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~ April 2008 NEWSLETTER ~

MEETINGS AND FIELD TRIPS

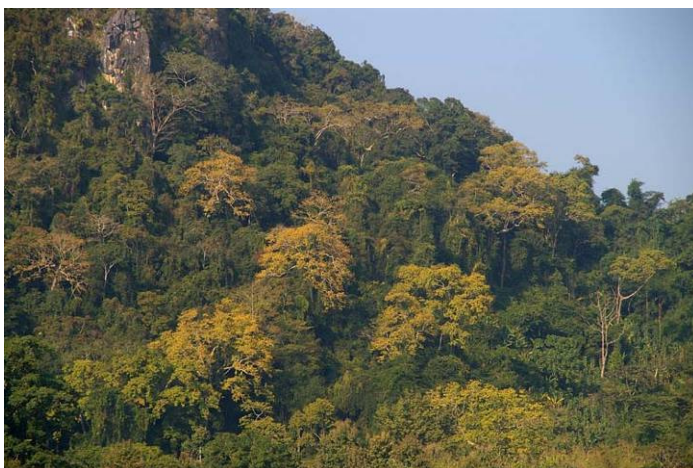
We meet on the third Thursday of the month at 7:30 pm. Following the TENPS general meeting, the speaker will commence at 8pm. Tea & coffee are available during the meeting. The venue for the meeting is Marrara Christian College, on the corner of Amy Johnson and McMillan Drives. All welcome. Bring plants to swap, sell or have identified.

~ NEXT MEETING THURSDAY 17th April~

Don Franklin "The hill forests of central Indochina"

Dissected by the mighty Mekong River, the hills and mountains of northern Thailand and the Lao PDR (Laos) are amongst the most heavily forested areas remaining in Asia, notwithstanding the gross exploitation of the region's once extensive teak forests. It is here that the lowland tropical rainforests of south-east Asia meet the highland forests of the Himalayas, a biogeographic quirk that produces strange juxtapositions such as Wild Banana growing under pine trees. These hills are home to more than 1,000 tree species.

They are also home to a diversity of ethnic minority hill tribes who are amongst the poorest people in Asia. A feature common to the hill tribes is a tradition of "slash-and-burn" dry rice cropping on steep hill sides, a practice still widespread in the Lao PDR. Conserving forests whilst also improving the well-being of these people is a challenge that these politically and economically contrasting neighbours are tackling rather differently.



Forest with evergreen mid-storey and deciduous emergents on limestone outcrop, Lao PDR.
Photo: Don Franklin.

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Don recently travelled the region for eight weeks, photographing landscapes, forests and plants, and boating the Mekong and a number of its tributaries.

~ NEXT FIELD TRIP- SATURDAY 19th April ~

Sayer Rd Howard Springs. Weeding and a look at native grasses in the area.

Contact Russell Dempster for more information 8983 2131.

WHAT IS YOUR COMMITTEE DOING???

- Labyrinth project at Palliative Care Hospice is progressing.
- Ongoing funding for maintenance of the fence at Bankers Jungle is still to be negotiated.
- The committee is considering a fund-raising event at the Deckchair Cinema for next Dry season. We will keep you posted.
- Next committee meeting will be held at 7.30 Tuesday 22nd April 2008 at the electorate office at Howard Springs Shopping Centre. Members are very welcome to attend committee meetings if they wish so to do.
- Arrangements for the website are still pending.

~ Notes from GENERAL MEETING – March ~

'Mangrove Floristics And Diversity Ecology Of Mangroves' By Dr Kristin Metcalf.

Notes taken by Geoff Gaskell

Kristin is an environmental scientist who has spent 8 years on her PhD research on mangroves in Darwin Harbour. Her research focused on mangrove floristics, mangrove response to disturbance both natural and anthropogenic, and rehabilitation of disturbed sites.

Mangroves can be defined as trees and shrubs more than 1 metre in height that grow in the inter-tidal zone. There are about 11,500km² in Australia of which 4,500 km² are found in the NT. We have the least-impacted mangroves in the world compared with the high level of exploitation elsewhere from pollution and harvest, according to Kristin, with 35 to 80% loss around the world and a continuing annual loss of 1-2%.

There are 16 different mangrove families; 32 species are found in the NT (1 endemic species) and 19 of these in Darwin Harbour.

Mangroves are shoreline forests, in some cases several kilometres wide, that are found on low-energy coastlines (without high waves as found on the east coast of Australia) and can also be found on macro-tidal river systems up to 100kms inland. Mangroves are highly-productive ecosystems and biodiversity hotspots with around 2kgs organic material per km² per year produced that results in detritus entering food webs.

Darwin Harbour has 20,000ha of intact and healthy mangroves with Middle Arm having the majority of this. Charles Darwin Park's area is mostly mangroves.

Mangrove assemblages in Darwin Harbour are divided into 8 zones of which 4 occupy 90% of the area.

There is a predictable sequence from the hinterland margin of mixed species to the tidal flat (made up mostly of *Ceriops australis*) representing 43% of the total area, to the tidal area made up mostly of

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Rhizophora stylosa (33%) of the total and the high tidal flow area made up of Sonneratia alba (4.7%). This last area is an important habitat with 14 mammals (11 bats), 87 birds and 16 fish species being recorded from Darwin Harbour. There is also high diversity of Mollusca, worms (mainly Polychaeta), Crustacea (the majority crabs) and lots of ants (44 species).

Mangroves have evolved some special strategies to survive the challenges of their environment.

To overcome the high salinity of sea water, various species excrete salt from leaf glands or exclude salt at the roots by limiting water uptake or shed excess salt in old leaves.

For waterlogged and unconsolidated soils deficient in oxygen, adaptations such as pneumatophores, lenticels, buttress and prop roots are found.

To counteract the effect of tides and currents, mangrove species use buoyant seeds, vivipary and crypto-vivipary (eg propagules that can establish by dropping from the parent plant directly into the soil).

In the harsh environment in which mangroves are found, periodic disturbance is a reality. Much of Kristin's work has involved the response of mangroves to disturbance and the reasons for delayed recovery, resulting in working out ways to speed up recovery by re-forestation.

She studied the effect of the damage caused by Cyclone Tracy; 20 years afterwards there were still big gaps in the Rhizophora forest and the tallest Ceriops forest. In the first experiment she measured factors affecting delayed recovery in cyclone damaged and bulldozed sites; these were shade, mechanical damage, herbivory and soil compaction.

In the Ceriops/Rhizophora areas there was little difference between the controls and the treatments in bulldozed sites but in the cyclone damaged areas of seaward Rhizophora areas, it was determined from the ingesta of a dead turtle on Casuarina Beach, that the seedlings were being decapitated by turtles.

Kristin was then concerned to establish what rehabilitation measures worked; were different strategies needed? She found that natural seedling recruitment was most successful in 'refuge' locations ie hollows, logs, roots etc after trials showed higher seedling numbers at sites where mini-fences had been established in the cleared areas. A combination of natural and artificial techniques gave the best results in reducing or preventing erosion

Kristin referred to the different composition of the mangrove population in the West and East Arms of Darwin Harbour (due to the influence of the Elizabeth River inflow into East Arm) but her current work on the influence of mangrove clearing around East Arm port and the gas plant on Wickham Point did not indicate any negative effects on the fauna around these areas.

~ Summary FIELD TRIP- March 2008 ~

Charles Darwin National Park Field Trip. Russell Dempster

On Saturday 29 March a small group of TENPS members and friends met with Kristin Metcalfe at Charles Darwin Park. Kristin took us for a walk to see some of her mangrove study sites where she had set up plots to investigate the regeneration and rehabilitation of mangroves.

The seepage zone on the edge of the mangroves promotes diversity. There is a comparatively large variety of species in this area. An impressive species is Lumnitzera racemosa which has small loopy aerial roots and lenticels on its trunk. The leaves have a notched end on them. Excocarya ovalis (Milky Mangrove) has white latex and rounded leaves which yellow and fall in the dry season. It has a smooth white trunk.

Ceriops australis is the dominant species in a saltier zone. It is a smaller mangrove with a white trunk, growing in an area where a bulldozed track had been made in 1992. The track is still much

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clearer than the undisturbed vegetation. We saw some *Cerriops* that were planted in 1999 in one metre square plots. Some of these specimens are now about one and a half metres in height. We were very privileged to see a pair of Mangrove Snakes (*Bokadam*). They are not normally seen, or if they are, they usually quickly disappear down crab holes. One in particular was not shy. It crawled right up to our feet. It was about 60 cm in length.

At another site we saw *Rhizophora stylosa*. This mangrove has the beautiful large prop roots. Three plots of 40 were planted in a region that was completely bare in 1999, and they are now about four and a half metres tall.

Other highlights of the walk were the sightings of a very large mud-skipper, between 50 and 60 cm in length, and to hear the call of a Chesnut Rale. It makes a fairly loud call, somewhat sounding like a cross between a pig and a duck!!

Thank-you Kristin very much for your leadership of this field trip, and for showing us some of the delights of the mangroves.



~FUTURE EVENTS ~

May:

Presentation of 'The Climate Project' from Robin Knox of COOLmob. To be confirmed.

Plant identification workshop.

Dale Dixon has agreed to conduct a plant identification workshop hopefully over long weekend of 3, 4, 5 May. Marj will confirm his availability and a booking will then be made for Coomalie Camp Site.

Field Naturalists:

April meeting. Wednesday April 9, 7:45 PM. Room 22.03 (Business Faculty Bldg.), CDU.

Carol Palmer "Coastal dolphins"

Carol Palmer's talk in April will summarise her research program into two poorly known Northern Territory dolphins: the Australian Snubfin and Indo-Pacific Humpback Dolphin. These species live in estuaries, so may be vulnerable to fishing activities. Carol's work aims to improve understanding of the species' distributions, habitat requirements and behaviour, as well as the threats they face. This will help to determine their conservation status and identify appropriate management actions. Carol Palmer is a research scientist with the Biodiversity Conservation Division, Department of Natural Resources and the Arts (NRETA). Carol has 20 years experience in northern Australia, working on a broad range of threatened species, fire management and radio-tracking programs. Her last talk to NTFNC was about the effects of cyclones on birds and bandicoots on Martjanba Island.

April field trip. Sunday April 13. Holmes Jungle nature walk.

Meet at the top car park at 8:30 AM. Bring the usual: hat, water, sunscreen; also binoculars, camera etc. to individual preference.

May 2008 meeting. Note non-standard date and location: Friday May 16 at Mary River Park.

Combined evening meeting with the Australian Naturalists Network. There will be four speakers:

- Bob Wasson: Geomorphic development of the Alligator Rivers floodplain.
- Stephen Garnett: Climate change and tropical birds.
- Peter Jacklyn: Termites.
- Don Franklin: Life history of bamboo.

For more information contact: Don Franklin & Christine Maas

eucalypt@octa4.net.au or 8948 1293

**SENDER: TOP END NATIVE PLANT SOCIETY
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