Essex Succulent Review

Issue 16 (Vol 55 No 1) March 2018

This issue includes:

Epiphyte or not

by Paul Klaassen

Chilean Cinderellas Thelocephala

by Roger Ferryman

Hardy bromeliads

by Paul Spracklin

Editorial

Those of you who have read the online Essex Succulent Review from the beginning will have realised that it is getting steadily longer. This issue is the longest yet, at 36 pages and I am hoping to maintain issues throughout 2018 at around 28–36 pages. This should enable me to spread out the longer articles, with plenty of pictures, and hopefully add shorter items to provide variety.

Of course to achieve this I need more and more material, so if anyone has an idea for an article do please get in touch. It need not be a full-length feature, I always welcome shorter items and fillers, an interesting plant for example, or something which has done particularly well for you.

I'll look forward to hearing from you.

Essex
SucculentReview

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It is available on-line free of charge. Visit the website www.essexsucculentreview.org.uk to subscribe to the mailing list or email: Sheila Cude

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The British Cactus and Succulent Society (BCSS) is the National Society for growers of cacti and succulents in the UK. Zone 15 covers Essex and north-east London.

BCSS Zone 15 Events March–July 2018

Sunday 18 March **12noon–5.00pm**
Zone 15 Mini-convention
Speakers Roger Ferryman and Alan Rollason

Saturday/Sunday 14/15 April **10.00am–6.00pm**
Display and plant sales at RHS Hyde Hall (Chelmsford Branch)

Saturday/Sunday 12/13 May **10.00am–4.00pm**
Display and sales at Southend Parks Nursery Open Weekend (Southend Branch)

Friday/Saturday/Sunday 18/19/20 May
Display and sales at Flower Show, Hyland Hall and Estate, Chelmsford, CM2 8WQ (Southend Branch)

Saturday 26 May **12noon–4.00pm**
Lea Valley Branch Annual Show:
Capel Manor College, Bullsmoor Lane, Enfield EN1 4RQ
The plants remain on display over the May Bank Holiday weekend and the show includes sales of cacti, succulents and garden plants.

Saturday 2 June **11.00am–4.00pm**
Havering Branch Annual Show
1st Floor, YMCA, Rush Green Road, RM7 0PH

Saturday 9 June **11.00am–4.00pm**
Southend-on-Sea Branch Show:
St George's United Reformed Church Hall, 91 Crowstone Road, Westcliff-on-Sea, SSO 8LH

Saturday 7 July **10.30am–4.00pm**
Waltham Forest Branch Show:
Chingford Horticultural Hall, Larkshall Road, Chingford E4 6PE
Plant sales from 9.00am

Saturday/Sunday 14/15 July **10.00am-4.00pm**
Zone 15 Annual Show
RHS Hyde Hall, Creephedge Lane, Rettendon, Chelmsford, Essex CM3 8ET

Havering Cactus Mart

Saturday 12 May 2018

10.00am–3.00pm

North Romford Community Centre,
Clockhouse Lane, Collier Row,
North Romford RM5 3QJ

Large hall with at least 12 leading nurseries

Admission £1
Refreshments available all day

For a printed map and details of parking send SAE to
Mr Eddy Harris,
49 Chestnut Glen, Hornchurch, Essex RM12 4HL

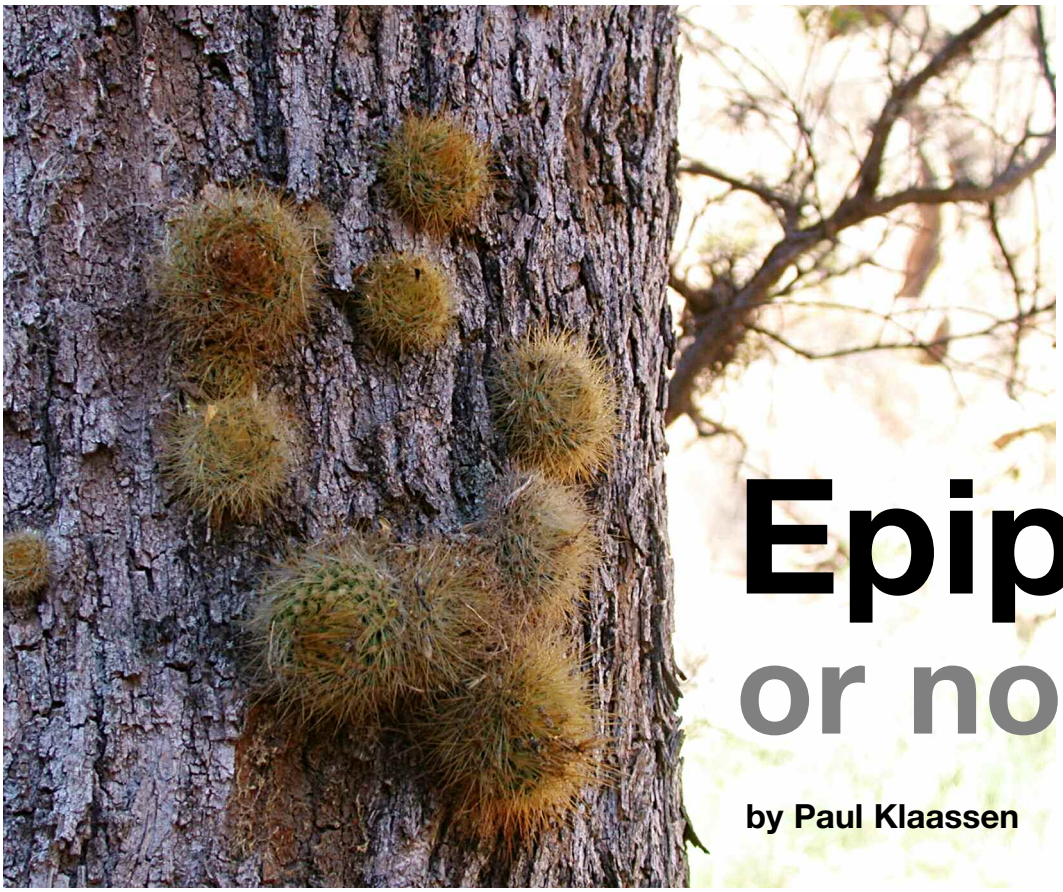
South East England Cactus Mart

Saturday 7 April 2018

10.00am–3.00pm

Swalecliffe Community Centre,
19 St John's Road, Whitstable CT5 2QU

For full details contact Dave Appleton



Epiphyte or not?

by Paul Klaassen

A terrestrial epiphyte can be defined as an organism that grows on the surface of a plant and derives its moisture and nutrients from the air, rain or from debris accumulating around it.

Over millions of years of evolutionary changes, epiphytes have adapted to survive in habitats that provide minimal water and soil and so have a minimal root system, often used to enable them to attach themselves to other plants, or items such as rocks or telephone wires. The Cactaceae have also made such adaptations and so it comes as no surprise that some cacti are epiphytes.

In 1998, on a trip with Marlon Machado in the Brazilian States of Bahia and Minas Gerais, I expressed disappointment at not having seen more epiphytic cacti. He smiled. “We have passed plenty, but we spent most of the time looking at the ground, looking for *Discocactus*, *Melocactus* and *Uebelmannia*.”

Argentina – Salta

Above: Parodia penicillata on a tree

Below: Seedlings of Parodia penicillata and an Echinopsis (Trichocereus) growing on trees

Rhipsalis baccifera at El Tajin

Brazil – Rhipsalis lindbergiana, Epiphyllum phyllanthus growing on Cereus jamacaru

In 2017, we decided to visit some of the remnants of buildings, built by the pre-Columbian civilisations. At one of these sites, we spotted a tree bedecked with *Rhipsalis baccifera* and soon had our cameras clicking away. We stopped briefly to see why a family group of Mexicans were laughing at us.

"What is the matter?" we asked. "We think you should know that the Mayan monuments, that are the main attractions in this park, are behind you." We looked, and sure enough, there they were. "What are you taking pictures of?" "Cacti!" Their eyes rolled sky-ward and the word '*loco*' (= mad) seemed to be used a lot.

One of the Mayan monuments at El Tajin

There are plenty of bromeliads, particularly in the genus *Tillandsia* (airplants), that grow on anything from rocks, to telephone wires. In Brazil, this can cause quite a few problems during heavy rains, when the weight of the wet plants is enough to bring the wires down.

And they grow on trees and even on cacti!

While there is a well-documented group of cacti that have adopted an epiphytic life-style, such as the popular Christmas Cactus (*Schlumbergera* cvs) and Easter Cactus, most of our collections tend to be filled with terrestrial cacti. This means that we can write papers, hold meetings and even devote whole books to the subject of the best potting mix for our plants to put their roots into.

Above: A bromeliad at El Tajin

Below left: Tillandsia sp on Echinopsis (Trichocereus) sp

Below: Argentina – Anillaco. Trichocereus sp in a tree

Occasionally, in habitat, Mother Nature likes to tap us on the shoulder by presenting us with something unexpected. Last year, on a trip to Mexico, Ian Woolnough took us to a spot to show us a cactus he had spotted a year earlier while driving through the Barranca de Metztitlan.

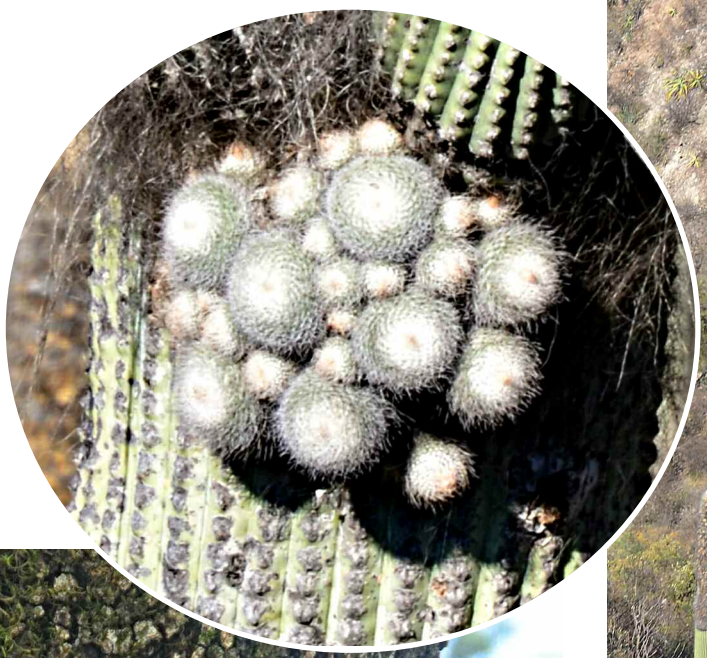
It appears that the axil between stems of this *Cephalocereus senilis* contains enough detritus to support a mature clump of *Mammillaria geminispina*.

This brought to mind other occasions where we have found other cacti, usually regarded as terrestrial in habitat, growing epiphytically.

During a comfort break on another Mexican cactus trip, my eyes wandered upwards along the tree

Right and inset: Mexico – Barranca de Metztitlan

Mammillaria geminispina growing on Cephalocereus senilis



Below: Mexico – Nuevo Leon, in the Sierra de Lampazos, Opuntia engelmannia in a tree

I was watering and there, in the axil, were three different cacti. Now I do not bring my camera along to such activities but, after a quick run back to the car, I was able to return to photograph a ceroid, a *Ferocactus* and a *Mammillaria*, each suitable for potting into a 5cm pot.

Back home, after enlarging and brightening up the image somewhat I was able to identify them as *Stenocereus dumortieri*, *Ferocactus histrix* and *Mammillaria decipiens* subsp. *camptotricha*. I would have gladly put the last taxon on my wish list for that day as, unlike the other two, it is quite rare and said to occur only in a small area.

It raises the interesting question of how they got there. Given the somewhat short stature of most Mexicans, compared to my 195 cm height, I think that we can rule out that humans had a hand in sowing the seed here.

Above and inset: Mexico – Stenocereus dumortieri, Ferocactus histrix, Mammillaria decipiens subsp camptotricha on a pine tree

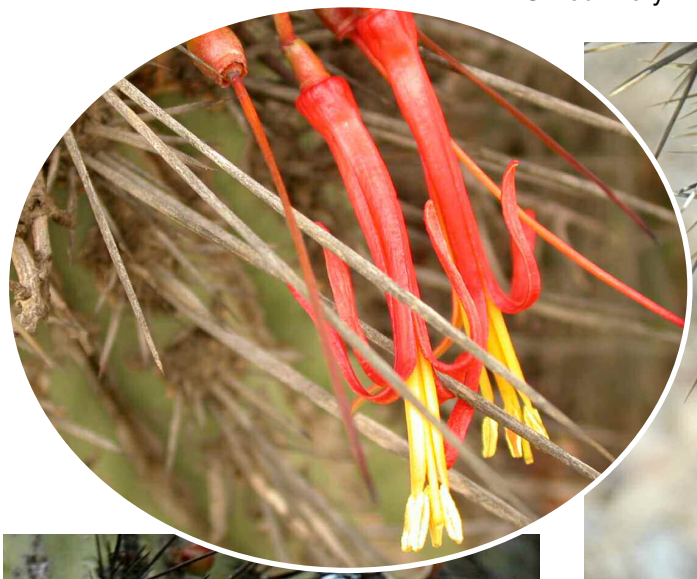
Above and inset: Sonora – Stenocereus (Hertrichocereus) thurberi and an Opuntia

Usually birds are the distributors of the seed of epiphytes, either cleaning their beaks after a meal of berries where the seed got stuck to their bill or by the seed leaving the body at the end of its journey through the bird's digestive system. But three very different cacti having been brought here on a single occasion seems unlikely. Perhaps one of the higher branches was the regular perch for a local finch that used it as its toilet stop.

Epiphytes differ from parasites in that epiphytes do not necessarily negatively affect the host. On our first visit to Chile in 2001, and unfamiliar with the Chilean flora, we snapped away at the cacti and promised ourselves to sort out the IDs once we were back in England. On our very first stop, I photographed *Trichocereus chiloensis* and commented in my scribbled notes that the bright red flowers were much smaller than I had expected for such a large plant. The answer is that the flowers did not belong to the *Trichocereus* but to *Tristerix (Phnygilanthus) aphyllus*, a plant that after flowering produces a mass of white berries, just like mistletoe. The berries turn to red when ripe.

Many parasites are limited to one specific host and *Tristerix (Phnygilanthus) aphyllus*, is said to grow exclusively on *Trichocereus*. However, during our many trips in Chile we have also seen it growing on *Miqueliopuntia miquelii*, *Eriosyce subgibbosa* and on *Eulychnia acida* and *Eulychnia castanea*. ■

Photos: Paul Klaassen



Tristerix aphyllus flower on Eulychnia acida

Tristerix aphyllus berry on Miqueliopuntia miquelii

Tristerix aphyllus berry on Eulychnia acida

Tristerix aphyllus flower on Echinopsis chiloensis subsp. litoralis

Chilean Cinderellas
Thelocephala

by Roger Ferryman

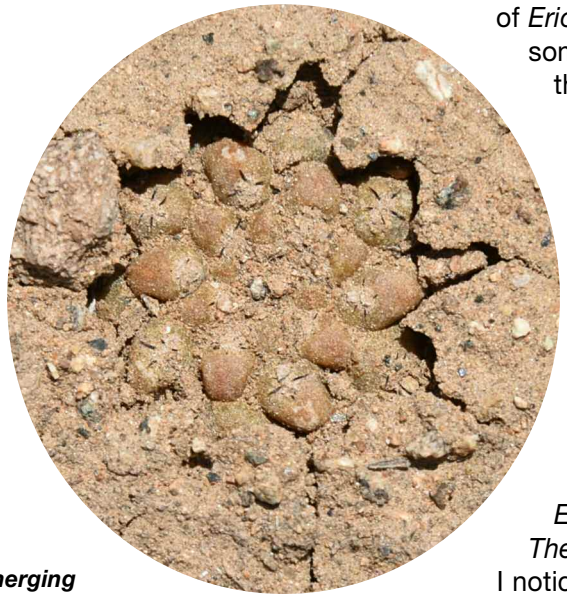
When visiting Chile, most cactophiles are driven by the desire to see the massive *Copiapoa* clumps in the wild. Rightly so, as these magnificent, ancient specimens are truly one of the wonders of the plant world.

Often overlooked, or just simply unseen, are a group of plants belonging to *Eriosyce*, a group known as *Thelocephala*. While it is difficult to justify *Thelocephala* as a distinct genus, as proposed by the cactus guru Friedrich Ritter, it does provide a comfortable handle for a collection of plants that spend much of their time below ground and out of sight, prompting yet another label of 'earth cactus'.

Ritter accepted around 16 species. The '*New Cactus Lexicon'* reduced this to three species within *Eriosyce*; namely *E. esmeraldana*, *E. napina* with a further five subspecies and *E. odieri* with one further subspecies. Plant hunters within Chile have described a further four species.

A typical Thelocephala habitat

Below and below left: typical taproots



Emerging after rains

Kattermann in his revision of *Eriosyce* includes some species within the subsection *Horridocactus* and others within his new subsection *Chileosyce*.

So there are 20 names, or just three plus six subspecies (or varieties, if you prefer).

Eriosyce or *Thelocephala*?

I noticed at the recent ELK cactus mart that *Eriosyce* was the name on the labels of plants we previously called *Neoporteria*, *Neochilenia* or *Horridocactus* but *Thelocephala* and *Islaya* were still boldly presented on the labels.

Likewise in collections in Chile *Thelocephala* is retained on labels. They are very popular with Chilean growers, and I certainly notice their appeal amongst UK growers, but their presence in collections is restrained by the lack of available material.

All members of this group are dwarf plants, only a few species offset naturally and can usually be accommodated in a 2.5inch long tom pot. They will grow beyond this in cultivation and a long tom pot is usually needed to accommodate the taproot.

All *Thelocephala* have a taproot of some description. In some cases it will have a narrow neck while in others it is more like a turnip or carrot root. In the wild, these tap roots can reach 300mm long, ridiculous when the head is barely 25mm in diameter.

In their natural habitat the plants are generally flush to, or sunken in, the ground during the dry season only emerging if there are winter or early spring rains.

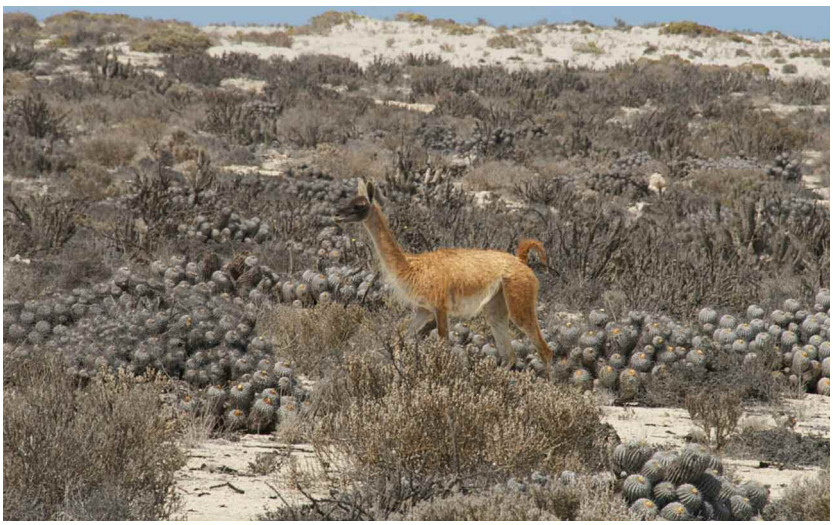
This is by no means an annual event and dry seasons can last several years.

In a good year, ie after rainfall, it is easier to spot *Thelocephala* if they are in flower. However the body may not be visible as you can see below.

However rains not only prompt *Thelocephala* into growth but also annuals that can lie dormant for years. This adds to the difficulty of searching for small plants – but it is worth it.

Besides contending with irregular rainfall, these plants also have to contend with grazing guanaco, a cameloid deer–like animal that eats a lot of these plants, particularly during the dry years, and rats which are destroying many habitats. The latters' presence is obvious as one sinks into their runs while walking.

Yellow flowers or pink but where are the plants?



Guanaco on the prowl

And the resulting damage

Typical Thelocephala fruit

Thelocephala napina fruit

The fruit of many *Thelocephala* is thin-walled and wind blown. Finding seed in the wild is difficult; a question of here today and gone tomorrow.

T. napina, the type species is one exception to this and has a more typical *Neoporteria* fruit; red and quite firm. Perhaps this is the reason it is the most common *Thelocephala* in cultivation.

The distribution of *Thelocephala* in Chile has a fairly narrow band from Taltal in the north to Choros in the south, a distance of circa 650kms. They are generally near the coast but some species follow the various valleys inland.

While walking along these beach areas can be idyllic to some, it can be a lonely pastime staring at the ground for hours.

A little help does not go amiss.

Although they do get bored quickly.

However there are always benefits for the dedicated enthusiast.

Thelocephala challensis

Thelocephala lembckei

Thelocephala odieri

Thelocephala glabrescens

Thelocephala fulva

Thelocephala tenebrica

Today there appears to be a keen interest in *Thelocephala* from growers. Awareness is spreading through the large number of people visiting Chile these days.

No doubt the small size also appeals in our ever-crowded glasshouses.

In cultivation they will never be earth cactus and even if I starve them of water for a full season they will still be very visible. The humidity in the average greenhouse cannot compare with the dryness of their natural environment.

During a recent visit to Chile, I took readings of temperature and humidity in all locations. This ranged from 22°C–30°C with a steady humidity reading of 60% even when close to the sea. Further inland the humidity can drop to 35%.

In cultivation the potted plant should have good drainage. Whatever your chosen compost it would be wise to add extra grit to ensure water drains from the taproot quickly. I have grown these plants for many years in a pure grit mixture with the occasional feed.

So having kept your interest thus far, what species would I recommend. Remember six plants will take no more than a bench space of 15cm x 25cm.

All the plants illustrated on this page are easy to grow and flower. Also worth a place are *T. aerocarpa* (nice red flowers) *T. malleolata* (easy clumping form), *T. odieri* and, if you like a challenge, *T. challensis* or *T. fankhauseri*.

I cannot help you with where to buy these, as often the plants I see (particularly at ELK) do not conform to the name on the label. However I believe SuccSeed will list a number of good species later this year. ■

Photos: Roger Ferryman

Thelocephala esmeraldana

Thelocephala napina

What is a well-drained growing medium?

Some observations on drainage

by Richard Rolfe

Growers of cacti and succulents will be familiar with the requirement of soils/compost to have 'good drainage'. However there seems to be no definition of what good drainage is and how you will know you have it. Furthermore little information seems to exist on the effect on drainage of the interaction between the soil/compost part of a mixture and the inert (normally) medium incorporated in the mix to give 'good drainage'.

To answer some of these questions I devised a simple experiment using flower pots, measuring jugs (easily cleaned for kitchen use again) and a stopwatch. For the latter I used the clock on my iPad mini, but most mobile phones have a stopwatch facility. The images accompanying this article show the equipment and set up used.

Basically I took a selection of my old and new soil mixtures, placed the flower pot with the mixture into a measuring jug, placed an empty flower pot on to the soil mixture, pressed it down slightly, then poured in 500mls of cold water as quickly as possible.

I started the stopwatch as soon as the top flower pot was full and timed how long it took for the soil mixture to stop draining into the bottom jug.

I was also able to measure how much water had drained through and, more importantly, how much water had been retained by the compost. I then repeated the exercise leaving the now wet compost in place and pouring a fresh 500mls through it.

Soil mixtures used

1) Grit.
2) A current garden centre compost containing John Innes, proportions unknown.
3) My old cactus soil, being mainly perlite/dry John Innes 3:1
4) Garden centre compost/grit in ratio 3:1

Growing media used

A selection of mixtures ready for use

Grit

Garden centre compost, with JI, and one part grit

Three parts perlite and one part sterile loam

Five parts perlite and one part sterile loam

Five parts perlite and one part vermiculite

The set up

Test soil in place

Drainage set up

Reservoir filled. This sample drained quickly

5) Garden centre compost/grit in ratio 1:2

6) My new soil mix comprising perlite/sterilised Kettering loam in ratio 5:1

7) My other new soil mix comprising perlite/vermiculite (medium coarse) also in ratio 5:1

For compost mixtures above I basically started at Compost/grit 3:1 then mixed in grit to get the other mixtures 5 and 6. Mixes 5 and 6 were wet to start with as they originated from compost mix 3.

Though I would not claim the results were fully accurate they proved very interesting and gave some idea of how my different soil mixes drained and, more importantly, how they drained once wet.

The results are shown in the table on the following page.

Results

Drainage test

Wet – five parts perlite and one part vermiculite

Wet – three parts compost and one part grit. Did not drain

Wet – three parts compost and one part grit

Three parts compost and one part grit for mixing

One part compost to two parts grit after draining

What is a well-drained growing medium? continued

Soil	Time to drain.	Volume drained through.	Volume retained.
Grit	10.75 seconds	425mls.	75mls.
CJI dry	58.85	330	170
Perlite/John Innes 3:1 dry	51.30	30	470
Perlite/John Innes 3:1 wet	240	90	410
CJI/grit 3:1 wet	Did not drain	Nil	?
CJI/grit 1:2 wet	52.52	360	140
Perlite/sterile loam 5:1 dry	22	370	130
Perlite/sterile loam 5:1 wet	12	500	Nil
Perlite/vermiculite 5:1 dry	9.35	340	160
Perlite/vermiculite 5:1 wet	10	500	Nil

Observations.

John Innes soils, once wet, may be able to retain even more water than when initially dry.

Garden centre compost, containing mainly humus, seems to waterlog very easily and should be avoided for succulent plants. Soils with humus and, I suspect, John Innes type soils, need at least 65% to 70% grit or other drainage material, before they can drain.

Soil mixtures containing mainly perlite drain very quickly, do not waterlog, and do not retain more water when already wet.

I no longer allow any John Innes or other garden centre compost near my plants. We do not know what they contain, be it nutrients, pathogens or insect eggs, including I suspect mealy bug.

I use only a perlite based soil and 100 litre bags of perlite are easy to obtain. As the minimum order for sterile Kettering loam is 10 x 25kg bags, and most people do not want to order this amount, I replace it with medium grade vermiculite as used in the building trade. This is much easier to buy in 100 litre bags.

I find succulent plants root up easily in the perlite mixtures and form large, healthy root systems. I do feed my plants to provide nutrients, but no longer a high potash feed as I can, so far, find no scientific evidence to support the idea that succulent plants need such feeds. I find a balanced feed with trace elements, at half strength, leads to growth and generates healthy plants. ■

Photos: Richard Rolfe

A cactus legend - Argentina

The tale of Pascana

This tale originates from the Aymaras, an indigenous community from the Andes.

Two young lovers, Kewayl Amatua and Pascana, wanted to get married. But Pascana's father, the tribal chief wanted her to marry a strong hunter.

Pascana and Kewayl Amatua ran away together but her father ordered his men to search for the lovers and bring Pascana home.

The lovers were exhausted and could go no further. In desperation they called upon the devil to help them, in exchange for their souls.

However, presumably before this bargain was completed, Pachamama, the goddess of the land, took pity on them and disguised Kewayl Amatua as a cactus. She then placed the spirit of Pascana inside the plant, so reuniting them.

Kewayl Amatua grew spines to protect Pascana, but occasionally she emerges in the form of a flower.

The tale refers to the cardón cactus which is probably *Echinopsis (Trichocereus) atacamensis*, of which *E. atacamensis* subsp. *pasacana* is found in north-west Argentina.

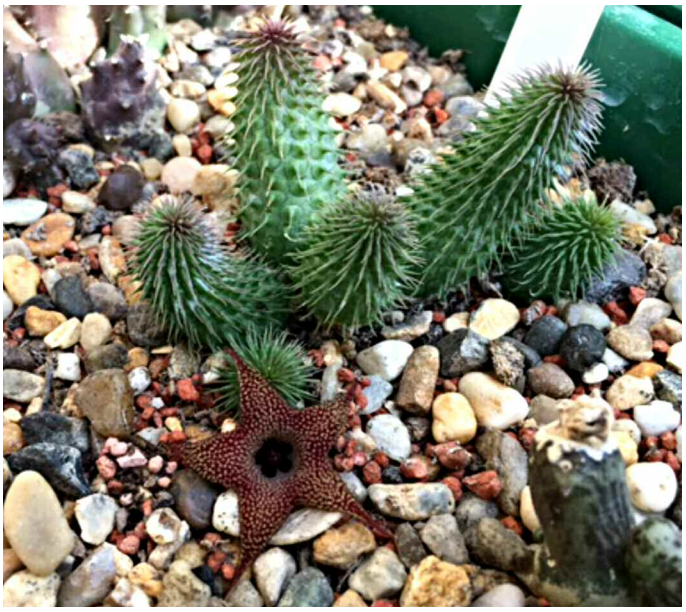
My Stapeliad collection

by Mike Cullen

Some years ago now I retired from playing cricket which meant I had more time on my hands, particularly at the weekends.

I had a decent collection of cacti and succulents but wanted to specialise in something both rewarding and challenging and settled on Stapeliads with their fantastic flowers. Plants were obtained from various sources and I joined the Asclepiad Society which gave me access to seedlists and the collection grew. My growing conditions must have suited them and I was fairly successful, with the occasional inevitable loss. I had a good sized greenhouse which received sun in summer from about 9.00am through to sundown and it seemed just right for them. I was pretty happy, and even began to support Kew Gardens where they really struggled with them.

Duvalia sulcata



Huernia pillansii

Fast forward a few years and we decided it was time to downsize. So, three years ago, we moved to a smaller property which also meant a smaller garden (my old garden was 140' long) and a smaller greenhouse. We had the property built specifically for us so after the sale in October I had to store the whole collection elsewhere until the following spring. Plants were stored in garages, sheds and even a boiler cupboard.

Some Huernias

H. boleana

H. barbata

H. hadhramautica

H. praestans

Stapelia leendertziae

The Stapeliads went to a tiny dilapidated greenhouse and were squeezed into every available inch. I rigged up some heating to get them through the winter but, during this time, I had to leave them to their own devices.

This meant losses and, to make matters worse, the greenhouse was also a home to mealy bugs which I had eradicated from my greenhouse some 10 years previously. My collection was severely depleted and I had to resort to saving cuttings from many of the plants. *Huernia pillansii* for example was in a 12” saucer but I could only save a couple of stems. So I pretty much had to start again.

Stapeliads have a reputation for being difficult which seems to put a lot of people off growing them and, indeed, sometimes they will part company with you if you look at them wrongly! But, as with so many things, once you sort out a few basics most of them will grow and flower happily.

Above: Orbea decaisneana

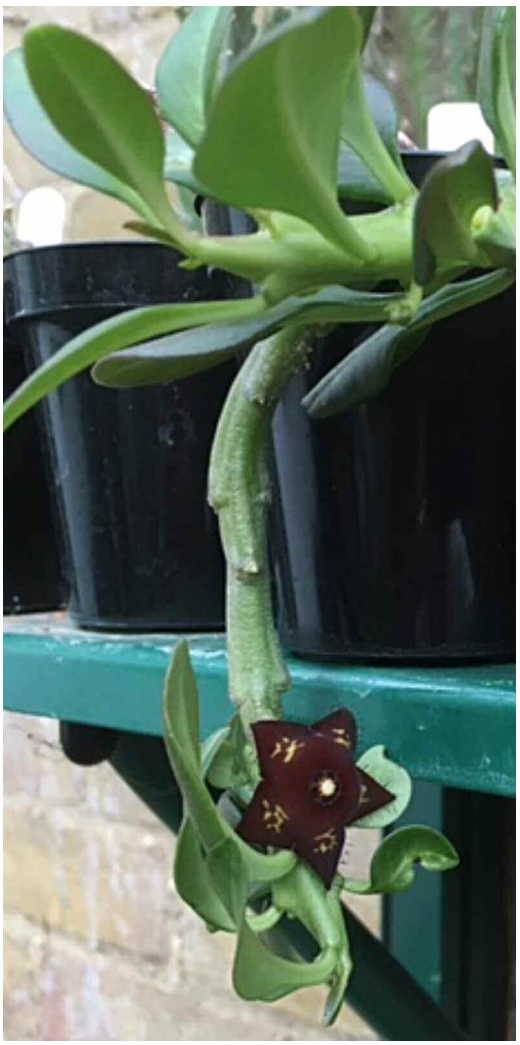
Orbea tapscottii

The most important basic is winter warmth. I suspect some will manage at 5°C but I keep all the collection at no less than 10°C and *Pseudolithos* and *Edithcolea* seedlings are looking happy in the propagator at about 16°C.

They need sun and fresh air to flower well and here I do have some difficulty as the new greenhouse does not get sun until about 11.00am at the height of summer, which is gone again by about 6.00pm. However, at the front of my house is a wall which gets sun from early on to pretty much until it goes down. Next to it is a shed, but no room to site a greenhouse. So last summer I moved a number of plants on to the shed roof and left them open to the elements; and they loved it. I intend to expand on this idea next summer by putting up a shelf on the sunny wall and moving almost all of them out there.

Tromotriche umdausensis

Below: Tridentea longii



Frerea indica

Plants that reacted particularly well to this treatment were *Huernia barbata*, *Stapelia erectiflora*, *Huernia hadhramautica* and *Frerea indica*.

Keeping mealy bug at bay is another basic requirement, and I am 95% clean now, but that last 5% is proving troublesome. Stapeliads are particularly prone to damage as mealy bugs easily introduce infection, and rot is the result. I check plants over constantly all year round and also repot annually in spring to check out the roots. Many stapeliads are shallow rooted and I use appropriate pots, bonsai trainer pots are particularly useful.

Soil mix has to drain well as you might guess and I use one part multi purpose, one part John Innes No 3, one part grit and add cat litter and vermiculite. They all seem pretty happy with this and, as I had so many small plants, I put many of them in community plantings in trays last year. They have certainly appreciated the extra root room and many can now be planted up individually in the coming spring.

Some seedlings

Apteranthes staintonii
(The plant was originally obtained from Nepal)

I give them a dilute (1/4 strength) feed at each watering of Chempak 4 in spring and Chempak 8 later in the season, only watering them once the pots have dried out. I start about April and end in September, maybe early October if the weather is good. I also give a couple of waterings in winter putting them straight on to the base of the propagator to dry out quickly. This encourages them to take up the water and keeps the stems turgid, otherwise it can be a struggle in spring to get them going if the roots have dried out too much.

I used to suffer with black spot as a result of moist air but seem to have got on top of that by a spraying regime of Rose Rescue interspersed with neat methylated spirits which also helps to get rid of any lurking mealy bugs.

Seeds are sown at the end of February and I use a mix of John Innes and vermiculite 50/50. I use the plastic bag method but, once the seeds start to germinate, the bag comes off after seven days. Seeds can often germinate within 48 hours of sowing but need to be fresh. Old seed does not germinate well.

I now have some 78 different species so I am getting there! ■

Photos: Mike Cullen

The type species, Rapicactus subterraneus, is a spindly plant but has nice flowers in early spring. Some plants remain upright ...

The return of the Rapicactus

Reviewing a revival by Graham Evans

Rapicactus is often considered to be a new concept, a largely rejected moniker for species more frequently encountered under the generic names *Turbinicarpus* or *Gymnocactus*. In fact, the genus was erected as long ago as 1942 and, most interestingly, was co-authored (with Hans Oehme) by Franz Buxbaum. The reason this is interesting is that, just five years earlier, Buxbaum was jointly responsible with Curt Backeberg for the creation of *Turbinicarpus*. This was possibly the last time the two agreed on anything before they would fall out famously and become quite bitter rivals; Buxbaum the meticulous biologist and Backeberg the hugely observant but scientifically undisciplined explorer.

There are seven *Rapicactus* taxa generally accepted today and, of these, three had been described, one now considered invalidly, prior to the genus being coined. All were originally placed in *Echinocactus* (in 1898, 1929 and 1932), then a catch-all for pretty much anything that was not cereoid, opuntioid or a *Mammillaria*. Two of these three species had been transferred to *Thelocactus* in 1929 and 1935, the latter by

... but others become decumbent as if the absurdly long and thin neck cannot support the stem

Rapicactus subterraneus subsp. booleanus has quite a different aspect to the type

Backeberg, with the remaining species residing in *Neolloydia*. Buxbaum and Oehme chose *E. subterraneus* as their type and also included *E. mandragora* but left the invalid *E. beguinii* in *Neolloydia* (the specific name was subsequently validated by Nigel Taylor as a *Thelocactus* in 1983 but remained more popularly grown as a *Gymnocactus*).

Backeberg did not accept *Rapicactus*, a view shared by many, and ultimately placed the three species in *Gymnocactus*, a genus he had himself erected in 1938, making it an older name than *Rapicactus*. It was these combinations, widely accessible in his '*Cactus Lexicon*', by which most growers labelled their plants and hence it was to *Gymnocactus* that the next potential *Rapicactus* taxon, *G. subterraneus* var. *zaragozae*, was assigned in 1978.

In the late 1980s there was much discussion, mainly led by David Hunt and Nigel Taylor, about the relationships between *Turbinicarpus*, *Gymnocactus* (including *Rapicactus*) and *Neolloydia*. In consensus with the International Cactaceae Systematics Group they eventually decided (circa 1993), after great debate and apparently much South American wine, that *Gymnocactus* should be subsumed into *Turbinicarpus* but that *Neolloydia*, the oldest of the genera, was distinct; and it is this view that is reflected in '*The New Cactus Lexicon*' (NCL). Consequently, the three newest species were originally described as *Turbinicarpus booleanus* (1996), *Turbinicarpus pailanus* (1998) and *Turbinicarpus beguinii* subsp. *hintoniorum* (2000) and it is worth noting that none of these have valid combinations in *Gymnocactus*.

For the sake of completeness, there was an attempt in 1998 by Josef Halda, a Czech who later tried to transfer all the species of *Frailea* to *Astrophytum*, to combine all the aforementioned genera (and others) with *Pediocactus*. Two years later, in 2000, the Italian writers Davide Donati and Carlo Zanovello erected *Lodia* (after Joel Lode) for *T. mandragora*. Neither of these diversions has found much favour.

The expanded *Turbinicarpus* has been pretty much the conventional wisdom for over a quarter of a century, so why now has *Rapicactus* made a reappearance and what of the erstwhile fan favourite, *Gymnocactus*?

Well, as with many such things today, the principal answer is that DNA researchers are making themselves heard, sometimes confirming the existing nomenclature but frequently forcing established morphologists to review their often long-held opinions. They are also creating a new generation of cladists, who seek to organise taxonomic classification based on their perception of phylogenetic (evolutionary) trees, created by analysing their chosen, usually fairly small areas of DNA sampling, and insisting that any good genus must be monophyletic, ie all its species diversified (evolved) from the same origin and all known such species are included therein.

Tangent time, folks! It has long been accepted that morphological classification is subject to a great many subjective variables. One botanist's trifling detail may be another's elephant in the room. There are also matters of degree: for example, one of the reasons for sinking *Acanthocalycium* (spiny calyx) under

Echinopsis (hairy calyx) was the difficulty in answering the question of at what rigidity does a hair become a spine. As most of us are, to a greater or lesser degree, phylogentically ignorant (and in awe of people we perceive as much cleverer than ourselves) and the key elements are invisible to mere mortals in our collections, it is all too easy to assume DNA-based conclusions must be correct. But the truth is there are still elements of interpretation, issues around the correct identification of the donor material, questions of where to draw lines on tables between genera and subgenera (and species and subspecies, etc) and most surveys seem to generate a rogue result or two.

There is also a paucity of papers investigating both male and female ancestry. Most studies in the Cactaceae are based on chloroplast (stem cell) DNA samples, which give information about the female line, but there are very few that include nucleoid (cell nucleus) DNA sampling, which would help reveal the male heritage. Apparently, this is because nucleoid DNA is very difficult to extract from cacti and analyses are more expensive, making hybrid origins hard to determine. The bottom line, therefore, is DNA is not a magic solution to all our labelling woes but another (albeit extremely useful) tool towards our understanding.

Returning to *Rapicactus*, if one is not to lump them with *Turbinicarpus*, my most definite conclusion (if such a thing exists) is that they cannot be called *Gymnocactus*. Firstly, I have to agree that there are no compelling morphological arguments for separating *Gymnocactus*, from the rest of the genus. Backeberg's contention that *G. saueri* and its putative relatives have more slender tubercles and more clearly defined ribs is at best unquantifiable and, in my collection, they are as flatly tuberculate as other *Turbinicarpus* – and clearly flatter and less slender than *T. alonsoi*, *T. pseudopectinatus* or *T. schmiedickeanus*, the type of the genus, and its subspecies *gracilis*. The flowers (naked), fruit (top-shaped) and seed are virtually identical to other *Turbinicarpus* and

Left: Turbinicarpus saueri, the type species of the subsumed genus Gymnocactus, with tubercles and spination well within the range of other Turbinicarpus.

For comparison (right) T. laui.

Left: Turbinicarpus saueri ssp. nelissae, another former Gymnocactus, blooming in mid-March with flowers remarkably similar to T. schmiedickeanus, (right) the type of the genus.

Left: Turbinicarpus (formerly Gymnocactus) viereckii has flowers remarkably similar in shape and colour to T. alonsoi (right). The latter also has long, slender tubercles

the spination is not significantly different either, especially when compared to *T. laui*, *T. hoferi*, the *T. pseudomacrochele* complex or *T. swobodae*. All *Turbinicarpus* have wool, which varies in colour and texture to an extent that might just about be considered influential at species level but not at the higher rank of genus.

Curiously, ignoring *G. aguirreanus* (which has since become the type of *Acharagma*) the only species of *Gymnocactus* that do demonstrate significant differences in tubercles, spination, stem and root characters, plus flower shape, size and (in most cases) colour are those Buxbaum assigned to *Rapicactus.* The core group of *G. gielsdorfianus*, *G. horripilus* (size, perhaps, aside), *G. valdezianus*, *G. viereckii* and most importantly the type, *G. saueri* (and its current subspecies *knuthianus* and *nelissae*, the latter including *ysabelae*, according to NCL), fall well within the circumscription and variability of *Turbinicarpus*. Furthermore, DNA surveys have put *G. saueri* in the middle of several species of *Turbinicarpus* sensu stricto. All the evidence, therefore, convincingly points to *G. saueri* belonging to *Turbinicarpus* and, if the type species falls, the genus must collapse with it.

So, having agreed with Hunt and Taylor that *Gymnocactus* cannot stand but noting that Backeberg's cited differences still apply to a small group of plants he later placed within it or were discovered subsequently, I could not help but notice all these species have *Rapicactus* among their synonyms. Buxbaum originally identified the large, napiform taproot as the primary diagnostic feature, even naming the genus after the turnip (*Brassica rapa*), and all seven of these plants are further connected by this character, the taproot often being disproportionately big in relation to the stem and, in cultivation, requiring a seemingly oversize pot for such small plants. Additionally, all the species have a thin, constricted neck, especially so in *R. subterraneus* and *R. mandragora* where some specimens can look like lollipops, such is the extreme nature of this feature.

The seed morphology is also slightly different from *Turbinicarpus* and DNA analyses in 2011 and 2013 placed all the *Rapicactus* species together in a separate clade from the other taxa. A closer relationship to *Neolloydia* and *Thelocactus* has also been suggested. All in all, I think there is strong evidence to say that *Rapicactus* is a good genus. It is no surprise that it is accepted by Joel Lodé in his '*Taxonomy of the Cactaceae*'. Even David Hunt has included it in his list of 'alternative' genera, a status he has bestowed upon generic names he considers can be objectively and evidentially justified but that he prefers to include in other, more broadly defined genera, in many cases opting for the rank of subgenus.

Rapicactus is endemic to Mexico, with all species coming from the north eastern states of Coahuila, Nuevo Leon, San Luis Potosi, Tamaulipas and Zacatecas. They grow in arid areas, mainly on calcareous rocks and tend to remain small and solitary, sometimes almost subterranean, especially during the dry season.

In the glasshouse, they generally grow quite well, requiring good exposure to sunshine to encourage compact growth

and reliable development of the attractive spination, which consists of dark-tipped central spines surrounded by numerous white radials, and to ensure they flower freely in the spring. They do not need too much heat in winter (3-5°C should be fine) providing they are kept dry, but they do benefit from good ventilation, as all the species can become 'corky' in still or stale air. The potting mix needs to be very open but preferably without jagged or sharp-edged grit in order to reduce the risk of damage and then rot when the napiform root expands considerably after the early waterings. As with all the Mexican miniatures, I recommend watering little but often. Personally, I have never found a problem growing these plants without added limestone but I know others swear by it!

The plants remain fairly small, making them ideal for those with space restrictions. They are rarely encountered, even on the showbench, in anything bigger than a 7.5cm pot, although with good cultivation, larger clumps can be obtained and are occasionally seen.

The species presently accepted are as follows:

R. beguinii – This is a particularly attractive and popular species with glassy spines and a tidy habit. It makes a short cylinder to 10cm or exceptionally 12cm tall. Its crowning glory is the flowers, which are a gorgeous violet, larger than others in the genus and set off wonderfully against the spination, a little reminiscent of a miniature *Thelocactus macdowellii*.

R. beguinii subsp. ***hintoniorum*** – Almost indistinguishable from the type except for its distinctive off-white to cream-coloured flowers and smaller size. Some plants have thicker central spines and fewer radials, making them appear a little coarser and, perhaps, less attractive but I have seen many plants that look identical to the type when not in flower.

R. mandragora – This is the exception that proves the rule in that it is not at all easy to grow on its own roots. Consequently, it is also rarely offered for sale – and plants that are, frequently turn out to be *R. beguinii*. It has a massive and remarkably hard

Above left: The flowers of Rapicactus beguinii are quite large, richly-coloured and wonderfully displayed against the spines.

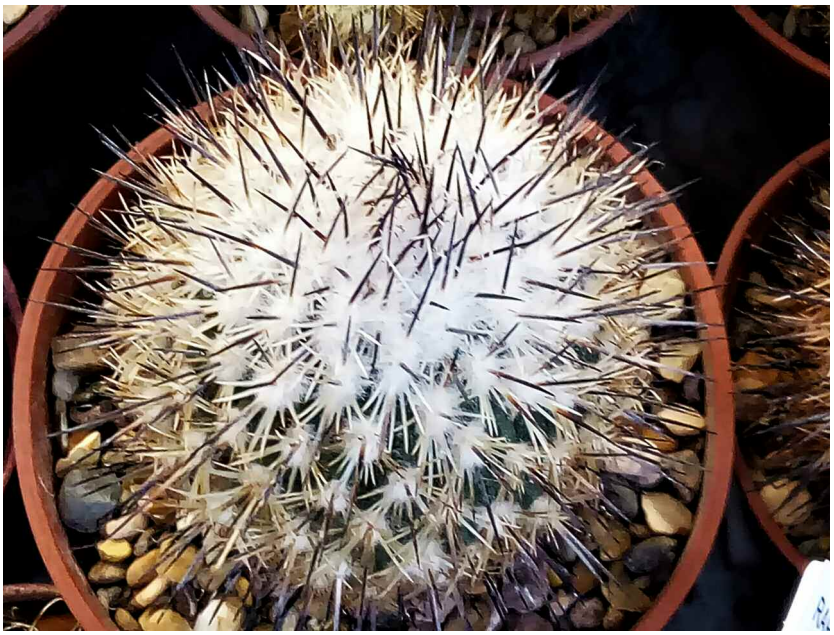
Below: Rapicactus beguinii subsp. hintoniorum is very similar to the type but with cream-coloured flowers.

Rapicactus mandragora has strong spines, striped flowers, a large underground tuber and a compulsive death wish!

underground tuber, from which the specific name (referencing the mandrake) is derived, that takes many years to fully develop and during which time stem growth is painfully slow. Young plants often dry up in winter or the thin, extended neck that connects the globular stem to the root perishes, leaving a tired plant that steadfastly refuses to reroot. On a graft, it behaves itself well enough but, of course, its main features – the root and neck – are lost. The spines are robust for the genus, off-white with dark tips, and the flowers are small but pretty with a thin, darker midstripe between pale rose edges.

R. mandragora subsp. ***pailanus*** – A little easier to grow than the type but slightly less attractive because the central spines tend to be coarser and a duller colour, bordering on grey. In my experience, it is slightly smaller growing and less globular, making short columns of up to 6cm. Flowers are perhaps darker with a reduced midstripe but otherwise broadly similar.

The grey-hued Rapicactus mandragora subsp. pailanus is not as attractive as the type nor as difficult to grow.



R. subterraneus – The type species is one of the most peculiar of all cacti. The main part of the stem sits upon a long, remarkably thin neck that sometimes stays more or less upright, giving a lollipop-like appearance, or alternatively becomes absurdly elongated and decumbent, in which case the stem hangs down alongside the pot, which has to be large and deep enough to accommodate the massive taproot. It is a fascinating addition to a collection and offers a pleasing display of smallish, dark purple flowers early in the spring.

R. subterraneus subsp. ***booleanus*** – This is a finer spined plant with a far less conspicuous neck and a smaller rootstock and which I find likes to clump when it gets to about eight or ten years old, sooner if grafted. The flowers are often paler than the type and more widely opening.

R. zaragozae – This is reduced to subspecies level, under either *R. beguinii* or *R. subterraneus* by some (but not all) authorities. I have kept it as a species on the basis that there is no consensus on its relationships – and it is my personal favourite in the genus! The plant makes a club-shaped stem up to 12cm tall and 5cm across, thinner at the base and apex, which is covered with fine white spines, the centrals having dark tips. The flowers are a delight, being a very petty shade of pale pink with a darker midstripe and often with a unique greenish-yellow throat. Small clumps are occasionally seen as well as the more usual solitary plants.

If you would like more information on the wider *Turbinicarpus* group, there are two interesting books on the subject that I believe are still available from Keith Larkin: '*Knowing, understanding, growing Turbinicarpus-Rapicactus*' by Davide Donate and Carlo Zanovello and '*The genus Turbinicarpus*' by Milan Zachar. A more concise 19-page overview, however, can be found in John Pilbeam's '*Ariocarpus, et cetera'*, co-written with the late Bill Weightman and including 16 other delectable Mexican genera, which I can highly recommend but which is probably already in readers' libraries.

Everything about Rapicactus zaragozae is a delight, from its attractive spination to its delicate flowers, which often have an unusual greenish yellow throat.

Giving talks to BCSS Branches and including little 'taxonomic titbits' as I go, it is always interesting how members react. Whether I refer to some taxon or other probably to be subsumed into something else (lumping) or the likelihood that another genus will need to be divided (splitting), there are invariably tuts and sighs, usually from the same people! This leads me to believe that most people are actually neither staunch lumpers or splitters but simply do not like change. It is up to you whether you accept *Rapicactus*. The 'cactophony' surrounding the genus will probably continue for quite a while yet but *Rapicactus* is gaining credence and can definitely be said to have returned! ■

Photos: Graham Evans

A cactus legend - Peru

How the queshque cactus got its spines

The queshque cactus lived at the foot of a mountain in a place where it hardly ever rained. It was the favourite of the local herbivores, lamas, vicunas and guanacos, which loved to munch its succulent green stems. Because the cactus had no spines it could not defend itself, and was in great pain.

One afternoon, while it was trying to heal its wounds, it heard a strange sound on the mountain. It looked up, and saw a fox running at full speed, with a large boulder close behind it, almost rolling on to its tail.

"Help," called the fox. "Help me Queshque."

"What is the matter?" cried the queshque.

"Please stop this boulder which is going to squash me. I will give you my claws as a gift."

Why that is just what I need thought the queshque, and to the fox it called "Run to my side and I will help you."

The fox ran directly towards the cactus. Just before he reached it he ran to one side, but the boulder continued to roll in a straight line and crashed into the queshque cactus. The queshque stood firm, and the boulder was held fast.

Then the queshque felt something strange happening as its body began to grow spines, just like the claws of a fox.

And from that day the queshque and the fox have remained friends.

I could not find a reference to tell me what species the queshque cactus is. If anyone knows, do please let me know .

Fascicularia bicolor subsp. bicolor

Hardy bromeliads

by Paul Spracklin

The bromeliad family contains one of our most familiar plants – nearly everyone, I would wager, has eaten pineapple – yet beyond that I doubt many people are overly familiar with the group, let alone considered them as garden plants. So it perhaps comes as a surprise that there are many bromeliads that are easy to look after, showy and hardy.

There are roughly 2,500 species of bromeliad in 50-odd genera distributed largely through tropical Central and South America but, like many tropical plant families, there are obscure cold-climate relatives somewhere at the edge of their range. A few are found in temperate regions of Argentina, Chile and Brazil and it is here that we look for our garden plants.

Fascicularia bicolor subsp. canaliculata

When thinking of bromeliads we would normally picture them growing on trees as epiphytes with open, flattened rosettes forming a central 'tank'. This tank collects rainwater and traps debris providing a nutrient soup to nourish the plant whilst roots provide anchorage. Their leaves are often beautifully mottled or

coloured making them highly ornamental. However they can also grow on rocks (lithophytes) or in the ground (terrestrial): sometimes all three. Indeed, some *Tillandsia* will grow on anything that does not move. And it is largely from among terrestrial bromeliads that we find some of the hardiest in the family.

Terrestrial bromeliads broadly resemble outsized pineapple tops – frequently armed with viciously hooked teeth along their leaf margins. The hardier bromeliads are usually found growing naturally in arid places and often growing alongside cacti and other succulent plants. This gives a clue to their main cultural requirement, needing exceptionally sharp drainage. As such they are perfectly suited to growing in rockeries or raised beds in combination with other xeric plants.

bromeliads are often exuberant in flower ranging from tall spikes or panicles, as in *Puya*, to low 'pin cushions' of colour as in *Fascicularia*. Individual flowers, although bright, are often short lived but the bracts can remain colourful for many weeks. Additionally the foliage will often flush with colour extending the spectacle even further. Such extravagance has to be paid for as flowering usually means the end of that particular rosette. The plant itself continues by means of offsets produced either before, or as a result of, flowering although a few odd genera (eg *Greigia* and *Dyckia*) will flower from axillary buds and the rosette lives on after flowering.

Fascicularia bicolor subsp. canaliculata growing on a tree

Fascicularia bicolor subsp. bicolor

I have been growing and trialling a number of bromeliads in my Essex garden for many years – some for over 25 years. The following plants represent the best of those available to try outside.

Fascicularia

Historically there were a number of species but, now taxonomists have finished with them, the genus has been condensed down to just one species with two recognised sub-species. *Fascicularia bicolor* subsp. *canaliculata* (formerly *F. bicolor*) forms congested clumps made up of rosettes each up to 1m across each comprising narrow wiry leaves – greenish grey above and silvery below. In cross section they are quite thin and distinctly U shaped. This one flowers freely even in shade.

Fascicularia bicolor subsp. *bicolor* (formerly *F. pitcairnifolia*) has much broader, more succulent leaves that are somewhat shorter, – rosettes would be typically 80cm across, and a flattened diamond shape in cross section. This plant is commonly seen all over the West Country and, in my experience, is shy of flowering – only managing this when severely restricted at the roots.

Both behave similarly when flowering – the innermost circle of leaves flush bright scarlet and out of a bulging central grey pin cushion-like bract peep scores of powder blue flowers with bright yellow stamens. The biggest

Puya alpestris

Puya berteroana hybrid

difference is in hardiness – subsp. *canaliculata* will survive –12°C, subsp. *bicolor* is damaged below –6°C.

A well-drained soil and sunny position suits both best but, equally, both make useful groundcover in dry shade. I have seen both growing epiphytically tied to the crotch of a tree and given a little sphagnum moss around the roots as a leg up.

Puya coerulea

Puya

Puya must rank among the most viciously armed plants on the planet. Many have spiteful curved teeth along the leaf margins, hooked inwards near the centre preventing easy or intact extraction of wayward hands – thought by some to be an adaptation to trap birds or rodents in a hostile native environment. They are also often large plants – so all things considered do not make particularly good subjects for a greenhouse. Luckily some are tough enough to grow outdoors.

In terms of size vs. showy flowers vs. hardiness, probably the most appropriate garden species is the compact *Puya alpestris*. Individual rosettes reach 80cm diameter and it will, in time, clump to 1.5m or so. It is a freely-flowering species producing a spiny 1.5m tall club-like inflorescence holding hundreds of waxy metallic turquoise flowers studded with bright orange stamens. Hardy to –8°C if well sited.

***Puya spathacea* flower**

***Puya coerulea* flower**

Puya berteroana (sometimes seen as *berteroniana*) is equally hardy, similar in looks but half as big again in all dimensions – perhaps less inclined to flower. *Puya chilensis* is another monster with slightly straighter leaves and acid yellow flowers. Tempting though the massive 2.5m inflorescences may be, both these giants need serious consideration before planting. Hybrids between these three species are prevalent and you never really know what you have until it flowers – my ersatz *Puya berteroana* gave the game away when it flowered after several years!

Hardier still is *Puya coerulea* – often offered but rarely the real thing. It is worth tracking down as it is more compact and very bright

***Puya coerulea* in Paul's garden**

***Puya spathacea* in Paul's garden**

***Ochagavia carnea* (see also front cover) and (inset) close-up showing the sharply-toothed leaves**

Ochagavia litoralis

silver – flowers are variable but usually violet or bluish pink. Perhaps the hardiest of the genus is *Puya spathacea* with much-branched panicles of small almost black flowers held on pink stalks – a friend has a clump of this which survived –15°C in the winter of 2010.

***Ochagavia carnea* – the real McKoy**

Puya venusta and *Puya mirabilis*, both sometimes seen, are hardy only to –5°C or so although *Puya mirabilis* will often return from the base if cut back. Different species are becoming increasingly available and, as I type this in December, I currently have a dozen species in my garden.

Ochagavia

This genus contains a handful of species that are mostly confused in the horticultural trade. Most widespread is a plant historically known as *Ochagavia carnea* which is to be found covering many square metres of terrace at the top of the Abbey Gardens on Tresco, from where it has gradually dispersed into cultivation.

In habit it looks like a cross between a *Fascicularia* and a *Puya* forming a mounding colony of fearsomely toothed rosettes of succulent, silver backed leaves. Periodically an inflorescence resembling a pink baby's rattle adorned with cerise flowers is thrust centrally from a rosette. It is hardy to –10°C or lower. However, recent seed-raised introductions of known provenance bearing this name are a different but perhaps equally hardy plant. It is now thought the Tresco plant might be *Ochagavia andina* but no-one seems sure.

Above: Billbergia nutans and (inset) the flower

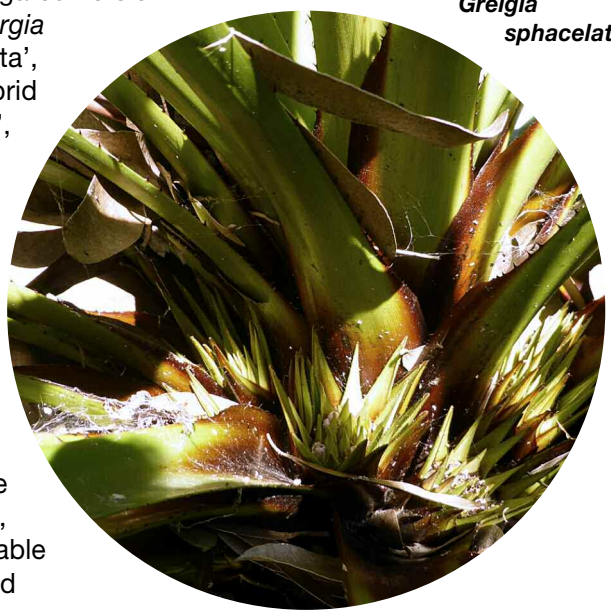
Dyckia 'Morris Hobbs'

Additionally there are other similar species, *Ochagavia litoralis*, which is a good deal more tender, and *Ochagavia elegans*, which is extremely tender.

Billbergia

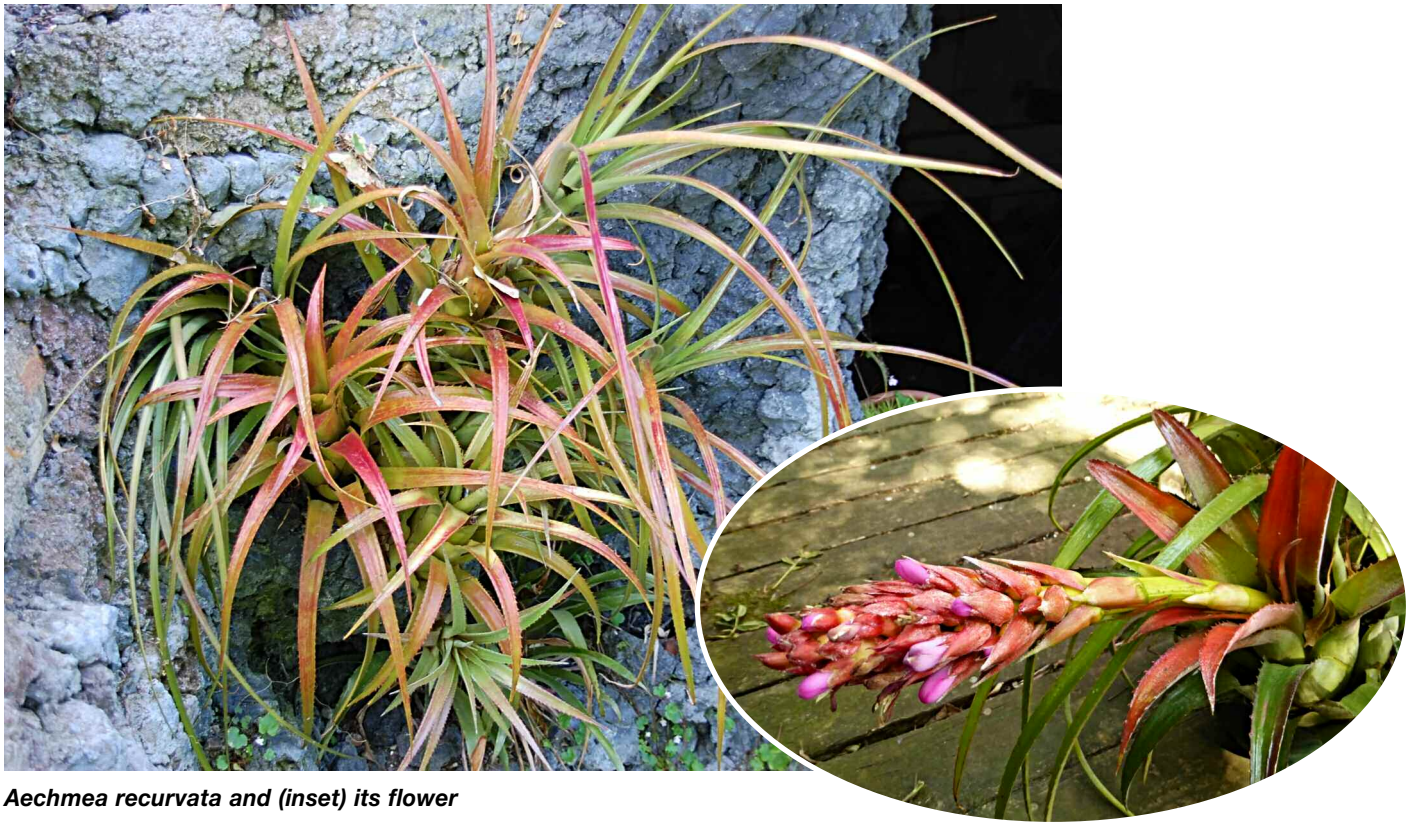
Billbergia nutans has been grown outside in the UK for some years. It is a small delicate plant best grown epiphytically though it will grow happily in soil as long as it is freely draining. Upright lax tubular rosettes of bright green leaves, to 25cm, hold a small tank of water. In late spring nodding pink inflorescences charmingly sport pendant green and blue bells. Reliably hardy down to –7°C, maybe lower with overhead cover, mine recovered from damage at –8°C. There is a variegated version sold as a *Billbergia nutans* 'Variegata', actually the hybrid 'Santa Barbara', that is only marginally less hardy.

Greigia sphacelata



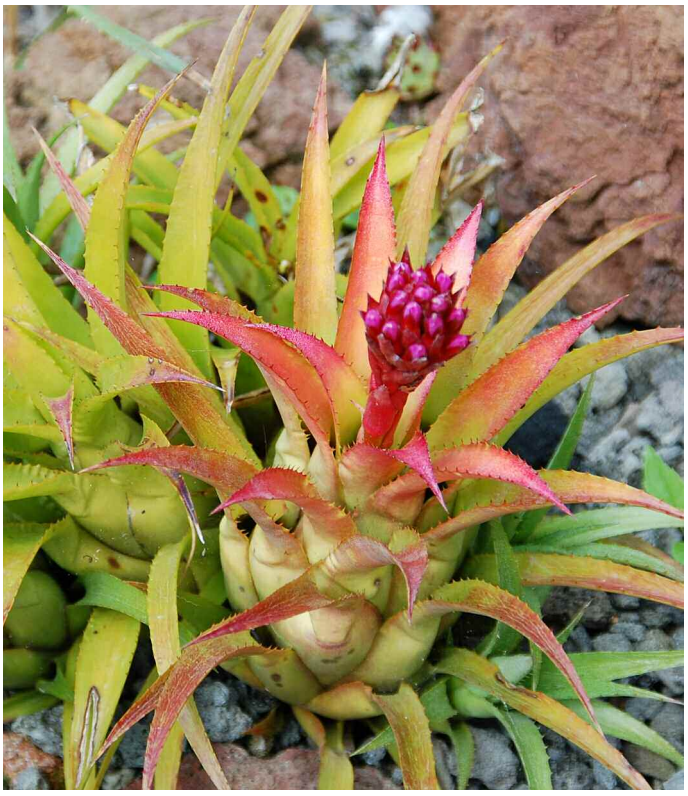
Dyckia

There are many species, cultivars and hybrids of *Dyckia* available in the USA that, were they available over here, would

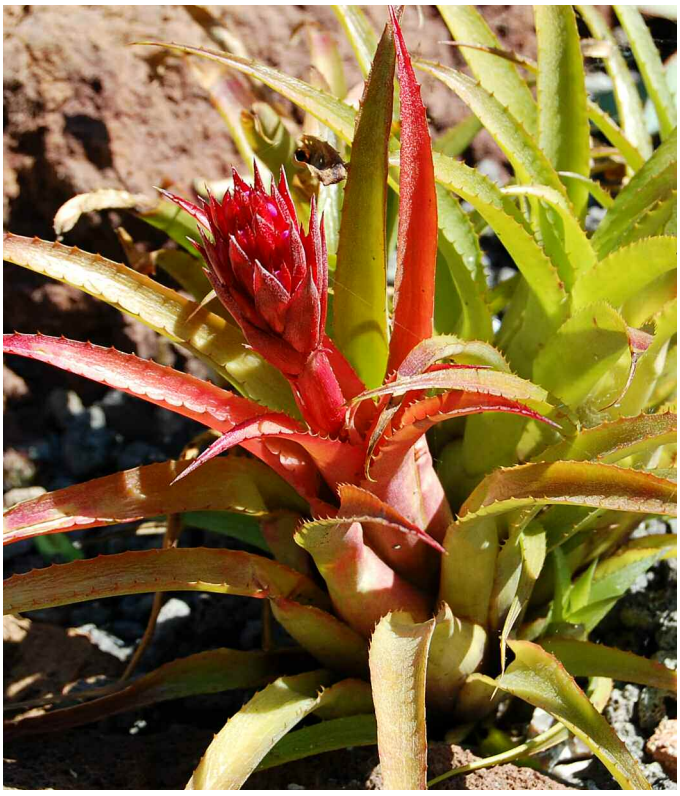


Aechmea recurvata and (inset) its flower

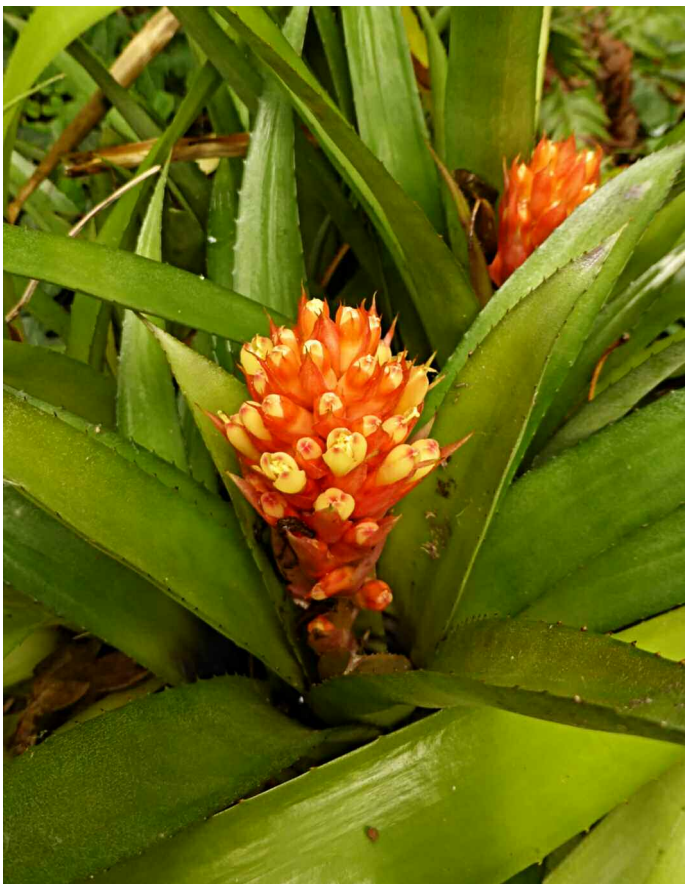
doubtless prove to be hardy. Of those tested here *Dyckia* 'Morris Hobbs' seems a good choice. It has 30cm rosettes of silvery leaves, turning burgundy with higher light intensity, and bright orange flowers on a simple spike in early summer. Hardy to –8°C with me but I suspect it will tolerate much lower. Other *Dyckia*, as and when encountered, are worth trying, I currently have eight species and hybrids including *Dyckia velascana*, *Dyckia* 'Cherry Coke' and *Dyckia* 'Britannia'.



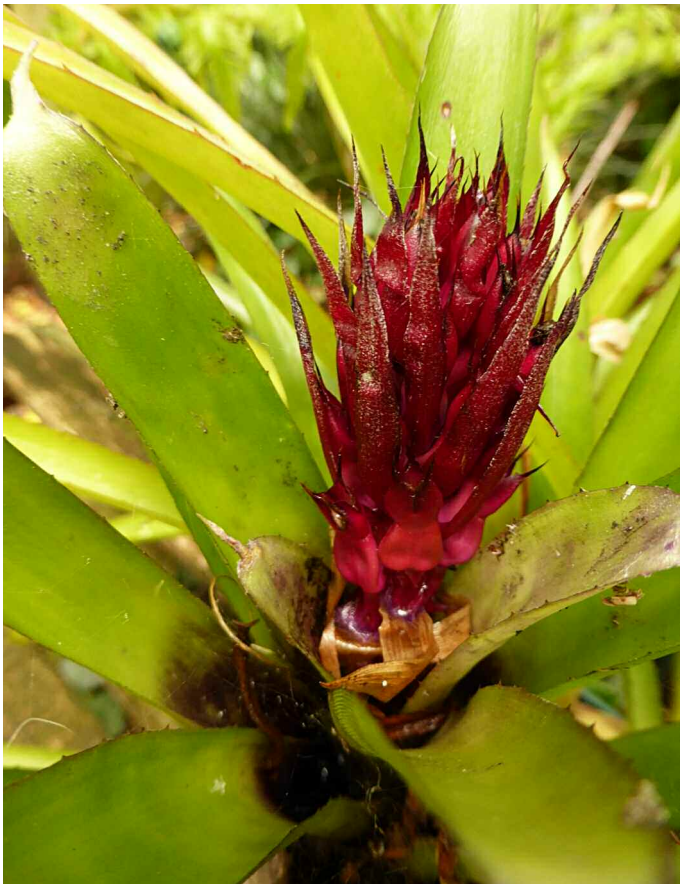
Aechmea recurvata var ortgiesii



Aechmea recurvata var benrathii



Aechmea 'Covata'



Aechmea 'Sueños'

Greigia

Greigia sphacelata strongly resembles a hard-leafed version of one of the South American eryngiums with its channelled mid-green leaves armed with marginal teeth that seem intent on breaking off and embedding themselves into flesh. However all is revealed when it flowers – curious spiny little pockets are produced in the leaf axils from which pop out small shell pink flowers.

It gradually offsets to become quite a large, sprawling dome – mine now sports five rosettes and is 2m across. It is hardy to –10°C or lower. I recently saw a form with very few marginal teeth – that has to be a bonus! In habitat this is apparently often seen growing epiphytically but I have not tried this.

Aechmea

One of horticulture's most closely guarded secrets is that there is a hardy *Aechmea*: *Aechmea recurvata*. Hard, spiky, upright, urn-shaped rosettes, constricted a little in the neck, produce a magenta and cerise inflorescence, at which time the inner leaves, maybe the whole plant, can flush anything from purple, through pillar-box red to a foxy russet. It will take –10°C in its stride, perhaps a lot lower, and will grow terrestrially or epiphytically. A guy in east London told me he has grown it under a house brick on his garage roof for the past 35 years, so these are tough plants! There are also named varieties var. *ortgiesii* and var. *benrathii*, selected cultivars such as 'Big Mamma' and 'Big Red' and hybrids such as *Aechmea* 'Covata' and *Aechmea* 'Sueños'. All, it seems, have similar hardiness to the species and are extremely exciting.

There are other species worthy of trying in the mildest regions that will take a few degrees of frost such as *Aechmea kertesziae*, *Aechmea distichantha*, *Aechmea caudata* and *Aechmea gamosepala*.

Abromeitiella

Abromeitiella brevifolia (I think now *Deuterocohonia brevifolia*) makes a tiny, spiny rosette that clumps into quite large mounds in time. Kept dry in winter – in a rock crevice or similar, it is amazingly hardy – I have seen it pot grown under house eaves in northeast Holland where it withstood –20°C.

Tillandsia

These are the ‘air plants’ seen glued to seashells in garden centres all over the country.

Tillandsia aeranthos

Surprisingly, perhaps, one or two grow well outside. *Tillandsia aeranthos* and *Tillandsia bergeri* are very similar in terms of look and hardiness and could not be easier to keep; nail, tie or glue them to pretty well anything to stop them blowing away and give them an occasional hose down. Both are hardy to –6°C or lower. I did try *Tillandsia usneioides* (Spanish Moss) but within a fortnight it had disappeared, I suspect gracing the nests of birds throughout southeast Essex.

Maybe not everyone wants to grow all of these bromeliads but it is fair to say that anyone could grow a few if they wanted to as some are very hardy indeed. They make an interesting and exotic addition to the garden.

Photos: Paul Spracklin

Puya raimondii

The world’s largest bromeliad

by Joe Shaw

Puya raimondii, also known as ‘Queen of the Andes’ is a giant bromeliad, adapted to grow high in the Andes in Bolivia and Peru.

Each plant grows as a rosette, slowly forming a trunk. When the plant is large enough, and the conditions are right, *P. raimondii* flowers, after which the mother plant dies. *P. raimondii* plants are typically 50 to over 100 years old when they flower.

A single plant might produce 10million seeds, but the frigid cold and the dry deserts at the high altitudes mean that only a few seedlings grow into mature plants. Nonetheless, imagine how important 10million seeds are to the birds and small mammals of the area.

This item is taken from Oblog – a blog created by Joe Shaw with many interesting items on cacti and succulents. See Oblog