

# New noteworthy records of flowering plants in Cyprus (2019–2021) and some status clarifications

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Abstract. – This paper deals with specimen-based records of 20 taxa, the majority of which are alien species in Cyprus. The following taxa are new to Cyprus or have been documented by specimens for the first time: *Allium tuberosum*, *Amaranthus emarginatus* subsp. *pseudogracilis*, *A. powellii*, *Commelina communis*, *Cyperus alternifolius* subsp. *flabelliformis*, *Helianthus annuus*, *Lantana camara*, *Leucaena leucocephala* subsp. *leucocephala*, *Phoenix dactylifera*, *Urochloa ramosa*, *Washingtonia filifera* and *Zea mays*. Namely *Leucaena leucocephala* should be given particular consideration because it may soon become a problematic invasive.

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## Introduction

This paper is another continuation of a series started three years ago (Hand 2017), in which the intention and criteria for the selection of taxa and data were outlined. The new instalment again focusses on taxa new for Cyprus, taxa with a very scattered distribution on the island or taxa with restricted distribution range in a single or few phytogeographical divisions. In various cases occurrence status is clarified, most of which refer to alien species.

A proof of true naturalisation of ornamental plants in Cyprus can be challenging. Garden plots as well as neglected and abandoned ones can often be found far away from settlements depending on the water supply. Often it is difficult to decide if palms, succulents and other perennial ornamental plants are mere relicts of former cultivation or if naturalisation has already started. The situation can be complicated by the habit of many gardeners to plant ornamental plants outside their gardens proper, e. g. on nearby road embankments, in roadside ditches and even on rocks inside villages. Initially, such plants are still watered, then they are left to themselves, which can lead to misinterpretations of the status assessment.

## Material and Methods

Taxonomy and nomenclature follow Hand & al. (2011–) and herbarium abbreviations Thiers (2020). First records for any phytogeographical unit are marked with a "+". Plants listed in the Red Data Book are marked with the abbreviation RDB followed by the status, which is explained in full detail by Tsintides & al. (2007). Known data on distribution of taxa in Cyprus are not repeated here but can be found in the online checklist for Cyprus (Hand & al. 2011–), which aims at a complete recording of specimen-based records. Georeferenced data are not presented here but are stored in a database. They will be published at a later date making them accessible via the above-mentioned website.

## Results

### **Spermatophyta**

#### ***Amaranthaceae***

##### ***Amaranthus emarginatus* subsp. *pseudogracilis* (Thell.) Hügin**

+ Division 3: Mandria, SSE of village, roadside of asphalted road to coast, ruderal site beside greenhouses, alt. 10 m, 26.12.2021, *R. Hand 9425* (CYP).

New for Cyprus. The *Amaranthus* taxon is a segregate of a much discussed species group comprising inter alia *A. blitum* L. and *A. emarginatus* Salzm. ex Uline & W. L. Bray s. str. Ranking of the *pseudogracilis* taxon oscillates between variety, subspecies and species. Consensus is not to be expected until a worldwide revision will be provided. Current treatments mostly are limited to parts of the distribution range. Taxonomy preferred here follows Hügin (1987). As elsewhere in Europe there seems to be a connection to horticulture and spreading by trade of garden plants (see also *Cardamine occulta* below). To be classified as 'Casual' for Cyprus.

Another specimen of a young plant, belonging to *A. emarginatus* s. l., cannot be determined at subspecific level:

+ Division 1: Kissonerga, nursery towards Chlorakas, edge of nursery, ruderal place, alt. 78 m, 20.12.2021, *R. Hand 9419* (CYP).

##### ***Amaranthus powellii* S. Watson**

+ Division 1: Kissonerga, nursery towards Chlorakas, edge of nursery, ruderal place, alt. 78 m, 20.12.2021, *R. Hand 9418* (CYP).

First record for Cyprus. Now, four segregate taxa of *A. hybridus* s. latissimo have been found in Cyprus: *A. cruentus* L., *A. hybridus* L. s. str., *A. powellii* and *A. quitensis* Kunth. The occurrence of *A. hypochondriacus* L. (see Meikle 1985) needs corroboration. Material of the group from Cyprus is in need of a systematic revision. The assignment of various former records to *A. hybridus* s. str. seems to be doubtful. The website about the Belgian alien flora offers not only useful keys, but also literature, discussion on the controversial taxonomy of the group and very helpful drawings (Verloove 2022). At the current state of knowledge to be classified as 'Casual' for Cyprus.

#### ***Amaryllidaceae***

##### ***Allium tuberosum* Rottler ex Spreng. (Syn.: *A. ramosum* L. s. l.)**

+ Division 1: Pafos, Ktima, Marias Loizidou, S part, 2 individuals in pavement cracks in a gutter, definitely not planted, alt. 71 m, 12.12.2021, *R. Hand 9404* (CYP).

First record for Cyprus. Oriental garlic (or Chinese chives) is often grown as an ornamental or as a spice plant. Its taxonomy is not fully understood resulting in different treatments. Jäger & al. (2008) prefer a wide concept in which the name *A. ramosum* has priority. Here, the 'Flora of China' treatment is followed (Xu & Kamelin 2000) according to which *A. tuberosum* has flat leaves as in the Cypriot specimen (vs. fistulose in *A. ramosum*). Perianth segments usually have green midveins (vs. pale red).

Confusingly, the Cypriot plant showed midveins greenish in its lower half and red-dish-pink in the upper. The species was also seen as an escape in Geroskipou (village center, S of main road). To be classified as 'Casual'.

## **Areaceae**

### ***Phoenix dactylifera* L.**

+ Division 1: Chlorakas, between St. George Hotel and stream mouth to the N, on coastal cliff, not planted there, alt. 2 m, 17.12.2021, *R. Hand 9412* (CYP).

First specimen-based record for Cyprus. The Date palm is commonly cultivated in Cyprus, usually in the lowlands (Meikle 1985). More details can be found in Tsintides & al. (2002). Naturalised individuals have long been known to the botanists of Cyprus, namely those growing on cliffs, such as at Agios Sozomenos (division 5; see also photo documentation in Tsintides & al. 2002). However, no self-sustaining populations are known and the species must be classified as 'Casual'.

### ***Washingtonia filifera* (Glöner ex Kerch. & al.) de Bary**

+ Division 1: Polis, coastal area, W of eucalypt plantation, bed of small stream near its mouth, 2 small trees, most probably not planted, alt. 3 m, 20.12.2021, *R. Hand 9417* (CYP).

First specimen-based record for Cyprus. Adventive occurrences are a common phenomenon in Cyprus (see also Tsintides & al. 2002). However, palms are collected reluctantly. Seedlings and young trees have been observed in abundance recently in the tourist areas in Kato Pafos and neighbouring communities. Such young plants can often be found in flowerbeds, gutters, pavement cracks and in stream beds. However, no self-sustaining populations are known to occur in Cyprus. To be classified as 'Casual'.

## **Asteraceae**

### ***Erigeron sumatrensis* Retz.** (Syn.: *Conyza albida* Spreng., *E. albidus* (Spreng.) Herter)

+ Division 1: Polis, Chrysochous stream bed c. 100 m S of its mouth, E side of eucalypt plantation, open ground, alt. 2 m, 17.12.2021, *R. Hand 9413* (CYP).

+ Division 3: Episkopi Pafou, picnic site at Ezousas river, c. 2 km above village, riverine forest, alt. 142 m, 23.12.2021, *R. Hand 9421* (CYP).

This neophyte has been dealt with in a previous instalment (Hand 2020). Its spreading in Cyprus seems to continue. In both places mentioned above high numbers of individuals were noted.

### ***Helianthus annuus* L.**

+ Division 3: Alassa, SE of village, shallow NE part of Kouris reservoir, dried up shore, several individuals scattered in the area, alt. 227 m, 27.12.2021, *R. Hand 9426* (CYP).

New for Cyprus, but probably the Sunflower is more a case of a species which is unpopular in plant collectors. To be classified as 'Casual'.

## ***Brassicaceae***

### ***Cardamine occulta* Hornem.**

+ Division 3: Mandria, SSE of village, side of asphalted road to the coast, ruderal site beside greenhouses, alt. 10 m, 26.12.2021, *R. Hand 9424* (CYP).

The first record for Cyprus was published recently (Hand 2020). The new site also shows the close connection of the species with horticulture.

## ***Commelinaceae***

### ***Commelina communis* L.**

+ Division 1: Chlorakas, between Liasidis street and amphitheater, 1 individual, pavement crack, alt. 66 m, 14.12.2021, *R. Hand 9409* (CYP).

First record for Cyprus. The Asiatic dayflower, a native to E and SE Asia and a noxious weed in parts of Europe and N America (see Verloove 2022, also for further literature), enjoys a certain popularity in Cypriot horticulture. Certainly, escaped individuals should be more common but the popularity in collectors is less pronounced. To be classified as 'Casual'.



Fig. 1: *Commelina communis*, Chlorakas, 14.12.2021. – Andreas Charalambous.

## **Cyperaceae**

### ***Cyperus alternifolius* subsp. *flabelliformis* Kük.** (Syn.: *C. involucratus* Rottb.)

+ Division 1: Pafos, Ktima, Marias Loizidou, S part, 1 big individual in pavement crack in a gutter, definitely not planted there but grown nearby, alt. 71 m, 12.12.2021, *R. Hand 9403* (CYP).

First specimen-based record for Cyprus. This popular *Cyperus* taxon can be found as an ornamental plant in many Cypriot gardens. It has been mentioned by Viney (1996) but no data on specimens have ever been published. Nomenclature and taxonomy follow the treatment by Verloove (2014) in which details on naturalisation in the Mediterranean region can be found. To be classified as 'Casual' in Cyprus.

## **Euphorbiaceae**

### ***Euphorbia maculata* L.**

+ Division 1: Chlorakas, at coastal walkway below King Evelthon Hotel, open, disturbed ground, alt. 5 m, 12.12.2021, *R. Hand 9405* (CYP).

The first evidence only goes back to 2010 (Frajman in Hand 2011). However, the species was probably overlooked until then. It is now widespread in the lowlands, but still under-recorded. In the meantime to be classified with status 'Naturalized invasive'.

## **Fabaceae**

### ***Leucaena leucocephala* (Lam.) de Wit subsp. *leucocephala***

+ Division 1: Pafos, Dousmani B street, 1 shrub, ruderal place, not planted, alt. 15 m, 14.12.2021, *R. Hand 9406* (CYP).

First record for Cyprus. Even as an ornamental tree, this species did not play a major role in Cyprus until a few decades ago. The species is not mentioned by Meikle (1977), unlike many other subtropical *Fabaceae*. Thereafter, increasing cultivation occurred as an ornamental tree, but also as cattle fodder (Tsintides & al. 2002; the photo bottom left on page 221 in this source refers to *L. leucocephala* as well, not as given, pers. comm. of the coauthor G. Hadjikyriakou). Further information can be found in Vassiliou & Papadoulis (2008) who document the first record of an endophagous beetle originally from tropical America and adapted to *Leucaena* species.

Evidence of definite naturalisation, however, has not been documented to date. In December 2021, definitely not planted shrubs, small trees or seedlings were also seen at the coastal road in Kato Pafos (near Venus Beach Hotel, Capital Coast Hotel), Chlorakas (Dimma area), in Armou near the church, in Konia, N and S of the main road in Geroskipou (all division 1) and in Mandria Pafou (division 3). In some places, even self-sustaining populations may already exist but they are difficult to distinguish from relicts of former cultivation. The species, originally from tropical America, is now considered a problematic invasive pantropically but also in many subtropical countries. Walton (2003) gives a useful illustrated overview dealing not only with invasiveness of this "alfalfa of the tropics" but also taxonomic questions. To be

classified as 'Casual' in Cyprus for the time being. The situation should be carefully observed.



Fig. 2: *Leucaena leucocephala*, Kato Pafos, 28.12.2021. – Ralf Hand.

## **Hydrocharitaceae**

### ***Najas marina* subsp. *armata* (H. Lindb.) Horn – RDB: VU**

Division 3: Foinikas, Asprokremmos reservoir below abandoned village, shallow water, alt. 96 m, 16.12.2021, *R. Hand 9410* (CYP).

This taxon started to colonise Cyprus at the latest in the 1990s (Christodoulou & al. in Hand 2006). As a rather conspicuous waterplant it was hardly overlooked before. It is restricted to the man-made reservoirs of the island, in most of which it can now be found in more or less big populations. Its status must be upgraded to 'Naturalized invasive'.

## **Malvaceae**

### ***Abutilon theophrasti* Medik.**

+ Division 3: Alassa, SE of village, shallow NE part of Kouris reservoir, dried up shore, several individuals scattered in the area, alt. 227 m, 27.12.2021, *R. Hand 9427* (CYP).

This casual species has already been found in division 3 (see photo documentation in Hand & al. 2011–), but specimen-based information is lacking so far.

## **Poaceae**

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

+ Division 1: Pafos, Ktima, parking at Grammou street, scattered in flower beds, alt. 73 m, 19.12.2021, *R. Hand 9416* (CYP).

First published specimen-based record of this species which has already been classified as a 'Naturalized non-invasive' for the island, which is still a valid categorisation. Various occurrences are well known and photos of a population found in division 3 can be found in the checklist portal for Cyprus (Hand & al. 2011–).

### ***Tripidium ravennae* (L.) H. Scholz (Syn.: *Saccharum ravennae* (L.) L.)**

+ Division 1: Agia Varvara, NNE of village in Ezousas valley, W of river, SSW of Argaki tou Apitikou, base of a serpentine slope, periodically humid place, alt. 95 m, 24.12.2021, *R. Hand 9423* (CYP).

### ***Urochloa ramosa* (L.) T. Q. Nguyen (Syn.: *Brachiaria ramosa* (L.) Stapf)**

+ Division 1: Pafos, Ktima, bishopric area, W side of Agios Theodoros cathedral, 1 individual in ruderal site, alt. 72 m, 24.12.2019, *R. Hand 9345*, det. U. Amarell (CYP, herb. Amarell).

First record for Cyprus. To be classified as 'Casual'. It was probably an ephemeral occurrence because a search in the area (2021) revealed no further records. Apart from Egypt where this taxon of the Old World tropics and subtropics is an indigenous (Boulos 2009) it seems to be a rather rare adventive in the Euro-Mediterranean region. Verloove (2022) reports the finding of a single individual in Belgium and sum-

marises useful sources about the species' use as crop and its spreading as a weed to America and Australia.



Fig. 3: *Urochloa ramosa*, part of the specimen *Hand 9345*. – Ralf Hand.

### ***Zea mays* L.**

+ Division 3: Alassa, SE of village, shallow NE part of Kouris reservoir, dried up shore, several individuals scattered in the area, alt. 228 m, 27.12.2021, *R. Hand 9429* (CYP). There are no published records yet but casual occurrences of Maize are certainly no recent phenomenon. The species is grown here and there in Cypriot gardens but it does by far not play such an important role in agriculture as in many other Euro-Mediterranean countries.

### ***Plumbaginaceae***

#### ***Limonium sinuatum* (L.) Mill.**

Division 3: Agia Varvara, c. 1.5 km N of village, N of serpentine rock barrier at Ezousas valley road, by road on serpentine debris, alt. 82 m, 24.12.2021, *R. Hand 9422* (CYP). As elsewhere in the Mediterranean, *L. sinuatum* is a strictly coastal species in Cyprus colonising inland habitats (sandy and rocky substrate) for only a few hundred meters



away from the coastline (see also Meikle 1985) – with one exception: The species colonises Cretaceous serpentinite strips running more or less parallel to the SW coast but c. 7–9 km inland. An earlier record from the same region has been published by Hand (2000). Generally, inland occurrences seem to be extremely rare (M. Erben, pers. comm.) whereas occurrences on serpentinites are not unique for Cyprus (see, e. g., Constantinidis 2004 concerning Greece). Further research on the notable occurrences is recommended.

## **Verbenaceae**

### ***Lantana camara* L.**

+ Division 1: Pafos, Dousmani B street, ruderal place, 1 individual, not planted, alt. 15 m, 14.12.2021, *R. Hand 9407* (CYP).

First specimen-based record for Cyprus. The popularity of this ornamental plant is unbroken. Especially in the coastal areas dominated by touristic infrastructure, the undemanding and inexpensive Common lantana, which is considered attractive by many, is ubiquitous in gardens and parks. Naturalised individuals have long been known to botanists active in Cyprus, but the species is reluctantly collected. To be classified as 'Casual' but possibly already established locally.

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