

GEA, FLORA ET FAUNA

Contribution to the alien flora of the Balearic Islands

Jordi Serapio¹, Emilio Laguna², Carlos Gómez-Bellver^{3,4}, Luís Alberto Domínguez⁵, Filip Verloove⁶ & Llorenç Sáez⁷

¹C/ Metge Riera Ferrer, 16. 07800, Eivissa, Spain.

²Centro para la Investigación y la Experimentación Forestal de la Generalitat Valenciana (CIEF). Avda. Comarques del País Valencià, 114. 46930, Quart de Poblet, Valencia, Spain.

³Departament de Biologia Evolutiva, Ecologia i Ciències Ambientals. Universitat de Barcelona. Av. Diagonal, 643. 08028 Barcelona, Spain.

⁴Institut Botànic de Barcelona (IBB). CSIC-Ajuntament de Barcelona. Passeig. del Migdia, s/n. 08038 Barcelona, Spain.

⁵Departament de Biologia. Universitat de les Illes Balears. Spain.

⁶Meise Botanic Garden. Nieuwelaan. 38. 1860 Meise, Belgium.

⁷Systematics and Evolution of Vascular Plants (UAB). Associated unit to CSIC. Dept. BABVE, Faculty of Biosciences, Autonomous University of Barcelona. 08193, Bellaterra, Barcelona, Spain.

Author for correspondence: Llorenç Sáez. A/e: gymnesicum@yahoo.es

Rebut: 26.12.2022; Acceptat: 18.01.2023; Publicat: 31.03.2023

Abstract

This paper deals with 70 non-native vascular plants, 25 of which are reported for the first time from the Balearic Islands: *Agave attenuata*, *Aloe ×delaetii*, *Aloe ×nobilis*, *Campsis ×tagliabuana*, *Catalpa bignonioides*, *Chloris gayana*, *Dracaena draco*, *Euphorbia abyssinica*, *Ficus microcarpa*, *Ipomoea imperati*, *Leuzea repens*, *Lophocereus marginatus*, *Melaleuca viminalis*, *Monstera deliciosa*, *Opuntia monacantha*, *Opuntia pilifera*, *Opuntia robusta*, *Parthenocissus tricuspidata*, *Peganum harmala*, *Ruschia caroli*, *Salvia hispanica*, *Tradescantia fluminensis*, *Trichocereus macrogonus*, *Vachellia farnesiana* and *Vitis ×instabilis*. Moreover, 31 taxa are novelties for the flora of some islands. The occurrence of *Centranthus macrosiphon* (Valerianaceae) in eastern Mallorca is documented based on herbarium specimens collected by Francesc Barceló at the end of the 19th century.

Keywords: Non-native plants, Balearic Islands, Mediterranean Region.

Resum**Contribució a la flora al·lòctona de les Illes Balears**

Aquest treball tracta sobre 70 plantes vasculares al·lòctones, 25 de les quals són citades per primera vegada de les Illes Balears: *Agave attenuata*, *Aloe ×delaetii*, *Aloe ×nobilis*, *Campsis ×tagliabuana*, *Catalpa bignonioides*, *Chloris gayana*, *Dracaena draco*, *Euphorbia abyssinica*, *Ficus microcarpa*, *Ipomoea imperati*, *Leuzea repens*, *Lophocereus marginatus*, *Melaleuca viminalis*, *Monstera deliciosa*, *Opuntia monacantha*, *Opuntia pilifera*, *Opuntia robusta*, *Parthenocissus tricuspidata*, *Peganum harmala*, *Ruschia caroli*, *Salvia hispanica*, *Tradescantia fluminensis*, *Trichocereus macrogonus*, *Vachellia farnesiana* and *Vitis ×instabilis*. A més, 31 tàxons són novetat per a la flora d'algunes illes. La presència de *Centranthus macrosiphon* (Valerianaceae) a l'est de Mallorca està documentada a partir d'exemplars d'herbari recollits per Francesc Barceló a finals del segle XIX.

Paraules clau: plantes al·lòctones, Illes Balears, Regió Mediterrània.

Introduction

In the past two decades, the knowledge of the non-native flora of the Balearic Islands has considerably improved, especially since the publication of a first comprehensive overview of the non-native flora of the archipelago (Moragues & Rita, 2005) and subsequent contributions. However, even then, the available information about alien plants in the Balearic archipelago is still relatively scarce, especially if compared to the eastern Iberian Peninsula. In this contribution new chorological data are provided for species, subspecies and hybrids that are either firstly reported from the Balearic Islands or that are otherwise of interest.

Material and methods

Records of alien plants from the Balearic Islands were obtained by the authors during the last years. These records were checked for novelties against the information published in floristic treatments and accounts of plant distributions (Bioatles: <https://bioatles.caib.es/>). The names of localities are based on the Balearic topographic maps (IDEIB: <https://ideib.caib.es/visor/>). Digital photographs and GPS coordinates were taken in the field by the authors. For some species, voucher specimens are preserved at BC, BR, COI and P or in the private herbaria of the authors. The species are arranged in alphabetical order of genera. Scientific names preceded by

two asterisks (**) correspond to new taxa for the flora of the whole Balearic Islands, while those preceded by a single asterisk (*) are novelty for a single island. For each taxon the following data are provided: the name of the island, municipality, location, UTM 1x1 km (ETRS89), altitude, habitat, date of observation and its estimated degree of naturalization (Richardson *et al.*, 2000). For some species, mainly those that are new to the flora of the Balearic Islands, additional information (origin, overall distribution, etc.) is also provided.

Results and discussion

**Acacia saligna* (Labill.) H.L. Wendl.

Formentera: Torrent de Cala Saona, 31SCC6083, some individuals growing in a burnt forest area, 16 m, 31 May 2019, J. Serapio (pers. herb.).

New for Western Balearic Islands.

Previously reported from northern Mallorca (Gil *et al.*, 2018).

***Agave attenuata* Salm-Dyck

Mallorca: Alcúdia, next to northern boundary of S'Albufera, 31SEE0907, 1 m, 16 Aug 2019, L. Sáez (Fig. 1).

New for the Balearic Islands. Casual.

Although not widely naturalized, this unarmed *Agave*, native to Mexico, is one the most widely cultivated *Agave* species in domestic gardens globally (Thiede *et al.*, 2019). In the indicated locality, the species perhaps was initially planted (there or in the vicinity), and the abandonment gave rise to a small population (seven individuals) that could be in the process of a local naturalization.



Figure 1. *Agave attenuata* Salm-Dyck; Mallorca, Alcúdia. Photo: L. Sáez.

**Agave fourcroydes* Lem.

Eivissa: Torrent d'en Capità, 31SCD6309, 48 m, 3 Dec 2020, J. Serapio (Fig. 2). Menorca: Binibèquer, 31SFE0608, 48 m, 10 June 2017, C. Gómez-Bellver (photo).

New for Western Balearic Islands.

Previously reported from Mallorca and Menorca (Sáez *et al.*, 2016).



Figure 2. *Agave fourcroydes* Lem.; Eivissa, Torrent d'en Capità. Photo: J. Serapio.

**Agave sisalana* Perrine

Eivissa: Puig des Molins, 31SCD6307, 16 m, 21 April 2017, J. Serapio (Photo). A large population on a coastal cliff.

New for Western Balearic Islands. Naturalized.

Previously reported from Mallorca (Sáez *et al.*, 2016).

**Alcea rosea* L.

Eivissa: Carretera de Sant Joan de Labritja, 31SCD6919, 59 m, 7 May 2018, J. Serapio (pers. herb.; Fig. 3).

New for Western Balearic Islands. Casual.

The species was previously known from Mallorca (Palma, a S'Aigo Dolça, 22 Sept 1947, Palau Ferrer, MA 77349) and Menorca (Fraga *et al.*, 2004). Some individuals growing along roadsides were found in Sant Joan de Llabritja.

***Aloe ×delatetii* Radl

Menorca: Alaior, 31SEE9720, one plant with few rosettes, in a ruderal place in an open parking area, 107 m, 9 June 2017, C. Gómez-Bellver (Fig. 4).

New for the Balearic Islands. Casual.

This horticultural hybrid was obtained from a crossing of *Aloiampelos ciliaris* (Haw.) Klopper & Gideon F. Sm. (formerly *Aloe ciliaris* Haw.) and *Aloe succotrina* Lam.



Figure 3. *Alcea rosea* L.; Eivissa, Sant Joan de Labritja. Photo: J. Serapio.

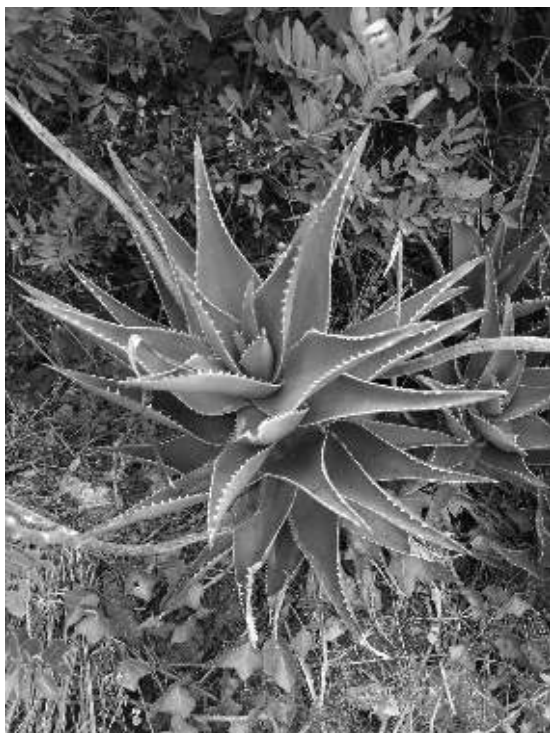


Figure 4. *Aloe x delaetii* Radl; Menorca, Alaior. Photo: C. Gómez-Bellver.

****Aloe maculata* All.**

Formentera: Platges de Llevant, 31SCC6489, 8 m, 29 May 2019, J. Serapio (Photo). A large group growing in maritime sands.

New for Western Balearic Islands. Naturalized.

Known as fully naturalized from Mallorca (Gil & Seguí, 2015) and Menorca (Fraga *et al.*, 2004).

*****Aloe x nobilis* Haw.**

Mallorca: Fornalutx, Puig des Cocons, 31SDE7604, 362 m, rocky places, 15 June 2021, L. Sáez (Fig. 5).

New for the Balearic Islands. Casual.

According to Smith & Figueiredo (2015) the name *Aloe x nobilis* Haw. should be applied to what is arguably the most widely cultivated, named *Aloe* L. hybrid in Mediterranean Europe. Smith & Figueiredo (2015) suggested *A. mitrifomis* DC. and *A. arborescens* Mill., or *A. mitrifomis* and *A. brevifolia* Mill. as possible parents of *A x nobilis*. This hybrid has been reported from Eastern Iberian Peninsula (Guillot & Laguna, 2019; Aymerich, 2020; Sáez & Aymerich, 2021).



Figure 5. *Aloe x nobilis* Haw.; Mallorca, Puig des Cocons. Photo: L. Sáez.

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

Eivissa: Punta d'en Xinxó, Sant Josep de sa Talaia, 31SCD5115, a large group among coastal vegetation, 3 m, 13 Jan 2018, J. Serapio (photo).

New for Western Balearic Islands. Casual.

Previously reported from Mallorca (Gil & Seguí, 2015) and Menorca (Fraga *et al.*, 2004).

****Amaranthus muricatus* (Moq.) Hieron.**

Formentera: Sant Francesc, 31SCC6385, 32 m, roadsides, 6 June 2022, J. Serapio (pers. herb.).

New for Formentera. Naturalized.

Finschow *et al.* (1972) provided the first report of this species from Eivissa.

****Asparagus aethiopicus* L.**

Eivissa, Dalt Vila, 31SCD6407, growing on *Phoenix canariensis*, 27 Aug 2011, E. Laguna (photo).

New for Western Balearic Islands. Casual.

Previously reported as locally naturalized from Mallorca (Sáez *et al.*, 2016).

****Asparagus setaceus* (Kunth) Jessop**

Eivissa: Torrent de Ca na Parra, 31SCD5906, 28 m, July 2020, J. Serapio (pers. herb.).

New for Western Balearic Islands. Casual.

Several individuals were found growing in natural vegetation. This species was previously reported from a single locality in Mallorca (Ribas *et al.*, 2020).

*****Campsis ×tagliabuana* (Vis.) Rehder**

Menorca: south of Son Bou, near the beach, 31SEE9216, 12 m, 9 June 2017, C. Gómez-Bellver, some individuals dispersed in a herbaceous place (Fig. 6, above); road near the Polígon Industrial of Ciutadella, 31TEE7229, 30 m, 6 June 2017, C. Gómez-Bellver (BC 990445), a big prostrate plant escaped from cultivation occupying few square meters of a roadside, in flower (Fig. 6, below); Es Castell, Cales Fonts, 31SFE1014, 10 m, 10 June 2017, C. Gómez-Bellver, some plants fallen from a private garden on the edge of a small cliff now rooted in the rocks and flowering.

New for the Balearic Islands. Casual.

This ornamental hybrid resembles one of its parent species, *Campsis radicans* (L.) Bureau, also cultivated in our area. They can be distinguished because *C. radicans* has leaves with 9-11 leaflets and campanulate flowers clearly

longer than wide, up to 5 cm in diameter, while 7-11 leaflets and bell-shaped flowers with corollas of 5-6.5 cm in *C. ×tagliabuana* (López, 2001). According to Alexander (2011) this hybrid is now more common than either parent.

****Cardamine occulta* Hornem.**

Mallorca: Palma, 31SDD7083, Torrent de na Barbara, humid grassland, 49 m, 17 July 2021, L. Sáez (L. Sáez, pers. herb.).

New for Mallorca. Casual.

The species is primarily a weed of several kinds of humid anthropogenic vegetation and irrigated man-made habitats. *Cardamine occulta* probably originated in East Asia and was subsequently introduced to North and Central America, Oceania and Europe (Mandáková *et al.*, 2019). In Torrent de na Barbara about twenty reproductive specimens of *C. occulta* were observed along the edges of a disturbed stream on a linear distance of about 50 m. Fraga Aguimbau *et al.* (2016, sub *C. flexuosa* subsp. *debilis* O.E. Schulz) reported this taxon from Menorca as locally naturalized in waysides and urban areas.

*****Catalpa bignonioides* Walter**

Eivissa: Can Misses, 31SCD6208, 44 m, roadside, June 2014, J. Serapio (pers. herb.).

New for the Balearic Islands. Casual.

This species, endemic to the southeastern United States, is frequently cultivated for ornamental purposes. It has become locally naturalized in Europe and Asia (POWO, 2022). A single specimen was found in Can Misses growing along a roadside with an abundance of organic material.

***Centranthus macrosiphon* Boiss.**

Mallorca: in collibus pr. Artà, April 1871, Barceló “Herbarium Willkomm” (P 02716351 sub *C. macrosiphon*, characteristic handwriting by M. Willkomm); [Mallorca] Artà, April 1871 [F. Barceló] (COI 00054031) [characteristic handwriting by Barceló is on the label, who identified the plant as «*Centranthus orbicularis* Dufr.». «*C. macrosiphon* Boiss.» is given as synonym on the label (characteristic handwriting by M. Willkomm)].

Confirmed for the Balearic Islands. Casual.

Centranthus sect. *Calcitrapa* Lange includes two annual species (Richardson 1975): *C. calcitrapae* (L.) Dufr. [= *C. calcitrapa* subsp. *trichocarpus* I.B.K. Richardson] and *C. macrosiphon*. The latter species is endemic to southern Spain and northern Morocco (López Martínez & Devesa, 2007). It is also naturalized in Italy (Pignatti, 1982), Malta (Lanfranco, 2000) and casual in New Zealand (de Lange *et al.*, 2005). *Centranthus macrosiphon* was reported for the Balearic Islands (Barceló, 1879-1881; Marès & Vigineix, 1880; Dahlgren *et al.*, 1971) although the presence of the species in the archipelago was not subsequently accepted (see below).

Barceló (1879-1881) reported *C. macrosiphon* from eastern Mallorca: “Mallorca: en los montes de Artà. (V. V.)”. This author also indicated that the species was grown in gardens. A few years later *C. macrosiphon* was reported from Menorca by Marès & Vigineix (1880): «Talayot, termino de Torre



Figure 6. *Campsis ×tagliabuana* (Vis.) Rehder; Menorca: Son Bou (above); Ciutadella (below). Photos: C. Gómez-Bellver.

Fuda près Ciutadella»; however, the collection consists of *C. calcitrapa* (see Knoche, 1922). Although the flora of Menorca has been studied intensively in recent years, the presence of *C. macrosiphon* has not been detected.

The most recent report of *C. macrosiphon* for the Balearic Islands was provided by Dahlgren *et al.* (1971): “Top of the pass between San Telmo and S’Arraco, ca. 2 Km E of San Telmo. Garigue and olive yard, May 1969”. We have tried to study the voucher of this record, but no herbarium material has been located. However, this record seems reliable, and a chromosome count ($2n=32$) was obtained based on the Majorcan plants.

Centranthus macrosiphon is missing from the vascular plant checklists, floras and on-line databases of the Balearic Islands (Duvigneaud, 1979; Pla *et al.*, 1992; Bolòs & Vigo, 1996; Bolòs *et al.*, 2005; Moragues & Rita, 2005; Raab-Straube, 2017+). This contribution confirms the presence (at least in the past) of *C. macrosiphon* in the Balearic Islands. Our recent field work (but limited, due to the pandemic) has not allowed to relocate *C. macrosiphon* in the localities where it was reported in Mallorca. The nearest (at least historical) known location of *C. macrosiphon* is Barcelona (Fanlo, 1986; López Martínez & Devesa, 2007) where it should be considered an introduced species.

Cercis siliquastrum L.

Mallorca: Cala Millor, c. punta de n’Amer, Sant Llorenç des Cardassar, 31SED3282, 2 m, 13 Aug 2019, L. Sáez.

Casual.

Few occurrences are documented of this species in the Balearic Islands. It was reported by Gil *et al.* (2018) and Fraga-Arguimbau *et al.* (2022) from Mallorca and Menorca, respectively. In Cala Millor five young individuals were found growing in ruderal herbaceous vegetation near a road.

***Chloris gayana* Kunth

Eivissa: Sant Agustí des Vedrà, 31SCD5110, 63 m, roadsides, 20 Oct 2022, J. Serapio (pers. herb.).

New for Balearic Islands. Casual.

This grass is native to Africa (and perhaps also Macaronesia and the Arabian Peninsula), but now introduced and naturalized throughout the tropics and subtropics (Sun & Philips, 2006).

**Convolvulus sabatius* Viv.

Eivissa: Camí de Cala Llentrisca, 31SCD7903, 190 m, open scrub, 27 May 2022, J. Serapio (pers. herb.).

New for Western Balearic Islands. Casual.

Previously reported as locally naturalized from Menorca (Fraga-Arguimbau *et al.*, 2021).

**Cotyledon orbiculata* L.

Menorca: Ciutadella, 31TEE7229, 25 m, suburban areas, 1 June 2012, E. Laguna (photo).

New for Menorca. Casual.

Previously reported from Mallorca (Sáez *et al.*, 2016).

Cuscuta campestris Yunck.

Eivissa: Pla de ses Salines, 25 June 2022, J. Serapio (pers. herb.).

Confirmed occurrence in the Western Balearic Islands. Naturalized.

This holoparasitic species was listed (as doubtful) from Eivissa by Pla *et al.* (1992).

**Cylindropuntia pallida* (Rose) F.M. Knuth

Mallorca: Pòrtol, 31SDD8085, open scrub, 167 m, March 2020, L.A. Domínguez (Fig. 7)

New to Mallorca. Naturalized.

Previously reported from Eivissa and Formentera (Sáez *et al.*, 2016).



Figure 7. *Cylindropuntia pallida* (Rose) F.M. Knuth; Mallorca, Pòrtol. Photo: L.A. Domínguez.

Cyrtomium falcatum (L. f.) C. Presl

Eivissa: Avenc des Pouàs, Sant Antoni de Portmany, 31SCD5722, 210 m, 15 Feb 2019, J. Serapio (Fig. 8).

Second report for Western Balearic Islands. Naturalized.

Several reproductive specimens occur in a humid cave. Sáez *et al.* (2016) reported *C. falcatum* as casual from Eivissa. The species is also known from Mallorca (Alomar *et al.*, 2000) and Menorca (Fraga *et al.*, 2004).



Figure 8. *Cyrtomium falcatum* (L. f.) C. Presl; Eivissa, Avenc des Pouàs. Photo: J. Serapio.

*****Dracaena draco* (L.) L.**

Mallorca: Santa Eugènia, 31SDD8638, 145 m, open scrub, suburban areas, 14 Oct 2018, E. Laguna (Fig. 9).

New for Balearic Islands. Casual.

Dracaena draco is, in a strict sense, a North Atlantic species, native to the archipelagos of Madeira and the Canary Islands (Marrero & Almeida Pérez, 2012). This is widely cultivated as an ornamental plant that has been reported as casual or naturalized in some places in the Mediterranean region: Gibraltar (Cortés, 1994); Sicily (Domina & Amato, 2011) and Tunisia (El Mokni & Verloove, 2022).

At Santa Eugènia a few young self-sown individuals were observed that had apparently escaped from a nearby private garden. The specimens are growing along with several exotic species such as *Aeonium arboreum* Webb & Berthel., *A. haworthii* Webb & Berthel., *Agave americana* L., *Aloe maculata* All., *Austrocylindropuntia subulata* (Muehlenpf.) Backeb., *Kalanchoe ×houghtonii* D.B. Ward, *Opuntia* sp. pl. and *Pittosporum tobira* (Thunb.) W.T. Aiton.



Figure 9. *Dracaena draco* (L.) L.; Mallorca, Santa Eugènia. Photo: E. Laguna.

***Drosanthemum floribundum* (Haw.) Schwantes**

Eivissa: Tagomago islet, 31SCD8222, 18 m, coastal vegetation, 17 April 2018, J. Serapio (Photo).

Naturalized.

Previously reported from a single location in Eivissa (Sáez *et al.*, 2016).

****Echinochloa colona* (L.) Link**

Formentera: Porto-Salé de Dalt, 31SCC6286, 12 m, roadsides, 4 Sept 2022, J. Serapio (pers. herb.).

New for Formentera. Naturalized.

Previously known from the rest of the main islands of the archipelago (Pla *et al.*, 1992).

****Echinochloa crus-galli* (L.) P. Beauv.**

Eivissa: Es Canar, Santa Eulària des Riu, 31SCD7618, humid margins of a cultivated area, 2 m, Sept 2016, J. Serapio (pers. herb.).

Naturalized.

First report for Western Balearic Islands.

****Eleusine indica* (L.) Gaertn.**

Eivissa: Port d'Eivissa, 31SCD6508, roadsides, 3 m, 26 Aug 2022, J. Serapio (pers. herb.).

New for Western Balearic Islands. Naturalized.

Previously reported from Menorca (Sáez & Fraga, 1999) and Mallorca (Gil *et al.*, 2018; Cardona *et al.*, 2021).

****Erigeron karvinskianus* DC.**

Eivissa: near Port de Sant Miquel, 31SCD6424, 73 m, small population (about twenty specimens) in humid rock walls, 29 Aug 2017, J. Serapio (pers. herb., photo).

New for Western balearic Islands. Naturalized.

Previously reported from Mallorca (Cañigüeral, 1953; Sáez & Fraga, 1999).

*****Euphorbia abyssinica* J.F. Gmel.**

Mallorca: Alcúdia, next to the northern boundary of S'Albufera, 31SEE0907, 2 m, grassy slopes, 16 Aug 2019, L. Sáez (Fig. 10).



Figure 10. *Euphorbia abyssinica* J.F. Gmel.; Mallorca, Alcúdia. Photo: L. Sáez.

New for the Balearic Islands. Casual.

This striking cactus-like plant is native to northern Sudan to Somalia (POWO, 2022). It was reported from Alacant province (Laguna *et al.*, 2014; Boix, 2017). According to former authors this species was commercialized under the horticultural name *Euphorbia candelabra*. Apparently, this name was also used in the Iberian Peninsula to refer to *E. ingens* and *E. murielli*. The observed population consist of five non-reproductive individuals growing in ruderal habitats like roadsides and crop margins.

*****Ficus microcarpa* L. f.**

Mallorca: Palma, 31SDD6979, 15 m, rocky walls below the cathedral, 12 Oct 2018, E. Laguna (Fig. 11); Sineu, 31SED0088, 170 m, urban wall, 14 Oct 2018, E. Laguna (photo).

New for Balearic Islands. Casual.

Ficus microcarpa is native from South and East Asia, Oceania and many Pacific Islands (Berg & Corner, 2005). This evergreen tree is widely planted as ornamental that has been introduced to many tropical, subtropical, and warm temperate regions around the world (van Noort & Rasplus, 2022). *Ficus microcarpa* is more or less well established below the cathedral (Palma de Mallorca), where several specimens close to reproductive age can be found.



Figure 11. *Ficus microcarpa* L. f.; Mallorca, Palma. Photo: E. Laguna.

****Helianthus tuberosus* L.**

Eivissa: Camí vell de Sant Mateu, Sant Antoni de Portmany, 31SCD6215, roadsides, 66 m, 12 Dec 2020, J. Serapio (pers. herb.).

New for Western Balearic Islands. Casual.

Previously reported from Mallorca (Moragues, 2005) and Menorca (Fraga *et al.*, 2004).

****Ipomoea cairica* (L.) Sweet**

Mallorca: Torrent des Coll, Sóller, 31SDE7501, 48 m; 23 June 2022, L. Sáez (Fig. 12).

New to Mallorca. Casual.

Previously reported from Menorca (Fraga Aguimbau *et al.*, 2016).



Figure 12. *Ipomoea cairica* (L.) Sweet; Mallorca, Sóller. Photo: L. Sáez.

*****Ipomoea imperati* (Vahl) Griseb.**

Formentera: S'Espalmador islet, 31SCC6393, 1 m, maritime sands, 6 Sept 2019, J. Serapio (Fig. 13).

New for the Balearic Islands. Naturalized.

This species was reported from Cabrera (Palau, 1952). However, this Balearic report was due to confusion with *Calystegia sepium* (L.) R. Br. (Bolòs & Vigo, 1996; Silvestre, 2011). A small population of *Ipomoea imperati* was found in the southern dunes of S'Espalmador islet (N. Valverde, pers.



Figure 13. *Ipomoea imperati* (Vahl) Griseb.; Formentera, S'Espalmador. Photo: J. Serapio.

comm., 2018). The team of the Natural Park has since been trying to eradicate it.

Lavandula latifolia Medik.

Mallorca: Esporlas, 26 March 1825 [Cambessedès] (MPU, sub *Lavandula spica*); Son Rapinya, près de Palma, 18 Aug 1919, F. Bianor (P03529130).

Confirmed alien for the Balearic Islands. Casual.

Morales (2010) listed the species as native to Mallorca, although natural populations are unknown in the Balearic Islands (Bonafè, 1980; Pla *et al.*, 1992; Bolòs & Vigo, 1996). The herbarium specimens listed above were collected near inhabited areas. This cultivated lavender rarely escapes from cultivation in the Balearic Islands (Bonafè, 1980; Pla *et al.*, 1992).

Lavandula multifida L. was also listed as native to Eivissa by Morales (2010), based on the specimen “Ibiza (Balears), Abril 1899, C. Pau (MA 437380)”. Certainly this specimen contains material referable to *L. multifida*, but it probably corresponds to a cultivated plant or one that escaped from cultivation. Currently this species is not known in the Balearic Islands. It is noteworthy that Carlos Pau published between 1899 and 1900 up to three floristic contributions focused on the island of Ibiza (Pau, 1899, 1900a,b) and none of them included *L. multifida*, which reinforces the idea that the MA 437380 sample was a cultivated plant or escaped from cultivation.

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

Eivissa: es Gorg, Eivissa, 31SCD6408, 3 m, roadsides, 20 Dec 2020, J. Serapio (pers. herb.) (Fig. 14); Sa Carroca, Sant Josep de sa Talaia, 31SCD6006, 36 m, roadsides, 28 Dec 2020, J. Serapio.



Figure 14. *Leucaena leucocephala* subsp. *glabrata* (Rose) Zárate; Eivissa, Es Gorg. Photo: J. Serapio.

New for Western Balearic Islands. Naturalized.

The species has been recently reported from Mallorca and Menorca (Ribas *et al.*, 2020; Fraga-Arguimbau *et al.*, 2021). In Eivissa it is fully naturalized along roadsides and in waste areas.

*****Leuzea repens*** (L.) D.J.N. Hind [*Rhaponticum repens* (L.) Hidalgo]

Eivissa: Pla de Morna, Santa Eulària des Riu, 31SCD7121, 67 m, June 2017, J. Serapio (pers. herb., Fig. 15).

New for the Balearic Islands. Naturalized.

This species is native to Central and Western Asia and has become invasive in North America, South Africa, Australia and Europe (POWO, 2022). López-Alvarado *et al.* (2011) provided the first report for the Iberian Peninsula. A group of about two hundred individuals, growing in orchards, was found at Pla de Morna. This population seems to be locally well-established (seen in several different years), although the species has not been observed in surrounding areas.



Figure 15. *Leuzea repens* (L.) D.J.N. Hind; detail of the specimen collected in Eivissa, Pla de Morna.

Ligustrum ovalifolium Hassk.

Mallorca: Pollensa, Cala san Vicente, dans le vallon, abords des urbanisations, 7 Apr 1977, J. Duvigneaud (BR).

Confirmed for the Balearic Islands. Casual.

This species was listed (without concrete locality) by Duvigneaud (1979) for Mallorca, but it was not accepted as a non-native species for the Balearic Islands by later authors (Moragues & Rita, 2005). The herbarium specimen cited above confirms the presence of *L. ovalifolium* as a casual alien in northern Mallorca.

****Linum grandiflorum*** Desf.

Eivissa: Can Ros (Sant Josep de sa Talaia), 31SCD5907, 41 m, 29 April 2018; same location, 4 May 2019, J. Serapio (pers. herb. and photo).

New for Western Balearic Islands. Naturalized.

A small group, locally naturalized, of about ten plants growing in abandoned crop fields.

Previously reported for Mallorca (Martínez Labraga & Muñoz Garmendia, 2015) and Menorca (Fraga-Arguimbau *et al.*, 2022).

*****Lophocereus marginatus*** (DC.) S. Arias & Terrazas [*Pachycereus marginatus* (DC.) Britton & Rose]

Mallorca: Palma, Son Sardina, ses Quatre Quarterades, 31SDD7086, 65 m, disturbed places, 19 June 2019, L. Sáez (Fig. 16).

New for the Balearic Islands. Casual.

This is a widely planted ornamental cactus native to Mexico (Arias *et al.*, 2012). It has been reported as escaped (naturalized) in eastern Spain (Laguna *et al.*, 2014; Senar & Cardero, 2019). The observed population consist of three non-reproductive individuals growing in a disturbed place. In the vicinity of the above locality we observed some specimens planted on a roadside.



Figure 16. *Lophocereus marginatus* (DC.) S. Arias & Terrazas; Mallorca, Palma. Photo: L. Sáez.

****Malephora purpureocrocea*** (Haw.) Schwantes

Eivissa: Tagomago islet, 31SCD8221, 31 m, 17 Apr 2018, J. Serapio (Photo); Cap Negret, Sant Antoni de Portmany, 31SCD5118, 16 m, coastal vegetation, 5 Jan 2020, J. Serapio (Fig. 17).

New for the Western Balearic Islands. Naturalized.



Figure 17. *Malephora purpureocrocea* (Haw.) Schwantes; Eivissa, cap Negret. Photo: J. Serapio.

Previously reported as casual from Menorca (Fraga *et al.*, 2004).

*****Melaleuca viminalis*** (Gaertn.) Byrnes [*Callistemon viminalis* (Gaertn.) G. Don]

Mallorca: Calvià, Cala Xinxell, 31SDD6476, 1 m, maritime rocks, 17 Aug 2019, L. Sáez (Fig. 18).

New for the Balearic Islands. Casual.

A native of eastern Australia, *M. viminalis* is widely cultivated as an ornamental in warm-temperate and subtropical regions of the world (Cullen & Knees, 2011). In Cala Xinxell two individuals were found growing on maritime rocks together with *Crithmum maritimum*.



Figure 18. *Melaleuca viminalis* (Gaertn.) Byrnes; Mallorca, Calvià, growing together with *Crithmum maritimum* (left); detail (right). Photos: L. Sáez.

****Melomphis arabica* (L.) Raf. [*Ornithogalum arabicum* L.]**

Eivissa: Near Sant Rafel, 31SCD6211, few individuals on roadsides, 46 m, Apr 2021, J. Serapio (pers. herb.). Formentera: La Mola, 31SCC7580, a large group in abandoned crop fields, 127 m, Apr 2021, S. Costa (photo).

New for Western Balearic Islands. Naturalized.

Previously reported from Mallorca (Barceló, 1879-1881; Bianor, 1917; Gil *et al.*, 2018) and Menorca (Barceló, 1879-1881; Rodríguez, 1904; Porta, 1887; Fraga *et al.*, 2004).

****Mesembryanthemum ×vascosilvae* (Gideon, F. Sm., E. Laguna, F. Verloove & P.P. Ferrer) L. Sáez & Aymerich**

Mallorca: Calvià, 31SDD6476, 40 m, disturbed open scrub, 14 Aug 2019, L. Sáez; Capdepera, Cala Mesquida, 31SED3699, 37 m, disturbed vacant lot, 2 July 2020, L. Sáez & J.M. González; Calvià, Punta Negra, 26 June 2022, M. Capó & L. Sáez (photo).

Menorca: Ciutadella, 31SEE7028, 5 m, naturalized in the top side of a slope near the sea, 4 June 2017, C. Gómez-Bellver (photo); Fornells, 31TEE9634, 1 m, naturalized near the waterfront, 8 June 2017, C. Gómez-Bellver (photo).

New for Mallorca. Naturalized.

This is an artificial hybrid of garden origin, obtained from a crossing of *M. cordifolium* L. f. and *M. haeckelianum* A. Berger. Recently reported from Menorca (Fraga-Arguimbau *et al.*, 2022).

*****Monstera deliciosa* Liebm.**

Mallorca: Torrent de Biniaraix, Sóller, 31SDE7602, 35-38 m, shady streambed, 18 Aug 2022, L. Sáez (Fig. 19).

New for the Balearic Islands. Casual.

This commonly cultivated aroid, is native to southern Mexico (Chiapas, Oaxaca, Tabasco, and Veracruz) and Guatemala (Cedeño *et al.*, 2020) and has become naturalized in several tropical and subtropical countries and even in some warm-temperate areas (Martin, 2002). *Monstera deliciosa*



Figure 19. *Monstera deliciosa* Liebm.; Mallorca, torrent de Biniaraix. Photo: L. Sáez

is commonly grown in Mallorca. However, the species had not been recorded so far as an escape in the Balearic Islands until now. The observed population occupies about 5 m² on a shady bank of a stream. It obviously escaped from a nearby plantation.

****Nicotiana glauca* Graham**

Formentera: Torrent de Cala Saona, 31SCC6083, 16 m, 31 May 2019, J. Serapio (pers. herb.). Some individuals growing in a burnt forest area.

New for Formentera. Naturalized.

The species is known from all the main islands of the Balearic archipelago.

****Oenothera lindheimeri* (Engelm. & A. Gray) W.L. Wagner & Hoch [*Gaura lindheimeri* Engelm. & A. Gray]**

Eivissa: Near Sant Rafel, 31SCD6316, 74 m, roadsides, 1 Oct 2019, J. Serapio (Fig. 20); Venda de Safragell (Sant Joan de Labritja), 31SCD6917, 72 m, roadsides, 11 Oct 2019, J. Serapio (pers. herb.).

New for Western Balearic Islands. Casual.

Previously reported from Mallorca (Ribas *et al.*, 2020) and Menorca (Fraga-Arguimbau *et al.*, 2022).



Figure 20. *Oenothera lindheimeri* (Engelm. & A. Gray) W.L. Wagner & Hoch; Eivissa, Sant Rafel. Photo: J. Serapio.

****Opuntia elatior* Mill.**

Mallorca: Fornalutx, 31SDE7703, 260 m, disturbed places and open scrub, 29 June 2017, L. Sáez (Fig. 21).

New for Mallorca. Casual.

So far, the species has been reported from southern Eivissa (Puig des Molins) by Serapio *et al.* (2016, sub *Opuntia bergeriana* A. Berger).



Figure 21. *Opuntia elatior* Mill.; Mallorca, Fornalutx. Photo: L. Sáez.

Opuntia microdasys (Lehm.) Pfeiff.

Mallorca: Son Masset, Campos 31ED0566, 51 m, 10 March 2020, L.A. Domínguez (photo); Porto Petro, 31ED1857, disturbed places, 10 m, June 2016, L. Sáez.

Second report for Mallorca. Naturalized.

So far, the species has been reported from northern Menorca (Fraga *et al.*, 2004; Fraga-Arguimbau *et al.*, 2022) and southwestern Mallorca, Cap Regana (Moragues, 2005).

*****Opuntia monacantha*** (Willd.) Haw.

Mallorca: Calvià, between Es Fortí d'Illetes i cala Comtessa, 31SDD6476, 40 m, rocky places and open scrub, 17 Aug 2019, L. Sáez (photo).

Eivissa: Dalt Vila, 31SCD6407, disturbed scrub, 27 Aug 2011, E. Laguna (Fig. 22).

New for the Balearic Islands. Casual.

A native to eastern and southern Brasil to Uruguay (Anderson, 2001), *O. monacantha* is widely cultivated in warm-temperate and subtropical regions of the world (POWO, 2022). It has been recorded as an alien from eastern Spain (Sanz *et al.*, 2004.).

*****Opuntia pilifera*** F.A.C. Weber

Mallorca: Calvià, Portals, 31SDD6376, 35 m, stream, 14 Aug 2019, L. Sáez (Fig. 23).

New for the Balearic Islands. Casual.

Native to central Mexico; widely cultivated as an ornamental in the warm-temperate regions of the world (Verloove *et al.*, 2017). This species is known as escaped from cultivation in Europe since 2008 from eastern Spain, Valencia (Guillot & Lodé, 2009). The specimen observed in Portals presents the distinctive characteristics of *O. pilifera*, accord-



Figure 22. *Opuntia monacantha* (Willd.) Haw.; Eivissa, Dalt Vila. Photo: E. Laguna.

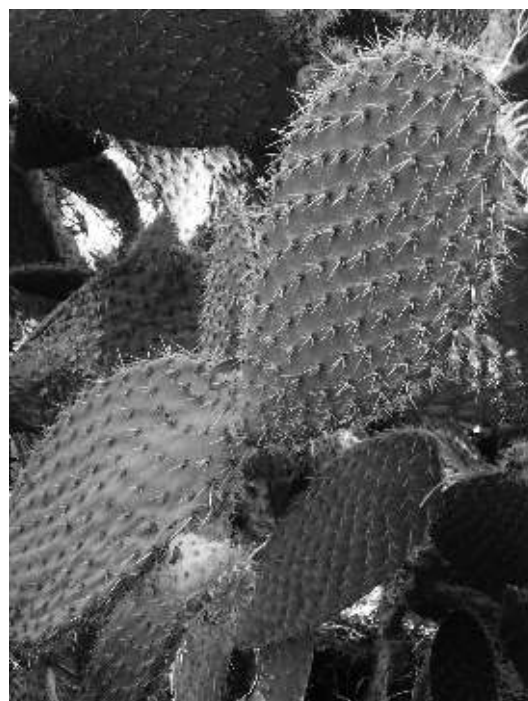


Figure 23. *Opuntia pilifera* F.A.C. Weber; Mallorca, Portals. Photo: L. Sáez.

ing to Arias *et al.* (2012), large obovate to orbicular glabrous cladodes, the areoles are covered with whitish or yellowish, silky trichomes.

*****Opuntia robusta*** Pfeiff.

Mallorca: Calvià, Portals, 31SDD6376, 35 m, stream, 14 Aug 2019, L. Sáez (Fig. 24).

New for the Balearic Islands. Casual.

A native to central Mexico, *O. robusta* is widely cultivated in warm-temperate and subtropical regions of the world (Anderson, 2001; POWO, 2022). It has been recorded as an alien from eastern Spain (Guillot & van der Meer, 2007; Guillot *et al.*, 2014). Based on the small articles (15-25 cm long) our specimens from Portals are probably referable to *O. robusta* var. *guerrana* (Griffiths) Sánchez-Mej.

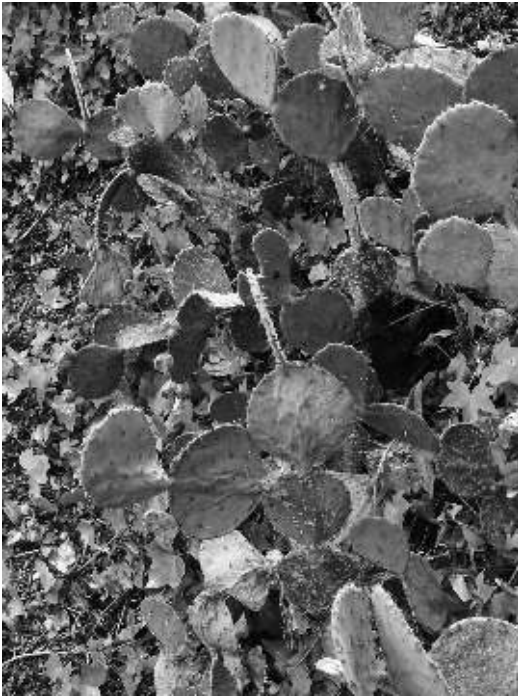


Figure 24. *Opuntia robusta* Pfeiff.; Mallorca, Portals. Photo: L. Sáez.

****Opuntia stricta* (Haw.) Haw.**

Eivissa: Punta d'en Xinxó, Sant Josep de sa Talaia, 31SCD5115, 3 m, coastal vegetation, 13 Jan 2018, J. Serapio (Fig. 25). Formentera: S'Espalmador, 16 May 2019, J. Serapio (photo).

New for the Western Balearic Islands. Naturalized.

The strongly spiny plants from Eivissa correspond to what some authors recognized as *O. dillenii* (Ker Gawl.) Haw.

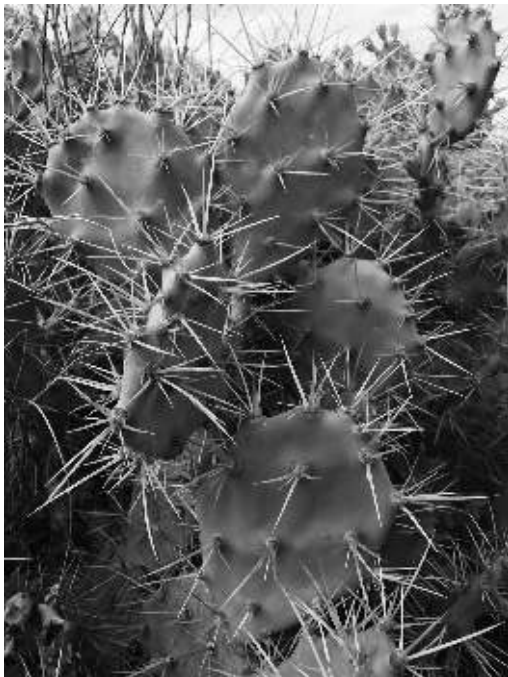


Figure 25. *Opuntia stricta* (Haw.) Haw. [*O. dillenii* (Ker Gawl.) Haw.]; Eivissa, Punta d'en Xinxó. Photo: J. Serapio.

Opuntia stricta (Haw.) Haw. in a broad sense (including *O. dillenii*) was previously known from the Eastern Balearic Islands (Moragues, 2005; Moragues & Rita, 2005; Podda *et al.*, 2010).

****Paraserianthes lophantha* (Willd.) I.C. Nielsen**

Eivissa: Venda de Cas Marins, Sant Josep de sa Talaia, 31SCD5108, roadsides, 190 m, Dec 2019, J. Serapio (pers. herb.); a single reproductive specimen and abundant seedlings; Cala de Sant Vicent, Sant Joan de Labritja, 31SCD7726, 14 m, Jan 2020, J. Serapio (pers. herb.); a small, but well established population located in roadsides. Formentera: near Sant Ferran, 31SCC6684, 30 m, roadsides, Feb 2021, J. Serapio (pers. herb.); several reproductive specimens and seedlings.

New for western Balearic Islands. Naturalized.

Moragues (2005) and Fraga-Arguimbau *et al.* (2021) reported this species from Mallorca and Menorca, respectively.

*****Parthenocissus tricuspidata* (Siebold & Zucc.) Planch.**

Mallorca: Ses Illetes, Calvià, 31SDD6577, 12 m, *Pinus halepensis* Mill. forest, 17 Aug 2019, L. Sáez (Fig. 26).

New for the Balearic Islands. Naturalized.

Parthenocissus tricuspidata is native to south Russian Far East to Eastern China and eastern temperate Asia (POWO, 2022); it is widely grown as an ornamental vine. The population from Ses Illetes, with expansive behaviour, escaped from planted individuals in a nearby garden area.



Figure 26. *Parthenocissus tricuspidata* (Siebold & Zucc.) Planch.; Mallorca, Ses Illetes. Photo: L. Sáez.

*****Peganum harmala* L.**

Formentera: Can Marroig, 31SCC6086, 23 m, open scrub and waysides, 17 June 2003, B. Klahr (photo).

New for the Balearic Islands. Locally naturalized.

This species is native to arid and semiarid regions of South Europe, North Africa, the Middle East, and central Asia; naturalized in North America and South Africa (POWO, 2022). The population, which persists in Can Marroig at least since 2003, includes about 30 reproductive individuals (June 2021).

****Polygala myrtifolia* L.**

Mallorca: Bendinat, Calvià, 31SDD6476, 53 m, mixed forest of *Pinus halepensis* Mill. and *Olea europaea* L., 6 March 2020, L.A. Domínguez (photo).

New for Mallorca. Casual.

A single reproductive specimen of *P. myrtifolia*, well established (2.5 meters high), was discovered in a *Pinus halepensis* forest with a dense shrub layer of *Pistacia lentiscus* L. In the Balearic Islands, the species previously only has been documented as escaped in Menorca (Podda *et al.*, 2010).

***Robinia pseudoacacia* L.**

Eivissa: Port des Torrent, Sant Josep de sa Talaia, 31SCD5014, roadsides, 14 m, 20 May 2020, J. Serapio (pers. herb.).

Confirmed for Eivissa. Casual.

Previously listed for Eivissa by Rivas-Martínez *et al.* (1992), without specifying any location. Although we found several individuals growing along roadsides (in an area where this species is cultivated as an ornamental tree), it does not look like a well-established population.

*****Ruschia caroli* (L. Bolus) Schwantes**

Eivissa: Es Blancar, Tagomago islet, 31SCD8221, 12 m, 28 April 2021, J. Serapio (pers. herb.), growing upon scrubs in coastal vegetation (Fig. 27). Formentera: S'Estany Pudent, 31SCC6287, 0 m, 16 Apr 2017, J. Serapio (Photo).

New for the Balearic Islands. Naturalized.

This species is native of Cape Province, South Africa; it is grown as an ornamental and naturalized in England (Preston, 1988) and the Iberian Peninsula (Aizpuru *et al.*, 2001; Domingues & Freitas, 2006; Sáez & Aymerich, 2021).



Figure 27. *Ruschia caroli* (L. Bolus) Schwantes; Eivissa, Tagomago. Photo: J. Serapio.

*****Salvia hispanica* L.**

Eivissa: Es Viver, Eivissa, 31SCD6606, 1 m, 21 Jan 2018, J. Serapio (pers. herb., Fig. 28).

New for Balearic Islands. Casual.

Salvia hispanica, popularly known as «chia» is native to Central and South America, from Mexico to Ecuador (Gov-aerts, 2003); it is increasingly cultivated in Europe for human food. Occurrences as a casual alien species in Europe have been reported since 2012 (Maslo & Šarić, 2020). The first report of *S. hispanica* for the Iberian Peninsula was provided by Gómez-Bellver *et al.* (2016).

In Eivissa, Es Viver, some reproductive specimens were found occurring in disturbed maritime sands.



Figure 28. *Salvia hispanica* L.; Eivissa, Es Viver. Photo: J. Serapio.

****Selenicereus undatus* (Haw.) D.R. Hunt [*Hylocereus undatus* (Haw.) Britton & Rose]**

Mallorca: Santa Eugènia, 31SDD8686, suburban areas, 127 m, 14 Oct 2018, E. Laguna (photo).

New for Mallorca. Casual.

Previously reported from Menorca (Fraga *et al.*, 2004).

****Sesamum indicum* L.**

Eivissa: Ses Feixes de Vila, Eivissa, 31SCD6408, two specimens growing in humid channels with riparian and nitrophilous vegetation, 1 m, 13 Sept 2017, J. Serapio (Fig. 29).

New for the Western Balearic Islands. Casual.

Sesame is native to India (POWO, 2022); it has been cultivated from over 3000 years ago, and nowadays seeds are very popular worldwide as a condiment and for obtaining cosmetic oils. This species has been recently reported from the Balearic Islands, Menorca (Fraga-Arguimbau *et al.*, 2022).



Figure 29. *Sesamum indicum* L.; Eivissa, Ses Feixes de Vila. Photo: J. Serapio.

*****Tradescantia fluminensis* Vell.**

Mallorca: Torrent de Biniraix, Sóller, 31SDE7602, 34-38 m, streambed, 18 Aug 2022, L. Sáez (Fig. 30).

New for the Balearic Islands. Naturalized.

Native from south-eastern Brazil and neighbouring areas of Uruguay, Paraguay and Argentina (CABI, 2019) and introduced around the world as a house and garden plant. It has been reported as naturalized in Europe, Asia, Africa and North America (CABI, 2019). Naturalized and locally invasive in some areas of Spain (Sanz *et al.*, 2004; Sáez & Aymerich, 2021). The observed population occupies about 10 m² on a shady bank of a stream.



Figure 30. *Tradescantia fluminensis* Vell.; Mallorca, Torrent de Biniraix. Photo: L. Sáez.

*****Trichocereus macrogonus* (Salm-Dyck) Riccob.**

Mallorca: Sóller, Es Figueral, 31SDE7405, 70 m, open scrub, 11 Aug 2019, L. Sáez (Fig. 31).

New for the Balearic Islands. Casual.

Native to Peru and perhaps northwestern Bolivia; cultivated over a wider area, including Ecuador and northern Chile (Albesiano & Kiesling, 2012). In Europe, *T. macrogonus* was previously reported from eastern Spain (Aymerich & Sáez, 2019). At Es Figueral five young plants occur at a dumpsite for horticultural waste in a rocky, sun-exposed slope, together with *Brachypodium retusum* and *Mesembryanthemum* sp.



Figure 31. *Trichocereus macrogonus* (Salm-Dyck) Riccob.; Mallorca, Es Figueral. Photo: L. Sáez.

***Trifolium alexandrinum* L.**

Eivissa: Can Coroner, 31SCD6923, 140 m, waysides, 9 June 2022, J. Serapio (pers. herb.).

Confirmed occurrence in the Western Balearic Islands. Casual.

This species was reported (without concrete location) from Eivissa by Duvigneaud (1979) and Rivas-Martínez *et al.* (1992).

***Ulmus pumila* L.**

Mallorca: Escorca, Lluc, 21DE9008, stream, 478 m, 12 Aug 2019, L. Sáez (Fig. 32); Palma, 31SDD7083, 48 m, side of the road Ma-11 and disturbed places, 3 July 2020, L. Sáez; Palma, next to the northern boundary of Polígon Industrial de Son Castelló i sa Indioteria, 31SDD7084, 51 m, disturbed roadsides, 3 July 2020, L. Sáez (pers. herb.).

First concrete records for Mallorca. Casual.

Ulmus pumila is an invasive tree (Zalapa *et al.* 2009), native to central Asia to south Siberia and Korea (POWO, 2022); it was probably introduced in the 16th century as an ornamental tree and has spread spontaneously throughout the Iberian Peninsula (Cogolludo-Agustín *et al.*, 2000). This species was listed (without concrete locations) for the Balearic Islands by Moragues & Rita (2005); recently it has been reported from Menorca (Fraga-Arguimbau *et al.*, 2022).



Figure 32. *Ulmus pumila* L.; Mallorca, Torrent de Lluc. Photo: L. Sáez.

Ulmus pumila can be readily distinguished from other elms (*Ulmus minor* Mill., *U. ×hollandica* Mill.) in the Balearic archipelago by its symmetrical, once-serrate, small leaves (2-5 cm long), elliptical, and slender, smooth, hairless twigs. Both local populations listed above (of about ten young plants each) occur on disturbed places.

***Vachellia farnesiana* (L.) Wight & Arn. [*Acacia farnesiana* (L.) Willd.]

Eivissa: Porroig, Sant Josep de sa Talaia, 31SCD5303, 12 m, disturbed places, 7 Feb 2021, J. Serapio (pers. herb., Fig. 33).

New for the Balearic Islands. Casual.

Native to Tropical & Subtropical America, from south USA to Argentina; introduced in S Europe, S Asia, Africa and Oceania (POWO, 2022). A single reproductive specimen was found at Porroig.



Figure 33. *Vachellia farnesiana* (L.) Wight & Arn.; Eivissa, Porroig. Photo: J. Serapio.

Vachellia karroo (Hayne) Banfi & Galasso [*Acacia karroo* Hayne]

Eivissa: Cala Sant Vicent, Sant Joan de Labritja, 31SCD7726, 15 m, 26 Aug 2011, E. Laguna (photo).

Confirmed occurrence in the Balearic Islands. Casual.

This species was reported (without concrete location) from Eivissa by Rivas-Martínez *et al.* (1992).

***Vitis ×instabilis* Ardenghi, Galasso, Banfi & Lastrucci

Eivissa: Cala Sant Vicent, Sant Joan de Labritja, 31SCD7826, 5 m, 26 Aug 2011, E. Laguna (photo).

New for the Balearic Islands. Casual.

It was found close to the indicated location for *V. rupestris* (see below), on roadside vegetation. This hybrid comes from the artificial crossing of *V. rupestris* and *V. riparia* Michx. (Ardenghi *et al.*, 2014), and the plants found in Sant Joan could belong to the clonal variety 3309 Couderc, often used as rootstock for *V. vinifera* L. (Laguna, 2004).

Vitis rupestris Scheele

Eivissa: Cala Sant Vicent, Sant Joan de Labritja, 31SCD7826, 5 m, 26 Aug 2011, E. Laguna (photo).

Second report for the Western Balearic Islands.

Previously reported from Mallorca and Eivissa (Sáez *et al.*, 2016).

Xanthium spinosum L.

Eivissa: Sa Bassa Roja, Sant Antoni de Portmany, 31SCD5915, orchards, 163 m, June 2021, J. Serapio (pers. herb.).

Confirmed occurrence in the Western Balearic Islands. Naturalized.

This species was reported (without concrete location) from Eivissa by Rivas-Martínez *et al.* (1992).

Acknowledgments

We are grateful to Pere Aymerich (PA) and Fabián Font (FF) for the identification or confirmation of some taxa: *Aloe ×nobilis* (PA), *Ruschia caroli* (PA) and *Opuntia* (FF): *O. monacantha* and *O. robusta*.

References

- Aizpuru, I., Aperribay, J. A., Garin, F., Oianguren, I. Olariaga, I. & Vivant, J. 2001. Contribuciones al conocimiento de la flora del País Vasco, IV. *Munibe*, 51: 41-58.
- Albesiano, S. & Kiesling, R. 2012. Identity and neotypification of *Cereus macrogonus*, the type species of the genus *Trichocereus* (Cactaceae). *Haseltonia*, 17: 24-34.
- Alexander, J. C. M. 2011. *Campsis* Loureiro: P. 247-248. A: Cullen, J., Knees, S.G. & Cubey, H.S. (eds.) The European Garden Flora. A manual for the identification of plants cultivated in Europe, both out-of-doors and under glass. Vol. V. Boraginaceae to Compositae. Second edition. Cambridge University Press. Cambridge. 639 p.
- Alomar, G., Reynés, A., Ferrer, I., Rodríguez, R. & Mus, M. 2000. Alguns pteridòfits interessants dels camps marjats de la serra de Tramuntana (Mallorca). *Bolletí de la Societat d'Història Natural de les Balears*, 43: 99-104.
- Anderson, E. F. 2001. The Cactus Family. Portland, Timber Press. 776 pp.

- Ardenghi, N. M. G., Galasso, G., Banfi, E., Zoccola, A., Foggi, B. & Lastrucci, L. 2014. A taxonomic survey of the genus *Vitis* in Italy, with special reference to the Elba Island (Tuscan Archipelago). *Phytotaxa* 166: 163-198.
- Arias, S., Gama, S., Vázquez, B. & Guzmán, L. U. 2012. Flora del Valle de Tehuacán-Cuicatlán (Ed. 2). Fascículo 95. Cactaceae Juss. Instituto de Biología. Universidad Nacional Autónoma de México. 235 p.
- Aymerich, P. 2020. Notes sobre flora ahlòctona de Catalunya. III. *Butlletí de la Institució Catalana d'Història Natural*, 84: 101-124.
- Aymerich, P. & Sáez, L. 2019. The genera *Cereus* and *Trichocereus* (Cactaceae: Cactoideae) as alien plants in Catalonia (northeastern Iberian Peninsula): amendments and new chorological data. *Butlletí de la Institució Catalana d'Història Natural*, 83: 113-120.
- Barceló, F. 1879-1881. *Flora de las Islas Baleares, seguida de un diccionario de los nombres baleares, castellanos y botánicos de las plantas espontáneas y cultivadas*. Imp. P. J. Gelabert. Palma de Mallorca. 645 p.
- Berg, C.C. & Corner, E. J. H. 2005. *Ficus* L. In: Nootboom, H. P. (Ed.) *Flora Malesiana*: 1-702. National Herbarium Nederland, Leiden.
- Bianor, F. 1917. Plantes de Mallorca. *Butlletí de la Institució Catalana d'Història Natural*, 17: 133-152.
- Boix, R. J. 2017. Flora alòctona de la comarca de l'Alacantí. Introducció, naturalizació e invasió de espècies vegetals exòtiques en la província de Alicante. Tesi doctoral. Universitat d'Alacant. 834 p.
- Bolòs, O. & Vigo, J. 1996. *Flora dels Països Catalans*. Vol. 3. Barcelo. Barcelona. 1230 p.
- Bolòs, O., Vigo, J., Masalles, R. M. & Ninot, J.M. 2005. *Flora Manual dels Països Catalans*. Ed. 3. Pòrtic. Barcelona. 1310 p.
- Bonafè, F. 1980. Flora de Mallorca. Vol. 4. Ed. Moll. Palma de Mallorca. 444 p.
- CABI, 2019. *Tradescantia fluminensis* (wandering Jew). Invasive Species Compendium. CAB International, Wallingford, UK. www.cabi.org/isc (Accessed 22 August 2022).
- Cañigual, J. 1953. Algunos datos sobre la flora de Mallorca. *Collectanea Botanica (Barcelona)*, 3: 309-323.
- Cardona, C., Cerrato, M. D., Ribas-Serra, A., Cortés-Fernández, I., Mir-Rosselló, P.M., López-Vich, L., Truyols, F. & Gil, L. 2021. Notes corològiques per a la flora de Mallorca. *Bolletí de la Societat d'Història Natural de les Balears*, 64: 47-59.
- Cedeño, M., P. Díaz, A. Zuluaga & A. Blanco 2020. A comparison of *Monstera deliciosa* and *M. tacanaensis*, with comments on *Monstera* section *Tornelia* (Araceae). *Journal of the International Aroid Society*, 43: 32-73.
- Cogolludo-Agustín, M. A., Agúndez, D., Gil, L. 2000. Identification of native and hybrid elms in Spain using isozyme gene markers. *Heredity*, 85: 157-166.
- Cortés, E. J. 1994. The Dragon Tree *Dracaena draco* (L.) L. naturalised in Gibraltar. *Almoraima: revista de estudios campogibraltareños* 11: 183-190.
- Cullen, J. & Knees, S. G. (eds.) 2011: *European Garden Flora*. Vol. 5. Cambridge University Press. 660 p.
- Dahlgren, R., Karlsson, T. H. & Lassen, P. 1971: Studies on the flora of the Balearic Islands I. Chromosome numbers in Balearic Angiosperms. *Botaniska Notiser*, 124: 249-269.
- de Lange, P. J., de Lange, T. J. P., de Lange, F. J. T. 2005. New exotic plant records, and range extensions for naturalised plants in the northern North Island, New Zealand. *Auckland Botanical Society Journal*, 60: 130-147.
- Domina, G. & Amato, F. 2011. *Dracaena draco* (Dracaenaceae) spontaneizzata a Palermo (Nord Sicilia). *Quaderni di Botanica Ambientale e Applicata*, 22: 25-26.
- Domingues de Almeida, J. & Freitas, H. 2006. Exotic naturalized flora of continental Portugal-A reassessment. *Botanica complutensis*, 30: 117-130.
- Duvigneaud, J. 1979. Catalogue provisoire de la flore des Baléares (ed. 2). *Bulletin, Société pour l'Échange des Plantes Vasculaires de l'Europe Occidentale et du Bassin Méditerranéen* 17, suppl.: 1-43.
- El Mokni, R. & Verloove, F. 2022. Further records of non-native succulents within Asparagaceae sensu lato as casual or naturalising aliens in Tunisia and North Africa. *Bradleya*, 40: 119-129.
- Fanlo, R. 1986. El género *Centranthus* DC., en España. 1. Sección *Calcitrapa* Lange. *Lagascalia*, 14: 3-8.
- Finschow, G., Guerau D'Arellano, C. & Kuhbier, H. 1972. Contribució al estudio de la flora de las Pitiusas. *Eivissa*, 3ª época; 1: 24-26.
- Fraga, P., Mascaró, C., Carreras, D., Garcia, O., Pallicer, X., Pons, M., Seoane, M. & Truyol, M. 2004. Catàleg de la flora vascular de Menorca. Institut Menorquí d'Estudis IME. 367 p.
- Fraga-Arguimbau, P., Mascaró-Sintes, C., Pallicer-Allès, X., Carreras-Martí, D., Cladera-Barceló, A., Fernández-Rebollar, I. & Estradé-Niubó, S. (2016) ["2015"]. Notes i contribucions al coneixement de la flora de Menorca (XII). Notes florístiques. *Bolletí de la Societat d'Història Natural de les Balears*, 58: 91-121.
- Fraga-Arguimbau, P., Mascaró-Sintes, C., Pallicer-Allès, X., Carreras-Martí, D. & Seoane-Barber, M. 2021. ["2020"] Notes i contribucions al coneixement de la flora de Menorca (XV). Contribució a la flora al·lòctona. *Bolletí de la Societat d'Història Natural de les Balears*, 63: 175-189.
- Fraga-Arguimbau, P., Mascaró-Sintes, C., Pallicer-Allès, X., Carreras-Martí, D. & Seoane-Barber, M. & Truyol-Olives, M. 2022. Notes i contribucions al coneixement de la flora de Menorca (XVIII). Contribució a la flora ahlòctona. *Bolletí de la Societat d'Història Natural de les Balears*, 65: 349-367.
- Gil, L., Cardona, C. & Cerrato, M. 2018. La flora del terme municipal de sa Pobla (Mallorca). Ajuntament de de sa Pobla. 177 p.
- Gil, L. & J. Seguí, J. 2015. ["2014"]. Diversitat florística de l'Àrea Natural d'Especial Interès del Cap de Cala Figuera-Refeubeig i àrea d'influència (Calvià-Mallorca). *Bolletí de la Societat d'Història Natural de les Balears*, 57: 105-127.
- Gómez-Bellver, C., Álvarez, H. & Sáez, L. 2016. New contributions to the knowledge of the alien flora of the Barcelona province (Catalonia, Spain). *Orsis*, 30: 167-189.
- Govaerts, R. 2003. World Checklist of Selected Plant Families. The Board of Trustees of the Royal Botanic Gardens, Kew [accessed November 2019]
- Guillot, D. & Laguna, E. 2019. First report as alien plant of *Aloe nobilis* Haw., in Europe. *Bouteloua* 28: 71-75.
- Guillot, D., Laguna, E., Puche, C. & Ferrer Gallego, P. P. 2014. *Opuntia robusta* Wendland (Cactaceae) en la província de Valencia. *Bouteloua*, 19: 71-94.
- Guillot, D. & Lodé, J. 2009. *Opuntia pilifera* Weber, primera cita como alòctona en Europa. *Bouteloua* 6: 141.
- Guillot, D. & Van Der Meer, P. 2007. Un nuevo taxon alòctono naturalizado en Cataluña: *Opuntia robusta* Wendland. *Studia Botanica Universitat Salamanca*, 26: 121-124.
- Knoche, H. 1922. Flora Balearica. Etude phytogéographique sur les îles Baléares. Vol. 2. Imp. Roumégous et Déhen, Montpellier.
- Laguna, E. 2004. Datos foliares de las especies e híbridos alóctonos de vides (género *Vitis*) en el territorio valenciano. *Toll Negre* 3: 11-25.
- Laguna, E., Guillot, D., Roselló, R., Gómez, M. A., Ferrer, P. P., Deltoro, V. & Pérez, P. 2014. Nuevas citas de plantas alóctonas suculentas asilvestradas en la Comunidad Valenciana. *Bouteloua*, 18: 141-159.

- Lanfranco, E. 2000. New records for the Maltese flora: *Eleusine indica* (L.) Gaertner subsp. *ajricana* (Kennedy- O'byrne) S. Phillips (Poaceae) and *Centranthus macrosiphon* Boissier (Caprifoliaceae). *The Central Mediterranean Naturalist*, 3: 55-56.
- López, G. 2001. Los árboles y arbustos de la Península Ibérica e Islas Baleares: especies silvestres y las principales cultivadas. Mundi-Prensa Libros. 1727 p.
- López-Alvarado, J., Crespo, M. B., García-Jacas, N., Alonso, M. A., Vilar, L., Cristóbal, J.C., Susanna, A., F. Martínez-Fores, F., Juan, A. & Sáez, L. 2011. First record of the alien pest *Rhaponticum repens* (Compositae) in the Iberian Peninsula. *Collectanea Botanica (Barcelona)*, 30: 59-62.
- López Martínez, J. & Devesa, J. A. 2007. *Centranthus* DC. In Devesa, J.A., R. Gonzalo & A. Herrero (eds.). *Flora iberica* Vol. XV. Rubiaceae-Dipsacaceae: 223-233. Real Jardín Botánico, CSIC. Madrid.
- Mandáková, T. Zozomová-Lihová, J. Kudoh, H. Zhao, Y., Lysak, M. A. & Marhold, K. 2019 The story of promiscuous crucifers: origin and genome evolution of an invasive species, *Cardamine occulta* (Brassicaceae), and its relatives. *Annals of Botany*, 124: 209-220.
- Marès, P., Vigineix, G. 1880. Catalogue raisonné des plantes vasculaires des îles Baléares. Ed. G. Masson. Paris. 370 p.
- Marrero, A. & Almeida Pérez, R. S. 2012. A new subspecies, *Dracaena draco* (L.) L. subsp. *caboverdeana* Marrero Rodr. & R. Almeida (Dracaenaceae) from Cape Verde Islands. *International Journal of Geobotanical Research*, 2: 35-40.
- Martin, T. J. 2002. A Mexican migrant: thenaturalization of *Monstera deliciosa* (Fruit Salad Plant) in New Zealand. *Auckland Botanical Society Journal*, 57: 151-154.
- Martínez Labarga, J. M. & Muñoz Garmendia, F. 2015. *Linum* L. In Muñoz Garmendia, F.; Navarro, C.; Quintanar, A.; Buira A. (eds.). *Flora iberica* IX. Rhamnaceae-Polygalaceae: 174-266. Real Jardín Botánico, CSIC. Madrid.
- Maslo, S. & Šarić, Š. 2020. *Salvia hispanica* (L.) Lamiaceae, a new alien species in the flora of Bosnia and Herzegovina and the Balkans. *Thaiszia Journal of Botany*, 30: 31-36.
- Moragues, E. 2005. Flora alòctona de les Illes Balears. Ecología de dos especies invasoras: *Carpobrotus edulis* y *Carpobrotus* aff. *acinaciformis*. Tesis doctoral. Universitat de les Illes Balears. Palma de Mallorca. 354 p.
- Moragues, E. & Rita, J. 2005. Els vegetals introduïts a les Illes Balears. Conselleria de Medi Ambient, Govern de les Illes Balears. Palma de Mallorca. 126 p.
- Morales, R. 2010. *Lavandula* L. In: R. Morales; A. Quintanar; F. Cabezas; A. J. Pujadas & Cirujano, S. (eds.), *Flora iberica*. Vol. XII. Verbenaceae-Labiatae-Callitrichaceae: 484-496. Real Jardín Botánico de Madrid (C.S.I.C.). Madrid.
- Palau, P. 1952. Otra excursión a Cabrera. *Collectanea Botanica (Barcelona)* 3: 183-184.
- Pau, C. 1899. Plantas de Ibiza no mencionadas en la Flora Balear. *Actas de la Sociedad Española de Historia Natural*, 28: 213-216.
- Pau, C. 1900a. Relación de plantas ibiceñas. *Actas de la Sociedad Española de Historia Natural*, 29: 62-69.
- Pau, C. 1900b. Plantas de las islas Baleares. *Actas de la Sociedad Española de Historia Natural*, 29: 228-231
- Pignatti, S. 1982. Flora d'Italia. Volume II, Edagricole, Bologna. 1196 p.
- Pla, V., Sastre, B. & Llorens, Ll. 1992. *Aproximació al catàleg de les Illes Balears*. Universitat de les Illes Balears-Jardí Botànic de Sóller (MBCN). Palma de Mallorca. 58 p.
- Podda, L., Fraga i Arguimbau, P., Mayoral García-Berlanga, O., Mascia, F., Bacchetta, G. 2010. Comparación de la flora exótica vascular en sistemas de islas continentales: Cerdeña (Italia) y Baleares (España). *Anales del Jardín Botánico de Madrid*, 67: 157-176.
- Porta, P. 1887. Stirpium in insulis Balearicum anno 1885 collectarum enumeratio. *Nuovo Giornale Botanico Italiano* 19: 276-324.
- POWO 2022. Plants of the World Online. <http://www.plantsoftheworldonline.org> [Accessed 30 Nov 2021]
- Preston, C. D. 1988. The Aizoaceae naturalized in the British Isles. *Watsonia*, 17: 217-245.
- Raab-Straube, E. von 2017+. *Centranthus*. In: Raab-Straube, E. von & Henning, T. (2017+): Valerianaceae. Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity.
- Ribas, A., Cerrato, M. D., Cardona, C., Mir, P. M. & Gil, L. 2020. Aportaciones corológicas para la flora de Mallorca. *Flora Montiberica* 78: 41-48.
- Richardson, D. M., Pysek, P., Rejmanek, M., Barbour, M. G., Panetta, F. D. & West, C. J. 2000. Naturalization and invasion of alien plants: concepts and definitions. *Diversity and Distributions* 6: 93-107.
- Richardson, L. B. K. 1975. A revision of the genus *Centranthus* DC. (Valerianaceae). *Botanical Journal of the Linnean Society*, 71: 211-234.
- Rivas-Martínez, S., Costa, M. & J. Loidi, J. 1992. La vegetación de las islas de Ibiza y Formentera (Islas Baleares, España). *Itinera Geobotanica*, 6: 99-236.
- Rodríguez, J. J. 1904. Flórlula de Menorca. Impr. Fàbregues, Maó. 198 p.
- Sáez, L. & Aymerich, P. 2021. An annotated Checklist of the Vascular Plants of Catalonia (northeastern Iberian Peninsula). Kit-book Serveis Editorials, Barcelona 720 p.
- Sáez, L. & Fraga, P. 1999. Noves aportacions al coneixement de la flora balear. *Bolletí de la Societat d'Història Natural de les Balears*, 42: 85-95.
- Sáez, L., Serapio, J., Gómez-Bellver, C.; Ardenghi, N. M. G., D. Guillot & Rita J. 2016. New records in vascular plants alien to the Balearic Islands. *Orsis*, 30: 101-131.
- Sanz, M., Dana, E. & Sobrino, E. (eds.). 2004. Atlas de las plantas alóctonas invasoras en España. Dirección General para la Biodiversidad. Madrid, 384 p.
- Senar, R. & Cardero, S. 2019. Dades de plantes al·lòctones per a l'est de la península Ibèrica. *Collectanea Botanica (Barcelona)*, 38: e009.
- Serapio, J., Sáez, L. & Guillot, D. 2016. *Opuntia bergeriana*, primera cita como alóctona en las Islas Baleares. *Bouteloua* 26: 110-112.
- Silvestre, S. 2011. *Ipomoea* L. In: S. Talavera; C. Andrés; M. Arista; M. P. Fernández Piedra; M. J. Gallego; P. L. Ortiz; C. Romero Zarco; F. J. Salgueiro; S. Silvestre & Quintanar, A. (eds.). *Flora iberica* XI, Gentianaceae-Boraginaceae: 279-286. Real Jardín Botánico-CSIC. Madrid.
- Smith, G. F. & Figueiredo, E. 2015. Notes on *Aloe ×nobilis* Haw. (Asphodelaceae: Alooideae). *Haseltonia* 21: 72-76.
- Sun, B. X. & Philips, S. M. 2006. *Chloris* Swartz. *Flora of China* 22: 488-491. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA.
- Thiede, J., Smith, G. F. & Egli, U. 2019. Infrageneric classification of *Agave* L. (Asparagaceae: Agavoideae / Agavaceae): a nomenclatural assessment and updated classification at the rank of section, with new combinations. *Bradleya*, 37: 240-264.
- van Noort, S. & Rasplus, J. Y. 2022. Figweb: figs and fig wasps checklist of Indo-Australasian Ficus (Moraceae). http://www.figweb.org/Ficus/Checklists/Checklist_IndoAustralasian_Ficus.htm [accessed 14 Jan 2023].
- Verloove, F., Ojeda-Land, E. Smith, G. F. Guiggi, A., Reyes-Betancort, J.A., Samarín, C., González Hernández, A. &

- Barone, R. 2017. New records of naturalised and invasive cacti (Cactaceae) from Gran Canaria and Tenerife, Canary Islands, Spain. *Bradleya. Yearbook of the British Cactus and Succulent Society*, 35: 58-79.
- Zalapa J. E., Brunet, J. & Guries, R. P. 2009. Patterns of hybridization and introgression between invasive *Ulmus pumila* (Ulmaceae) and native *U. rubra*. *American Journal of Botany*, 96: 1116-1128.