

# BROMELIANA

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## TILLY TALK

by Herb Plever

When a few of us started to grow tillandsias about 45 years ago, we didn't have a clue about how to grow them. We had seen them growing epiphytically in greenhouses mounted on cork bark, but how would we provide them with moisture and water in our drier apartments? Very few tillandsia species were then available in nurseries, but we bought a lot of them. We started to experiment, killed lots of plants and learned how to grow them.

First, we secured them to the cork with ordinary glue, or tied them on with coated telephone wire. We sprayed them but found that most of the water evaporated before it could be absorbed by the leaves. Then we hit upon the idea of soaking the plants. This worked fine except that the plants came loose because the glue dissolved in the water, or the wire stretched and loosened so that it needed constant tightening. Then we found that "Shoe-Goo" cement was waterproof, so we used it to mount the plants and tied them with telephone wire for additional security until the plants rooted.

Once we found we could grow tillandsias we started to order rarer species from Jujuy in Argentina, from Quito, Ecuador and from Sud Pflanzen Import, a company in Frankfurt, Germany. We experimented with soaking time and frequency and with fertilizer. In a few years, big tillandsia nurseries opened and we could more easily buy plants from Birdrock Tropicals, Rainforest

Flora and Tropiflora. And that is how I became an obsessive tillandsia freak. I have never seen one that I didn't love.



One of my current tillandsia logs

From our imports and the big tillandsia nurseries, I acquired a large collection of popular species, and also hard to find species such as *Tillandsia brachyphylla*, *T. graziellii*, *T. heubergeri*, *T. humilis*, *T. kautzkyi*, *T. macbrideana*, *T. macdougallii*, *T. matudae*, *T. mauryana*, *T. oaxacana*, *T. pedicellata*, *T. peiranoi*, *T. reclinata* (it had to be grown upside down to keep it alive), *T. roseiflora* and *T. sprengiana*. Regrettably, these beautiful species are not available

from any of the nurseries - and when, rarely, one is listed, the price is off the wall. *T. atroviridipetala* used to be easy to buy, but it, too, is no longer available.

Here is a brief account of the cultural regimen my tillandsias presently receive. My current collection covers two bedroom windows, 8 stories up, unobstructed and facing east-south-east. They get lots of morning sun and strong horizon light, and they constitute only about one-third of what I used to grow.

I soak them every 7 to 14 days - mostly every 8 to 10 days, depending on my time and schedules. Half the collection on one window fully fills my bathtub and gets soaked for about an hour or more, then I shake out the logs to remove the water in the leaf axils and hang them up on the inside racks of the shower door, a drop-down clothes dryer over the bathtub and in the bathroom sink.

**NEXT MEETING** - Tuesday, October 4<sup>th</sup>, 2011 **promptly at 7:00 P.M.** at the [Ripley-Grier Studios 520 8th Ave. \(between 36th & 37th St\) Room 17A](#)

**TILLANDSIAS** - A video survey of the species and cultivars and a discussion of the best cultural techniques to mount and grow tillandsias. Please bring in plants for Show and Tell and for sale.

Then the second half of the collection gets soaked and dried the same way. (My original collection required **six** full bathtub soakings and 7 to 8 hours of time - a gross imposition on a married couple's many other activities and life style. Ergo, the sharp reduction in the size of the collection in recent years.)



I start with a little hot water only, into which I drop 5 tablespoons of fertilizer, or 4 tbsp. in the late fall to early spring (none during occasional dark winter freezes). I also dissolve 1 rounded tsp. of epsom salts (magnesium sulphate) in a cup and add it to the water. Then I fill the tub with cold water to get the overall temperature to tepid or luke-cool. My bathtub holds 28 gallons of water up to the overflow valve, so the strength of the fertilizer is a little more than ½ teaspoon per gallon - about the same strength I use for my potted plants.

I have used different fertilizer formulas in the past such as 20-10-20, 20-10-30 and, currently, 12-9-24. I think my tillandsias grew faster with an equal ratio of nitrogen to potassium, but they seem to be crisper and stronger with the latter formula in which the potassium is double the amount of nitrogen.

Some experts believe that tillandsias can't be grown indoors unless soaked for **24 hours**, but our tillandsias are very adaptable. Over many years, my tillandsias have grown well with a soaking of about an hour every 7 to 14 days, but I have found they will survive without damage without water for 23 days. When we take a long trip I drop down the venetian blinds and tilt the slats so that light but no sun hits the plants. I think they will root better on the cork bark they are mounted on with some extra minutes of soaking which is what they usually receive. While they are soaking I'm always involved in doing something else and frequently forget about them so they may soak an extra 15 to 30 minutes until I suddenly remember them - or Sylvia reminds me.

The cold air during our northern winter holds little moisture, and the relative humidity will be even lower in apartments if you use a lot of

*Tillandsia seeleriana* secured to cork bark with plastic wire

*T. seeleriana* rooted into and through cork bark after which plastic wire was removed

heat to keep warm. We never run the blower motors of our heating convectors, and I run four cold water humidifiers that I have to fill every morning during the cold weather. I manage to keep the relative humidity to between 50-55% and 40-45% when temperatures outside are below freezing.

To mount a tillandsia onto a cork log, I find or make a hole into which the base can rest, and I also open the hole all the way through the cork with a screw driver so that water will run through and not collect in the hole when the log is soaked. Then I apply waterproof E6000 glue around the upper part of the hole. When it becomes tacky after a few minutes I push the plant into the hole, but avoid getting glue on its base from which I expect roots to emerge. I keep the log horizontal until the next day when the glue has fully set and can hold the plant even when the log is hung upright.

However, when I acquire a relatively large, stemless plant such as the 6" tall *Tillandsia seeleriana* pictured above, I find I have to secure it to the cork with plastic coated wire in addition to glueing it around the base. It is too heavy just to be held by the glue when it is hung, especially when I shake out the excess water after soaking. After many months, enough roots will form and attach themselves into and all the way through the cork to hold the plant firmly; then the plastic wire can be removed.

I used to say that most tillandsias are stingy puppers, and that no doubt is generally true about indoor grown plants which don't have the benefit of fresh, moving air and high relative humidity. Early on, I did not use high strength fertilizer, and was using such no-nos as Miracle Grow (15-30-15). With high strength fertilizer, my tillandsias have become prolific puppers.



*Tillandsia kegeliana* with 4 pups

For instance, *Tillandsia kegeliana* is considered to be a finicky grower and infrequent bloomer, and when it flowered I used to be happy with one healthy pup. Now, however, I get lots of pups on *T. kegeliana* as shown in the plant with **four** pups in the photo at the left.

After my robust *Tillandsia ionantha* var. *vanhyningii* bloomed it exploded with pups popping out from every axil. So far I count 11 pups, but I think several more are about to emerge from the very upper axils.

Over many months *Tillandsia* 'Dick Rutan', an Isley hybrid of *T. ionantha* x



*Tillandsia ionantha* var. *vanhyningii* with 11 pups



*Tillandsia* 'Dick Rutan' with 8 pups

*T. aeranthos*, has also very slowly put up 8 pups as pictured here. *Tillandsias* adapt very well to indoor epiphytic culture. *T. cyanea*, which is usually grown in pots because it does not have a good coating

of trichomes, can also be grown mounted on cork bark.

## TILLANDSIA OR VRIESEA?

by Herb Plever

This identification question came to mind when I looked at the results of growing two pieces of *Vriesea poenulata* I bought in our spring plant order. They look just like tillandsias. Vrieseas and tillandsias have very similar physical characters. In both the petal bases or claws are free and not at all fused together, in contrast to the guzmanias whose petal bases are at least partially joined together.

In Dr. Lyman Smith's monograph on the bromeliad family, vrieseas and tillandsias are distinguished mainly by the fact that vrieseas have two nectar scale appendages on the inside base of each petal, whereas tillandsias are free of such appendages. (See photo on this page.) I have indicated in a prior article on this topic that modern taxonomists do not consider nectar scales to be a significant distinguishing character.

In fact, Dr. Jason Grant of Switzerland has proposed moving 42 vrieseas into the genus *Tillandsia*, whereas Harry Luther has continued to list them as vrieseas in his annual list of bromeliads. Taxonomists and growers are awaiting further results of the ongoing DNA sequencing work being done in various laboratories, which we hope will show into what genus clades the different species will better fit.



Readers may wonder why it is important to know this technical stuff. I discuss it because I believe this knowledge may enable growers to grow better plants. This may appear to be a bit of a stretch, but as you will soon read, vrieseas and tillandsias have different cultural needs. It helps if you can identify the plant you are growing, especially if it seems to be finicky in your environment. In fact, I think that observation of how a plant reacts to your cultural regimen may suggest whether it is a vriesea or tillandsia.

Vrieseas are mesophytes that grow in water sufficient areas that are usually warm, very moist and at relatively low altitudes. Vrieseas produce sugar food through photosynthesis with a process of  $C_3$  metabolism in which their leaf pores are open during the day and mostly closed at night. Their habitats are low, very humid forests where most of them grow epiphytically. I have found that vrieseas are difficult to grow as epiphytes indoors even though I am able to maintain a relative humidity of 40-55%. Even greenhouse growers with far better humidity than we can provide, tend to grow vrieseas in pots.

On the other hand tillandsias are xerophytes that grow drier at cooler and higher altitudes in water

insufficient areas. They employ a metabolism called CAM (Crassulacean acid metabolism). Their leaf pores are closed during the day which reduces moisture loss from transpiration when it is warmer and the plants are heated by the sun. Tillandsia pores open at night to permit the process of sugar production.



*Vriesea poenulata* growing well in a pot of shredded cedar mulch.

This is not as efficient a process to produce sugar food as C<sub>3</sub> metabolism, but there is a tradeoff. When tillandsia leaf pores open at night to release necessary gases when it is cooler, there is minimal water loss through the leaves by transpiration.

In the distant past there were major changes in the earth's topography when ocean floors were raised and mountains were built. In the evolutionary history of the *Bromeliaceae*, those species which survived through natural selection, adapted to new environments. I think it is significant that the vrieseas, which adapted to mesophytic, water sufficient habitats, all use C<sub>3</sub> metabolism - and the xerophytic, epiphytic tillandsias which adapted to drier, cooler habitats, all use CAM metabolism..

This brings me back to the two *Vriesea poenulata* I bought in the spring. I mounted one on cork bark with my tillandsias, and I grew the other in a pot of shredded cedar mulch in a sunny east-south-east window.

After a few months the mounted plant turned to straw. My apartment is never hot as we run the air conditioning throughout the summer, but we had many sunny days during which I didn't get around to soaking my tillandsias for two weeks. The Monograph describes *Vriesea poenulata* as being "covered with minute, appressed scales", and its leaf blades as being "wholly green, cinerous lepidote" (my emphasis). The loose term "covered" should not be taken to mean dense or coated, otherwise the leaves could not be "wholly green". In fact the scales on my *V. poenulata* are countable with spaces between them - not enough scales to mask the green chlorophyll cells below.

I believe that is one key to the problem: the plant is insufficiently scurfy to grow epiphytically in any drier environment other than its very humid habitat. In contrast, the *V. poenulata* that I placed in a pot has rooted and is growing very well.

This reminds me of my experience with the



*Vriesea espinosae*

similar looking *Tillandsia punctulata* which also has leaves with a sub-dense cover of minute, appressed trichomes. Every time I try growing it as an epiphyte it dries up and turns to straw, and I suspect that it will ultimately turn out to

be a vriesea.

*Vriesea espinosae*, placed in the genus because of its petal appendages, has characters that fit easily in *Tillandsia*. Its leaves are rigidly stiff with a dense, appressed trichome covering as on many tillandsias. (In other tillandsias, the trichomes are raised, and sometimes hairy or tomentose.) *V. espinosae* grows very happily mounted on cork with my tillandsias. □

*N E W S* and *N O T E S*

**EDITOR'S NOTE** - It is a task to put out BROMELIANA, but I do enjoy writing and producing it. It is my hope readers will continue to find this newsletter informative and fun to read. Yet BROMELIANA would be more interesting if I could print comments, criticism, articles, or letters from members and subscribers.

I sincerely solicit your input. Please take the time to write and send me a few or more lines about your plants and about your successes and problems in growing them. Don't worry about the form - I guarantee a rewrite that will be acceptable to you.

Everyone who grows broms is qualified to write about it. Your experiences can be as valuable to readers as those of expert growers. Please send me something, whether by email or snail mail. Thanks.

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