

NATURE TERRITORY

April 2010

Newsletter of the Northern Territory Field Naturalists Club Inc.

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Meetings are generally held on the second Wednesday of every month, commencing at 7:45 PM, in Blue1.14 (Business Faculty Building) on the Casuarina Campus of Charles Darwin University.

Subscriptions are on a financial-year basis and are: Families/Institutional - \$30; Singles - \$25; Concessions - \$15. Part-year discounts are available for new members from January 1 each year.



These Lycid beetles made good use of a flowering Swamp Box *Lophostemon lactifluus* for social contact – as did many insect species in many ways – see article and more photographs by Tissa Ratnayeke on pages 5 and 10.

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Club activities

April meeting. Wednesday April 14, 7:45 PM. Blue1.14 (Business Bldg.), CDU.

Stephen Reynolds

"Pig-nosed turtles and the Kikori region of Papua New Guinea"



Above: Fiona, the year-old Pig-nosed Turtle. Photo: Steve Reynolds.

Steve will present a series of photos from the Kikori River drainage, which is in the Gulf of Papua region of southern Papua New Guinea. He will talk mostly about plants, people & 'pets', frogs, the Pig-nosed Turtle, and some of his adventures on the river itself.

Steve has almost completed writing up a PhD thesis at

Charles Darwin University (CDU) on water relations in frogs in the monsoonal climate of northern Australia. He also teaches in the School of Environmental and Life Sciences at CDU.



April field trip. Sunday April 11. **Fogg Dam Field Day***. Commencing at 8 AM and running through to 4:30 PM, there's a huge range of activities: talks on a variety of natural history topics, birdwatching, butterflying, bush tucker walk, activities for kids, official opening of the monsoon forest walk, a sausage sizzle and much more. A free bus service is available to and from Palmerston. For more information including a program, go to www.foggdamfriends.org.

* The Fogg Dam Field Day has been organised by the Friends of Fogg Dam Inc. and not by the NTFNC Committee. The NTFNC will have a display stand at the Field Day.



May field trip. Weekend of May 15-16. **Natural history survey, Crab Claw Island.**

The Club has been asked to prepare plant and animal checklists and basic information sheets about the flora and fauna of the Crab Claw Island area in Bynoe Harbour, and to do so have been invited to stay as guests of the Crab Claw Island Resort. Anyone interested in coming along must be prepared to participate in field work. Numbers will be restricted to a maximum of 20 people, and will comprise of the first 20 members who confirm their availability to assist. Food and accommodation will be provided by Crab Claw Island Resort. Participants will likely be required to share accommodation. The resort is 135km southwest of Darwin. For more information on Crab Claw Island, see www.crabclawisland.com.au.

If you are interested in coming along, please contact Tida Nou by April 23 and provide a brief description of how you can assist (generation of checklists, photography etc.), your preference for accommodation (camping or room), and any special dietary requirements. Tida can be contacted: email tida.nou@gmail.com (please CC tida.nou@internode.on.net), or phone: 8981 6667 (h) or 0402 212979 (m). It is anticipated that participants will leave Darwin on the morning of 15 May, and return on the afternoon of 16 May. Car pooling and equipment arrangements can be arranged closer to the time.



May 2010 meeting. Wednesday May 12. Stuart Young: *The Kalahari*.

November 2010 meeting. Wednesday November 10. Azlan: *Mangrove birds*.

Club notices

New committee member needed

Interested in participating in the activities of the Club's organising Committee? The Committee is an enthusiastic band of volunteers who do some great stuff, and currently have a vacancy we'd love to fill. If interested, please contact our President, Tida Nou, email tida.nou@gmail.com or phone 8981 6667 (home).

Thank you

The previous issue was proof-read by **Fiona Douglas** and collated and mailed by **Susan Jacups**. It was printed by **Stuart Young** and **Don Franklin** using equipment kindly made available by **Collections, Biodiversity and Biological Parks** from the Department of Natural Resources, Environment, the Arts & Sport, and the **School for Environmental Research** at Charles Darwin University.

Newsletter contributions welcome

Sightings, reports, travelogues, reviews, photographs, sketches, news, comments, opinions, theories , anything relevant to natural history. Please forward material to Don at eucalypt@octa4.net.au or the Club's postal address, or contact him on 8948 1293.

Deadline for the May newsletter: Friday April 23.

Need a Club membership form? Go to: <http://sites.google.com/site/ntfieldnaturalists/membership-1>.

Club library

The Club's journal and book collection is available to members. The library is housed in two sections: **Books, reports and CDs:** at the medical clinic of Dr. Lyn Reid in the Rapid Creek Business Village. This can be accessed directly between 9 AM and 2:30 PM Tuesday to Thursday, and 4–6 PM on Tuesday, or indirectly by phoning Lyn at work on 8985 3250.

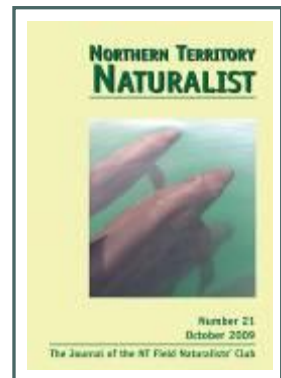
Journals: in the office of Don Franklin at CDU Casuarina (Red 1.2.34 = room 31.2.34). These can be accessed directly during working hours, or by ringing Don on 8946 6976 (w) or 8948 1293 (h).

Northern Territory Naturalist

The Editorial Committee of the Club's journal, the *Northern Territory Naturalist*, is now calling for manuscripts for issue no. 22. The journal publishes works concerning any aspect of the natural history and ecology of the Northern Territory or adjacent areas of northern Australia. and may include Research Papers (Articles or Short Notes), Reviews and Species Profiles.

The *Northern Territory Naturalist* is a registered, peer-reviewed journal (ISSN 0155-4093). Author instructions may be downloaded from <http://sites.google.com/site/ntfieldnaturalists/home/journal>. If possible, manuscripts should be submitted in digital form by emailing to michael.braby@nt.gov.au. Editors of the journal are Dr Lynda Prior, Dr Michael Braby and Dr Chris Tracy.

Back issues of the *Northern Territory Naturalist* are available individually (some are out of print and available as photocopies only) or as a set. The cost of a set is \$50- for nos. 1-20 or \$60- for nos. 1-21. Contact Don Franklin, eucalypt@octa4.net.au.



Sewage Pond Keys – Leanyer and Alice Springs

NT Field Naturalists have access to this world-famous bird-watching spot. The key can be collected from Graham Brown (h) 8945 4745. A refundable \$50.00 deposit is required at time of collecting the key, which is available only to members. Conditions imposed by PowerWater Corporation apply to all visitors to the ponds. These are not onerous and are made clear at time of picking up the keys.

Bryan Baker has keys for the Alice Springs Sewage Ponds, available for collection in Darwin by members before they head south. Bryan can be reached in Darwin on 8948 2196.

Olive-backed Oriole as likely would-be nest predator

Arthur and Sheryl Keates; photos by Trevor Collins

On 24 January 2010, at Maranboy Creek, on the Central Arnhem Highway, we witnessed an aggressive encounter between a pair of Bar-breasted Honeyeater (*Ramsayornis fasciatus*) (right) and an Olive-backed Oriole (*Oriolus sagittatus*) (below left).

Our attention was drawn to the fracas by the squawking of the honeyeaters. Very soon we realised why the birds were so agitated. The subject of their aggression was an Olive-backed Oriole standing on the branch of a paperbark tree over the creek. Suspended from the branch was the honeyeaters' nest. The intruder was peering into the nest cavity and clearly the honeyeaters did not regard it as a welcome visitor.

The Oriole's intention seemed clear to us, but the honeyeaters were just as determined to stop it as they relentlessly attacked the intruder, one after the other, bombarding it, a couple of times making contact around the head. At one stage, the Oriole almost got its head into the nest cavity and may well have succeeded but for the tenacity of the honeyeaters. As the branch swayed under the Oriole's weight, one of the honeyeaters struck a timely blow to the back of the Oriole's head, causing it to lose balance and forcing it to fly off, chased by both honeyeaters.

The Oriole landed in a tree about 30 m from the nest where the honeyeaters continued their attack. Ultimately, the honeyeaters succeeded in their defence of the nest and its contents, as the Oriole fled in the face of the unyielding onslaught.



Back at the nest, a Little Friarbird (*Philemon citreogularis*) had taken the place of the Oriole, inquisitively looking at the nest. The honeyeaters returned but not to the nest, seemingly unconcerned by their latest visitor, ignoring it. When the Little Friarbird left, the honeyeaters returned to the nest tree but we did not see one enter the nest chamber and withdrew so as not to draw more unwanted attention to the nest.

We had always thought Olive-backed Oriole were frugivorous but on consulting Higgins *et al.* (2006), we found that while the species mainly eats fruit and arthropods, food listed also includes seeds, nectar (particularly during the cool dry season in the NT when fruit and insects are in short supply), and rarely, nestlings of small birds.

Our observations took place over a period of not much more than a minute or two at most. The distressed state and aggression of the honeyeaters suggests to us that their nest was not empty, rather they were protecting either eggs or young. Further, the Oriole was at the least intent on finding out what was in the nest. Anything beyond that is pure speculation. Had there been nestlings in the nest, thankfully, we were spared witnessing a rare event, their being killed and eaten by the Oriole.

Reference Higgins PJ, Peter JM, Cowling SJ (eds.). 2006. *Handbook of Australian, New Zealand and Antarctic Birds*. Volume 7: Boatbills to Starlings. Oxford University Press, Melbourne.

Bounty in the branches

Text & photos by Tissa Ratnayake

It was the hint of a sweet scent wafting past me that caused me to look around, and I wasn't the only one who had noticed. Ahead of me was a flowering Swamp Box *Lophostemon lactifluus* literally pulsing with the frenetic activity of thousands of insects.

I was on an evening walk through Holmes Jungle in mid January and fortunately for me this wondrous sight happened to coincide with the first outing of my new macro lens which I was now able to put to good use.



By far the most numerous insects covering the entire tree were the orange coloured Lycid beetles that apart from feeding on this bounty were taking full advantage of the congregation of their species to find suitable mates. I saw many other beetles of which the only other positive ID and the largest was a single Brown Flower Beetle *Glycyphana stolata* (left).



Wasps were the second most common insects from tiny 3 mm-long black specimens to the large orange Pompilidae *Hemipepsis* sp. (right), a species better known for catching large spiders to feed their larvae.

Lepidoptera too were well represented the largest being three or four male Clearwing Swallowtails *Cressida cressida* (below) that showed a preference to remain above two metres from the ground.

Numerous moth species were present and surprisingly for me were four specimens of the day flying moth *Idalima leonora*. This is a species that usually flies close to the ground;

however in this situation they were feeding in the five metre canopy of the tree. The only other moth I was able to identify was the Tiger Moth *Amata nigriceps* (below right) which can be differentiated from its cousins by the white tips on its antennae.

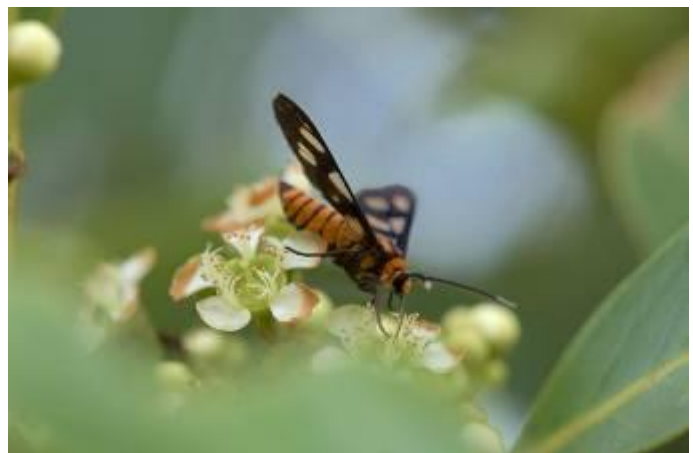


Two other insects of interest were firstly a 12mm long Mantis Fly, a predator with the same hunting technique as its namesake the Praying Mantis, and finally a Bush Cockroach

Ellipsoidion humerale, a species readily identified by its attractively striped black and white belly.

Perhaps the other feature of interest here was that adjacent to the Swamp Mahogany was a similar sized *Melaleuca* in fresh bloom yet none of the insects were showing any interest in its bountiful offerings.

[more "bounty" photos on page 10)



El Niño and the north Australian climate

From *Recent Literature*, page 11.

Though the Southern Oscillation Index, an important measure of the *El Niño/La Niña* effect, is measured as the difference in surface atmospheric pressure between Darwin and Tahiti, the influence of *El Niño* Southern Oscillation (ENSO) phases on the Top End climate has not been as clear as for some other parts of Australia. The previously reported effect has been one of reduced thunderstorm activity prior to the arrival of the monsoon. However, exciting recent research provides much greater insight into the relationship between ENSO and our climate with potential for much improved prediction of seasonal rainfall. Expect to hear more of the term “*El Niño Modoki*”.

The new insights arise from the realisation that the extent of sea surface warming during ENSO phases varies across the Pacific Ocean. The term “*El Niño Modoki*” refers to anomalous warming in the central Pacific Ocean “and weaker cold anomalies in the west and east of the [Pacific] basin” (Taschetto & England 2009; Taschetto *et al.* 2009). “While classical *El Niños* are associated with a significant reduction in rainfall over northeastern and southeastern Australia”, these authors show that *El Niño Modoki* warming is associated with increased monsoonal rainfall over northern and north-western Australia in January and February, but also reduced rainfall in December and March to May “leading to a shorter and more intense monsoon period”. Sound familiar?

A more obviously theoretical perspective on the same issue has been provided by Trenberth & Smith (2009). Hakeem Shaik and colleagues from the Northern Territory office of the Bureau of Meteorology have long provided annual summaries of the tropical wet season in northern Australia and nearby areas. The 2007/08 wet season began with a “mature” *La Niña* phase that weakened towards the end of the season (Shaik & Cleland (2008). “The SST (sea-surface temperature) cool tongue pattern in the near equatorial far eastern Pacific near the South American coast extended west, past the date-line. The warmest waters in the equatorial Pacific remained close to their climatological location in the northwestern Pacific. The SOI (Southern Oscillation Index) remained positive throughout the season with a record high of +21 in February. Onset of the Australian monsoon over northern Australia occurred around 27 December 2007 The signal of the MJO (Madden-Julian Oscillation) showed a regular periodicity of around 40-45 days during most of the season. A total of 23 tropical cyclones, close to the long-term average, developed in the RSMC area during the period.”



A storm sweeps over the upper Mary River, photographed by Don Franklin from Ikoymarrwa Lookout in Kakadu National Park.

As reported by Shaik (2009), in the 2008/09 wet season “A weak *La Niña* state of the *El Niño* Southern Oscillation (ENSO) developed early in the season, weakening towards the end of the season to neutral conditions. The sea-surface temperature (SST) cool tongue pattern in the near-equatorial far eastern Pacific near the South American coast extended west, close to the date-line. The warmest waters in the equatorial Pacific remained close to their

climatological location in the northwestern Pacific. The Southern Oscillation Index (SOI) remained mostly positive throughout the season. Onset of the Australian monsoon over northern Australia occurred around 18 December 2008, earlier than the climatological onset date, but it retreated north of the Australian continent in mid-February. The signal of the Madden-Julian Oscillation (MJO) showed a regular periodicity of around 30 to 35 days during most of the season. A total of 22 tropical cyclones, close to the long-term average, developed in the Darwin Regional Specialised Meteorological Centre (RSMC) area during the period.”

Cyclones and thunderstorms (from *Recent Literature*, page 11)

Cyclone wind hazard in Darwin

Wasn't it not so long ago* that the previous NT government obtained a consultant report to the effect that the chance of Darwin being hit by a Category 5 cyclone was one in *c.* 35,000 (?years). We all now know that that is nonsense. But how great is the real risk?

Garry Cook from CSIRO at Berrimah and Michael Nicholls (Association for Mitigation Studies for Top End Cyclones) have combined to calculate the risks, their results being published in the *Journal of Applied Meteorology and Climatology* (2009). Their conclusions are alarming – that official estimates are wrong and seriously underestimate the risk, which is higher than for either Townsville or Port Hedland.

* if your editor remembers correctly, the consultancy was prompted by the passage of TC “Thelma” to our north in December 1998.



Thunderstorm complexes

Thunderstorms often occur in complexes known technically as “mesoscale convective systems”. For example, the afternoon and evening thunderstorms that affect the Darwin and nearby areas are typically not isolated storms but a series that exhibit common “behaviour”. For example, you can usually see quite a few storms at once on the Bureau of Meteorology radar (<http://www.bom.gov.au/products/IDR633.shtml>), and they're usually all forming at similar times and moving in the same direction. Pope *et al.* (2009) objectively classified north Australian storm complexes into four types using monitoring data on 13,585 storm complexes from six wet seasons obtained using the Japanese Meteorological Agency Geostationary Meteorological Satellite 5.

Type 1 are short-lived complexes (mostly less than 5 hours) that usually form over the ocean and occur mainly early and late in the wet season. Types 2 and 3, distinguished somewhat from each other by length and geographic location, develop in easterly windflows over land during monsoonal break periods and typically last longer than 4 hours. Type 4 complexes form over land in “deep” westerly windflows during the monsoon (also separately in sub-tropical eastern Australia) and active phases of the Madden-Julian Oscillation. (See *Monthly cycles in rainfall* [p9] for more information about the Madden-Julian Oscillation.)



Thunderstorm experiments

Results from experiments conducted from a base in Darwin (see *Nature Territory* June 2009, page 4) continue to pour out, with 17 papers listed in this month's *Recent Literature*. Most are highly technical in nature and your editor can't comprehend them, but a few are interesting even to the uninitiated.

During one of these experiments, the Russian high-altitude aircraft *Geophysica* was flown through Hector thunderstorms over the Tiwi Islands at altitudes of between 10 and 19 km, where the ambient temperature was about -75°C. De Reus *et al.* (2009) analysed measurements of ice crystals from 90 of these “encounters”. The maximum observed dimension of these crystals was 0.4 mm and most were smaller – “effective” radius decreased from 0.1 mm at 10 km altitude to 0.003 mm at the tropopause. (The tropopause is the upper boundary of what may be understood as the main layer of atmosphere, and is typically at about 17 km altitude in the tropics (Wikipedia). Some of the *Geophysica* measurements were in the stratosphere up to 1.4 km above the tropopause.) Particulate matter in thunderstorm clouds is not all ice, the authors estimating that only between 1 in 300 and 1 in 30,000 particles were ice crystals.

Höller *et al.* (2009) monitored lightning strokes (both inter-cloud and cloud-to-ground) on most days from 12 Nov. 2005 to 15 Feb. 2006 using lightning detection stations at Darwin, Pirlingimpi on the Tiwi Islands, Cape Don (Cobourge Peninsula), Point Stuart (Mary River area), Mount Bundy and Dundee Beach.

“Maximum lightning activity is concentrated along the coast line and over the Tiwi islands” and lightning was notably less frequent in offshore waters. The number of strokes detected per day varied from less than 1,000 to well over 100,000, and was a little higher during the Build-Up and monsoonal break periods than during the monsoon. Overall, 82% of strokes were inter-cloud and 18% were from cloud to ground, the proportion of inter-cloud strokes being slightly higher during the Build-Up and monsoonal break periods than during the monsoon [ed: counterintuitive?].

Huntrieser *et al.* (2009) estimated that each lightning stroke in the Darwin area produces from 1.7 and 5.4 kg of nitrogen in the form of nitrogen oxides (NO and NO₂). [Whilst it may be so that tomatoes grow better after thunderstorms, there is doubt that the above phenomenon is the source of extra nitrogen involved – ed.]

Bird-watching tourism

Reporting back on the talk by Richard Noske at the March meeting

Bruce Maley

Photos by Richard Noske

Richard Noske, formerly Senior Lecturer in Biology at Charles Darwin University, gave an illuminating and well illustrated talk on the ecotourism merits and potential of two tropical biodiversity hotspots, Papua, and Brazil (especially the Pantanal).

Papua (formerly known as Irian Jaya, and in colonial times as Dutch New Guinea) has one of the largest tracts of tropical old growth rainforest wilderness in the world, with 85% of the land area forested. Of that, 61% is lowland evergreen forest with smaller proportions of swamp and montane forest (14% of Papua is over 1500m a.s.l.). Other significant ecosystems are inland wetlands and coastal mangrove communities.

Papua is very rich biologically, with over 20,000 vascular plant species, 150,000 insect species (including 5,000 butterflies), 12,000 marine fishes, 330 reptiles, 660 bird species (43% are shared with PNG and 6% are endemic to Papua). The avifauna includes fabulous species such as the Red and Wilson's Birds of Paradise, found on Waigeo and Batanta Islands, two of the Raja Ampat Islands off the Vogelkop (or Bird's Head) Peninsula. Richard also showed pictures of the remarkable Vogelkop Bowerbird, the Gaudi of bower birds with a surprising architectural diversity of hut-like bowers decorated with beetle elytra, flowers, fruits, and even chillies purloined from a local garden.

There are 164 mammal species, and as would be expected given that Papua lies to the east of Lydekker's Line separating Wallacea from the Australian-New Guinean continental land mass, includes species with affiliations to Australia such as echidnas and marsupials; for example, wallabies and tree-kangaroos.

There are undoubtedly still many species in Papua unknown to science – for example, Bruce Beehler, an ornithologist from Conservation International led a team of scientists to the Foja Mountains in 2005 and described new plant and animal species, including the Wattled Smoky Honeyeater. They also made an exciting rediscovery of Berlepsch's Six-Wired Bird of Paradise.

Brazil likewise has enormous biodiversity values, having the highest mammalian diversity of any country with over 500 described species. It is the fifth largest country in the world and contains 60% of the Amazon rainforest. Although this covers 47% of Brazil's area, Richard noted that it was disappearing at the tragic rate of 2700 ha/day! Other ecosystems include the Atlantic Forests, a global biodiversity hotspot, and the Cerrado. The latter is a savanna-clad plateau and covers 20% of Brazil, although only 20% remains, the rest having been cleared for soy bean cropping and other agricultural production. In a better state of preservation is the Pantanal, the world's largest seasonally flooded wetland; although it is only 2% of Brazil's area, 90% is still vegetated.

Part of the vast Pantanal swampland
– not Windows on the Wetland!



While the biological richness of both regions suggests a great potential for ecotourism, and more specifically birdwatching tourism, there is a large difference in each country's ability to exploit that potential. Richard suggested that although Papua is only 800 km from Darwin, it is still "clouded in mystery" compared to its more well-known neighbour, PNG. It lacks English-language literature on the biology of

the country, and there are few guidebooks compared with Brazil. Not only is there social instability and little government support for ecotourism, but also a thriving illegal bird trade – such exotic pets are popular with Jakarta politicians. Indigenous hunting practices are unlikely to be sustainable, and there is a big bush-meat trade. Land management problems mean that although there are 54 – 70 "Protected Areas", only 29 have any legal status, and very few, such as the Lorentz and Wasur National Parks, are actually managed.

Despite these issues, the Papua Bird Club (PBC) was formed in 1996 by Kris Tindige, who very sadly died of cancer in 2007. He conducted bird-watching tours (on one of which he rediscovered the Waigeo Brush-Turkey, *Aepyodius bruijnii*) and promoted the conservation of birds through forming relationships with

villages and educating villagers. Zeth Wonggur, of Arfak Bird Tours and the PBC, also built relationships with remote villages, notably Siyoubrig, at 1100m, while conducting remarkably chilly tours for somewhat unprepared ornithologists. Although this remote village is now totally self-sustaining through bird tourism, Richard cautioned against seeing such enterprises as always ideal; both decision-making and the distribution of tour fees are very uneven within the village structure, and controlled by the village head, the church, and Zeth's family. In addition, ecotourism is affected by external factors like the Global Financial Crisis.

The Papuan Bird Club in action: Kris Tindige is second from left.



In Brazil, by

contrast, there is a very well established ecotourism industry, and the Pantanal Bird Club (coincidentally also known as the PBC) has a well-maintained internet presence and conducts bird-watching tours not only through the Pantanal but also the Cerrado, the Iguacu Falls area, the Atlantic Forests, and Amazonian



Brazilian savanna: like the Top End but for hummingbirds, macaws and

rainforest. Richard mentioned observing many birds and mammals including macaws, Monk Parakeets – a colonial parrot which makes huge nests of sticks, herons, and fifteen species of hummingbirds with wings beating at an invisible 80 beats/second, not to mention the world's largest rodent, the Capybara.

Many thanks are due to Richard for his fascinating talk. Although at least this audience member

was left with an uneasy sense of restlessness, Richard did say that for anyone with a need to 'get out there', there was a trip coming up with the PBC in Papua in September. Race you to the airport.

PS. If you are interested in a birding/nature trip to Papua in early October, please contact Richard Noske (mob: 0437 652 048 or email richard.noske@cdu.edu.au) for more details ASAP.

Monthly cycles in rainfall (From *Recent Literature*, page 11)

It is true; rainfall comes in cycles – but this is apparently not related to moon phases. Meteorologists know the phenomenon as the Madden-Julian Oscillation (MJO), with cycles varying from 30 to 60 days. The MJO is a wave that circulates around tropical regions of the planet. Whilst describing impacts of MJO on all seasons and most regions of Australia, Wheeler *et al.* (2009) noted that the strongest effect is on wet-season rainfall in northern Australia.



Wild NT – a short film competition

The Environment Centre NT has launched 'Wild NT' – a short film competition celebrating the **2010 International Year of Biodiversity**.

Judged by a group of respected film industry professionals and Territory identities, the winners will be announced and winning entries will be screened at the George Brown Botanic Gardens on June 5th and 6th 2010, as part of the Top End Sustainable Living Festival programme.

For further details or to request an application form with terms and conditions contact:

Melanie Bradley, email policy@ecnt.org; phone 8981 1984, 3/98 Woods Street, Darwin NT 0810.

Interesting bird sightings

22 February to 19 March 2010

Compiled by Ian Hance

Sightings are as reported (unvetted, unconfirmed) and have been mostly compiled from the e-mail digest of the NT birder website (<http://groups.yahoo.com/group/ntbirds>) moderated by Niven McCrie.

Species	Date	Location	Observer/s	Nos./comments
Seabirds & waders				
Lesser Frigatebird	27/2	Dripstone Cliffs	Peter Kyne & Micha Jackson	4;
~		subsequent sightings by other observers & at other locations around Darwin		
Pacific Golden Plover	27/2	Alyangula, Groote Eylandt	Braden McDonald	1
Little Ringed Plover	28/2	Sayer Rd., McMinns Lagoon	Geoff Corey	4
Swinhoe's Snipe	5/3	Leanyer Sewage Ponds	Peter Kyne & Micha Jackson	1 in breeding plumage
Swinhoe's Snipe	26/2	Humpty Doo	Geoff Corey	28; & 7 on 28/2/2010
Swinhoe's Snipe	28/2	Sayer Rd., McMinns Lagoon	Al Stewart	30+
Black-headed Gull	6/3	Stokes Hill Wharf	Peter Kyne & Micha Jackson	1
Birds of prey				
Black-shouldered Kite	7/3	Adelaide River Floodplain	Peter Kyne & Micha Jackson	1 adult & 1 juvenile
~	7/3	Anzac Highway	Peter Kyne & Micha Jackson	1
Wedge-tailed Eagle	c. 26/2	Near Bark Hut Inn	Darryel Binns	3
Eastern Barn Owl	7/3	Harrison Dam Road	Peter Kyne & Micha Jackson	12
Little Eagle	14/3	Vanderlin Drive Berrimah	Alaric Fisher	1
Rufous Owl	14/3	Botanic Gardens	Sheryl & Arthur Keates	2
Barking Owl	7/3	Harrison Dam Road	Peter Kyne & Micha Jackson	6
Others				
Fork-tailed Swift	12/3	Nightcliff mangroves	Richard Noske	60+; also 80+ on 13 th
Varied Lorikeet	8/3	Fogg Dam	Peter Kyne & Micha Jackson	large flocks
Grey-headed Honeyeater	21/2	East Point	Peter Kyne & Micha Jackson	1; well out of range
Banded Honeyeater	5/3	Maningrida	Richard Noske	5; new arrivals
(Eastern) Yellow Wagtail	5/3	Leanyer Sewage Ponds	Peter Kyne & Micha Jackson	lots

More "bounty in the branches" (photos by Tissa Ratnaeeyeke, continued from page 5)



Left: Bush Cockroach *Ellipsidion humerale*.



Above: the day-flying moth *Idalima leonora*.



Left: a Mantis Fly.

Recent literature about Top End natural history

Back listings and summaries may be viewed at <http://www.cdu.edu.au/ser/profiles/ecologyintopend.htm>.

CLIMATE & WEATHER

Compiled by Don Franklin

Non-technical Lynch B. 2009. Cyclones. *Newsletter of the Environment Centre NT* June 2009: 9.

Climate summaries/reviews/analysis

Cook GD, Nicholls MJ. 2009. Estimation of tropical cyclone wind hazard for Darwin: comparison with two other locations and the Australian Wind-Loading Code. *Journal of Applied Meteorology and Climatology* 48: 2331-2340.

Pope M, Jakob C, Reeder MJ. 2009. Objective classification of tropical mesoscale convective systems. *Journal of Climate* 22: 5797-5808.

Shaik H. 2009. The tropical circulation in the Australian and Asian region - November 2008 to April 2009. *Australian Meteorological and Oceanographic Journal* 58: 187-198.

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