EBB
EASTERN BARRED BANDICOOT RECOVERY

Warron

Eastern Barred Bandicoot Newsletter

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SPECIAL POINTS OF INTEREST:

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Woodlands is Ready!

Travis Scicchitano

It's been another busy year out at Woodlands, with plenty of tasks undertaken towards the goal of releasing EBBs back on site. I will start with the most exciting news. After a long and huge effort by everyone involved, the last fox has finally left Woodlands; permanently! A volunteer team discovered the carcass after a very intensive baiting program. We are nearly two weeks into our fox free period for release and have had no sign of a fox despite many free feed stations, camera's and spotlighting being undertaken. All is looking very positive at the moment and fingers crossed, Woodlands will be graced with our cute and furry friends very shortly.

Matt Wills, Peter Courtney, Michael Kidman, Barry 'Buzz' Carr and Travis Scicchitano inspecting the habitat condition at Woodlands ***(Photo: R. Hill)***

The EBB recovery team is now in full swing mode to have animals ready for release. The captive EBBs being held at Zoo's Victoria properties are now on their pre-release diet and plans are in motion to bring in animals from Hamilton and Mt Rothwell.

Volunteers have been coming out in their droves. We have had around 800 volunteer days over the last year, which has made a huge impact. These volunteers are from many backgrounds, including the general public, corporate staff days, all forms of school institutions and newly arrived migrants to the Hume Council district. As always, they have been hard working, undertaking large tasks, such as removing woody weeds from the back paddock, planting new areas of grasslands and fence maintenance. So a huge thankyou goes out to all our fantastic volunteers. Your efforts are just about to pay off.

Origin energy removing old back paddock fence near Gellibrand hill ***(Photo: T. Scicchitano)***

I hope that by the time we are all reading this, Woodlands will have bandicoots running around once again and the next time you hear from me, numbers will have grown significantly, helping increase our state-wide population size.

Great work everyone!

Keeping Track of EBBs

Jasmine de Milliano

Attaching a transmitter to a bandicoot *(Photo: Zoos Victoria)*

Those of you that have followed the recovery efforts for EBBs will know that captive-bred animals can be tricky to monitor in the field following their release. Over the years, the recovery team and researchers have used a variety of different methods to detect and monitor EBB populations including cage trapping, spotlighting, dig counts, camera traps, and radio-tracking. These methods vary in their effectiveness depending on the site, season, and population characteristics. Radio-tracking is the only technique that allows us to intensively monitor individual animals and definitively answer questions regarding their survival, habitat use and fine-scale movement patterns. This information is particularly useful for assessing the success of re-introductions, which remains a core activity of the recovery team. While the benefits of radio-tracking bandicoots are undisputed, a reliable method of attaching transmitters to bandicoots has proven to be challenging. Previous methods that have been used include collars, tail mounts, implants, and gluing and suturing transmitters to the back of bandicoots. The success of these methods has varied greatly, and to date none has adequately met the two key criteria concerning attachment duration and minimising the impact on the bandicoots. In the last year, staff at Zoos Victoria have been undertaking trials on captive bandicoots to develop improved methods for attaching transmitters to the species. The value of undertaking this work in captivity is that we can closely monitor the response of bandicoots to the transmitters and length of time the transmitters stay attached.

"...a reliable method of attaching transmitters to bandicoots has proven to be challenging."

Recently, we trialled glue-on transmitters on seven bandicoots at Melbourne Zoo. Glue-on transmitters have been used successfully on a variety of species including birds, mammals and marine animals. This is the standard method currently used by Zoos Victoria staff for monitoring captive-bred Helmeted Honeyeaters that are released to the wild. It is a non-invasive method, because the transmitters are simply glued to the animals and eventually fall off as the glue dissolves or the animal sheds the outer layer of its fur or feathers. During our bandicoot trials, we attached light-weight transmitters (1.2g) to their backs, between their shoulder blades, using veterinary glue. These are much smaller and lighter than the transmitters previously attached to the species. We also chose an attachment area on the bandicoots' body to minimise the potential for grooming, catching on vegetation and interfering with social interactions. We then watched the bandicoots closely during their nocturnal activity using infra-red cameras that we set up in their enclosures.

The video footage allowed us to see exactly how the bandicoots were behaving when the transmitters were attached and compare this to their behaviour before the trial. It was good to see that their behaviour was unaffected by the presence of the small transmitter, as they continued to move around their enclosure normally, forage for food and build nests. Whilst one transmitter remained attached for 23 nights, most fell off within three nights. Some were lost in the nest, suggesting that EBBs might have been able to groom them off. Others detached when animals were moving around their enclosure. So, while we have identified a method that is suitable in terms of causing minimal impact to the bandicoots, glue-on transmitters don't appear to be a viable option for use in the field given their short attachment times. In coming months, the team will continue to investigate different ways of improving the design and attachment of radio-transmitters to EBBs given its importance in effective post-release monitoring.

One of the captive EBBs carrying a glue-on transmitter *(Photo: Zoos Victoria)*

Workshopping 'Coots

Marissa Parrott

Population Viability Analysis (PVA) is a valuable tool when considering long-term planning and different strategies for species recovery. I was very lucky to be awarded a Dunbavin Scholarship by Zoos Victoria to enlist the help of a global team of experts to conduct a PVA to assist with modelling and future planning for one of my favourite species, the Eastern Barred Bandicoot. In September and October 2012, Zoos Victoria hosted a three day Eastern Barred Bandicoot PVA workshop which was facilitated by staff from the IUCN, Species Survival Commission, Conservation Breeding Specialist Group. The workshop brought together members of the EBB Recovery Team, captive management specialists and scientists experienced in bandicoot biology, and explored a range of recovery strategies for the species using the computerised population simulation program Vortex. Specific steps in the process included defining the challenges facing EBBs, building baseline population models, identifying key management scenarios for testing, and running and interpreting the tests. Particular questions that our new models can assist with include how large populations have to be in the future to recover the EBB, how viable current and future populations may be, and how the metapopulation should be structured. The workshop, modelling and analyses have resulted in a comprehensive document, over 70 pages long, that the Recovery Team can use as a planning tool for the long-term conservation of the Eastern Barred Bandicoot.

Front cover of the PVA report

During the workshop, the EBB team wrote a 50 year vision for the species, which we will strive to achieve:

In the absence of fox eradication, mainland Eastern Barred Bandicoots are genetically viable, in multiple population strongholds, removed from the threatened list and needing only limited management. The species occupies grassland and grassy woodlands in natural and modified ecosystems, on public and private land, not necessarily limited to its historic range. The bandicoot is recognised as an iconic species, promoting community pride and the conservation of grassy ecosystems in south-eastern Australia.

Elusive No More

David Coutts

EEB foraging along an internal fence within the Mooramong Pens *(Mooramong remote camera picture)*

The ability to catch EBBs at will, particularly sub-adults was a successful outcome of a trapping trial undertaken in the EBB pens at Mooramong. For many years, sub-adult animals have proved difficult to catch. A variety of trap types were trialled. The most successful was found to be the cage traps that have traditionally been used for EBB monitoring.

It seems EBBs love a free feed! For two weeks, baits were placed in and around the 50 traps. Cable ties were used to keep the traps open over this period. Once the cable ties were removed and the traps re-baited, we started to catch young EBBs. Using remote sensing cameras, we managed to capture video of EBBs entering traps for a free feed.

These animals were then relocated to Serendip Sanctuary via Melbourne Zoo and Mt Rothwell. Replicating this method enabled the relocation of all young EBBs from the densely vegetated 2 ha pens.

On the outside of the EBB pens, introduced predator control work continues with monitoring and recording of the work also maintained. Jim O'Brien, Senior Wildlife Officer, Department of Environment and Primary Industries and the team at Mooramong continue to work towards a time when EBBs can eventually be released back into the wild.

Numbers Boom

Richard Hill

Planned burn at Hamilton Community Parklands *(Photo: R. Hill)*

The past 12 months at the Hamilton reintroduction site have flashed by. The weekly routine of fence checks and predator monitoring have continued during this period, and until recently the site remained fox free. For the past 10 weeks we have had a sequence of fox incursions through the fence using weak points created by echidnas. The echidna is an amazingly strong digging machine and can push through the most comprehensively pegged-down wire netting. So as I write we are baiting and spotlighting to remove the third detected fox.

Recent fox incursions apart, the past 12 months have included some great EBB highlights. One has been improving our monitoring methods. The key question for monitoring is how many bandicoots do we have at Hamilton? This apparently simple question is surprisingly hard to answer. To try and answer this better, we undertook five nights of trapping last November (in contrast to our usual two nights of trapping). The intention was to catch and mark the vast majority of animals and to use that number of marked animals as a known minimum population size. The bad (and good) news was, that at the end of an exhausting five days of trapping, we were still catching a lot of new animals. This means, that we can't trap at an intensity sufficient to catch all animals, and consequently, there were a lot more animals present than we expected. In total, over the five nights we captured 173 animals, of which 43 had never been captured before.

"...there were a lot more animals present than we expected"

So we still had little idea of how many EBBs were living at Hamilton. Fortunately, Andrew Weeks from CESAR, University of Melbourne came to the rescue with some mates from the Department of Mathematics, used to dealing with small animal datasets. Analysis of five years of trapping data showed that the population is considerably larger than we suspected, peaking in 2011 somewhere between 150 and 200 animals. It's a very encouraging result, indicating that densities of animals can be significantly greater than we had estimated, and that a relatively small reserve of 100 ha, can make a substantial contribution to our recovery target of 2500 animals.

Many thanks to Barry 'Buzz' Carr who continues to monitor the fence and Gavin Lewis, who deals with the rare fox that foolishly enters the reserve, keep up the great work!

The Undercover Spy

Zoos Victoria

Next time you visit Werribee Open Range Zoo keep a look out for 'The Undercover Spy.' He is one of Zoos Victoria's 20 Extinction Fighters helping the public learn about EBBs and other native threatened fauna and how to take action to ensure their survival.

'He is a sprightly and stripy little sprinter... he moves between the grassy tussocks like an undercover spy, blending into the background to carry out his missions for the team. Living in the diminishing grasslands gives him great motivation for his cause to fight extinction and highlight the beauty in an often unrecognised vital habitat.'

Each of the 20 Extinction Fighters wear the Fighting Extinction logo on their outfit; the hind footprints of an EBB.

Support EBBs and...

... buy a t-shirt

Available through Conservation Volunteers for $30,100% of profits will be used for EBB projects throughout Victoria. To order, contact the Conservation Volunteers Melbourne Office on 03 9326 8250 or email: melbourne@conservationvolunteers.com.au

Barry 'Buzz' Carr , Richard Hill and Travis Scicchitano modeling the new EBB recovery t-shirts

Zoos Victoria

...buy an EBB toy

Plush EBBs will soon be available for sale at Melbourne, and Werribee Zoos and online at shop.zoo.org.au/shop/ for $14.95 with profits going towards EBB and other Victorian priority threatened species conservation programs.

... adopt an EBB

For $15 a month or $180 for a year you can adopt an EBB, see zoo.org.au/adopt for more details.

Zoos Victoria

Watch Out Ferals!

Michael Kidman

Michael Kidman giving one of the Werribee bandicoots a health check *(Photo: Zoos Victoria)*

The last six months at Werribee Open Range Zoo has seen most of the EBB pens filled with breeding stock and animals to be used in future releases. At the same time EBBs in the pens have been used in mate selection and post release monitoring trials. But the key focus at Werribee has been on the release of EBBs into our Australian Journey area, and preparation for a bandicoot release in an area we call North East Field. This is the first of three major feral proof zones that are being developed at the zoo.

Late last year we released non-breeding female EBBs into our 5 acre Australian Journey enclosure. These EBBs share the area with Slumber Safari Campers, Eastern Grey Kangaroos and Brolgas, as well as our Horticulture team who are continually developing the area into a native grassland. The biggest challenge so far has been the removal of the last rabbit! The Australian Journey EBBs are used for interpretation with our overnight camps as well as valuable research into different monitoring techniques for future releases and populations elsewhere. Currently, a monthly trapping regime is in place, which allows us to closely monitor their progress and health.

"The ultimate aim is to release EBBs in autumn 2014..."

Great advancements have been made with feral animal control over the property, in particular in our key target area, the North East Field zone, which is approximately 150 acres. Rabbits have been the greatest concern and last year we carried out an extensive program removing rabbits, warrens, harbor and large earth mounds. This year, a large follow up program will occur in the same area, with another round of baiting, harbor removal (primarily slashing of high grasses) and warren removal including excavation and fumigation. The ultimate aim is to reintroduce EBBs, in autumn 2014, once all feral animals have been removed. Fox baiting was also carried out last year and we are now stepping up the feral proof fence maintenance, which will shortly be followed by another round of fox baiting and spotlighting. The North East Field zone is quite complex as it not only has a large grassland and woodland area but also houses our EBB complex, off-limit hoof stock paddock system (housing Eland, Addax and Zebra) and our browse plantation area.

On top of the specific zone feral animal control program, we are continually monitoring and addressing feral animal issues over the whole of the property. We are working closely with all Werribee Park Tourism Precinct members for a coordinated approach, which will lead to a further two feral proof zones for native mammal releases in the future.

Getting Ready for Release

Peter Courtney

Peter Courtney *(Photo: G. Coulson)*

The captive population of EBBs currently stands at sixty animals, held at five institutions. The major short term goal of the captive program is to supply animals for the upcoming release at Woodlands Historic Park. Sixteen captive animals will join sixteen translocated animals at the release. The captive EBBs have now been placed on the pre-release diet, which contains a higher percentage of insects to encourage foraging behaviour. After the release has occurred the remaining animals will be paired up for breeding. The animals retained for breeding have all been selected through genetic profiling. Pair selection for breeding will be done in two ways, some through studbook selection and some through mate selection, a process that will occur at Werribee Zoo. In this process female bandicoots are given the opportunity to choose between different males. These offspring may form part of a second release into Woodlands later this year or early next year.

As I am retiring in July the hunt is now on to find a suitable Species Coordinator for the EBB to ensure the captive population remains healthy into the future.

Chip To It

Ben Gulli

In the last few weeks I have been working on finding new ways to track and monitor EBBs. In the past we have always set up numerous traps to try to catch EBBs, so we can check on how they are handling life in their new environment. This is great for getting a close up, hands on look, but it takes a lot of late nights and early mornings, and can be very hit and miss. Increasingly, we are finding that the longer EBBs are out 'in the wild' the less likely they are to enter a trap, and the baits we use are not only delicious to EBBs, but every other animal in the area! This means that at some sites, we have been setting a lot of traps, and catching very few EBBs but lots of possums and bettongs.

Remote scanner set up in the pens at Werribee Zoo *(Photo: B. Gulli)*

One part of my research involves using microchip scanners. All EBBs are implanted with a small microchip, almost identical to what you would find in cats and dogs. Each chip has a unique ID number that can be read easily with a scanner. I have been testing remote scanners, which take a reading every time an EBB with a chip passes over or through the antenna. These readings can be reviewed the next day to see which EBBs are in the area. The idea is that if we can have multiple scanners set up across a paddock, we can effectively monitor where the EBBs are, and see how they are doing without having to catch them, resulting in much less stress on the animal, and fewer hours of work. These devices are quite simple to set up, lightweight, and can be left for a week or so to give us a really good idea of the how the EBBs are moving around the site.

I originally tested these scanners in the pens at Werribee Zoo, with cameras rolling all night so I could review the footage to see if the scanners missed any visits. I set them up so EBBs had to either walk through, or past the antenna to get to their food. This worked really well! Once we had an idea of how well they worked, I set them up in our Australian Journey enclosure, where we have a few EBBs living at the moment. Again, I set the scanners up with a motion camera pointed at them. I got hundreds of readings over several nights, and was able to get a really good idea of how the EBBs were moving around the paddock. These results are encouraging and mean that we should be able to deploy these devices at reintroduction sites in the future, giving us a reliable and hands off way of monitoring EBBs.

"...we can effectively monitor where the EBBs are, and see how they are doing without having to catch them..."

The next part of my research is set at Mt Rothwell, where I will be testing different types of bait to attract EBBs. I am hoping that I will find a bait that attracts only EBBs, and not the array of small mammals that our current peanut butter bait attracts.

Rabbits Down and Out

Annette Rypalski

One of the Mt Rothwell bandicoots seen foraging *(Photo: A. Rypalski)*

It was a long dry summer at Mt Rothwell, but despite these trying times the EBB population appeared to remain stable and sightings were common. Several pairs were observed mating as early as late February/early March and many independent sub adults can now been seen racing around the place. Population monitoring is continual with camera traps deployed annually in December and spotlighting occurring monthly on our 1.2 km guided night walk trail. On the 17th of May we recorded our highest EBB count ever, with 22 EBBs sighted in 2 hours. EBBs were detected by 70% of the camera traps which was around a 10% increase on the previous year.

Our rabbit control program was recently aided by a disease that killed 60-70% of the population in March. We believe it may have been calici virus. A huge effort is now underway to maintain and further reduce the rabbit population while numbers are down. Ground cover remains at a good density in spite of the dry summer, and with the drop in rabbit numbers relieving pressure on the grasslands, as well as the recent rains, this will only improve.

Return to Mainland

Rebecca Groenewegen

Rebecca Groenewegen radio tracking EBBs on French Island *(Photo: G. Coulson)*

In July 2012 nine EBBs were released onto fox free French Island, followed by another eight in August 2012. This was the first time that EBBs had ever set foot on French Island and I had been given the task to find out if the island would make a good release site. All released bandicoots carried an internal radio transmitter so I could track them and find out where they were choosing to forage and nest. Unfortunately the radio transmitter signals were only detectable over a distance of 50 meters so I had a hard time finding them in the long boggy grass. Consequently, bandicoots in the second release group were also fitted with a small transmitter attached to their tail for a couple of weeks, which made tracking them easier in that crucial first fortnight.

I found that different individuals utilised different parts of the release site. Some nested and foraged in the open grassland, whereas others concentrated their activity in grassland near the edge of dense tea tree. The animals tended not to move far and often when they changed nest site it was less than 30 meters from their previous nest.

Based on body weight data, some animals appeared to thrive on French Island, indicating that foraging conditions are suitable for EBBs. A couple of bandicoots fell victim to cat predation, and a couple more died after contracting Toxoplasmosis, a parasitic disease which is transmitted through cat faeces. Additional trapping was undertaken to collect blood samples from the surviving animals to determine whether they had come into contact with the parasite.

"This was the first time that EBBs had ever set foot on French Island…"

At the end of the trial I set many traps baited with scrumptious peanut butter balls in an attempt to recapture the remaining bandicoots, so they could be returned to Melbourne Zoo for a health check and to live out the rest of their life. After several nights of unsuccessful trapping I managed to capture one bandicoot, 'Bandit', who tested negative for Toxoplasmosis. I have now set several camera traps in the area to determine whether any other bandicoots remain at the release site. The individuals released on French Island were at least 1.5 years old, so it was expected that only a few would survive to the end of the trial, as typical longevity in the wild is 2-3 years.

Coco being released after a routine health check *(Photo: R. Groenewegen)*

Cat paw prints on Salt Mine Point Track *(Photo: R. Groenewegen)*

So how suitable is French Island as an EBB release site? That's the next step in my work. I will review in detail the fate of the animals that were released, develop a better understanding of the risks posed by Toxoplasmosis, then evaluate whether it is likely that a viable population could survive based on my results. In addition, I will be looking at the habitat use by bandicoots, how much overlap there might be with long-nosed potoroos, and whether there are any potential risks to this species or other French Island wildlife.

Because we are so excited about the pending Woodlands release, here's another article...

Primed and Ready

Richard Hill

Corporate sponsor Datacom planting themeda *(Photo: T. Scicchitano)*

The past 12 months has seen intense activity preparing Woodlands for a new release of bandicoots, the first planned there in 12 years. The last population of EBBs at Woodlands went to extinction around 2006, after supporting several hundred animals for a brief period in the early 1990's. The inability to routinely exclude foxes is seen as a key reason for the ultimate failure of this first reintroduction.

Fitted with a new floppy top to complete the modern fox exclusion fence design, we are now more confident of being able to maintain Woodlands fox-free, which will provide suitable conditions for the establishment of a new EBB population. Eradicating foxes from a 300 ha area is a big job, and it has taken us longer than we initially imagined. Our original plan was a spring 2012 release, but one, last, crafty fox beat us and the release had to be deferred. Unfortunately for Travis Scicchitano, our Conservation Volunteers project officer at Woodlands, one of the key ingredients of the fox programme is preparing fresh liver baits each week. He does this at home, which is where things get a little ugly apparently, with the stench of these livers permeating his kitchen. Travis has great powers of persuasion, and those powers are being well exercised at home at the moment!

"...we are now more confident of being able to maintain Woodlands fox-free..."

Brendan Sullivan, Parks Victoria Ranger in Charge at Woodlands, is overseeing the preparation of the site for Eastern Barred Bandicoot release. With Travis organising fence checking and fox baiting, Brendan and his staff have been busy with rabbit control works, management of overall grazing pressure by all animals, and grassland management burns. This work, plus the very good seasonal conditions for this year at Woodlands mean the site is primed for bandicoots. Last minute plans for the reintroduction include me catching eight animals each from Mt Rothwell and Hamilton, taking them to Melbourne Zoo for a health check and blood samples by Zoos Victoria vets, then out to Woodlands for an evening release. After that, Rebecca Groenewegen of the University of Melbourne will commence a 12 month monitoring programme as part of her Master's thesis.

Fingers crossed this time next year we will be reporting a very successful establishment of this third reintroduction site.

Zoos Victoria

EBB
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Further Information:

Act Wild
www.actwild.org.au/animals/bandicoot/

Conservation Volunteers
www.conservationvolunteers.com.au

Mt Rothwell
www.mtrothwell.com.au

Zoos Victoria
zoo.org.au/werribee/animals/eastern-barred-bandicoot

The Eastern Barred Bandicoot Recovery Team was founded in 1989 after a continual decline was noted in the wild population. Although extinct in the wild, reintroduced populations of bandicoots can be found in predator-free areas at Hamilton Community Parklands and Mt Rothwell. Eastern Barred Bandicoots are listed as endangered federally and the population is currently estimated to be around 500 animals.

'Warron' is the Kirrae Whurrong word for the Eastern Barred Bandicoot. This newsletter was named 'Warron' in honour of Wayne Drew after his passing in 2001. Wayne was the 'Bandicoot Ranger' for Woodlands Historic Park and a member of the Kirrae Whurrong people from the western district of Victoria.

If you would like to receive this newsletter by email send your address to amy.winnard@unimelb.edu.au