



NATURE TERRITORY

July 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.

Loggerhead Turtles
(*Caretta caretta*)
– a painting by Janelle
Fisher – won the People's
Choice Award at the 2007
NT Threatened Species
Art & Photography
Competition.
The competition is on
again in 2009 – see notice
on page 4 for more details.



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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

July meeting. Wednesday July 8, 7:45 PM. Blue 1.03 (Business Building), CDU.

Stuart Young & Terry Mahney

"Biodiversity surveys – islands in the Victoria River"

Stuart and Terry have recently undertaken surveys of remote islands in the mouth of the Victoria River which have never been surveyed before. Faunal assemblages do strange things on islands – a product of their semi-isolation and small size – just what strange things in this case we'll learn in this illustrated talk. Stuart and Terry work for the Biodiversity North unit of the Dept. of Natural Resources, Environment and the Arts.

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July field trip. Sunday July 19. *Biodiversity on a long-unburnt block near Berry Springs.*

Meet at 8 AM. The venue is about an hour's drive from Darwin. Take the Cox Peninsula Road off the Stuart Highway and go through Berry Springs. About 2 km past the school, turn left into Reedbeds Road. Go to the end of this road (a Cabomba barrier blocks the road) and turn left into Kentish Road. Don't take the road immediately coming off diagonally to the left, but do turn left onto a track about 800 m further on. Follow this track for about 800 m and turn right where another track comes off (there is a sign "Herman's House" and maybe a yellow ribbon); go on a short way till you come to the shed and donga. Fine for 2WD vehicles.

It is private land and our hosts are Herman and Sharyn who are looking after the block on a long-term basis. Being unburnt for so long, the block has a mix of habitats and plants, including a good understorey. It is also interesting to see some possible downsides of such country not being burned at all. Birds are also varied, with Partridge Pigeon coming to drink near the shed in the mornings and Northern Rosella often easy to see. Sharyn will put the kettle on and has tea and coffee, but bring some morning tea and a chair to relax in and enjoy this peaceful spot.

You could easily make a day's outing by going on to Berry Springs and other scenic spots nearby, or perhaps searching for the Singing Honeyeater at the Sand Palms Roadhouse on Fog Bay Road. Further information available from Fiona Douglas on 8985 4179 or at fiona.douglas@octa4.net.au.

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

Notice of Annual General Meeting – Wednesday August 12 – see page 4.

September 2009 meeting. Wed. Sept. 9. Jarrad Holmes: *Fire and carbon projects in the Top End.*

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

July meeting. Thursday July 16. Tida Nou: *The Threatened Species Network.*

July excursion. Saturday July 18, commencing 3PM. Dr. Kristin Metcalfe will lead a walk through the Coconut Grove mangroves. Meet at the bottom of Ostermann St., Coconut Grove. Come prepared from mangrove conditions.

General meetings are held on the 3rd Thursday of the month at the Marrara Christian College, corner Amy Johnson and McMillans Drives, and commence at 7:30 PM (speaker at 8 PM). For more information, contact Russell Dempster on 8983 2131.

Club notices

Welcome to new members: Tanya Carriere; Emma Francis.

100 memberships!

With Tanya and Emma joining, and Julie Crawford re-joining the Club, we now have 101 memberships (families are counted as one so we have more members than that). It is the Committee's understanding that we have not passed the 100 mark since the early days of the Club in the 1970s.

Thank you

The previous issue was proof-read by **Fiona Douglas** and collated and mailed by **Lyn Reid**. It was printed by **Don Franklin** using equipment kindly made available by the **School for Environmental Research** at Charles Darwin University.

Recent literature on-line

In a collaboration between the Club and the School for Environmental Research at Charles Darwin University, recent literature listings and summaries presented in this newsletter are subsequently being made available in an on-line archive - <http://www.cdu.edu.au/ser/profiles/ecologyintopend.htm>.

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 August newsletter: Friday July 24.

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

Club library

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.

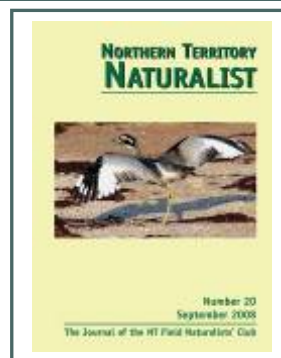
Journals: in the office of Don Franklin at CDU Casuarina (Red 1.2.34 = room 31.2.34). These can be accessed directly during working hours, or by ringing Don on 8946 6976 (w) or 8948 1293 (h).

Northern Territory Naturalist

Issue no. 21 of the *Northern Territory Naturalist* is now close to completion: target date for release – Sept.

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

Author instructions: <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.

Notice of the NTFNC's Annual General Meeting

The Annual General Meeting of The NT Field Naturalists Club Inc. will be held at 7.45pm on Wed. August 12 in Room Blue 1.03, Casuarina Campus of Charles Darwin University. Issues to be considered include:

- the audited accounts for 2008-9 and Treasurer's report. Audited accounts will be available from Fiona Douglas (8985 4179 or fiona.douglas@octa4.net.au) from 28th July onwards.
- a motion to consider a Special Resolution that the Club's constitution be amended as shown in the proposed revisions document*.
- election of Office Bearers and Management Committee for 2009-2010 (nomination form below)

* The Constitution revision document is available on the Club's website

(<http://www.geocities.com/ntfieldnaturalists> and follow the link) or from Fiona Douglas (8985 4179 or fiona.douglas@octa4.net.au). If you've any comments, we'd appreciate these prior to the AGM as the Committee proposes that all amendments be considered as a single item.

NOMINATION FOR NTFNC COMMITTEE, 2009/10

Name of person being nominated: _____

Position being nominated for (circle):

President

Secretary

Treasurer

Committee Member (up to 7 needed)

Signature of Nominee: _____

Proposer's name: _____ and signature: _____

Seconder's name: _____ and signature: _____

Under our Constitution, written nominations received by our Secretary (Louise Harrison) prior to the commencement of the Annual General Meeting (AGM) have precedence. Either: (1) mail nominations to NTFNC, PO Box 39565, Winnellie, NT 0821, (2) hand deliver to Secretary or current committee member, or (3) bring to the AGM.

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Annual subscriptions are due

Annual membership fees are due by the end of June. If you have not done so already, 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 – you should have received a notice by email on June 19.

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

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Art exhibitions and competition

The **NT Threatened Species Art and Photography Competition 2009**, organised by the Threatened Species Network, is now open for entries. The theme is *threatened species, their habitats and threats in the NT*. It is open to all ages and for all mediums with great prizes on offer. Individuals as well as community groups and schools are invited to submit works. Entries close 24 August 2009.

Works will be on display at the Darwin Entertainment Centre Gallery from 7 - 10th September with an official opening and winners announced by Ms Alison Anderson MLA. A selection of winning entries will then be on display at the Alice Springs Desert Park.

For more details, please contact TSN on (08) 8941 7554 or savannas@wwf.org.au.

The Flying Gourmet, a solo exhibition of nature-based paintings by Jasmine Jan, will be opened by author Mrs Leonie Norrington at 5 PM on Friday July 24 at the Territory Craft Gallery, with preview available from 4PM. NTFNC members are invited to the opening. The Territory Craft Gallery is in Conacher Street, Bullocky Point, adjacent to the Museum and Art Gallery of the NT. For more information, ring 8981 6616.

Sites of Conservation Significance in the NT

Louise Harrison

National parks and other reserves cover less than 10% of the Northern Territory and many important areas of high conservation value occur outside the existing reserve system. Governments must prioritise where they will spend limited resources and acquisition for reserves is often not possible or cost-effective. Increasingly, partnerships are being developed with landowners to conserve biodiversity.

A project has recently been completed by the NT Department of Natural Resources, Environment, The Arts and Sport (NRETAS) that identifies and collates information on the most outstanding sites for biodiversity values in the NT. Based on existing data and reports, explicit biodiversity criteria were used to assess all of the NT and identify sites that matched those criteria.

Sixty-seven sites were identified from this process and are considered of international or national significance because of their values, including:

- a concentration of threatened species;
- a concentration of endemic species;
- large aggregations of wildlife;
- wetland values; or
- botanical values.

A compilation of information on the ecological values, threats and other management information has now been completed for each site, and these and two technical reports generated by the project are now available on the NRETAS website <http://www.nt.gov.au/nreta/environment/conservation/index.html>.

The website also has shape files that can be used in a GIS and a summary spreadsheet of the sites, their values and the indices developed from those values for the prioritisation of sites.

The aims of this project included to:

- highlight the most important sites for biodiversity in the NT;
- provide a snapshot of current knowledge about the sites;
- make information on the sites as accessible as possible to landholders and other stakeholders to help them plan for and manage their lands;
- prioritise significant sites for future off-park conservation initiatives; and
- increase public knowledge and appreciation of the NT's outstanding biodiversity resources.

Further information about the project is available from Simon Ward at the Biodiversity Conservation Unit (NRETAS) on phone 89955013 or email simon.ward@nt.gov.au.



Scene from Groote Eylandt: a site with significant conservation values. Photo: Alaric Fisher.

The Biodiversity Conservation Unit has donated a CD about the project to the Club. It contains the technical reports listed below, along with data and wall maps. It is held in the Club's library and available to members. The technical reports may also be downloaded from the website listed above.

Ward S, Harrison L. 2009. *Recognising sites of conservation significance for biodiversity values in the Northern Territory*. Department of Natural Resources, Environment, The Arts and Sport, Darwin, NT.

Harrison L, McGuire L, Ward S, Fisher A, Pavey C, Fegan M, Lynch B. 2009. *An inventory of sites of international and national significance for biodiversity values in the Northern Territory*. NRETAS, Darwin, NT.

Hay-fever sufferers can say "I told you so" (from *Recent Literature*, page 11)

It won't surprise hay fever sufferers that the nature of pollen in the atmosphere over Darwin differs between the wet and the dry season, there being more in the dry season with a peak in April and May coincident with the flowering of many grasses and wattles (Stevenson *et al.* 2007). Other frequent pollen types over Darwin are sedges (family Cyperaceae), cypress-pine (*Callitris*), *Casuarina*, palms (Arecaceae) and the myrtle family (Myrtaceae) which includes eucalypts.

Broad-billed Flycatchers nesting



Photos taken in the Nightcliff mangroves by Brian Thistleton



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Road-running turtle

Susan Jacups

This Northern Long-necked Turtle *Chelodina rugosa* narrowly missed being run over on the Kakadu Highway at Easter. Non-turtles: Peter, Nicholas & Eddie Jacklyn.



Plant stories

From *Recent Literature*, page 11.

Plateau plants

The Arnhem Land Plateau is home to many endemic plants (plants found nowhere else), with a particular concentration in the north-west section around Nabarlek and Mt Brockman. Duretto (2008) formally described another one, *Boronia zeteticorum*, which is known from just a single collection in 1989 at Nabarlek. The specific name is derived from the Greek *zetetikos*, meaning “disposed to search” and (cited from another source) ‘honours those persons who for their enjoyment explore natural vegetation communities to become familiar with, and collect, their constituent species’. Sounds like a description of dedicated field naturalists. *Boronia zeteticorum* is one of 13 species of *Boronia* found only on or around the Plateau, of which eight are confined to the north-west section.

The Plateau is also the only home of two species of spiny, short-lived shrubs of the genus *Solanum*, *S. asymmetriphyllum* and the recently-described *S. sejunctum*. These species are somewhat unusual amongst flowering plants in being *cryptically dioecious* – although appearing to have male and female parts on the same plant, as most plants do, each plant is functionally either male or female alone. The requirement to have a member of the opposite sex nearby to reproduce prevents inbreeding but increases the risk of reproductive failure and even species extinction in plants – which can’t wander off to find a mate – which is perhaps why dioecy is not so common. The genus also contains eight



Among the escarpment rocks: *Solanum asymmetriphyllum*.
Photo: Chris Martine.

cryptically dioecious species in or near the Kimberley, but also many species that are not dioecious including such familiar plants as the tomato, capsicum, eggplant and native kangaroo apples. This prompted Martine *et al.* (2009) to investigate, using DNA analysis of relationships between species, how the dioecious habit arose. They found that the dioecious species form a single lineage, strongly suggesting a single evolutionary transition to the dioecious habit followed by speciation in northern Australia. The ‘Kimberley’ and Arnhem Land Plateau species formed two distinct sub-lineages (“sister groups”) so are likely to have become separated early in the process.



Why does a grass species grow where it does?

Why is the grass layer in some savannas dominated by Annual Spear Grass *Sorghum (Sarga) intrans*, but in other places by other species? Is it because the soil conditions suit the grass, because of interactions with other plants, or because of fire history? According to Ken Scott *et al.* (2009) based on a study at Berry Springs, all these factors contribute. Of note was that fire frequency can override other environmental effects, Annual Spear-grass and the Perennial Spear-grass *Heteropogon triticeus* occurred in areas that were burnt more frequently, and conversely, *Eriachne trisetata* become dominant in areas less frequently burnt.



Gamba Grass seeds on the move

Seeds of the noxious weed Gamba Grass *Andropogon gayanus* may be dispersed mechanically on tractors and slashing equipment. However, in an important caution for those working in Gamba Grass areas, Scott (2009) showed that clothing and hair can also capture substantial numbers of Gamba Grass seeds. The experimental subjects were Ken’s four field assistants. Seeds were found on many clothing items from hat down to socks and shoes, the biggest culprit being a backpack.

Life and death among trees

Why do some tree species reproduce more successfully, and why do some die younger, than others? Prior *et al.* (2008) examined this question for tagged trees (more than 5 cm diameter) in 123 plots in lowland and sandstone savannas in Kakadu, Nitmiluk and Litchfield National Parks. Tagged trees were monitored over



Recruitment in action: one of the monitored plots in Kakadu National Park. Photo: courtesy of Parks Australia.

10 years and any that grew into the 5 cm + size class were added to the sample (i.e. they “recruited” into the population). Effects of “fire frequency, mean annual rainfall . . . , stand basal area, tree density and eco-taxonomic group” on survival and recruitment varied with savanna type. Plots with higher density of trees recruited less than those that were more open. In sandstone savannas, recruitment was greater in higher rainfall areas. In lowland savanna, recruitment was less in plots that were burnt more often, and particularly those that were burnt later in the dry season. Death rates declined with an increase in size up to 25 cm diameter, but were markedly higher among trees greater than 50 cm diameter. Death rates were higher in plots with greater basal area of trees. In lowland savannas, death

rates were higher with higher frequency of late dry season fires. Both recruitment and death rates were higher for *Acacia* and *Proteaceae* than for *Myrtaceae* (which includes eucalypts) and “pantropical” species. The effects of stand density and basal area provide feedback loops that tend to stabilise these tropical savannas, but rainfall and fire effects may override this stability.



Clonal parents

Bamboo clumps are the product of clonal growth from one or several seedlings. Each “stem” (technically, a *culm*) has a rhizome at the base with its own root system, collectively forming a ramet. Rhizomes produce buds from which new ramets emerge. Hogarth & Franklin (2009) showed that new ramets in the Top End Bamboo *Bambusa arnhemica* are most often produced by one-year old “parent” ramets, and that the diameter of new culms tends quite strongly to reflect the diameter of the parent ramet unless there has been disturbance. However, previous studies of the species have shown that one-year old ramets have few branches and thus little foliage for photosynthesis, and that even if an entire annual cohort of ramets is removed, productivity of the clump is not greatly affected. This led the authors to argue that the connections between a number of generations of parents is important for clump vigour and thus that it would be inappropriate to focus management of harvested bamboo clumps on retaining first-year ramets, as some have suggested should be the case.



Caring for our Country business plan and target review survey

The Caring for our Country funding program is seeking feedback on their information and application process. The survey is on-line at <http://www.nrm.gov.au/> and will remain open until midnight, Wed. July 8.

Similar diameter to its clonal parents: a new shoot on the Top End Bamboo. Photo: Don Franklin.

Shark research in the Northern Territory

A report on Iain Field's talk to the June meeting

Sherry Prince

Iain commenced his extremely interesting lecture by talking about the role of sharks in general, and then spoke on the biology of sharks. They vary in size, but many have specialised life histories, and some are long-lived. Sharks do not have bones; they are Chondrichthyans or cartilaginous fishes. Globally, there are approximately 1200 known species; their habitats range from freshwater environments to deep oceanic waters. They exist in pelagic and benthic realms and may be specialist and/or general opportunistic feeders. Reproduction in sharks can be quite diverse. There are three forms of reproduction: vivipary – giving birth to live young; ovipary – lay eggs in protective cases; and ovovivipary – where eggs gestate in utero and the young are born live. Generally, sharks have low fecundity, that is, they bear few offspring at a time. They have a low reproductive rate and late maturity.

It is true to say that sharks are mostly predators. Several species are grazers, and some specialist feeders, i.e.: Whale Sharks and Cat Sharks. There are two categories of generalist feeders: Predators, e.g. Blacktip Sharks, and scavengers, e.g. Tiger Sharks. A little known fact about sharks is that they have electromagnetic sensors located on their snout and flanks and they use these senses to locate electromagnetic signals emitted by their prey. The Hammerhead Shark is a good example of this method of feeding due to the large area of electromagnetic sensors located within its huge head. This makes it an extremely efficient bottom feeding shark.

What are the threats to sharks? In spite of the large number of species, there is little known about sharks and most species are data deficient. *Glyphis* species and most sawfish species are considered endangered or threatened. Increasing threats include fishing pressure, habitat degradation, habitat loss, pollution and climate change.

Iain then spoke about the fisheries and population studies that he and his colleagues are currently undertaking. Shark tagging is one of the most common methods used to study sharks. The researchers travel with the commercial fishing boats using the vessels as platforms on which live sharks deemed viable are quickly tagged with cattle tags and released back into the water.

Species identification has in the past been difficult, but with the advent of DNA testing, researchers are now able to correctly identify catches. Two species for which there has been past confusion are the Speartooth Shark (*Glyphis glyphis*) and the Northern River Shark (*Glyphis garricki*). Previously it was thought they might be the same species; however DNA testing has now confirmed they are two different species*. It was interesting to see the distribution areas of these two fishes. The Speartooth Shark is confined to the waters of north-western Australia, while the Northern River Shark is contained more or less in the Gulf of Carpentaria. The two species share a small common area to the north of Kakadu.**

Movement and habitat use. As previously mentioned, tagging is one method used for monitoring movement and habitat use. Another is the use of acoustic transmitters and listening stations together with satellite locations and data-loggers. Currently researchers are acoustic-tracking reef shark populations at Ningaloo Reef, Rowley Shoals and Palau. In December 2007, 35 grey reef sharks were tag mounted and implanted with v9 VEMCO transmitters.

Iain ended his talk by telling the audience about a humorous incident that occurred when a Whale Shark dropped its transmitter, which was subsequently picked up by a fisherman. Iain and his colleagues were able to track the fisherman returning to his abode in a village in West Timor. One of the PhD research students was then decked out in a suit and hat and presented himself to the fisherman who, after much persuasion and a hundred dollars, relinquished the transmitter to the student. However, family and friends of the fisherman then started demanding return of the transmitter. The student beat a hasty retreat and extricated himself and his cargo from what could have become a tricky situation!!

Our thanks go to Iain for his extremely interesting presentation on the sharks in the Northern Territory. We wish him well in his future endeavours.

* by remarkable coincidence, the research paper referred to has come out since Iain gave his talk:

Wynen L, Larson H, Thorburn D, Peverell S, Morgan D, Field I, Gibb K. 2009. Mitochondrial DNA supports the identification of two endangered river sharks (*Glyphis glyphis* and *Glyphis garricki*) across northern Australia. *Marine and Freshwater Research* 60: 554–562.

** for photos of *Glyphis* species of shark, see the book *Lost from our landscape*.

Interesting bird sightings

23 May to 19 June 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
Raptors				
Pacific Baza	22/05/'09	Wagaman	Colin Trainor	1
~	7/06/'09	Palmerston Sewage Ponds	Marc Gardner	1
Wedge-tailed Eagle	28/05/'09	Wisharts Siding	Marc Gardner	2
~	13/06/'09	McMillans Rd Towers	Ian Hance	1
Nankeen Kestrel	15/06/'09	Marrara Stadium	Michael Bouchier	1
Rufous Owl	1/06/'09	Rainforest Walk, Botanic Gardens	a visitor	1; also on 5th,6th,13th
~	18/06/'09	Rainforest Walk, Botanic Gardens	Barb Gilfedder	2
Barking Owl	17/06/'09	Casuarina shopping centre car park	Ian Hance	1
Other non-passerines				
Partridge Pigeon	27/05/'09	Berry Springs	Fiona, Ian & Louise	2
~	7/06/'09	Kakadu H'way	Peter Kyne <i>et al.</i>	4
~	13/06/'09	Bird Billabong, Mary River N Park	Peter Kyne	2
Banded Fruit-dove	7/06/'09	Gunlom	Peter Kyne <i>et al.</i>	1
Swiftlet <i>Collocalia</i> sp.	14/06/'09	Buffalo Creek	Peter Kyne	1
Chestnut Rail	4/06/'09	Buffalo Creek	Peter Kyne & Dan Mantle	1
Hooded Parrot	5/06/'09	Kakadu H'way near Pine Creek	Peter Kyne <i>et al.</i>	13
Channel-billed Cuckoo	21/05/'09	Nakara	Gavin & Meg O'Brien	2
Azure Kingfisher	25/05/'09	Nightcliff mangroves	Richard Noske, Fiona & Ian	1
~	4/06/'09	Buffalo Creek	Peter Kyne & Dan Mantle	1
Red-backed Kingfisher	23/05/'09	Arnhem H'way (various locations)	Marc Gardner	3; and more subsequently
~	27/05/'09	Berry Springs	Fiona Douglas, Ian & Louise	1
~	28/05/'09	Anzac Ave	Marc Gardner	4
Passerines				
Gouldian Finch	7/06/'09	Umbrawarra Gorge Road	Peter Kyne <i>et al.</i>	3 juveniles
~	7/06/'09	Bird Billabong, Mary River N Park	Bruce Michael	3 juveniles
~	13/06/'09	Bird Billabong, Mary River N Park	Marc Gardner	10+ juveniles
~	17/06/'09	Bird Billabong, Mary River N Park	Marc Gardner	at least 120
Yellow Wagtail sp.	17/06/'09	Anbangbang Billabong	Helen Larson	1



As Gouldian Finches finish breeding for the year and waterholes begin to contract, flocks including adult males (left, red-headed form) and many juveniles (right) become more mobile and may more readily be found.

Photos: Trevor Collins.

Updated "where to find birds" book now available

The book *Finding birds in Darwin, Kakadu and the Top End* by Niven McCrie and James Watson has been reprinted with a number of updates:

- site details updated to reflect current conditions (access etc.);
- additions and taxonomic revisions to the annotated list of birds; and
- names updated to match the names and sequence of the new Australian checklist.

For information about how to obtain a copy, go to <http://www.ntbirds.net/>.

Recent literature about Top End natural history

PLANTS & VEGETATION

Compiled by Don Franklin

Non-technical

Cook GD. 2008. Agricultural introductions and a source of weeds : what have we missed? *Plant Protection Quarterly* 23: 69-72.

Woinarski J. 2008. Ironwood. *Environment Centre NT Quarterly Newsletter* Dec. 2008: 8.

Vegetation

Collins JN, Hutley LB, Williams RJ, Boggs G, Bell D, Bartolo R. 2009. Estimating landscape-scale vegetation carbon stocks using airborne multi-frequency polarimetric synthetic aperture radar (SAR) in the savannahs of north Australia. *International Journal of Remote Sensing* 30: 1141-1159.

Dowe JL. 2008. Report 4: Distribution and ecological preferences of riparian vegetation in northern Australia. In *A Compendium of Ecological Information on Australia's Northern Tropical Rivers. Sub-project 1 of Australia's Tropical Rivers – an integrated data assessment and analysis (DET18). A report to Land & Water Australia*, ed. GP Lukacs, CM Finlayson. National Centre for Tropical Wetland Research: Townsville.
<http://www.environment.gov.au/ssd/tropical-rivers/triap-sp1.html>

Johansen K, Phinn S, Lowry J, Douglas M. 2008. Quantifying indicators of riparian condition in Australian tropical savannahs: integrating high spatial resolution imagery and field survey data. *International Journal of Remote Sensing* 29: 7003-7028.

Palmer AR, Fuentes S, Taylor D, Macinnis-Ng C, Zeppel M, Yunusa I, February E, Eamus D. 2008. The use of pre-dawn leaf water potential and MODIS LAI to explore seasonal trends in the phenology of Australian and southern African woodlands and savannahs. *Australian Journal of Botany* 56: 557-563.

Prior LD, Murphy BP, Russell-Smith J. 2008. Environmental and demographic correlates of tree recruitment and mortality in north Australian savannahs. *Forest Ecology and Management* 257: 66-74.

Schymanski SJ, Sivapalan M, Roderick ML, Hutley LB, Beringer J. 2009. An optimality-based model of the dynamic feedbacks between natural vegetation and the water balance. *Water Resources Research* 45: Art. No. W01412. [tested at Howard Springs]

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Aboriginal burning helps Milky Plum persist

Seeds of the Milky Plum *Persoonia falcata* and Green Plum *Buchanania obovata* are consistently present in archaeological sites at Keep River from 3,500 years ago until Europeans arrived, but not thereafter. Atchison (2009) provided an analysis of age classes of plants of *P. falcata* at various sites, and found that the ability of the seedlings of the species to grow into adult plants was improved at the only site where “Aboriginal people have reintroduced customary management”.