



NATURE TERRITORY

December 2017

Newsletter of the Northern Territory Field Naturalists' Club Inc.

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



Happy and safe holidays

May 2018 bring you
everything you wish for
and many wonderful
encounters with nature

Red Bush Apple (*Syzygium suborbiculare*). Photo: Helen Richmond.

FOR THE DIARY



December Field Trip: Sun 3rd - End of year get together at George Brown Botanical Gardens

December Meeting: Wed 13th, 7.45 pm - "Bush Blitz trip to Bradshaw Station"- Michael Hammer

See pages 3 and 4 for more details

Disclaimer: The views expressed in *Nature Territory* are not necessarily those of the NT Field Naturalists' Club Inc. or members of its Committee.

December Meeting

Bream, Bombs and Butterflies: Bush Blitz of Bradshaw Military Field Training Area *with Michael Hammer*

Wednesday, 13 December, 7.45 pm, **BLUE 2.1.51**, CDU Casuarina

Summary: Freshwater fishes are a significant part of aquatic biodiversity and play an important role as environmental indicators, in traditional use and culture, and in recreational and commercial activities such as fishing and the aquarium trade. Many fish species in northern Australia are poorly known owing to the remote and expansive regional setting, and new discoveries continue with ongoing survey and the advancement of research techniques. This talk discusses the exciting outcomes from recent sampling as part of the Bush Blitz program, Australia's largest nature discovery project. Sampling occurred in a remote and rugged part of the Northern Territory, with very restricted access. The focus is on fishes, with a summary of other study groups also included.



Bradshaw Station. Photo: Michael Hammer

Biography: Michael Hammer is the Curator of Fishes at the Museum and Art Gallery of the Northern Territory, in Darwin, with a key research focus on marine and freshwater biodiversity. This includes studies aimed at the discovery of species new to science and important to conservation and management.



Angalarri Grunter. Photo: Michael Hammer



Electrofishing. Photo: Michael Hammer

December Field Trip

Christmas/End of Year get together

Sunday 3 December at George Brown Botanic Gardens

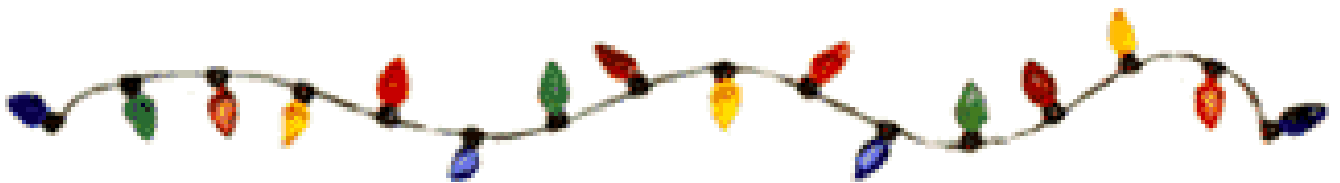
Join us for a walk guided by Sharon Wilson the Gardens Operations Manager, around the new section of the George Brown Darwin Botanic Gardens followed by a low key picnic.

MEET

At 8.30 am at the car park in front of the fountain for the guided walk. Picnic will be held at the tables behind the fountain at approximately 10.00 am if you wish to come along later.

WHAT TO BRING

Picnic food for yourself and to share. BYO drinks. There are tables but they are not always empty so it may be prudent to bring along your own chair.



Upcoming Field Nat Activities

January Field Trip - Date tbc - Building Your Birding Skills, East Point

February Meeting - Wed 14 - Wildlife Forensics - Jo Lee

February Field Trip - Date tbc - Indo-Pacific Marine

November Field Trip Report

Mary River Wilderness Retreat, November 2017

By Diana Lambert

In spite of a forecast for rain, four enthusiastic NT Field Naturalists' Club members participated in the overnight field trip to the Wilderness Retreat at Mary River, commencing mid-afternoon on Saturday through to Sunday afternoon/evening. Although it didn't bucket down, it was overcast on the Saturday with light showers during the night, followed by a fine, hot Sunday. A couple of changes to the intended weekend schedule were agreed to in order to meet the weather conditions and to make the most of the Retreat Manager's kind offer to use the cabin for as long as we needed on the Sunday.

Enroute to the Retreat, the party visited Leaning Tree Lagoon enjoying close-up encounters with a variety of different birds including Blue-winged Kookaburra, Green Pygmy Goose, Glossy Ibis, Comb-Crested Jacana and several egret species. Bird Billabong was also visited briefly to determine if it could be recommended to other participants wishing to visit the location the next day.

Unfortunately, it was bare of water; and bare of fauna, with only a couple of egrets seen. Given this disappointing result, the group decided to visit Fogg Dam instead.

Upon settling in to the cabin late afternoon, participants familiarised themselves with the Retreat's grounds (and the cool pool) to meet the resident Blue-Winged Kookaburras, Pied Imperial-Pigeons, an immature Pacific Baza and a calling Brush Cuckoo. After a convivial dinner, the group ventured out for a spotlighting walk, only to encounter several, large cane toads in the grounds and a cacophony of their mating choruses coming from the small dam north of the cabins. All agreed it was an unproductive night ramble.



Immature Pacific Baza in Berrimah. Photo: Tissa Ratnayeke

On Sunday morning, as agreed, people were up bright and early to explore the Bamboo Walk that hugged the large billabong adjacent to the Mary River. This walk presented some unexpected as well as expected animals – Agile Wallabies, a Greater Bower Bird, Spangled Drongos, Figbirds and a Green Oriole.

After a late breakfast, Diana Lambert (the Mystery Guest Speaker) delivered her short talk titled 'There is more to being a NT Field Naturalists' Club Member than meets the eye'. Diana explained the direct and indirect links between engagement with the natural environment and improving one's health and wellness levels. After defining the terms 'health' and 'wellness', Diana presented evidence-based research

findings to support each benefit stated for people partaking in nature engagement activities. Such activities include exactly those performed by members (e.g., ant monitoring, birding, bugging, invertebrate identification, revegetation projects). Diana explained that, although most people in the Club personally know of and experience these benefits, much of our urban society has lost its links with natural phenomena and subsequently don't know what they are missing.

Fortunately, since the change of the millennium, there has been an explosion of evidence-based research findings confirming the need for strategies that can effectively address the 'nature-deficit syndrome' facing society today. A different, greener approach is now slowly developing among many

of the world's larger cities, especially within local governments. This greener approach extends across a variety of different professional areas including urban design, recreational planning, workplace health and wellbeing, psychology, health promotion, horticulture, education and mental health. Consequently, the good work that NTFNC members do ~~inandfor~~the community contributes not only to the breadth and depth of the many streams of natural science, but it also builds capacity for individuals and communities to increase their health and wellness levels. Diana predicted that, as more research findings in this area are conducted and shared, this Club (and organisations such as Field Naturalists' Clubs) will be recognised more in the future.

With the talk concluded, participants then ventured out into the fierce heat of the morning and walked the shady Wallaby Track which hugs the Mary River as it meanders around the Retreat grounds in a tight S-bend. The track commenced adjacent to the river and ended with a high, swinging bridge crossing the other small dam on the property (1.5 km). The focus on this particular walk was more on the plants of the area (although an elusive Rainbow Pitta insisted on taunting everyone with its calls nearby). The huge silver-leafed paper bark trees lining the river were awe-inspiring.

One of the highlights of the stay at the Mary River Wilderness Retreat was identifying a pair of Dollar Birds who frequently and cautiously disappeared into the hollow of a particular dead tree. With food in mouth, they patiently waited until 'the coast was clear'. Undoubtedly, they were feeding hungry chicks.

After a mouth-watering lunch at the Purple Mango café, the vehicle, with all participants in hand, headed for Fogg Dam. Many of the birds on the Bird List provided below were seen at this location. The highlight of this location was a close encounter with approximately 35 Red-tailed Black-Cockatoos (all triads comprising males, females and immatures were present in the flock). Out of nearby trees, they flew towards the stationary vehicle – with waiting cameras. It was a spectacle to watch them flying in and landing besides a large pool of water, at the intersection of Anzac Parade and the Arnhem Highway. Barely 10 metres distant, they graced the group with their presence for at least half an hour. It was the participants who made the first reluctant move to leave – and return to Darwin whilst viewing the last vestiges of a beautiful sunset.

Although somewhat unconventional (i.e., changes to the advertised itinerary), all the participants agreed it was a very productive, informative, interesting and engaging Field Trip!

Bird list from the surrounds of Mary River Wilderness Retreat

Magpie Goose	Black-faced Cuckooshrike	Northern Fantail	Red-collared Lorikeet
White-headed Stilt	Little Pied Cormorant	Eastern Cattle Egret	Double-barred Finch
White-quilled Honeyeater	White-bellied Cuckooshrike	Rainbow Bee-eater	Whistling Kite
Wandering Whistling Duck	Little Black Cormorant	Arafura Fantail	Red-winged Parrot
Masked Lapwing	Pheasant Coucal	Glossy Ibis	Crimson Finch
Helmuted Friarbird	Varied Triller	Oriental Dollarbird	Black Kite
Radjah Shelduck	Australasian Darter	Willie Wagtail	Great Bowerbird
Comb-crested Jacana	Pacific Koel	Australian White Ibis	Magpie-lark
Little Friarbird	Australasian Figbird	Brown Falcon	Brown Goshawk
Pacific Black Duck	White-necked Heron	Shining Flycatcher	White-gaped Honeyeater
Whiskered Tern	Brush Cuckoo	Straw-necked Ibis	Torresian Crow
White-breasted Woodswallow	Green Oriole	Red-tailed Black-Cockatoo	Australian Swamphe
Green Pygmy-goose	Eastern Great Heron	Paperbark Flycatcher	Rufous-banded Honeyeater
Peaceful Dove	Blue-winged Kookaburra	Royal Spoonbill	Pied Imperial-Pigeon
Pied Butcherbird	Spangled Drongo	Sulphur-crested Cockatoo	Brolga
Orange-footed Scrubfowl	Intermediate Egret	Lemon-bellied Flyrobin	Dusky Myzomela
Bar-shouldered Dove	Forest Kingfisher	Pacific Baza	

Beast of the month - Waterhouse's Snail

Text and Photos by Adam Bourke

On completion of Stuart's epic 1861-1862 overland journey from Adelaide to Chambers Bay east of Darwin, Frederick George Waterhouse - the naturalist appointed to the expedition party - successfully returned to Adelaide with bird and mammal skins, insects, plants and numerous species of freshwater snail, many of which were species new to science. To honour Waterhouse's achievement, malacologists Adams and Angas named one of the large freshwater snails he collected after him, writing in their 1863 scientific paper to the Zoological Society of London, "*we have great pleasure in dedicating this [snail – *Notopala waterhouseii*] to F. G. Waterhouse.... who, under great difficulties during the expedition, succeeded in making many valuable additions to science*".

Growing to shell lengths of up to 48 mm, Waterhouse's Snail (*Notopala waterhouseii*) holds the title of being Australia's largest freshwater snail. Waterhouse's Snail is endemic to the Northern Territory and typically lives amongst aquatic plants in large permanent billabongs, grazing on algae and organic detritus or filter suspended particles from the water using its gill filaments. There are number of similar looking species in the NT, however, Waterhouse's Snail can be easily separated from all others by its large size, shouldered whorls and pale brown to greenish coloured shell which is usually marked with faint spiral bands (Figure 1). When active the long tentacles and large siphon are clearly visible, while closer inspections reveal the beautifully patterned body marked with tiny golden speckles and golden fringed orangish blotches (Figure 2).

Waterhouse's Snail is a member of the family Viviparidae, a fascinating group of freshwater snails that brood their young inside their oviduct (brood pouch) and later release them as fully formed miniature snails. Unlike hermaphroditic snails, members of this family are diecious, meaning there are separate male and female sexes. Males can be identified by their swollen and usually coiled right tentacle which has been modified into a copulatory organ. For those people into freshwater aquaria, Waterhouse's Snail makes an excellent addition to a well-planted community tank or pond. Contact Dave Wilson from Aquagreen for availability.



Fig 1: Waterhouse's Snail (*Notopala waterhouseii*) complete with tightly fitting operculum (plug).



Fig 2: A crawling Waterhouse's Snail showing the long tentacles, large siphon and beautifully patterned body (left). Close up of the golden speckles and golden fringed orangish blotches marking the head and foot (right).

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The Gamba Grass Nightmare

By Denise Lawungkurr Goodfellow

Until only a few years ago the role of the Cane Toad in bringing about local extinctions of wildlife was the focus of the Top End public, press and government. Meantime a much worse pestilence was quietly but definitively creeping across northern Australia, leaving in its wake a landscape of tall exotic grass waving in the breeze, and not much else. That plant is Gamba Grass.

Gamba Grass (*Andropogon gayanus*), grows in clumps to 4.5 m in height (as measured on our property at Darwin River), and 70 cm in diameter, with stems to 3 cm in width. A perennial species native to the African savannah, it was introduced to Australia in the 1930s. Pastoralists welcomed this new introduction for it could carry 40 times 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".

Others see Gamba Grass in a different light. Tim Low of the Invasive Species Council called Gamba Grass the "triffid of the plant world" (<https://invasives.org.au/project/gamba-grass/>). "Field of nightmares" was how Dr. Aaron Petty entitled his article on the weed (<http://theconversation.com/field-of-nightmares-gamba-grass-in-the-top-end-12178>). They have good reason for using such epithets. Gamba is a "transformer" weed, 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. Often these conflagrations are big enough for thermal updrafts to cause the formation of pyrocumulus (literally fireclouds), their tops reaching a height of nine kilometres (<http://www.theairlinepilots.com/met/pyrocumulus.htm>).

Gamba Grass can lead to an indefinite cycle of hot, late fires that kill trees and other plants leading to further Gamba Grass invasion -the grass-fire cycle. Once established this cycle is very difficult to reverse.

Gamba Grass can produce between 15,000 to 244,000 seeds per plant annually. Although most falls with a few metres of the plant, seeds can be carried a long way (Lamb, 2008) by thermal air movements (Clifton 2005b). There was an unconfirmed report in 2014 that a pilot who returned to the Batchelor airfield 75 km south of Darwin, with engine trouble, found that his plane's air intake was clogged with Gamba seed. This claim is not beyond the realms of possibility; seeds of other species have been carried to heights greater than 3 km by "thermal updrafts of large fires" (Whelan in D.R. Murray: 2002). And seed clogging the air intake filter of aircraft is a known hazard, (www.recreationalflying.com/tutorials/safety/efato.html).



A fire unit almost hidden in Gamba Grass. Photo: Sue Whatley, BFNT

The Top End savannah biota evolved to cope with regular but relatively cool fire. Thus Gamba, which burns much hotter than native grasses, does not auger well for our fauna and flora (Rossiter, Douglas, Setterfield and Hutley, 2003). In the Top End it is predicted that Gamba Grass could invade all woodland and open forest, and the edges of wetland and monsoon forest, representing an area of approximately 38 million ha (Douglas and Setterfield:2005; Petty, Setterfield, Ferdinands, and Barrow: 2012). The Invasive Species Council has declared Gamba Grass to be "probably the single greatest threat to (Australia's) tropical savannas" (<https://invasives.org.au/project/gamba-grass/>). As native grasses and trees disappear so may many iconic birds, such as Gouldian Finch, Black-tailed Treecreeper, and Partridge Pigeon, along with tree-dwelling mammals such as our endemic Sugar Glider, as well as reptiles and frogs and invertebrates.

The NT Government recently announced that they were abandoning attempts to eradicate Gamba grass throughout Darwin and Katherine and along parts of the Arnhem Highway to Kakadu National Park. Thus control of Gamba Grass was left, basically, in the hands of landholders, Indigenous rangers, and the overworked and understaffed voluntary fire services. For most of the year Michael and myself spend up to six hours a day removing weeds such as Gamba.

Yet even now some don't see any reason for getting rid of Gamba Grass (pers. comment, grazier, 2012). Indeed the means of ridding a property of Gamba (i.e. burning and poisoning) are seen as ruining the natural environment as a writer in an online journal stated: "Grazing cattle on Gamba Grass has led to a sustainable forage source that supports the current livestock industry and smaller landholders with the odd horse or cow. This is a solution! People don't have the money to head out on an environment destroying crusade! We have no intention of turning our beautiful cattle property into a dusty moonscape because a few people don't like a certain breed of grass!" (Khan, 2009).



Burning Gamba Grass. Photo: Sue Whatley, BFNT

Given the trials and tribulations graziers have faced in recent years it is possible that for some this grass could mean the difference between making a living and bankruptcy. However, a real estate agent has stated (pers. comm. 2014) that many pastoralists now view Gamba Grass as a "liability" when they come to sell their stations. Still, according to a speaker at a recent forum, some graziers are still sowing this weed as pasture.

Other products that depend on wildlife may be hit hard by the destruction of habitat and the loss of

wildlife. For example birdwatching tourism may be hit hard. Birdwatching constitutes a large sector of wildlife tourism (Curtin & Wilkes, 2005; Jones & Buckley, 2001), and ecotourism (Mathis, Cushion, Montagna, Biltonen, & Yoskowitz, 2007:19). The production of honey may also be affected with the destruction of eucalypts such as *E. miniata* and *E. tetradonta* on which bees depend. And the carbon offset program run by Indigenous rangers is under threat because of Gamba.

In the case of Gamba Grass, government and the industry failed to consider the costs of risk and impact associated with its use as a pasture grass. In the region that includes Batchelor, a town close to the iconic Litchfield National Park, average costs of fighting a fire soared "from \$938 (\pm \$252) pre-invasion to \$25,609 (\pm \$5134) post-invasion (NT Government, unpublished data in Setterfield, Rossiter-Rachor, Douglas, Wainger, Petty, Barrow, Shepherd, and Ferdinands:2013). In June, 2017, it took two water bombers, two helicopters, a tanker, a grader, twelve fire trucks and many firefighters a day to extinguish a fire at Darwin River. I have not seen costs associated with this fire or other more recent ones, but they are bound to be even higher. Late 2017 and volunteer firefighters at Darwin River Volunteer Bushfire Brigade are exhausted emotionally and physically. While they have saved people and property and much natural habitat, there have been fires they were unable to control. Luckily the three that threatened our property they were able to stop. One, believed to be deliberately lit, headed straight for our second dwelling and our guests, two prominent ornithologists, Mike Blair and Pete Colston. We stood in front of that building armed with hoses and ready to back up the fires.

Yet Gamba Grass has raised barely a ripple in Federal Parliament, unlike the Cane Toad, highlighted in this speech by Barry Haase, MP in the House of Representatives: "Cane Toads are destroying our fauna, they are destroying the top of the food chain, bungarras, Johnstone River crocs et cetera. It is something we must not ignore and we must in this House do everything we can to put resources into funding a finding of a biological solution to the advance of this incredible scourge of Australian wildlife. "

(<http://www.canetoads.com.au/Cane%20Toads%20270513.pdf>).

That this toad could inspire such a call to action as it has in the Kimberleys and the Top End is hardly surprising - it is ugly and an obvious threat to wildlife and pets; it causes local extinctions. Yet all the while that insidious invader, Gamba Grass, has crept upon the land stealthily, tying government and communities in knots while it transforms large parts of northern Australia into a wasteland largely devoid of other flora and most fauna. Now Pew Charitable Trusts https://en.wikipedia.org/wiki/The_Pew_Charitable_Trusts have joined the fight against gamba, organizing a forum in Darwin, along with Natural Resource Management. Pew, with its immense clout, may be a game-changer.

This is not to say that Gamba is the only threat to native fauna and flora. Higher than average maximum temperatures accompanied by high winds have contributed to destructive fires in Darwin River, Berry Springs, and Batchelor and other parts of the Top End. Hot, regular fires result in destruction of tree cover, whatever the cause. Removal of tree cover reduces wind turbulence, thus increasing its speed and making such fires difficult or even impossible to control. We are not going to be able to halt climate change in the short term in order to protect our forests and woodland. But we can reduce the threat from Gamba Grass by strategic clearing, burning before the grass seeds, spraying, and other measures. The standard 4 m firebreaks are not wide enough to contain fires (Lamb, 2008). Indeed spot fires can occur far ahead of the fire front (<https://sites.google.com/site/bfntvolunteers/fire-stories/2009-bushfire-season>). However, the NT Weeds Branch is now demanding a 15 m. buffer zone clear of gamba grass. That one move may prevent much spread.

It also seems that termites may help control wildfire, believe it or not. Grass-eating termites can reduce by 25% both grass cover and leaf litter (Brian, 1978 p. 281), and so, instead of mowing the native grassland at our Darwin River property, we have let it grow. In December 2016 we noticed dozens of cathedral termite mound among the grass. Some of those mounds are now over three metres in height. And apart from thinning out grass cover they may have another mitigating effect on fire. Termite mounds may create air turbulence as trees do, thus slowing wind speed and the progress of grass fires.

It is not enough to take an interest in our fauna and flora, to go bushwalking or orienteering, to simply enjoy visiting beautiful country with our family and friends. This is one fight that we all need to be in.

For more photos go to <https://sites.google.com/site/bfntvolunteers/weeds/gamba-grass>.

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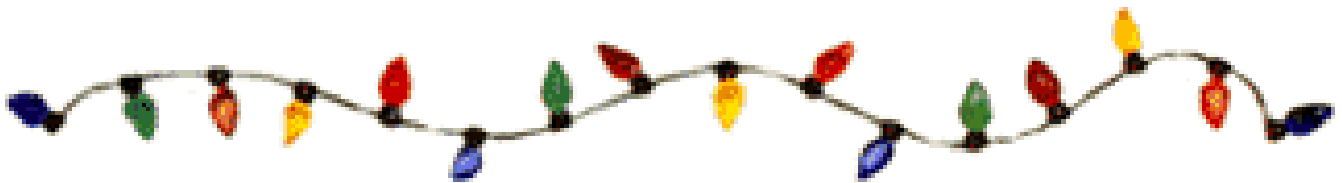
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Bits 'N Pieces

- The entire 2017 Field Nats photographic exhibition is now on display in the Live Darwin Hub, Paspaley Building, Darwin city central. It will be there for one month only so be quick to have a look if you haven't already done so!
- Looking for a fun Facebook site. Try the one suggested by Jan and Craig - Crap Bird Photography. A great site for purging yourself of those bird photos that didn't quite work.
- A suggestion for wrapping and placing under the tree is recently published (2 May 2017) *The Australian Bird Guide* by Peter Menkhorst, Danny Rogers and Rohan Clarke. Illustrations Jeff Davies, Peer Marsack and Kim Franklin. CSIRO Publishing, \$49.99.

Support the **Darwin River**
Volunteer Fire Brigade

Christmas
trees

Native
Cypress Pines

Callitris intratropica

1 m. \$30
1.8 m. \$50
3 m. \$75



NT Field Naturalists' Club Directory

President:	Richard Willan	8999 8238 (w)
Secretary:	Diana Lambert	0409 767 570
Treasurer:	Jo Rapley	0487 193 241
Committee Members:	Graham Brown	8945 4745 (h/w)
	Mark Grubert	8999 2167 (w)
	Lyn Lowe	0411 269 216
	Tida Nou	0448 899 700
	Leona Sullivan	0423 951 874
Bird Life Australia Liason Officer:	Denise Goodfellow	
Newsletter Editor	Leona Sullivan	0423 951 874
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Club web-site: <http://ntfieldnaturalists.org.au/>



Club notices

Thank you: The previous issue was despatched by **Sarah Bonney**.



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 February newsletter: Wednesday 31 January 2018



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



Northern Territory Naturalist:

Chief Editor, Richard Willan, advises that the time for submission of articles for this year's issue has now closed. The clutch of papers for volume 28 is now going through the editorial system.



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.