



NATURE TERRITORY

June 2009

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 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.



At the May Club meeting, Paul Horner demonstrated the richness of the Northern Territory's lizard fauna – skinks, geckos, legless lizards, dragons and goannas (monitors) – with over 200 species. This is the desert form of the Sand Goanna *Varanus gouldii*, photographed on the southern edge of the Tanami Desert by Don Franklin.

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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

June meeting. Wednesday June 10, 7:45 PM. Blue 1.03 (Business Building), CDU.

Iain Field

"Shark research in northern Australia"



Hands-on research: Iain and shark.

Iain has a background in oceanography and ecology and has combined the two interests in marine ecology. In recent years, his research has been focused on marine vertebrates, specifically sharks, seals and seabirds. Iain's work has covered life history, population dynamics, movement and foraging behaviour of marine vertebrates and he is particularly interested in linking these to natural and anthropogenic environmental variation (e.g. climate change and fishing pressure). While in the NT, Iain has been running a number of shark studies, including an intensive tagging and population modelling project to develop monitoring tools for a sustainable shark fishery, a study assessing threatened and endangered shark species interactions with fisheries, and amongst others a number of tracking studies away from the NT at the Rowley Shoals, Western Australia and Palau. Iain will present an overview of these studies and of shark ecology in northern Australia.

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

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

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

October 2009 meeting. Wed. Oct. 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*.

December 2009 meeting. Wed. Dec. 9. Peter Phillips. *Wildlife management issues in the NT*.

Top End Native Plant Society activities

June 2009 meeting. Thursday, June 18. Jon Schatz: *Arnhem flora, sandstone & savannas*.

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). For more information, contact Russell Dempster on 8983 2131.

Two Bens: a correction and apology

The most useful web-site *Wildflowers of the Darwin region* (<http://www.users.on.net/~bennnez/>) is the work of Ben Stuckey, contrary to the note on page 5 of the last issue. Ben Stuckey works at the NT Herbarium in Palmerston. Ben Parslow won the Exit Art award. Both Bens are NTFNC members. Please accept our apologies for the confusion.

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Memberships due soon

Annual membership fees are due by the end of June. Please read the notice on page 8.

Club notices

Welcome to new members: the McDonald family; Christiane Roetgers.

Thank you

The previous issue was proof-read by Christine Maas and collated and mailed by Lyn Reid. 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 eucahypt@octa4.net.au or the Club's postal address, or contact him on 8948 1293. Deadline for the July newsletter: Thursday June 18.

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

Club library

Additions to the Club library, donated by Birds Australia and NAILSMA respectively:

- * Olsen P, ed. 2008. *The state of Australia's birds 2008*. Birds Australia Supplement to Wingspan 18(4).
- * Barnsley I, NAILSMA. 2009. *A carbon guide for northern indigenous Australians*. United Nations University: Yokohama.

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.

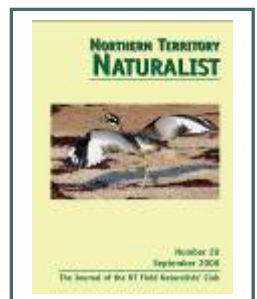
Journals: in the office of Don Franklin at CDU Casuarina (Red 1.2.34 = room 31.2.34). These can be accessed directly during working hours, or by ringing Don on 8946 6976 (w) or 8948 1293 (h).

Northern Territory Naturalist

We welcome Dr Chris Tracy to the editorial team. Chris is a Postdoctoral Research Fellow at Charles Darwin University, where he is researching adaptations in frogs to cope with heat and dryness (<http://www.cdu.edu.au/newsroom/stories/2004/november/frogriddle/index.html>). He has previously studied bats and reptiles and has a fine record of scientific publication (<http://www.epernicus.com/crt>). His role as an editor will be primarily with manuscripts about vertebrates - mammals, birds, reptiles, amphibians and fish.

The contents of issue no. 21 of the Club's journal, the *Northern Territory Naturalist*, are close to completion. Additional manuscripts should be submitted as a matter of urgency. Manuscripts for issue no. 22 are most welcome. 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://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, Dr Michael Braby and Dr Chris Tracy.



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.

Flying into a storm (from *Recent Literature*, page 11)

Darwin has the best-equipped meteorological research centre in the tropics – anywhere. This combined with frequent storms in the wet season made it the ideal site for a series of international observational weather “experiments” in the wet season of 2005–06. These experiments used, amongst other equipment, specialised aircraft to fly through storms, several at extra-high altitude. The activities fell under three umbrellas each with its own acronym: TWP-ICE, SCOUT-O3 and ACTIVE. Numerous technical papers arising from these projects are listed on page 11 – see also *Nature Territory* June 2008 for more TWP-ICE literature.

Vaughan *et al.* (2008) and Brunner *et al.* (2009) explained the rationale for the Darwin component of the SCOUT-O3 project. SCOUT-O3 stands for Stratospheric-Climate Links with Emphasis on the Upper Troposphere and Lower Stratosphere and is concerned with trace gases at high altitude, notably ozone. In particular, it is about understanding the resuscitation of the ozone layer following the international ban on ozone-depleting refrigerants (http://www.ozone-sec.ch.cam.ac.uk/scout_o3/). A key component were flights at 12 to 20 km altitude. Questions posed include: how do tropical thunderstorms, the anvils of which reach great altitudes, contribute to the movement of trace gases into the upper atmosphere? Flights took place during November and December and focussed on “Hector” thunderstorms over the Tiwi Islands.

TWP-ICE – the Tropical Warm Pool International Cloud Experiment – followed immediately after SCOUT-O3 in January and February 2006. The aim was “was to observe the evolution of tropical cloud systems and their interaction with the environment with the goal of improving the representation of cloud and aerosol process in a range of models” (May *et al.* 2008) – in other words, to improve our understanding of thunderstorms and monsoonal activity in order to improve short- and long-term weather forecasting.

ACTIVE stands for Aerosol and Chemical Transport in Tropical Convection. It is relevant to issues in the next section below. For more information, go to <http://www.atm.ch.cam.ac.uk/active/>.

Why north-west Australia is getting wetter

The evidence is in that, whilst south-eastern and eastern Australia is getting drier, north-west Australia has been getting wetter since the 1950s. Why? This is not as predicted by general climate models.

One possibility being evaluated by climatologists is that pollution from Asia is being brought south by the monsoon and is seeding rain. Hamilton *et al.* (2008) measured pollutants in the atmosphere from a plane that flew north from Darwin during the monsoon season. They found a marked “chemical equator” at the latitude of Timor separating polluted air from the northern hemisphere from cleaner southern hemisphere air. The chemical equator did not coincide with the ITCZ (the monsoon line that appears on our weather maps during the wet season). The key pollutant was carbon monoxide, which they suggest arose from fires at the time in northern Sumatra and Thailand. (Of course, we produce our share of such pollutants, but at the opposite time of year. Indeed, Vaughan *et al.* 2008 reported much smoke pollution over Darwin in early November.)

Shi *et al.* (2008) modelled the implications of pollutants for rainfall in northern Australia. They found some striking concordances: the models suggested increases in rainfall over north-western Australia. However, they drew attention to a number of unresolved geographic and theoretical problems and concluded that “the impact of aerosols on Australian rainfall remains an open question”.

What drives the monsoon: a prehistorical perspective

Research into the debate about whether vegetation has a big effect on the north Australian monsoon (it certainly has a big effect on some other weather systems) – and thus whether Aboriginal burning in central Australia has influenced our climate – continues – see *Nature Territory* April 2007, page 8, for an earlier contribution. Marshall & Lynch (2008) explored the relative impact of heat, vegetation, sea level and greenhouse gases by modelling climate at six intervals from the present back to 55,000 years ago and thus encompassing the last glaciation (“Ice Age”). Their results were clear and consistent: whether the measured response was total rainfall, how far south the monsoon (technically, the ITCZ) travels, or when the monsoon arrives or departs, the main drivers were heat and sea level. Interestingly, lower sea levels increase the strength of the monsoon, an effect that was overridden during the last Ice Age by lower temperatures and thus less moisture in the atmosphere. This, they suggest, is why the monsoon was strongest (in recent times) when temperatures first rose again after the Ice Age – heat and moisture returned but sea levels hadn’t yet caught up. Their results do not support the proposition that Aboriginal burning could have triggered the aridification of central Australia. As the authors note, with considerable caution, these results may have implications for climate trends in northern Australia into the future.

Small gems from the end of the Wet

Holmes Jungle in March: photos by Tissa Ratnayake

Australasian Lesser Wanderer *Danaus petilia*.



Batchelor's Buttons *Gomphrena canescens* and other members of the genus flower at the end of the Wet.

This 25 mm long grasshopper, probably a young nymph of the Giant Green Slantface *Acrida conica*, looks almost too delicate for such a tough leaf.



A Sundew, *Drosera petiolaris*, that is yet to flower – it flowers on erect stalks. Notice on the right-hand plant two seed-like structures – these are unopened insect traps (modified leaf blades).



Shorebird counts: February to April 2009

Gavin O'Brien

This article will, I hope, be the first of a series in which I provide information about changes in the abundance of shorebird species along the shoreline between East Point and Buffalo Creek throughout the year, and indicate which sites tend to attract the largest numbers of particular species during each month. These are based on counts as detailed below and as counted by a number of people (see Acknowledgements).

The sites at which these counts take place are

- East Point (near the shelter and on the rocky reefs several hundred metres to the west);
- Spot On Marine, the site of the old salt works;
- Nightcliff Rocks;
- the mouth of Sandy Creek to about one kilometre to the south west along Casuarina Beach; and
- Lee Point to Buffalo Creek.

Sites are counted during the period around the spring tides. Lee Point and Spot On Marine are usually counted when the tides are above 6.8 metres. The other three sites are normally best counted an hour or two either side of the peaks of the spring tides or closer to the high tide when it is about 6.4 metres; they are subject to inundation during higher spring tides and most of the shorebirds seek more open roosts when this occurs. During the neap and low tides, shorebirds are widely dispersed around the broad intertidal zone where they feed. The high tides cause them to cluster together in the roosting sites where they are easier to access and count.

The counts for February, March and April 2009

To reduce the risk of double counting of individuals, all sites were counted once within a maximum of three days. The species selected for summary in the tables in this article were the ten most numerous species in the period. In future reports, some species will undoubtedly be replaced by others that become more common.

Table 1. Counts of the 10 most common species present in Feb. to April 2009 for all sites combined.

	12 Feb*	27 Feb. – 1 Mar.	9–11 March	16–17 March	26–27 March	29–30 March	9–10 April	25–26 April	29–30 April
Grey Plover	9	18	44	28	39	3	2	0	0
Lesser Sand Plover	27	3	44	19	29	12	22	2	2
Greater Sand Plover	737	286	1459	218	1051	362	842	232	361
Bar-tailed Godwit	133	28	105	37	87	22	26	3	1
Whimbrel	5	8	64	17	78	8	85	4	3
Grey-tailed Tattler	33	10	27	13	28	27	42	11	35
Ruddy Turnstone	33	3	41	11	27	21	11	4	4
Red Knot	210	100	80	17	1	1	0	0	0
Great Knot	1780	712	1381	513	737	939	119	59	34
Sanderling	90	112	118	86	28	74	16	37	18

* the National Bird Count, as presented in my article in the April newsletter.

All ten species are migratory. The table indicates a progressive decline amongst Great Knots, Red Knots and Bar-tailed Godwits from February to April, consistent with their outward migration. Greater Sand Plovers,



Sanderlings, Lesser Sand Plovers, Grey Plovers and Ruddy Turnstones showed more erratic trends but also a tendency to decline. The fluctuations may be due to flocks passing through Darwin on migration from the south. Grey-tailed Tattlers have not shown any notable decline in numbers over the three months, and Whimbrels possibly only in two counts late in April. They may migrate north later than the other species.

At Nightcliff Rocks: a Great Knot, with Greater Sand Plovers behind.
Photo: Con Foley.

Where was the best place to see these species?

Some sites are preferred by some species and other sites by others. Table 2 provides an indication of favoured sites by documenting the largest counts by location for each of the three months. Counts were not necessarily made during the systematic counts of all sites enumerated in Table 1.

Table 2. Best counts by site for the ten species listed in Table 1 for each of the survey months.

	February	March	April
Grey Plover	27 - Lee Point	25 - Lee Point	2 - several sites
Lesser Sand Plover	35 - Lee Point	30 - Lee Point	22 - East Point
Greater Sand Plover	880 - Lee Point	1320 - Lee Point	740 - Lee Point
Bar-tailed Godwit	123 - Lee Point	98 - Lee Point	26 - East Point
Whimbrel	6 - Spot On Marine	76 - Spot On Marine	74 - Spot On Marine
Grey-tailed Tattler	20 - East Point	24 - East Point	34 - East Point
Ruddy Turnstone	19 - Lee Point	25 - Lee Point	7 - East Point
Red Knot	380 - Lee Point	70 - Lee Point	0
Great Knot	1,738 - Lee Point	950 - Lee Point	195 - Lee Point
Sanderling	112 - Lee Point	95 - Lee Point	54 - Lee Point

Best counts in addition to those in Table 2 include groups of Black-tailed Godwits at East Point and Spot On Marine, and Pacific Golden Plovers at East Point and Nightcliff. Pacific Golden Plovers are not usually seen at the more populous sites, Lee Point and Sandy Creek.

Leg flags and bands

From February to April, ten birds were recorded carrying flags and bands. These included:

- one Red Knot with an orange flag, probably marked in Victoria;
- six Great Knots carrying white over black or black over white flags. These were marked at Chongming Dao, which is near Shanghai in China; and
- one Bar-tailed Godwit carrying black over white flags, also marked at Chongming Dao.

There have been many sightings of Greater Sand Plovers, Red-necked Stints, and Ruddy Turnstones carrying the blue and yellow flags applied by Clive Minton's team at Lee Point in September last year. These have been seen at Lee Point, and occasionally at Sandy Creek, Nightcliff and East Point. The number of these flag sightings has declined as migration proceeds over recent months so that recently no more than one or two have been seen at Lee Point at any one time whereas earlier in the season it was not unusual to see in excess of ten in a single count.

Acknowledgements

Thanks to Meg O'Brien, Ian Hance, Stuart Young, Kym Brennan, Alistair Stewart, Clive Garland, Darryel Binns (Biggles), Richard Noske, Bruce Roggiro, Arthur and Sheryl Keates, Peter Kyne and Micha Jackson who all assisted with counts and/or preparation of statistics used in this report.

Shorebird Counting and ID workshop, Darwin, October 17-18

October is a good time to observe migratory shorebirds. At that time of the year, large numbers are arriving and passing through Darwin on their way south, many still carrying spectacular breeding plumage.

Shorebirds 2020 is a Birds Australia program initiated in 2007 to coordinate shorebird monitoring in Australia. In order to increase the number of participants and the number of shorebird surveys conducted in the Northern Territory, Birds Australia is proposing to run a Shorebirds 2020 workshop in Darwin which will take place on 17 – 18 October. The aim of the workshop is to develop shorebird identification and counting skills, and will also cover shorebird ecology, migration, conservation and the Shorebirds 2020 program. There will be no fee for attending.

The workshop will comprise an indoor component which will probably be held at the Charles Darwin University on the morning of Saturday 17th October and field visits to Lee Point and probably other locations on the Saturday and Sunday evenings to practice shorebird ID and participate in a count.

We are trying to assess numbers likely to participate in order to determine how much space we will need for the indoor component of the workshop. If you are interested, or know of anyone else who might be, please contact Gavin O'Brien by email (gavinandmegobrien@bigpond.com) or Shorebirds 2020, phone 03 9347 0757 or email shorebirds@birdsaustralia.com.au.

Lizards of the Northern Territory

Reporting on the May meeting

Trish Bate

Paul Horner, Curator of Terrestrial Vertebrates at Museum and Art Gallery of the Northern Territory, commenced his review of NT reptiles with an overview of his doctoral work on the taxonomy of the skink genus *Cryptoblepharus*. He described scale arrangements and body and limb proportions, and used genetic markers to explore relationships in this speciose genus, in the process discovering 13 new species. Six of these species occur only in the NT; these include the Arafura Snake-eyed Skink which is only known from islands off Cobourg Peninsula. One of the new species bears his name - but Paul didn't name that one.

He then provided a richly illustrated overview of NT reptiles by region, habitat types and taxonomic group. As far as possible he used common names, explaining that there is no universally accepted naming convention for reptiles.

Skinks are the most numerous reptile group in Australia. As form follows function, so wall dwellers have flat bodies with slender limbs; burrowers have residual or no limbs, rock crevice dwellers often are spiny, and some skinks have fixed transparent spectacles. Most are striped but some are spotted (e.g. Leopard Skink *Ctenotus pantherinus*). Many skinks have 1-3 keels on their dorsal scales, and many are specific to very small areas. This includes the *Ctenotus* genus, the largest Australian reptile genus.

The NT is home to 38 species of native geckos; but the Mourning Gecko (*Lepidodactylus lugubris*) from Asia and the Wessel Islands has recently been transported to Darwin and may have become established. Geckos are well known for some species having pads of their feet which afford grip on vertical surfaces.

One of the endemic geckos is the endangered Yellow-snouted Gecko (*Diplodactylus occultus*) found in Kakadu National Park and the Mary River area; this gecko inhabits leaf litter and may be threatened by burning regimes. Australia holds 18 species of the genus *Gehyra*; these occupy a range of habitat types



A Ring-tailed Dragon *Ctenophorus caudicinctus*, photographed in the rock country of Arnhem Land by Deb Bisa.

including caves and gorges in sandstone ridges and outcrops, under bark in woodland vegetation and cracking clay (black soil) plains. Some geckos have knobbed tails, allowing them to hook themselves inside small spaces as a defence against predators.

The Flapfooted lizards (family Pygopodidae) have vestigial hindlimbs (flaps), which along with obvious ears and thick tongues discriminate them from snakes.

Dragons (family Agamidae) are usually terrestrial, and may freeze and/or run in upright postures. The Ta-ta Lizard (*Amphibolurus gilberti*) with the lateral white stripe through the mouth and head is a familiar example in the Top End: its arm waving is believed to be social signalling. The well known Thorny Devil (*Moloch horridus*) of arid sandy regions wicks moisture along piping in its scales from its belly to its mouth.

Monitors/goannas are all one genus: *Varanus*. We are familiar with Mertens Water Monitor: dark brown/olive green with cream/yellow spots; it is semiaquatic and arboreal, and lives around the edges of waterholes in the Top End.

Memberships almost due for renewal

Annual membership fees are due by the end of June. Please help your hardworking Treasurer and Membership Officer by renewing promptly.

If you receive your newsletter by conventional mail: the expiry date for your membership is shown below your address on the back page of the newsletter. Above your address you should find a membership form. You are most welcome to continue receiving a printed copy – but you may wish to consider the virtues of nature in full colour by ticking the option to receive your newsletter by email in future.

If you receive your newsletter by email – and your membership is due for renewal, we will contact you by email during June.

Membership forms may also be printed from the Club's [web-site](#).

Lizard hunting at Holmes Jungle

A report on the Club's May excursion

Fiona Douglas

Not too early on Sunday, 17th May, fifteen or so of us gathered in the top car park of Holmes Jungle to meet Paul Horner who had agreed to lead a field trip after giving the Club's May talk. We were warned that our eyes (and binoculars) were to be kept pointed downwards as lizards were our target, not feathered dinosaurs. It took a while to get begin spotting lizards, but amongst leaf litter we saw our first tail-waving Rainbow Skink (*Carlia munda*). This is a handsome small skink (lizard size classes are pretty simple: very small, small, medium, large and very large!). The full colours were not visible as it is not the mating season and the hoping-to-mate males are the inspiration for the common name.

The next lizard was Swanson's Snake-eyed Skink (*Cryptoblepharus cygnatus*), an arboreal species and a bandit when it comes to hunting. These skinks will sit beside an ant trail and rob the ants of food, and will also rob wasps' nests of their paralysed prey. They can move quickly and may jump from tree to tree to escape predators. Another rainbow skink, the Two-spined Rainbow Skink (*Carlia amax*) was seen next.

We saw a few dragons, all the same species, the Swamplands Dragon (*Lophognathis temporalis*). These are commonly seen in Darwin gardens, being noticeable especially because of the white line on the lower jaw and neck of adult males. The first animal was a female and we were able to appreciate the patterning on the skin which assists their camouflage. Even though they were perched on fallen or standing trees, making a visible silhouette, they could still be very hard to see. These dragons dig burrows and lay eggs, following which there is no parental care. The sex of the offspring is determined by the nest temperature, as with crocodiles.

Paul explained that most small lizards live only an average of about a year, although some of the very large lizards may live for decades. At this time of year there are often lizards of several size classes as the young grow up. Our last species of lizard was another rainbow skink, *Carlia gracilis*, and we realised that we hadn't seen any goannas.

The most exciting find of the day was not a lizard at all. In the damp forest we found an adult Keelback (*Tropidonophis mairii*), a colubrid freshwater snake. Within colubrids the Keelback is the only Australian representative of the natricine group, other members of which are common predators on toads. It is probably this genetic ancestry that, despite the absence of native toads in Australia, enables the Keelback to be one of the few native animals able to prey on Cane Toads (*Bufo marinus*) without ill effect. Paul captured the snake so that we could all look at it, and some stroke it, while it constantly flicked its tongue and occasionally writhed in his hands. He explained that the presence of an extra scale (a loreal scale) on the face between the nasal scale and the eye indicates a non-venomous snake, but we felt that the close examination required to determine this made the field mark of limited value generally. Paul reminded us that, unusually for Australia, in our northern habitat round Darwin the majority of snakes are non-venomous. While being held, the Keelback produced an unpleasant odour, one of its defence mechanisms, and it was then returned to the damp ground where it had been found.

As the walk progressed, the group began to straggle as the inevitable plant and bird discussions started. Some holes in a muddy bank were probably Striated Pardalote burrows and several pardalotes were heard and a couple seen. Many of us were rather dismayed by the large extent of weeds in this reserve; weedy grasses, vines and many others such as Gambia Pea (*Crotalaria goreensis*) were distressingly abundant. The ripe fruit of Rosella (*Hibiscus sabdariffa*), however, provided a light snack for some.

This was a trip with something for everyone and we are very grateful indeed to Paul Horner for giving up a Sunday morning to lead the walk.



Paul Horner with the non-venomous but rather malodorous Keelback.
Photo: Tissa Ratnayake.

Interesting bird sightings

22 April to 22 May 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 & waders				
Black Bittern	3/05/2009	Mary River Gravel Pit	Marc Gardner	1
Great-billed Heron	8/05/2009	Kulaluk Bay	Fiona Douglas & Ian Hance	1
Beach Stone-curlew	8/05/2009	Kulaluk Bay	Fiona Douglas & Ian Hance	2
Black-winged Stilt	8/05/2009	Kulaluk Bay	Fiona Douglas & Ian Hance	36
Wood Sandpiper	20/04/2009	Leanyer Sewage Ponds	Fiona Douglas & Ian Hance	1
Australian Pratincole	29/04/2009	Darwin Airport	Diceum	60
Diurnal Raptors				
Eastern Osprey	1/05/2009	Gardens Hill reserve tower	Fiona Douglas	nesting
Black-breasted Buzzard	26/04/2009	Marrakai Track	Peter Kyne	1
~	11/05/2009	Gunbalunya	Marc Gardner	2
Pacific Baza	26/04/2009	Marakai Track	Peter Kyne	1
~	5/04/2009	Sandy Creek	Gavin & Meg O'Brien	2, 1 with stirrup attached to leg
Grey Goshawk	26/05/2009	Millner	Peter Kyne	1, white form
Nankeen Kestrel	14/05/2009	Lee Point Rd.	Ian Hance	1
~	17/05/2009	Hidden Valley Race Track	Darryel Binns	1
~	17/05/2009	Kalaluk Bay	Fiona Douglas	1
Black Falcon	5/04/2009	Beatrice Hill	Darryel Binns	1
Peregrine Falcon	5/05/2009	Gardens Hill reserve tower	Ian Hance	2
Other non-Passerines				
Banded Fruit-dove	24/04/2009	Baroalba Springs	Gavin & Meg O'Brien	1
Spotted Nightjar	12/05/2009	Maningrida	Richard Noske	3
Fork-tailed Swift	4/05/2009	Progress Drive	Fiona Douglas	10
~	26/04/2009	Marakai Track	Peter Kyne	50+
Hooded Parrot	12/05/2009	Maningrida	Richard Noske	2
Channel-billed Cuckoo	3/05/2009	South Alligator Resort	Marc Gardner	1
~	11/05/2009	Jingili	Helen Larson	1
Passerines				
Gouldian Finch	26/04/2009	Marrakai Track	Peter Kyne	2
~	12/05/2009	Maningrida	Richard Noske	2 small groups
White-breasted W'dswallow	29/04/2009	Jingili	Helen Larson	12+
~	1/05/2009	Nightcliff Pool	Richard Noske	numerous
~	6/05/2009	Darwin Hospital	Gavin & Meg O'Brien	a score
Grey Butcherbird	5/05/2009	C.D.U., Casuarina	Colin Trainor	1
Broad-billed Flycatcher	22/5/2009 to CURRENT	Progress Drive	R Noske, F Douglas & I Hance	3 breeding pairs

Agukabams (from *Recent Literature*, page 11)

Cyclones can only form over the ocean, right? When they pass over land, they weaken and dissipate, right? This tropical wisdom is not always correct, according to Emanuel *et al.* (2008). They document one exception in detail. In late February 2001, Tropical Cyclone Abigail crossed the Gulf of Carpentaria coast near Mornington Island, weakening into a rain-bearing depressions as it headed towards Elliott in the Northern Territory before proceeding further west to Wave Hill and then Halls Creek in Western Australia. Remarkably, microwave images taken at Wave Hill, and then radar images taken at Halls Creek clearly show a classic cyclone formation, with a distinct eye and that unmistakable huge spiral of rain-bearing clouds. Meteorological data collected at these weather stations also demonstrate the reformed cyclonic nature of "ex"-Tropical Cyclone Abigail. They note that other instances have also occurred over the northern deserts of Australia, and christen the phenomenon *agukabams*, from Aboriginal words meaning "land storms". No existing meteorological model or understanding explains their occurrence. To form, cyclones require an intense supply of moisture and energy which they normally obtain from hot oceanic waters, or very rarely from large swamps. Emanuel *et al.* (2008) proposed that *agukabams* form when the leading edge of a rain-bearing depression dumps substantial amounts of rain on hot desert sands, the centre of the storm subsequently "sucking" up the moisture and heat from the sand much as it would from the ocean. Using computer simulations, they then demonstrate that wettened sand can be sufficiently conductive to function in this manner, but also that *agukabams* must eventually "run out of steam" when isolated from tropical oceans.

Recent literature about Top End natural history

CLIMATE & WEATHER

Compiled by Don Franklin

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