NATURE TERRITORY

March 2019

Newsletter of the Northern Territory Field Naturalists' Club Inc.

In This Issue

Club web-site: http://ntfieldnaturalists.org.au/

A kite soars ahead of one of this wet season's few thunderstorms, Gunn Point. *Photo: John Girdham*

FOR THE DIARY

March Meeting: Wednesday 13 - Spiders: More than Just a fang! with Caitlin Henderson

March Field Trip: Saturday 23 - Rozak House, Lake Bennett, with Top End Native Plant Society

See pages 2 - 3 for more details

March Meeting

Spiders: More than just a fang! by Caitlin Henderson

Wednesday 13, 7.45 pm, CDU Casuarina, Room BLUE 2.2.24

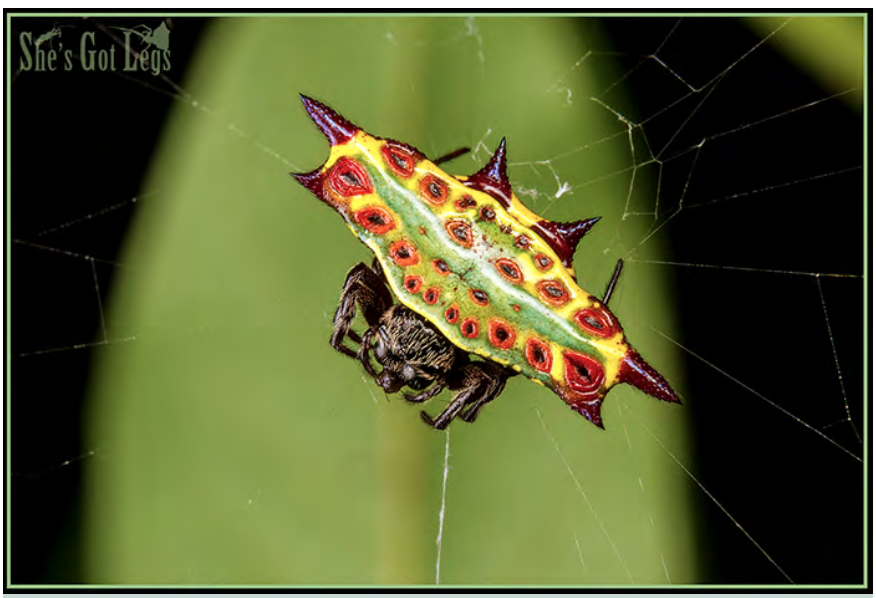
PLEASE NOTE CLUB HAS A NEW MEETING ROOM - SEE PAGE 14 FOR A MAP

Summary: When we talk about spiders, the emphasis is usually on whether or not they will harm us. While that's important information to know, we're going to dart through it on our way to the more interesting parts. Through the revealing powers of the macro lens, we will uncover the secret lives of the Top End spiders, and the incredible adaptations they rely on to survive

Australian Coin Spider (*Herennia oz)* from Litchfield National Park. *Photo: Caitlin Henderson*

Lion Huntsman (*Neosparassus magareyi*) from Fogg Dam. *Photo: Caitlin Henderson*

Biography: I am an animal keeper and science communicator specialising in invertebrates. Last year I worked with Minibeast Wildlife to release Spidentify, Australia's interactive spider ID app. I am currently the invertebrate Zookeeper at MAGNT looking after the stars of the *Spiders* exhibition.



Rainbow Spiny Orb (*Gasteracantha westringi*) from Fogg Dam. *Photo: Caitlin Henderson*

March Field Trip

Rozak House, Lake Bennett, with Top End Native Plant Society

Saturday 23, 9.00 am

This trip will be a joint field trip with TENPS members. The property has a lovely view over Lake Bennett from its position on the hilltop behind the lake and we expect to see many interesting plants including a variety of flowering annual herbs which should provide great photo opportunities. In particular, we will be searching for a small annual herb (*Typhonium* also known as a Stink Lily) along the ridge as the plants found here recently may be a species new to science. The NT Herbarium is waiting for flowers to confirm this but they won't appear until the next build up but it would be great to help by assessing how many plants occur there. We hope to see some of the Northern Wallaroos that frequent the area and record a species list for any other wildlife spotted. If possible it would be good to document any weed infestations found to aid in planning control efforts into the future.

Where to Meet: Head down the Stuart Highway and follow the signs to Lake Bennett. Continue around the lake staying on Chinner Road and cross the causeway (overflow of the lake). Look out for the Rozak House sign on right immediately past the causeway. The driveway is rather steep but there is room to park 6-8 vehicles near the house - carpooling is recommended.

What to bring: A hat, enclosed footwear, sunscreen and insect repellent. Lunch/snacks and a water bottle (Please note the only water supply is rain water so if you prefer your water chlorinated please bring your own water.)

Special Information: We have full access to the house for the day so folks can explore for as long as they wish or simply enjoy the peaceful location for a spot of wildlife watching. For more information on the house http://www.rozak.house/. Rozak House is available for booking on AirBnB.

Upcoming Field Nats Activities

April Meeting: Wednesday 10 - Aerial Survey Top End Megafauna with Rachel Groom

April Field Trip: Sunday 14 - Butterfly Field Trip with Tissa Ratnayeke

The Gamba Grass Nightmare

By Denise Lawungkurr Goodfellow

A pestilence is quietly but definitively creeping across the Top End of Australia, destroying the tropical woodlands that have dominated this landscape for eons. That plague is a weed, Gamba Grass (*Andropogon gayana)*. It leaves in its wake, a panorama of tall exotic grass waving silently in the breeze, and little else. The trees and shrubs, the birds and other fauna, all have gone. Little else can exist in an infestation of gamba grass.

Our dog Sarah in front of Gamba Grass on our Darwin River Property. *Photo: Denise Goodfellow*

A perennial species native to the African savannah, Gamba Grass grows in clumps 4 m high and a metre in diameter. Its stems can be as thick as bamboo, and it forms an almost impenetrable wall (Anonymous, 2018; Kennedy, 2018). Gamba was introduced to Australia in the 1930s and embraced with gusto by the cattle industry. Graziers considered it a godsend for its ability to support many more cattle than native pasture (Csurhes, 2005). By 1986, the Northern Territory Department of Primary Industries had produced an 'easily established', 'highly productive', and 'drought resistant' cultivar that was 'adapted to seasonally wet tropics' (Petty, 2013).

The first widespread trials of Gamba Grass were held in the late 1980s and 1990s in the Top End and in northern Queensland. Despite assurances that the plant could be safely contained within paddocks heavily grazed by stock it quickly escaped into surrounding savannah woodland (Petty, 2013). It is now known that gamba spreads easily "*...through pasture, bushland, riverine systems and transport corridors, and has diverse invasion pathways including via wind, water, animals and vehicles*" (Beaumont, Keily & Kennedy, 2018).

Often Gamba-fuelled conflagrations are big enough for thermal updrafts to form pyrocumulus (literally fireclouds), their tops reaching several kilometres into the sky. These thermal air movements can carry Gamba Grass seed a long way (Lamb, 2008). And each plant can produce up to 250,000 seeds per plant annually (Dept. of Environment & Natural Resources, no date).

Gamba Grass firestorm on Camp Creek Station in October. *Photo: Denise Goodfellow*

Presently, Gamba Grass infests up to 1.5 million hectares of the Northern Territory, with smaller outbreaks scattered from Western Australia to Queensland. Each outbreak, even when consisting only of a few tussocks, can become a major infestation in less than five years. It is predicted that Gamba Grass could invade not only woodland and open forest, but right to the edges of wetland and monsoon forest, representing an area of approximately 38 million ha (Douglas and Setterfield, 2005; Petty, Setterfield, Ferdinands & Barrow, 2012). Tragically, the ranges of some of our most iconic avifauna, for example, Gouldian Finch and Hooded Parrot, lie totally within the potential reach of this weed.

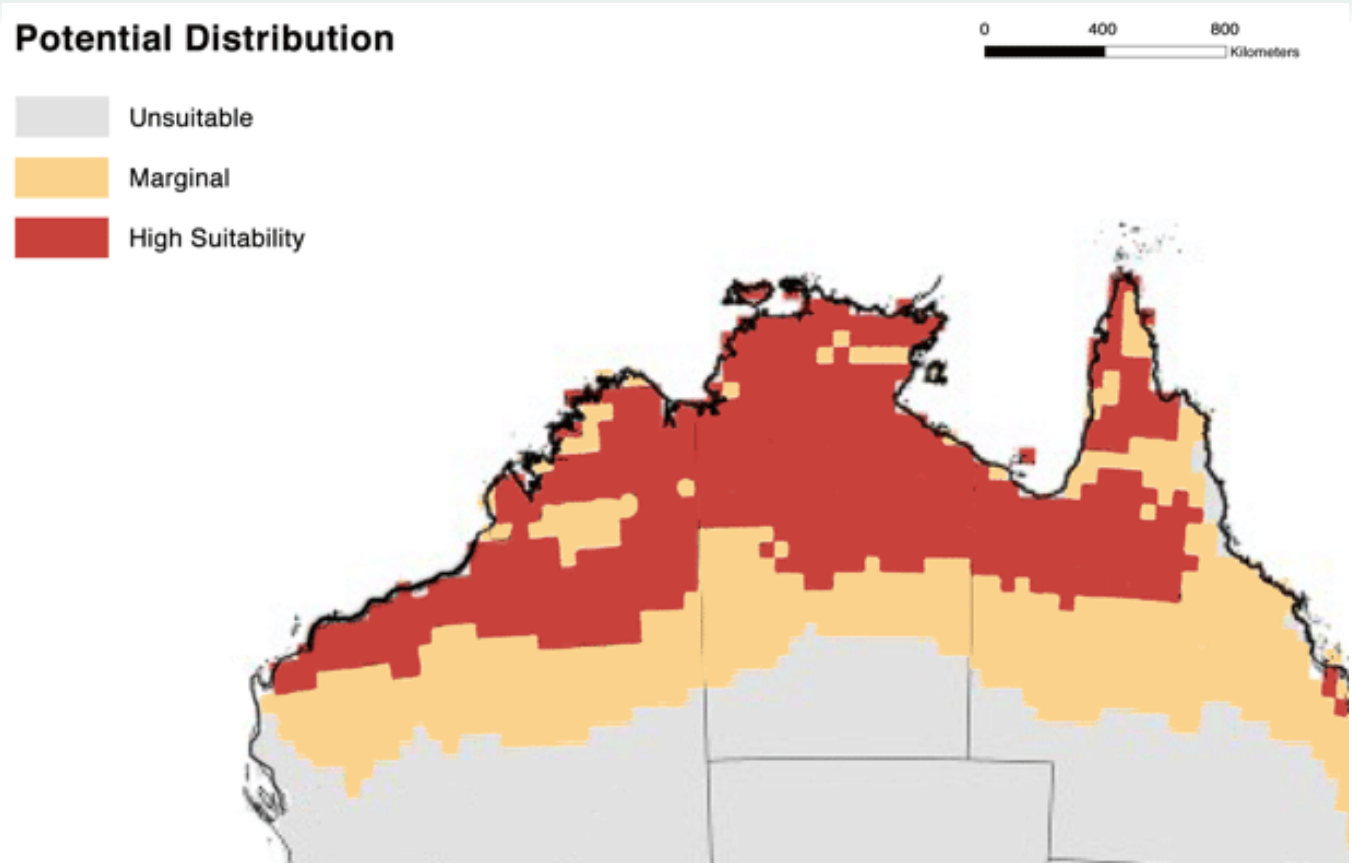
Gamba is a 'transformer' weed (Rossiter, Douglas, Setterfield & Hutley, 2003), that is, it "transforms" the natural environment from forest to monotypic grassland. It does this by crowding out native flora; by changing nutrient and water cycles; and by burning many times hotter than a typical Top End grass fire. Gamba-fuelled fires are spectacular. They have the fast-moving front typical of a grassfire, but with flames reaching tens of metres into the canopy.

Our eucalypt-dominated woodlands cannot withstand blazes fuelled by gamba grass. While most are protected from the cool fires common to this habitat by thick or reflective bark, gamba-fuelled fires will kill them. Sixty percent of trees burnt in a gamba-fuelled fire near our property a year ago are dead. Furthermore, gamba can carry two fires a year (Low, 2011). And every year the weed rises again like Lazarus every Wet Season ready to inflict another conflagration on the bush.

As the trees disappear so will much of the native fauna. Tree hollows, for example, are essential for 18% for birds, 40% for mammals, 20% for reptiles and 13% for frogs (Taylor, Woinarski, & Chatto, 2003). In the Top End avifauna utilising nest hollows include several species of duck including Green Pygmy-goose and Radjah Shelduck, cockatoos and parrots, including Red-tailed Black Cockatoo and Northern Rosella, owls and allies, kingfishers, Dollarbird, Black-tailed Treecreeper, woodswallows, and Gouldian Finch. The latter species nest in the hollow branches of a limited number of eucalypts, including Salmon Gum, *E. tintinnans*. The two most dominant eucalypts in the Top End landscape, *E. miniata* and *E. tetrodonta*, covering over 445,000 square km. (calculated from Fox & Clarke, 1972 by Woinarski & Westaway, 2008) may be 250 years of age before they form hollows greater than 10 cm (Woinarski & Westaway, 2008).

Even if there is no fire much fauna will suffer, and granivores are at a particular disadvantage from Gamba Grass. For example, Gouldian Finch and Partridge Pigeon feed largely on the seeds of native grasses, and both breed in the early Dry Season when grass seed is plentiful. When seed has fallen to the ground cool fires cleared the curing grasses from the ground allowing the birds to continue feeding. When carrying out surveys of Gouldian Finch in the late 1980s I looked for the bird on recently burnt ground.

Gamba Grass crowds out the species of grass on which the birds feed. Furthermore, it burns so hot that any seed that does fall to the ground is destroyed. And the next year there is another crop of Gamba, ready to spring into action leading to an indefinite cycle of hot, late fires that kill trees and other plants leading to further gamba grass invasion - the grass-fire cycle, and thus creating what one writer has called the 'field of nightmares' (Petty, 2013).



Potential distribution of gamba grass. Beaumont, Keily and Kennedy, 2018 - Source: adapted from Setterfield et al., 2013 based on data from the NT Government.

This 'triffid of the plant world' as Tim Low of the Invasive Species Council has called it, has been declared a weed of national significance, and landholders are expected to control it on their properties. However, the importance of Gamba to the cattle industry has meant that various stations have been allowed to keep grazing cattle on the weed (Lawler, 2018) to the dismay of indigenous rangers who find themselves fighting a losing battle trying to control the weed and fight fires (Fitzgerald & Burton, 2018), and those of us who care about our wildlife. Graziers rely on their stock to keep Gamba at a level where it will not seed, but given the uncertainties of the live cattle trade there is no guarantee that they will be able to physically or financially control the weed (LandcareNT, 2012).

New infestations keep appearing and it is very doubtful that governments will expend the millions of dollars needed to both control the weed and fight fires. Such blazes are often uncontrollable anyway. One firefighter faced with a firestorm remarked that if they couldn't hold it "*...we're screwed*" (Anon. pers. comment, Oct, 2018). That comment could apply to a large number of birds and other fauna, as well as flora, across a huge swathe of the Australian continent. The genie is out of the bottle. Visiting birdwatchers need to avoid Gamba Grass. Firstly, it is easily spread by seeds caught in mud from someone's car (Fitzgerald & Burton, 2018) or seeds blown into a vehicle. Secondly, a fire even some distance away could be upon one in a matter of minutes. Aboriginal rangers have said that Gamba-fuelled fires "*...are killing the country*", "everything, animals and trees" (Mimal Land Management, 2017). It goes without saying that such fires will also kill people. And that includes unwary birdwatchers.

Fireman fleeing gamba grass fire. *Photo: Sue Lamb, Bushfires Council NT, 2007*

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The Charming Life of the Fleshfly

An article by Kate and Graham Brown appearing as "Bug Bits" in the NT News on 20 February 2019

A fleshfly waiting for the right moment. *Photo: Graham Brown*

Recently, a friend captured and attempted to release — what she thought was — a common housefly. It was much to her surprise that when, within the palm of her hand, the same fly tensed up and suddenly laid maggots. In most cases, flies do not produce live larvae, but rather lay eggs which hatch within 24 hours. Upon further investigation, it is likely that the specimen being released was what is known as a fleshfly.

Fleshflies (Sarcophagidae) are spread across Australia with approximately 67 named species and at least 23 of these known to exist in the Northern Territory. These figures are based on an old revision of the species, and while many more have been discovered since then most are yet to be described and distinguished from previously documented species.

One of the main features that separates the fleshfly is its ability to incubate its eggs internally, which actually shortens the external life cycle. By laying live larvae, the species may be better positioned to survive as the eggs are not exposed to potential threats. The larval (maggot) stage has three growth sizes, which are referred to as the first, second and third instars. At each instar the growing body becomes too big for its skin, and so the larva moults, shedding the old skin. This means a new skin must develop beneath the old before a maggot is able to moult. The old skin is shed and the new skin is inflated with body fluids and air until it hardens into a larger form. At the third and final instar, the larvae pupate within the old larval skin. What remains is a dried, dark old larval skin that looks like fried rice (our apologies if you wanted to eat fried rice again!). When the pupa is fully developed the adult fly emerges by inflating the front of the head until it cracks, allowing the adult fly to escape.

Interestingly, the family name of the fleshfly — Sarcophagidae — comes from the word 'sarcophagus', as they are said to have been found in Egyptian sarcophaguses. Earning its common name, the fleshfly's larvae are most frequently associated with feasting on dead animals. However, there are a small number of fleshflies whose larvae are parasites of grasshoppers or feed on the provisions in the nests of solitary bees or wasps. It doesn't take much for a multitude of fleshflies to occur together in confined spaces. In particular, the presence of dead rats in ceilings will be especially enticing, so if you've laid bait to take care of rats, you may end up with a fly issue if you don't dispose of any rat carcasses (Again, we hope you can still eat!). Charming, we know, but the stench of decomposition would linger much longer without these flies in our ecosystem!

Dr Graham Brown and Kate Brown (bugbits@gmail.com)

JOIN SEA SHEPHERD FOR SCREENING OF Rubber Jelly Fish

DATE: MARCH 19TH 2019

TIME: 6.30PM

PLACE: CAUSARINA - EVENT CINEMAS

TICKETS AVAILABLE ONLINE
http://tinyurl.com/y652csgs

18,000 pieces of plastic float in every KM^2 of ocean outnumbering sea life at a ratio of 6 to 1.

100,000 marine animals are injured and killed through entanglement, suffocation and ingestion each year.

Refuse Reuse Recycle Recover

https://web.facebook.com/SSAUBeachCleanUps/Timeline

www.seashepherd.org.au

Podcasts

Insect Armageddon!!?

The Lord Howe Island Stick Insect was thought to be wiped out by rats but it's back! *Photos: Rodney Stuart*

Insectageddon!' 'The Great Insect Die Off!' 'Mass Insect Extinction!' So screamed recent headlines. But are the world's insects in trouble...or not? And how can we know, when we know so little about them? We desperately need invertebrates, but do they need us?

Did you know?

It is estimated there are 5.5 million insect species, both known and unknown, not including other arthropods. But only approximately one million insect species are actually known and described. **Source**: Stork, N. How Many Species of Insects and Other Terrestrial Arthropods Are There on Earth?; *Annual Review of Entomology*; Vol. 63:31-45, September 2017. Science Friction, Radio National: https://www.abc.net.au/radionational/programs/sciencefriction/insect-armageddon/9775654

Gamba grass fires reach more than six times the height of native grass fires. *Photo: Pew Charitable Trust*

Gamba grass threatens Tropical North

The cane toad continues its inexorable march westwards across our tropical north, but some scientists think there could be an even worse pest emerging in The Top End – and they say we need to get onto it quick smart. This pest grows up to 4 metres tall, and it's called Gamba Grass. Unlike the cane toad it pushes out everything; other plants and the insects and animals that rely on them. Gamba Grass is so tall and thick when it burns that it makes what would be a simple grass fire into a towering inferno that also destroys larger trees. Podcast at link: https://www.abc.net.au/radionational/programs/latenightlive/gamba-grass/10858528

The science of jellyfish

The jellyfish area at the Kalyukan Aquarium on 15 March 2018 in Osaka, Japan. *Photo: The Asahi Shimbun via Getty Images*

The humble jellyfish has been around for at least 500 million years. It has survived the mass extinction of the dinosaurs, a feat which that makes them older than trees – even older than leaves. Science writer Juli Berwald calls them "a ghost from our true garden of Eden", and ghost-like they are, with their transparent, brainless, spineless, eyeless, bloodless bodies. Their propensity to breed fast and prolifically, means they can disrupt ocean eco-systems in a flash. Some scientists think their numbers are increasing as the climate changes. Link at: https://www.abc.net.au/radionational/programs/latenightlive/the-science-of-jellyfish/9718692

Two more podcasts from Off Track found at:
https://www.abc.net.au/radionational/programs/offtrack/

The Chase — Back from the dead

Obsessives, dumpy birds and disapproving academics: the saga of the Night Parrot.

The Chase — Trouble in paradise

Rats and mosquitoes threaten a fragile ecosystem on an isolated Tahitian atoll — but now scientists are trialling new techniques to rid the islands of destructive pests.

Publications

The following are the latest publications to arrive at NT Field Nats. Publications will be brought to General Meetings each month. Please feel free to browse through and borrow.

Geelong Naturalist
Monthly magazine of the Geelong Field Naturalists' Club Inc., Vol. 54, No. 9. February 2019

Birds Queensland Newsletter, Vol. 50 Nos. 1 and 2, February and March 2019

The Naturalist News
Published for Naturalist in Western Australia, Jan-Feb 2019 and March 2019

The Queensland Naturalist
Journal of the Queensland Naturalists' Club Inc, Vol. 56, Nos. 4-6, December 2018

QNC News
Newsletter of The Queensland Naturalists' Club Inc, No. 343 March-April 2019

Chitter Chatter - excerpts from the Club's Facebook group

19 February 2019: Janis Otto
Northern Rosella - one of three. I'd say parents and one young.

28 February 2019: Ian Hance Lee Harrop's photo at Leaning tree lagoon yesterday paper wasps?

Tissa Ratnayeke: There are many species of paper wasps in the Darwin region. The ones I'm familiar with have warning yellow banding which these wasps don't have. I checked ID with club entomologist Graham Brown who confirms these are a native paper wasp (*Polistes schach*) - apparently not as common as the other species.

24 February 2019: Phil Smith Sitting on the verandah having breakfast this morning and noticed this nest in the tree about 20m away with a Helmeted Friarbird in it. First time I'd seen it. Must have been built under the cover of darkness!

19 February: Kim McLachlan Quiz time to test all you field nats out there....if you are an expert in feathers and birds, please let others have a go first then feel free to comment. What bird does this stunning feather belong to?

Tissa Ratnayeke: Guessing C-b C.

Kim McLachlan: Great code Tissa! Well done...it is an outer tail feather from a Channel-billed Cuckoo. Love the colour and pattern.

23 February 2019: Andrew Bell Yellow Palm-dart, (*Cephrenes trichopepla*): Two weeks ago I posted a picture of this caterpillar and with a good pointer from Kim McLachlan identified it as a Yellow Palm-dart. It pupated a couple of days later and here is the adult - it emerged sometime in the last couple of days. I chilled it in the fridge to slow it down, got in a couple of quick photos and then it shot off into the garden before I could do any better (the mantis nymph was accidental).

Ed: this caterpillar is green in colour during it early stages of development however just prior to pupation it changes to this vivid colour form.

3 Mar 2019: Andrew Bell A small Yellow Spotted Monitor (*Varanus panoptes*), on our back lawn while we had lunch today in Brinkin.

DIGGING DEEPER

Digging Deeper is a program that aims to help farmers understand the processes going on in their soil and give them a helping hand to implement changes that will address their soil "issues". It is a *hands on* approach to investigating what is below the surface and how that relates to productivity and what happens above the soil surface.

The Commonwealth Government has invested in soil health improvement and whole of farm planning as key priorities for the agriculture program. Territory Natural Resource Management (TNRM) has secured funds through the Australian Government Smart Farm Small Grants, and the Northern Territory Community Benefit Fund, to deliver this program across a range of crops and industries in the **Top End** and **Gulf Savanna** regions.

WHAT IS THE EXPRESSION OF INTEREST FOR?

This Expression of Interest (EOI) is for farmers from any industry in the Darwin and surrounds and Katherine regions who wish to participate in this project in 2019. The project is limited to 12 farm businesses split in two groups, who will take part in the following three project components:

- Soil Pit Day
- 3 Soil Health Sessions for each region and held on property (each property hosts ½ day)
- Soil Health Interpretation and Wrap Up Day

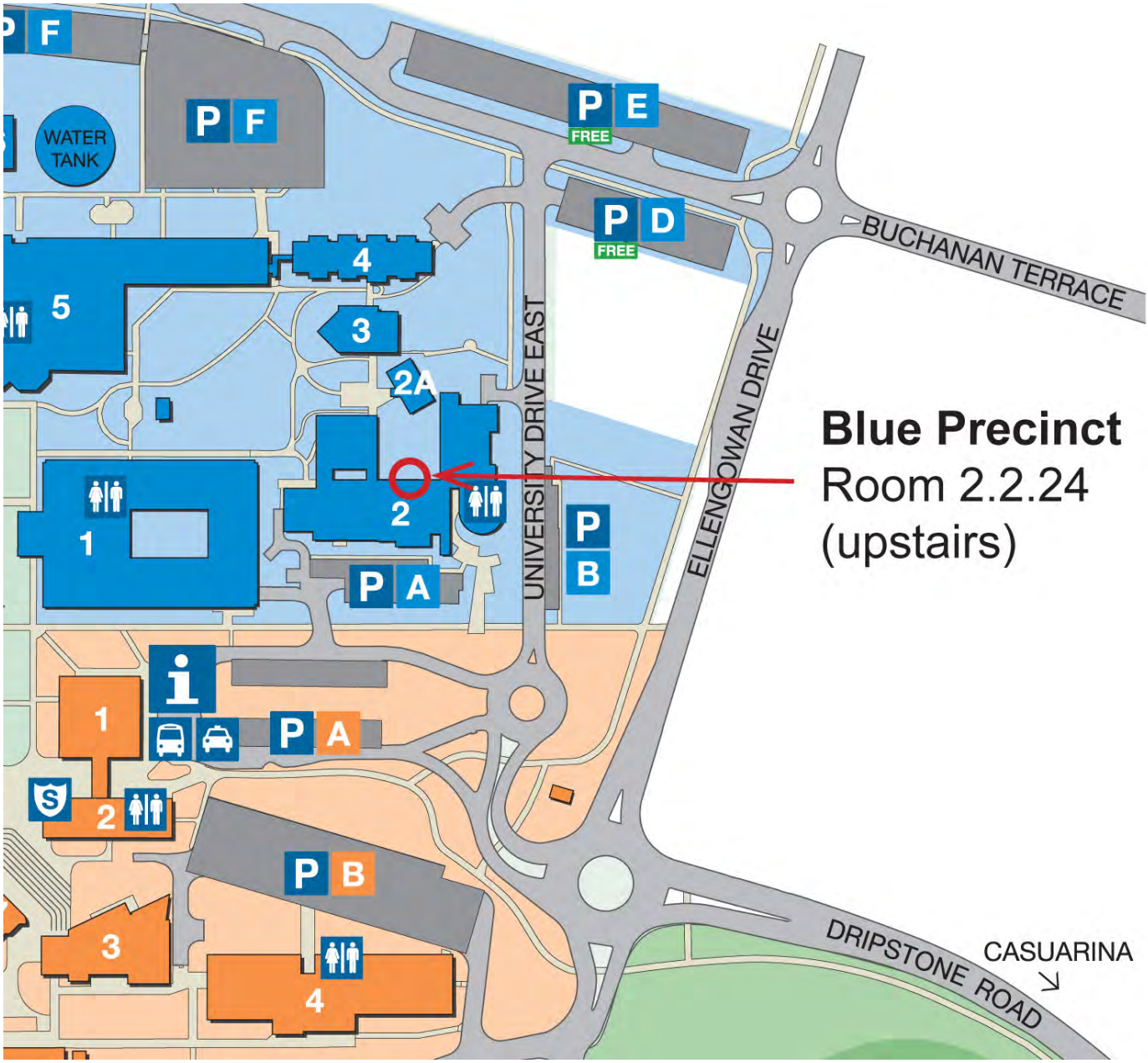
The Soil Health Sessions will be run using a modified version of the "Farmers Teaching Farmers" model which was developed in 2007 and has been adapted for the Northern Territory. The TNRM Program is as follows:

- Each participating family business is to submit a question, topic, or issue of interest to them relating to soil issues (See EOI form)
- Our facilitator for the project, agricultural ecologist David Hardwick, will address these issues at each participating property.
- Each Soil Health Educational Session will involve a theoretical segment and also a practical segment out in the paddock
- Each session will be professionally facilitated by David Hardwick, assisted by TNRM staff, and specialists when needed.
- Catering for each event will be provided
- Each participating business will host the entire group on their property.

The **Soil Pit Day** will take place on one lucky participating property. This selection will be done on a competitive basis (see EOI). The **Soil Health Interpretation and Wrap Up Day** will take place at a central location. All sessions will take into consideration farmers' harvest, planting, mustering commitments.

Club Meeting Room for 2019

The Club has been allocated a new meeting room for 2019 at Charles Darwin University's Casuarina Campus. It is in the same complex the Club's 2018 meetings were held in but has now been moved upstairs to room number **BLUE 2.2.24** .



NT Field Naturalists' Club Directory		
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	Andrew Bell	0428 882 979
BirdLife Australia Liason Officer:	Andrew Bell	
Newsletter Editor	Leona Sullivan	0423 951 874
Website and Facebook:	Tissa Ratnayeke	0417 659 755

Club web-site: http://ntfieldnaturalists.org.au/

Club notices

Thank you: The previous issue was despatched by **Tissa Ratnayeke.**

Newsletter contributions welcome: Sightings, reports, travelogues, reviews, photographs, sketches, news, comments, opinions, theories ..... , anything relevant to natural history. Please forward material to news.ntfieldnatsnt@gmail.com

Deadline for the March newsletter: 28 March 2019

Need a Club membership form? Go to: http://ntfieldnaturalists.org.au/membership/

***Northern Territory Naturalist*:**
Chief Editor, Richard Willan, advises that Volume 28 has been printed and copies have been mailed out to members who haven't been able to personally collect their copy. Contributions for next year's volume are now welcome.

Top End Native Plant Society General meetings are held on the 3rd Thursday of the month at the Marrara Christian College, corner Amy Johnson Ave. and McMillans Road, and commence at 7:30 pm (speaker at 8 pm). Visit http://www.topendnativeplants.org.au/index.php or contact **Russell Dempster** on 0459 440 665.

NT Field Naturalists' Club Meetings are *generally* held on the second Wednesday of every month, commencing at 7:45 PM, on the Casuarina Campus of Charles Darwin University.

Subscriptions are on a financial-year basis and are: Families/Institutional - $30; Singles - $25; Concessions - $15. Discounts are available for new members – please contact us.