



NATURE TERRITORY

June 2011

Newsletter of the Northern Territory Field Naturalists Club Inc.

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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.



Quite a meal: this Golden Orb-weaver (*Nephila pilipes*) has the remains of a gecko in its web. It is interesting to speculate how it might have caught it.

The photo was taken by Max Innes on our May excursion to Holmes Jungle with Alan Andersen to look at ants – see report on page 7.

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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

Tropical Garden Spectacular & Top End Sustainable Living Festival

Saturday 4 & Sunday June 5, George Brown Darwin Botanic Gardens.

Last year, our Club had an information stall at this very popular event and we had a steady stream of visitors and enquiries throughout the two days. We plan to participate again this year. It is very good exposure for the Club and an opportunity for us to raise the public's interest in our natural environment. We are encouraging members to be part of this event through sharing their experiences with the public by being present at the stall for a few hours on either day. **Those helping at the stall receive a free pass but numbers are limited so please contact Tissa on 8921 8226 if you're interested in attending.**



June meeting. Wednesday June 8, 7:45 PM. Blue 1.14 (Business Bldg.), CDU.

Stuart Blanch

"Proposed Limmen National Park - conservation & impact of mining development"

The 1.2 million km² proposed Limmen National Park is in the transition zone between humid and arid areas east of Mataranka in the southwest Gulf Country. The area was formally proposed as a Park by the then NT Government in 1991, but has yet to be declared. The area is abandoned former pastoral leases, stretching 200 km south and east of the Roper River across the Towns and Limmen Bight Rivers to headwaters of the western tributaries of the McArthur River.

The ecology of the proposed park is little studied, but known to be important for its floristic diversity. The wetlands along the coast and around the estuaries and floodplains of these rivers are listed as wetlands of national importance, and a larger area encompassing these wetlands as well as the marine environment and offshore islands are ranked as having international conservation significance by the NT Government. The area also faces significant threats from proposed mining, particularly large scale iron ore mining and export infrastructure. Marra, Alawa and Yanyuwa people are the traditional owners for the broader region.



Lost City, proposed Limmen National Park.
Photo: Bruce Honeywill.

Dr Stuart Blanch trained as a river and wetland ecologist, and earned a doctoral thesis from the University of Adelaide studying the ecology of water plants in the Murray River. He also has a Masters in Environmental law from Sydney University. He is currently the Director of the Environment Centre NT, the peak community sector environment organisation in the Territory.



June field trip. Sunday 12 June, 8.45 AM – exploration of Blaydin Point, led by Stuart Blanch

Blaydin Point is on the north side of Middle Arm in Darwin Harbour and is the location for development of the INPEX Ichthys LNG plant. It contains healthy stands of monsoon vine forest (>60 ha), mangroves and savanna woodland. The drier areas on Blaydin Point will be almost totally cleared if development proceeds.

Meet on the Channel Island Road at the turn off to Blaydin Point on the right, a few hundred metres before the turn off to Wickham Point. The road into Blaydin Point is dirt and has deep ruts in a few places. 4WDs are encouraged, but high-clearance 2WDs may be fine. Please contact Tissa on 8921 8226 for more details.

Top End Native Plant Society activities

June meeting. Thursday June 16. Marissa Fontez (landscape architect): *Landscaping with natives*.

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

Membership renewal notice

Annual membership fees are due at the end of June. However, if you joined during 2011 your membership is current until the end of June 2012 so does NOT need to be renewed now.

If you receive your newsletter by post, your membership expiry date will appear beneath the panel containing your name and address on this newsletter. A membership form is on the same page.

If you receive your newsletter by email please check the notice in your email. Only those whose membership expires on the 30/06/2011 will be advised of the expiry date and you should also find attached to the email a membership renewal form that you can complete and forward to NTFNC with your payment. EFT payment can be arranged by contacting Fiona Douglas at fiona.douglas@octa4.net.au (no credit card facilities).

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Thank you: the previous issue was proof-read by **Fiona Douglas** and collated and mailed by **Tissa Ratnayeke**. It was printed by **Dawn** using equipment kindly made available by the office of **Michael Gunner MLA** at his Fannie Bay electoral office.

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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 July newsletter: Friday June 24.

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

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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.

Donated by Birds Australia: Kirkwood J, O'Connor J, eds. 2010. *The State of Australia's Birds 2010. Islands and Birds*. Birds Australia: Melbourne. 52 pages.

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).

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Northern Territory Naturalist:

The Editorial Committee of the Club's journal, the *Northern Territory Naturalist*, is now calling for manuscripts for issue no. 23. 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.

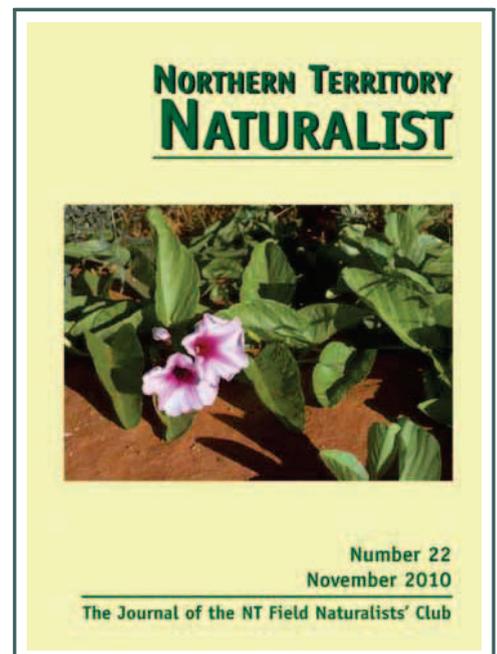
The *Northern Territory Naturalist* is a registered, peer-reviewed journal (ISSN 0155-4093) and is recognised as a Category C publication by the Australian Research Council

(http://www.arc.gov.au/era/era_journal_list.htm). 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. Editors of the journal are Dr Michael Braby, Dr Lynda Prior and Dr Chris Tracy.

The journal page of the web-site also has an order form for back issues of the *Northern Territory Naturalist*, which are available individually or as a set (some are out of print and available as photocopies only).



Great Knot – an exciting sighting in China

Arthur & Sheryl Keates

In news recently received, a Great Knot (*Calidris tenuirostris*) observed at Lee Point in late 2010 has been sighted in China. This species of migratory shorebird is listed by BirdLife International as Vulnerable because of a rapid population decline caused by the destruction of non-breeding stopover sites in the Yellow Sea area, and on the assumption that further habitat loss will cause additional declines in the future.

This particular global traveler was originally banded at Roebuck Bay, Broome, WA on 5 July 2009. We know this because when it was banded, a yellow engraved leg flag with the letters "KCY" was placed on its tibia, the upper right leg. KCY was sighted in the Bay on 3 occasions in October 2009.

The next observation of KCY was on 25 September 2010, when with Alastair Stewart, we observed KCY at the shorebird roost at Lee Point in a flock of c 3,700 birds. It was again recorded there by Gavin and Meg O'Brien on 11 October 2010.



A Great Knot with an engraved leg flag.
Photo: Adrian Boyle.

Despite several observers conducting shorebird counts since then, KCY was not sighted again around Darwin. Whether it stayed in the Top End during its non-breeding season or moved on we do not know. It would be unusual for a shorebird to have moved back to Broome after arriving here on its southern migration. Further, given the observer efforts and leg flag sightings at Roebuck Bay, there is a fair chance that it would have been reported there. However, it could easily have been missed in the thousands of birds using the Bay, and we have records of an individual of the same species that moved from Broome to Darwin in the non-breeding season so the reverse movement cannot be ruled out.

On 16 April, 2011, KCY was observed in a flock of c 5,900 birds at Yalujiang Nature Reserve, China, an

internationally important site for migrating birds on the Yellow Sea near the city of Dandong. Having already flown c 5 500 km from Australia, KCY and its cohorts use the Nature Reserve to regain body condition before continuing their northern migration to the breeding grounds in the alpine tundra of far northern Siberia.

If KCY manages to overcome the threats it faces on the breeding grounds and along the flyway on its return migration, with luck, it may again be seen in the Top End.



Goshawk in the rain

When it began raining unexpectedly late on the morning of 9 May 2011, Tissa Ratnayeke peeped outside his home in Karama and was surprised to see an immature Brown Goshawk prancing in the rain. It seemed quite excited, tail feathers fanned and wings extended it was leaping in the air and jumping from limb top to limb top. It kept this up for well over five minutes and then flew away – but not before Tissa photographed it.



Ant biodiversity in the Top End

Report on the talk by Alan Andersen at the May meeting

Peter Holbery

With about 4,000 species, the Northern Territory is the kingdom of the ant. In comparison North America has only 250 ant species and Southern Africa only about 400 species. There is particularly high diversity in the semi-arid zone and genera from arid regions may contain hundreds of species. In the Top End and adjacent areas south to the Tanami each hectare contains about 100 ant species. Practically every square metre of the Northern Territory contains Meat Ants (*Iridomyrmex* spp.).

Overview of systematics

All ants belong to the family Formicidae in the order Hymenoptera, so are basically a type of wasp. Some species have stings like wasps, hence 'ant bites' may often be from a sting. Termites (or 'White Ants') are not ants but are more closely related to cockroaches. True ants can be identified by the 'elbowed' antennae and the narrow 'waist' or petiole. The petiole is part of the abdomen and the part that looks like the abdomen to non-



One of many species of Bull Ant, this one *Myrmecia desertorum*. Photo courtesy of Alan Andersen.

entomologists is called the gaster. Of the 6,500 Australian ant species, only about 1,200 have been named.

Several subfamilies of Formicidae are found in Australia:

Myrmeciinae is a mainly southern group with about 120 species in Australia. These include Bull Ants and Jumper Ants, both known for their painful stings. **Ponerinae** contains the genus *Odontomachus*. These species are commonly called Bull Ants in the Top End and have unusual jaws that snap shut suddenly from a wide open position. An example of the subfamily **Cerapachyinae** is the genus *Cerapachys*, which has about 100 species in Australia.

Pseudomyrmecinae is represented in the Top End by the genus *Tetraponera* and **Ectatominae** by the genus *Rhytidoponera*. **Myrmicinae** is a large subfamily with about 90 Australian species, but only a couple of these occur in the Top End.

Ants in the subfamily **Formicinae** do not have stings. The genus *Camponotus* has about 2,000 species worldwide, of which about 70 occur in this country. The Money Box Ant is a group of about 70 species which appear to mimic Meat Ants, being reddish coloured in the Top End and black in central Australia. Their nests have an elongated entrance, hence the common name. Another genus in this subfamily includes the Coconut Ant and has about 60 to 70 species in Australia. Honey-pot Ants are included in this genus and are used for food by Indigenous people, who eat the 'repletes' which are individuals that store food for the colony.

Polyrhachis (Spiny Ants) is a genus of mainly tropical African, Asian and Australian species, with some occurring in the Australian arid zone. The Savannah Spiny Ant has a golden gaster. Green Tree Ants (*Oecophylla smaragdina*) and Strobe Ants (*Opisthopsis*) are also in the Formicine. Although the Green Tree Ant does not have a sting it squirts a chemical into its bites to cause irritation. Australia has about 30 species of Strobe Ants and about 5

occur in the Top End. Most ants like the soil surface temperature to be about 30 to 35° C but *Melophorus* spp. like it hotter. These are known as thermophilic ants and can tolerate extremely high soil surface temperatures, about 50 to 60° C. There are about 1,000 species in this country.



Formicinae: one of the Strobe Ants (*Opisthopsis* sp.). Photo courtesy of Alan Andersen.

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The subfamily **Dolichoderinae** contains the genus *Iridomyrmex*. With over 1,000 species found throughout the continent, it is the 'Eucalyptus' of Australian ants.

Ant Community Ecology

Ant functional groups are analogous to those of vegetation, as shown below.

Functional group	Plants	Ants
Dominant	Trees	Dolichoderines, e.g. <i>Iridomyrmex</i>
Subdominant	Shrubs	generalised Myrmicinae
Ruderal	Grasses	opportunistic species

Unlike other regions, the Australian arid zone contains hundreds of species of ants. Ants have various adaptations to cope with competition from other ant species. Some species are heavily armoured and curl up into a ball when threatened by other ants. Certain ant species are able to monopolise food resources by spreading repellent chemicals to keep away competitors such as *Iridomyrmex* species.

The Top End has some of the highest congeneric densities in the world. For example, there are hundreds of species of the genus *Monomorium* in this area. The number of species may even be underestimated. Up to 15 species have been recorded in an area as small as 10 m by 10 m. Most of these species are active during the day and not seasonal – so they're all active at the same time.



The Mulga Spiny Ant (*Polyrhachis macropus*).
Photo courtesy of Alan Andersen.

Why so many species co-occur

There appear to be two main drivers of ant diversity – temperature and ease of movement.

This is borne out by the fact that there are greater numbers of species in both rainforest canopies and in deserts. Both of these habitats have high temperatures and present few obstacle to the ants trying to move about.

Studies have been done comparing carbon isotopes in the diet of co-occurring ant species in attempt to determine possible niche differentiation between the various species. These did not find any discrete grouping apart from that between seed-eaters and general scavengers.

A factor that may be important in how so many species can co-occur may be the persistence of ant colonies. Once a colony is established it is able to persist through many types of adversity because of the modularity of the colony. Regional diversity also appears to be important. If there is a high regional diversity, the arrival and survival of propagules may then mean that a large number of species will come to co-occur in a particular location.

The high diversity of Australia's ant fauna parallels that of Australian reptiles and the plant genus *Acacia*. The large size of the arid zone and its persistence through a long period of time, combined with the presence of heterogeneous soils may be important factor leading to this diversity.

The Club would like to thank Alan for his interesting and most informative talk.

Darwin's air quality from *Recent Literature*, p10

It'll surprise no Darwin resident to learn that aerosols in our atmosphere peak in the dry season and are attributable to fires (Bouya *et al.* 2010). However, the other major source of aerosols, and a particular influence in "summer and autumn afternoons", is sea salt.

One of the air pollutants arising from fires is carbon monoxide. Paton-Walsh *et al.* (2010) measured carbon monoxide in Darwin from August 2005 to June 2008. They identified a clear annual cycle in its abundance, but also "evidence of transported pollution from Indonesian fires in 2006".

Ants at Holmes Jungle

Report on the May excursion

Anke Frank

About 20 NT Field Naturalists gathered to be guided through the ant kingdom of Holmes Jungle Nature Park by famous Ant-omologist Alan Andersen. Alan equipped each of us professionally with laminated ant identification sheets. While we were waiting for late-comers we marvelled at some ant common names like Genial Killer Ant (*Leptogenys exigua*), Angle-headed Cannibal Ant (*Cerapachys singularis*), or Lesser-horned Pony Ant (*Rhytidoponera aurata*). All these names are very appropriate: the Genial Killer Ant is a specialist predator of other arthropods, the Angle-headed Cannibal Ant raids the brood of other ants, and the Lesser-horned Pony Ant has smaller horns than other Pony Ants and Pony Ants are called that because they belong to the genus *Rhytidoponera*, which sounds similar to “ride a pony” (at least after a few drinks ...).



Northern Meat Ants (*Iridomyrmex sanguineus*) at their nest entrance in Holmes Jungle. Photo: Don Franklin.

After Alan’s talk on Wednesday, we all anticipated great spotting and capture success due to the abundance and diversity of ants in Australia, and with over 20 (native!) species by the end of the morning we were not disappointed. We probably wouldn’t have needed to walk at all, but Alan made the sensible suggestion to walk a few metres up the road where there was some shade. It took only seconds until everybody had spotted some ants at this spot on the side of a gravel road of maybe four square metres. Alan identified them as eight species belonging to seven genera (see species table). The first one, the Northern Meat Ant (*Iridomyrmex sanguineus*) was presented to us crushed so we could all experience the typical “crushed ant” odour of Meat Ants which is very different to the formic acid odour of Green Tree Ants. Considering that about 1000

species of the Mono Ants (genus *Monomorium*) still await identification, we were lucky that the first Mono Ant we encountered could be identified to species level (*M. bifidum*) – a seed collector with special seed-collecting “teeth”. To me, the Mono Ants should be called “Genial Repellent Ants” as they are unique in producing a repellent that wards off competitor ants. A genus we shouldn’t get wrong any more is *Opisthopsis* - the Strobe Ants which can be identified by their typical antelope-like six-legged strutting which gives their movement a jerky appearance. Another easy-to-identify genus is *Polyrhachis* (Spiny Ants) which are equipped with two long spines about mid-body (one on the back of the thorax and one on the waist). While Alan gave us identification tips and information on each species, I only report on a few, but all species are listed in the species list at the end of this report.

A couple of metres further off the road and inside some savanna woodland we discovered another handful of species. Among these was a species (*Iridomyrmex pallidus*) that Alan ranked number two of the top ten comprising the majority of all of Australia’s ant biomass. In the rainforest, the most conspicuous species was a fairly big ant that ran with its abdomen raised in the air. It bears the pretty name Black Beauty Ant (*Calomyrmex impavidus*) and only occurs in moist, shady habitats in North Queensland and the Top End. The rainforest was also home to several species of tree nesting ants which are otherwise rare in Australia: a leaf-nester – *Polyrhachis bicolor*, a wood-cavity nester – *Polyrhachis terpsichore*, and a hollow-twig nester – *Camponotus mackayensis*.

We also came across two “pseudo”-ants that were actually ant-mimicking spiders – and the first one almost even fooled Alan. So, if you see something that looks like and behaves like an ant, make sure you count the legs before you call it one! There were some other cool and colourful eight-legged creatures such as Jumping, Leaf Curl and Orb-weaver Spiders. The most spectacular sight was a huge Golden Orb-weaver devouring a gecko!



Distinctive strut, large-eyed and inoffensive: the Savanna Strobe Ant (*Opisthopsis haddonii*). Photo: Tissa Ratnayeke.

Ant species list for the morning

Scientific name	Common name	Habitat (first recorded)
<i>Iridomyrmex sanguineus</i>	Northern Meat Ant	road
<i>Iridomyrmex reburrus</i>		road
<i>Camponotus</i> sp.4 (<i>pellax</i> gp)		road
<i>Monomorium bifidum</i>		road
<i>Opisthopsis rufoniger</i>		road
<i>Pheidole</i> sp.	Native Big-headed Ant	road
<i>Polyrhachis senilis</i>	Savanna Spiny Ant	road
<i>Rhytidoponera aurata</i>	Lesser-horned Pony Ant	road
<i>Iridomyrmex</i> sp. 2		savanna
<i>Iridomyrmex pallidus</i>		savanna
<i>Nylanderia</i> sp. 4 (<i>vaga</i> gp)	Forest Parrot Ant	savanna
<i>Opisthopsis haddoni</i>	Savanna Strobe Ant	savanna
<i>Rhytidoponera foreli</i>		rainforest
<i>Calomyrmex impavidus</i>	Black Beauty Ant	rainforest
<i>Oecophylla smaragdina</i>	Green Tree Ant	rainforest
<i>Opisthopsis major</i>		rainforest
<i>Polyrhachis bicolor</i>		rainforest
<i>Polyrhachis terpsichore</i>		rainforest
<i>Camponotus mackayensis</i>		rainforest
<i>Camponotus vitreus</i>		savanna
<i>Odontomachus</i> sp. nr. <i>turneri</i>	Giant Snappy Ant	savanna
<i>Nylanderia</i> sp.		savanna



Savanna Spiny Ant (*Polyrhachis senilis*). Photo courtesy of Alan Andersen.



also argued that burning creates diversity by breaking up monodominance mats of the native grass *Hymenachne acutigluma*. The vegetation that replaces it includes Lotus and other water lilies (*Nelumbo nucifer* and *Nymphaea* spp.) and Water Chestnut (*Eleocharis dulcis*). In so doing, the abundance of waterbirds and other wildlife is increased.



Floodplain burning requires intense fires late in the dry season. It requires preparatory burning of adjacent areas beginning early in the dry season to create firebreaks. Stands of *H. acutigluma* may be burnt a number of times over several weeks as the first fire only burns the dry bases to stalks and follow-up fires are needed to remove the root bases.

Abundance enhanced by Aboriginal burning, and favoured for harvest by Aboriginal people: top left – Magpie Geese at Mamukala (Con Foley); left – Lotus Lily (*Nelumbo nucifer*) (Don Franklin); and right – Blue Water-lily (*Nymphaea violacea*) (Don Franklin).



Interesting bird sightings

23 April to 20 May 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 & waders				
Great-billed Heron	23/04	Nightcliff Rocks	Gavin & Meg O'Brien	1
Buff-banded Rail	22/04	Keep River National Park	Peter Kyne & Micha Jackson	1 adult & 2 juveniles
Black-fronted Dotterel	16/05	Palmerston Sewage Ponds	Mike Jarvis	1
Birds of prey				
Eastern Osprey	23/4-20/5	CDU Tower, Casuarina	Ian Hance	2, possibly breeding
~	1/05	Channel 9 Tower, Darwin	Chris Parker	1
Pacific Baza	1/05	CDU Casuarina	Peter Kyne & Micha Jackson	3
Grey Goshawk	8/05	Jingili Water Gardens	Nolan	2
Red Goshawk	c. 25/4	Mataranka	Jessie & Jo Wright <i>et al.</i>	1
Barking Owl	2/05	Botanic Gardens	Chris Parker	2
Southern Boobook	28/04	East Point	Mike Jarvis	1 juvenile
Masked Owl	30/04	24 km west of Jabiru	Marc Gardner	1
Eastern Barn Owl	30/04	Mamaluka, Kakadu	Marc Gardner	2
Other non-passerines				
Emerald Dove	1/05	Howard Springs Nature Reserve	Peter Kyne & Micha Jackson	1
Diamond Dove	6/08	Mary River Billabong	Marc Gardner	2+
Australian Owlet-nightjar	30/04	Kakadu H'way, Jabiru	Marc Gardner	1
Fork-tailed Swift	27/04	Darwin City	Marc Gardner	20
Australian Bustard	22/04	Buntine H'way	Peter Kyne & Micha Jackson	3
Red-backed Button-quail	6/05	Bird Billabong, Mary River NP	Marc Gardner	1; & other sighting
Passerines				
Crested Shrike-tit	c. 25/4	Warloch Ponds	Jessie & Jo Wright <i>et al.</i>	1 heard
Mangrove Golden Whistler	25/04	East Point Mangrove Boardwalk	Magen Petit	1 male
Arafura Fantail	2/05	Howard Springs Nature Reserve	Peter Kyne & Micha Jackson	2
Star Finch	22/04	Timber Creek	Peter Kyne & Micha Jackson	flock; & flock at Buntine Highway
Gouldian Finch	6/05	Bird Billabong, Mary River NP	Marc Gardner	30+
~	13/05	Mary River Pits	Chris Parker	14 juveniles
Pictorella Mannikin	22/04	Buntine H'way	Peter Kyne & Micha Jackson	5; & at other sites

How effective is rehabilitation of mine-sites?

from *Recent Literature*, p10

Chris Brady and Richard Noske (2010) evaluated bird and plant communities in original forest and five age classes of rehabilitated mine sites at Gove in Arnhem Land. The age classes ranged from 2 to 24 years. Early age class sites were dominated by *Acacia* and later sites by eucalypts. Bird species richness increased with age, and in older rehabilitation sites was similar to that of the original forest. However, the composition of the bird community differed between older sites and original forest. The authors attribute the difference to the absence of hollow trees in, and exclusion of fire from, the rehabilitation sites.



Hollow-tree nesters: above – Black-tailed Treecreeper; left – Blue-winged Kookaburra. Photos: Con Foley.

Recent literature about Top End natural history

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

CONSERVATION, LAND MANAGEMENT & FIRE

Compiled by Don Franklin

Not so technical

- Anon. 2010. Daly's potential goes under microscope. *Origins* July 2010: 12-13.
- Anon. 2010/11. Wongalara: establishing the largest feral herbivore-free area in Australia. *Wildlife Matters* Summ. 10/11:14-15.
- Blanch S. 2011. Limmen National Park *Pandanus* March 2011: 7-9. [2 articles, on mining and on natural values]
- Bramley C. 2011. Land and sea management on Arafura Swamp. *Pandanus* March 2011: 15.

Fire

- McGregor S, Lawson V, Christophersen P, Kennett R, Boyden J, Bayliss P, Liedloff A, McKaige B, Andersen AN. 2010. Indigenous wetland burning: conserving natural and cultural resources in Australia's World Heritage-listed Kakadu National Park. *Human Ecology* 38: 721-729.
- Werner PA. 2010. Fine-scale patchiness of burns in a mesic eucalypt savanna differs with fire season and Sorghum abundance. *Northern Territory Naturalist* 22: 31-44.

Air quality

- Borrmann SK, D, Weigel R, Minikin A, Deshler T, Wilson JC, Curtius J, Volk CM, Homan CD, Ulanovsky A, Ravegnani F, Viciani S, Shur GN, Belyaev GV, Law KS, Cairo F. 2010. Aerosols in the tropical and subtropical UT/LS: in-situ measurements of submicron particle abundance and volatility. *Atmospheric Chemistry and Physics* 10: 5573-5592.
- Bouya Z, Box GP, Box MA. 2010. Seasonal variability of aerosol optical properties in Darwin, Australia. *Journal of Atmospheric and Solar-Terrestrial Physics* 72: 726-739.
- Paton-Walsh C, Deutscher NM, Griffith DWT, Forgan BW, Wilson SR, Jones NB, Edwards DP. 2010. Trace gas emissions from savanna fires in northern Australia. *Journal of Geophysical Research-Atmospheres* 115: D16314.

Land & vegetation

- Department of Natural Resources, Environment, The Arts and Sport. 2010. *Land clearing guidelines*. Northern Territory Planning Scheme. Department of Natural Resources, Environment, The Arts and Sport: Palmerston. Available on-line at http://www.nt.gov.au/nreta/natres/natveg/guidelines/pdf/landclearingguidelines_2010.pdf.
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How much are you willing to pay to protect tropical rivers?

Zander *et al.* (2010) surveyed urban Australians to assess their attitudes to development of northern rivers and willingness to pay for their conservation. " ... 90% of Australians were willing to pay a once-off payment for the



management of tropical rivers. Respondents who had visited or lived near the rivers were willing to pay more for cultural, recreational and environmental services than those who had not. Respondents classed as 'developers', who made up only 4% of the 684 respondents, considered a substantial income from irrigated agriculture as important. Unlike 'environmentalists' and 'neutrals', 'developers' were unwilling to pay for high quality recreational fishing or for having floodplains in good environmental condition. All groups, however, were willing to pay for high cultural values."

Finniss River. Photo: Don Franklin.