

## GEA, FLORA ET FAUNA

# Chorological notes on the non-native flora of the province of Tarragona (Catalonia, Spain)

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## Abstract

Recent field work in the province of Tarragona (NE Spain, Catalonia) yielded several new records of non-native vascular plants. *Cenchrus orientalis*, *Manihot grahamii*, *Melica chilensis* and *Panicum capillare* subsp. *hillmanii* are probably reported for the first time from Spain, while *Aloe ferox*, *Canna ×generalis*, *Cenchrus setaceus*, *Convolvulus farinosus*, *Ficus rubiginosa*, *Jarava plumosa*, *Koeleria paniculata*, *Lycianthes rantonnetii*, *Nassella tenuissima*, *Paraserianthes lophantha*, *Plumbago auriculata*, *Podranea ricasoliana*, *Proboscidea louisianica*, *Sedum palmeri*, *Solanum bonariense*, *Tipuana tipu*, *Tradescantia pallida* and *Vitis ×ruggerii* are reported for the first time from the province of Tarragona. Several of these are potential or genuine invasive species and/or agricultural weeds. Miscellaneous additional records are presented for some further alien taxa with only few earlier records in the study area.

**Key words:** Alien plants, Catalonia, chorology, Spain, Tarragona, vascular plants.

## Resum

### Notes corològiques sobre flora ahlòctona de la província de Tarragona (Catalunya, Espanya)

Com a resultat de recents treballs de camp a la província de Tarragona (NE Espanya, Catalunya), oferim en el present treball nous registres de plantes vasculars ahlòctones. *Cenchrus orientalis*, *Manihot grahamii*, *Melica chilensis* i *Panicum capillare* subsp. *hillmanii* probablement es citen per primera vegada a Espanya, mentre que *Aloe ferox*, *Canna ×generalis*, *Cenchrus setaceus*, *Convolvulus farinosus*, *Ficus rubiginosa*, *Jarava plumosa*, *Koeleria paniculata*, *Lycianthes rantonnetii*, *Nassella tenuissima*, *Paraserianthes lophantha*, *Plumbago auriculata*, *Podranea ricasoliana*, *Proboscidea louisianica*, *Sedum palmeri*, *Solanum bonariense*, *Tipuana tipu*, *Tradescantia pallida* i *Vitis ×ruggerii* es citen per primer cop de la província de Tarragona. Moltes d'aquestes plantes són invasores o presenten potencial invasor, i algunes són considerades també males herbes de cultius. Afegim un recull de dades addicionals de plantes ahlòctones de les quals es tenien poques citacions al territori estudiat.

**Paraules clau:** Plantes ahlòctones, Catalunya, corologia, Espanya, Tarragona, plantes vasculars.

## Introduction

The alien flora of the autonomous region of Catalonia is particularly well-studied. In her PhD thesis Casasayas (1989) published a very extensive overview for the entire region. One of us (Gómez-Bellver, in prep.), also in the context of his PhD, is preparing a thorough update, aiming at providing a state of the art of the current knowledge on non-native plants in Catalonia.

Despite these extraordinary efforts, continued research is required since the composition of the xenophytic flora is constantly changing: additional species are introduced as a result of human activities, either unintentionally (e.g. via shipments in port areas) or intentionally (e.g. via the horticultural trade). Also, the status of the taxa already present may change (e.g. casual aliens start to naturalize, range extensions of other species), etc.

Recent field work by the authors in the province of Tarragona

yielded interesting new information on alien plants: several species were recorded that had not been reported before in the area (some turned out to be even first records for the entire Iberian Peninsula or even the whole of Europe). For other species that had already been recorded before, either in Catalonia or in the province of Tarragona, additional records, range extensions, etc. are presented. Records of cacti (Cactaceae) and species of *Agave* (Asparagaceae) will be dealt with separately (*inter alia* Verloove & Guiggi, 2019).

## Materials and methods

The records enumerated in this paper are mostly the result of two weeks of field work by the first author in September 2018 in the province of Tarragona. Additional recent

field records from the same province were added by the other three authors.

The paper is divided in two parts. The first and major part deals with taxa that have not been reported before from Tarragona province (several are also first records for the entire Iberian Peninsula); these may be either ephemeral, (locally) naturalized or (potentially) invasive species. Several of these taxa are also illustrated. In the second part records are presented of alien species that are only known from very few localities in the study area or that are otherwise of particular interest (e.g. changed degree of naturalization). As a rule, for these records only herbarium data and a few further comments are provided.

For convenience, within each of these parts, 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 below), kind of chorological novelty and estimated degree of naturalization (mostly sensu Richardson *et al.*, 2000), enumeration of herbarium collections (if any), origin of the taxon and details about its secondary distribution and, finally, information on its actual occurrence in Catalonia and elsewhere in the Iberian Peninsula.

Familial classifications follow APG IV (2016) and also for genera names are in accordance with modern accounts, usually based on molecular studies. For the taxa treated herein this means that e.g. *Pennisetum* is included in *Cenchrus* and *Stipa* segregated in several smaller genera, incl. *Jarava* and *Nassella*. Voucher specimens of most taxa are preserved in the public herbaria of Meise Botanic Garden, Belgium (BR), the herbarium of the Botanic Institute of Barcelona (BC) and/or the herbarium of the University of Barcelona (BCN).

## Results

### Taxa not previously reported from Tarragona province

*Aloe ferox* Mill., Gard. Dict. ed. 8: 22. 1768.  
Asphodelaceae

TARRAGONA: Reus, les Palmeres, 31CTF4053, 74 m, adjacent to a path, close to the «Reus Aigüesverds» golf course, 22 November 2014, *J. López-Pujol* s.c.

Not previously reported from Tarragona province. Ephemeral.

This South African species is frequently grown as an ornamental in Mediterranean climates across the world. It is, however, rarely seen as an escape and most records probably refer to mere relics of former cultivation or specimens established from discarded garden debris. The species probably rarely reproduces from seed. In similar circumstances *A. ferox* was seen in Barcelona (Montjuïc Mountain, on the Miramar side) in 2007 (Pyke, 2008) and again in 2018, along with *Opuntia elatior* (Gómez-Bellver *et al.*, 2019c), probably for the first time in Catalonia. We here present a second record, from Tarragona province.

*Canna ×generalis* L.H. Bailey & E.Z. Bailey, Hortus: 118. 1930.

### Cannaceae

TARRAGONA: Amposta, N of Encanyissada lagoon, 31TCF0406, 0 m, irrigation ditch, 2 April 2019, *P. Aymerich* s.c.; Sant Jaume d'Enveja, camí dels Muntells, 31TCF0908, 1 m, irrigation ditch, 2 April 2019, *P. Aymerich* s.c.

Not previously reported from Catalonia. Naturalized.

The only *Canna* species reported from the Ebro delta is *C. indica* L., although according to Royo (2006) the presence of *C. ×generalis* cannot be excluded. We confirm that this garden hybrid is locally naturalized in this area. *Canna* plants were formerly planted in many Ebro delta ditches and they now spread vegetatively along margins of the river. *Canna ×generalis* has not been formally reported before from Catalonia but probably it is often mistaken for *C. indica*.



Figure 1. *Cenchrus orientalis*. Tarragona, September 2018, F. Verloove. Compared with those of the similar-looking *C. setaceum*, leaves are flat and much wider.

*Cenchrus orientalis* (Pers.) Morrone, Ann. Bot. (Oxford) n.s. 106: 128. 2010.

(syn.: *Pennisetum orientale* Pers.) (Fig. 1)

### Poaceae

TARRAGONA: Tarragona, urb. Llevantina, carrer G close to av. Boscos de Tarragona, 31TCF5755, fence, a single individual, 16 September 2018, *F. Verloove* 13329 (BR, BCN).

Not previously reported from Spain. Ephemeral (?), potentially invasive.

*Cenchrus orientalis* is native from North Africa to India (Wipff, 2003), in Europe apparently also on Euboea island (Greece; Pohl & Lenski, 2004). It is grown as an ornamental or as forage grass in warm-temperate areas across the world. It is much reminiscent of and closely related to *C. setaceum*, an invasive species of EU concern (EU, 2014). Both have been combined as *Pennisetum setaceum* subsp. *orientale* (Pers.) Maire and probably share biological and ecological traits. Although only one individual was observed it may be advisable to eradicate it in order to prevent a future naturalization. *Cenchrus orientalis* differs from *C. setaceum* by its flat cauline leaves that are up to 10 mm wide (vs. convolute-inrolled, setaceous) and its staminate lower florets (vs. usually sterile).

*Cenchrus setaceus* (Forssk.) Morrone, Ann. Bot. (Oxford) n.s. 106: 129. 2010.

(syn.: *Pennisetum setaceum* (Forssk.) Chiov.)

Poaceae

TARRAGONA: Salou, carrer del Pou de la Taurana, 31TCF4647, rough ground in residential area, a few dozens, 13 September 2018, *F. Verloove* 13345 (BR).

Not previously reported from Tarragona province. Naturalized, potentially invasive.

Primarily concentrated in the southern part of the Iberian Peninsula, this species from the eastern Mediterranean region is slowly expanding further north. Since some years it is known from the Balearic Islands (Fraga *et al.*, 2004; Sáez *et al.*, 2016) and there is one previous record from the continental part of Catalonia as well, from Llançà (Girona province), close to the French frontier (Font, 2000). This invasive species is of EU concern (EU, 2014) and will probably spread fast. Eradication of incipient invasion events is advisable.



Figure 2. *Convolvulus farinosus*. Salou, September 2018, *F. Verloove*.

*Convolvulus farinosus* L., Mant. Pl. 2: 203. 1771. (Fig. 2)

Convolvulaceae

TARRAGONA: Salou, barranc de Barenys at carrer de Carles Roig, 31TCF4248, rough ground, small population, 13 September 2018, *F. Verloove* 13344 (BR).

Not previously reported from Tarragona province. Naturalized.

*Convolvulus farinosus* is a native of continental Africa (Eritrea and Ethiopia to South Africa), Madagascar and Mascarene Islands. It is often weedy and naturalized in other warm-temperate parts of the world, for instance in Mexico (Wood *et al.*, 2015). It was recently reported for the first time from Australia (Hosking *et al.*, 2011) and is known from Tenerife in the Canary Islands (Kunkel, 1991). In continental Europe *C. farinosus* is only known from the Iberian Peninsula: it is locally naturalized near Lisbon and Coimbra in Portugal (Silvestre, 2012). Actually, the first reported plant was in 2001 in the Botanic Garden of Barcelona, apparently as adventive, by S. Pyke (this issue is cited in Blanché *et al.*, 2018). It is thought to have been

dispersed across botanic (and other) gardens since it is often found in or near such habitats. In Salou, however, it grows on the margins of a temporary rivulet, close to the sea. This species is readily recognized by the triangular-ovate, shortly pubescent to farinose, very acute leaves and small, deeply lobed white corollas (Wood *et al.*, 2015).

*Ficus rubiginosa* Desf. ex Vent., Jard. Malmaison Pl. 114. 1803.

Moraceae

TARRAGONA: Cambrils, bridge of N-340 road over barranc de la Mare de Déu del Camí, 31TCF3648, on top of stone wall, a single self-sown individual, 6 September 2018, *F. Verloove* 13337 (BR).

Not previously reported from Catalonia. Ephemeral.

A native of eastern Australia, this species is widely grown as an ornamental tree in subtropical and warm-temperate regions across the world. In recent years it started escaping in many areas where it had been introduced in the past, apparently being dispersed by berry-eating birds and small mammals. As a result, it is increasingly seen as epiphyte (for instance on *Phoenix* trunks) or in cracks of walls. See for instance Gardner & Early (1996), Riefner & Smith (2015) and Verloove *et al.* (2018) for New Zealand, North American and Canarian records respectively. It was recently reported from Almeria, for the first time in (mainland) Spain (Pérez García *et al.*, 2008). In Valencia it is found on walls and other man-made habitats (Peña *et al.*, 2017; Ferrer Gallego *et al.*, 2018). The only tropical *Ficus* previously reported in Catalonia is *F. elastica* (Basnou *et al.*, 2015).

In Cambrils *F. rubiginosa* was found growing on top of an old bridge wall. Although probably ephemeral, documentation of its early detection can provide important information regarding its future establishment and spread in the region (Gardner & Early, 1996).

*Jarava plumosa* (Spreng.) S.W.L. Jacobs & J. Everett, Telopea 7(3): 301. 1997.

(syn.: *Stipa papposa* Nees, nom. illeg.) (Fig. 3)

Poaceae

TARRAGONA: Cambrils, villa romana de la Llosa, 31TCF3648, open degraded pinewood, scattered individuals, 6 September 2018, *F. Verloove* 13336 (BR); Vinyols i els Arcs, riera d'Alforja N of bridge of A-7 motorway, 31TCF3550, frequent for ca. 1 km, by gravelly track and in open pinewood, 6 September 2018, *F. Verloove* s.c.; Montbrió del Camp, riera d'Alforja N of bridge of T-314 road, 31TCF3453, by gravelly track, common, 6 September 2018, *F. Verloove* s.c.; Vinyols i els Arcs, riera d'Alforja S of T-310 road, 31TCF3354, open pinewood, common, 9 September 2018, *F. Verloove* s.c.

Not previously reported from Tarragona province. Naturalized.

This South American species (Argentina, Brazil, Chile, Uruguay) is weedy and naturalized in climatologically suitable areas across the world, for instance in Australia (Gardner *et al.*, 1996). In Spain it is well-established in the Barcelona area from where it is known since 1983 (Casasayas & Far-



Figure 3. *Jarava plumosa*. Cambrils, September 2018, F. Verloove.

ràs, 1985; Verloove, 2005a, b). *J. plumosa* is easily wind-dispersed and obviously in expansion in northeastern Spain. In recent years it has also been found in several localities in the province of Girona (overview in Vilar *et al.*, 2018) and it is here reported from several localities in Tarragona as well, from where it had not been mentioned before. In most localities it was found in abundance and it is clearly naturalized.

***Koelreuteria paniculata*** Laxm., *Novi Comment. Acad. Sci. Imp. Petrop.* 16: 563, f. 1. 1772.  
Sapindaceae

TARRAGONA: Cambrils, barranc de la Mare de Déu del Cami S of N-340 road, 31TCF3648, dry gravelly riverbed, a single self-sown individual, 6 September 2018, *F. Verloove s.c.*; l'Ametlla de Mar, les Tres Cales, carrer Punta Galera, 31TCF1630, vacant lot in residential area (disturbed pine-wood), scattered self-sown individuals, 8 September 2018, *F. Verloove s.c.*

Not previously reported from Tarragona province. Ephemeral-naturalizing.

*Koelreuteria paniculata*, a native of eastern Asia (mainly China and Korea), is widely grown as an ornamental tree. In temperate regions it easily produces viable seed and readily escapes, often in urban and other man-made habitats but it is also found in riparian habitats. In Catalonia it is known in a few places in the center and north of the territory (Casasayas,

1989; Aymerich, 2019; Gómez Bellver *et al.*, 2019b). Here, it is reported for the first time from southern Catalonia.

Only scattered saplings were recorded so far but a future naturalization is not unlikely. In Spain it is also reported from Guipúzcoa and Toledo provinces (Muñoz Garmendia *et al.*, 2015).

***Lycianthes rantonnetii*** (Carrière) Bitter, *Die Gattung Lycianthes*: 332, f. 1. 1919.

(syn.: *Solanum rantonnetii* Carrière)  
Solanaceae

TARRAGONA: Tarragona, Monnars, 31TCF5755, degraded woodland near residential area, a single shrub, 16 September 2018, *F. Verloove s.c.*; Tarragona, el Catllar, Bonaigua, near the football field, 31TCF5759, 113 m, 10 January 2019, *C. Gómez-Bellver & P. Aymerich s.n.* (BC 863259, BCN).

Not previously reported from Catalonia. Ephemeral or locally naturalizing.

A native of South America, this species is widely cultivated as an ornamental shrub in warm-temperate and subtropical areas. It is known from southern Spain (Málaga province) where it is considered a naturalized species (Gallego, 2012b). Recently *Lycianthes rantonnetii* was reported for the first time from the Balearic Islands (Sáez *et al.*, 2016) and here for the first time from Catalonia. While in Monnars only a single shrub was recorded, in el Catllar the species grows in a rather dense formation of about 5-6 m<sup>2</sup>, climbing on adult pine trees and reaching up to 2.5-3 m in height. A local naturalization here is likely.



Figure 4. *Manihot grahamii*. Cambrils, September 2018, F. Verloove.

***Manihot grahamii*** Hook., *Icon. Pl.* 6: pl. 530. 1843. (Fig. 4)  
Euphorbiaceae

TARRAGONA: Cambrils, barranc de la Mare de Déu del Cami S of N-340 road, 31TCF3648, dry gravelly riverbed, a single self-sown individual, 6 September 2018, *F. Verloove s.c.* 13335 (BR).

Not previously reported from Spain. Ephemeral or locally naturalizing.

*Manihot grahamii* is native to northern Argentina, south-eastern Brazil, Paraguay and Uruguay, and is sometimes cultivated for its distinctive, attractive foliage. In climatologically suitable areas it was able to naturalize recently, for instance in the southern U.S.A. (Hayden, 2016). In Europe, it was recently reported for the first time from Italy where it is locally naturalized in the Lazio region (Iberite & Iamónico, 2015). In Cambrils a single, non-flowering individual was found at the bottom of a dried-out river bed. Interestingly, there is a second, unpublished observation further south: several plants were found inside an abandoned channel in Amposta in 2015 (Salvador Cardero, in <http://biodiversidadvirtual.org>). Its persistence there was confirmed subsequently.



Figure 5. *Melica chilensis*. Tarragona, May 2019, P. Aymerich.

***Melica chilensis*** C. Presl, Reliq. Haenk. 1(4–5): 270. 1830.

(Fig. 5)

(incl.: *M. andina* Hauman)

Poaceae

TARRAGONA: Tarragona, port area, N side of riu Francolí at moll de Castella, 31TCF5152, dry gravelly track alongside the river, small colony with ca. 50 individuals, 9 September 2018, *F. Verloove* 13375 (BR); idem, 7 May 2019, *P. Aymerich* (BCN, dupl. BR).

Not previously reported from Spain. Ephemeral or locally more or less naturalized.

*Melica chilensis* is originally native to South America (Argentina, Bolivia). With its sharply bent pedicels and spikelets disarticulating below the glumes, it belongs in subgenus *Bromelica* (Thurb.) Clayton & Renvoize. Further characteristic features are the strongly divergent to slightly reflexed panicle branches and the spikelets with club-like rudiments that not resemble the bisexual florets. Its identification was not straightforward, although apparently only some New World species combined these character states. The North American species *M. nitens* (Scribn.) Nutt. ex Piper and (to a lesser extent) *M. mutica* Walter (Barkworth, 2003) are very similar. However, they differ in having flat and wider leaves, a shorter ligule (*M. mutica*) and markedly longer upper lemmas. In the Tarragona plants, leaves are narrow and convolute, ligules more than 3 mm long and all fertile lemmas shorter than 6 mm. All these features point at *M. chilensis* and even more to *M. andina*, two South American species that now are considered to be conspecific (Papp, 1928; Caro, 1969; Torres, 1980; Muñoz Schick, 1983-1984; Morrone & Zuloaga, 2012). Despite its specific epithet, *M. chilensis* apparently has never been reliably recorded from Chile (Muñoz Schlick, 1983-1984).

In the Tarragona port area *Melica chilensis* grows in a small colony consisting of ca. 30-50 individuals alongside a dirt track by the mouth of the Francolí river. To our knowledge this species has not been recorded outside of its natural range. It is unclear how it arrived in Tarragona although its presence is most likely associated with the introduction of foreign goods through the intercontinental commerce in the port area. Another South American species of this genus, *M. violacea* Cav., like *M. chilensis* not really weedy, was formerly introduced as wool alien in the British Isles (Ryves *et al.*, 1996).

***Nassella tenuissima*** (Trin.) Barkworth, Taxon 39(4): 612. 1990.

(syn.: *Stipa tenuissima* Trin.)

Poaceae

TARRAGONA: Reus, barranc del Roquí at carrer del Migdia, 31TCF3956, canal bank, cracks in concrete, five clumps [also observed –planted and escaped– in the nearby av. Riudoms], 7 September 2018, *F. Verloove* 13342 (BR).

Not previously reported from Tarragona province. Ephemeral-naturalizing.

*Nassella tenuissima*, a native of South America (mainly Argentina and Chile; Verloove, 2005a), is much grown these days as an ornamental grass, especially in dry and warm climates. Its caryopses are easily wind-dispersed and, as a result, this species readily escapes wherever cultivated, often naturalizing subsequently or even becoming invasive (e.g. Jacobs *et al.*, 1998). Surprisingly, it was only recently recorded for the first time in Spain, i.e. from Viladecans in Barcelona province (Álvarez *et al.*, 2016), subsequently also from Huelva in Andalucía (Sánchez Gullón *et al.*, 2017). It is here reported for the second time from Catalonia.

Several (macro-) morphologically similar species are grown as ornamentals. At least one of these, *Jarava ichu* Ruiz & Pav., was recently also reported as an escape from cultivation in Spain (Sánchez Gullón & Verloove, 2016).

***Panicum capillare* L. subsp. *hillmanii* (Chase) Freckmann & Lelong, Sida 20(1): 171. 2002.**

(syn.: *P. hillmanii* Chase)

Poaceae

TARRAGONA: Cubelles, avinguda Pompeu Fabra close to riera de Foix, 31TCF8861, foot of fence on the verge of rough ground, scattered individuals, 6 September 2018, *F. Verloove* 13360 (BR).

Not previously reported from Spain. Ephemeral.

This North American weed is naturalized in parts of Europe (e.g. Jauzein, 1992; Verloove, 2001) but often passes unnoticed, as a result of confusion with *Panicum capillare* s.str. Compared with the latter it has a lower floret with a well-developed palea that is at least ½ the length of the upper lemma (1-1,5 mm long). The upper lemma is plump (width 1,1-1,3 mm), dark brown at maturity and has two conspicuous, lunate swellings at base. It is here reported for the first time from Spain but it might have been overlooked before.



Figure 6. *Paraserianthes lophantha*. Cambrils, September 2018, *F. Verloove*.

***Paraserianthes lophantha* (Willd.) I.C. Nielsen, Bull. Mus. Natl. Hist. Nat., B, Adansonia, sér. 4, 5(3): 326. 1984 [“1983”].**

(syn.: *Albizia lophantha* (Willd.) Benth.) (Fig. 6)

Fabaceae

TARRAGONA: Cambrils, riera d’Alforja immediately N of AP-7 motorway, 31TCF3549, rough ground, a single individual, 6 September 2018, *F. Verloove* s.c.; Mont-Roig del Camp, Miami Platja, av. Zaragoza, 31TCF2542, rough ground, a single individual, 18 September 2018, *F. Verloove* s.c.

Not previously reported from Tarragona province. Ephemeral, potentially invasive.

*Paraserianthes lophantha* occurs naturally along the southwest coast of Western Australia. It is grown in agroforestry systems and also as an ornamental and easily reproduces, especially from seed. It now has become a serious weed in parts of Australia where it is not indigenous, as well as in New Zealand, South Africa, the Canary Islands and Chile (numerous references).

In the Iberian Peninsula, this species has been known from Portugal (Almeida & Freitas, 2006) as well as from various regions in Spain (Andalucía, Balearic Islands, Comunitat Valenciana, Canary Islands; Dana *et al.*, 2003). Recently, it was reported for the first time from Barcelona (Gómez-Bellver *et al.*, 2019b) and we here present a first record from Tarragona province. In both localities only a single, adult tree was observed; a future naturalization, however, is not unlikely, given the ease with which this species establishes itself in climatologically suitable areas.

***Plumbago auriculata* Lam., Encycl. 2(1): 270. 1786.**

Plumbaginaceae

TARRAGONA: Tarragona, Cala Romana, la Savinosa, 31TCF5654, 34 m, scattered plants in a disturbed pine-wood, in early flowering (with *Pistacia lentiscus* and some non-native plants such as *Aptenia cordifolia*, *Aloe maculata* and *Senecio angulatus*), 9 July 2018, *C. Gómez-Bellver*, *N. Ibáñez*, *J. López-Pujol* & *C. Burguera* s.c.; Botarell, barranc de Riudecanyes N of T-310 road, 31TCF3355, slope of riverbed, 9 September 2018, *F. Verloove* s.c.; Vila-seca, next to where the railway overpasses the road N-340, 31TCF4552, 33 m, on the edge of a small pinewood, a group of several individuals (15-20m<sup>2</sup>) in flowering, 16 November 2014, *J. López-Pujol* s.c.

Not previously reported from Tarragona province. Ephemeral-naturalizing.

A South African native, this shrubby climber is commonly cultivated as an ornamental in Mediterranean climate types across the world. It is often seen as an escape from or relic of cultivation. In Catalonia it was reported in a few places near Barcelona (Casasayas, 1989) and recently from the northernmost littoral area (Aymerich, 2019). It has also been reported from the Balearic Islands (Guillot & Sáez, 2014; Sáez *et al.*, 2016).

***Podranea ricasoliana* (Tanfani) Sprague, Fl. Cap. Flora Capensis 4(2): 450. 1904.**

Bignoniaceae

TARRAGONA: l’Ametlla de Mar, urb. Tres Cales, 31TCF1531, 50 m, degraded *Pinus halepensis* forest next to a house, clonal patch covering an area of ca 60 m<sup>2</sup>, 4 November 2017, *P. Aymerich* s.c.

Not previously reported from Tarragona province. Naturalized.

This record is the first in southern Catalonia. In Catalonia this species was only reported before from a few coastal sites, in Barcelona and Empordà counties (Mallol & Maynés, 2008; Aymerich, 2019; Gómez-Bellver *et al.*, 2019c).



Figure 7. *Proboscidea louisianica*. El Perelló, September 2018, F. Verloove.

*Proboscidea louisianica* (Mill.) Thell., Mém. Soc. Sci. Nat. Math. Cherbourg 38: 480. 1912. (Fig. 7)  
Martyniaceae

TARRAGONA: El Perelló, barranc de les Comes at Spar supermarket, 31TCF0727, on top of ruderalized slope, small population, 11 September 2018, F. Verloove s.c.

Not previously reported from Tarragona province. Ephemeral-naturalizing.

Paiva *et al.* (2001) report *Proboscidea louisianica* from West and Central Iberian Peninsula, in Spain from Badajoz, Cáceres, Madrid and Salamanca provinces. In addition, this species has also been reported from the Balearic Islands (Menorca; Fraga *et al.*, 2001), Sevilla (Moglia *et al.*, 2001) and Valencia (Conca *et al.*, 2002). It is a weedy species and seems to increase lately. It is here reported for the second time from the continental part of Catalonia. Gómez-Bellver *et al.* (2019b) previously reported it from the Barcelona area.

*Sedum palmeri* S. Watson, Proc. Amer. Acad. Arts 17: 355. 1882.

Crassulaceae

TARRAGONA: Vila-seca, carrer de la Font, 31TCF4452, 43 m, one plant in flower on a roof gutter of an old private house, with *Kalanchoe ×houghtonii*, 12 March 2019, J. López-Pujol (BC 973591).

Not previously reported from Tarragona province. Ephemeral.

This Mexican stonecrop was only previously reported from two localities in Catalonia, from Berga and Sant Feliu de Codines (both in Barcelona province) under circumstances identical to those seen in Vila-seca, i.e. growing on roofs (Aymerich & Sáez, 2015). Widely cultivated as an ornamental species, new locations are likely to be found in the near future.

*Solanum bonariense* L., Sp. Pl. 1: 185. 1753.

Solanaceae

TARRAGONA: Cambrils, camí de Sant Joan close to riera del Regueral, 31TCF3749, talus slope, a naturalized population, 7 September 2018, F. Verloove s.c.

Not previously reported from Tarragona province. Naturalized.

This South American ornamental shrub is known from rather numerous Spanish provinces, including several in Catalonia (Sobrino Vesperinas & Sanz Elorza, 2012). We have confirmed records from, for instance, Girona and Barcelona. However, it was not yet reported before from Tarragona. In Cambrils an obviously naturalized population was noticed on a sun-exposed talus slope.



Figure 8. *Tipuana tipu*. Cambrils, September 2018, F. Verloove.

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

Fabaceae

TARRAGONA: Mont-roig del Camp, riera de Riudecanyes, 31TCF3248, 30 m, talus slope, one reproductive individual 3 m tall, 5 November 2017, P. Aymerich s.c.; Cambrils, railway station, bridge over riera d'Alforja, 31TCF3648, crack in concrete, a single self-sown individual, 6 September 2018, F. Verloove s.c.; Cambrils, camí de Sant Joan close to riera del Regueral, 31TCF3749, roadside, a single self-sown individual, 7 September 2018, F. Verloove s.c.; Cambrils, drive-out of A-7 road, 31TCF3549, roadside, scattered self-sown individuals, 15 September 2018, F. Verloove s.c. [already present here in 2012 as seen on Google Streetview]; Mont-Roig del Camp, Miami Platja, barranc de la Porquerola N of N-340 road, 31TCF2944, talus slope, a single self-sown individual, 18 September 2018, F. Verloove s.c.

Not previously reported from Tarragona province. Ephemeral-naturalizing, potentially invasive.

*Tipuana tipu* is native in South America but widely grown elsewhere as an ornamental tree. It produces huge amounts of fruits that are very easily wind-dispersed. As a result, it readily naturalizes wherever planted and often becomes an undesirable weed. Invasive behavior has been reported from several countries, including South Africa and Australia. *T.*

*tipu* is at the beginning of the naturalization process in the Canary Islands (Verloove, 2017).

In the Iberian Peninsula it is also frequently planted but its escape from cultivation appears to be recent. It was reported before from Alicante (Sánchez Gullón *et al.*, 2017). From Catalonia there apparently is only one previous record: Gómez-Bellver *et al.* (2019b) report this species from two localities in the city of Barcelona. A future naturalization seems almost inevitable.

***Tradescantia pallida*** (Rose) D.R. Hunt, Kew Bull. 30(3): 452. 1975.

Commelinaceae

TARRAGONA: Tarragona, carreró H, 31TCF5654, on the verge of degraded woodland, few plants, probably from discarded garden debris, 16 September 2018, *F. Verloove s.c.*

Not previously reported from Tarragona province. Ephemeral.

This species, a native of the Gulf Coast region of eastern Mexico, is widely grown as an ornamental groundcover plant. It easily establishes itself wherever introduced with garden debris. There is only one previous record from Catalonia, also as an ephemeral alien (Aymerich, 2016a).



Figure 9. *Vitis x ruggerii*, Riudecanyes, September 2018, F. Verloove.

***Vitis x ruggerii*** Ardenghi, Galasso, Banfi & Lastrucci, Phytotaxa 166(3): 187. 2014.

(*V. berlandieri* Planch.  $\times$  *V. rupestris* Scheele) (Fig. 9)  
Vitaceae

TARRAGONA: Riudecanyes, Riudecanyes reservoir, 31TCF2755 and 2855, wood- and shrubland, common, 10 September 2018, *F. Verloove* 13363 (BR).

Not previously reported from Tarragona province. Naturalized-invasive.

This hybrid, of putative *V. berlandieri*  $\times$  *rupestris* parentage, has been recorded twice before in continental Catalonia, at first as casual in the Pyrenees area (Aymerich, 2013). At that time a name for this hybrid was not yet available (Ar-

denghi *et al.*, 2014). Subsequently, it was also reported from el Moianès in Barcelona province (Mercadé, 2016). More or less at the same time it was detected for the first time in the Balearic Islands as well (Mallorca; Sáez *et al.*, 2016). In Riudecanyes this hybrid is abundantly naturalized on the W side of the reservoir.

### Miscellaneous notes

New records for non-native taxa that have been reported before from Tarragona province.

***Abutilon grandifolium*** (Willd.) Sweet (Malvaceae)

TARRAGONA: Montbrió del Camp, N-310 road at km 11.5, 31TCF3153, roadside ditch, a single clone, 6 September 2018, *F. Verloove s.c.*; Mont-Roig del Camp, Miami Platja, av. Zaragoza, 31TCF2542, rough ground and roadside, scattered individuals, 18 September 2018, *F. Verloove s.c.*

In Catalonia previously reported from Barcelona province (Baix Llobregat, Verloove & Sánchez-Gullón, 2008; Álvarez *et al.*, 2016) and Maresme, (Gómez-Bellver *et al.*, 2019b) and Tarragona province (Aymerich, 2016b). In the Montbrió del Camp locality, the species is established at least since 2013, according to a picture available at <http://biodiversidadvirtual.org> (A. García, 20 May 2013).

***Aloe x delaetii*** Radl. (Asphodelaceae)

TARRAGONA: l'Ametlla de Mar, Tres Cales, 31TCF1531, 40 m, disturbed Mediterranean shrubland next to a urbanization street, 3 April 2019, *P. Aymerich s.c.*; l'Ametlla de Mar, Calafat, 31TCF1933, 20 m, in a disturbed semi-natural community very close to the village, accompanied by xenophytes such as *Austrocylindropuntia subulata*, *Aloe perfoliata*, *Kalanchoe x houghtonii* and *Opuntia ficus-indica*, 19 July 2016, *C. Gómez-Bellver, N. Nualart & J. López-Pujol s.c.*; Cambrils, riera d'Alforja, 31TCF3550, 50 m, degraded *Pinus halepensis* wood, 3 April 2019, *P. Aymerich s.c.*; Tarragona, Monnars, 31TCF5755, degraded woodland near residential area, a single shrub, 16 September 2018, *F. Verloove s.c.*; l'Ampolla, carrer Barranc San Pere, 31TCF0521, steep slope, scattered individuals, 17 September 2018, *F. Verloove s.c.*; Creixell (Creixell Mar), near the road N-340, 31TCF6958, 8 m, very small population on a roadside, accompanied by other alien plants including *Aloe vera* and *Kalanchoe x houghtonii*, 2 May 2016, *Jordi López-Pujol s.c.*

This is a fairly common garden escape in the coastal fringe of southern Catalonia (e.g. Aymerich & Gustamante, 2015; Aymerich, 2016b), but always as single or very few individuals. Truly naturalized populations are not yet known.

***Aloe vera*** (L.) Burm. f. (Asphodelaceae)

TARRAGONA: Mont-roig, barranc de Olivera at carrer Aureli Escarré, 31TCF3049, on the verge of dry riverbed, 12 September 2018, *F. Verloove s.c.*; Miami Platja, barranc de



la Porquerola N of N-340, 31TCF2944, dry talus slope, 18 September 2018, *F. Verloove* s.c.; Vila-seca, next to where the railway overpasses the road N-340, 31TCF4552, 34 m, on the edge of a small pinewood, a small clump of rosettes, 16 November 2014, *J. López-Pujol* s.c.; Creixell (Creixell Mar), near the road N-340, 31TCF6958, 8 m, two clumps of individuals on a roadside, accompanied by other alien plants including *Aloe ×delaetii* and *Kalanchoe ×houghtonii*, 2 May 2016, *Jordi López-Pujol* s.c.; Cambrils, riera d'Alforja, 31TCF3452, 95 m, a small population with two individuals flowering (with orange flowers) on the margin of a pinewood, growing together with *Aloe perfoliata* and *Agave americana*, 24 November 2014, *Jordi López-Pujol* s.c.

This species, although commonly cultivated, is very rarely observed in the wild in Catalonia. Aymerich (2017) cited a few recent observations, all from Tarragona province. We also know this species from additional localities in other Catalan provinces:

GIRONA: Capmany, near the road GI 602, 31TCF0896, 147 m, roadside, one individual in a disturbed area, *C. Gómez-Bellver*, *J. López-Pujol* & *Neus Nualart* s.c.; BARCELONA: Barcelona, Collserola hill, 31TDF2684, 222 m, one plant formed by three rosettes of 60-70 cm with 7 plants of *Agave americana* var. *marginata* similar in size, in an open dry grassland above the street Santíssima Trinitat del Mont, 3 January 2016, *C. Gómez-Bellver* s.c.

#### *Amaranthus palmeri* S. Watson (Amaranthaceae)

TARRAGONA: Tarragona, port area, C-31B road, 31TCF4952, roadside, very common, 9 September 2018, *F. Verloove* 13343 (BR); Tarragona, port area, riu Francolí E of A-27 road, rough ground, 9 September 2018, *F. Verloove* s.c.; Amposta towards Deltebre, close to T-3454 road, 31TCF0009, track alongside river Ebro, scattered individuals, 11 September 2018, *F. Verloove* 13362 (BR); Tarragona, central reservation of A-7 road near to riu Francolí, 31TCF5154, common, 19 September 2018, *F. Verloove* s.c.

*Amaranthus palmeri* was first reported from Spain in Barcelona and Sevilla provinces (Carretero, 1990), subsequently also from Girona (Verloove, 2003) and Lleida (Verloove & Sánchez Gullón, 2008). In the latter area *A. palmeri* locally has become an agricultural weed, especially in maize fields (Recasens & Conesa, 2011). In Tarragona it was once reported before (Casasayas, 1989) but only male individuals were seen then. In 2018 its presence was confirmed around the city of Tarragona. It locally has become very common (both male and female plants) and obviously is very well-established. It also occurs further south, in the valley of river Ebro, and may have been overlooked elsewhere.

This species is unmistakable due to being dioecious, with an often very long main inflorescence branch that is erect or slightly drooping at apex and interrupted at base. Compared with another weedy dioecious amaranth that is recently spreading in Europe [*A. tuberculatus* (Moquin-Tandon) J. D. Sauer] bracts of pistillate flowers are longer than tepals (4-6

mm long), with a long-excurrent midrib (Mosyakin & Robertson, 2003).

#### *Asparagus setaceus* (Kunth) Jessop (Asparagaceae)

TARRAGONA: Salou, Cap Salou, angle between ctra. de la Costa and ctra. del Far, 31TCF4547, degraded pine wood, several naturalized populations, 13 September 2018, *F. Verloove* s.c.: la Savinosa, 31TCF5654, 42 m, scattered plants in a disturbed pinewood, 9 July 2018, *C. Gómez-Bellver*, *N. Ibáñez*, *J. López-Pujol* & *C. Burguera* s.c.

The above records confirm the recent local naturalization of this ornamental species in Catalonia. It was previously reported in similar circumstances from l'Ametlla de Mar (Aymerich & Gustamante, 2015).

#### *Chloris truncata* R. Br. (Poaceae)

TARRAGONA: Mont-roig del Camp, Mainou, N-340 road at Galp petrol station, 31TCF3146, disturbed lawn, common, 9 September 2018, *F. Verloove* 13330 (BR).

This Australian weed is commonly naturalized in Cambrils since several years (Verloove, 2005b). Subsequently, it was also found near Barcelona (Sánchez Gullón & Verloove, 2015) and in Cáceres (Vázquez, 2008). In Tarragona it is now spreading to neighboring municipalities. In addition to the locality mentioned above, it was also seen as an abundant orchard weed between Cambrils and Montbrió del Camp, alongside T-312 road (between km 3-4).

#### *Cotyledon orbiculata* L. (Crassulaceae)

TARRAGONA: Cambrils, riera d'Alforja, 31TCF3550, 50 m, degraded *Pinus halepensis* wood, 3 April 2019, *P. Aymerich* s.c.

This is a very rare garden escape in southern Catalonia (Aymerich & Gustamante, 2015; Aymerich, 2016b). In Cambrils a well-developed individual of the green leaved form (sometimes known as *Cotyledon macrantha*) was observed. It is much less frequent than the typical, glaucous leaved form.

#### *Crassula multicava* Lem. (Crassulaceae)

TARRAGONA: l'Ampolla, el Baconer, 31TCF0720, 15 m, a dense naturalized population under *Pistacia lentiscus* scrub, covering 10 m<sup>2</sup>, next to an urbanized area, 26 January 2019, *P. Aymerich* s.n.; Salou, punta del Lari, 31TCF4447, 13 m, on a coastal cliff, accompanied by *Crassula ovata* and *Kalanchoe ×houghtonii*, 30 April 2018, *J. López-Pujol* s.c.

This *Crassula* has been reported from several places in Catalonia, from Barcelona, Girona and Tarragona provinces (Aymerich & Gustamante, 2015; Aymerich, 2016b; 2017; Gómez-Bellver *et al.*, 2019a), although it is more commonly found further south in Valencia (Guillot *et al.*, 2009). Only in two places discrete naturalized populations in semi-natural habitats are known, in both cases in *Pistacia lentiscus* shrub-

land (this new locality in l'Ampolla and another in Penedès area; Aymerich, 2016b).

***Datura innoxia* Mill. and *D. wrightii* Regel (Solanaceae)**

*D. innoxia*:

TARRAGONA: l'Ametlla de Mar, next to the cemetery, 31TCF1528, 15 m, olive-carob field, 1 December 2016, *P. Aymerich* s.c.; l'Ametlla de Mar, camí del Pinar, 31TCF1529, rough ground, 10-15 individuals, 22 May 2016, *P. Aymerich* s.c.; Cambrils, riera de Riudecanyes, 31TCF3346, 5 m, rough ground, 5 individuals, 4 November 2017, *P. Aymerich* s.c.; Cambrils, riera de Riudecanyes between railway bridge and sea, 31TCF3346, 6 September 2018, *F. Verloove* s.c.; Riudoms, riera de Maspujols, 31TCF3851, dry riverbed, with *D. wrightii*, 7 September 2018, *F. Verloove* s.c.; l'Ampolla, barranc de Sant Pere, 31TCF0519, 11 September 2018, *F. Verloove* s.c.

*D. wrightii*:

TARRAGONA: Riudoms, riera de Maspujols, 31TCF3851, dry riverbed, a single individual, 7 September 2018, *F. Verloove* s.c.; Montbrió del Camp, riera Riudecols S of T-310 road, at confluence with riera d'Alforja, 31TCF3455, dry riverbed, a single individual, 9 September 2018, *F. Verloove* s.c.; Botarell, riera de Riudecols N of T-3136 road, 31TCF3256, dry riverbed, a single individual, 10 September 2018, *F. Verloove* s.c.; Mont-Roig del Camp, Miami Platja, drive-out N-340, 31TCF2540, worked-up road verge, several individuals, 10 September 2018, *F. Verloove* s.c.; Hospitalet de l'Infant, cala d'Oques, 31TCF2338, bare sandy area, scattered individuals, 15 September 2018, *F. Verloove* s.c.

These two species have long been confused, not only in Spain but also elsewhere in southern Europe (Verloove, 2008). Many claims of *D. innoxia* in fact belonged to *D. wrightii*, for instance in France (Tison *et al.*, 2014). Gallego (2012a) cited *D. wrightii* only from Huelva, Huesca and Madrid whereas *D. innoxia* was given from numerous provinces throughout the Iberian Peninsula. Both species, however, occur in Tarragona province, *D. wrightii* being predominant (see also Aymerich & Sáez, 2015).

***Delairea odorata* Lem. (Asteraceae)**

TARRAGONA: Tarragona, Cala Romana, la Savinosa, 31TCF5654, 32 m, at the bottom of a stone wall, 9 July 2018, *C. Gómez-Bellver*, *N. Ibáñez*, *J. López-Pujol* & *C. Burguera* s.c.; Tarragona, Monnars, 31TCF5755, degraded woodland near residential area, a naturalized population, 16 September 2018, *F. Verloove* s.c.

This is a very rare escape from cultivation in the southern part of Catalonia with few previous observations (Aymerich, 2016b).

***Digitaria violascens* Link (Poaceae)**

TARRAGONA: Salou, la Pineda, park at passeig de Pau Casals, 31TCF4749, irrigated lawn, frequent, 9 September

2018, *F. Verloove* 13354 (BR); Salou, roundabout at carrer Barcelona, 31TCF4350, irrigated lawn, 13 September 2018, *F. Verloove* s.c.

This subtropical/warm-temperate weed has been repeatedly recorded in Spain (Verloove & Sánchez Gullón, 2008), especially in irrigated lawns. Although known from numerous localities in Catalonia, it was only reported once before from Tarragona province. Pyke (2008) observed it in urban lawns in the city of Tarragona.

***Diplachne fusca* (L.) P. Beauv. ex Roem. & Schult. subsp. *uninervia* (J. Presl) P.M. Peterson & N. Snow (syn.: *Leptochloa fusca* (L.) Kunth subsp. *uninervia* (J. Presl) N. Snow; *Leptochloa uninervia* (J. Presl) Hitchc. & Chase) (Poaceae)**

TARRAGONA: Salou, la Pineda, close to carrer de Plácido Domingo, 31TCF4749, shallow depression close to the sea, a large population, 9 September 2018, *F. Verloove* 13355 (BR).

This weed is naturalized since several years in various parts of Spain. It is, however, always strictly confined to rice fields (e.g. Vilar *et al.*, 2018). It is here reported for the first time from a non-artificial habitat.

***Erythrostemon gilliesii* (Wall. ex Hook.) Klotzsch (syn.: *Caesalpinia gilliesii* (Wall. ex Hook.) D. Dietr.) (Fabaceae)**

TARRAGONA: Cambrils, riera de Maspujols at railway bridge, 31TCF3850, rough ground, a single individual, 7 September 2018, *F. Verloove* s.c.; 31TCF1833, l'Ametlla de Mar, Calafat, av. Mediterrània, rough ground, three individuals, 8 September 2018, *F. Verloove* s.c.; Vila-seca, carrer de la Font, 31TCF4452, 41 m, one individual that appeared spontaneously in an old private house, flowering at least since 2014, *J. López-Pujol* s.c.

These are new records of a species that, in Catalonia, was only known so far from Aldover (Montsià county), near river Ebro (Royo, 2006) and Anglesola in Lleida province (Gómez-Bellver *et al.*, 2019b). One of us also knows this species from an additional locality:

BARCELONA: Abrera, south of polígon industrial Sant Ermengol, 31TCF0896, roadside, one reproductive individual, seen many times since 2015, *P. Aymerich* s.c.

***Gazania rigens* (L.) Gaertn. (incl. hybrids) (Asteraceae)**

TARRAGONA: Mont-roig del Camp, Miami Platja, passeig Marítim, 31TCF2742, foot of coastal cliffs, well-established but only locally, 18 September 2018, *F. Verloove* 13361 (BR).

The plants of this population have fairly typical characters of *Gazania ×splendens* (i.e., linear outer bracts). This hybrid was not previously reported in Catalonia, although such morphotypes probably are the most commonly naturalized 'forms' of *Gazania*, as is observed further south in Valencia (Laguna & Ferrer, 2013).

The treatment of *Gazania* as a naturalized alien in the Iberian Peninsula is controversial. We prefer to treat all naturalized *Gazania* as *G. rigens* s.l. This seems the most practical solution and is in accordance with data of Howis *et al.* (2009), because clear taxa cannot be recognized within the so-called “K+R complex” (i.e., all “taxa” and forms reported as naturalized in Europe: *G. rigens*, *G. linearis*...). *Gazania* × *splendens* is a name used in the horticultural trade for putative hybrids between plants of this complex; thus it can be named also *G. rigens* s.l. if we consider this to be the priority specific name for the complex.

In addition to the population found in Miami Platja more or less typical *Gazania* × *splendens* forms have also been observed in northern Catalonia (Girona province), for instance in Llançà, Punta d'en Gasparó, 31TEG1391, coastal rocks, 5 May 2016, *P. Aymerich* s.c.

*Leucaena leucocephala* (Lam.) de Wit subsp. *glabrata* (Rose) Zárate (Fabaceae)

TARRAGONA: l'Ametlla de Mar, urb. Tres Cales, 31TCF1531, 50 m, degraded *Pinus halepensis* forest next to a house, dozens of individuals, many reproductives, 4 November 2017, *P. Aymerich* s.c.; la Savinosa, near the road N-340, 31TCF5654, 22 m, numerous plants in flower and fruiting, on both sides of the road, in a conspicuous process of naturalization, 9 July 2018, *C. Gómez-Bellver*, *N. Ibáñez*, *J. López-Pujol* & *C. Burguera* s.c.

In Catalonia this species was long considered to be ephemeral and only known from a single locality in Tarragona (Casasayas 1989). Gómez-Bellver *et al.* (2019c) recently reported it from Roda de Berà, 20 km northeast of Casasayas' locality. The populations that were recently discovered in Tarragona and Barcelona provinces listed above and below represent the first naturalization events for this species in the area. There are more reports of it further south, mostly in Valencia and Alicante, where it is well-established and increasing (e.g. Herrero-Borgoñón, 2007; Generalitat Valenciana, 2014; Sánchez Gullón *et al.*, 2017).

We also know this species from an additional locality in a neighboring province:

BARCELONA: la Foixarda, Montjuïc hill, 31TDF2879, 57 m, several individuals, including some adults in bloom and fruiting, 6 April 2018, *C. Gómez-Bellver*, *N. Ibáñez* & *J. López-Pujol* s.c.

*Orbea variegata* (L.) Haw. (Syn.: *Stapelia variegata* L.) (Apocynaceae)

TARRAGONA: l'Ametlla de Mar, urbanization Tres Cales north, 31TCF1432, 55 m, Mediterranean shrubland next to houses, a single plant, 4 November 2017, *P. Aymerich* s.n.; Mont-roig del Camp, riera de Vilanova, 31TCF3049, gravelly track alongside dry riverbed, few plants, 12 September 2018, *F. Verloove* s.c.

This species was recently recorded for the first time in Catalonia (l'Ametlla de Mar, Almadrava; Aymerich & Gustamante, 2016). In this locality its presence was confirmed

in 2018; moreover, it was recorded in 2017 and 2018 in two additional localities in Tarragona province. In the Iberian Peninsula *Orbea variegata* was also reported from several sites in Valencia and in Western Andalucía (e.g. Sánchez Gómez *et al.*, 2005). Further north, in France, it is known also from Côte d'Azur (Tison *et al.*, 2014).

*Paspalum notatum* Flügge (Poaceae)

TARRAGONA: Deltebre, la Cava, 31CF0909, disturbed lawn adjacent to river Ebro, 17 September 2018, *F. Verloove* 13339 (BR).

This South American weed is known from Tarragona province (Cambrils) since 2003 (Verloove, 2005b). Since then it has been noticed on several occasions in widely scattered localities in Catalonia.

*Senecio pterophorus* DC. (Asteraceae)

TARRAGONA: l'Ametlla de Mar, les Tres Cales, barranc del Torrent del Pi, 31TCF1530, dry gravelly riverbed, many hundreds of individuals, 8 September 2018, *F. Verloove* 13352 (BR).

This South African weed is known since ca. two decades from Catalonia (Pino *et al.*, 2000). It is invasive and fast spreading. It was first recorded in the Barcelona area, subsequently also in Cambrils in Tarragona. The new record from l'Ametlla de Mar at present is the southernmost known occurrence of the species in the Iberian Peninsula.

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