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Additions and amendments to the flora of the Balearic Islands

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Abstract

These paper deals with 45 taxa, seven of which are new to the Balearic Islands flora: *Agrostis capillaris* L., *Centaurea solstitialis* L. *Chenopodium strictum* Roth, *Datura wrigthii* Regel, *Kickxia elatine* (L.) Dumort. subsp. *elatine, Ranunculus xatardii* Lapeyr. and *Senecio inaequidens* DC. On the other hand, six taxa [*Catananche caerulea* L., *Centaurea apula* Lam., *Filago micropodioides* Lange, *Legousia speculum-veneris* (L.) Chaix, *Reseda undata* L. and *Veronica agrestis* L.] are removed from the list of the Balearic Islands and individual island reports are given for several taxa.

Keywords: vascular plants; Balearic Islands; distribution range.

Resum. *Addicions i correccions per a la flora de les Illes Balears*

En aquest article s'aporten dades per a 45 tàxons, set dels quals són nous per a la flora de les Illes Balears: *Agrostis capillaris* L., *Centaurea solstitialis* L. *Chenopodium strictum* Roth, *Datura wrigthii* Regel, *Kickxia elatine* (L.) Dumort. subsp. *elatine, Ranunculus xatardii* Lapeyr. i *Senecio inaequidens* DC. D'altra banda, sis tàxons [*Catananche caerulea* L., *Centaurea apula* Lam., *Filago micropodioides* Lange, *Legousia speculum-veneris* (L.) Chaix, *Reseda undata* L. i *Veronica agrestis* L.] s'exclouen del catàleg florístic de les Illes Balears i s'aporten diverses citacions noves en l'àmbit insular per a alguns tàxons.

Paraules clau: plantes vasculars; Illes Balears; àrea de distribució.

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Introduction

The Balearic flora seems to be relatively well known, although some geographic areas have not been carefully surveyed, and certain genera are not fully understood. A series of additions, confirmations and deletions are provided in order to improve the floristic knowledge of the vascular flora of the Balearic archipelago. In some cases, new interesting reports are provided concerning previously known taxa for the Balearic Islands.

Materials and methods

The floristic data here presented are the result of fieldwork and herbarium research by the authors. These records were checked for novelties alongside with previously published records from floristic treatments, scientific papers and plant distributions compendiums (Bioatles). The names of the localities are based on the Balearic topographic maps (IDEIB <http://ideib.caib.es/visualitzador/visor.jsp>). Voucher specimens are preserved in BC, BCN, HJBS, Herb. Universitat Illes Balears (UIB), MA, MPU, SEV 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. Names in bold indicate taxa previously known in the archipelago. Names in italics correspond to species that should be excluded from the flora of the Balearic Islands or from a concrete island.

Results

****Agrostis capillaris** L.
MALLORCA: Son Torrella, 31SDE8204, 825 m, 23-VI-2014, X. Manzano & L. Sáez LS-7537 (Herb. pers.).

Majorcan specimens are clearly referable to *A. capillaris* on the basis of the characters given by several authors (Pignatti, 1982; Romero, 1988; Stace, 2010): Perennial plants; ligules of tillers shorter than wide, truncate or rounded; panicle diffuse, with spikelets well separated; glumes subequal 1.8-2.2 mm long; lemma 1.5-1.8 mm long, glabrous, without awn; palea 0.8-1 mm long, bifid; anthers 1-1.3 mm long.

This species is native to Europe, central Asia and northern Africa. It has been introduced to many regions of the world, likely for use as livestock fodder as erosion control agent. It has become naturalized throughout Asia, Australia and New Zealand, western and eastern North America, Central and South America, Greenland, as well as the sub-Antarctic islands (Garry Oak Ecosystems Recovery Team, 2014).

The native status of *A. capillaris* in Mallorca is uncertain since it was found among a planted grass and could be part of a seed mixture for revegetation purposes. In our opinion is very likely that *A. capillaris* was introduced in Son Torrella.

Aira uniaristata Lag. & Rodr.
[*Aira caryophyllea* subsp. *uniaristata* (Lag. & Rodr.) Maire]
The knowledge of the genus *Aira*, concerning number of taxa occurring in the archipelago and their distribution in the Balearic Islands is incomplete. *Aira uniaristata* was doubtfully reported from northern Mallorca (Serra de Tramuntana) by Bolòs & Vigo (2001). The following herbarium specimen, which was collected in an area of siliceous rocks, confirms the presence of *Aira uniaristata* in Mallorca: Albarca, V-1970, [Bonafè] (HBJS-Bonafè-0296).

***Allium commutatum** Guss.
Sa Dragonera: between Cala Cucó and Cala Lladó, 31SDD4181, 31SDD4281 and 31SDD4282, 5-15 m, maritime rocks, 27-IV-2002, G. Bibiloni.

Previously known from Mallorca, Menorca, Eivissa and Formentera (Pla et al., 1992).

***Bellium artrutxensis** P. Fraga & Rosselló
Mallorca: Algaida, Son Gual, 39º 34'N, 2º 50'E, 140 m, open scrub, 2-VI-1998, C. Navarro 2012, C. Aedo, N. López, R. Morales, L. Sáez & M. Velayos (MA 618282).

First Majorcan report for a species that was considered endemic to southern Menorca (Fraga et al., 2008). In fact, *B. artrutxensis* is likely to be found in other areas of southern Mallorca and even in Cabrera.

***Calendula tripterocarpa** Rupr.
Mallorca: Camp, Sa Pobla, 13-IV-2006, J. Rita (UIB 16753)

New for Eastern Balearic Islands. This species was so far been reported from Eivissa (Pla et al., 1992) and Formentera (Gil & Llorens, 2001).

***Carduus ibizensis** (Devesa & Talavera) Rosselló & N. Torres
[*C. bourgeanus* subsp. *ibizensis* Devesa & Talavera]
Mallorca: Marina de Llucmajor, 27-IV-2003, J. Rita (UIB 16323).

New for Eastern Balearic Islands. This material (Figure 1) is referable to *C. ibizensis* (instead of the morphologically close *C. bourgeanus* Boiss. & Reut.) according to the taxonomic characters provided by Devesa (2014): pappus with some hairs distinctly dilated at apex and upper middle involucral bracts with scarious apex.

Catananche caerulea L.
Absent from the Balearic Islands. This species was reported as occurring in Northern Mallorca (Puig Major massif), by Knoche (1922b). This area has been intensively explored in the last decades but without re-finding it. One of us (LS) have tried to found Balearic material of *C. caerulea* in MPU-Knoche herbarium without success, and do not consider that this plant is found in the Balearic Islands.

Figure 1. *Carduus ibizensis* (Devesa & Talavera) Rosselló & N. Torres: Detail of specimen UIB 16323.

Centaurea apula Lam.
This species was erroneously reported from Mallorca by Cambessèdes (1827). The voucher material «Majorca [s.d.], Trías (MPU-Knoche)» consists of *Centaurea melitensis* L.

Centaurea aspera subsp. **stenophylla** (Dufour) Nyman
Mallorca: Torre den Pau, VI-1967, L. Llorens (LLGLGV003846); Andratx, camí del Pas, VIII-1967, L. Llorens (LLGLGV003845); Sometimes, [31S]DD77, s.d., L. Llorens (LLGLGV004164); Son Serra (Bunyola), 6-VI-1993, s.r. (Herb. UIB 7109).

First concrete reports for Mallorca. This taxon is not listed by Devesa & López (2013) for Mallorca, but these authors accepted its presence in Menorca. On the other hand, *C. aspera* subsp. *stenophylla* was reported from Mallorca without precise locality by Pla & al. (1992) and Bolòs & Vigo (1996). The latter authors suggested that this taxon is probably adventive, but according to our observations subsp. *stenophylla* seem to be a native plant.

****Centaurea solstitialis** L.
Menorca: Inmediaciones de Ferrerías y en Binimoti, 10-VI-1911, Herb. J. Cardona Mercadal, (BCN 43603).

This species is not listed by Devesa & López (2013) for the Balearic archipelago. The dot in the map by Font & Vigo (2008) is based on this specimen without further comments. The voucher specimen is undoubtedly referable to *C. solstitialis* by its subglabrous or puberulent bracts, with the apical spine up to 16 mm long (Figure 2).

Figure 2. *Centaurea solstitialis* L.: Detail of specimen BCN 43603.

***Cerastium glomeratum** Thuill.
Cabrera: Es Penyal Blanc, 30-IV-1948, P. Ferrer (BC 104073, MA 34681).
In the Balearic Islands, this species was reported from Mallorca, Menorca, Dragonera, Eivissa and Formentera (Pla et al., 1992; Alomar et al., 1998; Gil & Llorens, 2001).

****Chenopodium strictum** Roth
MALLORCA: Sa Pobla, 6-VII-2005, J. Rita & CF (Herb UIB 16689); EIVISSA: Carrt. Cala Jondal, 3-IX-2002, s.r. (Herb UIB 16182).

This species, which belongs to sect. *Chenopodium,* has been often confused with *Ch. album* L. *Chenopodium strictum* is morphologically close to *Ch. album*, but leaves are narrowly oblong with subparallel sides, often obtuse, not lobed but shallowly toothed, and the inflorescence is generally moniliform, not profusely branched. A wider distribution in the Balearic archipelago can be assumed for *Ch. strictum*.

****Datura wrightii** Regel
MALLORCA: Felanitx, Creuer Sant Salvador, 28-IX-2002, J. Rita et al. (Herb. UIB 16161, sub *D. inoxia*).

Datura wrightii is a perennial herb native to North America (southwestern United States and northern Mexico). This species is morphologically close to *D. inoxia* Mill., from which can be easily separated on the basis of stem indumentum (erect multicellular glandular hairs in *D. wrightii* vs. retrorse eglandular hairs in *D. inoxia*). Both species are sometimes cultivated for ornament and can escape and become locally naturalized. *Datura wrightii* was recently reported for the first time in Spain (near Fraga, Huesca province) by Verloove (2008).

Euphorbia pithyusa L. subsp. *pithyusa*
In the Balearic archipelago this species is only known with certainty from the eastern Balearic Islands (Mallorca and Menorca), although it was also vaguely indicated from the western Balearic Islands by Barceló (1879-1881). The only concrete report for western Balearic Islands (Eivissa) is due to Knoche (1922b). Bolòs & Vigo (1990) and Benedí et al. (1997) accepted the presence of *E. pithyusa* in western Balearic Islands on the basis of these ancient bibliographic references, although none of these authors were able to verify the presence of this species in these islands. We have not been able to find any herbarium specimen of this species collected by F. Barceló in western Balearic Islands. However, we have found a specimen collected by H. Knoche in Eivissa, Conillera, 20-V-1906 (MPU-Knoche) labeled as *Euphorbia pithyusa*. However, this material is clearly referable to a young specimen of *Thymelaea hirsuta* (L.) Endl.

Filago micropodioides Lange
This species was reported from Formentera by Font Quer (1920), but its presence on this island is considered questionable by Gil & Llorens (2001). According to S. Andrés Sánchez (com. pers.), the voucher specimen that served as base for the report of *Filago micropodioides* from Formentera (Font Quer, 1920) [Playa del Migjorn, 13-V-1918, Gros (BC 31177)] belongs to *Filago pyramidata.*

Fraxinus angustifolia subsp. **oxycarpa** (M. Bieb. ex Willd.) Franco & Rocha Afonso
MALLORCA: Puigpunyent, Sa Riera, Son Net, 31SDD5886, 225-235 m, riparian forest, 23-VI-2015, L. Sáez LS-7657 and LS-7658 (L. Saez, herb. pers.).

These are the first concrete records for the Balearic Islands. This species was listed (without precise locality) from Mallorca by Andrés (2012). In the locality of Sa Riera, *F. angustifolia* subsp. *oxycarpa* is not uncommon in the hygrophyllous azonal forests, growing together with other deciduous species. *Fraxinus angustifolia* subsp. *oxycarpa* probably also exists in other Majorcan riparian forests.

***Galium spurium** L.

Mallorca: Bec de Ferrutx, Artà, 31SED2496, 310 m, 19-IV-2015, G. Bibiloni; Torrent de Sa Parada, Artà, 31SEE2800, 270 m, 18-V-2013, G. Bibiloni; Illa de Formentor, Pollensa, 31SEE1219, 20 m, 4-VI-1989, G. Bibiloni & J. Rita.

Menorca: Illa den Colom, 31TFE6094424, 20 m, 12-V-1990, G. Bibiloni & J. Rita.

Sa Dragonera: Puig Dragonera, 31SDD4081, 270 m, 25-III-2002, G. Bibiloni, Cala Cucó, 31SDD4181, 110 m, 27-IV-2002, G. Bibiloni; Far de Na Pòpia, southern slopes, 31SDD4182, 200 m, 12-IV-2002, G. Bibiloni; Sa Cova des Moro, 31SDD4282, 80 m, 12-IV-2002, G. Bibiloni.

Eivissa: Es Vedrà, open scrub on northern face, 31SCD4304, 22 m, base of cliffs on southern face, 31SCD4303, 230 m, 4-IV-1996, G. Bibiloni & J. Rita; Illa de Tagomago, 31SCD8221, 70 m, 14-IV-1990, G. Bibiloni & J. Rita.

New for Eivissa, Menorca and Dragonera. This species was so far reported from Mallorca (Ortega & Devesa, 2007) and Cabrera (Bibiloni et al., 1993). Probably *Galium spurium* is more widespread in the Balearic Islands than reports suggest.

Hydrocotyle ranunculoides L. f.

The identity of the plants of the genus *Hydrocotyle* L. in the Balearic Islands is controversial. Alomar & Salom (2003) reported *H. bonariensis* Comm. ex Lam. from a single locality in north-western Mallorca (Banyalbufar, Clot de s'Aigüa, Son Valentí, 324 m). In this locality the plants were found in an old quarry. On the other hand, Moragues (2010) reported *H. ranunculoides* L. f. from a pond close to the road to Banyalbufar. Both localities are the same, but remain doubts about the identity of the plants. The specimens from Banyalbufar have leaves with a deep basal sinus (not peltate as in *H. bonariensis*) and their petioles are 2-3 mm thick and fleshy (Figure 3). These features correspond to *H. ranunculoides*, therefore, *H. bonariensis* should be excluded from the floristic catalogue of the Balearic Islands.

Hydrocotyle ranunculoides is a stoloniferous aquatic perennial plant native to North America. It is both vegetatively and seed-propagated and has been used in Europe for gardening and as aquarium plant. Its potential spread to other water bodies and catchments is almost entirely dependent on human activities. In order to avoid the spread of this plant, the Majorcan population of *H. ranunculoides* was eradicated in 2008.

Figure 3. *Hydrocotyle ranunculoides* L. f.: Specimens from Banyalbufar.

Ilex aquifolium L.
MALLORCA: Pollensa, Talaia d'Albercutx, 31SEE1020, cliffs of the northern slope, 275-300 m, 9-IV-1997, G. Bibiloni (photo).

Because of its inaccessibility it was not collected. However, the specimen has a set of morphological characters (leaves alternate, evergreen, dark green on upper surface, shiny, about 5-10 cm long, ovate, 1.5-2.5 times as long as wide, with 0-4 spinose teeth on each side) that allow differentiate it from other tree or shrub species that sometimes can be found in these environments.

Ilex aquifolium is a rare and endangered species in the Balearic Islands (Sáez & Rosselló, 2001). Most populations are located in high mountains of the Serra de Tramuntana (mainly in the central area). However, some more or less isolated populations are known: Coll des Carniceret (31SDD5687) (southwestern boundary), Puig Tomir (31SDE9319), Puig des Ca (31SDE9510) and Puig Gros Ternelles (Alomar et al., 1995). The population from Talaia d'Albercutx seems to be the lowest known point of its altitudinal range in the Balearic Islands.

Iris foetidissima L.
MALLORCA: Sa Coassa, 31SED2699, shady rocky places and cliffs, 250 m, 27-IV-2014, G. Bibiloni (cultivated specimens are conserved); Ermita de Betlem, 31SED2698, road from the Hermitage of Betlem to the source, 260 m, 10-V-2014, G. Bibiloni.

There are about sixty small specimens in the locality of Sa Coassa, which are distributed in groups in the shade of rocks and cliffs. This population is strongly affected by goat overgrazing and no flowering specimens were found. The identification was possible by locating a second population just over one kilometer from the first one: it was a group of individuals in perfect vegetative state located on the edge of the road from the Hermitage of Betlem to the homonym water source.

This species was collected by F. Bonafè in northern Mallorca [Vall den Marc, Pollensa, VI-1971, HJBS-Bonafè-0762]. Bonafè (1977) listed *I. foetidissima* from Mallorca without precise locality, as cultivated in gardens.

***Juncus hybridus** Brot.
Juncus bufonius L. was reported from Cabrera (Palau, 1976) on the basis of the following herbarium specimen «Raríssim. Font de s'Hort, petita explanada a davant de la porta de la mina, també ala vora del rec de desguaç, 3-V-1948, P. Ferrer (BC 830897, sub *Juncus pygmaeus* Thuill.)». This specimen is clearly attributable to *J. hybridus* according to the taxonomic characters provided by Romero Zarco (2010): Flowers arranged in groups of 3-5, the capsule is shorter than outer tepals and inner tepals are subacute. Therefore, *J. bufonius* should be excluded from the flora of Cabrera.

Juncus ranarius Songeon & E.P. Perrier
MALLORCA: Alcudia, sitios más o menos húmedos, 10-VI-1951, Palau Ferrer (COI, sub *Juncus bufonius*); MALLORCA: Lluch, sitios húmedos, 14-VI-1952,

Palau Ferrer (MA 345329 sub *Juncus pygmaeus*); Lluc, 14-VI-1952, Palau Ferrer (VAL 141103, sub *Juncus pygmaeus*).

Formentera: Beim Leuchtturm auf der «Punta des Faro», 120 m,1-VI-1972, H. Kuhbier & G. Finschow 1585 (SEV 205029).

This species was listed for Mallorca and Formentera by Romero Zarco (2010), however, no concrete localities of *J. ranarius* were known for the Balearic archipelago.

****Kickxia elatine** (L.) Dumort. subsp. **elatine**

Mallorca: Montes de Santa María, en sitios más o menos sombríos, 12-VI-1949, Palau Ferrer s.n. (MA 110384, sub *Linaria sp.*).

The sheet contains five specimens, some of which have hastate leaves; the pedicels are glabrous except just below the calyx (figure 4). These morphological characters allow to identify this plant as subsp. *elatine* (Fernandes, 1972; Güemes, 2009). So far, the only subspecies of *K. elatine* known from the Balearic Islands was subsp. *crinita* (Mabille) Greuter, which is found in Mallorca and Menorca (Güemes, 2009).

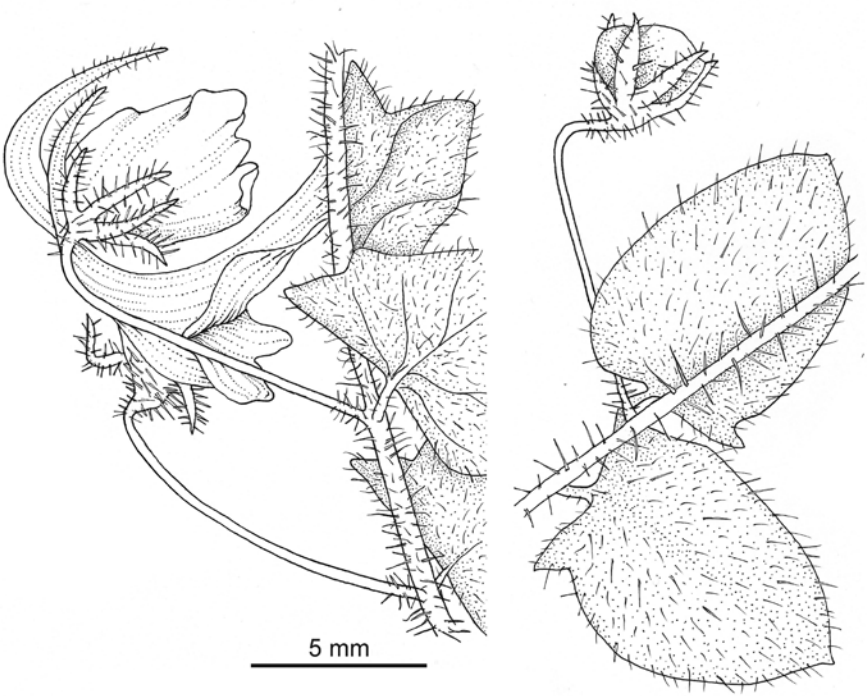

Figure 4. *Kickxia elatine* (L.) Dumort. subsp. *elatine*: Details of the upper right specimen of MA 110384. Drawn by L. Sáez.

Legousia speculum-veneris (L.) Chaix
This species was reported from Mallorca by Bianor (1917, sub *Specularia speculum* A. DC.). The voucher specimen «Teix, mieses, 31-V-1899, Bianor 863bis HBJS-Herb. Bianor» is clearly attributable to *L. scabra* (Lowe) Gamisans, on the basis of the following characters: unbranched stems or slightly branched at base; axillary and solitary flowers, not forming terminal corymbs, and calyx lobes lanceolate ot linear-lanceolate, c. 1 mm width.

A bibliographic reference from Menorca (Sales & Hedge, 2001), most probably referable to the Majorcan record due to Bianor (1917), has not been confirmed. Therefore, *Legousia speculum-veneris* should be excluded from the Balearic floristic catalogue. Noteworthy, this is the second report of *L. scabra* for the Balearic Islands. This species was reported from northern Mallorca (Comuna de Bunyola, Penyals d'Honor, 31SDD7695, 650 m) by Bibiloni & Soler (2002).

Lycium intricatum Boiss.
Mallorca: Illes Malgrats [31SDD5272], 4-IV-1993, Bibiloni & Rita (herb. Universitat Illes Balears).

This species is very rare in the Balearic Islands. It was recorded only from few localities: Eastern and Southern Mallorca and Southern Formentera (Stafforini et al., 2001).

Lotus angustissimus L.
A report from northern Mallorca («3k D7») [surroundings of Sóller] by Knoche (1922b), which is accepted by subsequent authors (Pla et al., 1992) is not supported by herbarium specimens (no voucher at MPU-Knoche), and there is no evidence that *L. angustissimus* exists in this island. In Menorca *L. angustissimus* is confirmed for the northern siliceous area (Rodríguez, 1874, 1904; Montserrat, 1953).

***Medicago secundiflora** Durieu
Sa Dragonera: Cala Cucó, 31SDD4181, 30 m, 12-IV-2002, G. Bibiloni; Far de Na Pòpia, southern slopes, 31SDD4182, 260 m, 12-IV-2002, G. Bibiloni.

Mallorca: Fartàritx, above Vall den March, Pollensa, 31SDE9612, 240 m, 10-V-2015, G. Bibiloni; Bec de Ferrutx, Artà, southern slopes, 31SED2496, 340 m, 10-IV-2013, G. Bibiloni; close to Coll de sa Jonquera, Artà, 31SED2598, 220 m, 3-V-2014, G. Bibiloni; Puig des Coloms, Artà, 31SED2798, 290 m, 25-V-2014; Puig de S'Avenc, between Artà and Capdepera, 31SED3497, 280 m, G. Bibiloni; Punta de Coves Blanques, Pollensa, 31SEE0520, 40 m, 9-XI-1996, G. Bibiloni & J. Soler; s'Atalaia, Artà, 31SEE2902, 260 m, 12-IV-2015, G. Bibiloni.

New for Sa Dragonera. This rare species was so far reported from Mallorca and Cabrera (Pla et al., 1992); its distribution is poorly known. *Medicago secundiflora* is a thermophilic species which usually grows in rocky places in south facing slopes at low altitudes.

Nymphaea alba L.
MALLORCA: Torrent de Gorg Blau, Casa Nova des Garaus, 31SDE8508, 550 m, IV-2014, X. Manzano (Herb. pers.).

This species was reported from Mallorca by Cambessedes (1827) and Barceló (1879-1881). It was collected in Artà (probably in Canyamel area) by Cambessedes [Mallorca: aquis stagnalibus prope Artam, V-1825, Cambessedes (MPU-Knoche)] despite recent surveys in the area it was not found again, being probably extinct there due to drastic environment alterations (wetland drainage and urban development).

In the locality of Gorg Blau *N. alba* has escaped from cultivation and is persistent.

Ononis pubescens L.
MALLORCA: Sóller-Coll de Puig Major, 17-VI-1980, Castroviejo & Morales (MA 336115); Carretera Sóller-Fornalutx, 17-V-2004, J. Rita & CF (Herb. Universitat Illes Balears 16539).

This species was reported from Menorca (Rodríguez, 1904). According to Knoche (1921-22) this Minorcan report is due to confusion with *O. viscosa*. Duvigneaud (1979) listed this species for Mallorca, without precise locality. On the basis of available data, this plant is restricted to mountain areas of northern Mallorca, where it is relatively rare.

***Orobanche clausonis** Pomel
CABRERA: Cap Ventós, 31SDD9734, 80 m, north facing cliffs, growing on *Rubia peregrina* L., 27-VI-2012, L. Sáez LS-7340 (L. Sáez, herb. pers.).

This species was previously known to occur in mountain areas of Mallorca and Eivissa (Pujadas & Lora, 1997; Vericad et al., 2003). Thus, this is the first report of its occurrence in Cabrera and one of the few that are known in the Balearic Islands. It seems likely that *Orobanche clausonis* is more widespread in the Balearic archipelago than reports suggest.

Phleum arenarium L.
This species was reported from several Majorcan localities: Es Coll d'en Rebassa (Palau, 1955), S'Estanyol and Artà (Palau, 1956) and S'Albufera de Mallorca (Riddiford, 2002). Most of the specimens collected by Palau are misidentified *Triplachne nitens* (Guss.) Link, sometimes mixing species in a single collection. Only the following herbarium sheets contain *Ph. arenarium*:

MALLORCA: Coll d'en Rebassa, 26-V-1946, Palau (BC 112327) [It contained mixed specimens; those of *T. nitens* were transferred to a new sheet (BC 866197)]; Coll d'en Rebassa, 24-IV-1947, Palau (MA 5551).

All the other revised specimens are *T. nitens*:

MALLORCA: Coll d'en Rebassa, 26-V-1946 (MA 6855, BC 866197); S'Estanyol, 9-V-1954, Palau, Plantas de Baleares, n. 692 (BC 126479, BC 632319, BCN 43904, MA 162985, MA 347247).

***Plantago weldenii** Rchb. subsp. **weldenii**
MALLORCA: Llucmajor, between S'Estanyol de Migjorn and Torre de S'Estalella, 2-IV-2010, J. Vicens (BCN 70415).

These extremely dwarf forms (figure 5) were found among therophyte and bryophyte communities. This taxon was previously known from Menorca (Fraga, 2008).

Figure 5. *Plantago weldenii* Rchb. subsp. *weldenii*: Details of specimens BCN 70415.

****Ranunculus xatardii** Lapeyr.
[*R. sardous* subsp. *xatardii* (Lapeyr.) Rouy & Foucaud]
MENORCA: Favàritx (Maó-Menorca), 10-IV-1979, J. Rita (BC 645224, sub *Ranunculus trilobus* Desf.).

While studying material of the genus *Ranunculus* (in BC), we found specimens belonging to the group of *R. sardous* Crantz that called our attention. These showed characters that were not clearly attributable either *R. sardous* or *R. trilo-*

bus Desf.: the petals were much more smaller than those of *R. sardous*, while infructescence was as long as wide (longer than wider in *R. trilobus*). The assignment of the minorcan plants to *R. xatardii* is provisional, since we were not able to study the original material of this species. Moreover, this taxon is reduced to synonym of *R. sardous* (Hörandl & von Raab-Straube, 2015) or treated as forma within *R. sardous* (Tela Botanica, 2015). Tison et al. (2014) who not explicitly recognized *R. sardous* subsp. *xatardii*, considered that the key character of the taxon is variable even within the same individual.

***Reichardia intermedia** (Sch. Bip.) Samp.
[*R. picroides* subsp. *intermedia* (Sch. Bip.) Maire]
Cabrera: Niu de s'Aguila, 13-IV-1951, Palau Ferrer (MA 13912, MA160743, BCN 35560).

No previous records of this species from Cabrera are known. *Reichardia intermedia* was reported from Mallorca (Willkomm, 1876; Pla et al., 1992) and Menorca (Porta, 1887; Fraga & Garcia, 2004). We also found the following populations in eastern and western Mallorca: Colònia de Sant Pere, Artà, 31SED2398 and 31SED2498, 10-30 m, 10-XI-2013 and 3-V-2014 respectively, G. Bibiloni; Font Seca, Andratx, 31SDD4679, 100 m, 16-III-2014, G. Bibiloni; S'Atalaia, Artà, 31SEE2902, 120 m, 12-IV-2015, G. Bibiloni (Herb. pers.).

Reseda undata L.
This species was reported from Mallorca by Cambessèdes (1827). The voucher specimen that served as base for this record «Mallorca: Bellver [Belver, sic], 21-III-1825 [Cambessèdes] (MPU-Knoche)» consists of *R. alba.*

***Rumex bucephalophorus** L. subsp. **aegeus** Rech. fil.
Mallorca: carretera Pina-Algaida, 21-V-2003, E. Moragues (Herb. Universitat Illes Balears 16193); Can Vicens, Artà, 31SED2799, grassland on sandy soil, 50 m, 20-IV-2013, G. Bibiloni; Cala d'en Sureda, Artà, 31SEE2600, grassland on sandy soil, 8 m, 19-IV-2013, G. Bibiloni; Punta Llarga, Artà, 31SED2298, grassland on sandy soil, 5 m, 18-IV-2015, G. Bibiloni (Herb. pers.).

In the Balearic Islands, this taxon was reported from Menorca (Fraga et al., 2003), Eivissa and Formentera (López González, 1990). This subspecies is probably more widespread in the Balearic archipelago than reports suggest.

****Senecio inaequidens** DC.
Mallorca: Son Real, 31SED1498, roadsides, 12-VI-2008, Gil & Cardona (Gil herb. pers., sub *S. malacitanus*).

This perennial plant is native to southern Africa and has been introduced in many countries, becoming invasive in Europe (Heger & Böhmer, 2005). *Senecio inaequidens* is currently colonizing a wide range of environments, from dry to humid habitats, stone to clay soils, exposed to shaded locations (Werner et al., 1991). In the Iberian Peninsula *S. inaequidens* shows an expansive demographic trend, being necessary to erradicate the only known population in the Balearic

Islands. The report of *Senecio malacitanus* Huter from northeastern Mallorca (Sáez et al., 2011) is referable to *S. inaequidens*.

In Mallorca *S. malacitanus* seems to be restricted to western Serra de Tramuntana (La Trapa, 16-II-1982, HBJS, sub *S. linifolius*) [also reported by Bianor (1917, sub *S. linifolius*); Palau in Bonafè, 1980, sub *S. linifolius* and Alomar & Salom (2003)]. *Senecio malacitanus* is also known from Sa Dragonera (Palau in Bonafè, 1980, sub *S. linifolius*; Alomar et al., 1998) and Eivissa (Pau, 1900, Font Quer, 1920; Vericad et al., 2003).

***Sisymbrium runcinatum** Lag. ex DC.
Sa Dragonera: Na Pòpia and Coll Roig, 31SDD4182, 12-IV-2002, G. Bibiloni; Cala Lladó, 31SDD4282, 30 m, 12-IV-2002, G. Bibiloni; Between Es Bufador and Es Jas de Sa Truja, 31SDD4283, 90 m, 12-IV-2002, G. Bibiloni.

Cabrera: surroundings of Caleta des Pagès, 31SDD9433, 10 m, 25-IV-1991, G. Bibiloni & J. Rita, Na Picamosques, eastern slopes and Es Coll Roig, above cliffs, 31SDD9332, 100-150 m, 5-V-1991, G. Bibiloni & J. Rita.

New for Sa Dragonera. Concrete localities known for this species are scarce. *Sisymbrium runcinatum* was listed for Cabrera [SE de la Serra de la Pleta del Castell] and Mallorca by Palau (1976) and Pla et al. (1992) respectively. Its distribution seems to be linked with the presence of seabirds.

***Solanum villosum** Mill.
Mallorca: Morro den Feliu, Calvià, 31SDD5768, 50 m, 4-II-2007, G. Bibiloni; Coves de Refeubeix, Calvià, 31SDD5769, 100 m, 4-II-2007, G. Bibiloni; Illeta de Sóller, 31SDE7507, 50 m, 6-VI-1989, G. Bibiloni & J. Rita; Illa de Formentor, Pollensa, 31SEE1219, 20 m, 4-VI-1989, G. Bibiloni & J. Rita; Atalaia Moreia, Artà, north-east facing cliffs, 31SEE3003, 270 m, 2-V-2015, G. Bibiloni.

Eivissa: Es Vedrà, 31SCD4303, 150 m, 4-IV-1996, G. Bibiloni & J. Rita; Es Vedranell, 17-V-1993, G. Bibiloni & Rita.

Sa Dragonera: Puig Dragonera, southern slopes, 31SDD4182, 25-III-2002; Far de Na Pòpia, 31SDD4182, 24-III-2002, Forat de ses Gambes, 31SDD4081, 25-III-2002, Jas de Sa Truja, 31SDD4283, 12-IV-2002, G. Bibiloni.

New for Sa Drgonera, and several islets. Previously known from Mallorca, Menorca, Eivissa and Formentera (Pla et al., 1992).

Soleirolia soleirolii (Req.) Dandy
Mallorca: Puig Morei, Artà, north facing cliffs, 31SEE2901, 240 m, 10-XI-2013, G. Bibiloni (Herb. pers.).

Balearic populations of this species are restricted to Mallorca. So far, *Soleirolia soleirolii* is known from few scattered localities in Northern Mallorca (Serra de Tramuntana), in the area comprised between Ses Serres, Andratx (31SDD4785) and El Corredor, Pollensa (31SEE0920), where it grows at the base of cliffs in shady areas close to the sea. Therefore, this is the first report for Eastern Mallorca (Serres de Llevant). In Puig Morei, *Soleirolia soleirolii* occupies a few square meters in the base of a large crack in the cliff.

Veronica agrestis L.
This species was reported for the Balearic Islands from Eastern Mallorca («prope Artam») by Cambessèdes (1827). The voucher specimen [Mallorca: in umbrosis montium Majorcae prope Artam, 14-IV-1825, Cambessèdes (MPU-Knoche) consists of *Veronica polita* Fries.

Veronica panormitana Tineo ex Guss.
It was reported from Eivissa by Font Quer (1921, sub *V. cymbalaria* var. *panormitana* Tin.). The voucher specimen «Pla de Vila, 22-III-1918, Font Quer (BC 618825, sub *V, hederifolia* subsp. *panormitana*)» consists of *V. hederifolia* L. In the Balearic archipelago, *Veronica panormitana* was so far reported only from Menorca (Sáez & Fraga, 1999; Fraga et al., 2000).

Vicia dasycarpa Ten.
[*V. villosa* subsp. *dasycarpa* (Ten.) Cavill.; *V. varia* Host]
Mallorca: Son Servera, campos, 3-V-1955, Palau Ferrer 731 (BC 132778, BC 860239, sub *Cracca varia* Host).

The presence of this species in Mallorca (Bolòs & Vigo, 1984) was regarded as doubtful by Pla et al. (1992). Romero Zarco (1999) listed *V. dasycarpa* for Mallorca based on a bibliographic reference, most likely due to Bolòs & Vigo (1984). We are able to confirm that Majorcan specimens collected by Palau Ferrer correspond to *V. dasycarpa*, by their inflorescences with 15-18 flowers, fruits 23-27 × 9-10.5 mm and hilum 1.5-2 mm. *Vicia dasycarpa* also exists in Menorca (Fraga et al., 2001), where it grows in waysides and grassy places.

***Vicia hybrida** L.
Menorca: Son Saura, 12-IV-2003, s.r. (UIB 16276).

New for Menorca. According to Rodríguez (1874) ancient reports of this species are due to confusion with *V. lutea* L. The presence of this species in Menorca was not confirmed by Fraga et al. (2004). *Vicia hybrida* was also reported from Formentera (Cap de Barbaria) by Rita et al. (1985). A wider distribution in the Balearic archipelago can be assumed for *V. hybrida*.

Vicia monantha Retz. subsp. *calcarata* (Desf.) Romero Zarco
[*V. calcarata* Desf.]
This species was reported by Palau (1954, 1976) as abundant in Cabrera. Subsequently, Romero Zarco (1999) listed *V. monantha* subsp. *calcarata* for Cabrera based on a bibliographic reference, in all probability due to Palau (1954, 1976). Having revised the herbarium specimens that served as a basis for reports of *V. monantha* subsp. *calcarata* from Cabrera [Cabrera: garrigues, Serra de sa Font, 29-IV-1948, Palau Ferrer s.n. (BC 860271, BC 860280, BC 860281, sub *V. calcarata*); garrigues, Calons, 14-VI-1951, Palau Ferrer s.n. (BC 860281, sub *V. calcarata*)] we conclude that these records were based on misidentified material of *V. pseudocracca* Bertol.: the calyx is shorter than 1/3 of the length of the flower, the calyx lobes are narrowly triangular to subulate and the fruits are

27-32 × 5.5-7 mm, narrower than those of *V. monantha* subsp. *calcarata*. The latter taxon exists on the islands of Mallorca, Menorca and Eivissa.

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