

Warron

Eastern Barred Bandicoot Newsletter

PROGRAM UPDATE

Welcome to Newsletter No. 8 of the Eastern Barred Bandicoot Recovery Program.

This year we have been extremely saddened by the loss of our friend and fellow bandicoot worker, Wayne Drew, who passed away in February. Wayne was the 'Bandicoot Ranger' for Woodlands Historic Park. He loved the 'bandicoot part' of his job and was always a pleasure to work with. We will miss his softly-spoken way of doing things. Wayne's interest in the bandicoots and in his own Aboriginal Culture have been honoured in the naming of this newsletter and we dedicate this issue to him. **'Warron'** is the Kirrae Whumrong word for the Eastern Barred Bandicoot. The Kirrae Whumrong are a people of the Western District.

Woodlands Historic Park has been the focus of much bandicoot activity this year. With the help of the Endangered Species Program funding from Environment Australia we have completed a field

assessment of the effectiveness of predator control and the survival of released captive-bred bandicoots at Woodlands. The project was carried out on behalf of the Recovery Team by the Arthur Rylah Institute, led by Alan Robley and assisted by Wayne's replacement, Katrina Lovett and a number of Zoological Parks and Gardens Board and the Department of Natural Resources and Environment staff. Ten bandicoots were released during the course of this project and eight of the ten animals released have been re-encountered.

EBB populations at our other reintroduction sites have mostly fared well this year. With some good rainfall in spring last year followed by even better rainfall commencing in autumn this year, most populations have shown signs of a strong recovery from the drought of the last four years. In the last 12 months, 18 'cleanskins' (previously untrapped bandicoots) were trapped at Hamilton Community Parklands and 19 at Mooramong. This indicates that these populations, although small, were strong enough to respond rapidly to the improved conditions. It undoubtedly also demonstrates that predator control continues to be effective at these sites.

Apart from the Woodlands predator control and survival project, the recovery team has been kept busy over the past six months with requests from private interests in obtaining EBBs for breeding and display, both locally and overseas. With our limited financial resources, future efforts towards recovery of this species may depend upon the support that such interests may provide.

With only one year left in the life of our current Recovery Plan we need to start thinking about our directions for future recovery planning. Consolidation of field sites and further research aimed at determining key specific requirements for successful population establishment should be a high priority. We also need to establish and apply success/failure criteria to ensure effective, efficient and responsive management of the program.

Mandy Watson
Program Convenor



Wayne Drew releasing a bandicoot at Woodlands Historical Park
Photo courtesy of Merril Hickey

ANNUAL REVIEW

The annual review for the Recovery Program was held at one of the bandicoot release sites – the National Trust Property Mooramong on the 22nd & 23rd October 2001. Participants included representatives from the Department of Natural Resources & Environment, Parks Victoria, Melbourne University, the Friends of the Eastern Banded Bandicoot, the community, National Trust and the Zoological Parks and Gardens Board. The annual review represents a great opportunity to assess the progress of the program to re-establish the Eastern Banded Bandicoot across its former range and determine the direction for the forthcoming year. And let's not forget to mention a great opportunity to see bandicoots roaming the lawns of Mooramong.

A couple of key points from the review were:

- that more information is available now on factors impacting on reintroduction success and this information needs to be used to further develop specific research questions that need answering e.g. What level of predator control is required to enable successful population establishment and how many bandicoots do we need to release at a site?
- the program needs to refine predator control and population monitoring programs to incorporate a formal adaptive management approach to get the answers to our questions.

The Recovery Plan 2000 – 2002 is due for review next year and this will involve a more extensive review process before the new plan is produced.

Morrell Halley
Natural Resources and Environment



CAPTIVE BREEDING

The Zoological Parks and Gardens Board continues to provide a leadership role in the maintenance and captive management of Eastern Banded Bandicoots on behalf of the Recovery Team. The captive population is maintained between 60 to 75 individuals, held at seven locations (Melbourne Zoo, Healesville Sanctuary, Victoria's Open Range Zoo at Werribee, Taronga Zoo, Western Plains Zoo, Monarto Fauna Complex and Kyabram Fauna Park). Between 16 and 18 pairs are being maintained and from May 2000 until June 2001 a total of 41 bandicoots were born.

The entire bandicoot-breeding complex at Melbourne Zoo has been relocated due to redevelopment of the area for a new exhibit, 'The Trail of the Elephants'. This may have slowed the breeding capability of animals at Melbourne Zoo.

Peter Myroniuk
Convener

Captive Management Working Group



COMMUNITY EDUCATION OFFICER

A part-time Community Education Officer is soon to be appointed. They will assist with the production of the newsletter, coordinate the volunteer data base, work to raise the profile of the species and convene the Community Education Working Group, one of the sub groups of the recovery program.



Eastern Banded Bandicoot
Photo courtesy of Kirstin Long

LAKE GOLDSMITH

Lake Goldsmith Wildlife Reserve is situated 11km south of Beaufort and 50km west of Balfour. The Reserve (also a State Game Reserve) is quite large at 870ha but the lake comprises the majority of reserve. The spit or island is a 90ha isthmus that juts into the lake and is the site of the reintroductions.

An establishment population of Eastern Barred Bandicoots was first released on the island section of Lake Goldsmith in October 1994. At the time the lake was full and water protected 80% of the island's boundary and this was thought to be a major barrier to foxes. Unfortunately, the lake has been predominantly dry for the last four years. The prolonged drought has not provided optimal conditions for the bandicoots. Since 1994 there has been two more reintroductions and a further five bandicoots are due to be released this year.

An exhaustive fox control program has been undertaken in the last four years. To make the regular Foxoff® baiting program more effective, we now

supplement the Foxoff® baits with poisoned liver baits. The liver baits seem to be more palatable than Foxoff® and we have seen a reduction in caching of baits and general fox activity. We run four baiting programs a year and at the end of each six week program it is rare to see any fox signs in the Reserve.

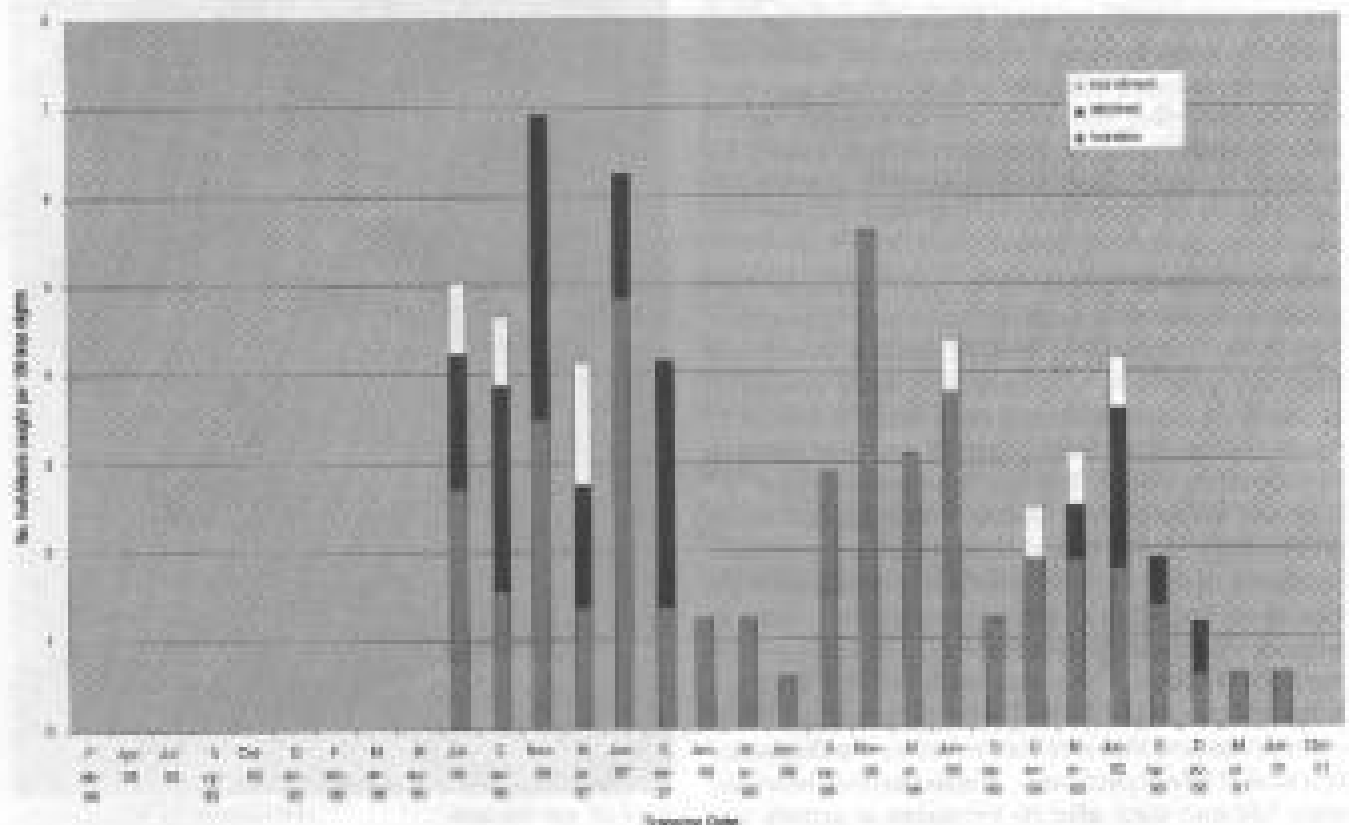
We also fumigate any fox dens within the Reserve every October and to take the fox eradication program beyond the Reserve boundaries, we encourage members of the Lake Goldsmith Landcare Group to undertake similar programs. The use of Dencofume® fumigant cartridges for natal den fumigation is proving to be quite effective. It makes sense that if you can kill a breeding vixen and her litter in one easy application, there will be fewer foxes the following year. We need to take that message to the wider community.

We have struggled to maintain a population of Eastern Barred Bandicoots but we are confident that with effective fox control and a more favourable weather outlook, we will be able to sustain a viable population of Eastern Barred Bandicoots for the future.

Clint Chandler
Parks Victoria



Population Monitoring Lake Goldsmith Wildlife Reserve



FOXES VS EBBs AT WOODLANDS

As we know the demise of the Eastern Barred Bandicoot in the wild has meant that efforts to save the species are now focused on establishing new populations at sites within the species' former range. Releases of captive-bred bandicoots at seven sites in Western Victoria have proceeded with varying success. Post-release survival of the released animals has not been accurately quantified as trapping efforts often result in low recapture rates. Despite ongoing attempts to control predators at the sites it is believed that foxes are largely responsible for the post-release loss of bandicoots from newly established populations. In March of this year NRE's Arthur Rylah Research Institute commenced a study to investigate the post-release survival of Eastern Barred Bandicoots at Woodlands Historic Park while concurrently assessing the level of fox activity and fox control measures surrounding the release site.

In order to assess the effectiveness of the planned predator control program we needed first to get a picture of baseline fox activity levels. To do this we set up 19 sandpads measuring 1m² and 10cm deep. These sandpads were constructed beside vehicle tracks throughout the 'back paddock' at Woodlands. Each weekday for the next two months we monitored the level of fox activity on the sandpads. Fox activity was calculated based on the percentage of sandpads that had fox prints on them. Foxes weren't the only critters to cross the pads, in amongst the rabbit, cat, kangaroo, possum, bird, and echidna prints we would occasionally find the prints of bandicoots, which always caused great excitement! Average weekly fox activity fluctuated between three and 12% with a mean of 7.8%.

Having monitored fox activity for two months we then set about implementing an intensive baiting program. This meant establishing 28 bait stations throughout the back paddock. Bait stations were similar in appearance to sandpads but were made to a depth of 15cm to allow 1080 baits (Foxoff®) and liver baits to be sufficiently buried. Baiting commenced on the 14th May and stations were checked daily for bait takes and fox sign. During this time we continued to monitor sandpads so that we could assess any impact we were having on fox activity. We were naturally hoping to witness a dramatic decline in fox activity as a result of our baiting efforts ... this was not to be. Two declines in fox activity did appear to indicate that we had killed some foxes and this was confirmed by the discovery of a total of three carcasses. These declines however were followed soon after by increases in activity and

after eight weeks of baiting average fox activity on the 19 sandpads was 13.6%, higher than pre-baiting activity! It appears that foxes were caching most baits and also that new individuals were continually entering the back paddock to fill the vacant territories of foxes that had been killed. Two nights of spotlighting were conducted by Parks Victoria to assist in reducing fox numbers but not a single fox was seen in the back paddock. Two cats were shot.

What did this mean for the impending release of EBBs? It was decided to continue with the release because ultimately we needed to learn more about post-release bandicoot survival under the umbrella of an intensive fox control program. So, on 11 July, five male and five female bandicoots from Melbourne Zoo and Healesville Sanctuary were released into the 'Back Paddock'.

To monitor the survival of the released bandicoots a trapping grid with 228 trap stations and covering 25ha, was set up around the release site. The trapping program ran for a total of five weeks although traps were only ever set for two consecutive nights with three to four days in between trapping sessions. A total of seven trapping sessions were conducted totalling 2719 trap nights. We had a team of intrepid volunteers who assisted us in clearing traps, a task that commenced at 5.30am each morning! We caught eight of the ten



Sand pit with bait take
Photo courtesy of Kirsten Long

released bandicoots during this time as well as four resident animals including two 'cleanskins' (previously untrapped bandicoots). The fates of the two released animals that were not caught remain unknown.

All of the released bandicoots that were re-captured lost weight after their release. Three individuals continued to lose weight and on 29th July, 18 days post release, two of these animals, both males, were returned to captivity by staff from the Melbourne Zoo. One of these males had started to regain weight but was still deemed to be in poor condition at the time of his removal. The third of these individuals, a female, was not recaptured and is presumed to have died. The story is brighter for the remaining five released animals. All three females put weight back on and by the end of the program weighed in excess of their release weights. Although the two remaining males had not regained all of their weight their weights had stabilised and they appeared to be doing well.

All of the released males, and one resident male sustained superficial scratches and fur loss, presumably as the result of fighting. The worst affected male bore numerous scratches and had lost

approximately 20% of the fur on his back. He recovered quickly despite looking a bit like a patchwork quilt as his new fur grew. On our last day of trapping we were excited to capture one of the released females, who had not been caught for over three weeks, and discover that she had given birth to three young.

What can we conclude from this study? Interestingly fox predation played a relatively minor role in the post-release survivorship of bandicoots. It is possible that the two untrapped individuals fell victim to fox predation but equally they may have dispersed off the trapping grid or simply not entered traps. The third animal that was lost may also have been taken by a fox but her demise is more likely to have been a result of her weight loss. This suggests that released bandicoots can survive with the relatively high levels of fox activity in the reserve, at least under current conditions. Parks Victoria rangers indicated that at the time of the release rabbit numbers were relatively high, baseline bandicoot numbers were low and the level of vegetation cover is increasing following several years of drought and intense grazing pressure from kangaroos. Under the current level of fox activity a change in any one of these factors may result in a much greater proportion of bandicoots falling prey to foxes. Ideally we would like rabbit numbers to decline and bandicoot numbers to rise which, in turn, suggests that fox activity must be further reduced to minimise predation. This means maintaining an intensive level of fox control and minimising fox immigration into the 'Back Paddock'.

An additional finding of this study is that bandicoots are obviously under a great deal of stress following their release. This is evident from the significant weight loss and the fighting scars sustained by males. Dry conditions in Victoria in recent years may also mean that food supplies for bandicoots are limited putting further stress on the animals. This is supported by the fact that the resident animals caught were also generally only in fair to good condition relative to animals in captivity.

With continuing predator control and fence improvement works currently in progress at Woodlands we hope to see a resurgence in the bandicoot population in the 'Back Paddock'.

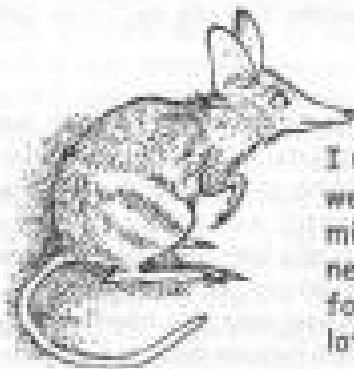
Kirstin Long
Arthur Rylah Institute
Natural Resources and Environment



Soil hole with fox print and seal
Photo courtesy of Kirstin Long



Eastern Barred Bandicoot pellets
Photo courtesy of Kirstin Long



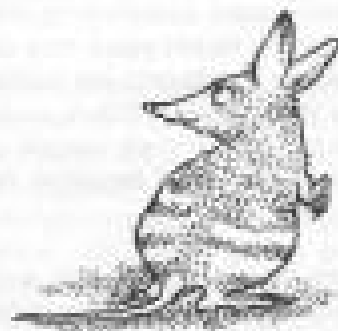
A Bandicoot Adventure.

Once upon a time there was a bandicoot.

I woke up. The sun had nearly gone all the way down. I went back to my hide in the grass. I came back out in six minutes. It was dark now. I said, "Yes, yes, it is dark. I need to go and find food". I shot off to find food. Food, food! I can't wait. I went to a hollow log. Wow! Lots and lots of bugs "Yummy, yummy" I said.

I was eating so fast that I didn't hear the rustling in the grass. I stood on my 2 back legs because I thought that I heard something. I did hear something! I looked at the grass. It had stopped moving. I went back to eating. I heard it again. I now knew that there was something there. I quickly looked around. There was something running at me! It was something red. A FOX! I ran for my life. I saw Rabbit's hole. I ran for the hole. I knew I would be safe in there.

Luckily, Rabbit was home. He asked if I wanted a cup of tea. I said, "Yes please." He asked what I had come for. I told him I had been chased by a fox all the way from the hollow log to here. I finished my cup of tea. I stuck my head out of the hole to see if Mr. Fox was still there. He wasn't there but I could hear weird noises in the big tree. Was it a hawk or Miss Owl? I did not know what it was. It started to fly at me. I was so scared I could not move. It got faster and faster. I saw what it was now. It was Miss Owl. Miss Owl grabbed me by the tail and flew towards the pond where the pobblebunks were croaking. Luckily she lost her grip and let go. I landed in the long grass next to the pond.



I met Mr Pobblebunk. He told me where lots and lots of food would be. I went there straight away. This is a bandicoot's paradise. I ate as many bugs as I could eat. I was heading back to my hide in the grass when I saw Mr. Possum. I yelled out "Mr Possum, Mr Possum, wait, wait". He stopped running. I ran towards him. I asked him if he had had a good day. He said, "It was great dancing on the roof!" I heard the roosters crowing. I said, "Got to go". I shot back to my hide in the grass and went to sleep.

By Clive Fairbairn-Calvert.
Age 8 years

BANDICOOT TUCKER

Reintroduction sites for the Eastern Barred Bandicoot have been chosen using a number of criteria including size of the site, habitat quality, land tenure, predator control etc. Habitat quality is usually assessed by the nature of the vegetative cover, such as grassland cover. There is an assumption that good quality cover suitable for Eastern Barred Bandicoots will have adequate food availability. This resource however, may be a limiting factor during periods of climatic uncertainty, for example during periods of drought. An understanding of the dynamics and limitations of this resource may assist in improved selection of reintroduction sites and improved management. This is the focus of a long-term research project.

The research aims to:

- Establish the invertebrate food resource potentially available to Eastern Barred Bandicoots at Woodlands Historic Park.
- Abundance, taxonomic composition and seasonal changes will be investigated
- Investigate the diet of individual bandicoots through faecal analysis and examination of gut and intestinal contents post mortem.
- Prepare an invertebrate inventory.
- Prepare a reference collection of invertebrates to be used to identify invertebrate remains in bandicoot faecal samples.

It is hypothesised that the availability of invertebrate prey for Eastern Barred Bandicoots varies according to availability. This in turn is postulated to be related to climatic conditions and vegetation composition.

The methods being employed are pitfall traps, sweep netting and vegetation quadrat analysis.



*Pitfall trap for ground invertebrates
Photo courtesy of Peter Myroniuk*

The study area chosen is Woodlands Historic Park. The first surveys have been completed with the setting up of survey sites and collection of invertebrates and vegetation data. Three main sites have been established; the bandicoot pens (control site), exotic grassland near the Cumberland ruins and the grid site (this site has three sub-sites due to the vegetation complexes; a grassland meadow, grey box and yellow box/hedge wattle site). Three lines of nine pitfalls (27 pitfalls in total per site) have been set (135 pitfall traps in total), three sweep net lines per site and three vegetation quadrates per site have been established.

Peter Myroniuk
Convener

Captive Management Working Group



*Volunteers undertaking vegetation analysis at Woodlands Historic Park
Photo courtesy of Peter Myroniuk*

BAKED BANDICOOT RECIPE

-From an old Tasmania Recipe book.
Here is another recipe for the bush oven but one which can easily be adapted.

Plunge the bandicoot into boiling water to soften the hairs. When it is well scraped, clean out the mouth. If a male, cut out the gland at the base of the tail.

Sprinkle with salt and let it stand for 2 to 3 hours, or overnight. Then wash it well and fill it with savoury stuffing. Sew up the skin and put in a roasting pan with 2 or 3 tablespoons of bacon fat and a cup of water.

Either roast in a hot oven or put in the camp oven over hot coals and cover with hot ashes. Turn and baste it frequently. Roast thoroughly, this should take about 2 hours, depending on the meat.

Hard to contemplate but obviously early settlers thought they could replace the Sunday roast lamb with Sunday roast bandicoot (or perhaps they didn't have the choice). Human consumption of bandicoots hasn't been recorded as a threatening process to their survival but perhaps it should!

Recipe provided by Cloely Fenton
(who must have an interesting collection of cookbooks)



This Newsletter has been printed on paper produced from totally chlorine-free pulp, using non-toxic dyes.

Editor: Merril Hickey, Natural Resources and Environment

Production Editor: Lorraine Slater, Zoological Parks and Gardens Board of Victoria

Disclaimer:

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purpose and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

WILD POPULATION SURVIVES

As we enter the new millennium our wild population of Eastern Barred Bandicoots live on, despite predictions of extinction ten years ago. We entered the drought at Hamilton with high bandicoot numbers because of above average rainfall in 1995 and 1996. However, due to reduced rainfall from 1997 to 2000, complicated by habitat loss in the wild, bandicoot numbers fell away and extinction was a frightening possibility.

This resilient little battler responds to rainfall and breeds as a response. Due to this, bandicoots have survived during our drought and numbers are again increasing. Above average rains in April, May, September and October 2000, were followed by further dry conditions until Winter and Spring of 2001. Reports from the wild are encouraging. Independent juveniles, and females with pouch young are being observed. Digs are common. Bandicoot numbers are increasing again.

When fire prevention works are carried out, it is essential that bandicoots are considered and habitat is left for this critically endangered species.

Key Akridge
Friends of the Eastern Barred Bandicoot



*Happy Christmas and
a Wonderful New
Year from the
Eastern Barred
Bandicoot Recovery
Team*

