



FLORIDA COUNCIL of BROMELIAD SOCIETIES INC. Newsletter

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1994

CATCHING UP - STAYING EVEN

IT IS A PLEASURE to report that Tom Lineham, editor of the BSI Journal, is making speedy recovery from surgery he underwent in January & is convalescing at his home in Orlando.

THOSE OF YOU who are familiar with a product called SUPER THRIVE will be interested in a story related to me recently. For those of you who have not heard of it, it is a growth stimulant/hormone/vitamin liquid which is diluted in water. Many, many growers use it. I do, sporadically, to water in seedlings and offsets when they go into their first pot of regular potting mix. It was off the garden store shelves for awhile, along about the early 80's, I guess, when the law became effective requiring all fertilizers and pesticides to carry labels listing the ingredients of the product. SUPER THRIVE refused, as the story goes, and were sued by the government. The company claimed a secret formula which, if it became known, would ruin their business. SURPRISE! They won, and the product still carries the same old label with a lot of words and no formula.

MANY THANKS TO Helga Tarver of Florida West Coast Bromeliad Society for setting me straight on a couple of errors in the last Newsletter. She pointed out that *Vriesea triligulata* is listed in Volume II (Tillandsioideae) of Monograph 14. She's right, somebody put it there since last time I looked. I also mis-spelled "correia-arauji" but, then, doesn't everyone at times?

IF YOU MISSED the announcement re the proposed judging school in the last Newsletter, and are still interested in participating, please contact Betty Ann Prevatt; District Registrar FL-GA; at (813) 334-0242. Those who are interested are very interested, but more students are needed.

THIS ISSUE begins Volume XIV of the Newsletter. Florida Council will be 20 years old in 1997.

FLORIDA WEST COAST BROMELIAD SOCIETY is preparing for the Extravaganza to be held in Clearwater in September, and in conjunction with their publicity, they request that any society in the Council which has an official logo, please furnish them with a good reproduceable copy. It will be used on a poster. Send to Fay O'Rourke at 1625 Sheldon Dr.; Clearwater, Fl. 34624.

I HAVE ACQUIRED a copy of a beautiful new book entitled "Bromeliads in the Brazilian Wilderness" by Elton M.C. Leme with photography by Luiz Claudio Marigo. Text is in English. The bromeliads are all photographed in habitat and are very beautiful. The trend has been to photograph plants staged in pots and grown to perfection. This book proves that nature still does it best, leaf damage and all. Mr. Leme will be featured speaker at the World Conference in San Diego in June. Hopefully he will bring some copies of this outstanding book to sell.

METAMASIVS CALLIZONA

IMPORTATION PERMITS. The Animal and Plant Health Inspection Service of USDA (i.e., USDA-APHIS) is the organization that maintains inspectors at U.S. ports and airports to exclude pests and diseases of plants. Operating under two federal acts (the Plant Pest Act and Plant Quarantine Act) it will issue permits for importation of healthy bromeliads.

The same organization (USDA-APHIS) also issues permits for importation of insects. It considers insects to be "plant pests" unless proven otherwise. Would-be importers of insects that are actually or potentially useful as biological control agents may be granted a permit to import these insects into a quarantine facility for study. If study demonstrates that they are specific natural enemies of "plant pests", then USDA-APHIS may grant another permit to release them from quarantine.

Florida, too, has laws designed to exclude "plant pests." So, obtaining a USDA-APHIS permit for insects is a 2-step process: (1) first a Florida review panel meets to consider importation requests, and then, if written approval is obtained, (2) the application is forwarded to USDA-APHIS for federal consideration. I went through this process, and I have a USDA-APHIS permit for importation of *Metamasius callizona* and insects that attack it.

In general, employees of departments of agriculture in other countries are helpful to entomologists from the U.S. looking for potential biological control agents.

All of a sudden, there is a new complication which is caused by the Convention on International Trade in Endangered Species (CITES). The U.S. Fish and Wildlife Service (which is part of the Department of the Interior) now considers insects to be wildlife, and is demanding that anyone importing insects into the USA obtain a Fish and Wildlife permit. The permit must be obtained whether the insects are dead or alive. Further, this is a 2-step process. The would-be importer must first obtain a permit from the country of export if that country is a signatory of CITES and if that country considers insects to be wildlife. Only when the foreign permit has been obtained will the U.S. Fish and Wildlife Service issue its permit. The foreign permit must come from whatever agency in the foreign country is designated - and this agency is seldom the department of agriculture of that country. All of this is designed to protect endangered species. Its foreseen effect on biological control will be to create layers of bureaucracy, delay in obtaining permits, and expense in fees required for these foreign permits. It looks as if obtaining a permit to import biological control agents of *Metamasius callizona* from, for example, Costa Rica, will take months and cost at least \$150.

FLY PARASITE. As reported previously, *Metamasius quadrilineatus* larvae in bromeliads in Honduras were found last year parasitized by larvae of a parasitic fly belonging to the family Tachinidae. Under a USDA-APHIS permit, *Metamasius callizona* larvae were brought from Honduras to a quarantine facility in Gainesville in

June. Twelve of them were discovered to be parasitized by fly larvae, which, when they were fully-grown, became fly pupae. Unfortunately, not one of these 12 pupae produced a living adult fly. I suspected that conditions were very moist in nature where the weevils were found in Honduras (a cloud forest) and I had made sure that pupae were kept in wet conditions in the quarantine facility: it did not work. The exercise was repeated in October with more fly larvae from Honduras and a different method of keeping them moist, but again it failed.

It is essential to obtain adult flies for study in the quarantine facility. We must have enough flies for testing the range of insects they attack. If they attack *Metamasius callizona* larvae (and do not attack non-target organisms), then we will be able to obtain a USDA-APHIS permit for their release in Florida. But we must be able to produce large numbers of them for release! At present we do not have even one good specimen of an adult fly; good specimens of adults are needed for precise identification.

The next step is to be an attempt to catch adult flies in Honduras. This demands constructing traps of hardware cloth. I have designs for traps that have been used successfully to catch other tachinid flies (which parasitize other insect species). The bait in these traps must be bromeliad tissue and *Metamasius callizona* larvae. This work must be done by students in Honduras under the guidance of Dr. Ron Cave.

VENEZUELA. In July I attended an entomological meeting in Venezuela. There I encountered Dr. Jorge Salas who is working on weevil pests of pineapple in the Venezuelan state of Lara. Two weevil genera are involved: *Cholus* and *Metamasius*. *Metamasius dimidiatipennis* is the species of concern. It also attacks pineapple in Colombia, Ecuador and Panama. Dr. Salas' responsibility is to pineapple growers, and he has not yet investigated the range of other bromeliad genera that *M. dimidiatipennis* will attack. But here's another *Metamasius* species that we do NOT want in Florida.

GAINESVILLE. The greenhouse colony of *Metamasius callizona* is thriving. John Watts, the part-time technician who is assigned to maintaining it, has discovered that the weevils do very well on pineapple tops. He is able to get a supply of tops from a local Publix grocery store. He roots them in soil in plant pots, and puts the pots in the greenhouse. Female weevils readily lay eggs in them, and John is later able to recover 3 or 4 fully-grown weevil larvae from each pineapple top.

Howard Frank
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7 January 1994

WHAT IS A BROMELIAD ?

by

Carol Johnson

It was the early sixties when I discovered my first bromeliad, a *Billbergia pyramidalis* blooming in a lake front garden in the neighborhood of Leu Gardens in Orlando. Someone told me it was a bromeliad (bromelaid?) and I began searching for information about these fascinating plants. Encyclopedias and garden books made no mention of them. A plant catalog from Oakhurst Gardens (Mr. Giridlian) in California furnished me the only clues, and listed some for sale. I still have the original *Acanthostachys strobilacea* which I purchased from that source. Best of all, the catalog mentioned the Bromeliad Society, Inc. and it's Journal. In 1970 I became a member of BSI and it has been a mainstay of pertinent information for all these years. A very few specialized books are available, but forget the general plant reference books and encyclopedias. The 1992 World Book limits it's discussion of bromeliads to one paragraph, and my garden encyclopedia (out of date, to be sure) describes them vaguely as "tropical plants propagated by division in the Spring".

We all know that our Earth consists of three forms, mineral, vegetable and animal. In the beginning Earth was a ball of minerals upon which the vegetable forms eventually evolved. Animals (including man) came last. In the world of plants, the bromeliaceae are relative newcomers. They occur only in the Western Hemisphere, which gives rise to speculation that they evolved following the phenomena known as continental (tectonic) drift. Make paper cut-outs of the continents of the world along their shores, fit these pieces together like a jig-saw puzzle, and it is easy to see why the theory of one original large land mass is a valid one. Members of nearly all other plant families are found in one form or another world-wide, but not bromeliads. And, since continental drift occurred (give or take) fifty million years ago, even the bromeliads have taken a long time to evolve to their present form. Following learned supposition, the Pitcairnioideae evolved first, most likely as an aberration of the grass family (also monocots). Looking at the form of the Pitcairnia genus, this is easy to read. The Tillandsioideae came next. These two subfamilies are fairly stable and it is difficult to cross-breed between the genera. Although there are claims of successful bi-generic crosses in the Pitcairnioideae, I seriously doubt that the progeny is anything but a selfing of one or the other of the parents. The Bromelioideae subfamily is the new kid on the block and the plants are very unstable. Cross pollination of the various genera is a breeze. In my greenhouse bi-generics are regularly produced by accident among the various Bromelioideae genera. The newest is an accidental X *Canmea* (*Aechmea chantinii* and a travelling salesman?). Heaven knows what cultivated Bromelioideae species will look like 100 years from now.

What is a bromeliad? I have drawn up a chart which traces the bromeliads all the way through to the individual species. There are many more plant families in the monocotyledons (monocots) besides the Bromeliaceae, but it is not my intention to write a book. I will say there has been, and still is, a lot

of guesswork about plant origins. Example: no-one has been able to explain why or when the Angiosperms split into Dicots and Monocots. Perhaps the most significant information on the attached chart occurs in the footnotes (1)(2)(3). The plants are epiphytic &/or terrestrial, or strictly epiphytic and all (with minor exceptions) bloom only once in their lifetime.

All information in this article has been lifted from whatever learned sources are available. It is not a good idea to put complete faith in the printed word. Grow the plants and draw you own conclusions.

Mainstays in writing this article were:

The Biology of the Bromeliads by David H. Benzing, Mad River Press; Eureka, Ca. 95501, published 1980. To my knowledge, this is the best published work devoted to the Bromeliaceae. There have been a number of books published in recent years, but they are mostly photographs and descriptions of individual plants. Every public library should have a copy of Mr. Benzing's book on it's shelves, but sadly this is not the case. Would that not be a good project for our local bromeliad societies?

Encyclopedia Americana. Since the order Bromeliales was not included in the discussion of SEED PLANTS I took the liberty of doing the job myself.



SEED PLANTS

GYMNOSPERMS

Naked seeds
Conifers, cycads

ANGIOSPERMS

Flowering plants
with enclosed seeds

Dicots

Oldest class, two seed leaves.
Often regenerative

Monocots

(liliopsida)
Separate line of development
One seed leaf, single stem
(grass, palms, orchids, bulbs)

Order: Bromeliales

Family: Bromeliaceae

Sub-Family: Pitcairnioideae
Tillandsioideae
Bromelioideae

Genus: *Pitcairnia*, *Tillandsia*,
Aechmea, etc.

Species: *Aechmea orlandiana*, etc.

(1) *facultative epiphytes.*
(soil grown or mounted)

(2) *obligate epiphytes*
(no soil)

(3) *monocarpic. Blooming once in a lifetime.*

