Top End Native Plant Society NEWSLETTER

SEPTEMBER 2025

WHAT'S FLOWERING THIS MONTH

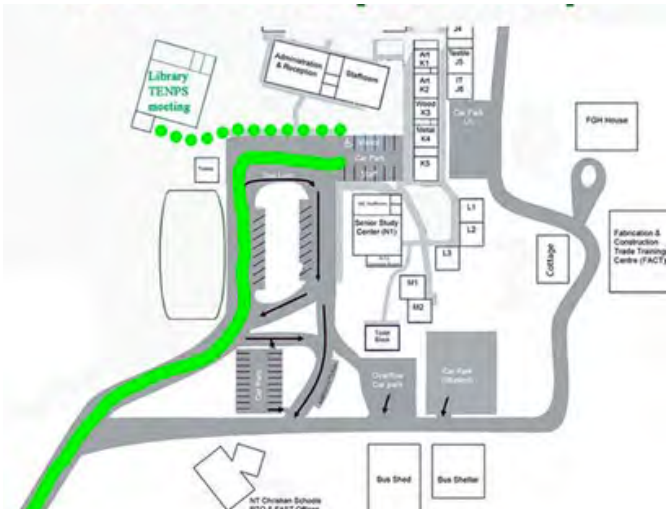
Syzygium eucalyptoides with *Hemipharis insularis* by Russell Dempster

MONTHLY MEETINGS

Top End Native Plant Society (TENPS) general meetings are held at 7:00pm on the third Thursday of the month at Marrara Christian College library on the corner of Amy Johnson Ave and McMillans Rd.
Bring your plants to swap, sell or have identified over a cuppa. The guest speaker presents at 8pm.

This month's talk will be by Lon Wallis the TENPS archivist on John Armstrong.

NEXT MEETING: SEPTEMBER 18TH 2025



TENPS (Top End Native Plant Society) Committee Members

President: Russell Dempster (0459440665)
Vice President: Sean Stieber
Secretary: Johanna Stieber
Treasurer: Graham Zemunik
Publications and Librarian: Richard Boyne
General Committee Member: Ian Morris
General Committee Member: Claire Hewitt
Publicity: Vacant please inquire
Webmaster: Vacant please inquire
Public Officer: Dave Liddle

In this Newsletter

VISIT OUR FACEBOOK FOR INFO ON OUR NEXT EVENTS AND SALES!

www.topendnativeplants.org.au
topendnativeplants

July Meeting: Life as an Ecological Consultant by Claire Hewitt

Claire presented at the July meeting on her life as an ecological consultant. She worked in the UK with the BBC in the film industry amongst other things before moving to Australia. In NSW, Claire worked for the state government for several years and then moved to the NT, where she currently works as a principal technical consultant for ERM.

Claire in the East Kimberley

One of the tasks in NSW was on a windfarm near Orange. The renewable energy project involved assessment of the largely unproductive agricultural land and biodiversity offset. The aim was to minimise the loss of native plants and animals. About 1.8 hectares of land per turbine is needed on windfarms with interconnections between them. Birds and bats are the most at-risk animals, as opposed to vegetation loss on solar farms.

The timeline for a project can be quite long and very involved, including the following stages:

Windfarm projects typically take 4 years, solar farms can take 5 years while battery farms are completed much more quickly, often being completed in 6 months. Federal legislation needs to be complied with as well as state and territory legislation.

State	Act Name			
NSW	*Biodiversity Conservation Act 2016 / Local Land Services Act 2013*		*Environmental Planning and Assessment Act 1979*	*Biosecurity Act 2015*
NT	*Territory Parks and Wildlife Conservation Act 1976*	*Environment Protection Act 2019*	*Planning Act 1999*	-
WA	*Biodiversity Conservation Act 2016*	*Environment Protection Act 1986*	*Planning and Development Act 2005*	*Biosecurity and Agricultural Management Act 2007*
QLD	*Nature Conservation Act 1992*	*Environment Protection Act 1994*	*Planning Act 2016*	*Biosecurity Act 2014*
Federal	*Environment Protection and Biodiversity Conservation Act 1999*			

In the field, planning is crucial. Health and safety always come first and good communication is essential. In a remote East Kimberley job involving two stints of 10-day field work, a satellite phone was needed for daily check-ins with bosses. 50 x 50 metre plots were involved and each species needed to be identified, from about 2200 specimens! Issues include bogged vehicles and harsh, diverse landscapes.

Bogged at Blackmore River

In the field, planning is crucial. Health and safety always come first and good communication is essential. In a remote East Kimberley job involving two stints of 10-day field work, a satellite phone was needed for daily check-ins with bosses. 50 x 50 metre plots were involved and each species needed to be identified, from about 2200 specimens! Issues include bogged vehicles and harsh, diverse landscapes.

Threatened species surveys can involve acoustic devices, baited cameras, observational studies, transects, trapping (various methods), call playback, spotlighting, fixed point surveys, and more.

Threatened species survey

1 square metre plot

Challenges in Claire's work include long hours, no respite in challenging field conditions, at times difficult clients and other stakeholders, and the huge cost to family life as field work clashes with life events.

There are great joys though. These include working in nature in the great outdoors, being paid to study plants and animals, great work colleagues, and the joy involved in travel and continual learning.

The joys of the job

Thankyou Claire, for your informative and very interesting presentation. It was wonderful to gain an insight into the important work you do.

Photographs are from Claire's presentation, report by Russell Dempster.

August field trip ~ Plant Sale at Jingili Water Gardens

The Top End Native Eco Fair and Plant Sale served as our field trip for August. Held at Jingili Water Gardens on Saturday 20 August, it was estimated that over 2500 members of the community attended.

The location was very pleasant with plenty of space and shade, the weather was beautiful, and the collection of stalls and knowledge worked well. There a variety of stalls and organisations present, with much information provided, talks were presented and guided native plant walks were available throughout the day.

What a passionate and knowledgeable community we have working to support our Top End's flora, fauna, ecology, and sustainability.

TENPS sold plants at the eco fair and we gained some new members. Welcome to our new members! Our stand raised community awareness of our society, we answered many questions about native plants, and we gave advice on suitable native plant species for gardens. We thoroughly enjoyed the day.
Thanks to all who attended and helped out at our TENPS stall during the event. Thanks to Darwin City Council, Landcare NT, and to Tim Moore, Territory Native Plants, for all your work organising, running, and promoting the successful day.

Russell Dempster

From the Archives ~ collated by Lon Wallis

30 years ago September 1995: Bringing Life To Your Garden: Guest Speaker Clare Pearce

Clare Pearce was our guest speaker for August, Clare has been temporarily seconded from her job at the Botanic Gardens to Wildcare. She spoke in general terms of how to construct a garden that is inviting to birds and animals using native plants.

The basic requirements of birds are food, water, shelter and place to perch. At ground level it is important to have soil, not clay as soils contains bugs and worms that attract birds.

A layer of leaf litter is an added attraction for lizards and burrowing animals. A herbaceous layer above the mulch is haven for ground walking birds such as bronze-wing pigeons. A fern can provide a comfy nesting spot for small birds such as finches.

Trees and shrubs provide food in the form of seeds and flowers as a perch. Birds may be attracted by flowers heavy with nectar, for example, calistimons, *Melaleuca* and *Eucalyptus* species. *Melaleuca symphyocarpa* comes highly recommended as it is popular with honey eaters. *Acacias* such as *Acacia dunii*, *A. holosericea* and *A. latescens* have seeds that attract parrots and cockatoos.

Other plants such as *Osbeckia* tend to be infested with bugs and bees that bring the bee-eaters into the garden.

Dead trees make a good place for birds to hang out as do living trees such as Eucalyptus alba.

Water, for birds will drink and bathe, may be in the form of a water bath or fish pond. If you are lucky a fish pond may attract a kingfisher.

A well-balanced garden that is maintained with the minimum of insecticides and herbicides will not only attract birds, lizards possums and snakes...

Some Of The Birds

Nectar eaters
Honeyeaters, Lorikeets, Chats, White eyes, Drongos.

Seed eaters
Cockatoos, Lorikeets, Parrots, Pigeon, Babblers, Woodswallows, Fairywrens, White-eyes, Finches, Mannikins, Grass finches,

Fruit eaters
Cockatoos, Lorikeets, Parrots, Pigeon, Pittas, Cuckoo-shrikes, Trillers, Babblers, Honeyeaters, Mistletoebirds, White-eyes, Finches, Orioles, Figbirds, Drongos, Bowerbirds

Insect eaters
Honey eaters, Treecreepers, some Parrots, Cuckoos, some Owls, Frogmouths, Beeeaters, Pittas, Flycatchers, Robins, Whistlers, Babblers, Fairywrens, Scrubwrens, Gerygones, Thornbills, Pardalotes, White-eyes, Finches, Orioles, Figbirds, Drongos, Woodswallows

[*from Simpson & Day*]

Bird-Attracting Plants

Fruit eaters	Nectar eaters	Seed eaters	Insect eaters
Psychotria nesophilia	*Crateva religiosa*	*Banksia dentata*	*Leptospermum parviflorum*
Syzygium suborbiculare	*Syzygium forte*	*Casuarina equisetifolia*	*Eucalyptus camaldulensis*
Terminalia ferdinandiana	*Xanthostemon paradoxus*	*Acacia species*	*Eucalyptus miniata*
Terminalia microcarpa	*Barringtonia acutangula*	*Callitris intraptropica*	
Aidia cochinchinensis	*Eucalyptus ptychocarpa*	*Eucalyptus camaldulensis*	
Antidesma ghasemebilla	*Euodia elleryana*	*Eucalyptus miniata*	
Breynia cernua	*Grevillea dyrandri*		
Bridelia tomentosa	*Grevillea heliosperma*		
Canarium australianum	*Grevillea pteridifolia*		
Canthium schultzii	*Melaleuca argentea*		
Disopyros calycantha	*Melaleuca leucodendra*		
Disopyros compacts	*Melaleuca symphycarpa*		
Elaeocarpus amhemicus	*Eucalyptus camaldulensis*		
Gmelina schechteri	*Eucalyptus miniata*		
Grewia rufusifolia	*Banksia dentata*		
Litsea glutinosa	*Casuarina equisetifolia*		
Mallotus phillipensis	*Schefflera actinophylla*		
Myristica insipida			
Schefflera actinophylla			

20 years ago September 2005: The Litchfield Plant I. D. workshop

My housemate was a little astonished when I told her my plans for the long weekend were to learn about identifying plants using vegetative characteristics.

Saturday morning saw about 20 enthusiastic souls gathered at the Litchfield Education Centre, clutching hand lenses and hungry to get started. After a quick introductory talk by Dave Liddle, Dale Dixon from the Herbarium took the stage.

Dale's approach to plant identification is to play the game of "spot, match and win": look for easily identifiable features, then match that combination of features to determine what plant family it falls into. He took us on a wander through the bush near the education centre, stopping at various plants and pointing out some "spotting characteristics." Dale's little demo of decussate leaf arrangement was unforgettable.

Armed with a sample of each plant, we headed back to the centre to have a go at identifying them. We then played with Dale's hot-off- the-press "Trees and Shrubs of Nitmiluk and Litchfield National Parks" to work out what family each specimen belonged to. Dale's book uses characteristics that are generally readily identifiable with the naked eye (or a hand lens), such as visible oil dots, distinctive fragrance, leaf arrangement and presence of latex, hairs, glands or stipules.

We also tried keying out some of our specimens using the "Field Key for the Monsoon Rainforest Flora of the Darwin Region" which uses leaf features only. Because the two books had different approaches to identifying plants, often if a plant didn't readily key out with one book, it could still be identified with the other – a good lesson in why it pays to have a few different books at hand.

Overall, I found Dale's approach more intuitive because it teaches you to recognise features that are common to all members of a particular plant family, an approach which is useful no matter where in the world you are.

That evening Sally entertained us with an interesting slideshow about some of the conventions of how plants are named. She also had some fun anecdotes about the origins of some plant names. For instance, did you know that Verticordia is reference to the ancient Roman goddess Venus.

Venus was regarded as the goddess of beauty and love and considered to have had the power to bewitch, enslave and turn the hearts of her suitors. Her sacred flower was the Myrtus, or Myrtle, which belongs to the family Myrtaceae, as does *Verticordia*. From the Latin words *vertere*, 'to turn' and *cordatus*, 'of good heart'. *Verticordia* literally means 'turner of hearts'.

Sunday's session focused on the Myrtaceae family, starting with a walk around the grounds, collecting samples of various plants. We returned to the education centre to spend the afternoon burrowing through keys to identify the genus and species each sample belonged to. This time we used more conventional dichotomous keys, where each step has only two choices: true or false. It proved an excellent opportunity to practise using keys and sharpening our eyes to the features that those keys picked up on.

Sunday evening was wrapped up with a talk by Dave about vegetation communities and how they're classified, including pictures of different types of vegetation communities.

There were still a few die-hard enthusiasts remaining on Monday morning, and this time the day's entertainment was to construct our own plant key using some of those by now familiar characteristics.

Dave and Sally prepared a series of specimens each simply identified with a letter, and pointed out the plants around the grounds that each came from. Most of us developed our keys based on the collected samples, but Raylene and Claire took a slightly different approach: they chose to develop a field key using characteristics of the whole plant rather than just the features of the collected samples.

To road-test how successful our various keys were, we tried using each other's keys to identify plants from among the samples. We also had a bit of fun inventing our own names for each plant. For those of us with a thirst for knowing the scientific names of the plant samples, Dave wound up the day with a tour of each plant telling us its scientific name and pointing out a few of its characteristics.

Then it was pack up and head home time. Tired, happy and with my head bursting with semi-digested information, my housemate back in Darwin observed I was displaying a few vegetative characteristics of my own.

- Mani Berghout

David assists with a subtle feature of a plant key
Photo by Deb Bisa

The Dempsters examining a leaf for the presence of oil glands
Photo by Deb Bisa

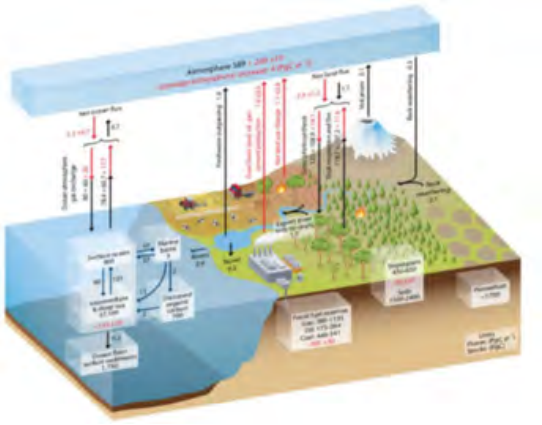
Everyone listening with interest whilst out in the field
Photo by Deb Bisa

Dale provided instruction on keying out plants
Photo by Deb Bisa

10 years ago: September 2015 August meeting report – The flow of carbon in Top End savanna, Mitchel Rudge.

The 2015 TENPS scholarship recipient Mitch Rudge talked about his honours project CDU which sought to improve our understanding of the tropical savanna carbon cycle at the August meeting.

Why do we need to understand the carbon cycle? Burning of fossil fuels has moved huge amounts of carbon to the atmosphere, causing changes to our climate.



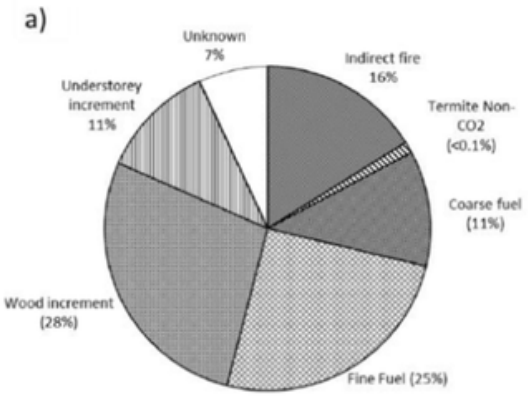
The global carbon cycle (*above*) has been studied and is summarised in this diagram, however it is poorly understood in savanna areas.

Mitch explained the concept of land sinks – where the land absorbs more carbon than is released so half of all emissions are taken up by terrestrial ecosystems. Previous research had shown that high rainfall savanna acts as a sink for atmospheric carbon, which was thought to be stored mainly as biomass in trees.

However, new research has shown that the movement of carbon from soil into groundwater can be important in tropical systems, and this pathway had not been directly measured in Australian savanna.

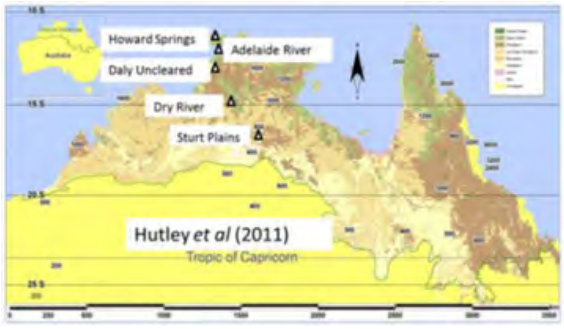
The term 'fluvial export' is where the carbon in terrestrial ecosystems moves into aquatic systems which are then transported to the sea through river systems. Traditionally the way carbon was measured discounted any storage of carbon in river sediments and CO2 evasion (loss to the atmosphere).

The savanna biome is typically a grass and tree mix and is globally significant with around 30% carbon productivity, but only around 2% of this is stored; the rest is lost through disturbance such as fire and grazing etc. This is also true for Australian savannas.



Howard River catchment Carbon budget (Beringer et al, 2007)

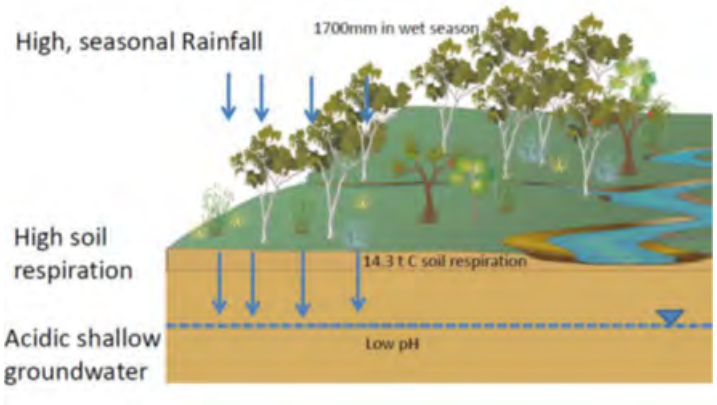
To measure atmospheric carbon an Eddy Covariance Network has been established using a series of flux towers (*see map below for locations*).



These towers are set 1/3 of the canopy height above the tree tops to measure atmospheric carbon and wind. This data determines if the area is a carbon source or sink. Top End high rainfall savanna areas are a carbon sink.

So where does all this carbon go? That is what that Mitch has been studying. In 2007 an attempt to measure this suggested fire accounted for the loss of 50% of carbon and woody growth 1.7 tonnes/year which seemed unrealistic. Some carbon was also believed to be lost through fluvial export - rainfall flushes.

Rainfall of 1700mm percolates through the soil which is saturated with CO2 produced by respiration of tree roots, and this CO2 diffuses into the ground water. Ground water is generally acidic which may be due to this dissolved CO2.



A study in the Amazon in 2008 found CO2 was high in the groundwater in spring and around 70% was then lost to the atmosphere. So the real questions are how much carbon is lost from ground water and what is the magnitude of the Top End savanna tree sink?

Mitch measured the accumulation of carbon as tree biomass (woody increment) and the movement of carbon into groundwater using vegetation surveys, groundwater sampling and isotopic analysis for both the Howard River catchment and the Daly Uncleared Site where the highest CO2 flux was recorded.

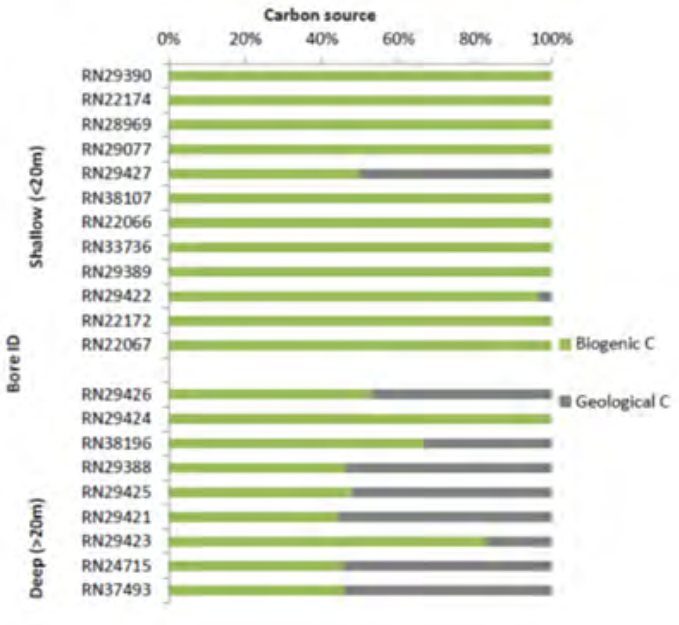
The results of vegetation surveys showed that the canopy trees *Eucalyptus miniata* and *E. tetrodonta* were responsible for the majority of biomass increase, but this did not explain the flux figures.

Groundwater data from 21 monitored bores (*see map at right*) in the Howard catchment provided CO2 concentration in groundwater can be multiplied by the flow to give the loss to atmosphere.

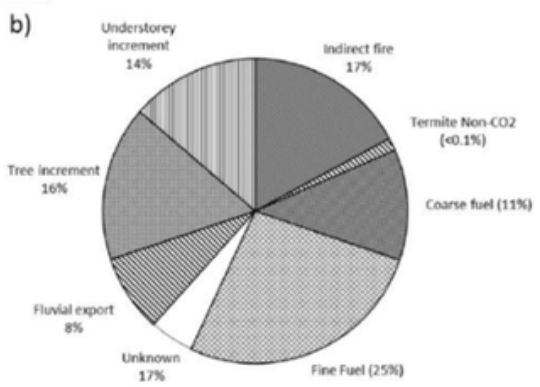
Groundwater in the Howard catchment was found to have 35mg/L of carbon which is more than that found in the Amazon and also more than was found in the Howard River in 1987. This high CO2 content makes the Howard aquifer highly acidic with a pH of 4.5.

The Howard aquifer is a dolostone aquifer so it is to be expected that at least some of the carbon present is from the mineral sources (geologic carbon).

Carbon isotope analysis was used to determine the source of carbon in the groundwater. Analysis of the bore water (below) suggested that trees were the main source of groundwater carbon (biogenic carbon) especially in shallower bores.



Mitch's results indicated the woody increment (carbon sink in trees) is 16% - down from the figure of 30% for previous research, and fluvial export is 8% (*see below*).



New Howard River catchment Carbon budget (Rudge, 2015)

Wetlands therefore play and important role in the carbon cycle. Water from the savanna moves into wetlands carrying with it carbon, so wetlands become super saturated with CO2, which is good news for aquatic water plant growth.

Some areas have still been ignored by this study such as organic carbon and pyrogenic carbon (fire origin). Another obvious omission is overland flow of carbon through runoff or floodwater is not included here, so there are still areas to study.

Mitch's thought-provoking presentation led to a number of discussions including the suggestion that the increased productivity from the high levels of CO2 in the water may contribute to the high biodiversity in the region particularly in plants such as *Utricularia* and other carnivorous species.

In theory the higher atmospheric carbon will fuel a physiological response in plants for increased growth and so the tree sink may increase.

However, if hotter weed-fuelled fires kill more trees then less carbon will be stored or transferred to groundwater through the pathway of respiration of roots, which in turn may exacerbate climate change!

Thank you to Mitch for sharing this interesting research and his thoughts with us.

Article by Sarah Hirst.

SEPTEMBER MEETING

On September 18th Lon Wallis will present a talk titled "*Cycas Armstrongii*: The Search for John Armstrong". This is part of his area of interest: Who were the first European plant collectors in the NT?

Armstrong was officially employed as the lowly gardener at the new Victoria settlement (Port Essington) in 1839. However - supposedly unbeknownst to his immediate superiors - he was also tasked by Kensington Royal Gardens to collect botanical samples for them. During his time at Port Essington, he sent some 194 species back to the Kensington Royal Gardens. Unfortunately, his collection was judged as 'of not much account.' However, these specimens are accredited in the seven volumes of *Flora Australiensis*.

In Armstrong's time, Kensington Royal Gardens were somewhat rundown, and did not yet possess its famous herbarium. Lon's talk will cover the small group of British Empire colonial administrators such as Sir John Barrow , Second Secretary to the Admiralty, and his friend Sir George Staunton who recommended Armstrong for his position in New Holland. Lon will bemoan the dead ends he has encountered in his research into Armstrong's time in Belize and in Timor. There are remaining controversies regarding whether Armstrong actually collected particular specimens at Port Essington: These include the iconic *Cycas armstrongii* Miq., as well as *Rubus moluccanus* L., *Croton armstrongii* S.Moore, *Dichrostachys cinerea* (L.) Wight & Arn., and *Indigofera cordifolia* Heyne ex Roth (Fabaceae). Evidence suggests that some of these may have actually been introduced into Port Essington from Armstrong's time in Timor.

SEPTEMBER FIELD TRIP

This month's field trip will be held on September 20th at the East Point Reserve. Meet at 9:00 am at the carpark just before Pee Wee's along Alec Fong Lim Drive. Bring a hat, sunscreen, repellent and a water bottle.

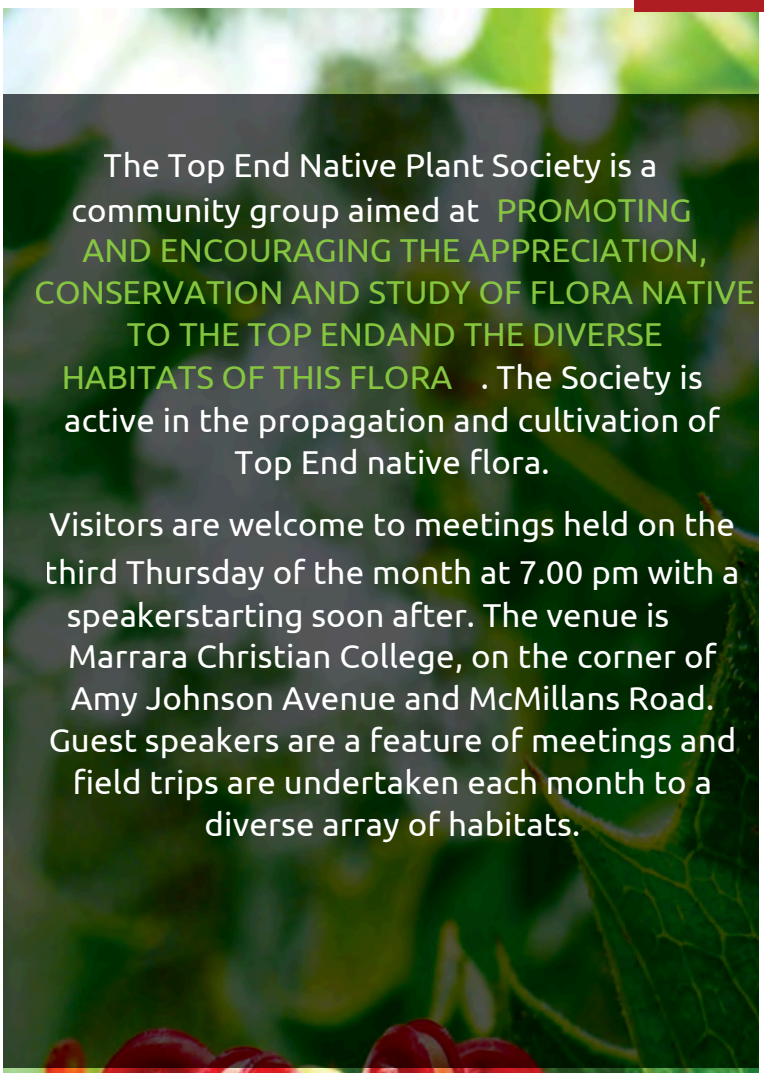
Top End Native Plant Society

BECOME A MEMBER!

Member discounts for plant sales.

MEMBERSHIP APPLICATION

(Due annually on 1st July each year)



The Top End Native Plant Society is a community group aimed at PROMOTING AND ENCOURAGING THE APPRECIATION, CONSERVATION AND STUDY OF FLORA NATIVE TO THE TOP ENDAND THE DIVERSE HABITATS OF THIS FLORA . The Society is active in the propagation and cultivation of Top End native flora.

Visitors are welcome to meetings held on the third Thursday of the month at 7.00 pm with a speakerstarting soon after. The venue is Marrara Christian College, on the corner of Amy Johnson Avenue and McMillans Road. Guest speakers are a feature of meetings and field trips are undertaken each month to a diverse array of habitats.

New Membership ☐ Renewal ☐

Membership fees are:

Individual Waged:	$35.00
Family Waged:	$45.00
Individual Unwaged:	$15.00
Family Unwaged:	$20.00

Payment: $_____

Family name:_____

Name/s: _____

Email address:_____

Postal address:_____

To pay online:

Bank Bendigo Bank

:Account Name: Top End Native Plant Society

BSB: 633 000

Account: 207 974 247

Note: Please include your name in the transfer reference and email the information in this form to topendnativeplantsociety@hotmail.com
Or pay in person at meetings or events where cash or card will be accepted.

Follow 'Top End Native Plant Society' on Facebook for information on current activities and events.

Contact us by topendnativieplantsociety@hotmail.com
www.topendnativeplants.org.au
topendnativeplants