Top End Native Plant Society

President:
Dave Liddle

Vice President:
Russell Dempster 8983 2131

Secretary:
Peter Ebsworth

Treasurer:
Peter Ebsworth

Publicity:
Louise Finch

Publications:
Sarah Hirst

Public Officer:
Helen Spiers

Librarian:
Ingrid Najarian

General Committee Members:
Alex Bakunowicz
Barry Smith

Webmaster:
Dave Liddle

PO Box 135
Palmerston NT 0831

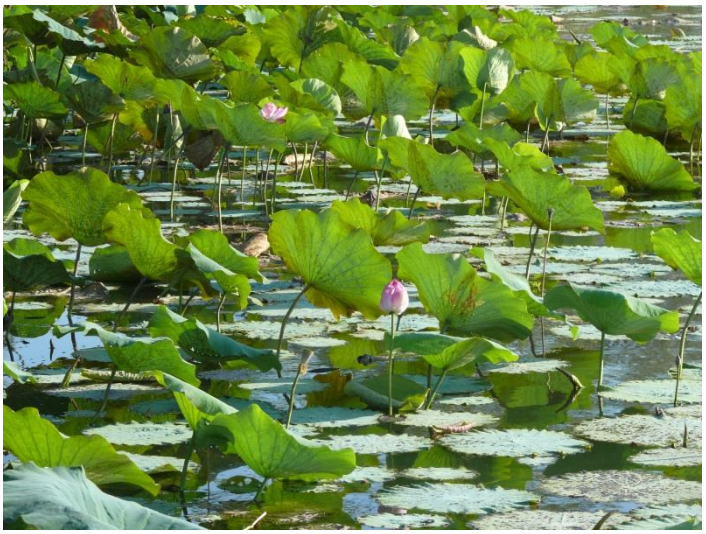
July 2014 Newsletter

General Meeting Times

The next TENPS meeting will be held on ***Thursday July 17th 2014***. Meetings are usually held at 7:30 pm on the third Thursday of each month at Marrara Christian College, on the corner of Amy Johnson Avenue and McMillans Road. The meeting is followed by a chance to meet with other members and access the TENPS reference Library over a cuppa. Bring your plants along to swap, sell or have identified. The guest speaker presentation commences around 8pm. All are welcome.

Field trips are usually on the weekend following the Meeting, details provided in the newsletter or at the meeting.

What's in Flower?



Lotus lilies Nelumbo nucifera *photographed by Russell Dempster at Red Lily Lagoon in Kakadu.*

Natives mean more!

www.topendnativeplants.org.au

Upcoming TENPS Speakers

July 17th: Emma Lupin – Land for Wildlife.

August 21st: Neil Smit - Seagrasses

September 18th: Marissa Fontes – Landscaping (TBC)

October 16th: Sue McKinnon – Cycad surveys at TWP (TBC)

November 20th: AGM - Ian Morris - TBA

TENPS Field Trip *& other events*

July 19: Visit a Land for Wildlife property at Virginia. Russell and Penny's block is 5 acres of natural bush planted into somewhat different areas; some areas of purely top end natives and other areas with a mixture of NT and Queensland species. *Meet at 117 Virginia Road at 8.30am - 11.00am*

August 16: Kristin Metcalfe – Mangrove presentation and walk.

August 23-24: Open Garden and TENPS plant sale at Howard Springs.

September 7: *Threatened Species Day (TBC)*

September 11: *Deck chair Cinema movie night.*

September 20: Landscaping in Lyons (TBC)

October: *Big Lap for Landcare: Calma Gardens*

November: TENPS Plant Sale at Coolalinga.

Deckchair Cinema Movie Night

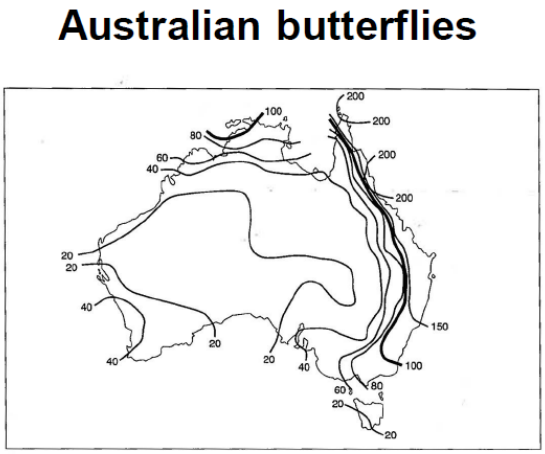
TENPS and Calma Gardens will be hosting a joint fundraiser evening at Deckchair Cinema screening ***Casablanca*** on September 11th.

Put this date in your diary, tell your friends and family and come along, have fun and support your organisation…

June Meeting Report – Dr Michael Braby: Range expansion of an invasive butterfly in South-East Asia and Australia: a consequence of tropical deforestation or climate change?

Dr Michael Braby (Department of Land Resource Management) originally presented this talk at the 2013 International Symposium on Research and Conservation of Asian Butterfly Diversity in Taiwan.

Biodiversity conservation can be divided into two parts: biosystematics and conservation biology. Biosystematics covers taxonomy and systematics while conservation biology includes inventory, monitoring, recovery of threatened species, invasive species management and restoration ecology. Often people involved in these two groups don't meet up, but at the Taiwan conference both groups were represented.



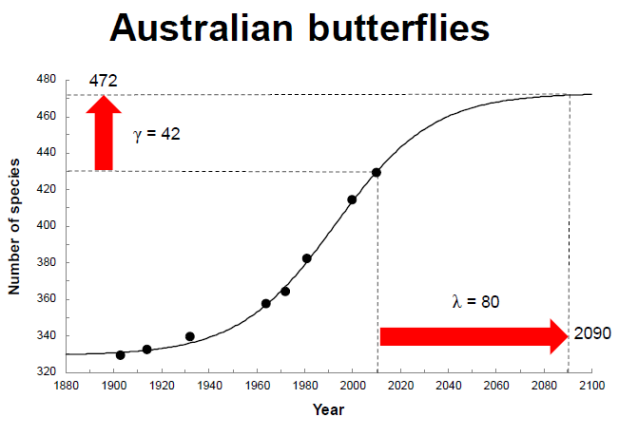
Species richness isopleths for the Australian butterflies.

Kitching and Dunn (1999) *Biology of Australian Butterflies*

An Australian butterfly species richness map shows a very strong gradient across the Great Dividing Range. The highest numbers occur on the eastern side of the range with a very strong drop off to the west. Tropical coastal north Queensland has the highest diversity of species, around the Iron Ranges, but also there are similar numbers near the border of Queensland and New South Wales near the coast. There are reasonable numbers in the Darwin region and diversity drops significantly with increasing distance from the coast in the Darwin and Kimberley regions, with only a few species occurring in the arid zones.

Much of the systematic work on Australian butterflies was done between 1870 and 1914. In 2010 there were 430 species recognised, and

mathematical modelling predictions suggest that this will grow by another 42 to give a total of 472 described species by the year 2090. This means that 91% of our butterfly fauna have been documented, withy 46% being endemic to our country.

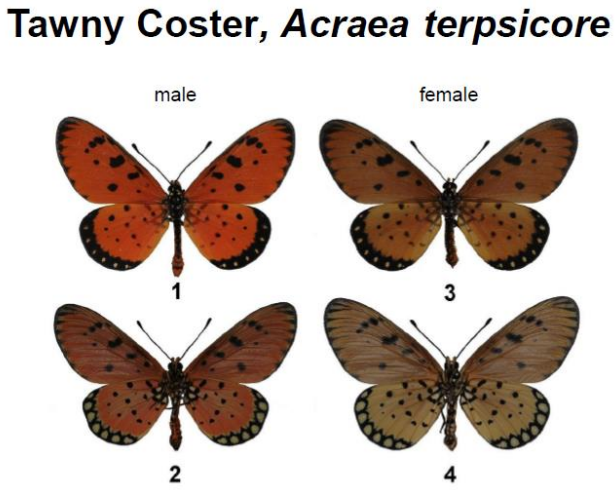


Braby (2010) *Zootaxa* **2707**: 1-76.

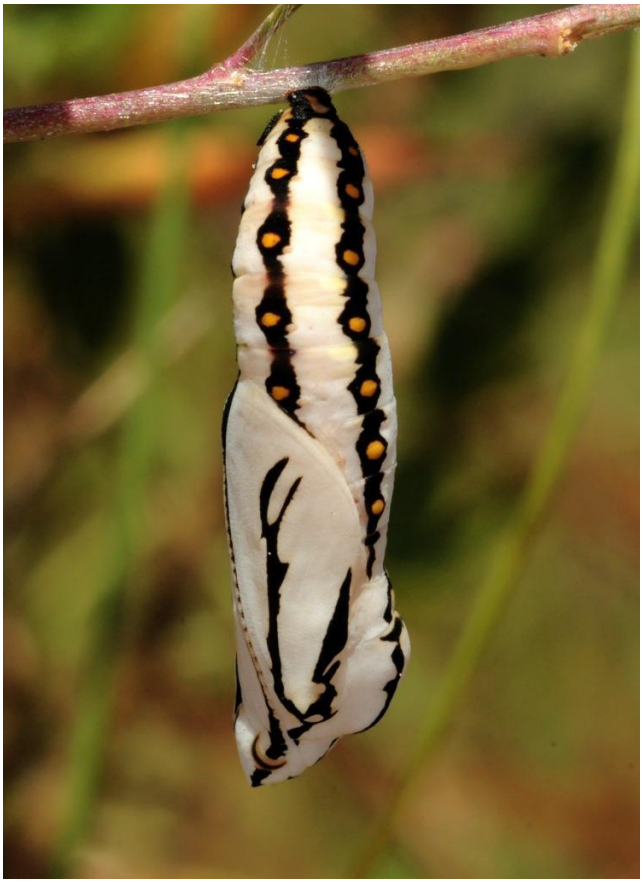
If a butterfly species arrives in in new region, a colonisation process can occur. The founder population can form a temporary breeding population, which upon establishment can become permanent and then invasive, possibly causing threats to primary industry and /or biodiversity.

The Tawny Coster Butterfly *Acraea terpsicore* (*above*) arrived from India and Sri Lanka in Australia through natural dispersal mechanisms in 2012. Very few species of butterflies which have arrived on Australian shores have established, but the Tawny Coster is one. Some species have incurred onto the mainland as vagrants, arriving as a single specimen.

Acraea terpsicore was originally described by Linnaeus as *Papilio terpsicore* and has common names Tawny Coster and Tawny Coaster.



Tawny Coster larvae (above), and pupae (below).



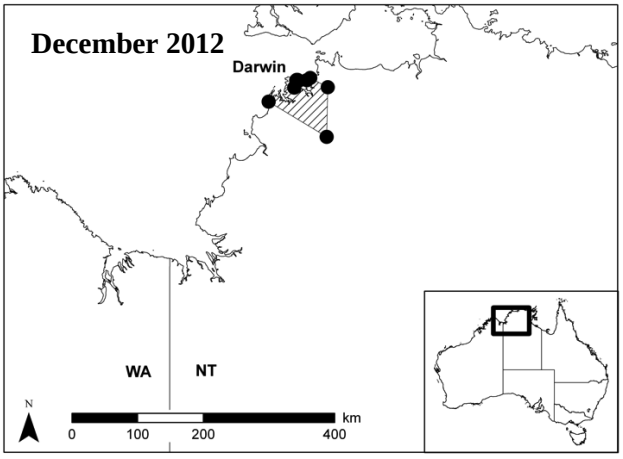
When it arrived in the Top end there was concern about its impact on the horticultural industry, particularly its effect on cucurbits and melons, but studies have indicated otherwise.

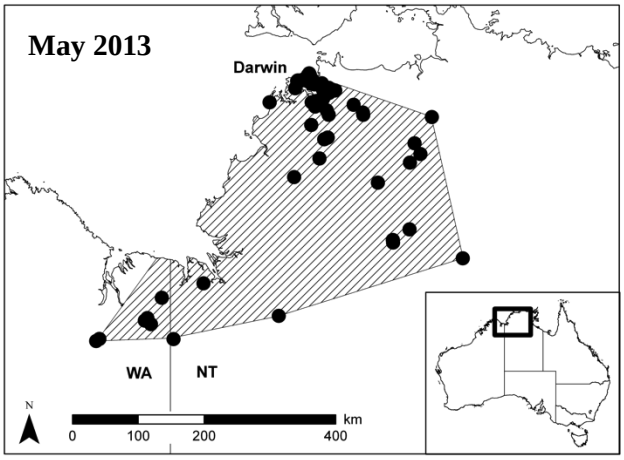
Tawny Coster larvae love the native plant *Hybanthus enneaspermus* and there was a high survival rate on *Adenia heterophylla* vines. They have also been found on *Passiflora foetida*.

Michael mapped the butterflies spread towards Australia through information found on the internet, mainly through facebook which provided an amazing amount of detail. Some sources gave map references, so the Tawny Coster spread quickly from 1992 in Malaysia to 2011 in Lombok to 2012 when it arrived in Australia. The chronological sequence of moving south and east was probably brought about by monsoonal winds.

Considering the rate of colonisation, the Tawny Coster had a minimum dispersal rate of 170 km per year in Thailand, moving about 1500 km in 8.7 years, and then 230 km per year from Malaysia to Australia from 1992 to 2012, moving about 4500 km in 19.3 years. Its range size has expanded about 6000 km in 28 years.

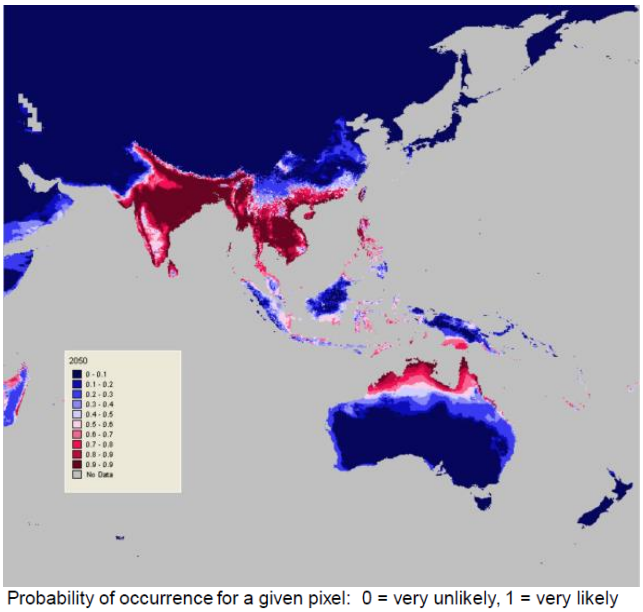
Australian distribution (*below*) grew from a 4000 km² extent of occurrence at the end of 2012 to an 112000 km² extent of occurrence by May 2013.





Braby *et al.* (2014) *Austral Entomology*

Bioclimatic niche models predict it is most likely to populate all of the monsoon tropics right across the top end of Australia by 2050 (*see map below*).



Probability of occurrence for a given pixel: 0 = very unlikely, 1 = very likely
Areas where $P > 0.5$ are potentially 'favourable' (shown in red)

Braby *et al.* (2014) *Insect Conservation and Diversity* **7**: 132-143.

What is the cause of its range expansion? Climate change, habitat loss and Tawny Costers being an invasive species have been identified as possible factors. South East Asia is a known biodiversity hotspot with high levels of endemism in butterflies, but these areas also have massive threats with deforestation being catastrophic (93% of original forest lost). There has been an increasing rate of deforestation in the last 10 years. Some plant and animal species may benefit from vegetation being cleared. *Passiflora foetida* thrives promoting Tawny Coster which thrives in disturbed habitats.

So habitat modification, particularly rapid deforestation of tropical forest in South-East during the past three decades, is hypothesised to be the major factor accounting for the range expansion.

Thank you Michael for a very interesting talk and presentation.

Article by Russell Dempster, photos by Michael Braby, figures as acknowledged, courtesy of Michael Braby.

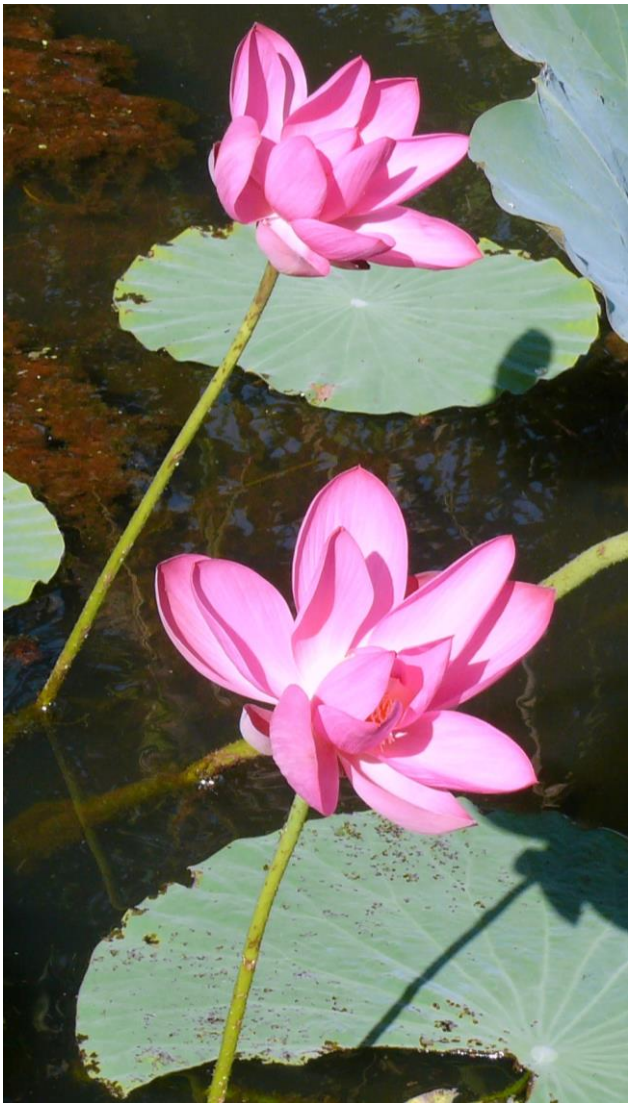
TENPS Committee Meeting

Committee meetings are held every second month and members are most welcome to attend. The next committee meeting will be on Wednesday **6th August 2014** at 7.30 pm in the Nightcliff Electoral Office Community Room, Shop 5 Pavonia Way, Nightcliff.

NT Field Naturalist Club Events

Monthly Meetings are held at **Charles Darwin University**, in **Blue Building 1, Room 1.54** Business Faculty, usually on the second Wednesday of every month (except January), starting at 7:45 pm.

Field Trips are a great way to explore the best of Darwin area's nature spots in the company of like-minded people. These are usually held on the Sunday following the monthly meeting and often related to the topic of this meeting. Additional outings are held from time to time, and everyone is welcome.



Nelumbo nucifera *by Russell Dempster*

Hybanthus enneaspermus *by Sarah Hirst*

Helicteres *sp by Sarah Hirst*

SUBSCRIPTION FORM – ANNUAL MEMBERSHIP (DUE 1 JULY)

Please accept my subscription/renewal for membership of the Top End Native Plant Society

☐ New membership ☐ Renewal

Name/s.....

Email address .....

Please Note: The electronic edition of the newsletter will be uploaded to the member's page of the website each month and members will be notified by email (Acrobat Reader is required).

If you DO NOT have email access and would like to receive the newsletter (black & white available only) by post please tick the box. ☐

Postal Address .....

Post Code.....

Payment Due $..... ($20.00 per member/family, $15.00 unwaged)

TO PAY ONLINE: Bank: People's Choice Credit Union BSB: 805050

Account Name: Top End Native Plant Society Account Number: 61225276

Please include your name in the transfer reference.

Or **MAIL TO:** TENPS Secretary, PO Box 135, Palmerston NT 0831

Signature ..... Date ……/…… /…...

TO:

Sender:

Top End Native Plant Society

PO Box 135

Palmerston NT 0831