Cactus & succulent REVIEW

The online magazine for cactus and succulent enthusiasts Issue 43 December 2024

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The striking flower of *Apteranthes burchardii*
see page 17

Editor's notes

Welcome to the December issue of the *Cactus and Succulent Review*.

In this issue I am pleased to include an item on *Gymnocalycium cabreraense*, discovered as recently as 2010 and published in 2018 (see page 7).

It is exciting to find that new species of cacti are still being discovered aided, no doubt, in at least some cases by improved communications to remote areas.

It is also interesting to note that cacti have some of the fastest diversification rates among plants, albeit over considerable time (see below).

Reference

Thompson, J B. Hernández-Hernández, T. Keeling, G. Vásquez-Cruz, M. Priest, N K (2024) Identifying the multiple drivers of cactus diversification *Nature Communications* **15** Article number 7282

Two other interesting publications are new this year. Go to page 5 for a review by Graham Evans of the Kaktusy Special *Cleistocactus – an updated summary* by Martin Lowry, while *Dudleyas,* a comprehensive review of the genus, is featured in the article by Colin C. Walker on page 10.

Walking under an ancient *Opuntia* Jardin Exotique de Monaco

Also in this issue we have the second article in the series by Zsolt Varga, The Flying Garden, (page 36) dealing with the comparatively unknown genus *Weberocereus* and including some spectacular pictures.

More spectacular pictures are to be found in two articles concerning gardens. Ventnor Botanic Garden holds the National Collection of hardy and half-hardy *Puya* and Chris Kidd, its curator, gives us an insight into how this came about (page 29). Then we visit a number of gardens in the Mediterranean area with Laurie Poulson, with many pictures of the plants they contain (page 45).

Finally we have reached, or nearly reached, the end of another year so I would like to thank everyone who has helped me during 2024, including those of you who have written for me, supplied photographs, provided advice and support and my two hard-working proof readers.

Sheila Cude

Cactus&Succulent REVIEW

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The misuse of the name hildewintera and the naming of cactus hybrids

by Colin C. Walker

In the previous issue of the *Cactus and Succulent Review* Ed Seeley sang the praises of the cactus hybrids that he called hildewinteras, although he commented 'that there is no such thing as a *Hildewintera'* (Seeley, 2024). I regret to say that as a scientist I could not let the misuse of the name go unchallenged.

Before considering the hybrids let's go back to basics and answer the question: what is a hildewintera? The genus of South American cacti under consideration began life in 1962 as *Winteria*. Friedrich Ritter published this name oblivious of the fact that this generic name already existed: *Wintera* (in the family Winteraceae). *Winteria* Ritter was therefore invalid from its inception.

In 1966 Ritter attempted to resolve the problem by publishing the new name *Hildewintera* but again he failed and this name is also invalid.

In the same year, however, Curt Backeberg published *Winterocereus* which is valid. If one takes a very narrow view of cactus genera then this latter name is the one to use, which includes either one or two species. The broad current consensus view, however, is that *Winterocereus* is merely a synonym of *Cleistocactus* where the species *C. winteri* and its two subspecies: subsp. *colademono* and subsp. *winteri* currently reside.

I emphasise that the generic names *Winteria* Ritter and *Hildewintera* Ritter are invalid and hence should not be used in any context since they infringe the strict rules of botanical nomenclature that determine the formalities of how plants are named. Regrettably, especially among German cactophiles, this stance is generally ignored and the name *Hildewintera* abounds in collections, nurseries, on plant labels, in numerous publications and on the internet.

The confusion is further compounded when we consider the cactus hybrids discussed by Ed. All the plants he described and illustrated are intergeneric hybrids with complex genetic backgrounds as he himself admits. None of these plants are hildewinteras in any sense because their genes have originated from more than a single genus as currently understood.

So what should these hybrids be called? Intergeneric hybrids have their own names which usually indicate their hybrid origin. To take just a single example, the cultivar 'Andre Mora', illustrated by Ed, has the following parentage: *Cleistocactus* 'Helm's Neue' × *Borzicactus icosagonus* subsp. *roseiflorus*. The name for such an intergeneric hybrid is × *Cleistoborzicactus* which indicates the parentage of this particular cross. The correct name for this hybrid is therefore × *Cleistoborzicactus* 'Andre Mora'. I appreciate that this taxonomy may seem cumbersome but that's how it is.

Other crosses have the parentage *Cleistocactus* × *Echinopsis* for which the intergeneric name is × *Cleistopsis*.

The world of orchids, for example, has become accustomed to these formulaic names for a very long time but the cactus world has yet to come to terms with them.

The late great Gordon Rowley, past President of the British Cactus and Succulent Society, wrote an excellent book dealing in detail with these topics entitled *Succulents in cultivation – breeding new cultivars* (Rowley, 2017) but regrettably few growers and hybridisers appear to have consulted this authoritative tome. ■

× *Cleistoborzicactus* 'Andre Mora'

(Photo: Ed Seeley)

References

Rowley, G.D. (2017) *Succulents in cultivation – breeding new cultivars*, BCSS, Hornchurch, Essex.

Seeley, E. (2024) Hanging hildewinteras. *Cact. Succ. Rev.*, **42**: 37–42

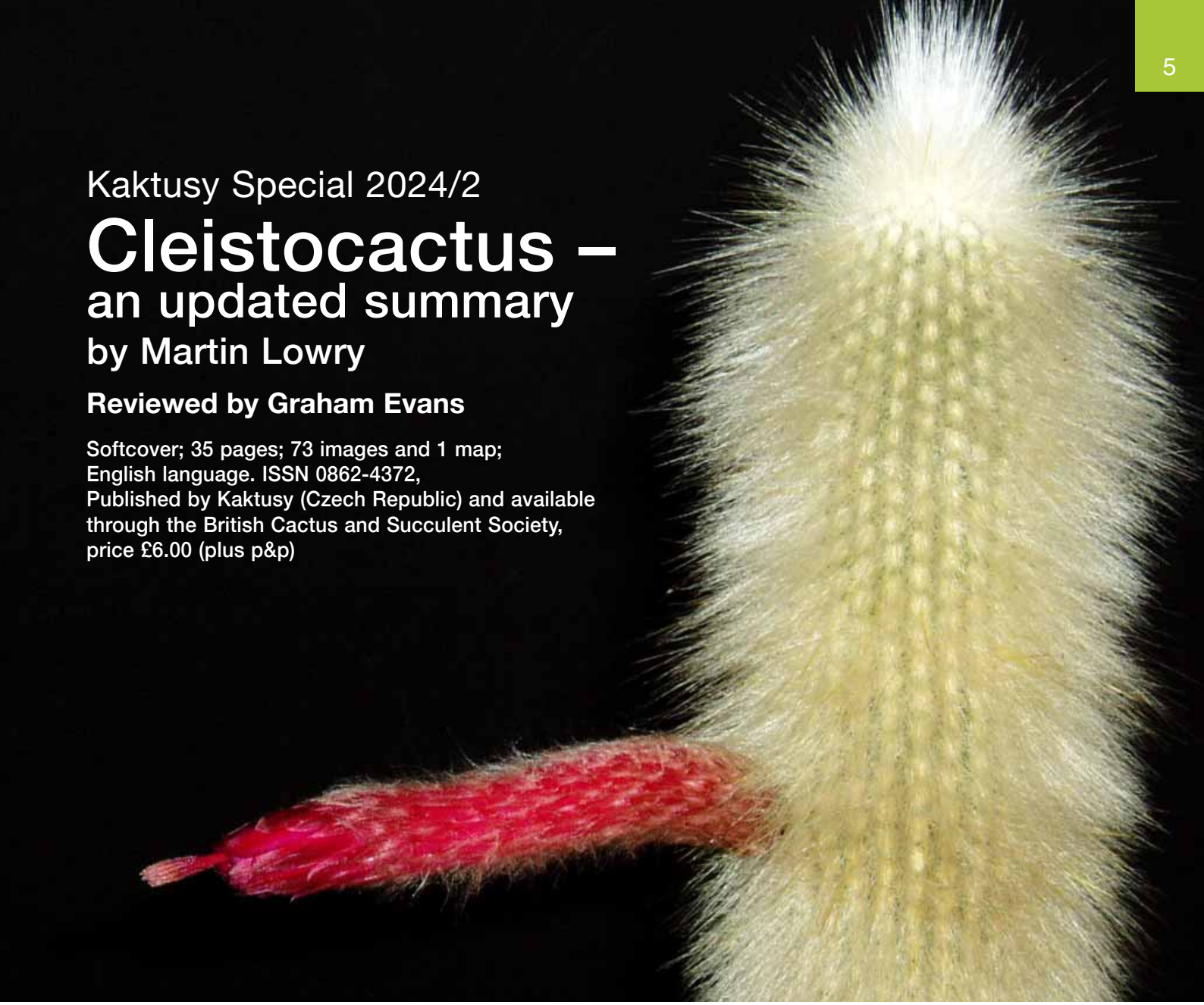
Kaktusy Special 2024/2

Cleistocactus – an updated summary

by Martin Lowry

Reviewed by Graham Evans

Softcover; 35 pages; 73 images and 1 map;
English language. ISSN 0862-4372,
Published by Kaktusy (Czech Republic) and available through the British Cactus and Succulent Society, price £6.00 (plus p&p)



Every year the Czech cactus and succulent society, Kaktusy, publishes a couple of special editions. The most recent of these features *Cleistocactus* and is written by Martin Lowry, who surely knows the genus (and the cacti of Bolivia) better than anybody writing in the UK today.

Opening with a brief history of the genus and a short outline of its unusual diagnostic features, the booklet is positioned as an accessible update to the author's 2016 *Bradleya* paper 'A synopsis of the genus *Cleistocactus* Lemaire'.

The bulk of the content, 29 pages, is devoted to commentaries on the 27 species currently accepted by Lowry, based primarily on his extensive research of the plants in habitat, with brief accounts of the locations, notes on climatic conditions and comments on the conservation outlooks of those localities.

Each species is illustrated with images of plants in habitat and sometimes also in cultivation. Molecular data is not cited other than to confirm the monophylly of *Cleistocactus* and note the recent inclusion of three additional species not included in the commentaries. This sinks three monotypic genera, two of which are rarely encountered in collections (the new combinations in *Cleistocactus* were actually made by Nigel Taylor in 2023).

Lowry's taxonomy is fairly broad but not restrictively conservative and mistakes or omissions made in 2016 are acknowledged and pragmatically corrected in the light of new understanding. The headliner is the inclusion of his recent new description, *Cleistocactus aurantiacus* Lowry 2023.

Potential readers should, perhaps, be aware of the near-complete absence of what the author calls 'nomenclatural

Above: The most popular *Cleistocactus* in collections is undoubtedly *Cleistocactus strausii*

baggage'. Other than a very few new referrals, there are no synonymies given, making it somewhat difficult to find the commentary pertaining to a plant in one's collection bearing a name not recognised. The reader is referred to the previous paper (via ResearchGate) for this information.

The style is authoritative but personally related, very readable and not without humour, which clearly displays the author's knowledge and enthusiasm for South American cacti and the places they grow.

The target audience is one with some experience and understanding of both cacti and the geography of South America, for whom the publication will offer much to appreciate. It is, perhaps, slightly academic as a beginner's introduction to *Cleistocactus* but nevertheless serves to make the reader aware of the species and their considerable attractions.

There are a couple of very minor niggles. Under *C. winteri*, in the reference to acceptable names for the invalid *Hildewintera aureispina*, a typo in the text results in '*W. aureispina* Backeberg', the '*W*' abbreviating *Winterocereus*, being accepted. The name should be '*W. aureispinus* Backeberg'. It matters because '*W. aureispina*' (albeit a Ritter name), where the '*W*' would stand for *Winteria*, had been dismissed earlier in the commentary as also invalid. There appears too to be an error with the author citation for *C. baumannii*, which is normally given as '(Lemaire) Lemaire 1861', that quoted appearing to be for the basionym.

Perhaps more disappointing is the production quality of the booklet, which is somewhat flimsy. The cover in particular would benefit from heavier paper. The restrictions imposed by the Kaktusy layout also result in the images being smaller than would be ideal.

For those keen to learn, there is much here to capture the interest, educate and enjoy. This is a highly informative, accessible and very affordable addition to any cactophile's library, refreshingly uncompromised by dumbing down and which makes reasonably concise sense of a much misunderstood genus. ■

Photos: Graham Evans

Another attractive species *Cleistocactus hyalacanthus* subsp. *tarijensis*

Cleistocactus winteri has atypical but beautiful flowers

Gymnocalycium cabreraense

An introduction to an exciting recent discovery.

by Graham Evans

A three-year old plant growing in the author's collection

The problem with new *Gymnocalycium* names is there are so many of them. Passionate specialists in the genus are always keen to announce new taxa, which wider cactus authorities then advocate referring to more established names. This is especially so at subspecies level where myriad new combinations for relatively minor variations are seemingly erected each year.

It is quite an occasion, therefore, when a new *Gymnocalycium* species is published that presents as both immediately distinctive and extremely attractive.

The flowers are white with a delicate and charming pale crimson hue and a purple-red throat

One such occasion memorably occurred in August 2018 with the publication in *Schuetziana* of *Gymnocalycium cabreraense* by Volker Schadlich, the late Ludwig Bercht and Michael Melojer.

Since then, the species has been fairly slow finding its way into collections, certainly in the UK, but seedlings are now beginning to appear via specialist nurseries (there were plants offered at the Cactus Explorers Weekend and Cactus at the Castle this year) and the name is included in the latest lists of several reputable European seed merchants.

The taxon was discovered in 2010 on the Cerro Cabrera (from where it gets its specific name) in the Gran Chaco of north-western Paraguay, not too far from the border with Bolivia. The authors compare it with *G. chiquitanum*, *G. paediophilum* and *G. chacoense*, also from broadly the same part of the world, and the four species form a very nice aggregate.

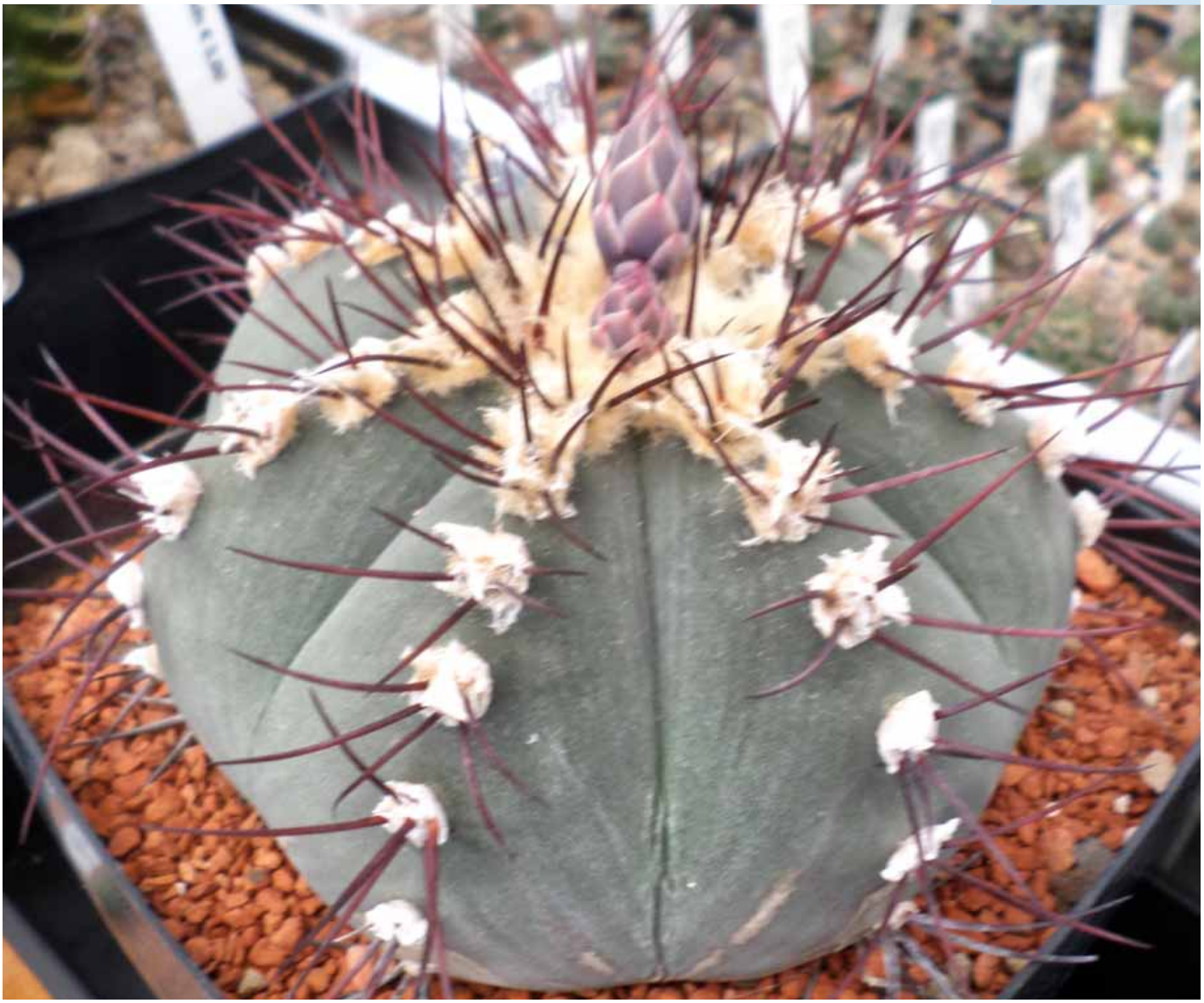
G. cabreraense is described as always solitary with globose stems, greyish green to blue-grey in colour and up to 12cm across. There are normally seven ribs, which are flat and have neither tubercles nor furrows. The spines number 5–7, sometimes including a single central, and these are blackish to deep red-brown, 10–17mm in length and slightly recurved.

The flowers are described in great detail. Superficially, they are funnel-shaped, 60mm long and 40mm wide, whitish with a greenish midstripe on the outer petals and a purple-red throat. The filaments are purple-rose while the anthers and stigma are yellowish white.

I was very fortunate to be given a small seedling in the summer of 2023, grown from Schadlich seed. The plant was about 2.5cm across at, I believe, two years old. It has more than doubled in size in the intervening fifteen months and, in cultivation, the beautiful blue-grey

A stunning plant belonging to Volker Schadlich, displayed in a 12cm pot at ELK 2023

(Photo: Graham Charles)



epidermis and gorgeous deep red spines are clearly preserved.

It flowered for the first time with a single bloom in early August this year, repeating the exercise in mid-September. The buds were unusually narrow for a gymnocalycium and developed more slowly than would normally be expected from plants of this genus, although the inconsistent weather at the time perhaps makes direct comparisons hazardous. In basic appearance, the flowers are typical gymnocalycium in shape and size but blessed with a delicate and enchanting pale crimson suffusion to their white petals.

I have grown the plant in full sun using my standard cactus mix of equal parts Irish John Innes compost, grit, molar and vermiculite together with an additional combined part of 50% sand and 50% peat or coir, to which I add a base fertilizer. Watering has been fairly liberal in the summer growing period with none given during winter.

I cannot really comment from a sample of one precious plant on minimum temperatures but being Paraguayan it stands to reason that some winter warmth might be advisable. For the record, I do not believe my plant has been below 10°C but, based on its relationships, it would likely tolerate lower temperatures than this, although some of these species can mark if kept below around 5°C.

I have seen larger plants than mine, perhaps 7 or 8cm in diameter, in one renowned collection and I am pleased to report they have the same bright colourful appearance as much smaller plants, suggesting the vibrancy of youth is well retained into maturity.

Gymnocalycium cabreraense is, to my mind, an instant classic that deserves a place in both general and gymnophile collections. ■

Photos: Graham Evans unless stated otherwise

Newly pricked out two-year old seedlings in 6cm pots (Photo: Vicky Davies)

It is anticipated that seedling *Gymnocalycium cabreraense* will be available for sale from C&V Cacti in the spring/summer of 2025.

Fig. 1

Dudleya updated

Colin C. Walker

What's new in the world of dudleyas?

Dudleya is a cinderella genus in the Crassulaceae closely resembling the far more familiar and popular echeverias. Significantly, dudleyas are restricted to the winter rainfall region of western North America and hence require cool wet winters and hot dry summers, conditions that are tricky to replicate in cultivation, especially in the UK.

Another feature of dudleyas which has not endeared them to collectors is that the perennial species tenaciously retain their dead leaves, making them somewhat untidy and hence unpopular for the show bench. Despite these shortcomings, the genus does have its followers, one of whom is Simon Snowden who wrote an introduction to the genus for the *Cactus and Succulent Review* (Snowden, 2020).

The new book *Dudleyas* (Fig. 2), published in May this year, should reinvigorate interest in these plants. What follows is an update on Simon's article based on Spath et al. (2024).

This book is a pictorial feast surveying these attractive rosette plants, mainly in habitat but also in cultivation.

Above: *Dudleya pachyphytum* with a 15cm diameter rosette

Dudleya displays a range of diversity from small, delicate deciduous geophytic corms to large robust, perennial rosettes up to 50cm or more across, usually with glaucous or farinose (powdery white) coverings to the leaves.

So, what is new in the world of dudleyas? Firstly, *Dudleya* has been shown to be monophyletic when it includes the formerly segregate genera *Hasseanthus* and *Stylophyllum*, meaning that this genus has a single evolutionary origin and hence, fortunately, it is taxonomically sound. It is, however, only very distantly related to *Echeveria* and its close relatives such as *Graptopetalum* and *Pachyphytum*. This is partially evidenced by the absence of any naturally-occurring or artificially-produced intergeneric hybrids between *Dudleya* and *Echeveria*.

Spath et al. accept 49 species, 23 subspecies and five possible 'new' species. They reprint a molecular family tree for the genus which clearly indicates that *Dudleya* taxonomy will need to change quite drastically in the coming years to accommodate the molecular evidence.

Firstly, the three currently accepted subgenera: *Dudleya*, *Hasseanthus* and *Stylophyllum*, are not supported by the molecular data, such that a new infrageneric classification is required. Secondly, some species currently composed of three or four subspecies will need to be split into several discrete species. The world of *Dudleya,* therefore, looks set for a step change in its taxonomy.

Spath et al. also provide a good perspective on the geographical distribution of the genus that occurs mainly in coastal western North America with many taxa endemic to one or a few of the Pacific Ocean islands and hence are narrow endemics.

From the conservation perspective, the authors have gone to great lengths to emphasise that this genus has been particularly targeted by poachers, who have illegally plundered natural populations. They stress the need for collectors to buy sustainably sourced material to circumvent plants being dug up from the wild. They are also cognisant of the danger that their new book could be the resource tool used to facilitate future illegal trade.

Here I showcase just five species, four of which I have grown and the fifth because not only does it have an interesting history but it also has a remarkably wide distribution relative to the rest of the genus.

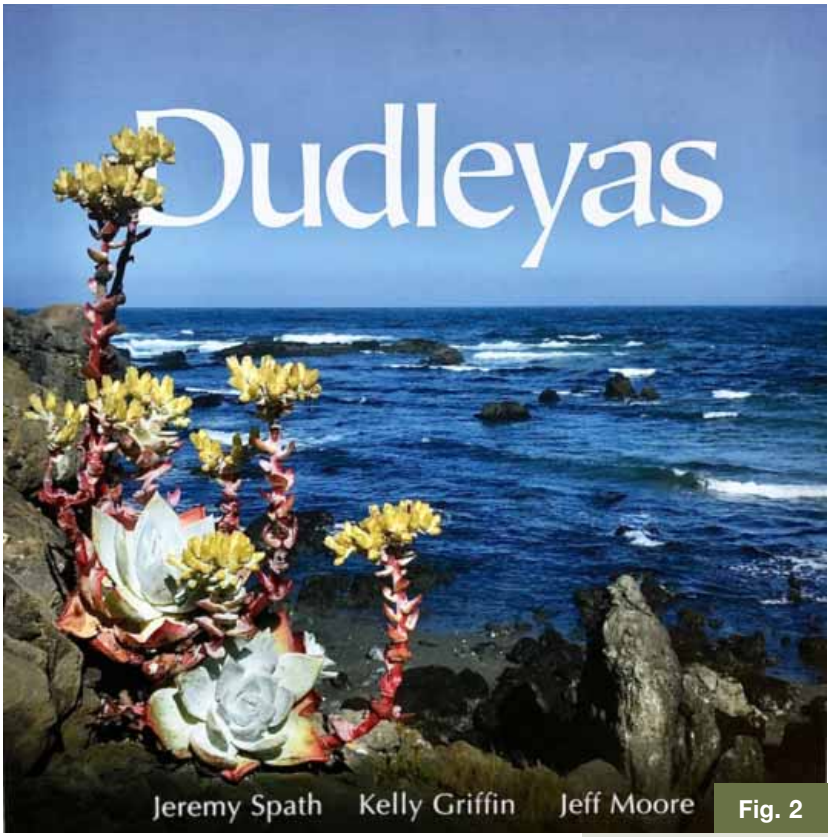


Fig. 2

Cover of the latest book on the genus

Dudleya pachyphytum

This is undoubtedly the jewel in the *Dudleya* crown and hence it is much sought after by collectors. The name '*pachyphytum*' was given in 1980 because the plant resembles those of the endemic Mexican genus *Pachyphytum* to which it is only distantly related. This name in turn comes from the Greek meaning 'thick plant' for its thick leaves (Figs. 1 and 3), which means that it is unlikely to be confused with any other member of its genus.

Its stems are initially erect as in my plant but with age they can grow up to 40cm long when they become decumbent, forming a branched cushion up to 70cm across. As shown in Fig. 3, my plant has yet to branch. Leaves are broadest at the base, up to 3.5cm across and 7.5cm long. The powdery farinose covering is incredibly easily marked. My plant has also yet to flower but the inflorescence is described as being nodding up to 14cm across bearing white flowers.

Fig. 3

Dudleya pachyphytum, about 14cm tall in a 12cm tall pot. Note especially the dead leaves

Spath et al. (2024) deservedly devote eight pages to this species and include 16 habitat photos, two of which are full page and all of which highlight its stunning beauty. Emulating the colour and clean looks of this plant in cultivation is a challenge even for the most experienced grower. This beauty unfortunately has its downside because this species, along with *D. farinosa*, has been specifically targeted by illegal poachers.

Dudleya pachyphytum is restricted in its distribution to the northern end of Cedros Island off the west coast of Baja California, hence making it a highly localised endemic. The good news from the conservation perspective, however, as reported by Spath et al. is that "*The Mexican government has wisely but sadly restricted all access to this part of the island to preserve the remaining plants*".

My plant is derived from the 1998 ISI distribution (ISI 98-40, HBG 81830) raised from seed produced on a self-pollinated plant collected on Cedros Island by R.M. Beauchamp in 1978. This also provides evidence that this species is slow-growing in cultivation since these seedlings took 20 years to reach saleable size.

Spath et al. are bang up to date since they include two species described as new only last year: *D. cochimiana* and *D. delgadilloi*, both also endemic to Cedros Island, which is also home to two other non-endemic species: *D. albiflora* and *D. acuminata*. This one Pacific Ocean island seems to be *Dudleya* heaven!


Fig. 4


Fig. 5

Dudleya albiflora

In contrast to *D. pachyphytum*, *D. albiflora* has a relatively wide distribution along a significant stretch of the western coast of Baja California, together with some inland and island populations, making it a species of least concern from the conservation point of view.

Dudleya albiflora bears narrow farinose leaves and my plant (Fig. 4) has branched. In habitat this species can grow into clumps up to 70cm across. An important point to note here is that *Dudleya* branching is caespitose (or cespitose) meaning that each rosette splits in the centre either dichotomously (into two) or more rarely trichotomously (into three). In contrast, echeverias offset or branch from the base. The dead leaves of dudleyas remain tenaciously attached to the stem and this feature, together with the mode of branching, makes propagation from cuttings somewhat tricky. I have no experience of trying to root *Dudleya* cuttings but by all accounts this is not always easy, unlike *Echeveria* propagation in which offsets generally root easily.

Dudleya albiflora is the only species I have so far flowered when in July – August 2024 (Fig. 5) it produced a 13cm tall inflorescence bearing seven branches. In habitat it is recorded as flowering in April to June. Not surprisingly the flowers are white, as are those of *D. pachyphytum*, whereas in most other species these are either pale yellow, yellowish or more rarely pink or red.

On Cedros Island a small form assumed to be *D. albiflora* with terete (circular in cross section) green leaves has been distinguished as one of the new species mentioned above: *D. delgadilloi*. Both species have similar white flowers and bloom at the same season hence intermediates between the two have been identified. Other species of *Dudleya* occur in both farinose and green forms, so whether the separation of the green forms as a distinct species is justified remains to be seen.

Based on the above features, *D. albiflora* has the appropriate common name of ‘white-flowered liveforever’; ‘liveforever’ being the general common name for all dudleyas.

Fig. 4 *Dudleya albiflora* about 15cm tall

Fig. 5 The flowers of *Dudleya albiflora*

Fig. 6

Dudleya cespitosa about 13cm across

Dudleya cespitosa

This species was first described in 1803 by the renowned English botanist Adrian Hardy Haworth as *Cotyledon cespitosa*. Way back then *Cotyledon* was the catch-all genus including not only the more familiar European species (now in *Umbilicus*) but also American and African species. *Cotyledon* is now restricted to a small number of southern African species typified by *Cotyledon orbiculata*.

Notice especially that Haworth named his new species as '*cespitosa'*. Along the way this spelling was changed to '*caespitosa'* and this is how it has been generally spelt until the new *Dudleya* book appeared with the correction reverting to Haworth's original and hence valid spelling.

My plant (Fig. 6) lives up to its name by branching *caespitosely* (or *cespitosely* if you are American). Comparing *D. cespitosa* and *D. albiflora* these are very similar but the former has a far denser farinose covering making it more attractive but also more easily marked and disfigured.

Dudleya cespitosa is an American species restricted to a narrow belt along the western coastline of California in a series of disconnected populations from north of San Francisco Bay southwards to San Diego County at its most southerly locality on the Cabrillo Monument. My plant is derived from the 2002 ISI distribution (ISI 2002-18, HBG 16598) as a rooted cutting from a plant collected by Otto Sokol on Anacapa Island, about 15 miles off the coast of Port Hueneme, California. Anacapa, incidentally, is the only Pacific Ocean island locality recorded for this species (Spath et al., 2024).

This species branches profusely to form large clumps of up to 100 rosettes. It is recorded as being quite variable and occurs in both farinose and green forms. Its flowers are a bright canary yellow borne on inflorescences up to 60cm tall.

Dudleya greenei

This species looks like an intermediate between the really chunky-leaved *D. pachyphytum* and the narrower-leaved *D. cespitosa*. It is in fact a very close relative of the latter and may only be a segregate of it.

The type locality of *D. greenei* is Santa Cruz Island off the west coast of California where plants were first collected by Professor Edward Lee Greene in 1886. It is therefore named after a person and not for the colour of its leaves!

Individual white farinose rosettes (Figs. 7 and 8) range from 12–22cm across on branched stems up to 15cm long that can divide to form clumps up to 1m in diameter. Its inflorescence is up to 22cm tall bearing pale yellow to white flowers produced from May till July in habitat.

It is an island endemic occurring on just three Pacific Ocean islands (the Californian Channel Islands): San Miguel and Santa Rosa, in addition to Santa Cruz, where it grows on coastal cliffs up to 150m altitude where it is relatively uncommon.

Fig. 7

Dudleya greenei in a 9cm diameter pot

Dudleya arizonica

Of the five species illustrated here this is the only one that I have never grown. It is included here for two reasons. Firstly, it is an example of the outstanding work of the famous English botanical artist Mary Emily Eaton, whose work was showcased in the last issue of the *Cactus and Succulent Review* (Shaw, 2024) with examples from Britton & Rose's renowned four volume monograph *The Cactaceae* (1919–1923). Eaton, however, painted a wide range of other plants including succulents, many of which appeared in *Addisonia*, the scientific house journal of the New York Botanical Garden where she was employed. Fig. 9 is reproduced from that source, first published by Rose (1923) when he described *D. arizonica* as a new species. In addition to Eaton's published work, the National Geographic Society of Washington D.C. apparently possesses about 500 of her unpublished paintings (Blunt & Stearn, 1994).

Fig. 8

Dudleya greenei with a 10cm diameter rosette

The second reason for including *D. arizonica* is that, in contrast to *D. pachyphytum* and *D. greenei* which are narrow island endemics, the 'inland' species *D. arizonica* has the widest distribution of all, ranging from south-west Utah south to Ángel de la Guarda Island in the Gulf of California. Even more significantly, this is the only *Dudleya* species occurring in mainland Mexico where, in stark contrast, the genus *Echeveria* is at its most diverse with perhaps 140 endemic species.

Dudleya arizonica was first collected by Mrs. Charles Bly of Yucca, Arizona on rocky canyon walls in Mohave County. It is now known to occur in at least five widely-spaced populations in this US state, where the only other native *Dudleya* is *D. saxosa* subsp. *collomiae*. *Dudleya arizonica* had been reduced to subspecific status as *D. pulverulenta* subsp. *arizonica* in 1943 but has since been reinstated as a distinct species (Spath et al., 2024).

Dudleya arizonica has short stems, small rosettes of 15–25 leaves and is also less densely farinose than the larger, typical *D. pulverulenta*. Its inflorescence is up to 60cm tall bearing red or apricot-yellow flowers. ■

Photos: Colin C. Walker

Fig. 9

Dudleya arizonica in a watercolour painting by Mary Eaton (from Rose, 1923)

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Fig. 1

Apteranthes burchardii in habitat

by David Ilett

My recent trip to the Canary Islands took in three islands including Fuerteventura. During this visit we had a lunch stop at Castillo de Lara which allowed time to investigate the plant life in the surrounding area.

The terrain was a mixture of rocks and sandy soil. There were plenty of obvious succulents plants like *Euphorbia balsamifera*, *E. regis-jubae*, *Kleinia neriifolia* and the odd opuntia but one reason for this stop was to find *Apteranthes burchardii* (*Caralluma burchardii*).

This species can be found in the eastern Canary Islands and Morocco. Initially it took a bit of searching to spot the grey four-ribbed stems but as we moved further up the slopes and got our eyes into what we were searching for, it became apparent that there were a good number of plants in the area.

Above: *Apteranthes burchardii* showing the typical terrain in which they grow

Fig. 2

Apteranthes burchardii growing in shade

Fig. 3

Apteranthes burchardii in open ground

Some were growing under other shrubby plants (Fig. 2) and others out in the open ground (Fig. 3). The flowers are very attractive with brownish petals covered in white hairs and a yellow centre (Fig. 1; see also front cover). It took a bit more searching to find these plants in flower but there were a handful, with some being visited by small insects (Fig. 4)

Further evidence of pollination was the numerous plants that had their twin seed pods sticking up like a pair of horns (Fig. 5). The future of this species here looks good. I am not a great grower of stapeliads, so it was a great experience to see so many healthy specimens in their natural (mealy bug free!) environment!

Photos: David Ilett

Videos of the trips to Fuerteventura are available on YouTube at The Prickly Pair channel (longer version) and the BCSS YouTube channel

Fig. 4

Apteranthes burchardii flower with pollinator

Fig. 5

Apteranthes burchardii with seed horns

A yearning for yellow

by Graham Evans

I often think of yellow as the colour of spring, when primroses and daffodils share their sunny dispositions and remind us that winter is over. While this winter has in truth barely begun, I am finding that, perhaps influenced by the ignominious indifference of the most recent UK summer, my yearning for spring has commenced unseasonally early.

There are, of course, lots of cacti with yellow flowers but one of those that delights me most each spring is *Gymnocalycium andreae*, a fairly small growing member of its free flowering and deservedly popular genus.

The vast majority of gymnocalyciums have white flowers (see *Cactus and Succulent Review* Issue 36 March 2023 for a review of the red-flowered species) but *G. andreae* has beautiful blooms of bright yellow, which it normally produces somewhat earlier than most of its relatives. In my collection of around 220 'gymnos', only *G. bruchii* is sometimes in flower sooner.

G. andreae hails originally from Argentina, the type locality being in Cordoba. It was first described by Boedeker in 1930 as an *Echinocactus*, the specific name honouring the German nurseryman Wilhelm Andreae, although the genus *Gymnocalycium* was fairly widely accepted by then.

The combination in *Gymnocalycium* was made by Backeberg in 1936. It has, therefore, been known for a long time and it has been readily available to collectors for very many years. Comfortingly, in this world of ever-changing taxonomies, it is accepted as a good species by all reliable authorities.

Individual heads are globose and normally reach 5-6cm in diameter but quite sizeable clumps can be achieved in cultivation. The epidermis is green to blue-green but can bronze in full sun. The spines are fairly weak with a count of 5-7 radials and 1-3 centrals, the latter often a darker brown than the former but all fading to greyish fairly quickly.

Above: *Gymnocalycium andreae*

A pleasant but slightly unassuming plant, it is the flowers than make it deserving of space. In the best forms these can be 5cm across with rich yellow petals, frequently with a greenish midstripe on the underside. As a rule of thumb, I have found the colour most intense on smaller blooms. Conversely, those of the sometimes encountered variety *grandiflorum*, rather than being more flamboyantly hued, often have little other than a slightly larger size to commend them. Indeed, I have seen plants so named with cream to almost white flowers or occasionally even pale pink. *G. andreae* subsp. *carolinense* is best regarded as a separate species and does not have yellow flowers.

G. andreae is not a difficult plant to grow and seems to do best with a degree of shade in summer. It likes plenty of water in the growing season and will increase in size quite steadily each year once it has finished flowering.

Gymnocalycium andreae var. *grandiflorum*

(Photo: Vicky Davies)

There are other gymnocalyciums with yellowish flowers but none that in my collection have quite the same richness.

G. leeanum can perhaps be the next best for colour but its petals can often be suffused with a dirty green or diluted with an excess of cream so as to be rather less eyecatching. It is also a difficult plant to identify with certainty and not all plants sold under the name are correctly labelled.

Coming from Buenos Aires and La Pampa in Argentina, its history is somewhat chequered. Originally described as *Echinocactus leeanus* by Hooker in 1845 (after a London nurseryman named John Lee) and transferred into *Gymnocalycium* by Britton and Rose in 1922, its standing has been questioned repeatedly in the years since.

The New Cactus Lexicon and Graham Charles follow Papsch (2000) in accepting it as a subspecies of *G. reductum* but more recently Lodé (2021) has recombined it as a subspecies of *G. hyptiacanthum*. Both these species are predominantly white to cream flowered.

Whatever you may choose to call it, *G. leeanum* is an attractive cactus with a glossy green body and fairly tidy, often appressed spines. It is larger growing than *G. andreae* with individual heads reaching 7cm in collections and handsome multi-headed clumps can be achieved with time and good cultivation. As the name suggests, the variety *roseiflorum* has pale pink flowers.

Gymnocalycium leeanum

My favourite member of the *G. hyptiacanthum* aggregate is *G. netrelianum*. The flowers are a paler lemon yellow rather than a more vibrant shade and appear later than those of *G. andreae* but the plant itself has a most attractive appearance to my eye. The nicest forms have highly attractive light coloured spines, uniformly and tightly appressed in horizontal rows against a leaf green body. The heads reach 6cm across and often remain solitary, although small clumps are sometimes seen.

Another nomenclatural nomad, this time from Maldonado in Uruguay, the first name to be erected was *Echinocactus netrelianus* by Monville in 1853 before Britton and Rose moved it into *Gymnocalycium* in 1922. Since then it has been made a variety of *G. leeanum* by Backeberg in 1936 and a subspecies of *G. hyptiacanthum* by Meregalli in 2008 but it has also often been dismissed as just a variant of *G. uruguayense*, itself also reduced to subspecies rank below *G. hyptiacanthum* by Meregalli.

Graham Charles supports both these infraspecific combinations in his excellent book *Gymnocalycium in Habitat and Culture* (2009). He further suggests that subsp. *uruguayense* is often mislabelled in collections and yellow flowered plants probably belong elsewhere within the *G. hyptiacanthum* complex.

I will finish with *G. uebelmannianum*. This is a delightful miniature species, rarely larger than 6cm in diameter, that normally remains solitary. Its flowers are not often a true yellow but are more frequently off-white to pale lemon, although slightly darker tones are occasionally seen. My three plants all have fairly pallid blooms but it is such an appealing little plant with a fresh green body and neat spination that this hardly matters. The species was first described relatively recently by Rausch in 1972 (from La Rioja, Argentina) and named in honour of the renowned Swiss nurseryman and explorer Werner Uebelmann.

None of the species in this article are challenging to cultivate; nor will they grow their owners out of house and home. All should be reasonably readily available either as plants or seeds and they flower well to make a pleasant colour break from the predominant whites of most gymnocalyciums. They do well in full sun or partial shade and will thrive in most potting mixes suitable for a general collection of cacti, given standard treatment of regular watering during the growing season and cool (above freezing), dry conditions in winter. One or two very light waterings in winter are recommended to prevent desiccation and preserve the roots if the plants are over-wintered where there is central heating.

Gymnocalycium netrelianum

Gymnocalycium uebelmannianum

(Photo: Vicky Davies)

So whether buttercups build you up, you dream of sharing a life of ease in a yellow submarine or electric bananas make you a mellow yellow, let's embrace *la joie du jaune* to help us look forward to spring.

Photos: Graham Evans unless stated otherwise

Caudiciforms and pachycauls

A personal selection

by Colin Parker

Introduction

One way to start an article like this is to explain, for the benefit of new members to our hobby or for those of a purely cactus orientation, what caudiciforms and pachycauls are.

Caudiciforms are not a succulent genus but a succulent growth form. They have a swollen or calcified stem or root growth – called a caudex – the function of which is to act as a water storage organ to help the plant survive in arid climates with long periods of drought. Caudiciforms are sometimes called 'Fat Plants'.

Pachycauls are distinguished from caudiciforms by having thick trunks and stems; the word derives from the Greek '*pachy*' meaning thick or stout and the Latin '*caulis*' meaning stem. In habitat caudiciforms usually have the caudex buried or partially buried, pachycauls have the whole of the body above the soil level.

This may be significant botanically but it is sometimes difficult to distinguish one from the other as there is not always a clear differentiation and the separation sometimes seems somewhat arbitrary. As far as the grower is concerned the difference is even more blurred because in cultivation it is usual to grow the plants with the caudex raised above soil level.

The reason for doing this is that the caudex is usually the most interesting part of the plant. All have a top growth which varies considerably from 'normal' to thick succulent leaves or climbing vine-like stems that can grow to a considerable length in one growth season.

Fockea edulis

This is a plant native to South Africa. It is probably one of the easier caudiciforms to grow, not being too demanding in its requirements but, like all caudiciforms, it needs extra heat in the winter months.

Its top growth is a climbing vine-like stem which can reach several feet in length in the growing season. It is probably a good idea to keep this growth pruned or trained around the caudex, otherwise it will become entwined around all nearby plants

The top growth exudes a thick milky sap if damaged but a spray of water stops it bleeding. The specific name '*edulis*' implies that the plant is edible. It is reported that the native people where the plant grows dig up the caudices and eat them raw. It apparently helps to quench thirst. I have not been tempted to try it myself! The plant pictured is in a 25cm (10inch) pot.

Cultivation

I use my usual cactus/succulent mix of 50% John Innes no. 3 with 50% grit or pumice. Watering is once a fortnight with a cactus feed every other time. Almost all caudiciforms are deciduous – shedding the top growth in the autumn and remaining dormant throughout the winter.

Spring is an interesting and exciting time as you watch to see if the plants are coming into growth again. The accepted wisdom always used to be not to water until the plants show new top growth. If this happens all is well. If not do not give up hope for I have found that plants sometimes take a year off. If a plant remains dormant throughout the summer, I only moisten occasionally and very sparingly to keep the roots turgid with the occasional spray. Watering dormant caudiciforms is, I think, a recipe for disaster.

To be honest these are not the easiest of plants to grow. I am one of those people who, if you tell me a plant is difficult to grow, then I want one! I once heard a talk by Gillian Evison on these plants where she described them as having suicidal tendencies and I know what she meant.

Another accepted wisdom is that a caudiciform will not grow if the caudex is raised above the soil level. I have found that if the caudex is raised, some caudiciforms at least do grow, although very slowly.

Species

Caudiciforms and pachycauls are probably regarded by growers as a small and specialist corner of our hobby. Specialist is probably fair but small is not. There may well be more than 100 succulent genera that contain these plants.

This does not, of course, mean that all the species in that genus are caudiciforms. *Euphorbia,* for example, has about 800 succulent species of which maybe 100 are caudiciform. Surprisingly, there are three cactus genera *Pterocactus*, *Peniocereus* and *Wilcoxia* (*Echinocereus*) some of which have thickened rootstocks which could be termed caudices.

Caudiciforms can also be very large in size with reports of plants in habitat several feet across. So not small in number or in dimension. Caudices vary considerably as can be seen from the pictures that accompany this article.

All the plants shown are from my own collection.

Pseudobombax ellipticum

A native of Mexico, in cultivation this has a large grey or off-white caudex with scar-like markings. Branches arise from the caudex which have large leaves.

In habitat it will grow into a large tree, possibly reaching 18–20 metres (60ft) in height.

Allegedly it can be propagated by branch cuttings, although I have had no success with that. The plant pictured is in a 30cm (12inch) pot.

Pachypodium bispinosum

This one comes from South Africa. In contrast with the previous species, the caudex grows upright in a conical style. The top growth is short and spiney.

The plant pictured is in a 30cm (12inch) pot. I am told it can grow to 60cm (two feet) in height or diameter.

Pachypodium brevicaule

This plant's natural habitat is Madagascar. It is regarded as one of the most desirable caudiciforms. It is very squat – almost flat – and small leaves are its only top growth.

Unfortunately, its desirable status is partly a reflection of its difficulty to grow. If offered for sale plants of this species are often grafted on easier pachypodium stems.

The plant pictured is on its own roots. I have found that it does not come into growth every year and has even gone two years without signs of life but has then come back with growth. It is in a 20cm (8inch) pot.

Uncarina roeoesliana

This is another one from Madagascar. Of all the heat-sensitive caudiciforms this is one of the best suited to greenhouse cultivation. It still needs winter heat but is more tolerant of temperatures that fall below 15°C (60°F).

It leafs up regularly in the spring and flowers freely throughout the summer. The flowers are long tubed and bright yellow in colour.

Allegedly it will seed if exposed to outside pollinators and its seed will germinate well. This plant is in a 11cm (4.5inch) pot.

Cyphostemma uter

This one is native to Angola and Namibia. There are a number of caudiciforms in the genus but this is regarded as one of the most attractive. The caudex grows in a strange 'lumpy' shape and has bark that peels off. The leaves are large, greenish/yellow in colour and leathery. The plant shown is in a 30cm (12inch) pot

Dendrosicyos socotranus

As the specific name implies this plant is native to the remote island of Socotra in the Arabian Sea. It is a columnar plant, forming a tall, slender trunk with a swollen base, which can reach 1.5m (five feet) in the wild but is very unlikely to grow to this height in a greenhouse. It is a rare plant and seldom offered for sale.

The leaves of the top growth can, at least in theory, be retained through the winter if water is supplied. I have never had the courage to try this. The plant pictured is 60cm (24 inches) tall.

Euphorbia stellata

A species from South Africa, with attractive leaf patterns borne on top of a relatively large caudex.

This is one of the most popular of the caudiciform euphorbias. It presents no great problems in cultivation apart from the need for winter warmth. It seems to be happy in full sun or partial shade and can be propagated from top growth cuttings. The plant pictured is in a 11cm (4.5inch) pot.

Euphorbia ramena

This is another of the numerous Madagascan caudiciforms. Unlike the previous species this is a newer plant to cultivation and not frequently seen. It stays fairly small and produces a top growth of attractive lush green leaves. It seems to me to grow better in semi-shade but as always with warm winter temperatures.

Conclusion

This has been a very small personal selection of these unusual plants. As described above there are many more plants exhibiting this form of drought-surviving growth.

Caudiciforms are not frequently offered by UK nurseries but if you are inspired to acquire some they are often available via the internet. Even seedlings, however, are quite expensive.

If you would like to know more about caudiciform and pachycaul plants I recommend the following two books.

Caudiciform & Pachycaul Succulents
Gordon Rowley
Mill Valley, California: Strawberry Press (1987)

A guide to growing Pachycaul and Caudiciform Plants
Phillipe de Vosjoli
Advanced Visions Inc (2004) ■

Photos: Colin Cutler

Puya
at the Ventnor Botanic Garden

by Chris Kidd

Puya × ventnorensis

The National Collection of *Puya* held at Ventnor Botanic Garden on the Isle of Wight began with a rushed smash-and-grab raid of some plants grown in Tresco Abbey Garden in the Isles of Scilly.

Former Ventnor Curator Simon Goodenough was collecting plants from far and wide to restock the garden following two natural disasters. In 1986 a rare frost froze Ventnor in an icy grip, the coldest temperatures for a century. The following year a hurricane hit the south coast of the UK; what did not freeze in 1986 blew over in 1987.

With 28 acres to refill with half-hardy plants, every nursery trip, envelope of seed and pocket of cuttings was vital to regenerating the Isle of Wight's sub tropical Botanic Garden. In 1989 Goodenough had spent several days taking cuttings, collecting seeds and digging up plants at Tresco. On his final day he girded his loins to hurriedly bag a compost sack full of puya divisions from an enormous vicious clump, immediately prior to catching the helicopter back to the mainland. He sat bleeding in the Sea King helicopter racing towards Penzance with what would later become the type material for *Puya* × *ventnorensis*, named in 2024 in recognition of a truly incredible plant.

The bromeliad family includes several genera of terrestrial xerophytes. The majority can be considered epiphytic, where the bromeliad form is the familiar rosette of leaves from the centre of which emerges an inflorescence, like the top of a pineapple – our most familiar bromeliad.

The genus *Puya* is archetypal as the spectacular bromeliad from dry mountainous areas in South America. In flower these can be quite spectacular, with

Puya leaves showing their sharp spines

Puya coerulea
'Black Sapphire'

spikes to 4m tall, bearing exquisite individual flowers of all hues: reds, blues, turquoise and white.

There are relatively few puya in European cultivation. The rewards from investing time, upwards of 20 years from seed to flower, can be underestimated and fleeting; however when a 'big one' flowers it can draw press attention and pilgrims from far and wide. For the enthusiast they are irresistible and perfect in gardens such as Ventnor where hardy and semi-hardy xerophytes can grow out of doors.

Goodenough's hasty grab bag initially turned into a large clump of rosettes. High Andean puya tend to expand vegetatively on transplantation; they offshoot and divide into new rosettes without flowering. Very large clumps can be several metres across. Further division within the garden created new clumps in south-facing sunny positions among rocks.

An expansion of the collections at Ventnor began in 2000. Emboldened by the success of xerophytes, and the need to rehome some exhausted plants held under glass, a new arid garden was created. An experiment to test the hardiness of existing plant collections, combined with concerted efforts to attain new material, led to a hunt for new puya. Over the course of five years all the *Puya* species available in British and European cultivation were sourced, and what a jumble of plants they turned out to be.

The first introduction to the UK from South America of puya was in the 1860s but these did not persist in gardens. It was Clarence Elliot's introduction in the 1930s from material gathered near Valparaiso in 1927 that established puya in cultivation.

Subsequently there have been many more introductions of *Puya* species, some legitimate and others less so. A glance

online will reveal upwards of several dozen *Puya* species sold as seed from many locations, some in South America others purported to be in Europe and North America.

For some years the true giant of all *Puya* species, *Puya raimondii*, has been made available from several sources. The reader will not need to be reminded of the risks inherent in purchasing seed online, particularly of species such as this which are well known to be endangered. Although a seed-setting plant may produce upwards of 100,000 seed, if this plant is in the wild state then there it, and its seed, should remain.

Legal collections of puya have been made in recent times e.g. Bleddyn and Sue Wynn-Jones of Crûg Farm Plants collected from Colombia in 2016 and Martin Gardner, Clare Morter and Gunnar Ovstebo of Edinburgh Botanic Garden collected in Chile in 2011. Several specialist nurseries offer tantalising un-named species with only field collection notes. As already mentioned, the phrase '*caveat emptor*' is rarely more sensibly used.

Some plant groups are notoriously badly named in cultivation and puya is no exception. Ultimately, the specialist grower must take a jaundiced view of Puya species offered in commerce. The conclusions drawn at Ventnor are that almost without exception all plants sold as the high altitude giants are hybrids; and that all manner of taxonomy, whether fictional or misguided, is applied either erroneously or mischievously.

Much of what is sold harks back to the original introductions on Tresco and the resulting hybrids, second filial generations, back-crosses and independently assorted mongrels. Do not be alarmed. Some of these are incredible plants but not for the purist, who may wait 20 years to find yet another disappointment. Exalt the beauty of the hybrids.

Puya sp.
RH2910A RSB

Puya × *ventnorensis* is the most commonly found hybrid. It may be sold as *P. berteroniana*, *P. berteroana*, *P. chilensis*, *P. alpestris*, *P. raimondii*, *P.* 'Hybrid', *P. gilmartiniae* or any number of cultivar names relating to colour, size or origin. In truth, it is a hybrid between *Puya chilensis* and *Puya alpestris* subsp. *zoellneri*. Many of these plants originated as seed from Tresco, where both parents co-habit. Blackbirds on the island have learned to drink the nectar abundantly available in the flowers, taking the role of the sunbirds that are the natural pollinators in Chile, and hybridising the plants as a result.

As a garden plant, *P.* × *ventnorensis* will tolerate short periods of sub-zero temperatures. Like all puya it does not grow well in wet positions and prefers full sun but will grow rapidly where water is available during summer. It will take many years to flower, making a large clump first, particularly where the soil is rich and conditions are good. After flowering few seed will be set. It seems that giant puya need to cross pollinate outside of themselves but when they do several thousand seeds will form and thus the pool of plants expands.

Puya was traditionally subdivided into sub-genera, broadly a division between the true

Above: *Puya* hybrid and Inset: close-up of the flower

giants and the smaller species. This division is no longer formally accepted but, for the collector and enthusiast, it remains a useful tool. The species list for the smaller puya is as extensive as that of the giant puya and should be treated with equal caution; synonymy is rife. There has been far less hybridising, whether arbitrary or meaningful. Many of these smaller puya are worth pursuit as they have a charm all of their own, take up very little space, are easy under glass and can flower with gorgeous colours.

At Ventnor our collection is grown out of doors because of the unique microclimate, far closer to a Mediterranean climate than that of mainland Britain. We find that the plants that make up our National Collection of hardy and half-hardy puya cope well with our conditions of high quality sunlight and relatively low rainfall. The neutral to slightly acidic soils and rarity of enduring frost are helpful. Our puya grow mainly in south-facing positions on banks although a few sit on cooler level ground. Some species such as *P. laxa* and *P. venusta* will not take to prolonged sub-zero temperatures. Others, such as *P. raimondii* should, on paper, cope with diurnal cold, but with these very high altitude beasts the presence of water persisting to create dampness at the base will surely bring failure.

In protected cultivation under glass puya can be far more manageable. At Ventnor we raise plants from seed until they are large enough to withstand the boisterous outdoor conditions; our aim is not to persist with indoor collections.

Puya chilensis

Seed is sown as soon as available on to a peat-free seed compost with added sand, covered lightly with vermiculite and given bottom heat. We water from below. Fresh seed will germinate very quickly. Seedlings will in the first season remain in their seed pans. In the second year we will transplant clumps of the tiny rosettes into 9cm pots in peat-free media with added sharp grit. In the course of the following season they will expand until they are growing out of the pots, but these will not be potted on until they do so. The 9cm plants will be potted on to 1-2litre pots for a further year, with an expectation to be planted out in year three or four. At this point the growth will be very fast, and nearly always lateral with offshoots emerging between leaves.

The 'Goodenough grab' of puya from Tresco was originally grown with the name *Puya berteroniana*, the name it was given at Tresco. Revisions of the genus undertaken by Georg Zizka et al in 2013 revealed and corrected some long held issues with this name, which in short showed that *P. berteroniana* is in fact *P. alpestris* subsp. *zoellneri*, a huge plant with dazzling pure-azure-blue flowers.

When the Goodenough plants began to flower, however, it was clear to the author and Dr John David that these plants were not true *P. alpestris* subsp. *zoellneri*. In cultivation, and very close to each other at Tresco, is the related species *P. chilensis,* another giant but with yellow flowers. The Goodenough plant was indeed a giant, but flowered with a colour halfway between azure and yellow. It was clearly a cross but a striking and worthy cross. Other accessions of puya collected and brought back to Ventnor began to flower. Some from seed collected from Tresco, some from cultivation. The majority shared the same mixed characteristics as the Goodenough plant, thereby adding evidence that nearly all these puya available as seed or as plants are hybrids.

In recognition the hybrid, hiding in clear sight for decades, was named *P.* × *ventnorensis* in *The Plant Review* (published by the RHS) in 2024. From helicopter dash to a new name in only 35 years! ■

Chris Kidd is Curator at the **Ventnor Botanic Garden**, Isle of Wight.

Photos: courtesy of Ventnor Botanic Garden

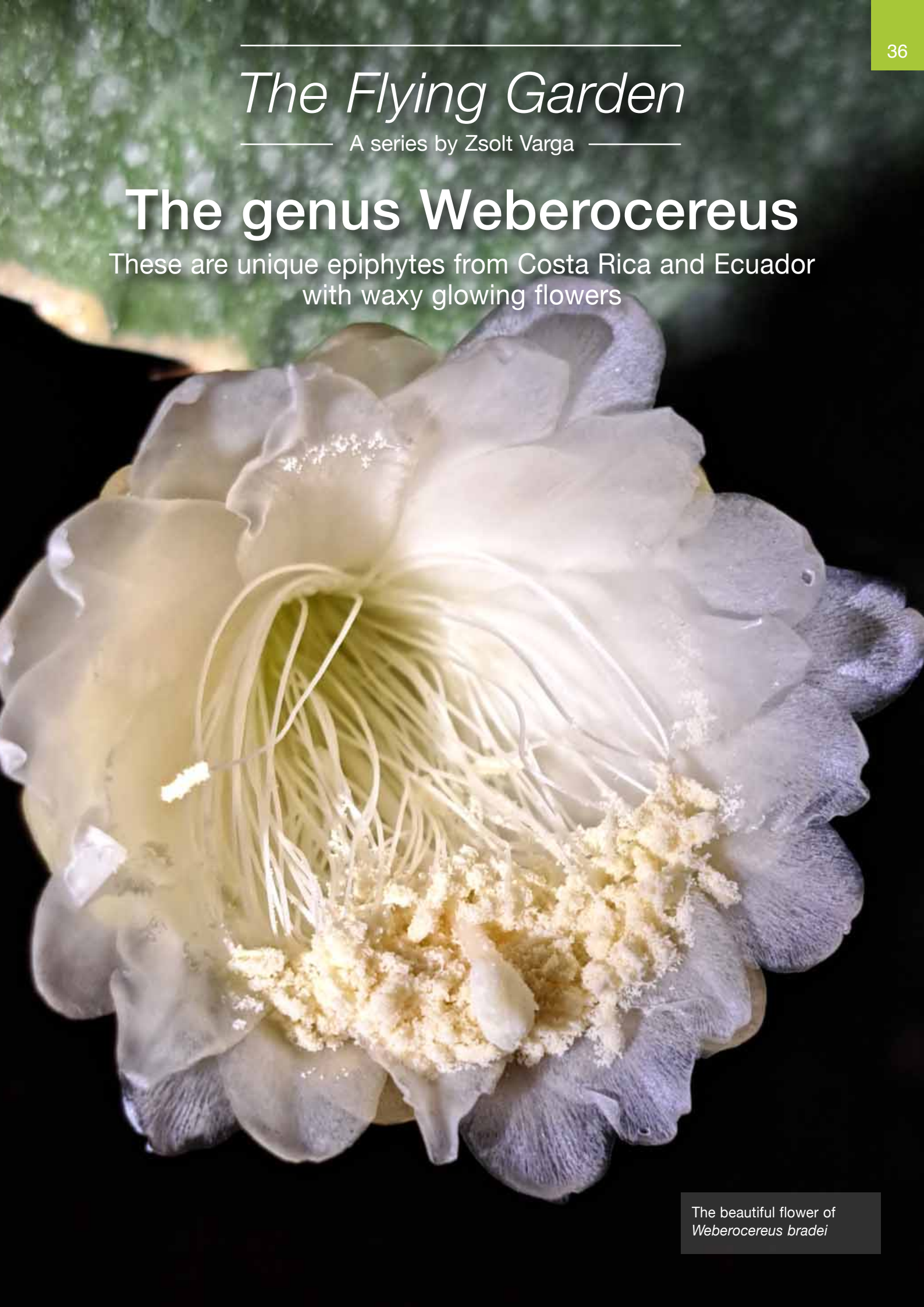
Puya × *ventnorensis*

The Flying Garden

A series by Zsolt Varga

The genus Weberocereus

These are unique epiphytes from Costa Rica and Ecuador with waxy glowing flowers



The beautiful flower of *Weberocereus bradei*

In this article I will introduce the less well-known genus *Weberocereus* and its accepted species based on the works on epiphytic cacti published in recent years by Korotkova et. al. and Cruz et. al., who examined five species of *Weberocereus* (including the type species *W. tunilla*). The species examined are genetically confirmed as a monophyletic group which is sister to the genus *Selenicereus* (including *Hylocereus)*. Korotkova found, however, that two species of *Weberocereus* (*W. glaber* and *W. tonduzii)* belong genetically to the genus *Selenicereus* although in the case of *W. glaber* this has not been generally accepted.

Weberocereus are relatively rare in collections, so very little information is available about their needs. Their flowers open at night and typically have a waxy glow. In European collections they open in several waves around the ends of the cladodes from July to November and emit a characteristically sweet and unpleasant smell. The author can describe it as fresh cut grass or cucumber with a subtle rancid-sweet tint of stinkbug mixed in.

In the case of *W. tunilla*, which lives in the Atlantic lowland rainforests of Costa Rica, it has been confirmed that its flowers are pollinated by bats; and it can be assumed that other *Weberocereus* species are also bat pollinated (Barthlott 1998).

Their rarity in collections is curious as most species are easy to grow, only needing warm conditions, good light and abundant watering. My personal opinion is that their rarity is due to their somewhat unassuming flowers compared to the big flashy *Disocactus* hybrids that were in fashion from the late 1970s. There is also the difficulty of overwintering them in small collections where traditional ways of wintering epiphytes would surely kill them.

In central Europe where I live it was considered that wintering conditions for epiphytic cacti should be dark and cold. Such conditions are only suitable for high altitude species of *Disocactus*, related hybrids and epiphyllums but even those struggle sometimes. The availability of different genera such as *Pseudorhipsalis*, *Pfeiffera* and *Lepismium* has already challenged these methods. Some of the

Weberocereus tunilla subsp. *biolleyi*

newer growers in the hobby come from different plant collecting backgrounds and are finally able to keep heat-loving, low altitude, tropical epiphytic cacti alive.

Introducing the species:

Weberocereus (Selenicereus) tonduzii

W. tonduzii, described from Limón, Río Chirripó 1800-2500 metres above sea level, previously fitted quite well into the Costa Rican-Ecuadorian species. It is a climbing, creeping or pendent, segmented epiphyte that roots aerially and has been moved to *Selenicereus*. I have only a small plant that grows slowly in my collection.

Weberocereus glaber

This species, which is the most easily obtainable, is widespread in Guatemala and the state of Chiapas, Mexico, at 1200-1800 metres above sea level. It is an epiphyte with triangular shoots which are light green, finely incised, with concave wavy edges.

In my collection, I grow several clones from different areas, which so far show very slow growth; it happens that during one season they do not produce a single shoot. I am still experimenting with keeping them as they need warmth and lots of light.

Weberocereus tunilla

W. tunilla, the type species of the genus, was described from the Río Birrís canyon in the Tablón province of Costa Rica, south-west of Cartago, 1100 metres above sea level. It is an irregularly branching epiphyte with a drooping habit, which is also grown for its fruit.

I have grown this species since 2023 but it has not flowered for me. Before that, unfortunately, I had only managed to obtain different *Selenicereus* species under the wrong names for my collection. Both *W. tunilla* subsp. *tunilla* and subsp. *biolleyi* are really elusive in the hobby.

Based on information from German collectors, both subspecies should be easy-to-keep plants that show rapid growth. Like other epiphytic cacti they can both be grown outdoors in sun or semi-shade. Their medium should be enriched with bark so that it has good water permeability (Bauer 1991).

For me *W. tunilla* subsp. *tunilla* is a slow grower which only manages to push three new clades in a year. This is also very surprising, as *W. tunilla* subsp. *biolleyi* from the same source has grown rapidly as described in the literature and flowered in January 2024 in my collection. Since then it has quadrupled in size, growing rapidly in waves when multiple new shots appear from roots and from the primary branches too. I keep it under growlights in the winter, as it has no rest period and grows all winter and flowers in early spring. This is one of the easiest species to keep in the genus, and I highly recommend to try growing it!

Weberocereus tunilla subsp. *biolleyi*

Above and below: *Weberocereus tunilla* subsp. *tunilla* (Photos: Shacarah Gagnon-Kvale

Weberocereus bradei

W. bradei is an epiphyte described from the Osa Peninsula and Orotina region of Costa Rica, which forms a dense drooping thicket in Pacific forests. Despite the fact that its habitat is rich in precipitation, in my experience *W. bradei*, without very good air movement, gets root rot easily. I keep it in a very airy, very permeable substrate, where I can water it freely. It likes heat and high humidity too, otherwise it starts to wilt quickly.

This is not the easiest plant in terms of its maintenance requirements and I am currently struggling to create the right conditions in my collection. I keep it in between my other epicacti species high in the summer tent, where it gets a lot of sun, but not all day long as it wilts quickly if its substrate is dry. Based on information from German collectors, it requires warmth in winter, which also helps to avoid root rot (Vollmer 1997). It is a slow grower for me, I suspect mostly hindered in growth by climatic conditions; I think it would grow much better in more stable conditions.

W. bradei sets buds regularily in the summer on fresh growth but the cool late summer nights can easily devastate the flowers. In my experience temperatures under 13°C totally prevent the buds from opening but they wither in the morning as normal. I have also found that green grasshoppers like to burrow into the fresh buds after which the plant aborts them readily. Otherwise its an easy-to-flower species.

Weberocereus bradei (See also page 36)

Weberocereus frohningiorum

W. frohningiorum, a species discovered in 1994 from the low-lying areas of the western part of Costa Rica, occurs in rocky mountain forests in the San José area. A very close relative of *W. bradei*, it differs from it mostly in its three-ribbed stem and in its areoles, which bear longer spines including many hair-like spines. Its flowers are pinkish-white.

In my collection, based on advice from US collectors, I keep it in full sun, among my plumerias where it has shown very strong root development. I mixed its epiphytic medium with sand too. It started to grow quickly, branched from the root and produced strong shoots which, however, stopped growing due to the coolness of autumn but continued the following spring. These growth waves resulted in a patchwork look, thin and thick stem segments above each other. Based on this I would say it prefers stable warm and sunny conditions much better than those it gets in my climate zone. In the winter I kept it under growlights for a few years, but I have found it prefers a bright windowsill behind the glass where it gets winter sun. It is among the shy bloomers of the *Weberocereus* species, my plant showed its first blooms in its fourth year.

Weberocereus frohningiorum

Weberocereus imitans

W. imitans is one of the most difficult epiphytic cacti to obtain, and can be found in very few collections. This species, described from the Puntarenas region of Costa Rica, is deceptively similar to *Selenicereus anthonyanus* and *Disocactus anguliger* in its vegetative state. Unfortunately in Europe, despite my several attempts, I have only managed to obtain mislabelled *S. anthonyanus* clones under this name, even from well-known nurseries, so I had to arrange for a personal contact of mine to visit Fairchild Botanical Garden in Miami and buy a plant for me in 2023.

Since the original plant arrived very badly beaten up from a long journey, I divided this very fast growing species and got multiple pots started. It needs extremely high-light conditions, nearly full sun, otherwise it will produce spindly, weak growth. It has not flowered for me yet, but I expect it to be an easy flowerer like its closest genetic relative, *W. rosei*. I have noticed its sensitivity to hot, dry periods, however, when it wilts quickly; and also its sensitivity to cold, when it stopped growing below 15–17°C. Luckily I had expected this as some veteran collectors told me they had never been able to keep this plant alive for long in their collections due to the wintering conditions. I will experiment more with some rooted plants to determine what is the coldest winter rest this species can tolerate but currently I keep it under growlights in a growtent among other epiphytic plants and aroids.

Weberocereus imitans

Weberocereus rosei

W. rosei is one of the more resilient and also fast-growing, easy–to–keep species of *Weberocereus*. It was described from Chimborazo volcano, Río Chancán canyon, Ecuador, 700-1000 metres above sea level. Its shoots are 40–80 mm wide, with a stout central vein; the edges of the stem parts are rounded. The outer petals of the flowers have a yellowish-green tint, the inner petals are greenish-cream.

This epilithic species is the most similar to the other ‘leaf cacti’ both in terms of behaviour and vegetative appearance. In my collection it has doubled in size in one season, showing strong growth and bushy branching from the base, which is very typical of this species. This endemic plant can only be found in a small area where trees are rare, so it lives on hot and dry sunny rocks. At night, the fog that

Weberocereus rosei buds

descends from the cloud forests provides the necessary moisture. Accordingly I try to keep it in a warm, sunny place (partially shaded) in my collection, with regular watering from May to September, when the soil dries out completely between waterings. At night, the humidity is fortunately high; and in winter it is always around 70% but it rarely receives water.

I overwinter it in warm conditions (above 15°C). From its third year it has only grown a few branches but is pushing out buds and setting fruits constantly. It is self fertile and seems to be nearly 100% self pollinating too, as it sets fruit easily, aborting only a few along the way. Its fruit is similar to the well known dragon fruit, with white flesh and a similar taste.

Weberocereus rosei the flower, bud and fruit

Weberocereus trichophorus

W. trichophorus is another elusive species which comes from the districts of Limón and Peralta, Costa Rica, 660 metres above sea level. It can hardly be found in any collections, so even major collectors do not have information on it. I was lucky enough to trade for this fantastic species. It is a slow grower and I have found it to grow mostly without branching. I cut up the 1.5 metre long main branch and replanted it this year, resulting in three growing points currently. I hope for flowers in the coming years. During the summer months I keep it in similar conditions to *W. bradei* and under growlights in the winter, as it has no rest period and grows better in stable room conditions than outside. In my opinion it's one of the most fascinating plants among the whole genus with its fuzzy hair-like spines and unique growth habit.

All photos (if not stated otherwise) by Zsolt Varga from his own collection

Translated and summarised by the author from the original article:

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Weberocereus trichophorus showing the fuzzy spines

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Weberocereus trichophorus

Mediterranean gardens

by Laurie Poulson

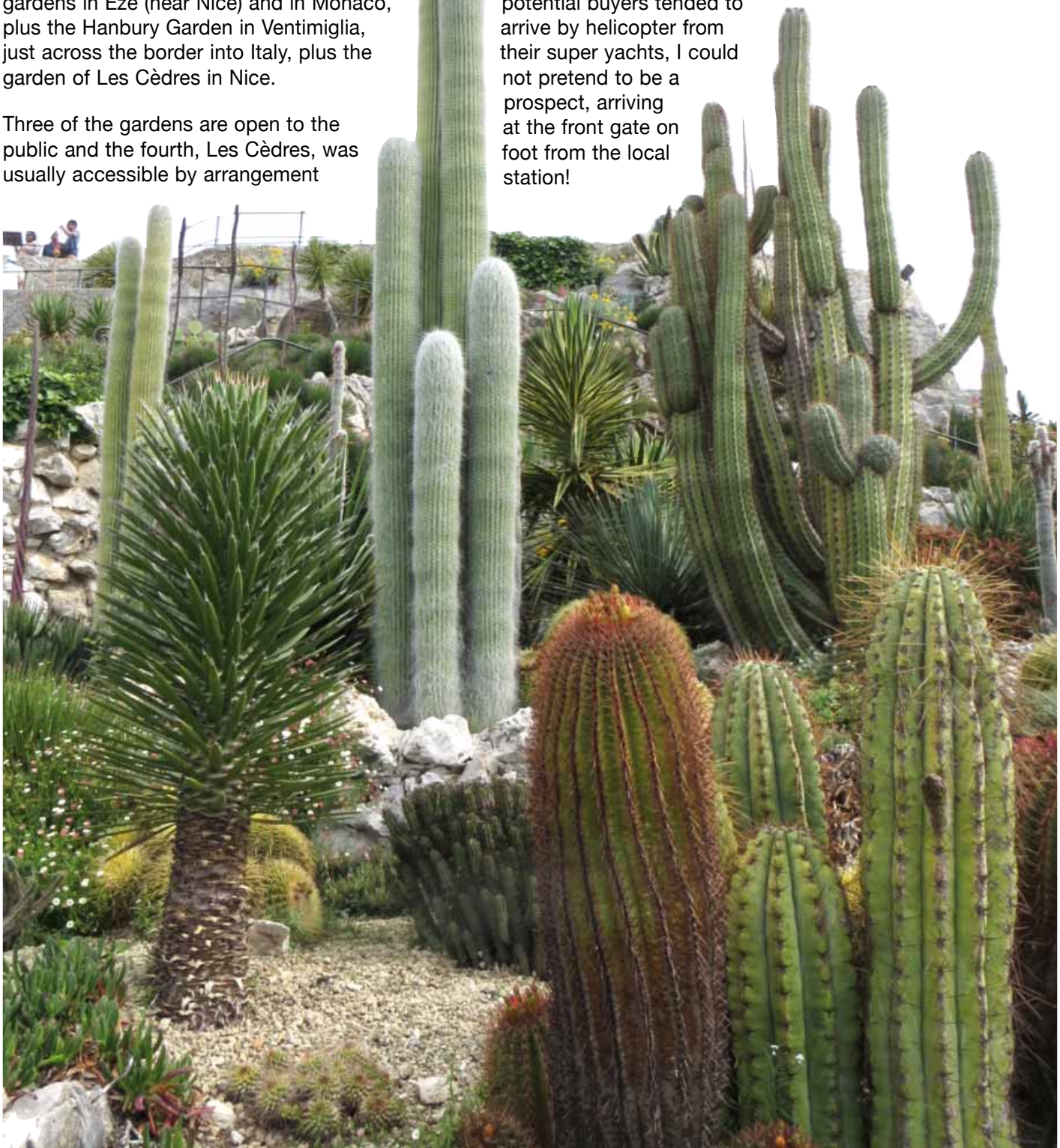
Jardin Exotique d'Èze
Aloes framing Nice

Back in 2017, I was at something of a loose end. I had lost my dear wife the previous year after a long illness and because of her health problems our travels in Italy had been curtailed for some time.

At about that time, I added *Succulent Paradise: Twelve great gardens of the World* by Smith and Figueiredo to my book collection and was amazed that, in the authors' opinion, four of the "most beautiful exotic gardens in the world" were within around 12 miles of each other on the edge of the Ligurian Sea part of the Mediterranean. Intriguingly, the gardens are in three different countries: France, Monaco and Italy. They are the exotic gardens in Èze (near Nice) and in Monaco, plus the Hanbury Garden in Ventimiglia, just across the border into Italy, plus the garden of Les Cèdres in Nice.

Three of the gardens are open to the public and the fourth, Les Cèdres, was usually accessible by arrangement with the Head Gardener. I wrote, but was disappointed by the reply, which explained that the house and its gardens (and its 23 greenhouses) were at that time up for sale and visiting (other than by prospective buyers) was suspended.

The house, originally built in 1830, had been acquired by King Leopold II of the Belgians in 1904 before being bought by the Marnier-Lapostolle family for growing their 'special oranges' used to make Grand Marnier. When Campari bought Grand Marnier, it was determined to be surplus to requirements and was on the market for a mere one billion Euros! As potential buyers tended to arrive by helicopter from their super yachts, I could not pretend to be a prospect, arriving at the front gate on foot from the local station!



Jardin Exotique d'Èze
A hillside of cerei

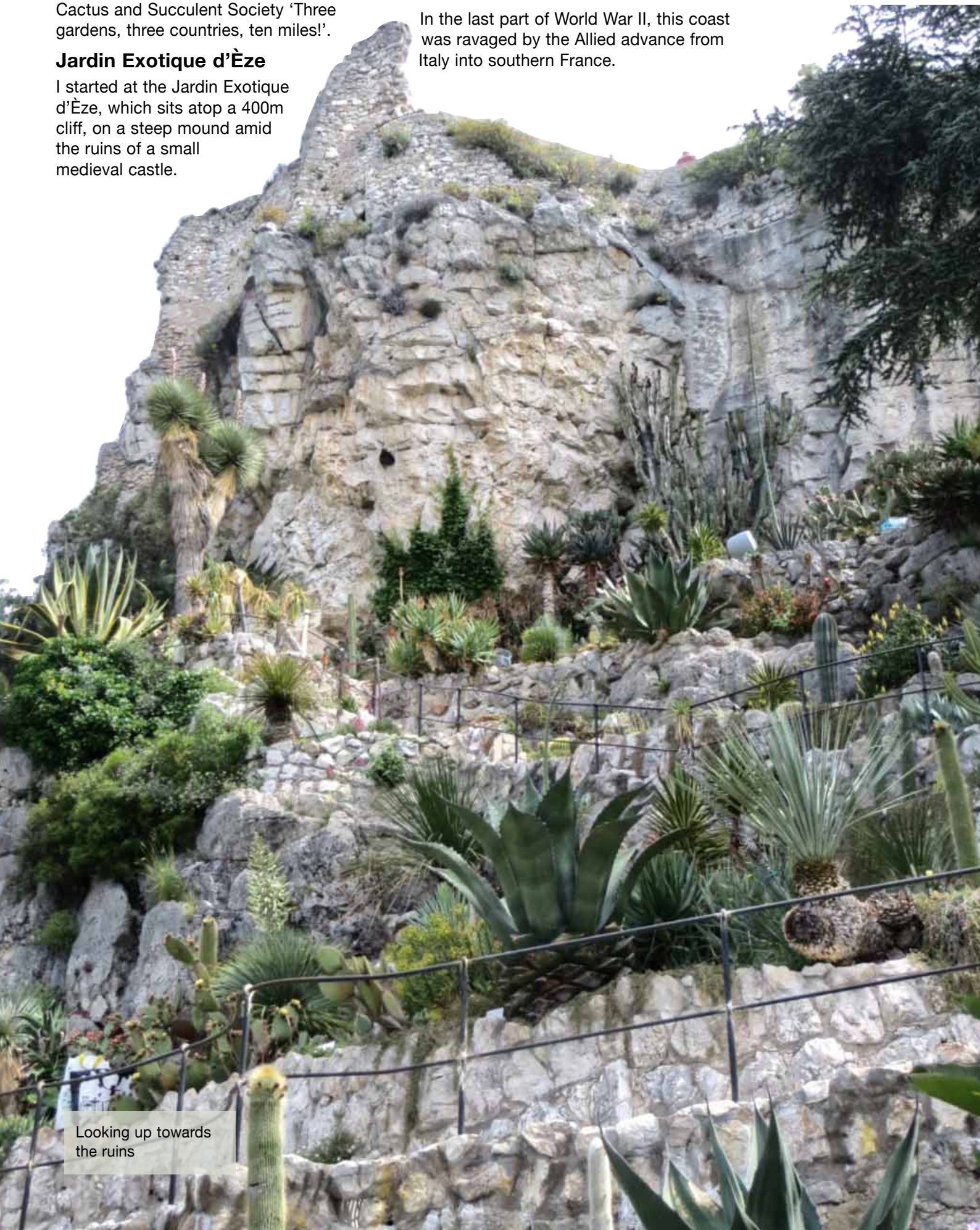
The three remaining gardens, however, made for a stunning trip and a well-received talk for my branch of the British Cactus and Succulent Society 'Three gardens, three countries, ten miles!'.

Jardin Exotique d'Èze

I started at the Jardin Exotique d'Èze, which sits atop a 400m cliff, on a steep mound amid the ruins of a small medieval castle.

The site of the garden gives breathtaking views of Nice and the Ligurian Sea far below.

In the last part of World War II, this coast was ravaged by the Allied advance from Italy into southern France.



Looking up towards the ruins

Above: Not much soil needed!

Right: *Dasylirion quadrangulatum*

Below right: *Ferocactus glaucescens*

Below: *Astrophytyum ornatum*

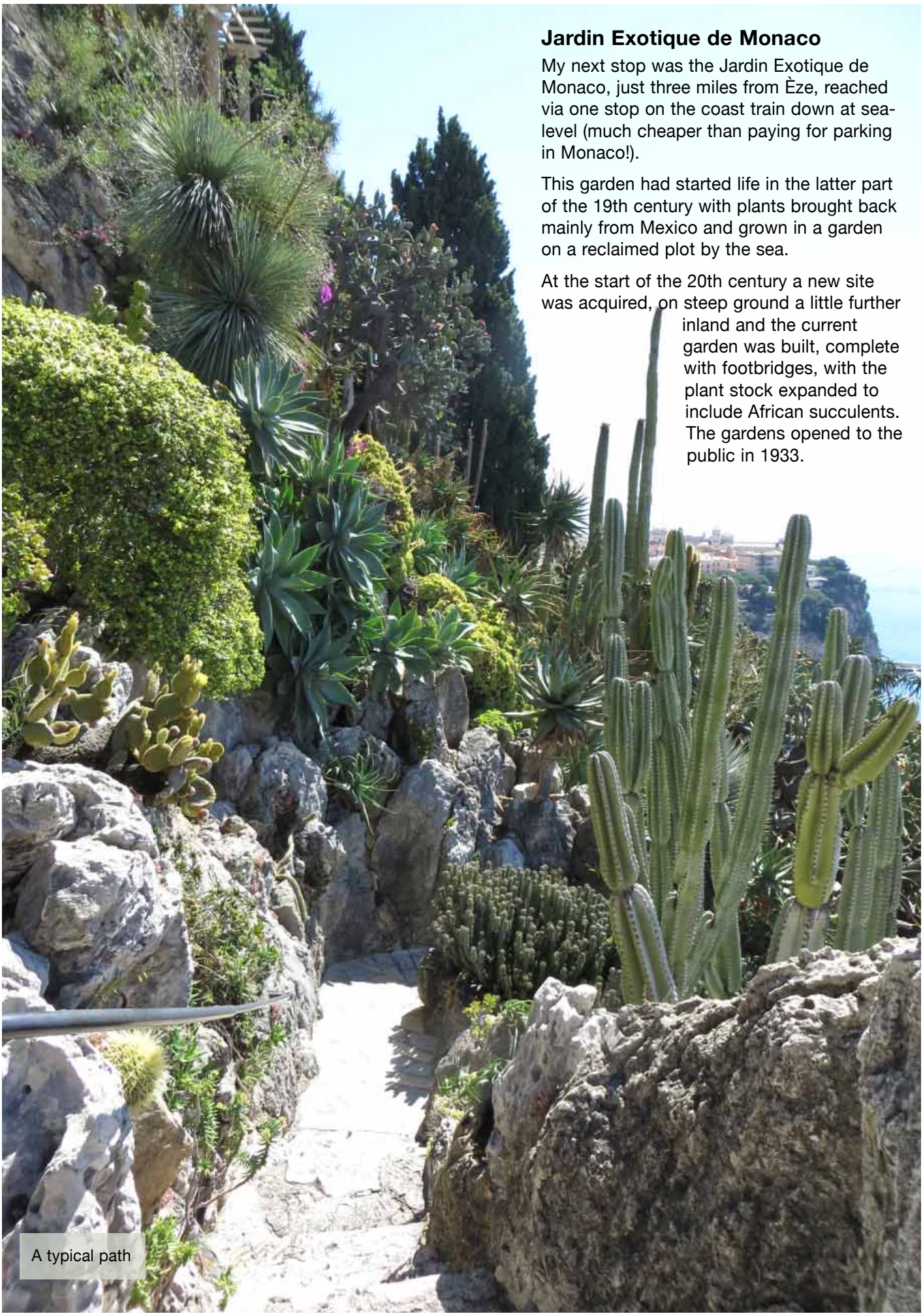
A typical planting

A very different environment on the north side

Amazingly, after the war ended, the Mayor of Èze, René Gianton, decided in 1949 that what would transform the future of the village was an exotic garden filling the top of the mound!

Designed with support from Jean Gastaud, the creator of the garden in Monaco, it is now a major tourist attraction, along with the numerous craft shops and eateries which fill the lower slopes. The garden is a maze of narrow paths, winding among many mature cacti and other succulents, interspersed with modern statuary.

In addition, the northern side of the castle ruin has a completely different environment of a rocky gulley fed by a stream.



A typical path

Jardin Exotique de Monaco

My next stop was the Jardin Exotique de Monaco, just three miles from Èze, reached via one stop on the coast train down at sea-level (much cheaper than paying for parking in Monaco!).

This garden had started life in the latter part of the 19th century with plants brought back mainly from Mexico and grown in a garden on a reclaimed plot by the sea.

At the start of the 20th century a new site was acquired, on steep ground a little further inland and the current garden was built, complete with footbridges, with the plant stock expanded to include African succulents. The gardens opened to the public in 1933.

A magnificent *Agave*

The views over Monaco to the marina and the sea are stunning, especially as they are framed by ancient mature plants in abundance.

An additional feature of the garden is the set of recently established conservation greenhouses for less robust and/or endangered species. This area is particularly attractive to enthusiasts as it seems to be ignored by the coachloads of tourists who sweep along the winding hillside paths with cameras furiously clicking!

Having spent ages looking at the plants and the vista, there was an added bonus. Beneath the garden is the grotto, a huge cavern system in the limestone rock.

A *Cylindropuntia* species possibly *C. rosea*

Polaskia chende crest

Parodia warasii

Left: plants growing by a typical path

Apteranthes (*Caralluma*) *joannis*

There is evidence of early human presence in the first part of the cave but guided tours can take you deep into the depths.

In 2024 the garden and grotto are closed for renovations but the Botanical Centre, next door, remains open. This huge greenhouse array was opened in the autumn after my own visit and the photos on the website show it to be well stocked with cacti and other succulents.

While in Monaco I also visited the Princess Grace Rose Garden, which would be tranquil but for its next-door neighbour, Monaco's very busy heliport. The Princess Grace Japanese Garden is beautiful and much more restful!

Ferocactus stainesii

Ariocarpus retusus in the conservation house

Melocactus conoideus in the conservation house

In the grotto beneath the gardens

The Princess Grace Japanese Garden

Giardini Botanici Hanbury

Six miles further east, across the border into Italy, the third country on the trip, are the Giardini Botanici Hanbury at La Mortola near Ventimiglia.

Established by Sir Thomas Hanbury and his botanist brother Daniel in 1867, the gardens were developed over the succeeding decades, with input from succulent experts like Kurt Dinter and Alwin Berger, to a collection of over 5800 species from most of the world's 'mediterranean climate' regions.

A typical planting

Berger used the collection as a basis for his revision of the genus *Cereus* in 1905 and Britton and Rose cited the gardens in *The Cactaceae* (1919-25).

It was Sir Thomas Hanbury who interceded in 1902 when the Royal Horticultural Society membership was split down the middle between those who wanted to use their existing limited resources to redevelop their headquarters and the rest who wanted to replace their garden in London with a site away from the smoke-laden environment of the city. He resolved the issue by buying an estate at Wisley and donating it to the Society, so that they could achieve both their objectives.

In the final months of World War II, the gardens were devastated as the Allies advanced from Italy into southern France. They were subsequently sold to the state of Italy which later passed responsibility for them to the University of Genoa and restoration began in 1987. The villa at their heart is now an art gallery and a large part of the gardens has been renewed but the number of succulent species is more limited than when the gardens were in their prime.

Cereus hildmannianus

Trichocereus spachianus

Glottiphylum depressum

Parodia erinacea

Inset: *Opuntia* flower

Below: *Oreocereus doelzianus* (*Morawetzia doelziana*)

For the archaeology buffs like me there is the added treat that the Via Julia Augusta, built by the Roman Emperor Augustus in 13BCE, runs right through the middle of the gardens. This major engineering feat was the main route from Italy into southern France, running along the coast where the mountains of Liguria drop into the Mediterranean. The Roman road was restored by the French Riviera Community and Ventimiglia as recently as 2006.

There was also yet another treat for me because, arriving there on the Saturday afternoon, I discovered that the following day was the Summer Festival with a group coming from Genoa to recreate the heady days of the gardens' Victorian splendour, complete with 'Sir Thomas Hanbury' himself.

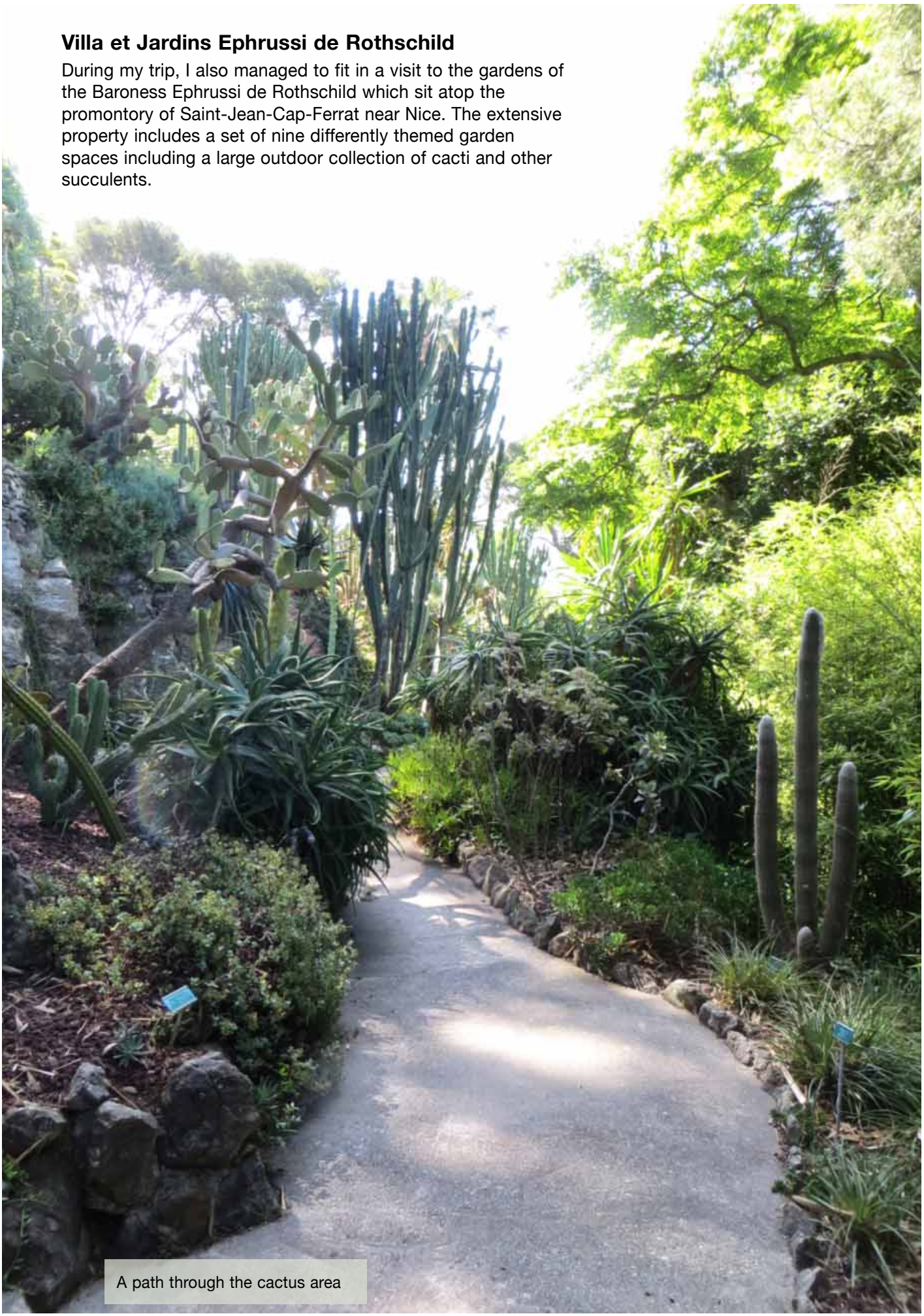
Fortunately for me there was still a ticket available for the culmination of the day, a multi-course fish-based banquet by the sea, where I was the token non-Italian. After the banquet and a few glasses of Cactus brand beer, there was a quiz and I won a copy of the University's new illustrated catalogue of all the gardens' current members of the Cactaceae!

Via Julia Augusta

The re-enactment group

Villa et Jardins Ephrussi de Rothschild

During my trip, I also managed to fit in a visit to the gardens of the Baroness Ephrussi de Rothschild which sit atop the promontory of Saint-Jean-Cap-Ferrat near Nice. The extensive property includes a set of nine differently themed garden spaces including a large outdoor collection of cacti and other succulents.



A path through the cactus area

The villa now belongs to France's Académie des Beaux-Arts and the gardens are officially designated as one of the 'Remarkable Gardens of France'. They are situated right next to the villa and gardens of Les Cèdres.

The story goes that when the hilltop came up for sale the Baroness, who was looking for a little retreat by the sea, heard that King Leopold II was considering buying it and got in quickly and gazumped him. She had the rocky hilltop levelled and built her ostentatious mansion and gardens as a sort of 'one-upmanship' exercise.

A fine cephalium on an *Espostoa* species

An *Agave* in the cactus garden

Cephalocereus senilis

Echinocactus grusonii

Street-side cacti

Ferocactus peninsulae growing by a well-used path

One of the highlights of this visit was walking from the station at Beaulieu-sur-Mer to the garden along streets with amazingly mature cacti lining the space between the roads and the footpath. One very striking *Ferocactus* in particular was surprisingly to be found alongside a well-used path!

The geographical proximity of all these gardens was emphasised at the end of my stay when sitting on the beach at Ventimiglia, I could see all of the gardens in that sweep of the coast. ■

Photos: Laurie Poulson

Cactus at the Castle 2024

by Vicky Davies

The event has continued to grow, attracting around 800 visitors, while still maintaining a special charm which can only be referred to as the ‘Lullingstone effect’, giving it a warm and relaxed atmosphere.

After a fairly dismal summer the weekend of 14-15 September was smiled upon and we could not have had better weather for this year’s Cactus at the Castle, part of Lullingstone Castle’s Mexican Celebration Weekend.

Despite the clash with ELK we still welcomed over 30 sellers to the mart, several making their Lullingstone debuts and, for the first time, we had sales in all three of our marquees, with the outdoor sellers now taking pride of place on the grass of the carriage circle in front of the Manor House. The fourth marquee was home to the Fishers Gin bar which was also serving some very fine Harvey’s beer and excellent wine. It certainly brought a garden party feel to the event after an intensive morning of plant buying.

The ever popular Bring and Sell Auction took place on the Saturday afternoon which included plants from several collection dispersals. It was a pleasure to help find homes for these plants, especially those from the late Mick Cotter’s collection, the money raised being donated to St. Christopher’s Hospice.

In addition to his inimitable tours, Tom Hart Dyke also presented the prizes for the second Lullingstone Open Show on the Sunday and we would like to thank all those who entered. There were nice plants in all the classes and the limitations on pot sizes made an

Setting up in the September sunshine

interesting change to the plants entered. This year's show was judged by the highly experienced Suzanne Mace and the enthusiastic Jack Ogg of York Gate Garden, to whom many thanks; and thank you too to the many visitors who voted for their favourite plant.

The Lullingstone Trophy for the most points was won by Les Hewitt and he was also awarded the Cactus and Succulent Review Prize for best succulent, a *Conophytum ectypum* subsp. *brownii*. The Cactus at the Castle Award was presented to the *Uebelmannia pectinifera* entered by Graham Evans. There is also a very special 'well done' to Meda, who won the Castle Cup for the best plant by a junior entrant for her lovely *Avonia*.

This year, we welcomed three speakers and had multiple talks and demonstrations on both days. It was disappointing that Paul Spracklin's new book had not made our shores by that weekend but Paul kindly gave his talk on the Saturday even though there were no books to sell. The fine weather allowed the ever-popular Mellie Lewis to take her demonstrations on aeonium cultivation and propagation outdoors so that everyone could make the most of the sunshine. Jack Ogg entertained with stories of succulent goings on from York Gate Garden, Leeds.

Mellie Lewis demonstrating aeonium cultivation and propagation

Plans are taking shape for an even better Cactus at the Castle in 2025 with the date set to be a week earlier to avoid clashing with ELK. We hope you will be able to join us on 6-7 September 2025 for all things cactus and succulent and to help celebrate the 20th anniversary of The World Garden at Lullingstone Castle. ■

Photos: Vicky Davies

Some pictures from the Lullingstone Open Show

Inset: The prizewinning *Avonia* exhibited in the junior class

Above: Gasterias and aloes in class 13
Right: Any cactus or succulent (two plants)
Below: Some fine gymnocalyciums

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