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New records of non-native vascular plants in Gran Canaria (Spain, Canary Islands)

Abstract

Verloove, F., Déniz Suárez, E. A. & Salas Pascual, M: New records of non-native vascular plants in Gran Canaria (Spain, Canary Islands). — Fl. Medit. 30: 121-136. 2020. — ISSN: 1120-4052 printed, 2240-4538 online.

Recent field work by the authors on the island of Gran Canaria (Canary Islands, Spain) yielded new interesting records of non-native species. Seven species, i.e. *Centaurea sulphurea*, *Clematis flammula*, *Fallopia baldschuanica*, *Fraxinus angustifolia*, *Melilotus officinalis*, *Saponaria officinalis*, and *Searsia lancea* have not been recorded before from the Canary Islands, whereas 13 species (*Bellis perennis*, *Centaurea diluta*, *Chlorophytum comosum*, *Chondrilla juncea*, *Cyperus papyrus*, *Delphinium ajacis*, *Helianthus annuus*, *Lonicera japonica*, *Lupinus pilosus*, *Montanoa bipinnatifida*, *Ornithogalum arabicum*, *Trifolium cernuum*, and *Wigandia caracasana*) are reported for the first time from Gran Canaria. The actual presence of five further species (*Chenopodium vulvaria*, *Fallopia convolvulus*, *Kalanchoe daigremontiana*, *Paspalum dilatatum*, and *Voluntaria tubuliflora*) – all considered doubtful, recently discovered or with only historical occurrences in Gran Canaria – is confirmed. Chorological and ecological details are presented for these species and their invasion status is assessed. Many of them are reputed weeds, either agriculturally or environmentally.

Key words: xenophytes, alien flora, floristic inventories.

Introduction

This paper is a sequel to Verloove (2013 and 2017) and Verloove & al. (2018). We present new records for species that are either new to the Canary Islands (and even Macaronesia as a whole) or new to the island of Gran Canaria. The emphasis is on species that are naturalized or on their way to future naturalization, (potentially) invasive or that are otherwise of interest. In addition, comments are presented on some species for which the actual presence in Gran Canaria required confirmation.

Materials and methods

Herbarium specimens were collected for most of the records and these are deposited in the herbaria BR (Meise Botanic garden, Belgium) and/or LPA (Jardín Botánico Canario

Viera y Clavijo, Gran Canaria) (herbarium acronyms according to Thiers 2020). For records that were not substantiated by a voucher, photographs were made. These, following Gómez Bellver & al. (2019), were, provided by a herbarium label, deposited in PAL. Some species are also illustrated in this paper.

The invasion status for each taxon was assessed based on criteria as proposed by Blackburn & al. (2011).

Results

Taxa newly recorded for the flora of Gran Canaria and/or the Canary Islands

Bellis perennis L. (Asteraceae)

New record for the flora of Gran Canaria.

Category C3: Individuals surviving in the wild in location where introduced, reproduction occurring, and population self-sustaining (Blackburn & al. 2011).

Observation: GRAN CANARIA: San Bartolomé de Tirajana, San Agustín, 27°46'15.96"N, 15°32'34.73"W, irrigated lawn in front of Hotel Meliá Tamarindos, 2 June 2019, *M. Salas Pascual* s.c.

Bellis perennis is native to large parts of Eurasia and a common weed in other temperate regions of the world. It was not yet mentioned from the Canary Islands by Acebes Ginovés & al. (2010). In 2013 it was recorded in an irrigated lawn in La Palma (Otto & Verloove 2016) and it is also known to one of us (FV) from Tenerife since 2017 (Verloove, in prep.). In 2019 it was recorded for the first time from Gran Canaria as well, in circumstances identical to those in La Palma.

Centaurea diluta Aiton (Asteraceae)

New record for the flora of Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Arucas, Barreto, Camino Real a Riquiáñez, 28°06'31.05"N, 15° 31'15.58"W, 25 May 2019, *E. A. Déniz Suárez* 13 (BR).

This western Mediterranean weed (Devesa & López Nieto 2014) has been known from the Canary Islands from La Gomera and Tenerife (Méndez & Wildpret 1978; Acebes Ginovés & al. 2010), subsequently also from Lanzarote (Gil González & al. 2014). It is here reported for the first time from Gran Canaria.

A small group of individuals (probably less than 30) was observed at an altitude of 265 m. The population is located on the edge of a mud pond, in a highly anthropized peri-urban area, with scattered houses and abandoned farmland. Accompanying species included, among others: *Carthamus lanatus* L., *Scolymus maculatus* L., *Beta macrocarpa* Guss., *Lactuca serriola* L., *Helminthotheca echioides* (L.) Holub, *Salvia canariensis* L. and *Pallenis spinosa* (L.) Cass.

Centaurea sulphurea Willd. (*Asteraceae*) (Fig. 1a)

New record for the flora of the Canary Islands.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Tejeda, crossing at Roque Bentayga, 27°59'21.03"N, 15°38'05.33"W, 16 May 2019, *E. A. Déniz Suárez* 12a (BR); Vega de San Mateo, Morro de la Almagría, next to the road, 28°00'06.54"N, 15°35'39.54"W, 16 May 2019, *E. A. Déniz Suárez* 12b (BR); Vega de San Mateo, Degollada Becerra, 27°59'21.18"N, 15°35'35.10"W, 23 May 2019, *E. A. Déniz Suárez* 12c (BR); Vega de San Mateo, Degollada Florida, 27°59'08.73"N, 15°35'19.61"W, 10 June 2019, *E. A. Déniz Suárez* 11 (BR).

Centaurea sulphurea is native to southwestern Europe (Iberian Peninsula and Morocco, Algeria and Libya; Devesa & López Nieto 2014). It is considered to be a noxious weed in California (Keil & Ochsmann 2006) and has not been recorded before in the Canary Islands (Acebes Ginovés & al. 2010).

This species was recently detected in four localities in Gran Canaria. A first one is located in Morro de la Almagría, on both sides of the C-150 road, 500 meters from the Cruz de Tejeda in the direction of Los Pechos at an altitude of 1,535 m. It is composed of a fairly large group of specimens (at least one hundred). Accompanying species are, among others, *Vinca major* L., *Ferula linkii* Webb, *Avena barbata* Pott ex Link and *Aeonium simsii* (Sweet) Stearn. A second locality is located on the margin of the road from Cruz de Tejeda to Los Pechos (Degollada de Becerra or Degollada de las Palomas), at an altitude of 1,550 m. This population is smaller (less than 50 individuals) and accompanied by species such as *Carthamus lanatus* L., *Vicia angustifolia* L., *Avena sativa* L., *Lathyrus angulatus* L., *Telina microphylla* (DC.) P. E. Gibbs & Dingwall, *Pinus canariensis* C. Sm. (repopulation), *Ferula linkii* Webb, *Silybum marianum* (L.) Gaertn. and *Galactites tomentosa* Moench. The third population, with at least 100 individuals, although mostly of small sizes, is located in Degollada Florida at the junction between the C-150 and the C-135 roads, at an altitude of 1,590 m. The plants grow under a cattle trough next to the road, and, like the rest of localities, in grazing areas. The last population is located between Patacabras and Casas del Lomo, on both sides of the crossing to Roque Bentayga (Tejeda) at an altitude of 1,147 m. It counts less than fifty individuals. Accompanying species are *Carthamus lanatus* L., *Scolymus hispanicus* L. subsp. *hispanicus*, *Hirschfeldia incana* (L.) Lagr.-Foss., *Anchusa azurea* Mill., *Prunus dulcis* (Mill.) D.A. Webb, *Cladanthus mixtus* (L.) Oberpr. & Vogt, *Allagopappus viscosissimus* Bolle, *Silybum marianum* (L.) Gaertn. and *Galactites tomentosa* Moench.

In Gran Canaria *Centaurea sulphurea* is found in upland pastures with high biodiversity and – except in the last population – in areas with high annual rainfall, cold weather conditions in winter and in traditionally grazed spaces. In Tejeda it is found in a slightly lower zone with a warmer and drier climate.

Although in Gran Canaria the species occurs in relatively undisturbed areas it is most likely an introduced species that is dispersed by cattle, especially sheep.

Chlorophytum comosum (Thunb.) Jacques (*Asparagaceae*)

New record for the flora of Gran Canaria.

Category C2: Individuals surviving in the wild in location where introduced, reproduction occurring, but population not self-sustaining (Blackburn & al. 2011).

Observations: GRAN CANARIA: Teror, Finca de Osorio, on the edge of the road under a group of *Laurus* trees, 28°04'31.04"N, 15°32'59.14"W, 31 July 2018, *E. A. Déniz Suárez* s.c.; Moya, Fontanales-San Fernando, 28°03'42.92"N, 15°36'11.02"W, 2018 (casual), *E. A. Déniz Suárez* s.c.; Vega de San Mateo, Urb. El Pintor, 28°00'34.52"N, 15°31'53.10"W, self-seeding individuals, 2018, *E. A. Déniz Suárez* s.c.

This South African ornamental is widely cultivated, also in the Canary Islands, from where it was not mentioned yet by Acebes Ginovés & al. (2010). However, this species was reported already by Rodríguez Delgado & García Gallo (2005) who found it in El Bosque del Adelantado in La Esperanza (Tenerife). After that, Santos & al. (2013a) confirmed this species from Los Batanes-Barranco del Río (La Laguna), also in Tenerife. In 2014, Otto & Verloove (2016) found this species in La Villa de Mazo in La Palma, as ephemeral species.

It has been observed on several occasions in Gran Canaria, for instance near to the Osorio (Teror) estate at an altitude of 650 m. Another individual was seen alongside the road from Fontanales to San Fernando (belonging to the municipality of Moya). In Vega de San Mateo, in the Urbanization El Pintor, at an altitude of 828 m., self-seeding individuals were seen in a garden.

Chlorophytum comosum is regarded as a minor environmental weed in New South Wales, Queensland and Victoria in Australia. Plants become established in native habitats when they are introduced to the area in discarded garden refuse. Once established they spread by plantlets and individual clumps can spread quite extensively, excluding native plants in the ground layer of natural vegetation (Weeds of Australia 2019).

***Chondrilla juncea* L. (Asteraceae) (Fig. 1b)**

New record for the flora of Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observations: GRAN CANARIA: Vega de San Mateo, Era del Barranco (Los Pechos), between grassland and scrubland, close to road GC-130, 27°57'54.13"N, 15°33.32.62"W, 18 June 2019, *E. A. Déniz Suárez* s.c.; Vega de San Mateo, Llanos de Ana López, 27°59'06.80"N, 15°34'42.73"W, in the middle of a repopulation of *Pinus canariensis*, 19 August 2019, *E. A. Déniz Suárez* s.c.

Chondrilla juncea is a native species in the Mediterranean region. Elsewhere in suitable climates it is a noxious weed, for instance in Australia and parts of North America (Panetta & Dodd 1987; Gottlieb 2006). In the Canary Islands it was only known so far from Tenerife (Santos Guerra 1996; Acebes Ginovés & al. 2010).

In Gran Canaria this species is found since 2018 in two localities. A first population was found in Era del Barranco-Los Pechos (Vega de San Mateo), at an altitude of 1,810 m. This area belongs to the protected area called "Paisaje Protegido de Las Cumbres". The species grows on the margins of the GC-130 road and the number of individuals is low, less than 30, although the species often tends to form dense clusters of individuals. The plants were observed to be eaten by rabbits. The locality is a "mosaic" area composed of open grasslands, patches of *Micromerio benthami-Telinetum microphyllae*, *Echio plantaginei-Galactition tomentosae* vegetation (syntaxa here and below are in accordance with del Arco Aguilar & Rodríguez Delgado 2018) and surrounded by restocking pine forests. It is

an area that has been traditionally pastored and that was affected by the forest fires of 2017. *Chondrilla juncea* grows among endemics that are in danger of extinction, for instance *Onopordum carduelium* Bolle. Other accompanying species of interest are: *Erysimum albescens* (Webb & Berthel.) Bramwell, *Marrubium vulgare* L., *Adenocarpus foliolosus* (Aiton) DC., *Teline microphylla* (DC.) P. E. Gibbs & Dingwall, *Allium ampeloprasum* L., *Anthriscus caucalis* M. Bieb., *Ranunculus cortusifolius* Willd., *Asphodelus ramosus* L. and *Leopoldia comosa* (L.) Parl. among others. A second population was discovered in Llanos de Ana López (Vega de San Mateo): a small group of about five individuals was observed at an altitude of 1,620 m. The plants are located in the middle of a repopulation of *Pinus canariensis* C. Sm. which was also affected by the aforementioned forest fire of 2017. The species grows together with *Lactuca serriola* L., another expanding species on the island. In both places the precipitation is high and the weather is cold in winter with, occasionally, times of snow.

Chondrilla juncea probably is a recent introduction in Gran Canaria, unless it had been overlooked so far. It is unknown when and how it was introduced. Like other species of *Asteraceae* such as *Scolymus* or *Carthamus* among others, cattle may be responsible for its propagation.

***Clematis flammula* L. (Ranunculaceae)**

New record for the flora of the Canary Islands.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Vega de San Mateo, La Lechucilla, entrance to the Carretera General, 27°59'57.82"N, 15°32'35.93"W, 27 June 2019, *E. A. Déniz Suárez* 2 (BR); Vega de San Mateo, road to El Chorrillo, 28°01'08.55"N, 15°31'30.53"W, 25 July 2019, *E. A. Déniz Suárez* 3 (BR).

Clematis flammula is a native species in the Mediterranean area and sometimes grown as an ornamental vine elsewhere. Up to present, it had not been recorded in the Canary Islands (Acebes Ginovés & al. 2010).

In recent years it was recorded on two occasions in Gran Canaria, both located in Vega de San Mateo. In La Lechucilla the species is growing next to a huge specimen of *Podranea ricasoliana* (Tanfani) Sprague. A further specimen was observed on a border next to *Rubus ulmifolius* Schott.

The plants found in Gran Canaria were first thought to belong to *Clematis vitalba* L., a more temperate species that also has weedy tendencies and likely to occur also in the Canary Islands. *C. flammula* is distinguished by its twice pinnate leaves (vs. once pinnate) and its sepals that are only hairy on the lower side (vs. on both sides).

***Cyperus papyrus* L. (Cyperaceae)**

New record for the flora of Gran Canaria.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Observation: GRAN CANARIA: Santa Brígida, 28°02'07.67"N, 15°29'45.01"W, a single culm in a pond, 27 November 2019, *E. A. Déniz Suárez* s.c.

Cyperus papyrus is probably native to Central Africa but it has been cultivated since ancient times elsewhere in the Old World tropics. It was once collected in Tenerife, in La Quinta in 1971 (Verloove 2017).

In Gran Canaria this species grows in a pool in Santa Brígida where it is persisting since several years. In 2019, however, the pool was cleaned and all plants except a single culm were removed.

***Delphinium ajacis* L. (Ranunculaceae)**

Consolida ajacis (L.) Schur

New record for the flora of Gran Canaria.

Category C3: Individuals surviving in the wild in location where introduced, reproduction occurring, and population self-sustaining (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Vega de San Mateo, La Lechuza, 28°00'26.18"N, 15°33'11.74"W, 7 June 2019, E. A. Déniz Suárez 10 (BR).

Delphinium ajacis is probably native to southern Europe and adjacent parts of Asia. It is a frequent weed elsewhere and is also grown as an ornamental. In the Canary Islands it has been recorded so far from Tenerife (García Gallo 1987, Santos Guerra & al. 2014, Acebes Ginovés & al. 2010) and subsequently from La Palma and El Hierro by Santos & al. (2014).

In Gran Canaria a single population was discovered in the neighborhood of La Lechuza next to the GC-15 road at an altitude of 1,040 m. According to locals, the species was grown there many years ago and apparently has established itself locally.

***Fallopia baldschuanica* (Regel) Holub (Polygonaceae) (Fig. 1c)**

New record for the flora of the Canary Islands.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Observation: GRAN CANARIA: Vega de San Mateo, Camino Real to El Chorrillo, 28°00'49.66"N, 15°31'47.39"W, a single but very huge specimen, 9 May 2018, E. A. Déniz Suárez s.c.

Fallopia baldschuanica is a commonly grown ornamental vine from Asia. It is very vigorous and easily escapes from cultivation. Up to present it had not been recorded in the wild in the Canary Islands (Acebes Ginovés & al. 2010).

In Vega de San Mateo (*camino real* to Chorrillo), at an altitude of 750 m, a huge specimen with stems up to ca. 15 m long is growing on the verge of the road. The species is very aggressive and overgrows native species such as *Ferula linkii* Webb. It was also seen cultivated elsewhere in Vega de San Mateo.

Fallopia baldschuanica is here accepted in a broad sense as to include *F. aubertii* (L. Henry) Holub.

***Fraxinus angustifolia* Vahl (Oleaceae)**

New record for the flora of the Canary Islands.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Tejada, Los Llanos de la Pez, 27°57'56.05"N, 15°35'03.01"W, 15 April and 27 May 2019, E. A. Déniz Suárez 8 (BR).

Fraxinus angustifolia is native to central and southern Europe, northwest Africa and southwest Asia. Not a single species of the genus has been recorded so far in the Canary Islands (Acebes Ginovés & al. 2010).

In Gran Canaria a group of several individuals was recorded in 2019 in Los Llanos de la Pez (Tejeda) in the middle of a repopulation of *Pinus canariensis* C. Sm., at an altitude of 1,675 m.

***Helianthus annuus* L. (Asteraceae)**

New record for the flora of Gran Canaria.

Category C2: Individuals surviving in the wild in location where introduced, reproduction occurring, but population not self-sustaining (Blackburn & al. 2011).

Observation: GRAN CANARIA: Gáldar, barranco de Gáldar, in the riverbed, 28°09'18.07"N, 15°39'56.61"W, 26 March 2018, *E. A. Déniz Suárez* s.c.

This North American species has been recorded in the Canary Islands from Tenerife and Fuerteventura (Acebes Ginovés & al. 2010). Otto & Verloove (2016) also reported this species from La Palma. It is here reported for the first time from Gran Canaria.

A single individual was observed in the ravine of Gáldar along with other species of ruderal habitats such as *Ricinus communis* L.

***Lonicera japonica* Thunb. (Caprifoliaceae) (Fig. 1d)**

New record for the flora of Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observations: GRAN CANARIA: Teror, Finca de Osorio, near the main house, 28° 4'15.70"N, 15°32'34.53"W, 665 m, 19 March 2019, *M. Salas Pascual* s.c.; Teror, Finca de Osorio, path from La Huerta to Las Camelias, 28° 4'9.82"N, 15°32'49.40"W, 675-700 m, 19 March 2019, *M. Salas Pascual* s.c.

Lonicera japonica is an East Asian vine that is widely cultivated as an ornamental. In the Canary Islands it was only known so far from Tenerife where it is considered an invasive species (Acebes Ginovés & al. 2010). It is here reported for the first time from Gran Canaria.

It was recorded since 2018 in two localities at the Finca de Osorio in Teror. A first population is found at the path from La Huerta to Las Camelias. The species proliferates there on *Castanea sativa* Mill. but also on the ground and on low scrub and covers about 200 m². A second population is found at an altitude of 665 m and overgrows *Laurus novocanariensis* Rivas Mart., Lousã, Fern.Prieto, E.Días, J.C.Costa & C.Aguiar scrubland. This location is close to a garden, where the plant could come from, whereas the first town is about 500 m away.

***Lupinus pilosus* L. (Fabaceae)**

New record for the flora of Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observation: GRAN CANARIA: San Bartolomé de Tirajana, road to Degollada de La Manzanilla, 27°55'03.65"N, 15°34'36.40"W, between scattered pine grove and *Cistus monspeliensis* scrubland, 25 February 2017, *E. A. Déniz Suárez* s.c.

Lupinus pilosus is endemic to Israel where it is found in Mediterranean scrubland. It is regularly grown elsewhere as a culinary herb or as an ornamental. It has been recorded in the Canary Islands from La Palma and Tenerife (Santos Guerra 1996; Acebes Ginovés & al. 2010; Santos Guerra & al. 2014). It is here reported for the first time from Gran Canaria.

This species is very common in San Bartolomé de Tirajana, especially along the road that leads to the Degollada de La Manzanilla. It grows in the middle of scattered pine grove and *Cistus* scrubland, near country houses. It most likely escaped from former plantations and now has established itself in this area

***Melilotus officinalis* (L.) Pallas (*Fabaceae*)**

New record for the flora of the Canary Islands.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Las Palmas de Gran Canaria, San Miguel, 28°06'49.83"N, 15°27'20.15"W, flowerbed near the cemetery, 14 March 2019, *E. A. Déniz Suárez* 7 (BR); Las Palmas de Gran Canaria, at the cemetery of San Miguel, 28°06'49.83"N, 15°27'20.15"W, 13 June 2019, *E. A. Déniz Suárez* 6 (BR).

Melilotus officinalis is native to Eurasia and widely naturalized elsewhere as an agricultural weed. It had not been recorded before in the Canary Islands (Acebes Ginovés & al. 2010). It is here reported for the first time from Gran Canaria.

It is naturalized as a weed in flowerbeds close to the cemetery of San Miguel in Las Palmas de Gran Canaria.

Melilotus segetalis (Brot.) Ser. was recently also reported from Gran Canaria (Marrero 2019), for the first time in the Canary Islands.

***Montanoa bipinnatifida* (Kunth) K. Koch (*Asteraceae*) (Fig. 1e)**

New record for the flora of Gran Canaria.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Observation: GRAN CANARIA: Santa Brígida, Camino de Las Arenillas, 28°2'0.47"N, 15°28'17.46"W, rough ground adjacent to the road, a single shrub, 17 April 2018, *F. Verloove* s.c.

This Mexican species is grown as an ornamental in warm-temperate and subtropical regions across the world. In the Canary Islands it was previously reported from Tenerife (Knapp 1976; Acebes Ginovés & al. 2010) and it was recently also observed in La Palma (Otto & Verloove 2020). It is here reported for the first time from Gran Canaria.

A single shrub was seen in shrubland in Santa Brígida (Camino de Las Arenillas) in 2018.

***Ornithogalum arabicum* L. (*Asparagaceae*)**

New record for the flora of Gran Canaria.

Category C2: Individuals surviving in the wild in location where introduced, reproduction occurring, but population not self-sustaining (Blackburn & al. 2011).

Observation: GRAN CANARIA: Vega de San Mateo, Aríñez, 28°01'04.45"N, 15°34'08.63"W, escaped from a plantation, 15 June 2018, *E. A. Déniz Suárez* s.c.

This Mediterranean species is often cultivated for ornamental purposes (Star of Bethlehem)

and has been reported from Tenerife in the Canary Islands (Acebes Ginovés & al. 2010). It is here reported for the first time from Gran Canaria.

Scattered individuals were seen as escapes from an ornamental plantation in Ariñez (Vega de San Mateo) at an altitude of 1,180 m.

***Saponaria officinalis* L. (Caryophyllaceae)**

New record for the flora of the Canary Islands.

Category C1: Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).

Observation: GRAN CANARIA: Vega de San Mateo, Ariñez, 28°01'04.14"N, 15°34'10.89"W, next to a ditch, 23 October 2018, *E. A. Déniz Suárez* s.c.

Saponaria officinalis is a Eurasian species that is widely cultivated. It had not been recorded before in the Canary Islands (Acebes Ginovés & al. 2010).

Two individuals were observed in Ariñez (Vega de San Mateo) at an altitude of 1,170 m. The plants grow on the edge of an old ditch that was recently piped. As a result the population was reduced in size.

***Searsia lancea* (L. f.) F. A. Barkley (Anacardiaceae) (Fig. 1f)**

Rhus lancea L. f.

New record for the flora of the Canary Islands.

Category C2: Individuals surviving in the wild in location where introduced, reproduction occurring, but population not self-sustaining (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: San Bartolomé de Tirajana, Maspalomas, Palmeral Elmassa, 27°45'46.01"N, 15°35'11.40"W, bare ground under palms, young shrub (spontaneous), 17 March 2013, *F. Verloove* 10043 (BR, LPA).

Searsia lancea is a shrub or small tree native to South Africa. It is grown as an ornamental in warm-temperate regions across the world. It is drought tolerant and easily reproduces from seed. Its berries are dispersed by birds and small mammals. As a result, *S. lancea* has locally naturalized in areas where it was formerly introduced. In North America, for example, it is considered a weed or an invasive species in some southern states.

Scattered individuals of this species have been recorded in Maspalomas in Gran Canaria since 2013. All specimens were non-flowering and clearly not planted (potential parent plants were not observed in the immediate surroundings). They grow under the canopy of palms and other ornamental trees along the side of the road, benefiting from the scarce but permanent water supply from the irrigation pipes. Although only vegetative plants were seen, these were very characteristic: leaves are trifoliolate with narrowly lanceolate leaflets with entire margins. The leaves are leathery and glabrous and have a distinct resinous smell when crushed.

This species was initially described as a species of the genus *Rhus*. Recent molecular studies have shown, however, that the South African representatives of that genus are better placed in a separate genus *Searsia* (Miller & al. 2001; Yang & al. 2016).

***Trifolium cernuum* Brot. (Fabaceae)**

New record for de flora of Gran Canaria

Category C1 (?): Individuals surviving in the wild (i.e. outside of captivity or cultivation) in location where introduced, no reproduction (Blackburn & al. 2011).



Fig. 1. **a)** *Centaurea sulphurea*. Tejeda, near Roque Bentayga, May 2019, E.A. Déniz Suárez; **b)** *Chondrilla juncea*. Vega de San Mateo, Era del Barranco, June 2019, E.A. Déniz Suárez; **c)** *Fallopia baldschuanica*. Vega de San Mateo, May 2018, E.A. Déniz Suárez; **d)** *Lonicera japonica*. Teror, Finca de Osorio, March 2019, M. Salas Pascual; **e)** *Montanoa bipinnatifida*. Santa Brígida, April 2018, F. Verloove; **f)** *Searsia lancea*. Maspalomas, November 2015, F. Verloove.

Herbarium: GRAN CANARIA: Vega de San Mateo, Las Lagunetas, Barranco de La Mina, 28°00'02.28"N, 15°35'05.54"W, 30 April 2019, *E. A. Déniz Suárez* 15 (BR).

Trifolium cernuum is native to the western Mediterranean area but widely naturalized as a weed elsewhere in the world, for instance in the southern United States and Australia. It was not yet mentioned from the Canary Islands by Acebes Ginovés & al. (2010). However, it was cited for the island of El Hierro by Stierstorfer & von Gaisberg (2006). Subsequently, Santos & al. (2013b) reported it for Tenerife.

In Gran Canaria, only one individual was found in the rocky bed of the ravine of La Mina in Las Lagunetas (Vega de San Mateo), at an altitude of about 1,200 m. The vegetation corresponds to the *Rubo-Salicetum canariense* community. It was accompanied by other species of *Trifolium* such as: *T. campestre* Schreb. and *T. dubium* Sibth. Other outstanding species present in the area are: *Salix canariensis* Link and *S. fragilis* L. in the tree layer and *Nasturtium officinale* R. Br., *Apium nodiflorum* (L.) Lag. and *Lemma minuta* Kunth in the flooded area. *Urtica morifolia* Poir., *Rubus ulmifolius* Schott and *Ageratina adenophora* (Spreng.) R.M. King & H. Rob. were also seen in the vicinity. Worth noting is the presence of a population of an introduced expansive species in Gran Canaria, *Lunaria annua* L. (see also Marrero 2019).

***Wigandia caracasana* Kunth (Boraginaceae)**

New record for the flora of Gran Canaria.

Category C2: Individuals surviving in the wild in location where introduced, reproduction occurring, but population not self-sustaining (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Santa Brígida, close to Bandama Golf, Camino Las Arenillas, 28° 1'57.19"N, 15°27'58.11"W, foot of wall, cracks in concrete, scattered plants escaped from garden, 17 April 2018, *F. Verloove* 13190 (BR).

Wigandia caracasana, a native to Central America, is frequently grown as an ornamental shrub. It easily reproduces from seed and naturalized wherever introduced, to such an extent that it is often considered being weedy. In the Canary Islands it has been known since several decades from Tenerife (Knapp 1976; Acebes Ginovés & al. 2010) where it has locally become rather frequent, for instance near Puerto de la Cruz.

It is here reported for the first time from Gran Canaria. Few plants were seen as an escape from an ornamental plantation in Santa Brígida in 2018. In similar circumstances this species was also observed by the first author in Firgas (between Camino Los Dolores and Presa de Casablanca) in 2018.

Confirmation of the presence and/or new localities for taxa recently first reported from Gran Canaria

***Chenopodium vulvaria* L. (Amaranthaceae)**

New localities for Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observations: GRAN CANARIA: Vega de San Mateo (Aríñez), La Sequera, roadside GC-400, 28°01'26.11"N, 15°33'58.00"W, a small group, summer 2016, *E. A. Déniz Suárez* s.c.; Vega de San Mateo, La Higuera, 28°00'25.20"N, 15°31'54.69"W, ruderal, roadside

in the neighborhood of La Higuera, 29 September 2016, *E. A. Déniz Suárez* s.c.; Vega de San Mateo, Fire Station, 28°00'46.04"N, 15°31'40.35"W, roadside GC-41, casual, summer 2018, *E. A. Déniz Suárez* s.c.; Vega de San Mateo, Cuatro Caminos, 28°00'05.09"N, 15°32'28.20"W, on farmland alongside the road GC-41, summer 2018, *E. A. Déniz Suárez* s.c.; Vega de San Mateo, Vista Alegre, 28°00'57.14"N, 15°31'28.20"W, 7 July 2018, *E. A. Déniz Suárez* s.c.; Vega de San Mateo (Ariñez), La Sequera, 28°01'26.11"N, 15°33'58.00"W, roadside GC-400, 9 August 2018, *E. A. Déniz Suárez* s.c.

Chenopodium vulvaria is a Eurasian weed that was reported previously from the Canary Islands in El Hierro and Tenerife, not yet from Gran Canaria (Stierstorfer & von Gaisberg 2010; Acebes Ginovés & al. 2010). In a recent thesis (Quintana Vega 2015) the species was reported for the first time from Gran Canaria from Valleseco. Specific locations were not indicated but the species was said to be frequent in cultivated fields and disturbed places.

The new records here presented, all from other municipalities than those cited by Quintana Vega (2015), confirm its recent expansion throughout the island, especially in the northern and central parts.

The species occurs in several localities in Vega de San Mateo. A population was observed, for the first time in the summer of 2016, on the edge of the GC-400 road in "La Sequera" (Ariñez), at an altitude of 1,094 m. In the same year, some specimens were also seen next to a plot and on the edge of the road in the neighborhood of La Higuera at an altitude of 936 m. In the years 2018 and 2019, the previous locations were confirmed, adding others, almost always formed by isolated individuals or in small groups. An isolated individual was also seen near the Vega de San Mateo Fire Station at GC-41 at an altitude of 870 m. On farmland along GC-41 road, about 100 meters from the roundabout of Cuatro Caminos between Las Chozas and Hacienda de Bravo, the species grows together with *Chenopodium album* L. and *Dysphania anthelmintica* (L.) Mosyakin & Clemants at an altitude of 947 m. Finally, two individuals were observed at the edge of the road next to an entrance to a house in Vista Alegre, at 775 m a.s.l.

***Fallopia convolvulus* (L.) A. Löve (*Polygonaceae*)**

New localities for Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Vega de San Mateo, Las Lagunetas, 28°00'05.57"N, 15°34'51.06"W, 4 June 2019, *E. A. Déniz Suárez* 1 (BR).

Fallopia convolvulus is a common Eurasian species that is widely naturalized in all temperate regions of the world, often as a pernicious weed in agricultural fields. In the Canary Islands it certainly is an introduced species that was known so far from El Hierro, La Palma, La Gomera and Tenerife, but not yet from Gran Canaria (Acebes Ginovés & al. 2010). Marrero (2019), however, recently reported about its first discovery in Gran Canaria, in Valleseco from where it is already known since 2006.

We found it in 2019 in Las Lagunetas (Vega de San Mateo), at a height of 1,200 m, in the central part of the island, with cold and rainy weather conditions in autumn-winter and sunny and hot summers. A small population was observed at a crossroad leading to agricultural farms, at the edge of farmland. It was accompanied by *Amaranthus viridis* L., *Lactuca serriola* L., *Sonchus oleraceus* (L.) L., *Hirschfeldia incana* (L.) Lagr.-Foss. and *Chenopodium album* L.

This is a little known species that may have been overlooked. Our observation probably is the third for Gran Canaria, the first two being from the municipality of Vega de San Mateo, which expands its range.

Kalanchoe daigremontiana Raym.-Hamet & H. Perrier (*Crassulaceae*)

Confirmation for Gran Canaria.

Category C3: Individuals surviving in the wild in location where introduced, reproduction occurring, and population self-sustaining or D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observations: GRAN CANARIA: Las Palmas de Gran Canaria, Tafira, hillside of the Canarian Garden, 28° 3'57.15"N, 15°27'37.05"W, 290 m, 15 September 2017, *M. Salas Pascual*, s.c.; Las Palmas de Gran Canaria, Barranco de Guinguada, 28° 4'37.96"N, 15°27'27.63"W, 180 m, 26 January 2019, *M. Salas Pascual*, s.c.

Kalanchoe daigremontiana was reported from Gran Canaria by Kunkel & Kunkel (1971) and Acebes Ginovés & al. (2010; as *Bryophyllum daigremontianum* (Raym.-Hamet & Perrier) A. Berger). However, it has been shown that most records in fact refer to *K. ×houghtonii* D.B. Ward, its hybrid with *K. delagoensis* Eckl. & Zeyh. The latter is much more aggressive than either parent species (Mesquida & al. 2017). Also in the Canary Islands these taxa have been confused up to present (Otto & Verloove 2016).

However, genuine *K. daigremontiana* also occurs in the wild in Gran Canaria. Several individuals are found in a wide area in the northern end of the hillside where the Botanic Garden in Tafira is located. The plants are clearly established in this area: they were first seen there in 2014 and regularly confirmed since then. Another population in expansion is found in the ravine of the Barranco de Guinguada, at 170 m altitude, from pruning remains of nearby gardens.

Paspalum dilatatum Poir. (*Poaceae*)

Confirmation for Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Herbarium: GRAN CANARIA: Tejeda, La Culata, 27°58' 25.56"N, 15°35'57.23"W, 2 August 2019, *E. A. Déniz Suárez* 17 (BR).

This South American weed was only cited from La Palma and Tenerife by Acebes Ginovés & al. (2010), based on Knapp (1976) and Santos Guerra (1983) respectively. However, it is also known from Gran Canaria. Kunkel (1972) found it on the northern slope of the Montañón Negro, at an altitude of almost 1,500 meters. Sventenius collected *Paspalum dilatatum* in Barranco del Sao in 1971 (LPA 231) (Suárez Rodríguez 1994). From the Tejeda-Aldea Basin it was reported by Pérez Chacón & Suárez Rodríguez (1983).

Our own collection confirms its actual presence in Gran Canaria. It was observed as a small group of only three plants growing next to a ditch alongside the road GC-608, in the neighborhood of La Culata.

Volutaria tubuliflora (Murb.) Sennen (*Asteraceae*)

Confirmation for Gran Canaria.

Category D2: Self-sustaining population in the wild, with individuals surviving and reproducing a significant distance from the original point of introduction (Blackburn & al. 2011).

Observations: GRAN CANARIA: Telde, La Garita, 28°00'49.59"N, 15°23'07.79"W, ruderal habitats and abandoned farmland, close to the village, 5 February 2017, *E. A. Déniz Suárez* s.c.; Telde, Ojos de Garza, 27°56'57.45"N, 15°23'17.22"W, by the square and near the hermitage, 18 February 2017, *E. A. Déniz Suárez* s.c.; Las Palmas de Gran Canaria, Jinámar, 28°01'49.24"N, 15°23'53.67"W, near the sea, 28 February 2018, *E. A. Déniz Suárez* s.c.; Agaete, 28°05'59.43"N, 15°42'05.31"W, near the village, alongside the ravine, 9 February 2019, *E. A. Déniz Suárez* s.c.

Volutaria tubuliflora is widely dispersed in North Africa and is locally also found in Spain and Sicily. In the Canary Islands it is considered to be "possibly native" in El Hierro, Tenerife and Lanzarote (Acebes Ginovés & al. 2010). It was recently also recorded in La Palma, where it is thought to be a recent introduction (Otto & Verloove 2020).

It was not mentioned by Acebes Ginovés & al. l.c. from Gran Canaria although it is relatively frequent in coastal areas of the island. Hansen (1972) already drew the attention to its presence in the LPA herbarium, without providing details (see also Bramwell & Bramwell 2001).

This species is an increasing weed in desert-like habitats, for instance in California and Chile (Teillier & al. 2014; McDonald 2019).

Acknowledgements

Alfredo Reyes-Betancort (Tenerife) is acknowledged for identifying *Searsia lancea*.

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