very narrow, greenish spikelets) and by far the most widespread species in this species-complex (see for instance Verloove 2003, Verloove & Sánchez Gullón 2008). However, recent taxonomists tend to combine both in one variable species, *Eragrostis mexicana* (Peterson 2003). The population from Montargil combines characters of both microspecies and seems to confirm their close relationship.

Kochia scoparia (L.) Schrad., Neues J. Bot. 3(3-4): 85, 1809.
(syn.: *Bassia scoparia* (L.) Voss)
(*Amaranthaceae*)
Ephemerophyte.

SPAIN: Huelva: Palos de la Frontera (UTM 29SPB8418), ruderal cunetas carretera, 04.06.2009, *E. Sánchez Gullón* (priv. herb. ESG 195; dupl. BR).

Kochia scoparia, native in large parts of Eurasia, is widely dispersed in the Iberian Peninsula (see Cirujano & al. 1990). In Andalucia it was known so far from the provinces

of Almeria, Cadiz, Granada and Jaen. It is here reported for the first time from Huelva, probably as an ephemeral alien (and associated with the cereal processing industries in Palos de la Frontera).

The generic limits of *Kochia* Roth and related genera (incl. *Bassia* All.) are controversial. In its traditional (narrow) sense *Bassia* only includes species with tepals with hooked, spiniform or conical appendages in fruit. *Kochia*, in turn, is characterised by smooth tepals. Scott (1978) circumscribed *Bassia* in a very broad sense, including *Kochia* (and some other genera), and his viewpoint was widely followed for some decades (also by Cirujano & al. 1990). However, an increasing number of important, recent authors tend to apply a narrow generic concept of *Bassia* and *Kochia* (see for instance Mosyakin 2003; Zhu & al. 2003; Mabberley 2008). This viewpoint is followed here as well. As such, *Kochia* includes about 15 species in North America, Eurasia and Africa.

Finally, *Kochia* is here included in *Amaranthaceae*, in accordance with recent molecular phylogenetic research (APGIII 2009).

Linaria maroccana Hook., Bot. Mag. 98: tab. 5983, 1872.
(*Plantaginaceae*)
Ergasiophygophyte.

SPAIN: Huelva: Matalascañas (UTM 29SQA1798), adventicio en aceras y arriates jardines casco urbano, 05.01.2008, *E. Sánchez Gullón* (priv. herb. ESG 242; dupl. SEV 256697, MA s.n., BR).

Linaria maroccana is an endemic of Morocco but widely cultivated elsewhere as an ornamental. To our knowledge it has not been recorded before in the Iberian Peninsula (pers. comm. Mario Mazuecos).

It has been observed for several years in landscaped zones and urban areas in the surroundings of Matalascañas (as an ergasiophygophyte). The presence of *Linaria maroccana* in the Doñana Parque Nacional is not without risk: hybridisation with native species of grex *Versicolores* (i.e. *Linaria viscosa* and *Linaria spartea*) cannot be ruled out.

Oenothera affinis Cambess. in A. St.-Hil., Juss. & Cambess., Fl. Bras. Merid. 2: 269, 1830.
(*Onagraceae*)
Ephemerophyte (or epoecophyte ?)

SPAIN: Huelva: Bonares (UTM 29SQB0529), cuneta carretera en zonas de cultivos de regadio, 18.09.2010, *E. Sánchez Gullón* (priv. herb. ESG 288; dupl. priv. herb. FV, SEV 256700).

Oenothera affinis is originally native in temperate regions of South America. It is furthermore naturalised in South Africa, Asia, Australia and southwestern Europe (Dietrich 1977). In the Iberian Peninsula it is mostly confined to Portugal (Algarve, Baixo Alentejo,

Douro Litoral and Estremadura). Up to present, it was only known in Spain from Burgos and Guipúzcoa (Rostanski 1991; Dietrich 2000). It is now reported for the first time from the province of Huelva, probably as an ephemerophyte (although a future naturalisation cannot be excluded). Several individuals were observed in road verges and adjacent waste-land and agricultural fields.

Along with *Oenothera indecora* (see below), *O. longiflora* and *O. stricta*, *O. affinis* belongs with subsection *Munzia*, all with more or less rotund seeds (not prismatic) and erect flower buds. Confusion is most likely with *Oenothera longiflora*, also present in Huelva (Dietrich 2000). Both share a very long floral tube, ranging between 70-110 mm. However, *Oenothera affinis* has an indumentum of long, very soft (pliable) hairs whereas *O. longiflora* is hirsute-hairy. *Oenothera affinis* furthermore lacks a rosette of basal leaves (present in *O. longiflora*) and its bracts are usually longer than the capsules (vice versa in *O. longiflora*).

Oenothera glazioviana Micheli, Fl. Bras. (Martius) 13(2): 178, 1875.
(syn.: *Oenothera erythrosepala* Borbás)
(*Onagraceae*)
Ephemerophyte?

SPAIN: Huelva: Matalascañas (Almonte) (UTM 29SQA1798), ruderal cuneta carretera, 12.11.2009, *E. Sánchez Gullón* (priv. herb. ESG 243; dupl. SEV 252434, BR).

Oenothera glazioviana is a rare species in Andalucia. It is best known from the province of Huelva, for instance in Andévalo and Parque Natural Aracena (Dietrich 2000; Sanz Elorza & al. 2004). It is here confirmed from Espacio Natural Doñana, probably as a mere ephemeral alien. Additional information about its presence in the Iberian Peninsula is provided by Salazar Mendías & al. (2000), Sanz Elorza & al. (2002), Acedo & Llamas (2006), Romero Buján (2007) and Sánchez García & al. (2009).

Oenothera indecora Cambess. in A. St.-Hil., Juss. & Cambess., Fl. Bras. Merid. 2: 268, 1830.
(*Onagraceae*)
Ephemerophyte (?).

SPAIN: Huelva: Arroyo Don Gil (Moguer) (UTM 29SPB9925), cuneta camino agricola dentro de cultivos de regadio, 12.07.2010, *E. Sánchez Gullón* & al. (priv. herb. ESG 288; dupl. SEV 256699, BR).

Oenothera indecora, a native of temperate South America (Dietrich 1977), occurs as an introduced weed in parts of southern Africa, Australia and Europe. In the Iberian Peninsula it was known from Estremadura in Portugal (Rostanski 1991; Dietrich 2000) and was recently also reported for the first time from Spain (Gavámar in Barcelona province; see Verloove & Sánchez Gullón 2008). It was observed in 2010 for the first time in Huelva,

probably as an ephemerophyte. About 15-20 plants were recorded in and near irrigated agricultural fields (*Fragaria* spec.).

The genus *Oenothera* is particularly well represented in Huelva: in addition to the new introductions *O. affinis* and *O. indecora*, the province furthermore harbours *O. drummondii, O. glazioviana, O. laciniata, O. longiflora* subsp. *longiflora, O. rosea* and *O. speciosa* (see Sánchez Gullón & Rubio 1999; Sánchez Gullón & al. 2006; Dietrich 2000; Verloove & Sánchez Gullón 2008).

Oenothera lindheimeri (Engelmann et A. Gray) W.L. Wagner et Hoch, Syst. Bot. Monogr. 83: 213, 2007.
(syn.: *Gaura lindheimeri* Engelmann et A. Gray)
(*Onagraceae*)
Epoecophyte (or ephemerophyte?).

PORTUGAL: Algarve: Caldas de Monchique (UTM 29SNB5394004126600), aceras casco urbano población, 04.12.2010, *E. Sánchez Gullón* (priv. herb. ESG 317; dupl. BR).

Oenothera lindheimeri is native in a relatively small area in the southern United States (Raven & Gregory 1972). However, it is widely cultivated as an ornamental in large parts of the world, including Europe. In the past years it is increasingly escaping and here reported, probably for the first time, in the Iberian Peninsula (compare with Almeida 1999; Nieto Feliner 2000; Almeida & Freitas 2006). *Oenothera lindheimeri* copiously flowers and fruits in Caldas de Monchique and a future naturalisation is not unlikely.

This species was traditionally accommodated in a separate genus (*Gaura*) but recent molecular phylogenetic research strongly recommends its inclusion in a broadly circumscribed genus *Oenothera*, as section *Gaura* (Wagner & al. 2007).

Pteris vittata L., Sp. Pl.: 1074, 1753.
(*Pteridaceae*)
Epoecophyte.

PORTUGAL: Lisbon: Lisboa (UTM 29SMC8840084600), ruderal casco urbano barrio Alfama junto Catedral, 15.02.2010, *E. Sánchez Gullón* (priv. herb. ESG s.n.; dupl. SEV 256701).

Pteris vittata is a recent escape in Portugal (compare with Nogueira 1986). It is known since 1999 from old walls at the Botanic Garden in Coimbra (Beira Litoral) (Almeida 1999; Almeida & Freitas 2006). The present records from Lisboa confirm its recent local naturalisation on old walls in urban habitats in Portugal. Similar records are also available from Spain (see for instance Verloove & Sánchez Gullón 2008).

Rorippa palustris (L.) Besser, Enum. Pl.: 27, 1821.
(*Brassicaceae*)
Epoecophyte.

SPAIN: Huelva: Moguer (UTM 29SPB9823), arvense cultivos regadio, 18.06.2010, *E. Sánchez Gullón* (priv. herb. ESG 261; dupl. BR).

Rorippa palustris is a common species in large parts of Eurasia and North America. In the Iberian Peninsula it is widely dispersed in the northernmost half (Martínez Laborde 1993).

It was discovered in abundance in the surroundings of Moguer in 2010, apparently for the first time in Andalucia. *Rorippa palustris* grows in (semi-) natural habitats (lake margins, swamps, damp meadows) but also as a weed of agricultural fields. The exact status of these populations is uncertain: they might either represent a natural range extension or perhaps should be considered as a naturalised introduction (perhaps overlooked or neglected before).

Setaria verticilliformis Dumort. Fl. Belg.: 150, 1827.
(syn.: *Setaria verticillata* (L.) Beauv. var. *ambigua* (Guss.) Parl., *S. decipiens* Schimp.)
(*Poaceae*)
Epoecophyte.

SPAIN: Huelva: Galaroza (UTM 29SQC0100), ruderal cunetas aceras y casco urbano, 05.07.2009, *E. Sánchez Gullón* (priv. herb. ESG 221; dupl. BR).

Setaria verticilliformis is probably native in the Mediterranean area, western Asia and perhaps also in parts of Central Europe. At least in part of this range it might better be regarded as an archaeophyte. Amigo & al. (1991) confirm its presence in the Iberian Peninsula (without further chorological details). Previous records in Spain are available from Madrid (Calduch 1968), the province of Valencia (not rare in agricultural fields according to Carretero & Esteras 1983) and the provinces of Barcelona, Gerona and Terragona (Bolòs & Vigo 2001). In 2009 it was recorded in Huelva, probably for the first time. It grows as a weed in irrigated agricultural fields, by roadsides, etc. Its residence status in this area is uncertain: it might as well be regarded as a poorly known native species (or archaeophyte) or as a neophyte.

The specific status of *Setaria verticilliformis* is controversial (see also Carretero & Esteras 1983; Amigo & al. 1991; …). We here follow recent New World taxonomists (Pensiero 1999; Rominger 2003; Zuloaga & al. 2003; etc.) who accept its specific rank.

Sisyrinchium rosulatum E.P. Bicknell, Bull. Torrey Bot. Club. 26: 228, 1899.
(*Iridaceae*)
Epoecophyte.

SPAIN: Huelva: Huelva, mediana carretera ciudad de Huelva (UTM 29SPB8126), arvense en césped jardín, 20.07.2010, *E. Sánchez Gullón* (priv. herb. ESG 299; dupl. SEV 256704, BR).

Sisyrinchium rosulatum is a native of the southern United States but occurs as a weed outside its original distribution range. In Europe it appears to be very rare and it is probably limited to southwestern France (Parent 1977, 1980). In Huelva it was discovered as a fully naturalised lawn weed in July 2010.

Parent (1980, 1987; nomenclature updated after Cholewa & Henderson 2002) cite *Sisyrinchium angustifolium* Mill. (as *S. graminoides* E.P. Bicknell) and *S. micranthum* Cav. for (northwestern) Spain. *Sisyrinchium platense* was more recently added (Conesa 1991). None seems to be known from Portugal (Almeida & Freitas 2006). By its tiny, annual habit *Sisyrinchium rosulatum* is readily distinguished from *S. angustifolium* and *S. platense*. The superficially similar *Sisyrinchium micranthum* is separated by its yellow tepals (lavender-rose in *S. rosulatum*).

Sphagneticola trilobata (L.) Pruski, Mem. New York Bot. Gard. 87: 114, 1996.
(syn.: *Wedelia trilobata* (L.) Hitchcock)
(*Asteraceae*)
Ephemerophyte.

SPAIN: Huelva: Aljaraque (Bellavista) (UTM 29SPB7627), cuneta, 05.12.2008 and 15.09.2009, *E. Sánchez Gullón* (priv. herb. ESG 170; dupl. SEV 256709, priv. herb. FV, BR).

Sphagneticola trilobata is a native of Central and South America. Outside its original distribution area it is widely introduced in the (sub-) tropics in Asia and Australia, either intentionally (as an ornamental or for erosion control) or unintentionally (as a weed). It is fast spreading, flowers nearly all year round and is increasingly reported as a noxious environmental weed (Mabberley 2008). It now is amongst the 100 worst weed species worldwide (http://www.issg.org/database/species/ecology.asp?si=44).

In Aljaraque *Sphagneticola trilobata* probably escaped from cultivation. It was repeatedly observed for several years but never produced viable seeds. However, it rapidly reproduced clonally and readily occupied a vast surface. Fortunately, it was no longer seen in 2011.

The taxonomy of *Wedelia* Jacq. s.l. considerably changed in the past years (Strother 2006; see also Strother 1991). *Wedelia trilobata* was transferred to *Sphagneticola* by Pruski (1996) and *W. glauca* (Ortega) Hoffmann ex Hicken, another naturalised representative of *Wedelia* s.l. in the Iberian Peninsula (see for instance Carretero 1988; Robledo & al. 1996), should be included in *Pascalia* Ortega, the genus in which it was originally described (as *P. glauca* Ortega). *Sphagneticola trilobata* and *Pascalia glauca*, both evidently members of the same subtribe (*Ecliptinae*), are readily distinguished in the following couplet:

1 Prostrate perennial, rooting at nodes. Leaves trullate to lanceolate, at least in part shallowly trilobate. Ligules usually 4-10 (rarely more). Achenes strongly biconvex (more rarely slightly 3-4-angled) ..... ***Sphagneticola trilobata***
Erect, rhizomatous perennial. Leaves narrowly lanceolate, usually entire. Ligules 13-21. Achenes 3-angled or slightly compressed to 4-angled ..... *Pascalia glauca*

Stenotaphrum secundatum (Walter) O. Kuntze, Revis. Gen. 2: 794, 1891.
(*Poaceae*)
Holoagriophyte-Epoecophyte.

SPAIN: Huelva: Matalascañas, acantilado de El Asperillo, playa de Castilla (UTM 29QA1499), muy abundante invadiendo zonas higroturbosas al pie del acantilado, 08.07.2010, *E. Sánchez Gullón* (priv. herb. ESG s.n.; dupl. SEV 256705); Alajar, Peña de Arias Montano (Parque Natural de Aracena) (UTM 29SQB0594), 14.01.2011, *E. Sánchez Gullón,* (priv. herb. ESG s.n.); Huelva, Paraje Natural Marismas del Odiel, Calatilla (UTM 29SPB8025), 20.12.2010, *E. Sánchez Gullón* (priv. herb. ESG s.n.).

Stenotaphrum secundatum is a pantropical species, now widely introduced (predominantly planted for turf) and naturalised in many warm-temperate regions of the world. In the Iberian Peninsula it is chiefly confined to coastal areas (see map in Sanz Elorza & al. 2004). It is here reported for the first time from the "Espacio Natural Doñana" and "Parque Natural Aracena" (compare with Valdés & al. 2007, 2008).

In the area here concerned *Stenotaphrum secundatum* grows in damp meadows on sandy substrate. In Matalascañas a very dense, monospecific stand of ca. 2000 m² covers the foot of the coastal cliffs. In Alajar it occupies the edges of a bank occupying approximately 100 m² and in the Marismas del Odiel it invades marshland (ca. 100 m²). In all cases, *Stenotaphrum secundatum* penetrates in vulnerable, natural vegetation and behaves like an unwelcome, aggressive environmental weed.

Symphyotrichum laeve (L.) Á. Löve & D. Löve, Taxon 31: 359, 1982.
(syn.: *Aster laevis* L.)
(*Asteraceae*)
Epoeophyte (or ephemerophyte).

PORTUGAL: Algarve: Caldas de Monchique (UTM 29SNB5394004126600), aceras casco urbano población, 04.12.2010, *E. Sánchez Gullón* (priv. herb. ESG 316; dupl. BR).

Symphyotrichum laeve, a North American native but widely cultivated as an ornamental in Europe, apparently has not been recorded before in Portugal. Almeida & Freitas (2006) only cite *Symphyotrichum lanceolatum* (Willd.) G.L. Nesom and *S. subulatum* (Michaux) G.L. Nesom (as *Aster lanceolatum* Willd. and *A. squamatus* (Spreng.) Hieron.). In Caldas de Monchique it looks more or less established and might become naturalised in a near future (although it is usually restricted to clonal growth in Europe). Elsewhere in the

Iberian Peninsula it is probably confined to the colder, northern areas of Spain; Romo (1986), for instance, reported about the first Spanish record in the Pyrenees.

This species is here treated in a broad sense as to include hybrids with *Symphyotrichum novi-belgii* (L.) G.L. Nesom (*S.* x*versicolor* (Willd.) G.L. Nesom), the latter probably being predominant in cultivation nowadays.

Veronica peregrina L., Sp. Pl.: 14, 1753.
(*Plantaginaceae*)
Epoecophyte.

SPAIN: Huelva: Punta Umbría, arvense jardín (UTM 29SPB8017), 15.07.2010, *E. Sánchez Gullón* (priv. herb. ESG 302; dupl. SEV 256708, BR).

Veronica peregrina is originally native in the New World but now has become a nearly cosmopolitan weed. In Andalucia it was known so far from the provinces Cordoba, Granada and Sevilla (Martínez Ortega & al. 2009). It is here reported for the first time from Huelva where it occurs as a weed in irrigated gardens, lawns, etc.

Viola tricolor L., Sp. Pl.: 935, 1753.
(*Violaceae*)
Epoecophyte.

SPAIN: Huelva: Galaroza (UTM 29SQC0100), ruderal en casco urbano, 05.07.2009, *E. Sánchez Gullón* (priv. herb. ESG 302; dupl. SEV 256709).

Viola tricolor (s.str.) was not cited in Flora Iberica by Muñoz Garmendía & al. (1993). It is here reported – probably as an escape from cultivation – for the first time in western Andalucia (province of Huelva). It is confined to ruderal, man-made habitats.

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