

Far North Coast Bromeliad Study Group N.S.W.

Study Group meets the third Thursday of each month
Next meeting 20th February, 2014 at 11 a.m.

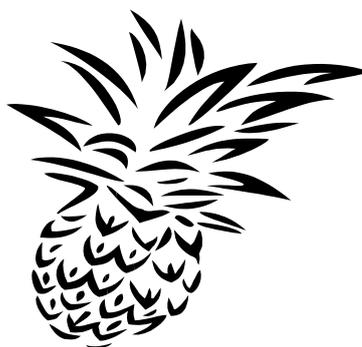
Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477
Phone (02) 6683 4188

Discussion: January 2014
General Discussion

Editorial Team:

Kay Daniels
Trish Kelly
Ross Little
Helen Clewett

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Meeting 19th of December 2013

The Christmas gathering began at approximately 10.30am.
The 30 members present and one visitor were welcomed
A total of six apologies were received.

General Business

Once again we came together to celebrate the closing of a year of very happy Bromeliad meetings, we take the opportunity to say, thank you very much to Ross Little and Helen Clewett, for their generosity, in sharing PineGrove, as our meeting place, along with their dedication to the group and the Newsletter.

We all had a fabulous time at our Christmas party, with 30 members attending. A special thank you to everyone, who brought the delicious food, to Helen for shopping and seeing that nothing was forgotten and to John Crawford for his great barbequing skills. This great combination of good food and lots of happy conversation made for a very happy and joyous day together.

A special thanks also goes to those members who participated in the members gift / swap draw which saw a wonderful selection of quality plants brought along. We also offer a huge **Thank You** to Doug Binns, Peter Tristram, Alan Phythian, The Larnach Family and Ross Little for their donations to our Members attendance draw. From this draw we gained some exceptional bromeliads, many rarer and lesser known species that are now gracing our collections.

Along with the food, conversation and plants, we held a photographic competition, it was one way of collecting a resource for the group's Newsletter. There was a great response with Don Beard providing the winning photograph of a Dyckia flower head, photographed in the PineGrove gardens. Lesley Baylis also entered many magical shots of stunningly colourful bromeliads, gaining second place, the competition was by popular vote.

Another thank you also goes to Coral and Gary McAteer, for their ongoing generosity in donating, products and goods which greatly assist in the functioning and amenity of the group.

A reminder to our Group Members for our Group to continue to function smoothly, it is necessary that many of our members continue assisting with morning teas and clean up, library books and member's borrowings and returns recorded, sales of members plants, receiving of raffle plants and finally making sure our members have signed the attendance book.

Most important from January 2014 a \$2.00 meeting donation to be introduced to assist in the publication of the Newsletter and general running costs. Also, we want your photos and to hear of your experiences growing bromeliads, the good, the bad and the ugly, it helps everyone to hear of your experiences.



Some of the photos presented by Don Beard and Trish Kelly for the Christmas photographic competition. Don's winning entry being the Dyckia inflorescence top left. Lesley's photos will be published next month.

ABOUT TYPE SPECIMENS

Scientists publish scientific plant names to recognize new entities such as species, subspecies, varieties and forms. A **nomenclatural type specimen** is a herbarium sheet(s) or illustration to which the name of a taxon (species, genus, subspecies, variety, etc.) is permanently assigned. The name may be currently accepted as valid and in use for a particular plant entity or treated as a synonymous name. I.e., a name used for the same plant entity that already has a prior name. The type specimen chosen for the name is not necessarily the typical or representative element of a taxon (International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code), 2012). Type specimens coupled with published descriptions may be considered the foundation of botanical nomenclature.

Publication of scientific plant names and the designation of type specimens follows the rules developed at the International Botanical Congress. Current rules, International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code), 2012, require that a single type specimen be designated at the time of publication (holotype). Duplicates of the specimen with the same collector and number (from a single gathering at the same location and time) are considered isotypes. Additional specimens cited are called paratypes. However, early in the history of botanical nomenclature, the designation of specific specimens as types was not required and even multiple specimens could be cited (syntypes). Scientific names are evaluated as being validly published based on the applicable rules of the period. When the rules did not require types to be cited and an original author did not cite a type or cited multiple specimens current researchers are authorized to select a lectotype from the material the original author is presumed to have had available.

Type Terms Used In This Site (partially based on Nomenclature for Algae, Fungi, and Plants (Melbourne Code), 2012, Chapter II, Section 2, Article 9International Code of)

- **Holotype:** the one specimen* or illustration used by the author, or designated by the author as the nomenclatural type.
- **Isotype:** any duplicate specimen of the holotype.
- **Lectotype:** a specimen or illustration designated as the type when no holotype was indicated at the time of publication. If possible, the lectotype should be selected from the syntypes or original material.
- **Isolectotype:** any duplicate specimen of the lectotype.
- **Syntype:** any one of two or more specimens cited in the protologue when no holotype was designated, or any one of two or more specimens simultaneously designated as types in the original description. Monographers are urged to select a lectotype from among the syntypes whenever possible.
- **Isosyntype:** a duplicate specimen of a syntype.

- **Neotype:** a specimen or illustration selected as the type when all of the material on which the name of the taxon was based is missing.
- **Isoneotype:** any duplicate specimen of the neotype.
- **Paratype:** a specimen cited in the protologue that is neither the holotype, isotype, nor one of the syntypes. These are often listed as representative specimens in the original description.
- **Epitype:** "a specimen or illustration selected to serve as an interpretative type when the holotype, lectotype, or previously designated neotype, or all original material associated with a validly published name, is demonstrably ambiguous and cannot be critically identified for purposes of the precise application of the name of a taxon." (ICBN Ch. 2, Sec. 2, Art. 9.7) The holotype, lectotype, or neotype that the epitype supports must be explicitly cited when the epitype is designated (see Art. 9.18).
- **Isoepitype:** a duplicate specimen of an epitype.
- **Type**:** specimens which are believed to be a type but the exact type status has not been researched or determined.
- **Photo of a Type**:** a photograph of a type specimen.
- **Cultivar type:** the so-called "type" specimen of a horticultural cultivar. Some such specimens have been called clonotypes by researchers, but we use a different definition for that term (below).
- **Clonotype**:** used in our database to denote "a specimen taken from a vegetatively propagated part of the individual plant from which the type specimen was obtained" as defined in: Fernald, H.T. 1939. On type nomenclature. *Annals of the Entomological Society of America* 32(4): 689-702, p. 693.
- **Topotype**:** a specimen collected from the same location the original holotype material was collected.
- **Non-type:** specimens which are erroneously labelled as types should be annotated as, "Not a Type."

* The terms specimen and duplicate are given their usual meaning in herbarium curatorial practice. A specimen and its duplicates are part of a single gathering of a single species or infraspecific taxon made by a collector at one time. Although not specifically stated in ICN, the specimen and its duplicates should all have the same collector number.

** These terms are commonly used but are not officially designated in the International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code), 2012

Taken in part from: About Type Specimens - Type Specimens in the University of Florida Herbarium.

My Flood Experiences

by Trish Kelly 2014

I would like to share my experiences with you of attempting to grow, naturally, nidulariums on the floodplain of the Clarence River about 18km from its mouth.

In January and February of 2013 we experienced three floods in as many weeks creating havoc on my prize plantings of nidulariums. It had been a gallant experiment to grow these treasures in the ground in what I considered to be an ideal growing situation, plenty of leaf mould and litter, deep alluvial soil and adequate shade from the medium density rainforest species trees growing on my property and sufficient soil moisture.



The nidulariums and cryptanthus had been in the ground for about ten months before the floods so they were well established and growing beautifully, they had previously been in pots in the shade house as well established, flowering plants.

I had on many occasions borrowed from the FNCBSG NSW library, Elton Leme's book on Nidulariums, so I felt I was relatively well informed about the habitats these species were found growing in. I had planted those belonging to the Blue and White flowered groups.

As my place sits on the riverbank at 3.50mtrs above sea level, with a sub tropical climate, 1100-1500mm annual rainfall, I considered they had an excellent chance of growing successfully, which they were doing until it poured metres of rain over a very short space of time leaving them inundated for ten days to a fortnight by at least 600-750 mm of very muddy water. A very thick coating of very fine mud and lack of air caused instant breakdown of the plant tissue and roots, some of the photos will be more explicit.



A few survived, they were washed out of the ground and floated by the house where I gladly retrieved them.



The end result was disaster with nidulariums literally rotting where they once flourished, but would you believe it, the cryptanthus survived. I have thankfully been able to replenish my collection through the generosity of friends, the nidulariums now safely back in pots in the shade house.

These are some of the *Nidularium innocentii* which actually did survive, although by the time I could hose the mud off them, which was almost an impossible task, the weather had turned very hot and sunny which baked the very fine silt to the foliage on both leaf surfaces.



While they look healthy this was not the reality, I am assuming that the stomata were absolutely clogged with the fine silt particles so there was never a chance even when they were 'cleaned' that photosynthesis could occur. The inundation was far too long with root breakdown also already occurring. The actual current flow of the water was very strong allowing many plants to be washed from their position.

This photo shows the old road which runs down the middle of the property, the farm was formerly a dairy and this was the road that cream and milk were taken to the barges on the river, daily. The lowland rainforest was planted in 2000 after some of the sugar cane was removed. The *Nidularium* you can see is one that did survive to be replanted as it had been washed out of the ground by the flow of water and floated with the palm leaves on the surface.



Even the shade house didn't escape the rising water. Plants sitting on the floor floated about and had to be repotted, while those on the benches were safe.

Nice to see Trish's garden and lawn is recovering to their former glory after such devastation. The boat's been put away, mail collection is back to normal.





Marie Essery - Open Popular Vote Winner - 2013



Trish Kelly - Novice Popular Vote and Judges Choice Winner - 2013



Helen Clewett - Decorative Winner - 2013



The quiet treasures, Coral & Gary, who give so much to our Group, Thank You.



Kay



Dawn



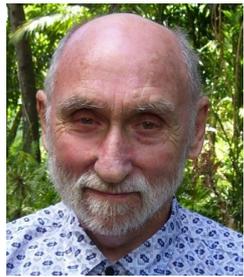
Lesley



Jeanette



Flo Kevin Marie Don
 Shirley, Debbie, Ian, Wendy, Kay
 Ross Les
 Jimmy David Caroline Laurie
 Jenny, John, Steve, Sue, Ron, Ted



Photo's supplied by: Ross Little

Family Pseudococcidae

Unarmoured Scale pests of Bromeliads — Mealybug

by Les Higgins 2014

There are 262 genera of mealybug with about 2,000 species are known. These pests can be divided into two groups: aerial mealybug and soil or root mealybug.

Aerial mealybugs: Until attaining adult stage all aerial mealybugs readily move into the soil for protection against adverse conditions such as low temperature. Two of the locally encountered aerial mealybugs infesting Bromeliads are:

Long Tailed Mealybug, *Pseudococcus longispinus* - Body colour varies light yellow to grey, pink or light purple. Usually ovoviviparous (live birth from eggs hatching within a body. Usually a dead body) occasionally eggs are produced. The eggs are pale yellow and darken in colour before hatching, 20 to 240 eggs or emergent young are produced depending on environmental conditions.



Citrus Mealybug, *Planococcus citri* - This insect has two forms, aerial and root. The aerial form lays between 300 and 600 eggs contained in an ovisac that can be twice the length of the female. When egg laying is complete the female lies moribund at the entrance of the sac. The huge quantity of eggs formed in the abdomen has compressed her vital organs into the thorax and she never recovers.



Soil or Root Mealybugs: These are white to light grey in colour, oval-elongate in shape that look like a small particle of perlite. When in doubt squash the particle to see if it exudes a pinkish body fluid. This insect is rarely seen at or above soil level. Root mealybug is extremely hard to detect and destroying them is both difficult and cumbersome. Infestations are slow to develop and it may be many months before they become apparent. Excessive watering can wash root mealybug crawlers out through the drainage holes of the pot, they then walk to new pastures.



Ant activity is usually the first indicator of root mealybug. Infested plants show numerous symptoms including declining vigour, change of colour, 'wobbly' in the pot or total loss of roots. Cryptanthus leaves curve downwards and their edges crinkle revealing the roots are no longer able to obtain water. Ants are the most probable source of infestation as they carry crawlers from plant to plant.

Planococcus citri (Root Form) - This insect is associated with the fungus *Poly-porus* sp. Plant roots are encrusted with a greenish white fungal tissue. Citrus mealybug nymphs and adults are revealed when the tissue is peeled away.

There is at least 130 species of *Rhizoecus*, just one of the many genera of Soil Mealybug. Two of the local Bromeliad Mealybugs are:

Ground Mealybug, *Rhizoecus falcifer* - This insect resides within the substrate feeding on plant roots. Females are 2.1mm to 3.9mm long. Eggs are contained within a loose ovisac in clusters of at least six. A thin waxy white filament, similar to mycorrhiza (fungus root), gradually permeate the substrate and the inside walls of the pot. As the infestation increases the soil becomes tinted blue.



Pritchards Mealbug, *Rhizoecus dianthi* synonym *Rhizoecus pritchardi* - This is a devastating pest of *Cryptanthus*. It can be seen on sub-soil stems and never noticed when feeding between stem and clasping leaf. The leaves of earth stars (*Cryptanthus*) emerge from ground level giving this mealybug easy access between soil and plant. Ants mound soil up the stems enabling Pritchards mealybug to go ever higher up into the plant. Females are 1.6mm up to 2.1mm long.



Mounded soil up the stem of a *Cryptanthus*.



Mealybugs were hidden under the mounded soil between stem and pup.

Mealybug heaven is a moist (not wet) environment, high humidity, a loose substrate for root mealybug and an optimal temperature of 25° celsius. Temperature below 2° celsius is fatal. Mealybugs are capable of surviving without a host plant for 19 days.

Mealybug has a 'piercing and sucking' mouthpart. Large amounts of sap are extracted from the plant to obtain sufficient protein. Many species of mealybug salivate to facilitate the extraction of even larger quantities of sap. Saliva can be toxic and has the potential to transmit virus including Pineapple Wilt. Saliva will destroy cell walls. Honeydew flows from the insect and that attracts ants. Honeydew is the nutrient source for the subterranean fungus *Polyporus* and sooty mould seen on leaves and stems.

Female mealybugs retain their legs and can be mobile most of their life. Once settled they usually stay in one spot for life. When disturbed they are capable of quickly moving to hide in a safer location.

Mealybug life cycle and reproductive frequency is governed by temperature. In ideal conditions larvae mature to adults in about 40 days. Both sexes go through at least two instars (a stage of an insect or other arthropod between moults). Males (where known) pupate to become tiny two winged insects without mouth parts. The life of the adult male is no more than two days. Females make at least a third moult before finally becoming adults. Adult females can live a further two to three months. Reproduction commences within 10 to 14 days after fertilization. In green house conditions up to eight generations per year has been recorded.

A newly acquired plant may not be root mealybug free. Take every 'new' plant from its pot and mealybug may be visible on the roots. Remove at least one bottom leaf off a *Cryptanthus* to search for Pritchards mealybug. A rootless pup immediately taken from a parent plant may conceal Pritchards mealybug within the leaves.

Two suggested ingredients that can be incorporated into a potting mix to deter soil or root mealybugs are:

- 1) **Coarse river sand** (Tabulam sand)
- 2) **Diatomaceous earth** (agricultural grade).

For chemical control, refer to the following articles:

FNCBSG NSW Newsletter, December 2013, Chemical Control *Diaspididae* p.12.
The selected **AI** should be a Systemic applied in a minimum of three applications, each at least two weeks apart.

FNCBSG NSW Newsletter, February 2013, Scale Control in Bromeliads p.16.
This information can also be applied to Mealybugs.

Diatomaceous Earth by Les Higgins 2014

Diatomaceous Earth is also known as Diatomite, Amorphous Silica and Silicon Dioxide but usually referred to as DE. The agricultural form of DE is Amorphous Silica, the fossil remains of Phytoplankton and not an earth. This is the near perfect organic pesticide.

To insects DE is microscopic razor sharp particles that lacerate the cuticle leading to physical disintegration. Death by dehydration occurs as the DE absorbs the oils, waxes and water from the pest. DE particles can be incorporated in potting mix to annihilate creatures such as soil mealybug and worms. (The suggested combining rate for white DE is one tablespoon for each kilogram of potting mix). DE powder can be used to kill ants, cockroaches, slugs, snails, spiders and bed bugs. In poultry farming it kills red mite and lice. DE food grade is given to humans and horses to kill intestinal worms and poultry and sheep to eliminate internal parasites. DE is a disaster to insects with exoskeletons but leaves warm blooded creatures unharmed.

DE gradually breaks down when subjected to moisture thus making silicon available to the plant. Although silicon is abundant in soil it is probably deficient in soilless potting mixes. Silica is an important plant nutrient and should be considered on par with N.P.K.Ca,Mg,S. The incorporation of DE into a soilless mix may provide adequate silica to produce sturdy plants and increased resistance to pests.

Diatomaceous Earth is mined as rock at Mt Garnet, North Queensland then crushed to form powder and various small size particles. Best quality DE is white with grey and brown of a lower quality. Its pH is approximately 7.0.

Cartage costs from Mossman, North Queensland are more expensive than the product:

One 4.5kg bag cost \$10.00 and the delivery charge \$15.00.

One 20kg bag is \$41.00 and delivery \$77.00.

Perhaps a bulk order from Group members could reduce the total price making it more cost effective.

Errata: FNCBSG NSW Newsletter, December 2013, page 14, line 6 should read as per following correction.

Fog is vaporised glycol (antifreeze) its **disadvantage** is phytotoxicity.

Margaret Mee MBE

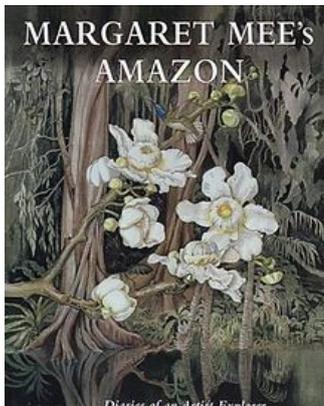
Margaret Ursula Mee (née Brown) (1909 - 1988) was born near Chesham, Buckinghamshire, England on 22 May 1909. Her early education was influenced by a maternal aunt, who was an illustrator of children's books. Shortly after World War II, she began to study art in a serious way. She attended classes at St. Martin's School of Art in London, where she also met her second husband, Greville Mee. The portfolio that she assembled at St. Martin's gained her admission to the Camberwell School of Art, also in London. At the latter school, she was influenced by Victor Pasmore, who was then one of Britain's best known painters.



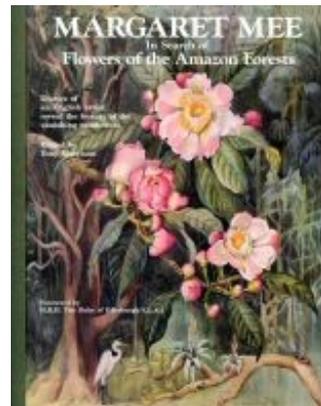
One of her sisters had moved to Brazil after World War II, and when the sister fell ill, Margaret flew to São Paulo to visit. Margaret's husband joined her shortly thereafter and while she taught art at St. Paul's, the British School in São Paulo, he became established as a commercial artist. Slowly, what had begun as a visit of a few years duration turned into a life-long residence.

In 1956, Margaret made the first of fifteen journeys into the Amazon forest, during which she recorded her observations through her paintings and diaries. Over the course of the next three decades she observed what had been initially for her an absolute wilderness suffer from the impact of colonization and commercial exploitation. Consequently, she became through her art and public appearances not only a strong advocate for capturing images of Amazonian plants and habitats but preserving the forest as well.

Mee's preferred medium was gouache and she insisted on painting from life. During her expeditions, which could last for months, she would make on-site



drawings and then take living collections home, sometimes to wait months until a flower would bloom, but always to insure a proper identification of her subject matter. This led to correspondence and contact with many of the world's botanical specialists.



The first major publication reproducing her paintings of Amazonian plants is the remarkable folio entitled *Flowers of the Brazilian Forest, Collected and Painted by Margaret Mee* (1968). Her friend Roberto Burle Marx, an internationally famous Brazilian landscape architect, wrote the forward. The scientific text associated with each plate was contributed by noted plant taxonomists, including Richard S. Cowan (b. 1921), Lyman B. Smith (b. 1904), and John J. Wurdack (b. 1921), all of the Smithsonian Institution. Mee provided notes about each plant, as well, which she extracted from her diaries.

Paintings of Bromeliaceae that Mee originally had prepared for the *Flora Brasiliica* were published with text prepared by Lyman B. Smith in a volume entitled *The Bromeliads* (1969). Subsequently, Mee contributed watercolors, many of them floral details, to *Orchidaceae Brasiliensis* (1975). The next major publication that she illustrated was a sumptuous folio entitled *Flores do Amazonas/Flowers of the Amazon* (1980). It featured her paintings, diary entries, and botanical text by Guido Pabst. Portions of her diaries, arranged chronologically by expedition, were published with the title *Margaret Mee, In Search of Flowers of the Amazon Forests* (1988). The book is richly illustrated with her paintings, sketches, and photographs taken on her expeditions.

Tragically, Mee died in an automobile accident in Leicester, England on 30 November 1988.

Reprinted from:

Artists Represented in the Smithsonian Catalog of Botanical Illustrations

In 1976 Mee was awarded the MBE for services to Brazilian botany and a fellowship of the Linnean Society in 1986. She also received recognition in Brazil including an honorary citizenship of Rio in 1975, the Brazilian order of Cruzeiro do Sul in 1979. In her honour, after her death the Margaret Mee Amazon Trust was founded to further education and research in Amazonian plant life and conservation, by providing scholarships for Brazilian botanical students and plant illustrators who wish to study in the United Kingdom or conduct field research in Brazil.

In 1990 Mee was recognised for her environmental achievements by The United Nations Environment Programme (UNEP) and added to its Global 500 Roll of Honour.

Reprinted in part from: Wikipedia, the free encyclopedia

Novice Popular Vote

1st Trish Kelly

Novice Winner 2013

Open Popular Vote

1st Marie Essery

Open Winner 2013

Judges Choice

1st Trish Kelly

Judges Choice Winner 2013

Decorative

1st Helen Clewett

Decorative Winner 2013

Being Involved

by Kay Daniels

Congratulations to Marie for winning the Open Popular Vote for the third year in a row! Trish is also to be congratulated for winning both the Novice section and Judges Choice. Helen had a well-deserved win in the decorative section which has only been going since June.

What do all these winners have in common besides growing beautiful plants?

They are all female! With a few exceptions, notably Shane, most of the entries in the competitions are from women. Why?! Men make up half of our group so let's see more of you entering.

Another point that all these winners have in common is consistency. They all entered plants almost every month, even if they didn't feel their plants were quite 'up to standard'. Some members say "my plants are not good enough" or "I didn't have time to get a plant ready", if everyone said that there would be no competition!

This year we would like the competition to involve more members so PLEASE bring a plant along each month. It is not all about competing or winning but being involved as part of a group. It is of benefit for all of us to see a variety of plants from other growers, this also makes the competition a lot more interesting.

Statements and opinions expressed in articles are those of the authors and are not necessarily endorsed by the Group. Articles appearing in this News Letter may be used in other Publications provided that the source is credited.