

A EARLY DRY SEASON TOP END FLOWER



Eucalyptus tetradonta with a Varied Lorikeet

Monthly Meetings

Top End Native Plant Society (TENPS) general meetings are held at 7 pm on the third Thursday of the month.

From McMillans Road turn into Farrar Road and follow it for approximately 700 m until you reach the intersection with Brandt Road. Turn left onto Brandt Road. After 300 m, turn right onto the sealed road into the **Knuckey Lagoon Recreation Reserve**. Follow the road for approximately 300 m until you reach the parking area and see the hall. Park here. The meeting will be on the first floor of the hall.

There will be signs leading to the Knuckey Lagoon Recreational Reserve. If you get lost, call Sean Stieber (0401 117 439) or Plaxy Purich (0435 027 116).

The presentation on 16th July will be a screening of a recorded webinar on "**Carnivorous plants of the Top End**" by Thilo Krueger for the International Carnivorous Plant Society.

Bring a favourite (or as many favourites as you like) plant name along to share and learn with each other.

Follow directions above and consult the location map on page 8

TENPS (Top End Native Plant Society) Committee Members

President: Plaxy Purich
(0435027116)

Vice President: Sean Stieber

Secretary: Johanna Stieber

Treasurer: Graham Zemunik

Publications: Roland Muench

General Committee Member: Claire Hewitt

Webmaster: Amanda Lockwood

Public Officer: Dave Liddle

Publicity: Vacant - please enquire

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Gurambai bushwalk

by Amanda Lockwood

Taking a relaxing stroll on a cool dry season morning was a great setting for our field trip in June. We walked the Gurambai Woodlands Loop at the end of Larkin Avenue. Highlights of the walk were the Praying Mantis egg case on the Sandpaper Fig tree. The Quinine trees (*Petalostigma pubescens*) were fruiting together with the low flowering sedges along the path. As we progressed into the more open area and edge of the swamp we spotted a few *Osbeckia australiana* plants that were still flowering. But my favourite of the walk was the new *Banksia dentata* seed pods, the caps in their velvet sliver green hues simmering in the morning sun. The stroll is an easy but enjoyable walk and showcases some of our swamp habitat plants such as *Utricularia chrysanta* and *Vandelia sp* as well as open woodland plants. I recommend the morning stroll in a central and accessible part of natural bush-land in Darwin.



Banksia dentata seed pods - Amanda Lockwood



Sandpaper Fig & praying mantis egg case - Amanda Lockwood



Flowering *Osbeckia australiana* - Amanda Lockwood

Grass identification course

By Richard Boyne

If you've ever used *A Key to the Grasses of the Northern Territory, Australia*, you'd be aware of how frustrating it is for non-specialist. Couplet 5 in the key to genera is where most people (including myself) usually give up:

Spikelets with 1 to many florets, but if 2-flowered, either with rachilla extension, or both florets or lower one bisexual, or spikelets falling from above glumes and awnless.

Spikelets 2-flowered, without rachilla extension, lower floret male or barren, upper bisexual or female and usually different in appearance or spikelets falling entire.

Fortunately, our Identification Botanist Lou Elliott has been working on ways to make it easier for people to identify grass genera, particularly people who need to ID them in the field. In April he held a two-day workshop on grasses at the Goyder Centre in Palmerston. It was attended by staff from EcOz as well as me and Gabby the other Herbarium technician. The first day was an overview of the grass family and the terms that specialists use for the different parts of a grass, starting with features that you can easily see in the field (like the overall shape of an inflorescence) and then looking at the smaller features, like the number and arrangement of florets within a spikelet. We used dried grass specimens that were collected from Darwin and Palmerston especially for the course. On the morning of the second day, we looked at grasses in Holmes Jungle, off Wallaby Holze Road and at the 16-Mile Camp. We practised classifying them into major groups according to their inflorescences and learned how to distinguish grasses that look very similar when not in flower (like gamba and northern cane grass). After that we returned to Palmerston to key out more specimens.

The feedback from the participants was very positive, and it's likely that the Herbarium will hold the course again next year.

Reference

Simon, B.K. & Latz, P.K. (1994) A key to the grasses of the Northern Territory, Australia. *Northern Territory Botanical Bulletin* No. 17.



Lou Elliott with EcOz staff at the 16-Mile Camp

Anna Richards on “Fire regime impacts grass in tropical savannahs”

Report by Richard Boyne

Anna Richards is a senior research scientist at the CSIRO Tropical Ecosystems Research Centre. She came to the TENPS meeting to talk about her previous work on monitoring fire plots at the Territory Wildlife Park, Berry Springs.

These plots are out of the way of the parts of the park that most visitors see. They consist of rectangular plots arranged in three rows and each plot is subject to a different fire regime. Some were burnt early in the year and others late, some were burnt every year, others every two three or five years and some were kept unburnt. The trial ran from 2014 to 2022

The goal of the experiment can be framed as the following question: *Do savannah fires change savannah grasses and does this impact fauna habitat?*

Every year or every few years the team recorded and harvested grasses from each plot. The grasses were identified and put into categories according to their life history (e.g. annual or perennial). In total, forty-four grasses were recorded from the plots. Seventeen were annual, twenty-two perennial and five could have either life history. The most abundant species overall was *Eriachne trisetata* (Wanderrie grass).

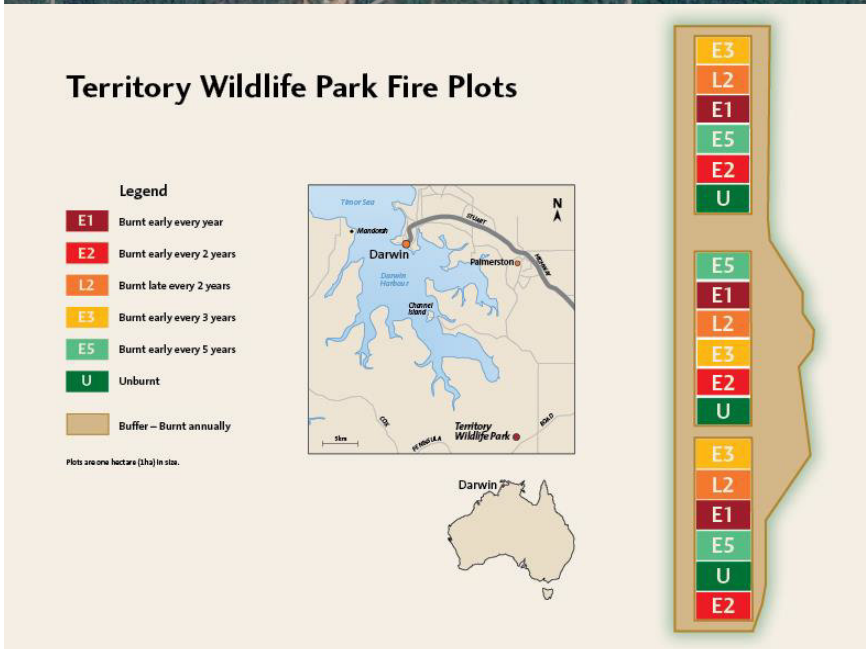
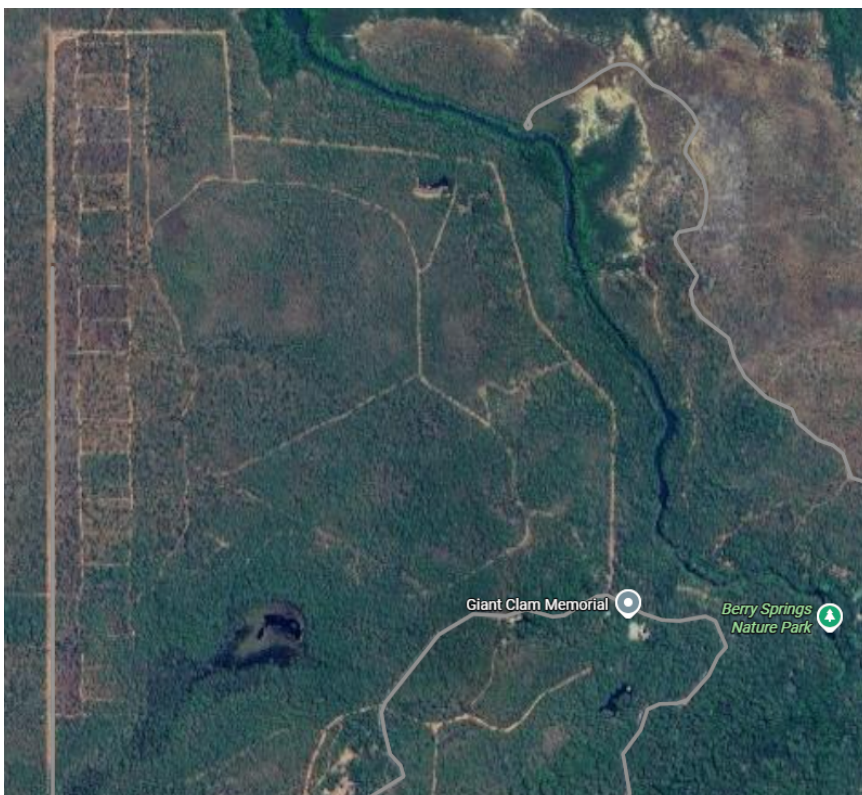
They used this data to calculate the effective species number of different fire regimes. This is a measure of species diversity that accounts for the relative abundance of each species. The effective species number was generally lowest in the unburnt plots, followed by those burnt every year. Plots burnt less frequently had significantly higher numbers than the former, but were not very different from each other.

In plots with frequent and intense fire, annual grasses, especially annual Sorghum, became dominant over time. Plots with infrequent fires became dominated by perennial grasses. Plots without a fire regime got more shrubby.

The leaves and grains of grasses are main food source for many animals, so the team recorded the total biomass of the grasses and the mass of their seeds. Seed mass was generally lowest in unburnt and frequently burnt than the other regimes, but the differences were not significant. Shoot biomass (the biomass above the ground) was much higher in the plots burnt every three years, followed by the unburnt. The plots burnt every year had a very low shoot biomass.

This experiment also looked at underground storage organs, such as rhizomes, as a food source. The team found that the nitrogen content of the rhizomes of perennial grasses was much lower in plots that were burnt annually than ones that were burnt less frequently. The nitrogen content is important because it determines how much protein animals can gain from a given amount of food.

When all of these data are considered together, the differences were greater under high fire frequency and intensity than lower. Also, it's likely that frequent and intense fire creates habitats with fewer resources for animals while infrequent fires provide more. This is closely connected with the different species available and their nutritional value. The results from this experiment can help ecologists to predict the impact of climate changes on grassland biodiversity in Northern Australia.



Top: satellite image of fire plots west of Berry Springs Nature Park (Google Maps). Bottom: The fire regimes of each plots (A. Richards).

Plant of the Month: *Solanum ossicruentum* and *S. nectarifolium*

By Richard Boyne with editing by Aiden Webb.

This article is actually about two plant species because their stories are very closely intertwined.

The western part of the Top End and neighbouring Kimberley region is a great place to look for bush tomatoes (native members of the genus *Solanum*), but exactly how many species grow there is a mystery. This is something that Chris Martine of Bucknell University, Pennsylvania, has been working on for over a decade. He visits Australia regularly to collect specimens from the wild and examine specimens held at our herbaria.

On one of his visits in 2014 he collected seeds from bush tomatoes in Keep River National Park and some neighbouring reserves in Western Australia. He selected these because they looked a bit like the more widespread and variable *S. dioicum*, but their leaves were densely covered with silvery hairs. These seeds were sprouted at a greenhouse at Bucknell University and grown to maturity for further study. He found some strange things, mostly related to its reproductive organs.

Most plants produce flowers that are functionally hermaphroditic, meaning that they have fully-functional male parts (stamens) and female parts (carpels). This species of *Solanum* produced two different kinds of flower on different individual plants. Some had flowers with fully-developed stamens that produced viable pollen, but the carpels were vestigial and couldn't develop into fruit: those plants were functionally male. Other plants produced normal-looking hermaphroditic flowers with carpels that could develop into fruit, but the pollen was non-viable: those plants were functionally female. Non-viable pollen sounds like the plant equivalent of 'shooting blanks', but it probably still feeds visiting bees and they presumably exchange enough viable pollen from neighbouring plants to produce fruit.

The fruits were also weird. Unlike cultivated tomatoes, these were bone-hard and prickly at maturity. It was hypothesised that in the wild these attach to the hides and feathers of animals, a dispersal method called 'trample burr'. A student at Bucknell actually tested this out using animal pelts (it stuck well to red kangaroo). When the immature fruits were cut open, they produced a bright red pigment that turned to dark reddish brown, like drying blood (check this out for a time-lapse video of the colour change in the fruit: <https://www.eurekalert.org/multimedia/613657>).

In order to come up with a good name for the species, Chris consulted a middle-school science class in Pennsylvania. Someone came up with *Solanum ossicruentum* with the epithet meaning 'bloody bone' in Latin. That name was formally published in 2016.

But there's more to this story. When Chris and his colleagues used DNA sequencing to map a family tree, they found that the specimens given that name were actually two genetically distinct sister species. He returned to Australia in 2025 to look at more herbarium specimens. A feature he noticed on some of them were nectaries (nectar-producing glands) on the leaves. They're usually microscopic in *Solanum*, but these could be seen with the naked eye. These were only seen on specimens from the northern Tanami. Chris and his team, along with NT Herbarium staff and associates travelled there for fresh specimens. They found plants that looked like *S. ossicruentum*, but with nectaries that were being guarded by ants. These collections formed the type specimen of the name *Solanum nectarifolium*, which was published earlier this year.

This story shows that the flora of the Top End has a lot of diversity that's not been documented and lots of ecological interactions that can be studied.

Sources

Knapp, S. *et al.* (1998) Pollen morphology and functional dioecy in *Solanum* (Solanaceae). *Plant Systematics and Evolution* 210 (1/2): 113-139.

Martine, C.T. *et al.* (2016) New functionally dioecious bush tomato from northwestern Australia, *Solanum ossicruentum*, may utilise “trample burr” dispersal. *PhytoKeys* 63: 19-29. <https://phytokeys.pensoft.net/articles.php?id=7743>

Martine, C.T. *et al.* (2026) A new dioecious bush tomato, *Solanum nectarifolium* (Solanaceae), from the northern Tanami Desert, Northern territory, Australia, with reassessment of *S. ossicruentum* and a change to the circumscription of *S. dioicum*. *PhytoKeys* 63: 19-29. <https://phytokeys.pensoft.net/article/169893/list/11/>

Motter, A. (2025) The Aussie Oddballs: Identifying the Existence of Censer and Trample Burr Dispersal in Australian Bush Tomatoes. Honours Theses. 707. https://digitalcommons.bucknell.edu/honors_theses/707/

Ndem-Galbert JR *et al.* (2021) Differential reward in "male" versus "female" pollen of functionally dioecious *Solanum*. *American Journal of Botany* 108(11): 2282-2293. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9298796/>



Solanum ossicruentum with fruits by JT Cantley



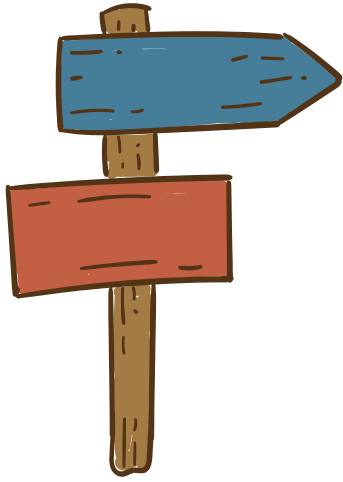
Leaves of *Solanum nectarifolium* with ants by JT Cantley



Functionally male (left) and female (right) flowers of *Solanum ossicruentum* by JT Cantley



Dissected fruits of *Solanum ossicruentum* by JT Cantley

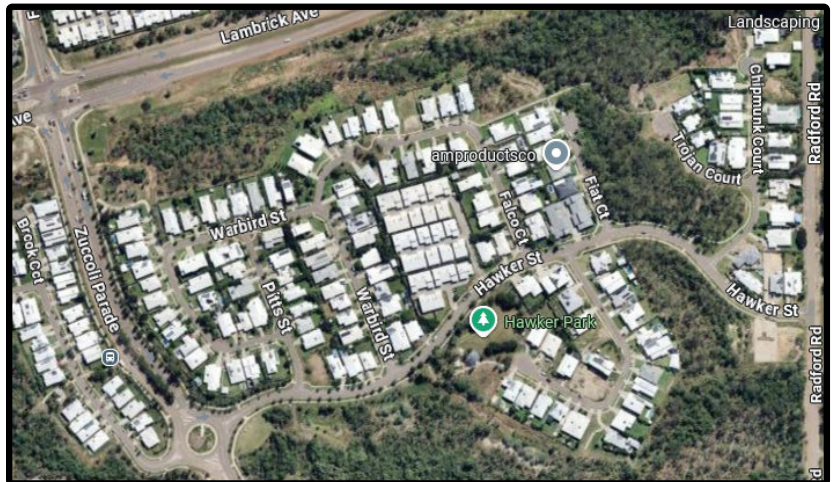
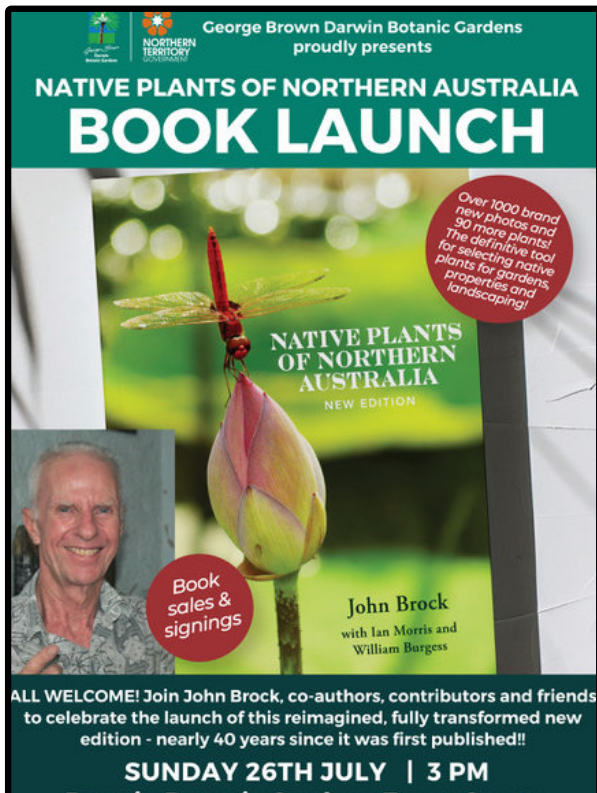


July 2026 Field Trip

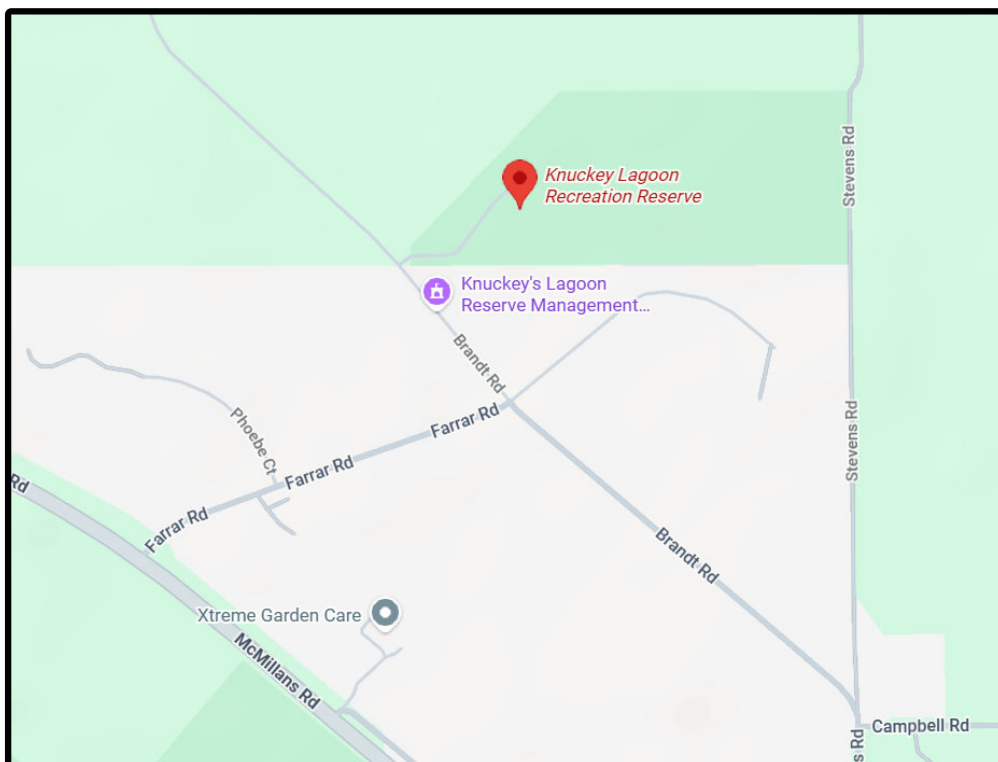
This month's field trip will be exploring the Palmerston bushland surrounds and be led by Mike Clark. We will be meeting on Saturday the 18th of July at 9 am at Hawker Park. Please consult map below (green tree locator icon). Hawker Park can be accessed from Lambrick Avenue to Zuccoli Parade and from there into Hawker Street.

July 2026 Book Launch:

Also upcoming is the book launch of the long awaited new edition of 'Native Plants Of Northern Australia' by John Brock (see poster below to the left) at the Darwin Botanic Gardens on the 26th July at 3 pm.



Map
Monthly Fieldtrip Venue
Palmerston Surrounds



Map
Monthly Meeting Venue
'Carnivorous Plants of the Top End'
Follow directions shown on page 1



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Family Waged: \$45.00

Individual Unwaged: \$15.00

Family Unwaged: \$20.00

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 END AND 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 7.00pm with a speaker starting soon after.

Guest speakers are a feature of meetings and field trips are undertaken each month to a diverse array of habitats.

Name/s: _____

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.

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