

Welcome to our office



Photo: courtesy Denise Crew

'Objectives of habitat restoration at Cattana Wetlands Environmental Park',

or, 'more bang for your ecological buck'

Geoff McClure

Senior hole digger

With special thanks to: Melanie Constable, Denis Moeser,
Dave O'Brien, Denise Crew & Matthew Tinus – all heavy-lifters.

Our story: June 1996



August 2025, zones from 2016 vegetation management plan

CATTANA WETLANDS
Write a description for your map.

Legend

- Cairns Cattana Wetlands
- Feature 1
- Feature 2
- Feature 3



Two markets: leisure and birding



Leisure market: aesthetics & facilities



Birding market

Birding: A typical birding experience in forests of our Region records 35 – 40 species.

The Cairns Birders often record more than 50 species at Cattana, frequently finding more than 30 in the carpark. The record at Cattana is 72 species in 4 hours by Dave Anderson.

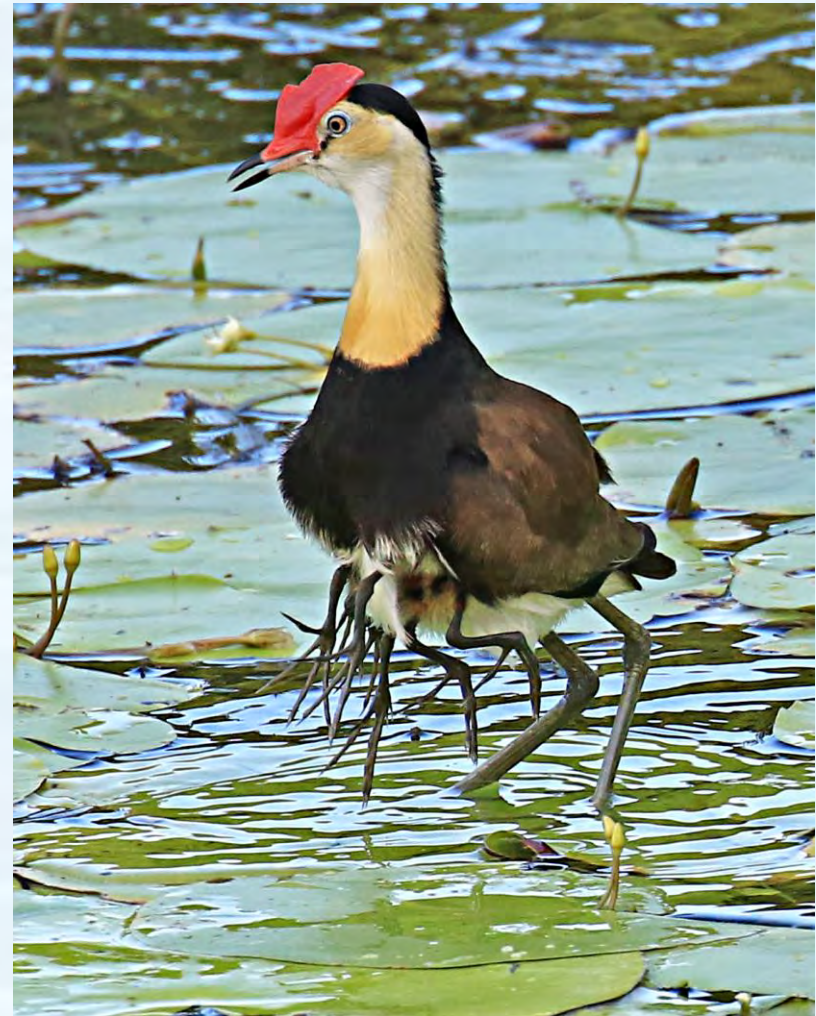
Commercial value of Birding

Quotes from Dr Rochelle Steven (ABC News, 2025), in a piece by Kristy Sexton-McGrath: -

'Australia is home to the second-highest number of endemic bird species in the world.'

'International visitors spent \$2.6 billion on travel that involved birdwatching in the year to June 2024', and

'domestic overnight travellers spent \$636 million over the same period'.



Jacana male carrying chicks.

Photo: courtesy Andrew Krumins

1. An important objective:
'use it or lose it',
establishing
commercial values

- Maintaining a bird list of more than 200 spp.
- Establish the 'Summer of Science' tour program, without incorporation.
- Daily weekday visits by DownUnder Tours.
- School excursions.
- Conference field trips.

FREE FAMILY
TOUR PROGRAM



CATTANA WETLANDS SUMMER OF SCIENCE 2024

MICROBAT NIGHT

Saturday 6 July at 6pm

Assist the Bat and Tree Society of Cairns conduct a survey of insect eating bats with ultrasonic detectors, includes a nocturnal tour.

THE IMPORTANCE OF CATTANA WETLANDS

Saturday 3 August at 8am

An information smorgasbord including history, management and threats to the Wetlands; inspecting the Feather Palm Forest and 'possum boxes' with a pole camera; and bird watching with a telescope. All with specialist volunteer guides.

MOTH NIGHT

Saturday 28 September at 6.30pm

Dr Dave Rentz AM installs light sheets to survey critters of the night. Includes free nocturnal tours. Sponsored by Friends of Botanic Gardens, Cairns.

AUSSIE BACKYARD BIRD COUNT

24 & 25 October

School excursions with specialist guides, by booking only.
Enquiries by email: croconsult@gmail.com

MICROBAT NIGHT

Saturday 23 November at 6pm

By popular demand - assist the Bat and Tree Society of Cairns conduct a survey of insect eating bats with ultrasonic detectors. Includes a nocturnal tour.

ALL TOURS MEET IN CARPARK

2. An important objective: *'use it or lose it',* establishing conservation values

- Conduct 'citizen science' programs based on microbats (ID for Australian data-base), birds, sugar gliders, striped possums, and northern quolls.
- Establish and maintain a bird list, used as a measure of habitat restoration / our management.
- Conservation and commercial values are congruent.
- *All of the above species are directly dependent on insects.*



A family of Sugar gliders

Photo: courtesy Denis Moeser

'Threats' to our objectives

Floods, positives:

- Flooding decreases encroachment of urbanisation on the Barron delta.
- Water is slow moving at Cattana, with limited damage.

Floods, negatives:

- Aquatic weeds (WoNS – salvinia & hymenachne),
Frogbit (Regionally declared).
- Water quality (turbidity) & rubbish.
- Tilapia & electric ants.

Tidal gates on Avondale Creek for cane farming, manually closed at >2.7m tides.

Connectivity. Cattana lacks connectivity to nearby remnant forests – eg. the Range.

Weeds!

Developing objectives for weed management: We can not remove all weeds, so we have introduced classifications which are harmonious with building conservation values.

'Welcome weeds', or weeds of some ecological value, eg. Indian heliotrope (*Heliotropium indicum*), below, with Crowfly butterflies.



Photo: courtesy Matthew Tinus

'Worrisome weeds', which are removed because of their localised prevalence, eg. Centro (*Centro pubescens*), below, and Sensitive weed.



'Wicked (invasive) weeds' decrease diversity -
Para grass, Singapore daisy and Navua
but if we remove a weed there is a high probability that *Navua aromaticus*
(which forms a 'green desert'), will replace it.

Navua infected with rust



Navua regeneration after rust



Regeneration of 'welcome weeds' in revegetation sites

- 'Welcome weeds' such as *Praxellis* (right) and *Solanum* (below) regenerate and soil biota continues to develop.
- They shade the soil and protect plants from wind.
- Welcome weeds are inhabited by insects and visited by birds even at this early stage of the site's development.



Insect damage is not particularly welcome, but is accepted as beneficial in the development of an ecosystem.

Hibiscus tiliaceus



Ficus congesta



Developing objectives for habitat restoration: grasses & insects

- Dave Anderson: '20% of our bird species are grass dependent'.

- David Rentz OM, entomologist:

'Lomandra & Guinea grass best for insects'.

Is Guinea grass a welcome weed?

- Good for bird security & food,
nesting habitat & materials.

- A host for at least 4 spp. of butterflies.

- Performs as a living fence to stop Para grass and Singapore daisy.

- Retaining some Guinea grass is considered a step forward rather than allowing 'wicked weeds' to proliferate, but this does not preclude our desire to replace it with more appropriate species.



An iconic Crimson finch in Guinea grass

Photo: courtesy Mick Reyes

Guinea grass performs as a living fence or barrier against proliferation of invasive Para-grass



Developing objectives: restoring connectivity of understorey

In many places at Cattana there is a dearth of understorey, caused by:-

- dumping of overburden (poor quality) soils,
- scouring of seed banks during floods,
- dense revegetation,
- &/or
- dominant allelopathic species

A lack of understorey is ecologically detrimental in general, but particularly so for insects and ground dwelling animals.

Lack of understorey, possibly caused by dumped overburden soils and dominant allelopathic species (eg. *M. leucadendra* and *M. quinquenervia*).



Revegetating connectivity in understorey:
3 wet seasons of growth



The little things that run the world

Edward Wilson (1987), an American biologist and entomologist, famously stated that invertebrates are 'these little things that run the world'.

Chowdhury, S. et al. (2023), 'insects comprise >80% of all animal species but are frequently overlooked in conservation assessments and environmental management activities.'



Citrus swallowtail caterpillar on *Micromelum minutum*

Photo: courtesy Matthew Tinus

Caterpillars are essential for bird reproduction

The Carolina Chickadee (*Poecile carolinensis*), a small 'seed-eating' bird, fed a clutch of chicks for 16 days with approximately 6,240 to 9,120 caterpillars found within 50m of the nest. This study did not include caterpillars consumed during 24 days as fledglings while still dependent on their parents (Tallamy 2020).

More than 95% of birds include caterpillars in their diet, including many 'seed-eaters' (Wagner 2024).

Heavy lifting plants (keystone spp.)

In the USA 5% of indigenous plants make 75% of the food that drives food webs while many contribute very little to insect production (Tallamy 2020).



Carolina chickadee with a caterpillar

Photo: online

Suggestions for gaining more bang for our ecological buck by species selection

Our current restoration practises will have an impact for many years

- Observe insect 'damage' in the nursery & the field.
- Observe insect & bird activity.
- Tweek existing species plant lists (eg. Cassowary & Tree-Kangaroo and Mammal Group,) to include more heavy-lifters.
- Revegetate with more butterfly plants.
- Cattana's heavy-lifters include butterfly plants, *Melicope*, *Hibiscus*, *Alphitonia*, *Eucalypt* and *Acacia* spp.
- Discuss the above with staff and other practitioners.
- Establish bench marks or measures of ecological performance – eg. bird spp. & abundance.
- Monitoring - eg. camera trap for wildlife.

Thank you



Photo: courtesy Denis Moeser