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~MARCH 2005 NEWSLETTER~ **MEETINGS AND FIELD TRIPS**

We meet on the third Thursday of the month at 7:30 pm. General meetings conclude by 8 pm and are followed by a guest speaker beginning at 8:15 pm. There is time for a cuppa between the meeting and the guest speaker. The venue for the meeting is Marrara Christian School, on the corner of Amy Johnson and McMillan Drives.

All welcome. Bring plants to swap, sell or have identified.

~ NEXT MEETING ~

~Thursday 17th March 2005 7:30 pm~

"The ecology of Leichhardt's Grasshopper: when life is dependent upon a select group of plants" Piers Barrow

The life cycle of the spectacular Leichhardt's Grasshopper is tied to the plant genus *Pityrodia*, which typically occurs in sandstone habitats in the Northern Territory. Despite their bright colours, Leichhardt's Grasshoppers can be surprisingly difficult to detect and even a bigger challenge to understand their patchy occurrence in the landscape. Piers is currently with the Key Centre for Tropical Wildlife Management at Charles Darwin University and has spent the last few years unravelling some of the mysteries of this grasshopper, its habitat and the role of fire in sandstone heath lands. With many years of field experience in the Territory, Piers has gained a wealth of knowledge of Top End landscapes.



*A newly moulted adult Leichhardt's grasshopper.
By Lyn Lowe. From <http://www.abc.net.au/>*

~ MARCH FIELD TRIP ~

**Sandstone at the End of the Wet!!!
Easter Weekend, March 25 to 28th 2005**

Come along and see some sandstone country in its wet season splendour. We are hoping to camp at Gunlom in Kakadu, however, access and our final destination will depend upon the amount of rain between now and late March. If not Gunlom, than Edith Falls will allow us access to sandstone country and a spot to swim. Please register your interest with Dave on 8945 6809 for a weekend away camping.

~ PLANT SALE ~

Saturday 19TH March 2005 8am to 12 pm

WHILE THE GROUND IS STILL WET! GET YOUR NATIVE PLANTS NOW

Come and support the TENPS Plant Sale at Coolalinga Shopping Centre out the front of Woolworths.

~ FORTHCOMING FIELD TRIPS ~

Sunday, 3rd April 2005 at 8am

The final scheduled trip to examine the *Nervilia peltata* plot at Charles Darwin National Park with Dave Liddle. This late it remains unlikely that we will be lucky enough to see the orchid in flower. Contact Dave for further details. Have a look at the April 2004 Newsletter for a story on the survey work done earlier this year:

<http://tenpsnt/newletters/nervilia.pdf> Stay tuned for information from this wet season survey work

"Why evergreen in Australian tropical savannas?"

Dr Lynda Prior B.Sc. (Agric) (Hons) PhD

Key Centre for Tropical Wildlife Management at Charles Darwin University

Based on paper by Lynda and Mike Bowman

In comparable wet/dry savannas around the globe, the woody vegetation is typically dominated by deciduous species. This talk will address the intriguing question as to why Australian savannas are different from their overseas counterparts. Dr. Prior works for Charles Darwin University in the Key Centre for Tropical Wildlife Management and the Co-operative Research Centre for Tropical Savannas and brings with her years of research experience as to how plants tick in the savannah landscapes of northern Australia.

At the February meeting Lynda Prior discussed an unusual feature of the trees of Australia's tropical savannas. In tropical savanna vegetation throughout most of the world, the trees drop all their leaves during the dry season - that is they are deciduous. However the eucalypt trees that dominate Australia's northern savanna vegetation are, with the exception of a few species, evergreen.

Globally, the seasonally dry tropics are quite variable. Annual rainfall can range from 2000 mm down to 250 mm. The dry season may range from 3 to 8 months. To qualify as tropical they are defined as having an average temperature of greater than 18°C in the coolest month. Seasonally dry tropical savanna occurs in Africa, India and Brazil as well as in northern Australia.

In all these places the dominant trees are generally deciduous. Deciduous species can

be defined as having all individuals leafless for at least one month. In this vegetation type as you move away from the equator the rainy

season becomes shorter and drought during the dry season intensifies. Except for the evergreen eucalypt forest of north central Australia, as the rainy season becomes shorter, then deciduous trees dominate. In other regions a high proportion of the trees are deciduous when the annual rainfall is less than 2000 mm. However at all Australian sites, less than 50% of the tree species were deciduous. Also deciduous species become reduced in abundance as rainfall decreases from Darwin to Tennant Creek.



Eucalyptus foelscheana, above, in leaf and below a *Cochlospermum fraseri*, without.



There are some deciduous eucalypts, such as *Eucalyptus foelscheana* and *Eucalyptus*

latifolia. These deciduous eucalypts tend to occur in rocky areas, which tend to result in excessive water stress. Deciduous trees in other regions are physiologically adapted such that they have rapid rates of growth during the wet season but the deciduous eucalypts are only

poorly adapted to a deciduous lifestyle. Trees that are strongly adapted to being deciduous produce leaves that live fast and die young. They are thin, requiring high nutrient concentrations and relatively little carbon to produce and are able to photosynthesise rapidly. However the physiology of deciduous eucalypts is fairly similar to that of evergreen eucalypts, except that they have synchronous leaf fall early in the dry season.

There are some deciduous species in Australia's tropical savanna and Lynda carried out a three-year study comparing the photosynthesis rates of the evergreen *Eucalyptus tetradonta* and the deciduous *Terminalia ferdinandiana*. These two species achieved the same levels of annual carbon assimilation through photosynthesis due to *Eucalyptus tetradonta* having a longer growing season while *Terminalia* had higher peak photosynthesis rates.

Why are deciduous tree species favoured in tropical wet-dry savannas in other regions but not in Australia?

Deciduous trees require predictable wet seasons and abundant nutrients to rapidly produce leaves at the beginning of the wet season. Thus they are favoured by predictable climates and fertile soils. Perhaps the lack of deciduous species is due to lower nutrient levels in Australian soil. Soils in Australia tend to be low in nutrients but a clear comparison of nutrient levels in different wet-dry tropical savanna regions could not be made. Perhaps the wet season is less predictable in Australia than in other regions. In Australia, compared to the other tropical savanna sites, rain tends to be more seasonally concentrated, fewer rain days occur and the wet season is more variable. Another factor is that soils in Australia tend to be deeply weathered so roots may be able to obtain sufficient moisture during the dry season and perhaps plant water stress during the dry season is less extreme. In Darwin soil water is reliably restored during the wet season and there are few years when soil water is not replenished in the wet season sufficient for maintenance of trees during the following dry season at Katherine.

Deciduous trees tend to suffer less damage to foliage due to fire in the dry season. However

fire tends to be most damaging to trees when it occurs early in the dry season and prior to European settlement few fires occurred early in the dry season. Thus damage to evergreen trees may be only slightly greater than that for deciduous species. However the introduced tall gamba and mission grass weeds may cause greater fire intensities early in the dry season due to higher fuel loads and this could detrimentally affect evergreen species.

Deciduous trees may be favoured if there are high levels of leaf herbivory. In Africa there are more tall mammalian herbivores that could defoliate the evergreen trees with their robust longer-lived leaves. Insects are also major consumers of tree leaves and perhaps eucalypt leaves are especially resistant to insect herbivores. They produce many substances in their leaves that are difficult for herbivores to consume. TENPS member Marj King is involved in an international project that is assessing leaf herbivory rates at over 100 locations and perhaps that project will



Eucalyptus tetradonta woodland with *Livistonia* sp

shed light on whether this is a reason that evergreen eucalypts dominate Australia's tropical savannas. Whatever the cause for their dominance Australian eucalypts are extremely well adapted to seasonal dry conditions.

Summary provided by Sean Bellairs

~ What's the TENPS Committee Meeting Up to? ~

Tuesday, 22 February 2005, 7.30 pm

The planned trip to Woolanang during the Easter break has been postponed, as the venue is not available. It is anticipated that the plant identification workshop will be held latter in the year possibly over a long weekend.

Ian Brooker has advised he is unable to travel to the NT for the planned talks on Eucalypts.

TENPS has been awarded a \$10,000 Environment Grant for protection of endangered rainforest palms in Banker's Jungle from feral animals, primarily pigs and buffalo. The grant will be used to fence an area (approximately 40,000m²) where most of the *Ptychosperma bleeseri* are located and ongoing monitoring of the species. A number of field trips will be organised. NT Park's and Wildlife and Green Corp or volunteers will also be involved in the project including building and maintenance of the fence.

A Guide to Threatened, Near Threatened and Data Deficient Plants in the Litchfield Shire of the Northern Territory by Jarrod Holmes, Deb Bisa, Audrey Hill and Beth Crase, published by WWF 2005. The Committee endorsed the proposal raised at the general meeting for a donation of \$500 to assist with publication of this book. TENPS will be listed as a supporter of the publication. Copies will be available for members to purchase at a price to be arranged.

The Treasurer reports a balance of \$4735.26

The TENPS website has been upgraded to allow more pictures to be uploaded and no pop-ups. Members who have photos that they would like to share should send email them to Mark at rain0021@optusnet.com.au

~ My Native Garden ~ Geoff Gaskell

We bought our elevated C19 house in Tiwi in 1998; it was a Commonwealth Government house and the garden had been neglected for some time. The front yard had lots of *Carpentaria* palms and a few large Black Wattles, plus various others. We decided to remove all the trees except for a few of the Carps and one *Livistona benthamii*, and got in a tree-feller to do the job.

Around this time I joined TENPS and decided that the front yard at least would just have Top End native plants. (The back yard was



planted with a couple of mangoes, a grapefruit and a jackfruit, and had a huge *Ficus virens* (whoever planted that didn't think about the consequences) plus a *Peltophorum pterocarpum* (Yellow Flame Tree). I also set up a small veggie garden.

The first purchases were a couple of *Pittosporum moluccanum* (very fast-growing), a couple of *Helicteres ixora* with pinky-orange flowers that the honeyeaters just love, a *Melicope elleryana*, a *Polyaulax octandra* (about 2 metres tall now after 6 years) and an *Ervatamia orientalis*. I decided that the garden would have a rain forest/vine forest composition in the area closest to the house, grading into a woodland composition nearer the front fence, so all the above fitted into the first category. Later additions were a *Glycosmis trifoliata* which is slow to get going, a *Micromelum minutum* that is going well and producing lots of flowers and fruit, several *Callicarpa candicans* that after pruning got cracking, a *Clerodendrum costatum* that is too shaded to prosper, and various others, including a *Breynia cernua* (vigorous as always) and a *Syzygium nervosum* that has just put on a growth spurt and will shade the side of the house eventually. The last plantings have been a *Celtis philippensis* (supposed to be slow-growing but not this one) and an *Aidia racemosa*.

The other side of the drive has a mixed bag; a couple of *Asteromyrtus symphocarpa*, a *Polyalthia australis* that is only growing slowly but has pretty brownish new growth, a *Leea*

indica and a *Clerodendrum floribundum* (haven't had much success with these in the past for some reason – maybe not enough water or the dreaded termites). I have also put in a *Mimusops elengi* near the front fence, but I suspect it may get too big eventually. An *Ixora*

tomentosa, another *Aidia* and a *Schefflera actinophylla* make up the rest.

At one of the plant sales at the Garden Spectacular I was lucky to pick up a couple of *Calytrix exstipulata* (Turkey Bush) and a *Calytrix brownii*, so together with a *Eucalyptus ptychocarpa* (Swamp Bloodwood), and several Acacias (*A. simsii*, *dimidiata*, *dunnii*), the woodland started to take shape. Later other Acacias (*A. latescens*, *nuperrima*, *gonocarpa* and *linarioides*) were added, plus *Xanthostemon paradoxus* and *Planchonia careya*.

A rockery seemed a good idea to provide a bit of topography for the otherwise flat garden. A few large rocks and some Mary River sand did the trick; I thought this would be a great site for some *Grevilleas* to attract the honeyeaters, and they did, but the termites thought they had been planted for them, and proceeded to attack them so that most died within a year. However the *Grevillea dryandri* seemed to cope better than all the others, and a *G. pteridifolia* has survived a couple of years, with some help. A feature was supposed to be an Arnhem Land *Cycas* sp. but it is only now starting to produce a few more leaves and poke its head up above its surroundings. An *Alyxia rusifolia* and a *Jacksonia dilatata* make up the remaining rock-loving species. Although there's now not too much room left, I still have a few gaps and am interested in

finding some shrubby-type plants that don't mind some shade when some of the trees have grown up more. I'm also thinking of removing a couple that don't seem to fit the current layout and composition.

My main problem is watering, as I haven't put in an automatic watering system yet; the rainforest plants (especially the *Mellicope elleryana*) need plenty so the dry season involves lots of moving the hose around. I have put woodchips down almost every year since planting except for last year when I used the plant waste from the Shoal Bay tip and have found it to be very good. As a result the only real weed problem is nutweed and Roundup does a good job of that.

The other problem (leaving aside the fact that heavy clay is only a few centimeters below the surface) is the termite challenge and although most of the plants I have put in seem not to be affected, I have certainly lost some (especially the *Grevilleas*) to them.

Overall, though, I am very pleased with my garden and all the birds and other creatures it brings, and I have yet to see another one like it (with the exception of those of some TENPS members of course!) which I think makes my place distinctive. There's nothing like a native plant garden!

~ What's in flower this month? ~



Nymphaea violacea fill in a wet area along Amy Johnson Drive, Marrara. *N. violacea* is a perennial floating aquatic herb from a rhizome buried beneath the mud. (Photo March 2005 M Raines)



Acacia nuperrima a compact shrub with globular yellow flowers, usually found in dry open woodland. This sample is growing well in Millner. (Photo March 2005 M Raines)

NEXT MEETING THURSDAY 17TH MARCH 2005

Piers Barrow

"The ecology of Leichhardt's Grasshopper: when life is dependent upon a select group of plants"

Tell members about your native garden – contact Mark at rain0021@optusnet.com.au

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