# NATURE TERRITORY

**November 2011**

**Newsletter of the Northern Territory Field Naturalists Club Inc.**

PO Box 39565, Winnellie, NT 0821

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| President: | Tissa Ratnayeke | 8921 8226 (h/w) |
| Secretary: | Peter Holbery | 8901 6105 (w) |
| Treasurer: | John Rawsthorne | |
| Newsletter Editor: | Don Franklin | 8948 1293 (h) |
| Committee Member: | Tida Nou | 8981 6667 (h) |
| Committee Member: | Stuart Young | 8995 5026 (w) |
| Committee Member: | Graham Brown | 8945 4745 (h/w) |
| Committee Member: | Mark Grubert | 0407 367 585 |
| Committee Member: | Jyoti Choudhary | 0404 270 302 |
| Committee Member: | Dane Trembath | |

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

**Meetings** are *generally* held on the second Wednesday of every month, commencing at 7:45 PM, in Blue 1.14 (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. Discounts are available for new members – please contact us.

It has recently been the time of year for migratory shorebirds to arrive in Australia. Some do so in spectacular numbers, amongst them the Little Curlew, with sightings of probably more than 1,000 in the Lambells Lagoon area reported this month (page 10).

Photo: Trevor Collins.

## CONTENTS

# Club activities

**November meeting.** Wednesday Nov. 9, 7:45 PM. Blue 1.14 (Business Bldg.), CDU Casuarina.

## Bob Gosford

## "Stone hawk-hunting hides of the VRD"

These hides were built and used by Aborigines in a number of regions of northern Australia but especially in the Victoria River District. Bob will explain what is known about them and their use, which also included hunting for kangaroo, Emu, small mammals and ducks. He will also recount Bill Yidumduma Harney's stories of their use.

Bob Gosford has lived in the Top End of the NT for too long to remember or care about. After four years in central Australia the heat, light humidity and people dragged him back to Darwin where he now works at an Aboriginal land council. He takes photographs and writes stories – often about birds – in his spare time. He is an active ethnoornithologist and will next year present papers and organise symposia at three international ethnobiology conferences.

Ruins of a stone hunting hide. Photo by Chris Bell.

**November field trip.** Sunday Nov. 13, 8 AM: *Casuarina Coastal Reserve Discovery Tour*.

Casuarina Coastal Reserve extends for many kilometres along Darwin's northern foreshores and no doubt many have picnicked at or visited one of the easily accessible locations. Several walking tracks traverse the length and width of the reserve. In the middle of this reserve is a location that could only be described as a paradise of surprises. Perhaps a little hidden, though readily accessible, this area combines savannah woodlands, mangroves with a board walk, coastal vine-thickets and sandy beaches. It is an easy scenic walk with a diversity of fauna and flora.

Meet at 8am in the car park just past the Palliative Care Centre and Hospice at Royal Darwin Hospital*. Biting insects may be present so please consider protection. Bring cameras and binoculars. Contact Tissa on 8921 8226 for more details.

****Directions:** 1. Enter the hospital grounds from Rocklands Drive and proceed straight, almost to the end where there is a STOP sign 2. Turn left and again drive almost to the end (150 metres) and turn left (there is a sign "Engineering Services") 3. Drive about 25m and turn first right – zig zag through to the end (less than 100m) where there is a large, usually empty carpark.*

# Top End Native Plant Society activities

**November meeting.** Thursday Nov. 17. Ian Morris: *The biogeography of Wallacea*.

**November excursion.** Saturday Nov. 19. Blackmore River Conservation Reserve.

**December activity.** Sunday Dec. 18. Christmas party; venue to be confirmed.

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.

# Club notices

**Welcome to new members: Julie David, Bob Gosford, Steve Tickell, Amanda Lilleyman**

**Thank you:** the previous issue was printed by **Lindsay Greene**, and collated and mailed by **Anne Highfield** and **Fiona Douglas**. It was printed using equipment kindly made available by **Michael Gunner MLA** at his Fannie Bay electoral office.

**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 December newsletter: Friday November 25.

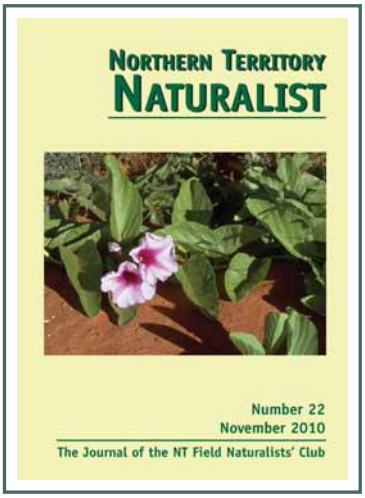
**Need a Club membership form?** Go to: http://sites.google.com/site/ntfieldnaturalists/downloads.

**Club library:** The Club's journal and book collection is available to members. Lists of holdings can be found on our web-site: http://sites.google.com/site/ntfieldnaturalists/library. 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). 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. 24. The journal publishes works concerning any aspect of the natural history and ecology of the Northern Territory or adjacent northern Australia. and may include Research Papers (Articles or Short Notes), Reviews, Species Profiles and Book Reviews.




The *Northern Territory Naturalist* is a registered, peer-reviewed journal (ISSN 0155-4093). Author instructions may be downloaded from our web-site: http://sites.google.com/site/ntfieldnaturalists/journal.

If possible, manuscripts should be submitted in digital form by email to *michael.braby@nt.gov.au*. Manuscript editors are Drs Michael Braby, Lynda Prior and Anke Franke. Louis Elliott is the production editor.

Chris Tracy, who has been the journal's manuscript editor for vertebrates for three years, has left Darwin to take up a position at Melbourne University – and has thus resigned from the editorial committee. We thank Chris for his quiet but great contribution in seeing three issues of the journal through to fruition.

Dr Anke Franke is Chris's replacement. Anke has a strong background in research on mammal ecology and is currently doing postdoctoral research through the University of Tasmania (but based here in the NT at Biodiversity Conservation), with her field program at Wongalara Station. Welcome Anke!

Originals are available of most back issues, some are available as photocopies only, and several recent issues are out-of-print but individual papers are available as pdfs. The journal page of the Club's web-site has an order form for back issues. Free pdfs of papers from issue 18 (2005) onwards are available from the authors or by contacting Don Franklin, email *don.franklin@cdu.edu.au*.

**Small bats in the cold** from *Recent Literature*, page 11

Even in the Top End, the cooler nights of the dry season may pose thermal challenges for small insectivorous bats. In a study conducted near Pine Creek, Geiser *et al.* (2011) followed the activity and body temperature of two Lesser Long-eared Bats (*Nyctophilus geoffroyi*). The bats "commenced activity about 20 min[utes] after sunset, ended activity about 2.5 h[ours] before sunrise and entered torpor everyday in the early morning even when minimum ambient temperatures … were as high as 23°C. On average, bats remained torpid for almost 5 h[ours]".

# Small mammal declines from *Recent Literature*, page 11

We – the citizens of northern Australia – are in the midst of an extinction crisis for small mammals (Woinarski & McDonald 2011). It is easy enough not to notice; these are cryptic, nocturnal species that one would normally only encounter during a trapping program. Fitzsimons *et al.* (2010) [reviewed, *Nature Territory* October 2010, page 10] provide an important overview.

Using Kakadu National Park as a case study because the fate of small mammals and background environmental factors are better understood there than in most other parts of northern Australia, and perhaps also because the problem is particularly acute there, [John] Woinarski *et al.* (2011a) "considered four proximate factors (individually or interactively) that might be driving the observed decline: habitat change, predation (by feral cats), poisoning (by invading cane toads), and novel disease. No single factor readily explains the current decline." The authors also "stress the need to manage reserves far more intensively, purposefully, and effectively, and to audit regularly their biodiversity conservation performance" and that "Disconcertingly, the decline has similarities with the earlier phase of mammal extinctions that occurred elsewhere in Australia".

Woinarski *et al.* (2011b) provide a second case study – the Sir Edward Pellew Islands in the Gulf of Carpentaria. The islands "were subject to standard wildlife survey methods in 1966–67, 1988, 2003, 2004–05, and 2009–10", allowing useful comparisons to be made. It is "most likely that the important regional populations of brush-tailed rabbit-rat (*Conilurus penicillatus*), northern quoll (*Dasyurus hallucatus*), northern brush-tailed phascogale (*Phascogale pirata*), common brushtail possum (*Trichosurus vulpecula*) and canefield rat (*Rattus sordidus*) have been lost from these islands, and that northern brown bandicoot (*Isoodon macrourus*), western chestnut mouse (*Pseudomys nanus*), pale field-rat (*Rattus tunneyi*) and long-haired rat (*Rattus villosissimus*) have been lost from most of the islands on which they formerly occurred." Some losses are thought to have occurred 30 to 50 years ago, some between 1988 and 2003, and the Northern Quoll disappeared from Vanderlin Island in 2008. "No single factor unambiguously accounts for the declines, although the introduction of cats (*Felis catus*) provides the best fit to the pattern of decline. A notable exception is the extirpation of northern quoll on Vanderlin Island, which is closely linked to the colonisation of that island by cane toads ..."

One species that has persisted on these islands, albeit in low numbers, is the Carpentarian Antechinus (*Pseudantechinus mimulus*), one of our least known small mammals. It is classified as Endangered in the Northern Territory and Vulnerable nationally. It has also been recorded from the Pungalina-Seven Emu conservation reserve (Australian Wildlife Conservancy) in the Gulf country, from the Mt Isa area in Queensland, and an early ill-defined record from Alexandria Station which is on the Barkly Tableland (Woolley 2011). With the possible exception of the Alexandria record, the Carpentarian Antechinus has been found amongst rocks. The species "appears to be a seasonal breeder. Birth of the young probably occurs in August and September" (Woolley 2011). Woolley also provides a morphological and anatomical description and comparison with the Fat-tailed Antechinus (*Pseudantechinums macdonnellensis*) from central Australia.

One of the mammals of concern, the Brush-tailed Rabbit-rat, persists in the Garig Gunak Barlu National Park on Cobourg Peninsula. Based on a trapping program at two sites there, Firth *et al.* (2010) modelled the response of the species to late dry season burns with long unburnt savanna as a comparison. The population declined at both sites but much more so at that exposed to late dry season fire, and the authors suggest that the species may become extinct in the Northern Territory within 10 years. The authors also suggest that the key to successful management lies not in fire exclusion, but in the creation of fine-scale fire mosaics that offer a range of resources to the species whilst limiting mortality due to fire and the loss of the hollow logs and trees that the species needs for shelter.

Local birdwatchers have reported nests and young of a number of raptors and nocturnal birds over the last month or so. Bas Hensen took this delightful photo of a male Tawny Frogmouth with its fledged young in the Casuarina Coastal Reserve.

# Birdwatching in Hawaii

*Continued from the October newsletter*

**Text and photos by Magen Pettit**

Leaving the warm waters of Waikiki beach in O'ahu my family and I flew south to the Big Island. This is home to one of the world's most active volcanoes (Kīlauea), the highest island mountain in the world (Mauna Kea: 4,205m ASL), the largest volcano on Earth (Mauna Loa: 4,169m ASL) and the largest park in the state (Hawai'i Volcanoes National Park: 1,300 km²).

I joined the Hakalau Forest National Wildlife Refuge Adventure Tour, run by Hawai'i Forest and Trial. Named by Hawaiians long ago, Hakalau means "many perches" and is still considered a critical bird habitat today. Once part of a large cattle ranch, it was the first National Wildlife Refuge established in the United States for forest birds. Hakalau Forest is a fascinating example of conservation in action, recovering from a hundred years of grazing by cattle and damage from feral pigs.

Endemics seen included the 'Io or Hawaiian Hawk, the more common species like 'Oma'o, Hawai'i 'Elepaio, Hawai'i 'Amakihi, 'I'iwi and 'Apapane, and the two endangered species, Hawai'i Creeper and 'Akepa. 'Akiapōlā'au was heard calling but this endangered species remained hidden in the forest trees, much to my disappointment. I also saw a number of attractive introduced game birds such as Californian Quail, Black Francolin, Erckel's Francolin and Kalij Pheasant. A total of 40 species were seen on Big Island and the other bird heard but not seen was the introduced Melodious Laughing-thrush.

During our stay on Big Island, our family saw a few 'cool' reptiles, although all were introduced lizard species. They included the Brown Anole (from Cuba & the Caribbean), Green Anole (south-eastern USA), the stunning Gold Dust Day Gecko (Madagascar and other islands off the African coast) and Jackson's Chameleon (central eastern Africa).

Introduced reptiles: above – the Gold Dust Day Gecko; right – Jackson's Chameleon.

I was surprised to learn that Australia's Cane Toads came from Hawai'i. Ironically, an Australian animal was introduced to Hawai'i in the early 1900s. A pair of Brush-tailed Rock Wallabies escaped in 1916 and a small breeding population now exists in Kalihi valley, north of Honolulu on O'ahu. I was told the rock wallabies are seldom seen in the valley.

As we continued driving around Big Island, we passed an animal in a paddock which made my husband and I turn to each other with a "did-you-just-see-what-I-saw" look on our face. We did a U turn and were astonished to see that what we thought might have been a Donkey painted with stripes, was in fact a Zebra! As we walked closer to the enclosure, we discovered there were also Ankole-Watusi Cattle, American Bison, and a common garden variety Donkey! This added to the excitement of the day as we had earlier passed a herd of Alpacas, which we thought was the weirdest thing on the trip so far. You know what they say: "only in America!"

Two endemic Hawaiian animals were high on my family's list of things to see: one was a special fish and the other was a peculiarly marked spider. While snorkelling in O'ahu, we managed to swim with Hawai'i's state fish, the Rectangular Triggerfish. In Hawaiian it is called Humuhumunukunukuapua'a, meaning "triggerfish with a snout like a pig". This name is one of the longest words in the Hawaiian language and some say that it is longer than the fish! As for the spider, we spent hours, unsuccessfully, in the rainforest of Hawai'i Volcanoes National Park, examining the underside of leaves (and getting curious looks from passers-by!) for the tiny Happy Face Spider. It is about five millimetres long and has a pattern uncannily resembling a smiley face on their yellow body. The markings are possibly a kind of camouflage against birds, their only natural enemies of significance. However, it has been argued that since the spider is extremely small and hides during the day, the bizarre variety of patterns may serve no significant adaptive purpose at all (they're just happy).

The last birding trip I had organised was the Waikamoi Preserve Cloud Forest Hike in Haleakalā National Park. The Park consists of 116 km² of which 78 km² are wilderness. This is the best site to see all of Maui's endemic birds, however, access is restricted and entry is only by booking a hike led by the Nature Conservancy or Park staff. As the name of the hike promised, it was amazing to walk through the windswept native cloud forests (although it was a bit cold for this Darwin girl who was rugged up like an Eskimo!).

The bird species that I saw that day included the endangered Maui 'Alauahio, Maui 'Amakihi (the local race of Hawai'i 'Amakihi), 'I'iwi and 'Apapane (more honeycreepers). Much to my disappointment, the two critically endangered endemics I really wanted to see, Maui Parrotbill and 'Ākohekohe (two more honeycreepers), did a no-show. I knew they were going to be tough and I think I used up all my good birding luck in O'ahu! Nevertheless, I saw a grand total of 12 birds in Maui.

Now for the important part: my statistics. Drum roll, please!

There were 26 endemics that I could have seen on the Hawaiian Islands that I visited (not included in this count are five bird species presumed extinct and the Hawaiian Crow which is extinct in the wild). I was fortunate to see 19 endemic species and only heard 'Akiapōlā'au (yet another honeycreeper). My grand total of ticks for the Hawai'i birding trip was 74 species seen and two species heard. In some twitchathons, a bird can be ticked off if two or more people hear it. If I followed these rules, my final total is 76 species. I guess I officially consider myself a twitcher now!

Going through the pages in Chandler & Dominic Couzens 100 lists of birds, I am down to 96. There are a number of birds in South America to see that would make the list shorter. Maybe I should mention to my husband we should visit Brazil during Carnival so that we can both do bird watching!

# Musings and wanderings in Timor-Leste

**Report on the talk by Don Franklin at the October meeting** **Bob Gosford; photos – Don Franklin**

For many of us that live in the Top End, Timor-Leste (or the *Republica Democratica de Timor Leste*; *Timór Loro-sa'e* or just plain old *East Timor*) is a place unknown but well-regarded. It is a place alive in our imaginations – as much for the impacts left by the large expatriate population that called Darwin home for many years before the country gained its freedom as it is for those turbulent months in 1999 when the constant stream of planes leaving Darwin full of aid and military support to that stricken country told of a troubled near neighbour.

I've not made it to Timor-Leste…yet. But at the most recent meeting of the NT Field Naturalists Club, Darwin-based research ecologist Don Franklin gave me and the many others at the meeting some very good reasons to make the short plane trip over the Timor Sea. Timor-Leste is closer to Darwin than Alice Springs or Cairns.

Don Franklin's talk, "*A Naturalist in Timor-Leste*" outlined Timor-Leste's recent and bloody colonial history, from the Portuguese invasion in the 16th century through to the more recent troubles with the Indonesian state.

Don then gave an excellent overview of the geological and biogeographical history of the region – Timor being part of the outer Banda Arc that was formed out of a collision of the Australian and Asian plates about 50 million years ago. He also surprised me at least by revealing that Timor is a true *terra nullius* – having emerged new and fresh from under the ocean just a few million years ago and being colonized by life-forms – including humans perhaps as recently as *c.* 13,000 years ago – that travelled across the oceans to occupy the island.

This isolation has ensured that Timor has high species endemicity – though Don noted a number of local species also found on the Australian mainland and many with close relations to their Australian cousins. Don's thoughts on the origins of Timorese eucalypts were particularly engaging. He speculated that there had been at least two invasive "waves" of eucalypt colonization and that many questions remained to be posed, let alone answered.

Mountains pushed up from the ocean – a long way: the enshrouded mountain (Mt Ramelau) is considerably higher than Mt Kosciusko.

Two Timorese eucalypt lineages: left – the montane *Eucalyptus urophylla*; right – *E. alba*.

Don moved next to the 260 plus species of birds found in Timor, 44 of those endemic to Wallacea and 14 to Timor Leste itself. Unsurprisingly, for a country with 37 species of native figs – 11 of which are unnamed – there is corresponding species richness in fruit-eating pigeons – 14 in all.

Left: one of 37 species of fig.

From lowland rice-paddies to the 2,315 m summit of Mt Matebian: a landscape photographed from the main north coast highway in eastern Timor-Leste.

There was much more in Don's talk to tease the naturalist in search of new horizons and species, and I for one will have Timor on the top of my south-east Asian travel to-do list.

# Humpty Doo Barramundi Farm

**Report on the Club's October excursion** **Lynette Carruth & Tissa Ratnayeke**

Early on the morning of Sunday 16 October, more than a dozen members and friends were greeted at the entrance to Humpty Doo Barramundi Farm by General Manager Dan Richards. The farm is about an hour's drive from Darwin, a few kilometres past the Fogg Dam turn off and situated on the banks of the Adelaide River.

Dan informed us the business started on a very small scale in 1993 and through extensive research, trial and error, the business has now grown to be capable of harvesting 400 tonnes of fish annually.

Our first introduction to the Barramundi was several large, circular tanks under cover, which Dan advised us contained the young fish. The farm doesn't breed its own stock; instead it purchases 25mm long fingerlings in batches of 100,000 to 200,000 from the NT Government's Darwin Aquaculture Centre near Channel Island.

Fingerling tank. Photo: George Carruth.

Dan Richards explaining the complexities of farming the Top End's most iconic fish. Photo: Tissa Ratnayeke.

This fish species will happily eat smaller members of its kind, so it is important that the rapidly growing fingerlings be sorted twice weekly. This is initially done by a laborious manual process of passing the fingerlings through container with a measured grid in the bottom! Automation sets in as the fish become larger – they are pumped up (apparently the pump does them no harm) to a mechanical sorting machine capable of separating the fish into four sizes in the one pass.

The fish are fed controlled amounts of pelletised food in the morning and evening. The pellets consist primarily of protein made from South American bony fish. The young Barra have a remarkably high protein conversion rate of almost 1 kg body protein per 1 kg dried consumed protein. This conversion rate reduces as the fish become larger as more energy is required to maintain body metabolism.

Once the fish reach 100 mm in length they require less regular sorting into sizes and are moved to the large outdoor ponds. This size also ensures there is minimal predation by birds.

The pond water is maintained saline. Fortunately the farm sits on a saline aquifer (greater salinity than sea water) plus it has access to fresh water, enabling optimum blending. Top-up water is drawn from the Adelaide River, which is tidal at this point. As the fish densities in the ponds far exceed those in the wild, it is essential to use paddled water turbines to aerate the water and supply the fish with sufficient oxygen. The movement of the water also keeps it turbid, which is beneficial as this reduces exposure of the fish to sunlight, keeping them a silver colour. The culinary industry much prefers silver skin to the blacker skin colour that would develop with more sun exposure.

Paddle turbines aerate and circulate the water and keep it turbid. Photo: George Carruth.

One would think 250,000 fish would generate large volumes of waste products and this indeed is the case. Refreshingly though, this is managed in an environmentally sustainable process. The waste water is circulated through a series of ponds whereby sunlight and algae neutralise and breakdown the nutrients, in particular the high levels of ammonia.

Feeding ceases 24-36 hours prior to harvesting, ensuring the fishes' guts are emptied. At harvesting, the fish are crowded onto the side of the pond, caught and immediately dropped into a -2 °C saline solution. This snap cooling both kills the fish and the shock makes the blood withdraw to the viscera, essentially bleeding the fish meat without having to cut the fish. Furthermore, as Barramundi are warm water fish, the chilling also shuts down many of the pathogens in the fish. Fish are delivered whole and the process of capture and chilling ensures they have a remarkable shelf life of three weeks.

Thank you Dan for showing us around the farm and sharing your enthusiasm and wealth of knowledge.

Birds of interest seen during the morning include Glossy Ibis, one immature Jabiru, two Striated Herons (one all grey and the other half cinnamon), Whiskered Terns, one Pheasant Coucal, one Brown Falcon, Blue-winged Kookaburra, Forest Kingfisher, Radjah Shelduck, Pied Heron, Little Pied Cormorant, several egret species and more.

These Whiskered Terns are moulting into breeding plumage. Photographed on the excursion by Tissa Ratnayeke.

# Litchfield camp-out

**Report on the Club's September camp-out** **Jon Clark; photos by Don Franklin**

A chance encounter with Pete Kyne looking for Gouldians and Sean Webster, a ranger down in Litchfield National Park looking for volunteers for bird surveys, led to the NT Field Nats being invited down. The goals were to complete bird counts around the Park and to provide mentoring and guidance for a group of junior rangers.

We stayed in the private Environmental Education Campground that, although close to the tourist hot spots of Florence Falls and Buley Rockhole, is a world away from the usual Litchfield shenanigans. We set up camp on a nice grassy lawn adjacent to a swimhole, fire pit, lights, fans, stovetop and peace and quiet. Sean gave us keys for some non public access roads and some tips on some off the beaten track locations where we could do our surveys if we wanted.

Paperbarks in Tabletop Swamp.

Next morning, small groups of us went out to Tabletop Swamp, Lost City and Tabletop Track. Some stayed around the campground, which proved to be the most productive for bird diversity with a count of 47.5 unique species. I'm not too sure why, but someone spotted 0.5 Wandering Whistling-Ducks; I'm guessing the ID was not 100% confirmed! Tabletop Swamp was the second most productive place with 35 species. Overall, 67 bird species were spotted over the weekend (see list in last month's newsletter).

Besides the birds there were plenty of other sightings, a few different species of gecko, frog, snake and skinks around camp. Out at Lost City there were sightings of a Tree Monitor (*Varanus scalaris*) and a Black-palmed Monitor (*Varanus glebopalma*) for a few lucky ones.

Sheltering in a reproductively dormant state during the dry season: the Common Crow.

A larger swimhole and waterfall, 1.5 kms downstream from the campground, could be accessed via a rocky scramble. Without trying to get too carried away I believe that I must have seen 500 Common Crow (*Euploea core*) butterflies down there, and more St. Andrew Cross Spiders than I've ever seen in one place hanging over the waterfall plunge pool.

The junior rangers arrived in the afternoon and received a brief talk on the basics of bird ID, field guide use, and cool bird adaptations, with the help of a collection of taxidermied birds, Brolga legs and Emu eggs. They were then ready to head out with their parents and a field nat to practice their newly learned skills in the bush, while a few child minders stayed back and looked after the kids who were too exhausted to do any more that afternoon.

Parks put on a great BBQ dinner that evening with a salad provided by NT Field Nats. This was followed up with an interesting presentation from Sean on the history of Litchfield detailing some of the farming and mining exploits that had occurred in bygone years and problems that were still occurring today including the recent fires that were probably the result of arsonist or pig hunters. Erica Garcia gave a talk on river food webs and her research in that area that got all the junior rangers involved and eagerly asking and answering questions.

Paul Arnold, the accomplished bushman and nature photographer, joined us for the weekend. While I marvelled at his 800mm lens, he took the junior rangers out spotlighting. They stood and listened big eyed as he picked up a Night Tiger (Brown Tree-snake *Boiga irregularis*), calming it and winning its trust as he gave a great little talk on how the kids (and adults) should respect the Bush. On Sunday morning the junior rangers had sample jars laid out displaying their collection of scorpion, huntsman spider, preying mantis and mayflies from the previous day and night. They also got to do a few more activities including a scavenger hunt that day, while the rest of us went to check out other places in the Park including Green-ant Creek, Buley and Florence Falls and Tabletop Swamp before returning to Darwin.

A great big thank you to Sean and John Rawsthorne. It was a big success and it looks like we will be going back again to see if there are any seasonal changes to the bird lists. I'm already looking forward Litchfield Birdathon II.

# Interesting bird sightings

**24 September to 21 October 2011** **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 |
|---|---|---|---|---|
| **Waterbirds & seabirds** | | | | |
| Lesser Frigatebird | 27/9 | Lee Point | Amanda Lilleyman *et al.* | 1; & other sightings |
| Brown Booby | 28/9 | Nightcliff Rocks | Peter Kyne & Micha Jackson | 1; & other sighting |
| Great Cormorant | 24/9 | Darwin River Dam | Bas Hensen | 2 |
| Black-necked Stork | 16/10 | Mamukala | Marc Gardner | 257 – unusually large nos. |
| Black Bittern | 9/10 | Labelle Station | Clive Garland | 1 |
| ~ | 15/10 | Bamboo Creek, Marrakai Road | Michael Braby | 1 |
| Great-billed Heron | 4/10 | East Arm | John Rawsthorne | 1 |
| ~ | *c.* 4/9 | Katherine Gorge | Jon Clark | 1 |
| **Waders** | | | | |
| Little Ringed Plover | 28/9 | Leanyer Sewage Ponds | Bas Hensen | 4 |
| Oriental Plover | 24/9 | Noonamah | Bas Hensen | 8+; & other sightings |
| ~ | 2/10 | Nightcliff Rocks | Gavin & Meg O'Brien | 56 |
| Swinhoe's Snipe | 5/10 | Croker Island | Don & Llane Hadden | 1 |
| ~ | 21/10 | Snipe Swamp, Knuckeys Lagoon | Niven McCrie | 2 |
| Little Curlew | 20/9 | Alphatonia Rd., Lambells Lagoon | David Webb | 12; also *c.* 350 on 25/9; *c.* 1,500 on *c.* 9/10 |
| Long-toed Stint | 14/10 | Leanyer Sewage Ponds | via Bas Hensen | 1 |
| **Birds of prey** | | | | |
| Black-breasted Buzzard | 29/9 | Fogg Dam | Mike Jarvis | 1; & other sightings |
| Spotted Harrier | *c.* 9/10 | Tipperary Station | Peter Kyne & Micha Jackson | 1 |
| ~ | 16/10 | South Alligator floodplain | Marc Gardner | 1 |
| Wedge-tailed Eagle | 2/10 | Corroboree Billabong | Magen Pettit | 1; other sightings |
| Black Falcon | 25/9 | near Fogg Dam | Luke Paterson | 2 adults & 2 fledglings |
| Peregrine Falcon | 9/10 | Channel Point | Clive Garland | 1 |
| ~ | *c.* 6/10 | Nourlangie | Nick Leseberg | 1 |
| Rufous Owl | *c.* 2/10 | Holmes Jungle | Graeme Sawyer via Fiona Douglas | 1 |
| ~ | 3/10 | Howard Springs | Niven McCrie & Penny Steele | 2 |
| Eastern Barn Owl | 24/9 | Lyons Estate, Darwin | Johnny Estbergs | 1 |
| **Other non-passerines** | | | | |
| Fork-tailed Swift | 9/10 | Black Jungle | David Webb | 2; & other sightings |
| Australian Bustard | 16/10 | South Alligator floodplain | Marc Gardner | 1 |
| Red-backed Button-quail | *c.* 6/10 | Copperfield Dam | Nick Leseberg | 1 |
| Red-chested Button-quail | 29/9 | Fogg Dam | Mike Jarvis | 1 |
| Channel-billed Cuckoo | 10/10 | Anzac Parade | Bas Hensen & Amanda Lilleyman | 1; & other sightings |
| Pallid Cuckoo | 24/9 | Noonamah | Bas Hensen | 1 juvenile |
| Oriental Cuckoo | 17/10 | Lambells Lagoon | David Webb | 1 |
| Little Kingfisher | 4/10 | Brinkin | via Niven McCrie | 1; & other sightings |
| **Passerines** | | | | |
| Lavender-flanked (Variegated) Fairy-wren | 16/10 | Gubara | Marc Gardner | 2+ |
| Singing Honeyeater | 28/9 | Nightcliff Rocks | P Kyne & M Jackson | 1 still present from last month |
| Mangrove Golden Whistler | 21/9 | Leanyer Sewage Ponds | Bas Hensen | 1; & other sightings at this site |
| Mangrove Robin | *c.* 5/10 | Leanyer Sewage Ponds | Nick Leseberg | 1 |
| Yellow-rumped Mannikin | 29/9 | Malak | Magen Pettit | 1 |
| Pictorella Mannikin | *c.* 6/10 | Timber Creek | Nick Leseberg | 1 |
| Yellow Wagtail sp. | 5/10 | Leanyer Sewage Ponds | Bas Hensen | 1; & other sightings at this site |
| ~ | 13/10 | Palmerston Sewage Ponds | Luke Paterson | 2 |
| ~ | 21/10 | Fiddlers Lane, Knuckeys Lagoon | Niven McCrie | 2 |

Andrew Bell took this delightful photo of a Radjah Shelduck superfamily at Katherine. Andrew counted 46 young in the group. It seems unlikely that the adults are the biological parents for all of these.

# Recent literature about Top End natural history

## MAMMALS

**Compiled by Don Franklin**

### Declining species

Anon. 2010. Where have all the mammals gone? The extinction crisis in northern Australia. *Wildlife Matters* Winter: 4-7.

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Woinarski JCZ, Legge S, Fitzsimons JA, Traill BJ, Burbidge AA, Fisher A, Firth RSC, Gordon IJ, Griffiths AD, Johnson CN, McKenzie NL, Palmer C, Radford I, Rankmore B, Ritchie EG, Ward S, Ziembicki M. 2011a. The disappearing mammal fauna of northern Australia: context, cause, and response. *Conservation Letters* 4: 192-201.

Woinarski J, McDonald T. 2011. Grappling with the unthinkable: Small mammal extinctions spreading to northern Australia. *Ecological Management & Restoration* 12: 6-12.

Woinarski JCZ, Ward S, Mahney T, Bradley J, Brennan K, Ziembicki M, Fisher A. 2011b. The mammal fauna of the Sir Edward Pellew island group, Northern Territory, Australia: refuge and death-trap. *Wildlife Research* 38: 307-322.

### General biology

Geiser F, Stawski C, Bondarenco A, Pavey CR. 2011. Torpor and activity in a free-ranging tropical bat: implications for the distribution and conservation of mammals? *Naturwissenschaften* 98: 447-452.

O'Hara PJ, Murray PJ, Klieve AV. 2011. Histology of the gastrointestinal tract of the northern brown bandicoot, *Isoodon macrourus* (Marsupialia : Peramelidae). *Australian Mammalogy* 33: 44-46.

Telfer WR, Eldridge MDB. 2010. High levels of mitochondrial DNA divergence within short-eared rock-wallaby (*Petrogale brachyotis*) populations in northern Australia. *Australian Journal of Zoology* 58: 104-112.

Woolley PA. 2011. *Pseudantechinus mimulus*: a little known dasyurid marsupial. *Australian Mammalogy* 33: 57-67.

### Pest species

Collier N, Austin BJ, Bradshaw CJA, McMahon CR. 2010. Turning pests into profits: Introduced buffalo provide multiple benefits to Indigenous people of northern Australia *Human Ecology* 39: 155-164.

McMahon CR, Brook BW, Bowman DMJS, Williamson GJ, Bradshaw CJA. 2011. Fertility partially drives the relative success of two introduced bovines (*Bubalus bubalis* and *Bos javanicus*) in the Australian tropics. *Wildlife Research* 38: 386-395. [Asian Water Buffalo, Banteng]

## Life in isolation? The Short-eared Rock-wallaby

Species that occur in isolated patches of habitat may have limited opportunity to disperse to other patches, with genetic consequences. With its strong preference for rugged rock outcrops, the Short-eared Rock-wallaby (*Petrogale brachyotis*) seems a likely candidate – and intact populations of the species make it a good species to study. Telfer & Eldridge (2010) examined and compared the genetic structure and diversity of the species using samples from 105 individuals from seven colonies from 1.2 to 250 km apart. There was "no evidence of inbreeding within colonies, but higher levels of genetic diversity were found in the Kakadu National Park population compared with the smaller, more isolated colonies at Litchfield National Park". Populations "are naturally highly structured even within this relatively intact landscape, with only limited contemporary and long-term gene flow between colonies more than 1.2 km apart." High levels of divergence among the Litchfield populations may indicate that "the species" is actually several species, or alternatively, that long-separated populations have since interbred in a contact zone.

## Demographic analysis Asian Water Buffalo and Banteng populations

Whereas the Asian Water Buffalo (*Bubalus bubalis*) has been a "tear-away" success as a species introduced to northern Australia, warranting drastic control measures, Banteng (Bali Cattle, *Bos javanicus*) remain restricted to the vicinity of their point of introduction in Garig Gunak Barlu National Park on the Cobourg Peninsula. Both are large bovids. What population traits characterise these different outcomes? McMahon *et al.* (2011) analysed the demographic structure of one population of Banteng, four contemporary (low density) populations of Buffalo, and three historical (high density) populations of Buffalo. "For both species, survival of juveniles was the most important demographic component influencing … population growth. However, buffalo have the demographic capacity to recover swiftly after control because of high survival and fertility rates across a range of population densities. Fertility of buffalo was historically greater than that of banteng, and buffalo fertility increased as their populations were reduced." The latter is a classic case of "the more you control them the faster they breed" (negative density dependence), a common problem facing those responsible for controlling feral animals.