

NATURE TERRITORY

October 2016

Newsletter of the Northern Territory Field Naturalists' Club Inc.

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



Our Beast of the Month article this month on page 9 is about Darwin's Moon Crabs.

The Reticulated Moon Crab (*Matuta planipes*) is one of two species found on our shores. It has a reticulate pattern of rings and loops on the carapace and a single prominent white spine on the outer edge of each claw.

Photo: Adam Bourke

FOR THE DIARY

October Meeting: Wednesday 12 October 2016, 7.45pm

Wildlife use of waterholes in Central Australia - *Speaker: Jenny Davis*

October excursion: Sunday 16 October at 5.30pm

Exploring a bush remnant near Howard Springs turn off *with Lyn Lowe*

• **See page 2 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.

Club Activities

October Meeting

Wildlife use of waterholes in Central Australia with Jenny Davis

Wednesday 12 October 2016 7.45 pm, Function Room, level 3, Red 1, CDU Casuarina



Biography - Professor Jenny Davis is Head of the School of Environment at Charles Darwin University. Jenny has undertaken projects on freshwater biodiversity and wetland conservation in all Australian states and Malaysia (Sarawak). Much of her research is devoted to understanding the critical processes that support the persistence and resilience of freshwater ecosystems.

Arid landscapes are highly water-limited environments and all water (surface and groundwater) is environmentally, culturally and economically important. Springs, sites where groundwater discharges at the Earth's surface, are often the only perennial aquatic environments in arid regions. By providing habitats for

aquatic biota, as well being an essential water resource for terrestrial species and human settlements, they are small natural features that make a contribution to ecological processes and biodiversity that extends far beyond their area. Many contain endemic species of plants, fishes and invertebrates and are recognized as globally important biodiversity hotspots and evolutionary and ecological refugia. However, water resource development and invasive species are major threats to these systems throughout the Australian arid zone.

Predictions from global climate models suggest that drier regions will become drier and extreme events (extended droughts) more common. This will increase the pressure to extract groundwater for human use and result in the loss of Outback spring environments and the endemic and dispersal-limited species they support. Conservation challenges include addressing the impacts of exotic and invasive species and managing recreational activities.

New tools, including motion-sensitive cameras and dataloggers, and methods, such as environmental DNA, are providing a wealth of information about the conditions and the animals that use the perennial springs and the temporary and ephemeral rockholes in Watarrka National Park (Kings Canyon) and the West MacDonnell Ranges in the southern NT. This talk will provide some recent results obtained from this research.

October Field Trip - Visit a Top End forest in the middle of suburbia/WWII 16 Mile Camp site with Lyn Lowe

Sunday 16 October at 5.30 pm

Join us for an early evening walk at this WWII 16 Mile campsite site in the suburb of Johnston in Palmerston which abuts the Stuart Highway. The area is almost totally enclosed by residential areas but has much to offer in the way of interesting habitat and WWII relics. Lyn is also thinking of observing any habitat changes at the site.

Directions: The site can be reached via the Stuart Highway outbound, turn right at the Howard Springs traffic lights into Lambrick Avenue, then right again into Farrar Boulevard and second on the right into McKillop Court Johnstone to the end of the court behind MacKillop Catholic College.

We will meet at the Information Stand at the site (see photo) at 5.30 pm Sunday 16 October.

Please wear enclosed shoes, bring along binoculars, water and mozzie repellent. Bring head lamps should you wish to stay a bit longer for a nocturnal walk.



Club News

Comings and Goings

We welcome new members to the club and look forward to seeing you and all our renewed members, at our next meeting or field trip.

Interesting Snippets / Sightings

This section of the newsletter relies on NT Field Nats members letting other members know of any interesting snippets or sightings. You can let Lyn Lowe know of your snippet or sighting at the monthly meeting or, if you are unable to attend please send an email to news.ntfieldnatsnt@gmail.com so we can include it in the newsletter.

From **Geoff Kum Jew**: Guess what manner of beasts these are?

They were found under the remnants of a foxtail palm trunk



Heaps of oval casings under the Foxtail remnant.



Pupa in opened casing.

Any ideas on what the above might be? The answer is on page 10 of the newsletter.

From **Mike Miloshis**; While on lunch break during a CDU research trip I came across this Striated Herron hunting fiddler crabs and fish at low tide on the upper Tommycut Creek, Mary River.

Taken with a Samsung s6 through Swarovski binos.



Thanks to everyone for this month's snippets and sightings.

Future Field Nats Program

November Meeting. Wed 9. Floor talk on exhibition of bird prints at CDU Art Gallery with Stephen Garnett

November Field Trip. Sun 13. Birds of East Point with Amanda Lilleyman

December Meeting. Wed 14. Donna Lewis (NT Herbarium) Overview of the new electronic Flora NT

December Outing: TBC

September AGM President's Talk

Richard C. Willan President, Northern Territory Field Naturalists' Club Inc.

Welcome Club members and friends to our AGM.

The Northern Territory Department of Business officially registers all community groups annually and publishes a list of those that have lapsed and thus been deregistered. I was astonished at the size of the list that was published recently – well over 300. This number unfortunately reflects the trajectory of so many community groups in the Northern Territory – a burst of activity by a few keen starters, a time of growth, and then a gradual decline as membership falls and people move away. If only the Territory had the capacity for people to stay here! Fortunately the Northern Territory Field Naturalists' Club was not one of the deregistered hoards and it continues to be a vibrant and active group hovering in the growth phase. One way our Club maintains its growth is by trying different new initiatives every year.

It is interesting this list is maintained by the Department of Business so its underlying paradigm would be one of ever-increasing growth. However, like nature itself, our curve is now in an equilibrium state so I am happy to report membership has held steady at about 130 for the year under report.

As previously, I will subdivide my Report into three parts: Internal Club Activities supported during the Year; New Initiatives undertaken by the Club during the Year; and External Activities supported during the Year.

Internal Club Activities supported during 2015–16

The Club held 12 monthly meetings. Guest speakers told us about environmental monitoring program of the gold mine at Mount Todd, behaviour of cherabin prawns, and of barramundi, festivals associated with spawning of palolo worms, management of deer, enviro-political issues in the Timor Sea, responses of sea snakes following a major oil spill in the Timor Sea, and tropical cyclones. Our own members told us about nature photography, their overseas and interstate trips, and biodiversity monitoring in Kakadu National Park. I am very grateful to all the presenters for these informative and entertaining talks.

The Club organised 11 field trips during the Year, all well-supported. Of these excursions, one was an overnight camp to Litchfield National Park. Two were day trips outside Darwin – to Howard Springs and Corroboree Billabong. And nine were around held around Darwin itself – Charles Darwin National Park, Museum and Art Gallery of the Northern Territory, Ludmilla Bay, Shoal Bay, Howard Springs, Casuarina Coastal Reserve, and Holmes Jungle. I am pleased to report that no health and safety incident occurred on any field trip during the year.

A total of 11 numbers of our newsletter *Nature Territory* were published during the Year. One notable new regular feature is Interesting Snippets that Lyn Lowe contributes. For me, one of the most significant articles published in the newsletter was that by Phillip Mangion in May wherein he reported that there are still some King Brown snakes remaining in Kakadu National Park despite the population crash caused by Cane Toads there in recent years. I thank Ilona and Laurie Barrand for distributing the newsletters. During the Year,



the Club moved to electronic-only (at least for the most part) distribution of newsletters.

The next issues of *Northern Territory Naturalist* will be published very soon. We are planning for two separate issues (numbers 27 and 28). Consistent with the wish expressed in my editorial in number 25 (2014), both issues contain papers by our own Club members reporting significant new distributional records for the Territory.

The Club continues to keep members informed and receive feedback through its website and Facebook pages. The newly expanded website went live in May and I am grateful to Peter Walker of Imagineer Ltd for its foundation and ongoing management.

The Second Charles Darwin University Scholarship was presented to Amanda Lilleyman. As a condition of this award, Amanda will present a lecture at a monthly meeting next year and submit a paper for publication in the next issue of *Northern Territory Naturalist*. The winner of the Inaugural Scholarship, Stephanie Oberprieler, presented her talk in May.

New Initiatives Undertaken by the Club during 2015–16

The Club's *Northern Territory Photographic Competition*, which was held in the Northern Territory Library at Parliament House in Darwin from 8-29 October, was a great success. I express deep gratitude to Laurie and Ilona Barrand for the organisation behind this event. A similar event is already being planned for the same location in August next year. During Science Week 2016, the Club together with the CDU Postgraduate Society, hosted an evening of science-related open air films at the Darwin Surf Lifesaving Club inside Casuarina Coastal Reserve. Amanda Lilleyman and

Sarah Bonney organised this very successful event called *Sunset Science Films*.

In September, The Club's Committee signed an agreement with the national organisation BirdLife Australia so that the Club could become an Affiliated Organisation. Basically, this Agreement facilitates co-operation and exchange of information about birds with [I quote]: "realistic mutually beneficial. One positive outcome is that expectations and outcomes where they may be Field Nats members who are interested can now become non-financial supporters of BirdLife Australia, which includes a free e-newsletter and sharing national information on birds."

External Activities supported during 2015–16

Committee members and non-Committee members participated enthusiastically on Field Nat's stalls as part of several wildlife-related public events during the year: World Threatened Species Day in September 2015, Kakadu Bird Week in October 2015, and the

opening of the new African-Madagascan Garden at the George Brown Botanic Gardens in May 2016.

Acknowledgements

The time, effort and dedication of many people have made this Financial Year successful. I would like to thank all those people who have taken on activities for the Club with such enthusiasm:

Immediate Past President – Tissa Ratnayake.

Committee – Julie Wilson (Secretary), Laurie and Ilona Barrand (Treasurer/ Membership Officer), Julia Collingwood, Graham Brown, Mark Grubert, Natalie Davis, Lyn Lowe. I wish to thank all the Committee for their tremendous collective work. I particularly thank Natalie and Laurie who



stepped down from the Committee during the year, and Ilona who is stepping down tonight, as well as Amanda Lilleyman who relinquished her position as Liaison Officer with BirdLife Australia. The Committee benefitted by the presence of Sarah Bonney who was co-opted in April.

Newsletter Editors – Emma Noonan, & all contributors.

Editorial Committee for *Northern Territory Naturalist* – myself as Chief Editor, plus Assistant Editors Sean Bellairs and Peter Kyne, plus Production Editor Sue Dibbs, & all contributors. Anke Frank stepped down as Assistant Editor because of her move back to Germany.

Presenters at monthly meetings – Catherine Whitehead, Peter Novak, Laurie Barrand, Chris Glasby, Mark Grubert, Jim Prescott, David Crook, Mick Guinea, Stefanie Oberprieler, Brian Boyle, Louise Finch, myself, Jackson Browne.

Organisers/leaders of field trips – Sean Webster, Tissa Ratnayeke, Michael Hammer, Jared Archibald, myself, Amanda Lilleyman, Laurie Barrand, Ilona Barrand, Natalie Davis, David Wilson, John Rawsthorne.

Meeting Rooms at Charles Darwin University – Andrew Campbell (Director, Research Institute for the Environment and Livelihoods), Penny Wurm (Associate Head of School, Learning and Teaching), Adam Cullen (Manager, Property Services), David MacBain (Venue Hire Officer).

Room for Committee Meetings – Natasha Fyles MLA and Nicole Mannison MLA (Members for Nightcliff and Wanguri, respectively, for use of their Electorate Office Community Meeting Rooms for Committee meetings).

Auditor – Linda Murphy.

CALLING ALL FIELD NATS! Framed Gallery is supporting National Bird Week with an amazing exhibition entitled **FOR THE BIRDS**.

The exhibition is amazing both for the number of artists from all over Australia who are contributing, and for the diversity of art forms: paintings, prints, wood carvings, bronzes, and rusty steel creations, including a massive eagle poised for flight.

Top artists and craftspeople have contributed to this celebration of Australia's distinctive avifauna. As most of you are aware, a significant number of Australian birds are in serious decline. For this reason a percentage of the income from the sales will be donated to Birdlife Australia for bird conservation projects.

Members of the NT Field Naturalists' Club are warmly invited to support this exhibition to be opened by Ian Hance on Friday October 7. The gallery will be open for viewing from 6:30pm, with the official opening at 7:00pm. The exhibition concludes on October 31. Framed Gallery is located at 55 Stuart Highway Stuart Park.



Beast of the Month - Moon Crabs

Text and photos by Adam Bourke

If you're one of those Darwin people who enjoys wading in and out of the water while strolling along the beach, then you've probably seen a moon crab – or at least caught a fleeting glimpse of one. That yellowish camouflaged crab you saw frantically paddling away sideways was most likely a member of the family Matutidae, or moon crabs.

Moon crabs are characterised by their circular carapaces (hence the name) with two well-developed, sharp lateral spines and flattened, paddle-like legs, specially adapted for swimming and burying. Moon crabs are small crabs (about 50 mm in length) that mostly occur in shallow-water and intertidal habitats with soft-sandy substrates in tropical to subtropical regions.



Common Moon Crab (*Matuta victor*) distinguished by the minute spots on the carapace and the two white spines on the outer edge of each cheliped.

Well-known for their burying behaviour, moon crabs are renowned for the incredible speed at which they can disappear into the sand. Identification of moon crabs from Darwin beaches is easy, as only the Common Moon Crab (*Matuta victor*) and Reticulated Moon Crab (*Matuta planipes*) generally occur within Darwin Harbour.

The two species can be distinguished from each other by the patterning on the upper surface of the carapace (i.e. the main body shell) and by the spines of their claws. *M. victor* is the most common species seen on Darwin beaches and is characteristically larger than *M. planipes*. Its carapace is spotted with minute purplish dots, and the outer edge of each claw has two prominent spines. The carapace of *M. planipes* is patterned with reticulating purplish-brown rings and loops, and the outer edge of each claw has a single prominent spine.

Moon crabs are highly adapted to living in soft-sandy substrates and are unique amongst true crabs in their ability to completely bury themselves for extended periods of time (i.e. hours to days). Few crabs are capable of this neat trick. Not only are the legs of moon crabs superbly adapted for digging, they also have specially configured mouthparts and unique respiratory modifications which allow them to breathe whilst completely buried in sand.

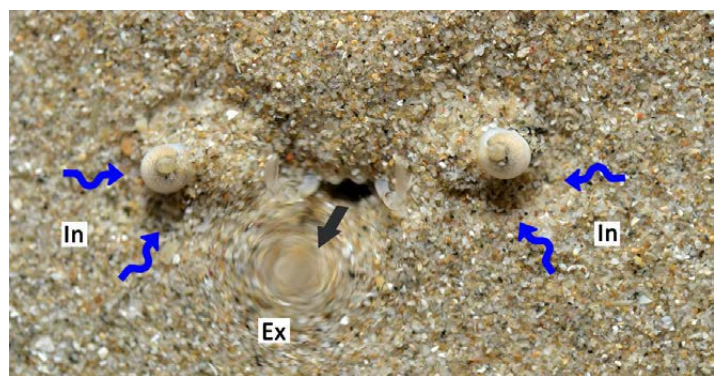
To overcome the problems of asphyxiation when buried, moon crabs have special inhalant channels in front of their eyes that funnel water between their carapace and claws and into their gills. Once fresh oxygenated water has passed over their gills, used deoxygenated is forced out under pressure, through special narrow, elongated channels near the mouth. This process separates inhaled water from exhaled water by dispersing the used water with sufficient force so as to prevent re-mixing. Exhalation of water under pressure is a clever technique used by moon crabs, as this creates a suction effect which helps move fresh oxygenated water towards the inhalant openings near the eyes. Breathing in this way allows crabs to remain completely buried for extended periods of time whilst maintaining normal respiration.

References:

- Bellwood, O., (2002). *Systematics, biogeography and functional morphology of the Box Crabs (Family Calappidae)*. Doctoral dissertation, James Cook University.
Davie, P.J., (2002). *Zoological Catalogue of Australia* (Vol. 19). CSIRO Publishing.
Galil, B.S., Clark, P.F. and Franssen, C.H.J.M., (1994). *A revision of the genus Matuta Weber, 1795 (Crustacea: Brachyura: Calappidae)*. Nationaal Natuurhistorisch Museum.



A Moon crab frantically swimming away from a Darwin beachgoer after being spooked in the shallows. This is how most people encounter these crabs.



A birds-eye view of a respiring Moon crab buried in sand with eyestalks, antennules and buccal cavity visible above the substrate. The blue arrows (In) represent fresh oxygenated water being inhaled into the branchial chamber from around the front of the eyes. The black arrow (Ex) shows deoxygenated water being exhaled through the buccal cavity between the antennules. Note – the force at which water is expelled out of the buccal cavity is demonstrated by the blurry, swirling patch in the left foreground.

Artists at Fogg Dam



Image: Robert Walter, Late Afternoon, Fogg Dam, watercolour



Christian Clare Robertson, Lotus (delicate)

Field Nats members are cordially invited to the opening of our exhibition at the Tactile Arts gallery, next to the Museum, on Friday 7 October at 5.30 pm.

It will be officially opened by Clare Martin, who is now Chair of the NT Natural Resource Management group, after a *welcome to country* by Traditional Owner, Joan Kenyon.

This is not just an artistic celebration of the lotus flowers and waterbirds for which Fogg Dam Nature Reserve is well known. It is also a plea to value and conserve these rich floodplain environments throughout the Top End.

Fogg Dam is an important long-term research location for the University of Sydney. Science has informed our art, such as the fascinating research on population dynamics of the Dusky rat (*Rattus colletti*) and the Water python (*Liasis fuscus*) conducted by Professor Rick Shine and Dr Thomas Madsen and their colleagues (and thank you for the reference images!) Discovering that Lotus flowers are capable of thermoregulation inspired Christian Clare Robertson to paint a delicate, botanically accurate series of lotus leaves in chinese vermilion – the result is eerily mammalian, but sublime. I set out to portray the seasons – and found I was artistically commenting on climate change and the tensions of native and introduced species. Jane Moore, whose work is already familiar: the Fogg Dam interpretive signage at Middle Point is hers, as are the murals at Mamukala wetland in Kakadu. In this exhibition,

Moore will bring us into conversations with milkwood, pandanus and banyans in her exquisite ink and watercolour pieces. Veronica Priestley's gorgeous textiles portray an unexpected selection of native flora: from dried *Luffa cylindrica* pods and peeling Eucalypt bark to *Eriocaulon setaceum* and other floating plants. Lee Berryman and Fiona Scott have created teapots and bowls inspired by cycads and lotus leaves. Pictured here on our invitation are Robert Walter's Magpie geese coming in to land for the evening and another of Clare Robertson's Lotuses, with a distinctly Japanese style.

Come and join us for a glass of wine, nibbles an informal concert by classical Guitar and Flute *Duo Serenata* on the lawn and of course a look at our art. The exhibition runs until Sunday 23 October.

Find us on Facebook: FoggDamArtists2016

Copy supplied by Alison Worsnop (long time member of the Field Nats)

Kakadu Bird Week - 1 to 9 October 2016

This annual event is on again with a range of activities to suit all levels of birders.

You can find more information here:

<http://www.parksaustralia.gov.au/kakadu/do/bird-week.html>



Bird of the month - Orange-footed Scrubfowl

By Denise Lawungkurr Goodfellow

Photos by Bas Hensen

Bird: Orange-footed Scrubfowl (*Megapodius reinwardt*)

Order: Galliformes

Family: Megapodiidae

Size: 35-50 cm.

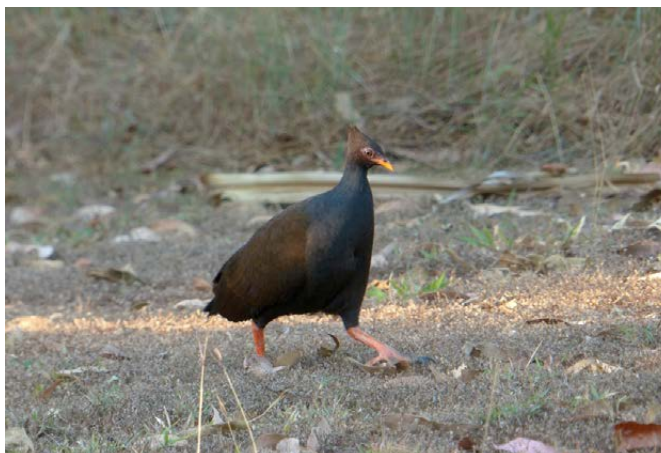
Description: A plump, dark bird with a small crest and powerful orange legs. It flies clumsily with much noisy flapping. The young resemble quail in appearance.

Ecology: Orange-footed Scrubfowl is a bird of monsoon forest and well-established gardens. The species is omnivorous, feeding on vegetable matter and invertebrates.

Orange-footed Scrubfowl breed from August to July, and like other megapodes use external means of incubating their eggs, building huge nests of vegetation that, as it decomposes, incubates the eggs. The male tests the temperature of the nest with thermo-receptors located in and around the beak, and removes or adds vegetation to heat or cool the nest. In megapodes, unlike other birds, the temperature change has been found to influence the survival of hatchlings through sex-biased temperature-sensitive embryo mortality. Studies of the Australian brush-turkey found that more males hatch when the temperature of the mound is low and more females when the temperature is higher. Those from cooler mounds also weighed less. The young are independent from hatching.

Where found: This species is found in coastal northern Australia with other subspecies in parts of New Guinea and Indonesia. It is common in Darwin and Palmerston gardens.

Notes: The Kunwinjku of western Arnhem Land call this bird Kurrkurldanj (M. and Rev. P. Nganjmirra and E. Managku). It is known as Kirrilima on the Tiwi Islands (L. Puruntatameri). While Top End gardeners often curse the bird for scratching up their tidy gardens, the Tiwi regard Scrubfowl with reverence. Leon Puruntatameri says it represents his clan group the Kurupuwu/Puruntatameri family, and that the bird flew from the mainland to the Islands to herald his birth.



References:

Goodfellow, D.L. & M.P. Stott, M.P. (2000, 2005). Birds of Australia's Top End, Darwin: Scrubfowl Press.

Göth, A., & Booth, D. T. (2005). Temperature-dependent sex ratio in a bird. *Biology Letters*, 1(1), 31–33.
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Grellet-Tinner G, Lindsay S, Thompson M. (2016) The biomechanical, chemical, and physiological adaptations of the eggs of two Australian megapodes to their nesting strategies and their implications for extinct titanosaur dinosaurs. *PeerJ Preprints* 4:e2100v1
<https://doi.org/10.7287/peerj.preprints.2100v1>

National Bird Week



Celebrate National Bird Week 17-23 October, by joining BirdLife's Aussie Backyard Bird Count. Make every bird count this spring, download the app now and visit the website for more information

<http://aussiebirdcount.org.au/>

There are lots of other great events happening for National Bird Week.

Inspired NT are having a bird theme Science @ Sunset event "Developing the North – Look up! Don't forget the

sky" on 10th October 5pm at the Darwin Bowls and Social Club go to Inspirednt.com.au for more information or to RSVP.

Join amateur naturalist John Rawsthorne for a guided Bird Watching Bike Tour of East Point Reserve on Sunday 16th October at 8am, meet at Lake Alexander car park. John will talk about his bird research at East Point Reserve and we'll participate in the Aussie Backyard Bird Count. No RSVP required. BYO bike and spirit of adventure.



Answer to Mystery Beast photos from page 3

Geoff has discovered the pupal cases of the common green cetoniine scarab (beetle) *Ischiopsopha* sp. which usually appears around Darwin in November. Their C-shaped white larvae live in rotting tree stumps. The image to the right shows a cocoon broken open to reveal a pre-adult with the metallic green colour not fully developed.

Scarabs have one generation per annum and tend to emerge as adults in early summer so there are many species common around Christmas. Only the largest or more colourful species tend to be noticed.

Thanks to Graham Brown for this information.



NT Field Naturalists' Club Directory

President:	Richard Willan	08 8999 8238 (w)
Secretary:	Julie Wilson	0407 157 691
Treasurer:	Sarah Bonney	0401 188 099
Committee Members:	Graham Brown	8945 4745 (h/w)
	Mark Grubert	8999 2167 (w)
	Lyn Lowe	0411 269 216
	Julia Collingwood	
	Rosemary Harbridge	
	Eloise Wigger	
Bird Life Liason Officer	Denise Goodfellow	
Newsletter Editor:	Emma Noonan	
Website and Facebook:	Tissa Ratnayeke	0417 659 755

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

NORTHERN TERRITORY NATURALIST



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The Journal of the NT Field Naturalists' Club

Club notices

Thank you: The previous issue was despatched by **Ilona Barrand**.

Newsletter contributions welcome: Sightings, reports, travelogues, reviews, photographs, sketches, news, comments, opinions, theories , anything relevant to natural history. Please forward material to **Emma Noonan** at news.ntfieldnatsnt@gmail.com or the Club's postal address, or contact her on 0417 321 130.

Deadline for the November newsletter: Monday 24 October 2016



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



Northern Territory Naturalist:

Chief Editor, Richard Willan, reports that Number 27 of the *Northern Territory Naturalist* will be with UniPrint by the time you receive this newsletter. It is a bumper issue (128 pages) with articles that will interest everyone.

As examples, there are research articles on an attractive 'golden' species of weevil that was lost for 200 years, on coral communities in the extreme environment that is Darwin Harbour, and on archaeology in Timor-Leste. There are Research Notes recording mangrove sea slugs and butterflies from sites close to Darwin. There are articles on the ecology of Pied Herons and Flatback Turtles.

The issue will be launched at the November meeting of Field Nats and the winner of the 2016 President's Choice for the best article in this issue will be announced then.



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 8983 2131.



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.