Bermuda Botanical Society

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NOVEMBER NEWSLETTER 2014

From the President

A Double Whammy

Just as we thought we had made it through another hurricane season unscathed, along came two powerful storms in the space of a week!

A BELCO spokesperson indicated that damage to their equipment and lines from Gonzalo, and consequent customer outage, was less than might otherwise have occurred because the earlier Fay had "pruned" a lot of the foliage near power lines.

But the two storms close together certainly took a heavy toll on the island's vegetation. One could say that Fay softened the flora up for Gonzalo's killer blows.

The worst affected non-native trees appeared to be poincianas and casuarinas, the latter, of course, being notorious for their shallow root systems. A surprising number of mature coconuts, and other palms, sustained snapped trunks or were decapitated.

Some of our native and endemic plants took quite a beating too. In our garden, several Bermuda cedars were knocked over, or loosened up, or suffered considerable breakage of branches. True, most of those cedars uprooted were tall, attenuated specimens that had, years before, been cleared of surrounding invasives that had crowded them out.

Fallen cedar

Jamaica dogwoods, too, sustained heavy losses.

Jamaica Dogwood and Olivewood

Quite a few buttonwoods, normally fairly resistant to wind damage, succumbed or suffered severe salt burn.

The two endemics least affected were the Bermuda palmettos and olivewoods. The fronds of the palmettos are in a bit of disarray. And a couple of our largest palmettos show signs of having been rocked back and forth. That is, a space opened up in the ground at the foot of the trunk.

Rocked Palmetto

But, for me, olivewoods should be considered the 'gold standard' for hurricane resistance. We have a dozen or so

specimen olivewoods, and three hedges of the same species, yet not a twig appeared to be disturbed by the storms!

Olivewood does make a superb, low-maintenance, hedge. An excellent example may be seen at Waterville, the Bermuda National Trust headquarters.

In the photo of the hedge at Waterville, note the correct shaping of the hedge, tapered towards the crown. This allows access of light to the lower foliage. Local practice often produces a reverse taper causing the base of hedges to be shaded, when they may thereby become open and leggy.

Nigel Chudleigh nchudlei@ibl.bm

Olivewood hedge at Waterville unruffled by Gonzalo

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THE MORE YOU LOOK…

By George Peterich

Our Editor, Helle Patterson, and I have agreed that for this newsletter I would not write about the recent storms, so I have to come up with another topic. It is:

Sudden Spring

I write this on the 1st of November, but last week I saw fresh leaves and even flowers on my beloved Mulberry Tree (*Morus nigra*) and there was a plume of orange leaves in the top of a Kapok tree (*Ceiba pentandra)* Today a very large Ceiba in another location is totally covered in new leaves.

The Fiddlewood trees (*Citharexylum spinosum*) have shifted their spring from the summer to November and where you saw totally leafless ficus trees, like *F. retusa* and *F. urbaniana*, fresh leaves are sprouting. The immense structural solidity of the great Banyan trees (*Ficus bengalensis*), now without leaves, is still on view, particularly in Southlands, but they too will soon follow suit.

Some roses, that never lose all their leaves, now show Spring, like they would in colder climes, and gardeners see that their Paperwhites (*Narcissus sp*.) are pushing their leaves out of the ground. But this is natural – in Bermuda their spring is around Christmas!

Paperwhite shoots

Since I wrote the above ten days have passed and much has changed again. Spring has manifested itself in a way that makes one worry. For example a peach tree is now in full bloom. I love the peaches, and wonder: will these flowers produce peaches? And: if they do not survive the winter months, will the tree have flowers again next year in the spring? The Banyan of Southlands is indeed now showing some fresh green. Changes are taking place really fast. Step outside and look around!

The more you look – the more you see.

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DOMATIA

By Lisa Greene

Every now and then I am presented with a challenging plant to identify. If I'm lucky, something about the plant 'rings a bell' and off I head to the books and internet to see if my hunches are pointing me in the right direction.

A while back I was brought a small branch with leaves and fruit. In my attempts to identify it, I stumbled around for a while, barking up the wrong tree, until I *somehow* made the connection with the West Indian almond and identified the plant as gregorywood, *Terminalia burcera,* in the Combretum family.

One of the terms used in a botanical description of the Combretum family was 'domatia' – a new term to me! It is, I discovered, from the Latin 'domus' meaning a house (think domestic and domicile) and means a tiny chamber produced by plants that house arthropods, in particular ants and mites. According to Wikipedia, domatia (plural of domatium) differ from galls in that they are produced *by* the plant rather than being brought about by their inhabitants.

Domatia come in varied sizes and shapes. Those on leaf blades usually sort into four different categories: pouchlike (sometimes called marsupiform), hair tufts (as in many oaks), pits, and pockets. Those of buttonwood are tiny cavities in the underside of the leaf. Their tiny size begs the question "what micro-creature lives in there, and what can it do for the plants?" In general, leaf domatia are thought of as refuges for predatory or fungus-eating mites serving their botanical landlord by eating other mites or pathological foliar fungi.[1]

So get out your magnifying glass and have a look for domatia!

Plants that have domatia and that grow in Bermuda include:
Buttonwood *Conocarpus erectus*[5] (use this link to see an image of domatia on the underside of buttonwood leaves: - http://herbaria.plants.ox.ac.uk/VFH/image/index.php?item=532&character_image=7056)

West Indian almond *Terminalia cattapa*[2] (Rangoon creeper *Quisqualis indica,* is also in this family, so it's worth a look for domatia on its leaves – they are sometimes present[3] as tufts of hair in the axils of the undersides of the veins.)
Camphor tree *Cinnamomum camphora*[4] - tiny cavities in the axils of the undersides of the leaves. (Sensory Garden, Botanical Gardens).
Sour sop *Annona muricata*[6]
Coffee *Coffea Arabica* (Walsingham Nature Reserve). There is a *great* image of a mite in a domatia at this link – just scroll down the page at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1519-566X2004000100011
Gardenia thunbergia (Botanical Gardens) has domatia on the upper side of leaf – inhabited by mites and other tiny animals on the underside. (For image: http://www.botgard.ucla.edu/html/botanytextbooks/lifeforms/antplants/b0507tx.html)

Our native hackberry (*Celtis laevigata),* wild coffee (*Psychotria ligustrifolia)* and bay grape (*Coccoloba uvifera)* all have relatives with domatia but Internet searches indicate that our species lack domatia.

[1] http://treasurecoastnatives.wordpress.com/2012/03/04/domatia-anybody-home/
[2] http://www.plantsystematics.org/imgs/robbin/r/Combretaceae_Terminalia_catappa_39577.html
[3] http://plants.jstor.org/flora/ftea003298
[4] http://aob.oxfordjournals.org/content/97/4/601/F1.expansion.html
[5] http://herbaria.plants.ox.ac.uk/VFH/image/index.php?item=532&character_image=7056
[6] http://herbaria.plants.ox.ac.uk/vfh/image/index.php?item=93&flash=1&

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MANGROVES

By Niall Aitken

Received wisdom has it that in the new world there are three species of Mangrove: Red, Black and White.

Red and Black Mangrove we have in Bermuda. It has been curious to me why we don't see White Mangroves; maybe the winters are too cold to support them.

I went to South Mexico in May and the predominant mangrove on many beaches and inlets was the White Mangrove (along with Red and Black).

Nectaries & flowers of White Mangrove

This October I was in the Pacific Coast of Panama (Veraguas Province). The mangrove swamps contained a plant I hadn't seen before: pointed leaves growing in a whorly fashion from the stem, large prop 'roots' and buttressing from the mature trees and surrounded by pneumatophores (though black mangroves were not close), I didn't see any flowers but the germinating fruit is most intriguing.

Tea Mangrove

Tea Mangrove

There were red and occasional black mangroves in the area but I didn't see any white mangroves.
I thank JP Skinner from BIOS for quick ID: the Tea Mangrove (Pelliciera rhizophorae). It is rare, and of shrinking distribution localized to the Pacific coasts of Costa Rica down to Ecuador and also on the Atlantic side.

I will attempt to describe the germination process. Like other mangroves (and mammals) they are viviparous (bringing forth live young) and the germination/embryo development begins on the tree. Like the red mangrove (to which they are closely related) the propagules are dropped pointy end down hoping to find an anchor point. At this point the 'drupe' is opening up like a Terry's Orange Chocolate releasing the seed. The seed opens with two cotyledons releasing the epicotyl or primary stem.

Tea Mangrove Epicotyl and Dicotyledon

UPCOMING EVENTS

SATURDAY, NOV. 22	PLANT SALE – SEE ATTACHED POSTER FOR DETAILS.
SATURDAY, DEC. 6	MEMBERS' AND VOLUNTEERS' CHRISTMAS PARTY Confirmation and further details to follow.

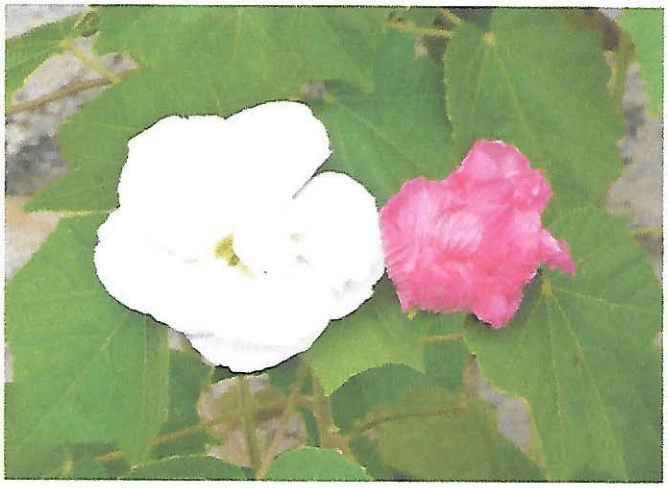
NEW DATE AND VENUE!

Bermuda Botanical Society

and

Bermuda Rose Society

Plant and Rose Sales



Saturday November 22, 2014

Venue : Horticultural Hall, Botanical Gardens.

8.30 am for members (join at the door!),
9.00 am for non-members. Closes 12 noon.

***Please note** : There is no motor vehicle entry to Botanical Gardens from Point Finger Road. Enter from South Road, opposite Peace Lutheran Church or from Berry Hill Road.*