

Rosenberg's goanna project – October 2020 update

Patrols reveal new active goanna nests

The NPA-supported Rosenberg's goanna project team finds itself still on a steep learning curve, writes Don Fletcher

A project which has run for a few years is expected to have settled into a routine (a good thing in science terms) but this one has felt different every year.

That is only partly due to changing conditions, first drought, then park closure, then bush fire, then Covid, and now flooded river crossings. Also it is partly because new activities are being attempted, such as the mapping of termite mounds this winter by groups of people on 'sweep counts' and the checking of mapped mounds for goanna nests this spring by individual walkers on 'hatchling patrols'.

But the main reason for the constant feeling of novelty has been our 'learning curve'. For example, finally this spring for the first time we have trapped multiple female Rosenberg's Goannas and successfully attached GPS packs.

patrols. Naas Valley is an interesting and lovely area when you get away from the fire trail. It is rich in bird life and other fauna and provides scenic views of the Booth and Clear ranges from most ridges. A bonus for patrollers on warm days are close observations of the delightful hatchlings when they are outside the mound.

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The hatchling patrols attracted new people to NPA and enabled occasional social interactions. But more importantly, the patrols also revealed 16 active goanna nests in the first 5 weeks (at the time of writing). The

ability to find so many nests of this species is an unprecedented research resource.



Don Fletcher and Kevin McCue measuring a goanna while attaching a male-sized GPS pack. Photo by Lois Padgham



New team members Paul Davies and Julie Crawford on hatchling patrol Photo by Don Fletcher

To add females to the project was just a simple matter of when we trapped, and in which part of the valley, but no-one knew that before. And although this may seem obvious to female readers, when finally we learnt to trap the females, they needed their own harness design for the GPS. Last year my small-size male harnesses were quickly shed, and by then it was the wrong time of year to trap females. So, yes, a steep learning curve.

Each time when the 3-day weekly trapping was cancelled due to cold weather or flooding, I greatly enjoyed helping with the hatchling

We will investigate the possibility of an Honours project to take advantage of it in a future year. This resource exists only because of the efforts of the people who volunteered for winter sweep counts, and those who are doing the hatchling patrols.

To gain immediate research benefits from the nests (not just waiting for an Honours project) two activities have commenced. Cameras were placed on most nests within a week of finding them. The best are two time-lapse cameras that take pictures every 5 seconds in daylight (over 10,000 photos per day). The other cameras are triggered by movement of medium-size animals and do not reliably record every tiny hatchling.

It will take time before all the images have been inspected, but already we know that around half the nests have been visited by an adult goanna. I speculate that this is mostly due to protective maternal

An adult goanna visiting a nest



behaviour, rather than cannibalism, but such maternal behaviour is previously unknown in this species. To prove it would require both more observations of visits without predation of hatchlings, and DNA from both the adult and hatchlings.

Hatchling DNA is already being collected by tricking the hatchlings into falling into pitfall buckets. But to catch a wary adult female will not be easy. Another result from the cameras is realisation that hatchlings can be active at night, also previously unknown behaviour.

Meanwhile cage trapping has been underway. By the end of the first week in November, 26 individual goannas had been trapped a total of 32 times. Four goannas were recaptures from previous years and 22 were new.

All six 'female-size' GPS packs have been fitted and both GPS packs designated for 'lower valley males'. This performance can be compared to our first year, when we captured 13 goannas in the entire season, and fitted two GPS packs, and also is comparable to our second year when we captured 32 in the entire season.

At the time of writing, we were about to move traps from the lower valley to seek certain known individuals in the upper and middle valley, as well as some new goannas. In studies of animal movements, sample size, i.e. the number of individual animals tracked, is almost always a challenge. So new animals to track are always desirable.

A competing demand for the tracking devices is to place them on the same animals in order to consider behavioural change between years. Hence our intention is to recapture some goannas from previous years while also adding new ones. The between-year data can be applied to questions like, do goannas



Top: Afternoon tea after the third hatchling patrol. Photo by Don Fletcher
Rosenberg's goanna hatchlings photographed during patrols by (left) Paul Davies and Julie Crawford



- (i) just happen to remain in the same general area between years, gradually drifting away due to the statistical effects of chance; or do they
- (ii) consistently occupy the same home range, as if they are deliberately seeking out known resources which they have used in the past, such as burrows or rabbit colonies; or do they
- (iii) actively take up new home ranges each summer? How does this same question apply to the long movements made by some males at mating time and to their 'subsidiary' or 'breeding' range, which they occupy at mating time? Are they moving consistently to the same 'breeding range' each year (and the same females perhaps) or do they actively seek to spread their reproductive effort to new areas and new females?

I look forward to the return of students to the project in coming weeks, after exams are over, to balance the efforts of oldies like Kevin McCue, John Brickhill and me and not-so-old worker Enzo Guarino. My fingers are crossed for fine weather during the student's post-exams camp in the last week of November.



After that we expect to return to the routine radio tracking of each goanna to check its harness, intervening whenever re-glueing is needed. I will report on the summer activities in a future update.

This October 2020 update is the eighth about the NPA project, 'Conservation Biology of Rosenberg's Goanna', with previous ones being in Mar 2018, Jun 2018, Mar 2019, Jun 2019, Sep 2019, Dec 2019, and June 2020.

Don Fletcher is the project manager for the Rosenberg's Goanna project, which aims to improve understanding of habitat use and movements of Rosenberg's Goanna in Namadgi

Goanna 'Three over Five' was trapped on the edge of cleared land where he seen being released by Evelyn Wu, Don Fletcher and Victor Gao. Photo by Lois Padgham