



BROMELIAD SOCIETY OF GREATER CHICAGO

# THE BSGC NEWS

September/October, 2009

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WEB SITE

<http://bromeliad-chicago.org>

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Lori Weigerding

Our next meeting will be a luncheon at Lamb's Farm on Nov. 8<sup>th</sup>. Paula Derning is taking care of the arrangements. Please call her at (847) 295-2559 or email [tallpd@comcast.net](mailto:tallpd@comcast.net) if you will be coming. We will let you know the time that we will begin. We will vote on our officers at that time. If anyone would like to be an officer please email Lori at [lweigerd@sbcglobal.net](mailto:lweigerd@sbcglobal.net)

## *President's Column*

*Well Hi everyone! You all missed a wonderful time at the meeting! We took the Tram ride around the entire park and saw several new exhibits and learned some new things about the Garden. It was truly an interesting ride and was enjoyed by the 4 of us, except that there was a group of late comers who couldn't be quiet! It made it very difficult to understand what our guide was telling us at several points, but I think the evil looks from us finally quieted them down. We saw a pair of trumpet swans, and several Egrets and Blue Herons. They were enjoying the 3 Japanese Islands.*

*The meeting was very short obviously. We certainly do want to keep the club going, I know that sometimes things happen and you can't make it, but it's getting very difficult to keep a non attended meeting club going. We've talked about having meetings every other month or even stretch it out farther. I know everyone's pockets are being dug into deeper every day, so let's hear from you all! I will never say that I'm the greatest president; I know I'm not, but I really do try. I truly want this club to continue and to grow! If anyone wants to be an*

*officer of the club, you need to submit you're name for nomination and for what post.*

*We plan on having the luncheon at Lamb's Farm again this year on November 8, 2009. Please let us know if you'll be joining us, we need to reserve enough seats! As always it's been a privilege and a honor to serve as your President, I hope to see more of you next year.*

*Lori Weigerding*



Jaiden is on the right. Picture from JP.

We want to share a picture from our new member J P Trunk. Here is their new son Jaiden Patrick Trunk next to the Neo Hannibal Lector.

I have moved my bromeliads indoors since we will be going to Arizona shortly. They did very well this summer in my shade house except for one neoregelia that had some burning. The Reilly's still have theirs outdoors and will have their daughter move them in to their greenhouse if the weather turns cold while they are away enjoying Louisiana.

The genus cryptanthus is most sensitive to cold. They should be taken inside by the time the temperature gets down to 45°. Grant Groves handed out some observations on the effects of cold at the March 1997 meeting of the Bromeliad Society of Central Florida. Those that would apply to us are:

1. The stage of growth effects cold hardiness in moderately cold hardy plants.
2. Dry plants exposed to cold are more susceptible due to desiccation.
3. Duration of the cold is as much a factor as actual temperature.

The fall is a time where you see a lot of spider webs. Most spiders are beneficial. Jerry Krulik wrote an article in the January 2007 issue of the Saddleback Valley Bromeliad Society Newsletter about bromeliads and spiders. (Edited) (Just in time for Halloween!)

## Spiders That Like Bromeliads/ Bromeliads That Like Spiders

Which of the above comments is more true? Actually, they are both equally true, since I will write about an example of a mutual symbiotic association. Two similar ways of life are parasitism and commensalism. For example, a parasite takes from its host, giving nothing in return or even killing its host. Examples might be tapeworms or the flu virus. A commensal association is one in which one partner benefits, while the other partner does not benefit or at least is not harmed. Examples would be bromeliads and orchids living on the bark of a tree; the epiphytes have a nice place to live without harming the tree.

A symbiotic association between organisms is one in which both partners benefit. An example is the sea anemone-clownfish association. The sea anemone keeps away predators with its sting tentacles, and the clown fish keeps it free of parasites. The spider-bromeliad relationship is a symbiotic association. Both species benefit from this way of living. In fact, some spiders prefer to live only on certain species of bromeliads.

This is a strange relationship, to be sure. Spiders are carnivores. They don't eat plants: they use them to hold their webs, or to serve as their hunting ground. The biological literature is NOT filled with examples of spiders being restricted to one or a few species of plants. In fact, this article describes the first (but it turns out, not the only) bromeliad-spider love fest.



*Psecas chapoda*

Many of the most common spiders are the web spiders. These spin their traps to catch their prey, while waiting passively. I consider them to be almost the equivalent of predatory cows, needing little intelligence to sit and wait. Another group is the tarantulas. These large spiders search out prey, but are typically ambush predators (but more later on these) Another large group are the jumping spiders or Salticidae (this comes from a Latin word meaning jumping, not salt). These often brightly-colored spiders are the wolves of the

spider kingdom, and some common types are called wolf spiders and hunting spiders. They are active hunters, using their sight to focus on prey, and their speed to catch them, like wolves.

I have watched many jumping spiders and find them intelligent and fascinating. Once in my Chicago greenhouse, I noticed a common zebra-striped small jumping spider on top of a cactus. As I worked, I saw a large fly lazily doing

the rounds. As it came within a few inches of the cactus, I watched the spider watching the fly-jumping spiders usually have 8 eyes, 4 in front, and the others arranged to allow them to see in all directions at once! Suddenly the spider jumped into the air, caught the fly, and dropped back on the cactus with its prey larger than itself. Another time I was resting against a fence in Taiwan, waiting for some equipment to start. I watched a fair-sized jumping spider with a metallic green pattern walking along the fence top. Suddenly a fly landed on the edge of the beam, about 6 inches from the spider. It saw the fly and immediately stopped, then moved slowly to the edge of the beam while the fly rested. I watched it carefully move out of sight of the fly, then race down the beam exactly to where the fly was sitting, and immediately race up and over the edge. Unfortunately, it missed the fly, but the intelligence and activity it showed was startling in such a tiny animal.

The University of Kentucky has a good web page on these animals. Most jumping spiders are less than one inch long.

So, given that these spiders are such active hunters, why would they want to stick with some bromeliad? When we think of bromeliads, most of us think of flowers and leaves. Both can be beautiful and large, or sometimes small and insignificant. Fruits, except for pineapples, are not of great interest.

Occasionally we think on the next level, about how many bromeliads are tank plants, with water-holding reservoirs in their leaf bases. This leads to thoughts of frogs, mosquitoes, water mites and other normal inhabitants of the water in those leaf bases.

If anyone goes even more deeply into things, usually it involves pests of bromeliads. Fortunately bromeliads are pretty immune to most common garden pests, except sometimes mealy bug, scale and aphids. While many types of beetles attack the body of bromeliads in Central and South America, none seem to have become established in cultivation here.

Some ecological researchers have now found that some types of jumping spiders like certain bromeliads to the exclusion of other plants. One spider, *Psecas chapoda*, is pretty much restricted to one species of bromeliad, *Bromelia balansae*. This is very unusual, to say the least. Very few spiders are associated with any type of plant, unlike insects, since spiders are all carnivorous. Plants usually figure



*Bromelia balansae*

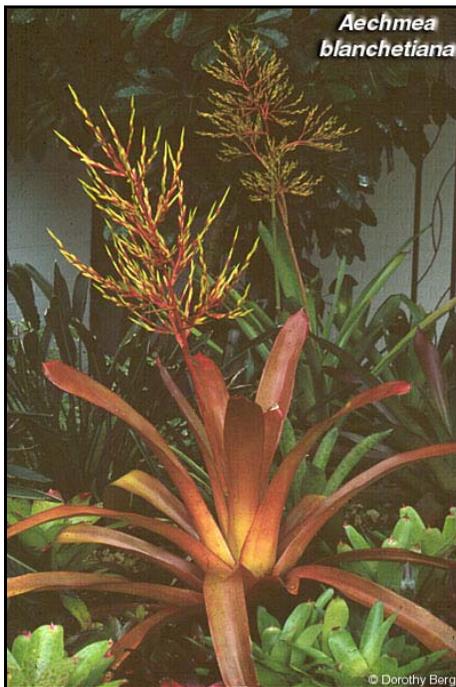
only as a convenient support for the webs or hiding and hunting places for spiders.



*Bromelia balansae* clump

*Bromelia balansae* looks like a cozy place to live. But this looks like a classic case of the odd couple. What could the bromeliad and spider get from each other? In the case of the bromeliad, it gets up to 40% of its nitrogen needs from the spider. The scientists found that the remains of the prey and more importantly, the feces, fertilize the bromeliad. The spiders in turn prefer to live in the dried leaves at the base of the plant, laying their eggs there, raising their young, and returning from hunting trips in the

surrounding area. The spiders also prefer to live in *B. Balansae* which grow in grasslands rather than in the forests, as there are more prey in the grasslands. Older spiders preferred the outer layers of dry leaves, while most of the the babies and females with egg sacs lived close to the center of the dried leaves. This gives the young protection from drying out, and allows them to disperse and hide from each other to prevent cannibalism. This symbiotic relationship does seem to work. In a one year field experiment, the plants with spiders had leaves 15% longer than the plants which had the spiders removed. And when three quarters of the dried leaves are taken off, the spiders leave the plants. Curiously, they also desert the plants once they start to elongate and flower.



Picture from [www.fcbs.org](http://www.fcbs.org)

Evidently this discovery of symbiosis set off a frenzy of new biological research. Soon more examples were found. A new species of jumping spider, *Eustiromastix nativo*, was collected during inventories of spiders in campos nativos and in restingas, sandy dry areas with low scattered vegetation. These new spiders only occurred on *Vriesia neoglutinosa* and on *Aechmea blanchetiana*. The spider itself is described as having a black body with a triangular white patch.

Further work showed that 9 species of jumping spiders were associated with up to 23

bromeliad species in cerrados (savanna-like vegetation), semi deciduous and seasonal forests, coastal sand dune vegetation, restingas, inselbergs, highland forest, chacos, and rain forest at 47 localities in Brazil, Paraguay, Bolivia and Argentina. While some species were only found on one bromeliad, others lived in up to 8 bromeliad species.

This brings us to another group of spiders, the Theraphosidae, or tarantulas. Would you believe that there is a tarantula restricted to species of *Aechmea* and *Hohenbergia* bromeliads? This is not a small animal. *Pachistopelma rufonigrum* has a 6 cm (2.5inch) body size with a leg span of 15cm (6 inches)!

The scientists found this large tarantula only lives in these two species of tank bromeliads, in a white sandy dry desert area. They were unable to find these spiders anywhere except in the bromeliads. Everything from eggs and babies, to the long lived adults, were found in the plants. They hid deep within the plants in the daytime, but came out to hunt at night. The spider has lowered eyes and a flattened body, to allow it to hide between the leaves. So far, no tests have been run to see how each species actually benefits. The authors speculate that the spider receives protection against high temperature and low humidity, and hiding place from their predators. I postulate that they will find that these bromeliads benefit from the much more impressive dung and prey remains from the tarantula, as compared to the small jumping spiders.



*Pachistopelma rufonigrum*

I eagerly await further studies and discoveries. Evidently arachnologists have not been combing bromeliads for unique spiders, but I am sure they will do so now. In the interim, when you re-pot, please don't squash the spiders!

By the way, this article and the pictures are at this website: <http://www.aecphotos.com/thirtyonearticlesfile.html> There are a number of links in the references which are worth following up. Enjoy.

“Martha, does this mean that you want some tarantulas for your bromeliads in Arizona??” “Do you have to match the spiders to the species Now?”