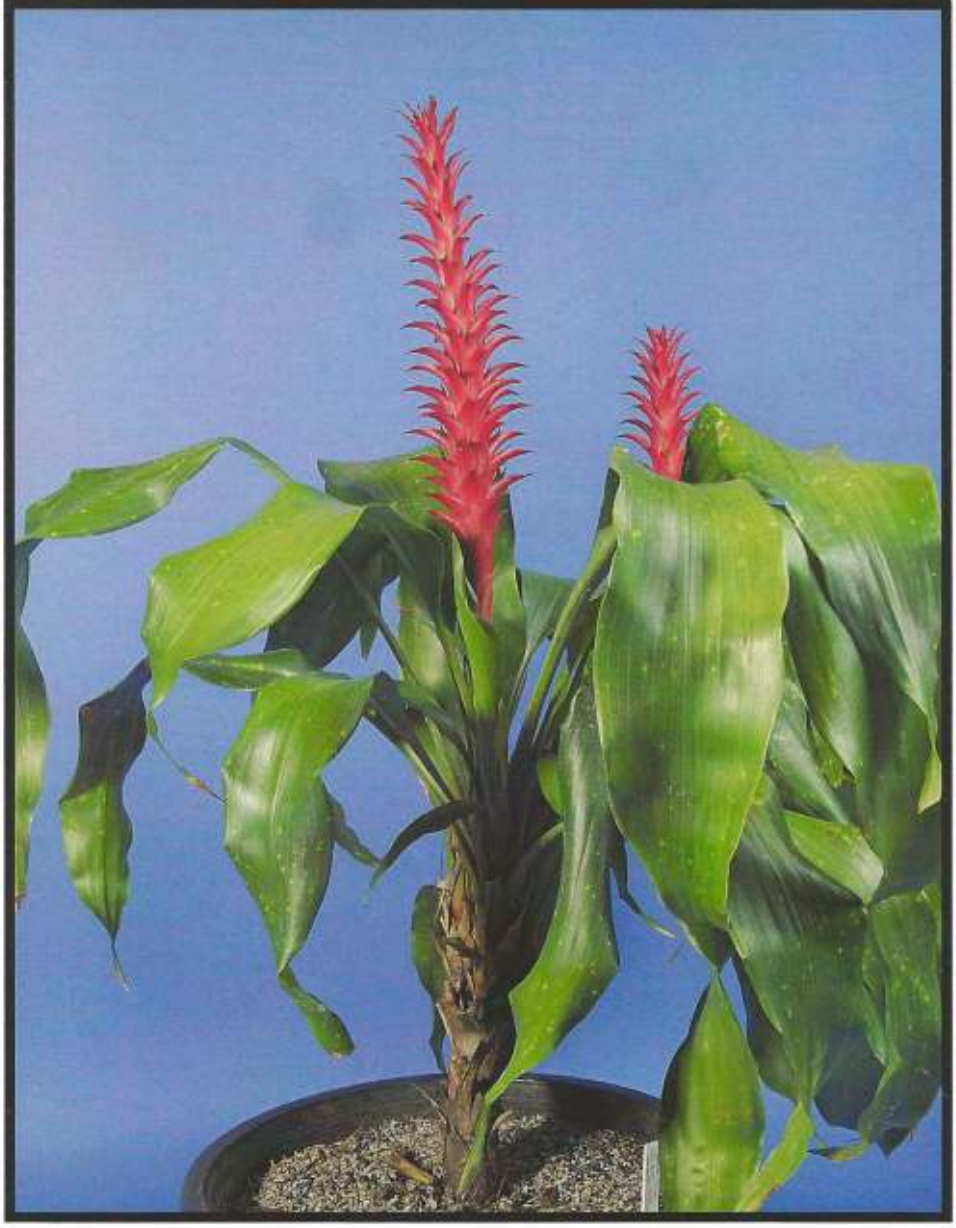
Bromeliaceae



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Colombia

Author: Bruce Dunstan

Over the past 20 years I have wanted to travel in Colombia but have always put it off due to worries over security. In that time I have done trips to surrounding Panama and Ecuador a couple of times, also Costa Rica and Brazil and two trips to Peru. In all of those years and trips I survived unscathed, perhaps a little skinnier and scratched right afterwards, but nothing that has stayed with me long term.

This year was finally the chance to get to Colombia and have a play in the forest, one of life's true pleasures. Colombia is a plant lover's dream: instead of one mountain range with all the elevation changes that drive speciation in tropical plants, it has three separate mountain ranges as well as smaller mountain areas that in turn have their own local endemics.

Carla Black, from Panama and I travelled to Colombia this year with the view to take a group of plant people there as part of the post-tour for the 2012 Heliconia Society International conference, which will be held in El Valle Panama in late July 2011.

Beforehand, Carla had managed to find our guide, Emilio Constantino, who made our trip possible. Emilio is a naturalist and a tropical fruit expert, trained in horticulture and tropical agriculture. He has devoted most of his life to studying South American wildlife and to promoting its conservation. For more than 25 years Emilio has carried out assessments of biodiversity and has promoted the creation of private plant collections and nature reserves among farmers and indigenous peoples. The collection on his farm serves as a model. He is the co-author of the Red Books on Colombian orchids, birds, mammals (tapirs and foxes) and insects (See his facebook page at http://www.facebook.com/profile.php?id=100000760847983). As well as this Emilio now guides people with specific interests in wildlife and plants, as well as cultural activities.

Emilio's contacts throughout Colombia allowed us to get advice from people on the ground, in specific areas, regarding how safe a particular road may be. This proved to be immensely helpful in ensuring we saw what we were hoping to find while avoiding any potential danger. Colombia is a country where conflicts have been going on between different peoples since well before the arrival of the Spanish in the 1500s. As times change so does the security situation. I remember Peru was a difficult proposition in the late '80s to early '90s. That situation rapidly changed and we had no problems in 1996 on my first visit.

Colombia is becoming safer and areas that were a war zone two years ago are just as safe to visit now as any other place in Latin America, or for that matter the world.

We started our trip in Cali, the country's third largest city, that nestles into the base of the western mountain range, or its correct name, Cordillera Occidental. The weather in Cali is warm, only 30 off the equator, but altitude helps moderate the heat and, with a couple of annual wet seasons, it is a prime sugar cane producing area, with alluvial soils 15-20m deep, eroded from the two surrounding ranges and deposited along the mighty Rio Cauca that flows north and eventually ends up in the Atlantic Ocean.

Our first adventure was to travel up and over the range and onto the slopes that run down to the Pacific Ocean. The roads that head in the easterly direction are all headed to Buenaventura, a large bustling port city that carries huge amounts of freight into and out of the country. This route is served by two roads, the old and the new and, as always,

Guzmania sp. nov aff. nidularioides

Guzmania rosea

it's the old road that has the best places to stop and look at plants. The old road rises up over the range then branches off to the south towards Queremal. This was our base for a couple of days as we drove down the Anchicaya Valley.

The mountains also create some strange rainfall patterns with areas that receive next to no rainfall only 10-15 km away from areas that can get between 8-10m. In one of the dry pockets, as they are known, we saw cacti growing with low scrubby trees. Growing in this arid area were large numbers of *Tillandsia mima* and *Tillandsia elongata*, both flowering while we were there.

The Anchicaya region is one of the wettest places I have travelled, with average rainfall ranging between 8-10m per year; luckily for us it mainly fell at night even though we were there in one of the two dry seasons. Anchicaya is a local Indian name that means 'the mountains that cry', a direct reference to the almost constant falling rain. At higher elevations *Tillandsia fendleri* is very common as well as *Catopsis* and *Racinaea* species.

As we started heading downwards along the road from Queremal, we came across Pitcairnia mutiflora and P. maidifolia. This was to be the first of 14 Pitcairnia species that I noticed along the road to Buenaventura. Also at the higher elevations were plenty of Guzmania and what looked like *Tillandsia pinnata* or *truncata*, but without flowers, identification is tough. Flowering *Guzmania rosea* were plentiful as well as *Pitcairnia dolichopetala* and *P. barrigae*. Also growing in the forest are amazing *Heliconia* species, the main reason for our trip, along with bountiful representatives of *Gesneriaceae, Araceae, Costaceae, Melastomaceae, Marantaceae* and pretty much any other wet loving tropical plant group you could imagine.

Continuing to lose elevation, we came across more species in flower including *Guzmania lingulata* and *G. hollinensis* (I assume, due to its huge size, plicate foliage and tall-branched, green inflorescence). Pitcairnias kept changing species. There was a species that had long, bright red inflorescences and white flowers, that reminded me of images I have seen of *P. altensteinii*, a Venezuelan species. Also another white flowered species with bright red, showy bracts was just starting to flower. We saw a tall, sparsely-branched species with red flowers, that was 2m tall, maybe *P. paniculata*, as well as *P. spectabilis* but with differing colours to the forms found in Northern Ecuador. We spotted a beautiful bright yellow and red Guzmania flowering high above us that may have been a hybrid or potentially a new species, but we'll never know as it was so far away. I was able to clamber up a roadside bank and find flowering examples of *Pitcairnia brongniartiana, Vriesea monstrum, Guzmania harlingii*, as well as what was my favourite of the day,

Pitcairnia squarrosa var. *colorata*. I've seen *P. squarrosa* growing in Panama with greenish-bracted inflorescences and last time we were there we saw some with what looked to have purplish bracts, but var. colorata has to be seen to be believed. The inflorescence is shaped like *P. nigra*, with red bracts that darken towards the peduncle to almost black, but flowering bright purple.

This plant was described in exactly the same spot back in 1948 and to me illustrates what I noticed when I was getting ready to do this trip: the known Colombian species had mainly been collected during the '40-'70s and all there were to look at were descriptions, herbarium specimens and the odd line drawing, if you were lucky. The bulk of the plants of Colombia just haven't seen the light of day for a long time, let alone been photographed or cultivated.

The Florapix website (http://botu07.bio.uu.nl/tropical/?gal=brom) allows someone like me to post images while I'm on the road and have taxonomists give their opinions on what my camera has captured. After this trip I've decided it's time to invest in a better camera with a larger optical zoom. My colleagues' images were superior to mine as well as having the ability to zoom onto far flung plants that otherwise would miss out on having their picture taken by me.

As we kept heading down hill we continued to see more diversity. *Guzmania globosa* was spotted with its bright red leaf bases and peduncles. The green inflorescences were covered in clear mucilage through which the yellow flowers must poke to be available to the hummingbird pollinators. *Guzmania musaica*, with very dark banding on the foliage, was in flower as well. At the bottom of the hill, in the flat country around Buenaventura, we saw more *Guzmania rosea* as well as *Guzmania musaica* var. *concolor*, an entirely green-leafed variety with the orange and white inflorescence common to the patterned-leafed form. Also growing down there and, in fact, all the way down at every stop, was *Pitcairnia multiflora*; it was interesting to see one plant grow right through the different elevations. Down in the low elevations we saw lots of what looked to be big green *Werauhia* species, in trees, with green inflorescences.

The next areas we wanted to look at were the elevation changes of the road that heads down into the Chocó Province between San Jose del Palmar to Quibdo.

This meant leaving Cali and heading north up the Cauca River valley through fields of sugarcane, grapes and passionfruit, to the beautiful little town of El Cairo. We drove through miles and miles of coffee plantations that lined the steep mountainsides. Emilio told us that coffee cultivation has been one of the largest causes of deforestation in Colombia. We were greeted in El Cairo by one of Emilio's friends, Cesar, who works in an NGO (a Non-governmental organisation) that helps farmers conserve their watersheds, rivers and streams. Colombia suffered huge damage in record floods in November 2010 and by preserving some of the natural forests around their rivers and streams, it helps prevent soil erosion, landslips or worse landslides or even mudslides that can carry away farms and villages with little notice and much tragedy.

As we headed from El Cairo to San Jose del Palmar, we travelled down a very rough dirt road that the large buses, carrying people and goods between the towns, had really chopped up. It meant very slow going and what had looked on the map to be a short distance was going to take much longer than we had planned. As we gained elevation to go over the pass between the mountains, once again the plants changed and we saw red Cavendishia, relatives of azaleas, that

are pollinated by hummingbirds, plenty of orchids and the bromeliads also changed. We came across what I thought was an Aechmea that appeared to have finished flowering. As I started to photograph it I noticed it was actually juststarting to flower with its first flower emerging on the side of the inflorescence away from the road and me. Harry Luther has suggested it should be considered a Pitcairnia with some affinity to *P. guzmanoides*. Peter Tristram thinks it could be Bromelia after contemplating that flower. Further along the road we found the Heliconia we were looking for, so for a little while we had the 'Heliconia blinkers' on and saw nothing else. One plant that opened my eyes again was a scarlet-red bracted Pitcairnia, in flower with yellow and white-petalled flowers - a stunning little plant that would be a perfect-sized, flowering pot plant. As usual there were only flowering individuals and it was a little early for seed. We also found what looked to be yellow-flowered *Pitcairnia mutiflora* rather than the common white we had seen all along the Anchicaya Valley.

At the top of the pass and as we started

Top Left: *Guzmania kressii*
Bottom Left: *Mezobromelia sp.nov*

Top Right: *Heliconia robertoi*
Bottom Right: *Guzmania musaica*

to head down the hill into Chocó, we noticed lots of different Guzmanias. There were 7 different species I noticed in only a small area and the heavy rainfall and higher elevation seems to have allowed the proliferation of so many species there. We noticed small clumping plants that had fluoro-orange leaves. They had flower buds down low in their central leaves but were still a few weeks away from flowering, more frustrations to the travelling plant enthusiast. This plant may have some relationship to *Guzmania nidularioides*. We saw this species further along the road growing in full sun, although with all the rain that falls in this wet area it may see more clouds than sunshine. This species had very thin leaves that were bright red and also had a caulescent growth habit. The bracts surrounding the flowers changed to a bright canary yellow. Once again we were a week or two early to see its white flowers.

Further along the road we saw shady banks covered in tiny, caulescent *Guzmania oligantha*, their leaves looking like thin, wispy grass and having tiny buds with red and yellow bracts. If not for the buds I would have thought they were a grass or sedge and walked straight past. The most spectacular Guzmania we saw was *G. kressii*. This large plant looks a *G. squarrosa* but has seemingly wider leaves and was a fantastic, lurid, hot pink. The individuals we did see were well past their best, holding mature seedpods within the inflorescence, but still retained their amazing, bright-coloured bracts. The plant, with its broad leaves, made a magnificent sight as we drove down into San Jose del Palmar.

I should add it was John Kress who probably was one of the major reasons why I got to Colombia finally. John co-authored a book on Colombian Heliconia and, when he signed my copy back in 1999, wrote: 'Bruce now you can really fanaticize about what I missed in Colombia'. This playful 'dig' had kept my motivation going all these years, and we did find some really amazing things that I'm looking forward to showing John when we get together next year in Panama.

Further along, closer to town, we found another Guzmania that looked like *G. weberbaueri*, flowering away happily in landslides alongside the road, and on one bank we saw a few flowering clumps of another which has turned out to be *Guzmania rugosa*, a plant with meter long, red, branched flower spikes. All the yellow flower buds were covered in dripping, clear mucilage. This plant was discovered back in the '70s and we might be the first people to photograph it. Also along the road were a number of Pitcairnias: a red-bracted species with a tall, club-like inflorescence and black flowers; another red-flowered species with a tall, branched inflorescence, as well as Pitcairnia susannae, another species originally collected in northern Ecuador.

We eventually arrived in town to find that the road down into the Chocó does not go through San Jose del Palmar as our map showed. We would need to head further north to Apia and then onto Pueblo Rico if we wanted to get down to Quibdo. Well, it was lunchtime, so we stopped in the only restaurant in town and had fried Tilapia, beans, fried plantain and rice. Mmm, yum, just what we needed - more fuel for plant collecting.

We were looking for a particular Heliconia in this area, which was known from two collections along this road. After driving through to town and not spotting it, we decided to walk the 2 kms between collections that had been made 30 years previously. This was the one day it really decided to rain while we were in Colombia, so in driving rain we walked slowly, peering into the forest longingly, looking for *Heliconia intermedia*, a species where the inflorescence emerges from

Pitcairnia archerii

Above: *Pitcairnia maidifolia*

Above: *Pitcairnia multiflora*

the pseudostem half way up rather than from where the leaves emerge. As it happened we missed seeing the plant but, as I was getting more frustrated, I walked towards the edge of the road and what appeared to be solid ground. After one too many steps, the foliage I was standing on disappeared from underneath me and I fell about 5-6 feet down into a creek bed that had been covered with climbers. After I had stopped swearing and collected myself, I thought, 'Well, while I'm down here, I may as well have a real look', as this plant wasn't jumping out of the forest to be seen. I walked about 10m and there, staring me straight in the face, was not *H. intermedia* but *H. robertoi*. It was growing pretty much right on the rocks of the streambed I fell into and in full flower. After not finding what we were searching for, this was a pretty good second prize.

The next day we headed north and found the road leading out of Pueblo Rico was closed further along, due to roadworks, till at least 3:00 p.m. Emilio was able to convince the roadworks' foreman we were crazy tourists who only wanted to drive the road looking at flowers, not people who were hoping to beat the late afternoon rush to the provincial capital, Quibdo. So, off we went on yet another road with some great changes in elevation and great plants in turn. We found more Heliconias that we were looking for, as well as some hybrids and varying colour forms, so there was no time for bromeliads that really didn't jump out at us.

Colombia has to be seen to be believed. I was in total plant overload some afternoons with what I had seen across a whole range of different plant groups. It was all we could do but to sit down with a cold beer, download images onto my laptop and stare at what we'd seen each day, still in amazement.

If this sounds interesting to you please look at the post conference trip offered by the Heliconia Society International next August and visit www.heliconia.org for details. This trip would allow you to travel to these areas with a group of fellow plant enthusiasts and be taken directly to the plants. I can remember my first trip to the Neotropics in 1991 on a trip to Ecuador organised by Fred Berry and Betsy Feuerstein - it changed my life! If you would like a more personal tour, contact Emilio Constantino at econch@gmail.com but be warned - I've booked Emilio for the 2nd and 3rd weeks of July, 2012.

Insect Pests and Diseases

An extensive report on bromeliad pests and diseases is available on the internet. The author resides in Florida so the list is primarily for growers in that area; and includes several insect pests not found in Australia.

Enter

Insect Pests+Bromeliads+"Barbara Larson" into a search engine on a computer and activate Search.

Racinaea schumanniana

Pitcairnia sp.

Pitcairnia sp.

Pitcairnia squarrosa var. colorata

Hints on Growing Dyckia, Hechtia and Puya

Author: Paul Clarke

[Paul Clarke was an enthusiastic grower of these genera in the early days of the Society - Peter Paroz]

I am writing about the potting mix and the pot size which I find suitable for growing these types of bromeliads.

To start with, I will give a break up on my potting mix:

Material	Quantity
milled tan bark	One bucket (10 litres)
coarse sand or decomposed granite	Half bucket
loam	Half bucket
peanut shells	One third bucket
charcoal fine	One third bucket
cotton residue or peat	One third bucket
blood and bone	Handful

When potting Dyckia and Puya, I select a specimen pup and clean it up as best I can, then I choose a pot to suit the plant. Say the selected plant diameter is six inches - I do not put this plant in a six or seven inch pot; but go for a pot about ten to twelve inches; and try to avoid squat pots if possible. This gives the plant room for root growth and slows down the leaf damage. Dyckia and Puya rely more on the roots for water and nutrients than the more common bromeliads.

0n the bottom of the pot before the mixture is put in, I put a layer of coarse charcoal instead of stones or broken clay pot rubble. I find that the combined weight of the pot and plant is less; and the charcoal retains a certain amount of moisture and nutrients. Another reason for the bigger pots is that I find I have a lot less die back to the leaf tips.

Winter watering is once a week and summer watering is four or five times a week. Most of the potted Puyas and Dyckias are under the oak trees and get subdued light but the plants that have been put into the banked gardens around my house get plenty of moisture and are in full sun. The plants that are in the bank do not suffer from any die back and offset more freely.

The conclusion that I have come to is that these genera like plenty of room for their roots and that constant moisture is essential. Watering the banks is done every day in summer and two or three times a week in winter. My plants in the full sun on the banks have more colour in the leaves than the ones under the oak trees.

In recent years, the main objective in my growing Puyas and Dyckias and some Hechtias was to stop the leaf tip die back which these plants suffer from very heavily. I have stopped about 90% of die back in the leaves and I think that this is one more step towards growing better bromeliads.

Notes on Cryptanthus

[With the renewed interest in Cryptanthus, I searched through my library of journals and found this article on Cryptanthus; an excellent primer for new members on the culture of this genus. This article was printed in Bromeliaceae some twenty years ago; the source was the Cryptanthus Society U.SA. author unknown. - Peter Paroz]

What is a Cryptanthus?

Named from the Greek krypte "hidden", and anthos, "flower", these plants,

members of the family Bromeliaceae, are related to the pineapple. Their common name, 'Earth Stars' came naturally from the way their low spreading rosettes hug the ground 'like fallen stars'. The variability of shapes, colors, and patterns, plus their adaptability to a wide range of growing conditions, make Cryptanthus a favorite of plant lovers around the world.

Potting Cryptanthus in their natural habitat are true terrestrials (growing in the earth). A few varieties are saxicolos (growing in soil pockets among rocks), but none have ever been observed growing as epiphytes (growing on other plants, but receiving nourishment from the air). Cryptanthus should always be grown as potted plants.

The growing medium should be a loose, porous mixture. There are many good mixes: commercial potting soils, African violet mix, soil mixes, or a mixture of peat and sand with perlite. Regardless of the mix chosen, it must be kept damp for best growth. It should never be allowed to totally dry out. Plastic pots help conserve moisture. Successful growers have used capillary matting, wick watering, misting systems, as well as the old-fashioned method of watching the plant and giving it a drink when needed.

Cryptanthus should not be under potted. They develop root systems at least equal to the size of the plant - a five or six inch pot will allow the root system plenty of room to develop.

Light. In their native habitat of Brazil, Cryptanthus can be found growing in a wide variety of conditions; sunny, shady, moist, dry, in forests, and at ocean side. There is a Cryptanthus variety to fit any light condition. *C. beucheri* and its hybrids like to be shaded, moist and humid. They are excellent for terrariums. Species such as *C. bahianus*, sp. 'Cascade', and *C. warasii* will tolerate full sun, but the plants grow better in diffused light. Too much light causes bleaching, sunburn, or gives a leathery, stressed look to the plants. Bright, diffused light is necessary to bring out maximum color in most Cryptanthus.

Lack of enough light will result in dull, uninteresting foliage. "Greening" of a usually colorful Cryptanthus, or weak, unbalanced growth, is usually caused by insufficient light. Proper lighting will bring out the best in Cryptanthus.

Acclimatise plants to grow in as much light as possible. The light source may be natural (in the greenhouse, outside with strong but filtered light, in a window garden) or artificial ("grow lights" or plant carts). Cryptanthus grow equally well with either. The colors intensify under fluorescent light, which make Cryptanthus an excellent choice for office decorating.

Whatever the light source, be sure the plants receive even lighting. If the light comes from only one side (as in a window garden), be sure to turn the plants regularly to promote balanced growth.

Temperature. Cryptanthus prefer the same temperatures as their growers. Optimum growth occurs in a range 60-85° F (16-29° C). However, Cryptanthus will thrive in less than optimum conditions. Outdoor gardeners will be pleased to learn that most Cryptanthus can withstand temperatures just above freezing; and some varieties will survive winter outside if they are heavily mulched and the root zone does not freeze. If one wishes to leave plants outdoors over the winter, they should be "hardened off" in the fall by cutting back on the amount of water they receive.

Depending on how long the temperatures remain below freezing, leaf damage may be severe; but the mulch protects the root zone and Spring brings renewed growth. At the other extreme, Cryptanthus are very tolerant of high temperatures even above 100°F

(38 °C) as long as there is adequate humidity and the potting mix is not allowed to dry out. Again, they should be protected from the scorching effects of direct sunlight.

In temperate climates, Cryptanthus grow easily and well outdoors, making beautiful and exotic bedding plants or ground cover. In colder climates, one might consider growing potted Cryptanthus outside during the warmer months. The pots can be sunk into the outdoor garden for the summer and then easily removed to a safe winter inside, beautifying your home or greenhouse. Cryptanthus grow just as well, or even better, in the year-round controlled environment of an indoor garden.

Humidity. Many Cryptanthus varieties enjoy high humidity which may be increased in the home or office with the use of humidifiers, frequent misting, capillary matting, by placing the pots over water, or grouping plants together. Cryptanthus make wonderful accent plants in well-lit bathrooms or above the kitchen sink where the humidity is generally high.

Fertilizing. Fertilizer is not necessary for Cryptanthus to show off their dazzling colors, but it is necessary for maximum growth. A timed release balanced

fertilizer, (14-14-14 or 10-10-10), combined in the potting mix gives excellent results. Other types of fertilizer such as African Violet, Orchid, or organic, used in a diluted form with each watering work equally well. Like people, Cryptanthus require proper nutrition.

Blooming. Although the name Cryptanthus means hidden flower, many varieties flatten at maturity to reveal a bouquet of delicate flowers. Some varieties maintain an upright growth with the flowers remaining somewhat hidden, while others actually bloom on a scape (stem). Some varieties display one flower at a time; others exhibit the entire cluster at one show. As different species and cultivars bloom at different times of the year, it is possible to have varieties in bloom the year around. They are reliable bloomers - there is no need to force bloom Cryptanthus.

Offsets or Pups. Each Cryptanthus plant blooms only once in its lifetime. But, after it blooms, it will reward you with new plants! Beginning before or immediately after blooming, Cryptanthus will produce offsets, or pups - new plants - which form from the leaf axils, from woody stolons (as with C. bahianus), or from the base of the parent plant. One will have the beginning of generations of plants to keep or share with friends.

Offsets may be left on the mother plant for multiple growth. The ideal hanging basket plant, sp. 'Cascade', produces hanging stolons up to two feet long with rosettes (pups) forming at the ends.

Other varieties will form clumps or mats of beautiful color. If one wishes to remove the offsets, allow them to grow to about one-quarter the size of the mother plant. Then, a slight tug will easily detach the offsets from the mother plant. Some varieties release their own offsets when they are sufficiently mature.

Don't be alarmed that there are no roots on the pup. In nature, the pup would roll to a new location, or take root in the decaying humus around the mother plant.

Cryptanthus will root easily in potting medium. Make a small depression, insert the pup's short stem, and press the mixture firmly around it. Pot no deeper than the base of the first leaf. Stake the plant if necessary to keep it from rocking back and forth. It is essential for the plant to be secure for an extra fast start and good growth. Bottom heat may speed root development in colder climates. Place the newly potted plant in a favorable location and water it as one would a mature plant.

Insects and Diseases. Cryptanthus are relatively pest-free. and by following good horticultural practices severe problems can be avoided.

Premature Flowering of Bromeliads

Author: Peter Paroz

After returning from an interstate visit, I noticed that some immature offsets were developing flower spikes. On recollection, I recalled that there had been grass fires some weeks previously from burn-off of fuel prior to the bushfire season.

The premature flowering was very likely caused by the smoke from these grass fires; the causative agent being minute amounts of ethylene caused by the incomplete combustion of the grass. Ethylene is a simple hydro carbon that is quite phytoactive*. It is used in the artificial ripening of pears, mangoes and apples. In bromeliads, in minute quantities, ethlyene causes the meristem (growing tip) of the plant to stop producing leaves and initiate flowering.

This effect can occur in quite immature offsets or seedlings; and can be damaging to plants which have not accumulated sufficient nutrient and energy reserves to mature a flowering stem. For valuable plants growers should consider removing the flowering stem as soon as it appears.

More detailed articles on flower initiation can be found in older issues of the BSI Journal and Bromeliaceae.

*Phytoactive: Having an effect on plant growth.

The BSQ Web Site

Don't forget that the society has a web site. We place urgent and general information and information on the site.

The URL is:

www.Bromsqueensland.com

Your attention is drawn to the Society's library. It is run as a service to its members. Members are able to borrow books from the library. The Society also sells specialist books relating to Bromeliads - see the web site for details.

A Technique for Maximum Offset Production

Author: Peter Paroz

The June meeting's session for beginners was conducted by Bruce Dunstan and the topic was propagation for maximum offset production.

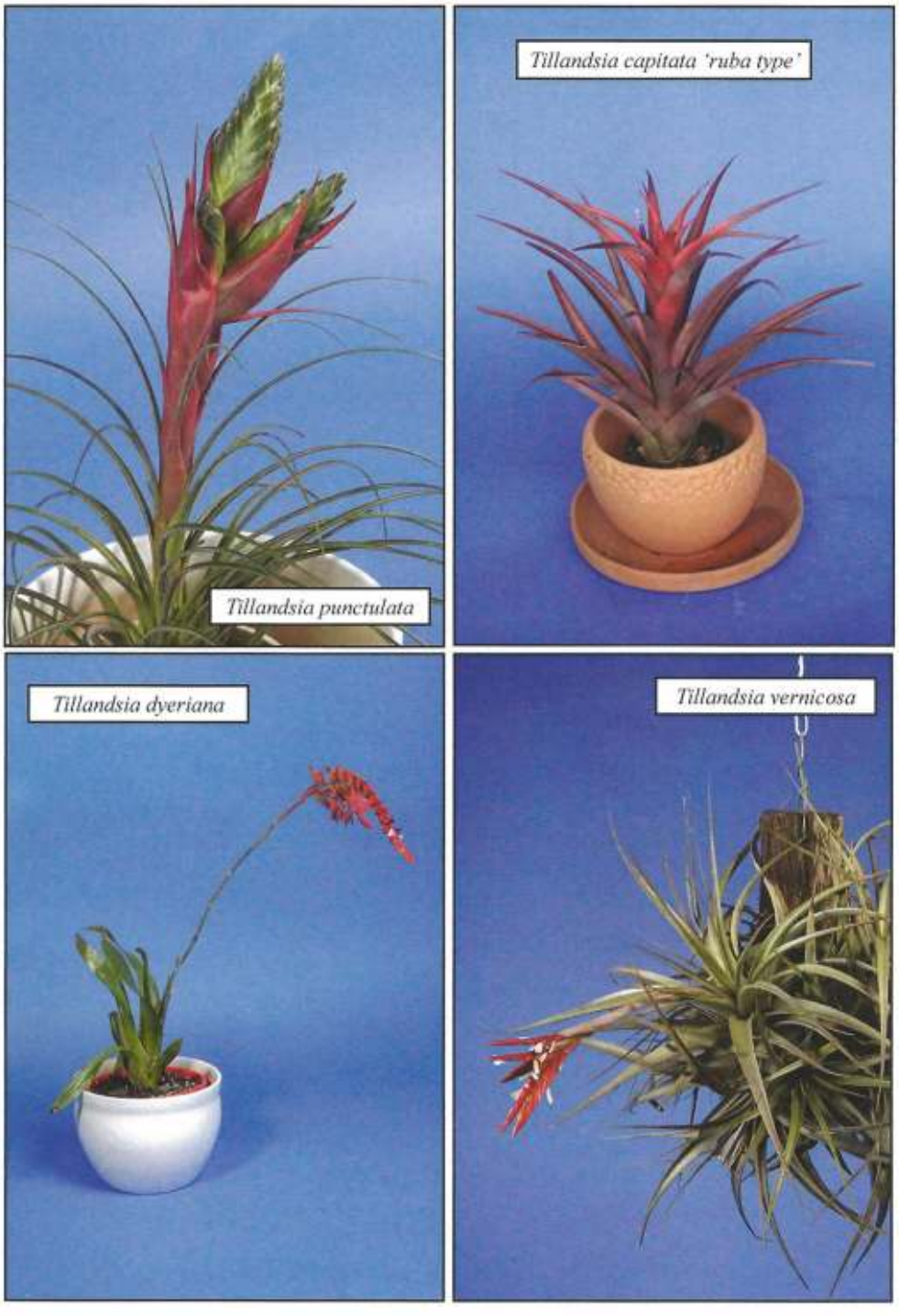
Bruce's approach was the screwdriver attack !!!

The demonstration plants were an Alcantarea with some variegated leaves and a large Neoregelia (*Neo. carcharadon*)

The basis of this procedure is that in the axil of each leaf there is a dormant bud. While the growing tip of the plant is active, auxins (plant hormones), which inhibit the development of these buds, are secreted and the buds remain undeveloped.

Bruce proceeded to 'deactivate the growing point by inserting a screwdriver in to the centre of the plant and twisting; much to the surprise of the audience. No fungicide was used to prevent rotting of the plant but the plant needs to be monitored and any loose leaves in the centre of the plant removed as the damaged area calluses over.

Two or three whorls of the lower leaves are removed exposing the buds (exposure to


Tillandsia punctulata
Tillandsia capitata 'ruba type'
Tillandsia dyeriana
Tillandsia vernicosa

light encouraging their development). The technique here is to split the leaves down the centre and remove each half by pulling side ways.

The offsets are removed when they reach 80-100 mm and the process repeated.

Tillandsia 'Ivory' A New Tillandsia Registration.

Author: Peter Paroz

I have grown this plant for many years as *Tillandia scheidena* 'White'; a reference to the pale colour of the mature petals. I have no record of the origin of this plant and it is likely that other growers in SE Queensland may have one in their collection.

After some years of neglect, it flowered recently, and I took the opportunity to critically examine the plant habit and flower colour.

It immediately became apparent that it was noticeably different from the *T. scheideana* that grows profusely in the garden. Apart from the petal colour, the plant and leaves were much more robust and the inflorescence is branched. Almost certainly a hybrid.

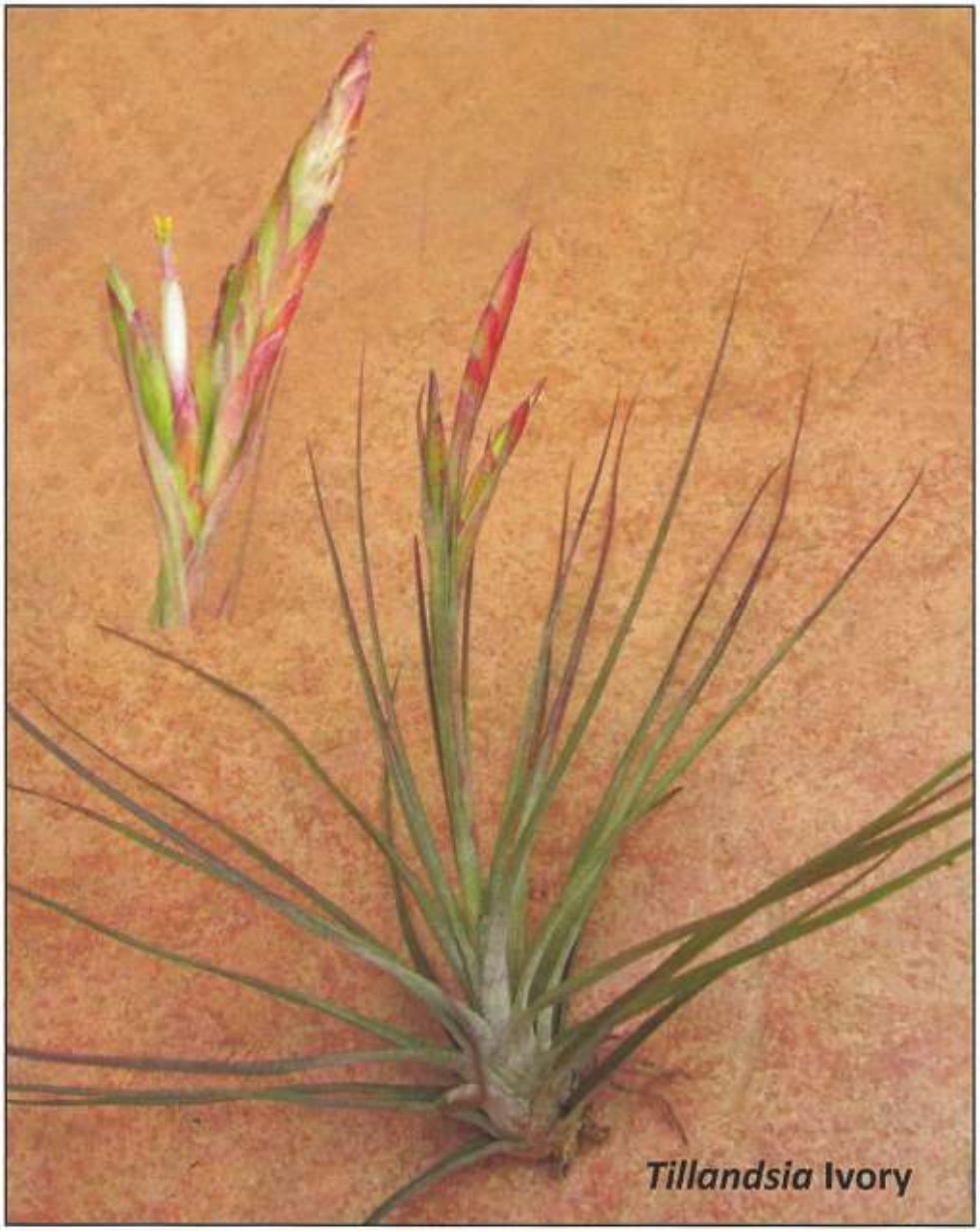
The name 'Ivory' was suggested by Derek Butcher and refers to the pale colour of the mature petals.

The initial appearance of the petal tips is yellow as for the typical *T. scheideana*; but this quickly fades to an off white as the petals develop and mature. The plant is small to about 20 cm tall in spike.

T. 'Ivory' is easy to grow as a mounted specimen, tolerates full sun, flowers readily and responds to regular sprays of liquid fertilizer. Less well treated plants may not produce a branched inflorescence.

Distinguishing features (cf *secheidena*) are the larger more robust leaves, the petal colour at flower maturity and the sturdy, branched flower spike.

Got information about forthcoming events
email the Bromeliaceae Editor using the email address below
editor@bromsqueensland.com



A New Plant Registration by a BSQ Member: Peter Paroz

How to make the canola oil spray

Author: Aaron Smythe

I thought I would simplify my father's "oils aint oils" [1] so everyone can understand. I have noticed more and more people wanting a "natural" product for scale on their broms. I have added pictures with corresponding instructions so you can "see" what has to be done.

Mix in a 2lt jug:

- Canola oil 750ml
- 3tbsp detergent
- 1250ml water

Blend with a stick blender (if you don't have one a whisk would do the job) for about 30 sec (make sure you put a lid partially on top to avoid spillage) as per picture 1.

Once blended it should all be white. Pour into an empty milk or juice bottle and let it sit for half an hour or so until oil and water have separated as per picture 2.

At this stage get something pointed and sharp and poke a hole in the bottom of the bottle as per picture 3

Pull out and let the water part on the bottom drain out controlling flow with a tightening or loosening of the lid as per picture 4

When it gets down to the oil part screw lid on tight. Picture 5 is of the oil part left in the bottle-

This mixture makes about 1 lt of white oil. Transfer this to another storage container to use when required. You will find if fairly quickly separates back into oil and water layers. It should be used fairly promptly when fresh. You will find with time that the white oil left behind will stay as an emulsion longer and longer. The message is make big batches and store it. Each time you use it shake it well.

With this white oil you can add vinegar or ammonia.

For a 2lt spray bottle add:

- 150ml white oil mixture just made
- 150ml vinegar OR ammonia
- Top up with water to the top.

Apply this in the late afternoon when sun is down and then in the morning before it gets too hot (32 C has been tested as OK under my father's growing conditions) hose the oil off the broms you sprayed. If you have a lot of broms do one section at a time otherwise you might miss some.

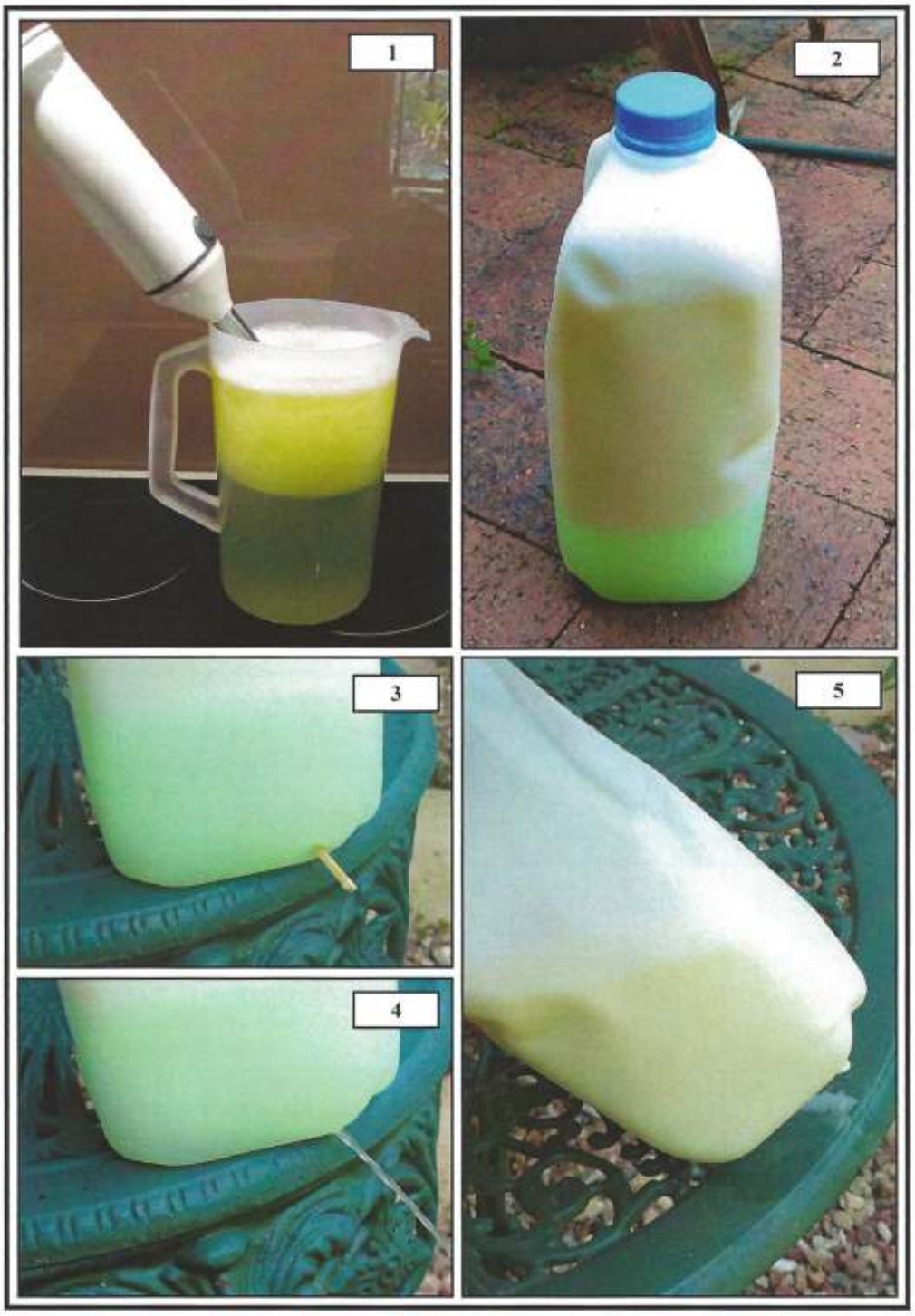
Don't mix ammonia and vinegar together as one destroys the activity of the other. Remember when plants (Neoregelias) are coloured up use vinegar (actually enhances red colour and cleans calcium deposits off the leaves as well). When plants are in their greener stage use the ammonia. You can use the vinegar spray just to brighten up the plants when expecting brom visitors. The other positive thing is that vinegar prevents mosquitoes, strangely larvae don't appear bothered too much, but eggs are not laid or immature larvae don't survive. Remember scale are active at season changes (autumn and Spring) so these are the times to apply treatment. Hope this helps and good luck.

1. R. Smythe "Canola White Oil- "Oils ain't Oils Soll" Bromletter vol 3,No 1 Jan/Feb 2000

Mexican Tillandsias

Author: Vic Przetocki

I had decided to do a talk about tillandsias but thought that I might narrow down the fi eld by choosing the ones that are endemic to Mexico. Doing a little bit of research I didn't realise that Mexico has about 200 of the 600 known tillandsia species accredited to them. After going through my collection I managed to fi nd 31 tillandsias which I have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listed on the following pages and thought that this wasn't too bad a representation. There were plants that I had tried to grow but lost and these were *T. plumosa, lieboldiana, macdougalii, deppeana* and *lucida*.

A lot of those 31 tillandsias are not solely from Mexico but are also found growing in other countries of North, Central and South America. I don't know if the plants I have actually originated from Mexican stock or that they came from another locality, but for the exercise of this talk will assume that

Tillandsia	Altitude in Metres	Growth Habit	Growing Conditions	Cultivation	Inflorescence
albida	1300 - 1500m	Epiphytic	Bright, Moderately Dry	Grow outside all year round.	Simple Spike, Red Bracts, Greenish White Flowers
atroviridipetala	1600 - 2400m	Epiphytic	Bright, Full Sun, Fairly Dry	In Summer, outside in half shady place, not too cold in winter, head should face downwards.	Compound Spike, Green Flowers
baileyi	0 - 1080m	Epiphytic	Moderate Shade, Fairly Dry	Grows in dry thickets.	Red Bracts, Purple Flowers
balbisiana	0 - 1500m	Epiphytic	Bright, Fairly Dry, Humid	Grows in forests.	Branched Spike, Red Bracts, Purple Flowers
bulbosa	0 - 1350m	Epiphytic	Moderate Light, Moist, Humid	Grows in bright open forest.	Scape Red, Blue or Violet Flowers
capitata Red Form from Mexico	1065 - 1220m	Epiphytic/ Terrestrial	Bright to Full Sun, Moderately Damp	Grows on the west side of rocks in Durango.	Purple Flowers
caput-medusae	40 - 2400m	Epiphytic	Bright, Moderately Damp, Fairly Dry		Branched Spike, Red Bracts, Pale Blue Flowers
chiapensis	600m	saxicolous	Bright, Full Sun, Fairly Dry	Grows on exposed limestone canyon walls	Simple Spike, Pinkish Bracts, Blue or Violet

they have come from Mexico. Mexico has a varied climate and habitat and not every tillandsia from there should be treated the same. The altitude should be considered, the higher up, the cooler conditions the plant likes but most grow in a mid range altitude, not too hot and not too cold. The type of surfaces they are growing on gives an idea of what they prefer i.e wood (epiphytic growing) or rock (saxcicolus growing). Terrestrial tillandsias require a well drained mix, I am growing plants such as *T. fasciculata, caput-medusae* and *T. stretophylla* in clay pots with pea gravel as the medium but expanded clay will also do.

Most of the tillandsias listed are quite hardy but several like *T. atroviridipetala* and *mauryana* are not growing well. I had been growing a lot of my tillandsias in a glass house and had been told that I should have been reported for cruelty to tillandsias.

Nowadays I grow most of the tillandsias outdoors under different lighting conditions and they have never looked back. I still need to do some experimenting with how much of the direct Perth summer sun some of the tillandsias can take.

The table showing only my tillandsias provides their growing conditions and habits and this information was extracted from a booklet "Tillandsias A Growers Guide" published by The Bromeliad Society of New South Wales. I would say that their growing conditions have been described from conditions that the tillandsias have been grown under in NSW and should only be used as a guide here in Perth. For interest I also included generalized details of the infl orescence and colours may vary slightly.

Most of the Mexican tillandsias are a tough lot and are well worth growing, they have interesting shapes and colourful flower spikes.

Tillandsia	Altitude in Metres	Growth Habit	Growing Conditions	Cultivation	Inflorescence
circinata	1300 - 1500m	Epiphytic	Bright, Moderately Dry	Grow outside all year round.	Simple Spike, Red Bracts, Greenish White Flowers
dasyliriifolia	0 - 1800m	Terrestrial	Bright, Moderately Damp, Moderately Humid	Dry exposed habitats	Branched Spike, Deep Rose Bracts, White or Greenish
ehlersiana	700m	saxicolous	Bright, Dry, Humid	On steep granite rocks in deciduous forest	Branched Spike, Pinkish Red Bracts, Flowers Blue Violet white at the base
exserta	10 - 45m	Epiphytic	Moderate Light, Fairly Dry, Moderately Humid	Dry forests and thickets	Branched Spike, Rosy Red Bracts, Violet Flowers
fasciculata	0 - 2000m	Epiphytic/ Terrestrial	Bright, Fairly Dry. Humid	Forests	Simple or Branched Spike, Yellow to Red Bracts, White to Purple Flowers
filifolia		Epiphytic	Moderate Shade, Moist, Moderately Humid	Forests	Branched Spike, Pale Lilac Flowers
flabellata	225 - 1500m	Epiphytic/ Terrestrial	Bright, Moderately Damp, Moderately Humid	Forests	Branched Spike, Red Bracts, Violet Flowers

Tillandsia schiedeana

Above left: *Tillandsia bulbosa*

Above right: *Tillandsia fasciculata*

Tillandsia	Altitude in Metres	Growth Habit	Growing Conditions	Cultivation	Inflorescence
ionantha var. ionantha	140 - 1520m	Epiphytic	Bright to Full Sun, Moderately Damp	Grows in moist forests and also on exposed deciduous trees and rocks in arid areas.	Foliage Flushes Red, Vivid Purple Flowers
ionantha var. *stricta*	1980m	Epiphytic	Bright, Fairly Dry	Grows on oak trees	Foliage red all the time, Purple Flowers
ionantha var. vanhyningii		Epiphytic	Bright to Full Sun, Moderately Damp	Grows on vertical limestone cliffs,	Foliage flushes bright pink, Purple Flowers
juncea	700 - 1200m	Epiphytic/ Terrestrial	Bright, Fairly Dry	Deciduous dry forests.	Compact Branched Head, Brilliant Red Bracts, White to Bluish Purple Flowers
mitlaensis	1800m	Epiphytic	Bright, Fairly Dry, Humid		Simple Spike, Reddish Bracts, Dark Violet Flowers
paucifolia	0 - 1500m	Epiphytic	Bright, Fairly Dry, Moderately Humid	Grows on trees and bushes.	Branched Spike, Reddish Bracts, White to Violet
pruinosa	0 - 1000m	Epiphytic	Bright, Fairly Dry		Simple Spike, Pinkish Bracts, Lavender Flowers
psuedobaileyi	300 - 1000m	Epiphytic	Bright, Fairly Dry	In trees in seasonally dry open forests	Branched Spike, Red Bracts, White to Lavender Flowers
pueblensis	2000m	Epiphytic	Bright, Fairly Dry	On trees in dry areas of the highlands	Simple, Reddish Pink Bracts, Violet Flowers

Tillandsia	Altitude in Metres	Growth Habit	Growing Conditions	Cultivation	Inflorescence
punctulata	300 - 2300m	Epiphytic	Moderate Shade, Moderately Damp		Simple Spike, Orange Red Bracts, Flowers White near apex violet below
roseoscapa		Epiphytic			Branched Spike, Reddish Bracts, Pale yellowish green Flowers
schatzlii		Epiphytic/ saxicolous	Bright, Fairly Dry, Moderately Humid	Steep rock walls	Simple Spike, Pinkish Bracts, Dark Violet Flowers
schiedeana	50 - 1800m	Epiphytic	Bright, Fairly Dry	Grows in Conifer &Oak Forests & also on cliffs.	Simple Spike, Red Bracts, Yellow Flowers
seleriana	1400 - 2300m	Epiphytic/ saxicolous	Bright, Moderately Damp	In Pinus and Quercus forests	Branched Spike, Pink Bracts, Violet Flowers
streptophylla	200 - 600m	Epiphytic/ saxicolous	Very Bright to Full Sun	Too much water and the spiral twisting of the leaves disappears	Branched Spike, Red Bracts, Purple Flowers
tricolor					Simple Spike, Red Yellow Bracts, Violet Flowers
xerographica	200 - 600m	Epiphytic/ saxicolous	Very Bright to Full Sun	Grows on trees and boulders.	Branched Spike, Red & Yellowish Green Bracts, Pale Lavender Flowers

GENERAL MEETINGS of the Society are held on the 3rd Thursday of each month except for December, at the Uniting Hall, 52 Merthyr Rd., New Farm, Brisbane, commencing 7.30 pm. Classes for beginners commence at 7.00 pm.

ANNUAL GENERAL MEETING is held immediately before the February General Meeting


Pitcairnia sp. nov aff. guzmanioides