ILLAWARRA BROMELIAD SOCIETY INCORPORATED

NEWSLINK

October 2020



Guzmania lingulata



Nidularium procerum

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ILLAWARRA BROMELIAD SOCIETY INCORPORATED

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MEETINGS - The Society meets at 12.00 noon on the first Saturday of each month (except January and December) in the Laurel Room* at the Ribbonwood Centre, DAPTO. *Scribbly Gum room for November meetings only.
MEMBERSHIP SUBSCRIPTIONS - Due 30th June each year: \$15 single/\$25 family.
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VISITORS ARE ALWAYS WELCOME

SUSPENSION OF ACTIVITIES:

With everything still so uncertain at this time regarding COVID-19 we have had to cancel all of our meetings for 2020. However, it has been suggested that we look into arranging a Christmas get-together and, if it goes ahead, you will be notified by email or phone. Also we have been asked by the Council to wait until January before contacting them to see if we can again have the use of the venue in Warilla for our usual sales day in March.

But I do hope that things will be eased enough for you all to enjoy a Very Merry Christmas and we all look forward to a much brighter and happier New Year!



VALE - JOHN KILLINGLEY

While John was not officially a member of our Society he was unofficially very involved for many years. Over the 20 or so years that I was Secretary/Show Secretary/Editor he did so much to assist me—making sure that I had a working computer and printer, helping me with cover pictures and illustration inserts, and also stuffing and mailing of envelopes. Every month he packed the car for me for meetings, not to mention at Show time when all of the paraphernalia for the competition tables took many trips out to our van and for many years he drove me to and from the meetings--100 miles round trip--taking our dog, Ben, for walks while he waited for me.

John designed the cover for our 2001 Conference Proceedings Book and greatly assisted me with the preparation and production of this book. He also helped me design and set up the templates for our Show Award cards as well as taking photographs which have sometimes been used on our covers. He had a love/hate relationship with bromeliads; however, by seeming osmosis he learned the names of many different genera and helped me form new garden spaces to accommodate them. He was my rock and a lovely and loving man who is sorely missed.

I would like to thank the Illawarra Bromeliad Society members for the beautiful bouquet sent to me when John died and the lovely cards and phone calls which meant so much. Thank you!



OUR OCTOBER 2020 COVER – GUZMANIAS AND NIDULARIUMS

If we were to compare the two pictures on the cover of this issue of *Newslink* we may be forgiven for thinking that they belong to the same genus. However, we can see from their labels that one is a guzmania and the other a nidularium, and while not only not being part of the same genus they belong to two separate sub-families.

Guzmanias are part of the *Tillandsioideae* sub-family, meaning that all species within this subfamily have no spines, while nidulariums are part of the *Bromelioideae* sub-family where most species have spines and/or sharp points. They also differ in the way they set seed—those in the *Tillandsioideae* sub-family have plumose seeds, whereas those genera in the *Bromelioideae* sub-family have berry-like seeds.

The name *Nidularium* is derived from the Greek *nidus* meaning 'nest', referring to the short cluster of inner leaves surrounding the flowers. All plants in this genus originate from Eastern Brazil. Nidulariums are considered to be easy to care for and generally are quite cold tolerant. They do very well in a high humidity, low light environment.

Guzmanias, on the other hand, have a much wider range, occurring in Florida, the West Indies, southern Mexico, Central America, and northern and western South America and so some may be less cold tolerant.

While the inflorescences of nidulariums pretty much conform to the nest-like structure, the inflorescences of guzmanias take on many different forms—take, for example, *Guzmania sanguinea*, with its beautiful flattened rosette, looking as though someone has taken a paint brush to it, *Guzmania wittmackii* with its branched inflorescence and which comes in a range of different colours and *Guzmania conifera* which, as its name implies, has a cone-shaped inflorescence. There are also miniature forms as well as some very large plants.



Guzmania conifera



Guzmania sanguinea



Guzmania wittmackii



Guzmania sanguinea var. comosa



Guzmania claviformis

LEARNING ABOUT THE GENERA: NIDULARIUM

By Peter Waters (Reprinted from the J. Bromeliad Society of New Zealand, April 2016 Vol. 56(4))

As a general rule they live in the understorey of the forest, although some can be found in sandy coastal areas on the perimeter and others range up to 2000 m at the edge of the cloud forest. Many are terrestrial and others growing epiphytically inhabit the lower limbs of the trees. In cultivation they grow very satisfactorily in shady places and like plenty of water, although many can also tolerate quite a lot of sun. The main horticultural asset is the brilliantly coloured primary bracts which most display at flowering and the length of time these are in colour, which is often for months.

In 2000 Elton Leme, the authority on Brazilian bromeliads, produced a monograph on the genera of the *Nidularioideae*. This included *Nidularium, Wittrockia, Canistrum*, and the new genera *Canistropsis* and *Edmundoa*. Prior to this time the rules separating the genera were quite arbitrary and included such details as the presence or absence of appendages on the petals. *Nidularium* had no appendages, and this presented anomalies—e.g., *Wittrockia amazonica* had appendages but looked much the same as *Nidularium innocentii*. Leme looked at all the species in a new light and sorted them out on more obvious appearance attributes. Many of the previous nidulariums now joined the new genus *Canistropsis*. The main difference now is that nidularium primary bracts hold water—up to 100 ml in some cases—while canistropsis primary bracts don't.

When he studied the nidulariums he went to all the habitats of the known species and collected examples and together with some new ones he formed the opinion that they could be grouped naturally in accordance with the colour of the petals. He divided them into three initial groups—the blue complex, red complex and white complex. Since 2000 there has only been one new nidularium added to the genus and this must surely be an indication of the thoroughness that Leme devoted to the task.

The blue complex consists of 27 species and is the largest group. For practical reasons it has been divided into four subcomplexes. The first, subcomplex *fulgens*, has an inflorescence not elevated and largish leaf spines. It includes *N. fulgens*, *N. bicolor* and *N. atalaiaense*.

While everyone is familiar with *N. fulgens, N. bicolor* has red sepals and blue petals. *Nidularium atalaiaense* grows near the sea just north of Rio and because of habitat destruction at beach resorts is now found on outlying islands.

Subcomplex *scheremetiewii* includes the species of the same name, *N. utriculosum* and *N. rosulatum*. This last name has appeared on a number of spotted plants, but the real one has plain green leaves. *Nidularium utriculosum* was found in Copacabana, Rio de Janeiro but is now extinct in that area although it still can be found some distance away. This group has an inflorescence not elevated and smallish spines.

Subcomplex *antoineanum* has an inflorescence clearly elevated. *Nidularium antoineanum* has been in New Zealand in name for years and is now called 'Litmus'. It is not the true *N. antoineanum*.

Subcomplex *procerum* has 10 species which have stiff leaves. It includes *N. procerum*, *N. angustifolium*, *N. serratum* and *N. cariacicaense*. These are all quite spiny. *Nidularium procerum* is very common and in New Zealand can be found under the name *N. terminale* and *N. kermesianum*. It is the most widely distributed nidularium covering the full range of the genus.

The red complex has only 7 species and the first subcomplex *purpureum* covers five species with plain leaves. *Nidularium purpureum* is an attractive species with brownish-purple leaves and is not the plant known in New Zealand as *N. purpureum*. This has white petals and is probably *N. innocentii*. Another small species is N. *altimontanum* which always has wine-coloured leaves and grows at an altitude of 1000 metres.

Subcomplex *rutilans* has spotted leaves and *N. rutilans* is common in cultivation. Leme has included *N. regelioides* as a synonym of *N. rutilans* as it is found in the same areas and there were no major differences between the two species. The other plant in this group is *N. espiritosantense*. The suffix –ense denotes that it is named after the area where it was found, in this case the state of Espirito Santo.

The white complex of 12 species is divided into three. Subcomplex *innocentii* has petals without appendages and petal lobes that are flat on top. *Nidularium innocentii* is the second most widely distributed nidularium and is common in New Zealand with its leaves that are green on top and wine underneath. But this is not always the case as there are clones with all green and all red coloured leaves. *Nidularium albiflorum* can be confused with *N. innocentii* but is a smaller, more delicate plant.

Subcomplex longiflorum has petals without appendages and petal lobes that are almost pointed. This contains *N. longiflorum* and *N. campos-portoi*. *Nidularium longiflorum* is easily recognizable with its uniutriculate inflorescence [having a single inflorescence without the usual flowering in the side primary bracts so often seen in 'ordinary' nidulariums]. This means that there is just one vase, unlike most nidulariums which have several vases among the primary bracts each containing a fascicle of flowers. Leme included *N. innocentii* var. *wittmackianum* as a synonym of *N. longiflorum* but this plant was not the one we had in New Zealand so there has been some confusion here. *Nidularium campos-portoi* with its striking inflorescence has yellowish petals and is easily identified.

Subcomplex *amazonicum* has petals with appendages and would have been included in genus *Wittrockia*. *Nidularium amazonicum* looks very much like *N. innocentii* but has greenish petals. This group also contains the newest species, *N. rolfianum*.

Blue complex:

Subcomplex (a): *N. linehamii, N. ferrugineum, N. bicolor, N. fulgens, N. atalaiaense, N. ferdinando-coburgii.*

Subcomplex (b): N. utriculosum, N. jonesianum, N. scheremetiewii, N. kautskyanum N. mangaratibense, N. rosulatum, N. fradense.

Subcomplex (c): *N. bocainense, N. marigoi, N. antoineanum, N. meeanum.*

Subcomplex (d): *N. catarinense, N. azureum, N. angustifolium, N. procerum, N. viridipetalum, N. serratum, N. cariacicaense, N. angustibracteatum, N. amorimii, N. alvimii.*

Red complex:

Subcomplex (a): *N. corallinum, N. purpureum, N. itatiaiae, N. altimontanum, N. apiculatum* Subcomplex (b): *N. rutilans, N. espiritosantense*

White complex:

Subcomplex (a): *N. rubens, N. albiflorum, N. organense, N. innocentii, N. campo-alegrense*

Subcomplex (b): *N. picinguabense, N. longiflorum, N. campos-portoi* Subcomplex (c): *N. amazonicum, N. krisgreeniae, N. rolfianum, N. minutum*







BROMELIADS IN AUSTRALIA

By Chas G. Hodgson – from an article which appeared in the BSI Journal in 1951 (Vol. 1(2)) [Reprinted from the Far North Coast Bromeliad Study Group's October 2020 newsletter]

My object in writing these notes is not to pose as an authority on bromeliads, but merely to give some indication as to the extent these beautiful and interesting plants are grown in this country. Looking back over a number of years of my association with private and commercial growers the number of bromeliad species distributed among them could be counted on the fingers of one hand. Over a long period of years hundreds of other exotic plants have been introduced into the country, mostly by wealthy private growers who, in some cases, had large heated glass houses and a staff of gardeners. These exotics were housed more or less under the same conditions. A gentleman once remarked to me that he could not understand why some of his plants were thriving, while others were not. He said, "They all get the same treatment."

I said, "Yes, that is the trouble. You have plants collected from various parts of the world, from various conditions, all requiring different treatment; here you expect them to thrive under one condition."

I then suggested that he divide his house into three sections and to vary the heat and shade in each section, which he did with marked results.

That has been my observation, also, in regard to bromeliads in those that have been introduced here. It has been, truly, a matter of the survival of the most fit to put up with the conditions provided for them. This became very evident to me when I started to gather some of these plants. I already had a few plants of *Aechmea miniata discolor, Nidularium innocentii* var. *striatum, Nidularium amazonicum, Vriesea tricolor* (*) with an unidentified neoregelia. These were the five species referred to above, and represented the range of bromeliads in the various private collections under glass throughout Australia.

Aside from the conservatory of glass house collections the most common bromeliad here is *Billbergia nutans*. This species has survived the test of time. It is blessed with a hardy constitution. One sees it growing in all sorts of conditions, from humble in tin dishes to teak orchid baskets, in the ground, in the sun, in the shade; known under various names from "Cactus fuchsia" to that "Pineapple Thing!" It is the "poor man's" bromeliad.

Looking at the few "broms" that I had growing with my orchids, I got an inspiration that I would like to get more of these plants and not being fortunate, like our worthy president who lives in a country where these plants are indigenous, I had to, as it were, re-discover, or rather muster up the plants that were scattered about the country. My first objective was the Melbourne Botanic Garden.

In their large hothouses were the familiar five, but here and there amongst the other foliage plants were strangers such as *Aechmea fulgens*, which was in bloom with its glorious long-lasting flower spike. There were two different billbergias under the one label of *B. zebrina*. I was able to point out that one of these was *Billbergia vittata*. The billbergias were not happy, whereas the nidulariums and aechmeas were doing fairly well under the shade and moisture. The poor billbergias were rotting and for lack of light and a more airy condition were open and colourless. Then I came across a few plants of *Tillandsia lindenii*. After coming to terms about an exchange with the man in charge, who is both a friendly chap and a keen grower, I secured *Aechmea fulgens, Tillandsia lindenii, Billbergia zebrina* and *B. vittata*. Next day I visited the gardens again in order to comb over the outdoor bromeliads. There I saw *Ochagavia lindleyana* [now *O. litoralis*], *Pitcairnia* sp., *Puya alpestris, Dyckia rariflora, Dyckia sulphurea* [now *D. brevifolia*] and *Hechtia texensis*, all of which I had but I did not have *Bromelia serra* which I soon spotted. Although it was not doing too well I secured a small plant of it; since then it has developed into a fine specimen in my glass house where it seems to do better than on the outside because of our rather cold climate.

My next objective was to get some literature pertaining to bromeliads. Since my friend in the gardens was librarian to the Field Naturalists Club, I asked him to keep an eye open for any such literature. He eventually sent me a copy of a Smithsonian Institution's Annual Report in which was an article by Mulford B. Foster. I said to myself that I would write this fellow. He might be a nice chap. And reply he did.

The fraternity among true plant lovers is stronger than Freemasonry. To make a long story short, as a result of contacting friend Foster, the exchanges of literature and plants added considerably to my knowledge and plant collection.

Then, fortified with a larger collection, and some surplus plants to barter with, I went to the Sydney Botanic Garden where I received an introduction as an interstate visitor to the propagator. Naturally, we talked easily about the broms.

He had, in the houses: *Billbergia vittata*, doing well; *Aechmea weilbachii; Billbergia morelii; Tillandsia lindeniana; Cryptanthus zonatus* and another unnamed cryptanthus with chocolate coloured leaves; *Quesnelia liboniana;* and nice plants of *Nidularium innocentii* var. *striatum*, and *Neoregelia tristis*.

My next objective was the Adelaide Botanic Gardens. The city of Adelaide is much warmer and drier than Melbourne (where I reside) and is more subject to drought, during which time bore water is used (Australian for well water). This is fatal to some plants because of the lime content.

The Gardens in Adelaide had been very much neglected for some time. At one time they possessed a number of bromeliads but they had gradually died from time to time, until only the hard-leaved varieties such as billbergias, quesnelias, and neoregelias had survived. The Gardens are now under a curator who has been given a grant of money to make necessary improvements and he expressed the hope that he would be able to provide the proper accommodation to grow bromeliads. I supplied him with some of my surplus plants and in return received *Billbergia pyramidalis, Neoregelia carolinae, Quesnelia liboniana,* and some unnamed billbergias which I shall have to grow in order to identify them.

Queensland is the state where the "King of Bromeliads" (pineapples) has been made to feel at home and this delicacy is raised to the extent of supplying all the southern states with this fruit. Owing to the favourable tropical climate (they have little need for glass structures, most tropical plants grow luxuriantly) there should be some good collections of broms in the state, but so far as I can learn they are scarce. The Curator of the Queensland Botanic Gardens wrote me that they have growing there *Tillandsia lindenii*, an unnamed puya, *Billbergia nutans* (which will cover a large area), several unidentified billbergias and one or two aechmeas. We have agreed upon a favourable exchange of bromeliads.

I have sent a few bromeliads to a friend in North Queensland and he said that they are doing well.

West Australia has no Botanical Garden, but many parks and public gardens. A friend to whom I have sent a dozen broms has said that only *Billbergia nutans* is there.

After combing over the five states here in Australia I have come to the conclusion that, generally speaking, the bromeliads can be favourably adapted to Australia, especially in Queensland, and that there are probably not more than thirty or forty varieties in this country. There is a vast field for trade in bromeliads here, if and when the dollar embargo is lifted.

My increasing interest has led me to possess, now, about forty species of broms as well as having created considerable interest in them in the four out of five states in Australia. Apart from the private growers, I have introduced new bromeliads to the Botanic Gardens where the general public can enjoy them, and in doing this I have made many new friends.

HECHTIA CHANGES – *BAKERANTHA AND MESOAMERANTHA* – An update on the article which appeared in the July 2020 issue of *Newslink*.

HECHTIA CHANGES BY DEREK BUTCHER, APRIL 2019

The following has recently been published and somewhat concerned me. Based on the concepts of Barfuss *et al.* (2016) they could have achieved similar goals by treating them as subgenera under *Hechtia*:

"The re-establishment of *Bakerantha* and a new genus in *Hechtioideae* (*Bromeliaceae*) in Megamexico, *Mesoamerantha* by Ramirez-Morillo, Romero-Soler, Carnevali, Pinzon, Raigoza *et al.* <u>In</u>: Harvard Papers in Botany 23(2): 301-312, 2018."

Eric Gouda is of the same opinion as me and this is reflected in detail given in *The New Bromeliad Taxon List* <u>https://botu07.bio.uu.nl/bcg/taxonList.php</u>

It may be of interest to note that *Viridantha* is treated at generic level by the Mexicans but is shown at subgenus level in The New Bromeliad Taxon list in line with Barfuss *et a*l. (2016).

Because *Hechtia tillandsioides* has already been involved in a hybrid mentioned in the BCR such a move will save a new nothogenus being coined.

Taxa involved are: Bakerantha caerulea, B. lundelliorum, B. purpusii, T. tillandsioides Mesoamerantha guatemalensis, M. dichroantha, M. malvernii

While I believe the better solution is by using subgenera we wait for further publications which prove that genera status is the only option.

And a note to me from Drew Maywald of the Far North Coast Bromeliad Study Group on this same article which appeared in the July 2020 *Newslink*.

Dear Eileen,

The role of editor of any newsletter or journal is often a very thankless one as many people only look for the mistakes and errors in the published item, and criticise the humble editor for publishing controversial articles. Mike Wisnev's article "*Hechtia Changes – Bakerantha and Mesoamerantha*", *Newslink* July 2020, is an example of what could be described as a controversial article. I congratulate you on publishing this article, and while I don't altogether agree with it, I suspect that you have stirred up a hornet's nest by publishing it.

If you are able to stimulate discussion and debate over an item in your journal then you have succeeded as editor, and I applaud you for having the fortitude to run the article.

I believe that Mike may have jumped the gun by proposing that new *Bromeliacaeae* genera be created without viewing the evidence for such a proposal. Without such evidence I would hope that *Bakerantha* and *Mesoamerantha* are not added to the taxon list as genera.

If the differences between genera can only be determined by complex DNA testing, do we really need to create a whole new genus to classify one or two species? Let's face it, to name plants many bromeliad collectors (and some breeders) will simply use the 'Duck' test—if it looks like a hechtia, grows like a hechtia, smells like a hechtia, and flowers like a hechtia, then it is a hechtia! And they will label it *Hechtia* which could be wrong and that's where the trouble starts.

I only purchase bromeliads that are named, but when I get home with my newly purchased bromeliad I often find that the name is incorrect or the plant is not registered. I have even seen

a guzmania named "Bromaid" in a commercial nursery and I know of one breeder who doesn't believe in naming her plants! Using DNA to determine genera is a wonderful thing, but by creating genera based on DNA are we going to make it harder for people to name their plants correctly and register them? The correct naming of bromeliads has always been a problem, but with so many genera being created I am concerned that we will see even more examples of bromeliads being sold unnamed, incorrectly named, or unregistered. The only saving grace is that most of these new genera have only a few species and they are not commonly seen in cultivation.

In my next life I think I would like to come back as a botanist so that I can use DNA to create a new genus. The only problem will be what do I call the new genus. I can't call it *Drewcaria* as people will get it mixed up with *Brewcaria*, so I am left with something like *Maywaldai* or *Maywaldaria* or *Maywaldantha*—now let's see you get your teeth around that!

HOW TO DEAL WITH A SNAKE BITE

(Reprinted from Far North Coast Bromeliad Study Group newsletter, October 2020, with a note from their editor: Just in the last week alone I have seen brown snakes every day, a few times I could've reached out and touched them—too close for comfort. As many of us live in bush environments I thought the following article, written by Rob Timmings who runs a medical/nursing education



the following article, written by Rob Timmings who runs a medical/nursing education business teaching nurses, doctors and paramedics, is well worth the read as a timely reminder.)

That bite of summer has well and truly come early this year and with that heat comes snakes.

3000 bites are reported annually/300-500 hospitalisations/2-3 deaths annually

Average time to death is 12 hours. The urban myth that you are bitten in the yard and die before you can walk from your chook pen back to the house is a load of rubbish. While not new, the management of snake bite (like a flood/fire evacuation plan or CPR) should be refreshed each season.

Let's start with a basic overview:

- There are five genera of snakes that will harm us (seriously)—browns, blacks, adders, tigers and taipans.
- All snake venom is made up of huge proteins (like egg white). When bitten, a snake injects some venom into the meat of your limb (NOT into your blood).
- This venom cannot be absorbed into the blood stream from the bite site. It travels in a fluid transport system in your body called the lymphatic system (not the blood stream). Now this fluid (lymph) is moved differently to blood. Your heart pumps blood around, so even when you are lying dead still your blood still circulates around the body. Lymph fluid is different: it moves around with physical muscle movement, like bending your arm, bending knees, wriggling fingers and toes, walking/exercise, etc.
- Now, here is the thing: lymph fluid becomes blood after these lymph vessels converge to form one of two large vessels (lymphatic trunks) which are connected to veins at the base of the neck.

Back to the snake bite site. When bitten, the venom has been injected into this lymph fluid (which makes up the bulk of the water in your tissues). The only way that the venom can get into your blood stream is to be moved from the bite site in the lymphatic vessels. The only way to do this is to physically move the limbs that were bitten.

STAY STILL! VENOM CAN'T MOVE IF THE VICTIM DOESN'T MOVE. STAY STILL!

Remember, people are not bitten into their blood stream.

In the 1980s a technique called Pressure Immobilisation Bandaging was developed to further retard venom movement. It completely stops venom/lymph transport toward the blood stream. A firm roll bandage is applied directly over the bite site (don't wash the area).

Technique of three steps and keep still:

- 1. Apply a bandage over the bite site, to an area about 10 cm above and below the bite.
- 2. Then, using another elastic roller bandage, apply a firm wrap from fingers/toes all the way to the armpit/groin. The bandage needs to be firm, but not so tight that it causes fingers or toes to turn purple or white--about the tension of a sprain bandage.
- 3. Splint the limb so the patient can't walk or bend the limb.

Do nots:

- Do not cut, incise, or suck the venom.
- Do not EVER use a tourniquet.
- Don't remove shirts or pants—just bandage over the top of clothing. Remember, movement (like wriggling out of a shirt or pants) causes venom movement.
- DO NOT TRY TO CATCH, KILL OR IDENTIFY THE SNAKE! This is important. In hospital WE NO LONGER NEED TO KNOW THE TYPE OF SNAKE. It doesn't change treatment.

Five years ago we would do a test on the bite, blood or urine to identify the snake so the correct antivenom could be used. BUT NOW we don't do this as our new antivenom neutralises the venoms of all the five listed snake genera so it doesn't matter what snake bit the patient.

Read that again! One injection for all snakes! Polyvalent is our one shot wonder, stocked in all hospitals, so most hospitals no longer stock specific antivenom.

Australian snakes tend to have three main effects, in different degrees:

- 1. Bleeding internally and bruising.
- 2. Muscles paralysed causing difficulty talking, moving and breathing.
- 3. Pain in some snakes severe muscle pain in the limb, and days later the bite site can break down, forming a nasty wound.

Allergy to snakes is rarer than winning lotto twice!

Final tips: Not all bitten people are envenomed and only those starting to show the symptoms above are given antivenom. Did I mention to STAY STILL!

WOODEN HANGERS

By Joy Clark – May 2020 (Reprinted from *Bromeletter*, Newsletter of the Bromeliad Society of Australia Inc. Vol. 58(5) – June 2020) (I had admired Joy's beautiful wall decorations at the Bromeliad Society of Australia's shows and so was delighted when I saw this article, setting out the way in which she makes these hanging arrangements. Some that I had noticed at the shows were done on some somewhat larger branches—and sometimes two which might have the burlap (hessian) wrapped around the end of the stick(s), making them more decorative. Anyway, a lovely idea—thanks Joy!—Ed.)

If you have an artistic bent with plants then growing plants--especially mini neoregelias—on pieces of wood or on larger sticks is worth a try.

These projects can range from just tying or gluing plants onto sticks or getting more involved with drilling holes and wiring the plants in place on driftwood. I have done both with success.

First, the easy way

You will need a small branch (with character), wire and glue, jute string, wire cutters and a number of mini neos.

Step 1. To make the hanger, take a length of wire and tie it to the top of the branch. I use green 1.6 mm plastic wire. Make a loop in the other end for hanging. Hang it up to make sure that it falls to your liking.

Step 2. Cut a number of mini neos with about a 2 cm stolon. You will need some large and some small plants.

Step 3. This is the artistic part. Roughly arrange them near the stick, keeping the larger ones at the bottom and getting smaller as they ascend. If you like the arrangement then start tying with the jute string from the bottom and work up. Put a small dab of glue on the plant before tying. You could also use stocking for tying.



Allow room for these plants to grow and multiply. I tie a wide hessian strip around the end of the stick to give a neater finish.

Secondly, the harder way

You will need a piece of wood, chunk of old tree or driftwood with character (make sure your chosen piece of wood is not too thick that you can't drill through it), thin coated wire for tying plants, thick coated or galvanised wire—about 1.6 mm for the hanger—glue, pliers, wire cutters and marking pen.

Step 1. Work out which way your piece of wood will hang best and drill a hole in the centre near the top, then a second hole about 2 cm below this. Insert your desired length of wire through the bottom hole, leaving about a 5 cm tail, then thread it through the top hole, bend up for the hanger, and tie off with bottom tail piece (see picture).

Step 2. Arrange your minis near the piece of wood, once again larger at the bottom, smaller near the top. Working from the BOTTOM place

the plant on the wood so that it sits firmly then make two marks close to either side of the plant base for the drill holes. Do this for the other plants. When

completed marking, drill your holes.

Step 3. Starting from the TOP place a dab of glue on the lower side of the plant that has contact with the wood, place your plant's base between the drill holes and tie securely with the thin coated wire.

Putting medium-size specimen plants on wood or solid sticks is another option. I have done this with *Aechmea orlandiana* and its hybrids a lot and find them very attractive when they grow into a colony.



Tips

- 1. Stoloniferous neoregelias are good for these arrangements. You can add a mum with a pup to the wood to give a bit of a 3D effect amongst the flatter plants.
- 2. If a plant isn't stable on the wood, I do a second wire tie on the stolon to secure it firmly.
- 3. A couple of strands of *usneoides* (Spanish moss) wound through the plant hides the stems and drill holes.
- 4. You can also use tillandsia plants. They multiply readily on stick arrangements and look super attractive.
- 5. You will need to water neoregelia arrangements frequently to prevent drying out and to encourage root growth.

