



NATURE TERRITORY

February 2009

Newsletter of the Northern Territory Field Naturalists Club Inc.
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Club web-site: <http://www.geocities.com/ntfieldnaturalists>

Meetings are generally held on the second Wednesday of every month, commencing at 7:45 PM, in Blue 1.03 (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.



Is all that new growth on your garden plants being chewed away? The wet season is prime time for caterpillars.

This one is of uncertain identity, being described by photographer and entomologist Graham Brown as "*Homodes-like*". That makes it the larvae of one of the "owlet moths", family Noctuidae. This species is commonly found on mango flowers.

More caterpillar photos by Graham are on page 6.

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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

February meeting. Wednesday February 11, 7:45 PM. Blue 1.03 (Business Building), CDU.

Tida Nou

"Christmas Island"

Christmas Island (only a small dot on most maps) is an island in the Indian Ocean and an Australian territory. The island supports a wide range of unique and unusual species and habitats. Christmas Island National Park contains the last remaining nesting habitat in the world of the endangered Abbott's Booby, the only nesting sites in the world of the Christmas Island Frigatebird, supports the world's largest remaining Robber Crab population and probably contains the largest, most diverse land crab community in the world.

Tida was asked to go and work on Christmas Island for two months in 2007, and paused only momentarily before saying "yes". Come along and hear Tida talk about her "working holiday" at the next NT Field Nats meeting (unfortunately not followed by a field trip to Christmas Island).

Endangered: Abbott's Booby.

Photo: Tida Nou.



February field trip. Saturday, 14 February, 4:00pm-9:30pm; Fogg Dam Cons. Reserve.

Meet at the Main Carpark. We plan to have a late afternoon wander around the reserve for an hour or so, followed by a light evening meal (which you will need to provide). At approx. 7:30pm we will set off on the evening walk (frogs, snakes etc.) accompanied by one of the Reserve rangers. Not sure if there are BBQ facilities, so it may be best to stick with a cold meal. Remember to wear long trousers and long sleeves, and bring insect repellent and a chair. Any queries, please call Sherry on 0438 072 394. Look forward to seeing you there.

March 2009 meeting. Wednesday March 11. Robyn Delaney: *Wildlife on the Galapagos Islands.*

April 2009 meeting. Wednesday April 8. Brian Thistleton: *Dragonflies.*

May 2009 meeting. Wednesday May 13. Paul Horner: *Lizards of the Top End.*

June 2009 meeting. Wednesday June 10. Iain Field: *Shark research in the Top End.*

July 2009 meeting. Wednesday July 8. Bob Wasson: *Sedimentary landscapes.*

August 2009 meeting. Wednesday August 12. Gay Crowley: *Getting excited about tropical grasses.*

September 2009 meeting. Wednesday September 9. Jarrad Holmes: *The western Arnhem Land fire project.*

October 2009 meeting. Wednesday October 14. Arturo Izurieta: *Galapagos - The Enchanted Islands: management issues, successes and challenges to preserve them for future generations.*

November 2009 meeting. Wednesday November 11. Clive McMahon: *Buffalo management.*

Club notices

Welcome to new members: Paul Elliott; Louise Finch

New Committee member

Stuart Young has kindly agreed to fill the remaining vacancy on the Committee. Welcome Stuart!

Thank you

The previous issue was collated and mailed by Susan Jacups. It was printed by Gay Crowley and Don Franklin using equipment kindly made available by the Biodiversity Unit, Department of Natural Resources, Environment and the Arts, Berrimah and the School for Environmental Research at Charles Darwin Uni.

Newsletter contributions welcome

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

Deadline for the March newsletter: Friday February 20.

Need an NTFNC membership form? Go to: <http://www.geocities.com/ntfieldnaturalists/subscription.htm>.

Club library

Addition to Club library, donated by Ray Chatto:

Chatto R, Baker B. 2008. *The distribution and status of marine turtle nesting in the Northern Territory*. Technical report 77-2008, Parks and Wildlife Commission of the NT: Darwin. 309 pp.

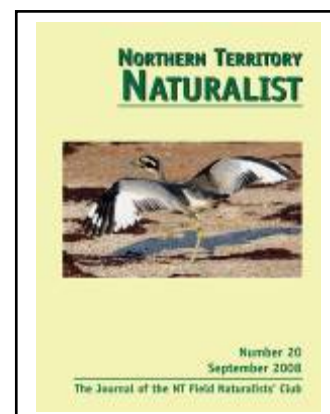
The Club's journal, magazine and reference collection is available to members. Lists of holdings can be found on our web-site: <http://www.geocities.com/ntfieldnaturalists>. The library is housed in two sections: Books, reports and CDs: at the medical clinic of Dr. Lyn Reid in the Rapid Creek Business 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 *Northern Territory Naturalist* is now calling for manuscripts for issue no. 21. Manuscripts may relate to any aspect of natural history or ecology relevant to the Northern Territory, and may include reviews, papers, research reports, species profiles and thesis abstracts.

Northern Territory Naturalist is a registered, peer-reviewed journal (ISSN 0155-4093). Author instructions may be downloaded from <http://www.geocities.com/ntfieldnaturalists/journal.htm>. If possible, manuscripts should be submitted in digital form by emailing to lynda.prior@cdu.edu.au. Editors of the journal are Dr Lynda Prior and Dr Michael Braby.



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.

Kangaroos and wallabies

Their distribution, habitat and future prospects (from *Recent Literature*, page 10)

Based on extensive field surveys across northern Australia, Ritchie *et al.* (2008) have developed an interpretation of the habitat requirements of the three large kangaroos of the northern savannas – the Antilopine Wallaroo *Macropus antilopinus*, the Euro or Common Wallaroo *M. robustus* and the Eastern Grey Kangaroo *M. giganteus* (occurs in Queensland). Telfer *et al.* (2008) has done the same for the four rock-dwelling macropods of the Top End – the Short-eared Rock-wallaby *Petrogale brachyotis*, the Nabarlek *P. concinna*, the Black Wallaroo *M. bernardus* and the Euro. In the latter survey, the presence of species was confirmed by the distinct scats of each species as some, and especially the Nabarlek, are cryptic. The Antilopine Wallaroo and Eastern Grey Kangaroo both prefer areas with nutrient-rich soils such as more commonly occur in the lowlands, and may be in competition where their ranges overlap. The Antilopine Wallaroo prefers areas that have been burnt recently, whereas the Euro prefers long-unburnt sites. Amongst the rock-dwelling species, the Black Wallaroo and the Nabarlek are most strongly associated with rugged terrain, whilst the Short-eared Rock-wallaby was particularly associated with rocks that contained sheltered sites. Within the rocky domain considered by Telfer *et al.*, the Euro's habitat was most strongly related to vegetation types. The rock-dwelling macropods may also be constrained by limited ability to disperse across non-rocky terrain because not all apparently suitable sites were occupied.

By relating current distributions of species to climate factors, it is possible to produce a prediction about a species distribution under scenarios for future climate. Whilst these should be interpreted with considerable caution because most species' distributions are not directly controlled by climate (and because the hotter options may not be currently available to them and thus fall outside their current climatic "envelope"), this is nevertheless a useful tool to identify species at particular risk due to climate change

Ritchie & Bolitho (2008) have done just this for the three large macropods listed above plus the Red Kangaroo *M. rufa* (occurs in inland savannas as well as central Australia). They found that current distributions could all be defined well by climatic factors – and that under a projected temperature increase of 2°C, these climatic envelopes would all shrink substantially. The Antilopine Wallaroo appears most vulnerable, with its climatic envelope shrinking by 89%.

Congratulations Gay and Stephen - awarded the 2008 D.L. Serventy Medal

Club President Dr. Gabriel Crowley and her partner, Prof. Stephen Garnett, have been awarded the 2008 D.L. Serventy Medal by Birds Australia. In the words of Birds Australia (<http://www.birdsaustralia.com.au/our-people/d.l.-serventy-medal.html>):

"Stephen and Gay have made a significant, pivotal and unique contribution to the knowledge and conservation of Australian birds. This contribution has been through hands-on intensive research, through the compilation of systematic overviews of the conservation status of Australian birds, and through the development and maintenance of networks of ornithologists and others, nationally and internationally, with interest in the management of Australia's threatened birds."

The medal is awarded annually by Birds Australia for outstanding published work on birds in the Australasian region. Dom Serventy (1904-1988) was a pioneering Australian ornithologist.

Your opportunity to comment on the environmental future of the Northern Territory

The Territory 2030 Steering Committee, appointed by the NT government, is calling for submissions about "high-level strategic issues" relating to a range of topics including "the environment". Submissions should not exceed 10 pages, should relate to practical outcomes about where we want the Territory to go and be in 20 years time, and are due by February 20. For more information, go to <http://www.territory2030.nt.gov.au/>.

Dugongs around Darwin (from *Recent Literature*, page 10)

Dugongs *Dugong dugon*, also known as Sea Cows, occur in marine environments around Darwin at low densities, Whiting *et al.* (2008) recording a local maximum density of 0.54 per square kilometre around the Vernon Islands based on air surveys. Two individuals were radio-tracked for 53 and 154 days respectively and utilised up to 300 km of coastline.

Translocating quolls

From *Recent Literature*, page 10

Chances are by now that you've heard or read about the highly successful translocation of Northern Quolls (*Dasyurus hallucatus*) to two remote, Cane Toad-free islands off the coast of Arnhem Land in 2003. Jacklyn (2008) has provided a readable update on the program for conservation in the face of Cane Toads.

It all sounds so simple; catch some quolls and let them go on islands in fact, a huge amount of background research and preparation went into this exercise. This has now been presented in three detailed reports available on the NRETA web-site at <http://www.nt.gov.au/nreta/wildlife/programs/quoll/index.html>.

In the first of these, John Woinarski *et al.* (2007) reviewed and analysed the natural occurrence of Northern Quolls on islands of the Northern Territory coast. Of 233 islands greater than 20 ha, Quolls are known to occur on 10, are known to be absent from 58, and are probably absent from a further 35, with status on the remainder being unknown. They were more likely to be present on islands that are more rugged, larger, further from the mainland and have lower rainfall, the modelling being used to predict the possible presence of Quolls on a further seven islands. Based on this modelling, the two islands to which Quolls were introduced are rated of moderate suitability. But there are more issues at stake

So how do you select islands for translocation? This issue and the history of the translocation exercise have been detailed by Rankmore *et al.* (2008). For an island to be suitable, it needs to meet 6 criteria, namely:

- it must not already be occupied by Northern Quolls
- it should have suitable optimal habitat, i.e. areas of rugged sandstone outcrop that provide the Quolls with shelter sites
- it must lack other significant conservation values, especially those that might conflict with the needs of the Quolls, such as seabird or turtle rookeries
- it must lack human settlement (a likely source of colonisation by Cane Toads)
- it must be sufficiently isolated from the mainland as to be unlikely to be colonised by Cane Toads – Toads can survive some time in salt water
- and it must be approved by the landholders (in these cases, the Traditional Owners)

Rankmore *et al.* (2008) provided details of the annual monitoring that has been undertaken since the translocation, documenting that the populations are estimated to have increased 74-fold and 142-fold in the subsequent five years, a truly remarkable rate of increase. Monitoring has also extended to body condition, reproduction and genetic composition, with all indicators being favourable/satisfactory. This success has occurred notwithstanding that 70% of one of the islands (Astell) was burnt six months after the translocation, and that both islands were struck by a category 5 cyclone two years after the translocation.

In the third report (not listed in *Recent Literature*), John Woinarski *et al.* collated recent records of the Northern Quoll in Queensland (where the Cane Toad has long been present) and report additional surveys, going on to identify the factors that describe sites where localised persistence of Quolls has occurred. It is well worth a read. One wonders why the Queensland authorities didn't do this years ago. Extrapolation of the factors identified suggests that the Northern Quoll might be able to persist in the NT mainland on the Arnhem Land escarpment, but not elsewhere.

Marsupials living with Cane Toads (from *Recent Literature*, page 10)

Whilst the Northern Quoll is dipping out badly in the face of the arrival of toxic, introduced Cane Toads *Bufo marinus*, some other susceptible species are learning to live with them. One such species is the tiny "marsupial mouse", the carnivorous Common Planigale *Planigale maculata*, a species occupying a diversity of habitats across northern Australia. Using caged animals that have never encountered a Cane Toad (i.e., they were *naïve*), Webb *et al.* (2008) studied their response to first and subsequent encounters. Ninety percent of naïve planigales attacked Cane Toads, but 83% of those that did so survived either because they rejected the toad or because they attacked the toad snout-first and avoided the toxin-laden parotid glands. Most native planigales that attacked a toad and survived subsequently avoided them for up to 28 days – but also avoided native frogs for up to 9 days. With time the planigales learnt chemical cues to distinguish between Cane Toads and native frogs.

Caterpillars

Photos and identifications by Graham Brown



Above: the caterpillar of the Swamp Tiger *Danaus affinis* (a butterfly) is known to feed on the trailing herb *Cynanchum carnosum*.

Below: the *Convolvulus Hawkmoth* *Agrius convolvuli* larvae (family *Sphingidae*) feeds on (surprise, surprise!) plants of the family *Convolvulaceae*, including the Beach Morning Glory or Goat's-foot *Convolvulus Ipomea pes-caprae*.



Above: the Cluster Caterpillar *Spodoptera litura* (family *Noctuidae*) feeds on many species of plant and is a common crop pest. The adult is a moth.

Right: caterpillars of the Black-spotted Flash *Hypolycaena phorbas* (a butterfly) feed on many native plants but also on cultivated beans.



Below: *Anthela* sp. – a moth caterpillar of the family *Anthelidae*.



Casuarina Coastal Reserve

Reporting on the Club's November excursion

On Sunday 23 November, about 15 people gathered in the steamy heat to join Meg and Gavin O'Brien and Steve Popple in a wander around Casuarina Coastal Reserve. Starting from the far car park we walked through a lovely patch of monsoon vine forest to the tidal creek. Notable vegetation included the wonderfully spiny tree *Bombax ceiba*. In the mangrove area we saw two characteristic landward edge trees – the Mangrove Cedar or Cannonball Mangrove (*Xylocarpus moluccensis*) and the Mangrove Ebony (*Diospyros littorea*). The large cannonball fruit of the *Xylocarpus*, with their 'Chinese puzzle' seeds are quite fascinating.

Spiny trunk: the Kapok Tree, Bombax ceiba.

We admired mistletoe and refreshed our memories on several woodland trees and birds as we passed on the hospital side of the mangroves. A Pacific Baza was seen by some and a Mistletoebird by most. We were also rather horrified by the number of vine, grassy and woody weeds in the area.

In the mangroves again we saw Little and Azure Kingfishers on the boardwalk – just where Meg and Gavin said they would be!

Various people peeled off as the heat increased and some of the stayers digressed from the path to the beach to examine some Porpita (or Blue Button) which had been driven ashore by the north-westerly wind. The stranding was much earlier than usual as it generally takes the monsoons before any are seen. We had been alerted to these by Richard Willan, curator of molluscs at the Museum, who had told us about them when we encountered him at the start of the walk. Porpita is a colonial hydrozoan that is normally part of the community of animals permanently floating at the surface of the sea, and is found in the Arafura Sea; they are related to the 'By-the-wind Sailors'. Porpita is preyed upon by violet snails (*Janthina* spp.) and Richard

had also seen many of these snails, with their bubble rafts and spawn.

Despite the heat, a fascinating morning with so many interesting things to look at from several different taxa. Many thanks to the leaders and others whose shared knowledge enriched our walk.

Stranded Porpita on the tide line at Casuarina beach.

Text and photos by Fiona Douglas



Duke Street rainforest

Reporting back on the January excursion

Text and photos by Tida Nou

A group of 8 people gathered on Saturday 17 January (though it does say Jan. 18 on Tida's photos! - Ed.) to take a meandering walk through a small (0.6 hectares) patch of remnant spring-fed monsoon forest at Duke Street in the heart of Darwin. The fact that this small but pretty patch of green spaces exists is largely thanks to the efforts of the Duke St Rainforest Landcare Group, formed in 1997. The group lobbied to have the area rezoned to conservation, to ensure that it would be protected over the long term, and Darwin City Council installed a gross pollutant trap to reduce the amount of waterborne litter washing into the area. The Landcare group also constructed the pathway and boardwalk through the forest, and installed interpretative signage about the vegetation in the area.

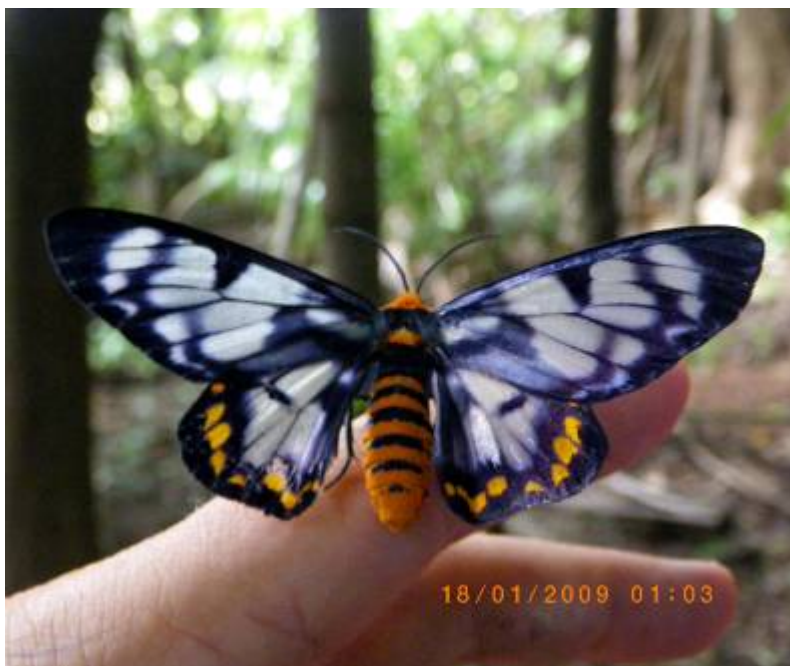
Upon seeing some butterflies fluttering around Don decided to take his butterfly net; this proved a great decision as he managed to impress us all with his netting abilities; at one point netting not only a target day-flying moth (below) but a giant dragonfly as well by accident as well.

Eleven species of butterflies were observed throughout the area. The Small Brown Crow were the most abundant species, being strongly associated with the forest interior. Other butterflies observed included a darter (*Telicota* sp.), Yellow Palm-dart, Fuscous Swallowtail and Small Pearl-white.

Upon reaching the end of the walk, a group decision was made to walk back through the rainforest. This too proved to be a good decision (good work Sherry) – the group did a bit of opportunistic rubbish collecting to tidy up the forest. In the process of collecting some rubbish a member of the group spotted a patch of fur that belonged to two young Brushtailed Possums, curled up next to one another at the base of a large White Bush-apple (*Syzygium armstrongii*) tree. As both the possums looked unwell, so it was decided to take them to the Ark Animal Hospital. In the process of "Operation Possum Rescue" Megan copped a rather unfriendly nip to from one of the ungrateful possums. However, the story ends well – the veterinary hospital staff report that

the two possums have recovered well, and will shortly be released where they were found.

All in all the walk was a nice way to start the weekend – learning more about Darwin's butterfly fauna and being able to give nature a helping hand. Thanks go to Don for sharing his knowledge about butterflies.



In perfect condition, this day-flying moth – Dysphania numana – had probably only just emerged from its pupae as it seemed reluctant to fly and clumsy when it did. See Nature Territory Nov. 2007, page 6, for more information about this species.



Examining the catch.

Interesting bird sightings

22 November 2008 to 22 January 2009

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 and seabirds				
Little (Eurasian) Grebe	22/11/2008	Leanyer Sewage Ponds	Darryel Binns	still present from Sept
Lesser Frigatebird	24/11/2008	Goulbourn Is.	Marc & Vikki Gardner	2
Brown Booby	4/12/2008	Lee Point	Stephen Garnett	1 present for 6 weeks previous
Black Bittern	1/01/2009	Nourlangie Creek Bridge	Marc & Vikki Gardner	2 calling
~	1/01/2009	Lake Bennett	"Dicaeum"	2
Great-billed Heron	1/01/2009	Yellow Waters	Marc & Vikki Gardner	1
Chestnut Rail	5/12/2008	Elizabeth R. Bridge	Darryel Binns	1
~	17/12/2008	Buffalo Creek	Fiona Douglas & Ian Hance	1 adult, 3 juvs.
~	20/01/2009	Buffalo Creek	Andrew Bell	1
Pale-vented Bush-hen *	17/01/2009	Hospital Car Park	Darryel Binns	heard
Gull-billed Tern	30/11/2008	Katherine Sewage Pond	Andrew Bell	1, unusual location?
Franklin's Gull	30/11/2008	Stokes Hill Wharf	Darryel Binns	1 Still Present Mid Dec.
Waders				
Red-necked Avocet	22/11/2008	Katherine Sewage Pond	Andrew Bell	1
Little Ringed Plover	30/12/2008	Leanyer Sewage Ponds	Marc & Vikki Gardner	1
~	1/01/2009	Leanyer Sewage Ponds	Fiona Douglas & Ian Hance	4
Oriental Plover	25/11/2008	Croker Island	Marc & Vikki Gardner	20
Swinhoe's Snipe	11/12/2008	Palmerston Campus, CDU	Fiona Douglas & Ian Hance	1
Marsh Sandpiper	22/11/2008	Leanyer Sewage Ponds	Darryel Binns	2
Wood Sandpiper	22/11/2008	Leanyer Sewage Ponds	Darryel Binns	2
~	1/01/2009	Leanyer Sewage Ponds	Fiona Douglas & Ian Hance	1
Oriental Pratincole	30/11/2008	Katherine Sewage Pond	Andrew Bell	
Australian Pratincole	30/11/2008	Katherine Sewage Pond	Andrew Bell	100 -200
Diurnal Raptors				
Black-breasted Buzzard	1/01/2009	Marlow Lagoon, Palmerston	"Dicaeum"	! adult, 2 juvs.
Pacific Baza	22/11/2008	Behind Darwin Base Hospital	N.T. Field Nats	1
Peregrine Falcon	3/12/2008	East Point	Ian Hance	2 stooping on waders
Other Non Passerines				
Banded Fruit-Dove	14/12/2008	Nourlangie	Marc & Vikki Gardner	5
Rose-crowned Fruit-Dove	22/11/2008	behind hospital	N.T. Field Nats	3
Australian Owlet-nightjar	14/01/2009	20 km west of Jabiru	Marc & Vikki Gardner	1
Fork-tailed Swift	5/12/2008	Jabiru	Marc & Vikki Gardner	50
Northern Rosella	14/01/2009	Humpty Doo	Niven McCrie	1
Oriental Cuckoo	30/12/2008	Lee Point	Marc & Vikki Gardner	1
Little Kingfisher	22/11/2008	Darwin Base Hospital	N.T. Field Nats	1
~	4/12/2008	Ludmilla	Ian Hance	1 on road, Dick Ward Drive
Passerines				
White-lined Honeyeater	14/12/2008	Nourlangie	Marc & Vikki Gardner	1
Mangrove Golden Whistler	14/01/2009	Ludmilla Creek	Richard Noske & Niven McCrie	2 adults; 1 chick in nest
~	17/01/2009	Leanyer Sewage Ponds	Niven McCrie	1
Horsfield's Bushlark	30/12/2008	Leanyer Sewage Ponds	Marc & Vikki Gardner	1
Brown Songlark	24/11/2008	Jabiru Airport	Marc & Vikki Gardner	6
Gouldian Finch	7/12/2008	Chinamans Ck., west of Katherine	Marc & Vikki Gardner	170+
Yellow-rumped Mannikin	22/11/2008	vicinity McMinns Lagoon	Darryel Binns	2
Yellow Wagtail sp.	30/12/2008	Leanyer Sewage Ponds	Marc & Vikki Gardner	3
~	17/01/2009	Leanyer Sewage Ponds	Darryel Binns	12
Grey Wagtail	11/12/2008	Palmerston Sewage. Ponds	Fiona Douglas Ian Hance	1
White Wagtail	14/01/2009	Leanyer Sewage Ponds	Andrew Bell	1; & seen subsequently

* the north Australian bird previously known simply as the Bush-hen (*Amaurornis olivacea*) is now known as the Pale-vented Bush-hen (*Amaurornis moluccana*). For an explanation of the issues driving the change, refer to Christidis & Boles (2008).

Reference Christidis L, Boles WE. 2008. *Systematics and taxonomy of Australian birds*.
CSIRO Publishing: Collingwood.

Recent literature about Top End natural history

MAMMALS

Compiled by Don Franklin

Kangaroos & wallabies

- Ritchie EG, Bolitho EE. 2008. Australia's savanna herbivores: bioclimatic distributions and an assessment of the potential impact of regional climate change. *Physiological and Biochemical Zoology* 81: 880-890.
- Ritchie EG, Martin JK, Krockenberger AK, Garnett S, Johnson CN. 2008. Large-herbivore distribution and abundance: intra- and interspecific niche variation in the tropics. *Ecological Monographs* 78: 105-122.
- Telfer WR, Griffiths AD, Bowman DMJS. 2008. The habitat requirements of four sympatric rock-dwelling macropods of the Australian monsoon tropics. *Austral Ecology* 33: 1033-1044.

Northern Quoll

- Jacklyn P. 2008. Quolls make comeback on offshore islands. *Savanna Links* 35: 16. [not-so-technical]
- Rankmore BR, Griffiths AD, Woinarski JCZ, Ganambarr BL, Taylor R, Brennan K, Firestone K, Cardoso M. 2008. *Island translocation of the northern quoll Dasyurus hallucatus as a conservation response to the spread of the cane toad Chaunus (Bufo) marinus in the Northern Territory, Australia*. Report by the Northern Territory Government to the Australian Government's Natural Heritage Trust: Palmerston. 33 pp. Available at: <http://www.nt.gov.au/nreta/wildlife/programs/quoll/index.html>.
- Woinarski J, Rankmore B, Fisher A, Brennan K, Milne D. 2007. *The natural occurrence of northern quolls Dasyurus hallucatus on islands of the Northern Territory: assessment of refuges from the threat posed by cane toads Bufo marinus*. Report by the Northern Territory Government to the Australian Government's Natural Heritage Trust: Palmerston. 36 pp. Available at: <http://www.nt.gov.au/nreta/wildlife/programs/quoll/index.html>.

Flying-foxes

- Phillips P, Hauser P, Letnic M. 2007. Displacement of Black Flying-foxes *Pteropus alecto* from Batchelor, Northern Territory. *Australian Zoologist* 34: 119-124.
- Plowright RK, Field HE, Smith C, Divljan A, Palmer C, Tabor G, Daszak P, Foley JE. 2008. Reproduction and nutritional stress are risk factors for Hendra virus infection in little red flying foxes (*Pteropus scapulatus*). *Proceedings of the Royal Society B-Biological Sciences* 275: 861-869.

Others

- Webb JK, Brown GP, Child T, Greenlees MJ, Phillips BL, Shine R. 2008. A native dasyurid predator (common planigale, *Planigale maculata*) rapidly learns to avoid a toxic invader. *Austral Ecology* 33: 821-829.
- Whiting SD. 2008. Movements and distribution of dugongs (*Dugong dugon*) in a macro-tidal environment in northern Australia. *Australian Journal of Zoology* 56: 215-222.

Living with flying-foxes

They're a fascinating and important component of natural ecosystems in the Top End, pollinating trees and dispersing fruits between isolated rainforest patches. They can also be a challenge to live with, especially when large colonies choose to roost in suburban backyards or other places frequented by humans because of the nuisance and potential health hazard associated with the droppings. It is plausible that flying foxes actively choose to roost near humans, perhaps because of the dense foliage on large trees that we provide in gardens provides ideal shelter, and perhaps because we act as a deterrent to predators. Dealing with this human-wildlife conflict has been a challenge for wildlife managers in the Top End.

Phillips *et al.* (2007) document the successful displacement of a colony of Black Flying-foxes *Pteropus alecto* from urban Batchelor. Though the roost was nowhere as large as that often formed by those of the Little Red Flying-fox *Pteropus scapulatus*, they proved stubborn. Components of the displacement program that contributed to its eventual success, they argue, included: before and after monitoring, persistence, use of multiple scaring techniques, and frequent communication with the townfolk who exhibited a diversity of opinions about the program (from "get rid of them" to "leave them alone").

Flying-foxes are vectors for several serious human diseases, including Lyssavirus and Hendra Virus. Plowright *et al.* (2008) investigated patterns of occurrence of Hendra Virus in the Little Red Flying-fox in the Top End and elsewhere. They found it to be most prevalent in pregnant and lactating females, and in food-stressed individuals. The former effect underlies the seasonal patterns of occurrence of the virus in humans. The latter, they suggest, may arise particularly due to habitat modification by humans, a potential trigger to the emergence of Hendra Virus as a problem.

Black Flying-foxes. Photo: Don Franklin.

