

SPECIAL POINTS OF INTEREST:

- Site updates
- Genetics
- Future Plans



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Hamilton Continues to Thrive

Amy Winnard

The Hamilton Parklands bandicoots thrived throughout 2008 and this population is now considered the largest in Victoria. Since the release of 30 bandicoots in 2007, a total of 56 wild bred bandicoots carrying 174 pouch young have been captured. Monitoring of the population

by trapping, spot-lighting and counting foraging digs has been taking place once every three months. Trapping continues to be the most reliable monitoring technique, but possums frequently interfere with the traps in the woodland areas, which severely reduces our ability to catch bandicoots there. Spot-lighting bandicoots within the reserve remains a difficult and unreliable task with only one or two bandicoots seen per spotlight session. The reason for this is the exceptional grass cover found throughout the Parklands that easily conceals bandicoots and provides them with countless hiding places. October 2008 was an exception: despite the tall dense grass cover

Gavin Lewis sighted 37 bandicoots whilst conducting his regular predator control monitoring. This indicates a significant increase in the population. Counting foraging digs has revealed that bandicoots have now spread across the entire reserve and the open grasslands ap-

pear to be the favoured foraging areas, with a preponderance of digs found there. first monitoring session when no pouch young have been observed. There was considerable rainfall throughout December 2008, which is generally thought to initiate breeding, but the lack of pouch young could be a response to the high densities in October 2008 and a reduction in food availability through competition.

Bandicoots have also begun to escape the Parklands and two have been found dead on the HIRL grounds. One is thought to have died after being hit by a car, and for this reason the Hamilton Council has now erected two bandicoot road signs on North Boundary Road.

Another bandicoot was observed alive 1 km from the reserve. Although bandicoots are able to escape the fenced reserve, no foxes have gained access since the first release in 2007. This is due to a good fence design and committed members of DSE who continuously monitor and maintain the fence, as well as Gavin Lewis who regularly patrols the Parklands for foxes.



Richard Hill processing a bandicoot.

pear to be the favoured foraging areas, with a preponderance of digs found there.

October 2008 has been the most successful trapping session to date, with 50 individuals captured in three days, compared to the usual 23 to 25. However, in January 2009 only 23 bandicoots were captured in two days and no females were carrying pouch young. This is the

Mt Rothwell; Against the Odds

Paul Mervin



"A casual spotlight will usually yield at least 20 bandicoots in no time at all."

Mt Rothwell has undergone another year of significant change, and at last, for the better. In April 2008, Mt Rothwell was officially taken over under private ownership by Nigel Sharp and another new era at the sanctuary began. Around the same time, Paul Stuart-Higgs emigrated with his family to New Zealand and management of the sanctuary was passed on to myself and the volunteers. Nigel and I now run Mt Rothwell through a new company, 'Eastview Valley Pty Ltd', and to the delight of all those who have sacrificed themselves to help keep us alive and operating these last few years, Mt Rothwell has indeed survived and a 'rebirth' of sorts has finally begun.

We have built a new shed, solar powered office, toilets, chemical shed and nurseries, purchased some extra vehicles, employed a new staff member and have installed a new solar powered electric fence system. We are up and running in our new facilities and are a 100% 'off the grid' operation.

The wildlife at Mt Rothwell continues to thrive against the odds and thankfully the Eastern Barred Bandicoot is no exception. Visual sighting by spotlight

remains the strongest indicator of condition and distribution. There are a few key areas where sightings are consistent and densities clearly the highest but throughout the year they are spotted in almost every corner of the property. A casual spotlight will usually yield at least 20 Eastern Barred Bandicoot's in no time at all.

The absence of ground cover is obviously helpful but it still seems clear from spotlighting that Eastern Barred Bandicoot's are most prevalent in the woodland of Zone 1. The high volume of fallen timbers and leaf litter here is maintaining a vibrant insect community, despite the lack of rain. Females with one or two young at foot is a common sight and as of Jan 2009 all Eastern Barred Bandicoot's sighted or caught appear healthy, have excellent body condition and do not appear to be under any duress, despite the less than favourable habitat conditions and high numbers of other species present.

The fall in population size of Southern Brown Bandicoots is also highly likely to be a contributing factor to the success of the Eastern Barred Bandicoot at Mt Rothwell. We will continue to monitor that trend carefully. So far it appears that the Eastern Barred Bandicoot is more

suited to this habitat and these harsh conditions but the drop in Southern Brown Bandicoot numbers in the last few years may be a permanent 'stabilisation' of the species or merely a mid point in a 'swinging back and forth' pattern with Eastern Barred Bandicoot's. As part of our management plan we intend to actively remove Southern Brown Bandicoots to keep numbers low and limit the chances of impacting on Eastern Barred Bandicoot's.

Monitoring Eastern Barred Bandicoot's by trapping this year has again yielded poor results due to the high presence of other species caught and simply not enough traps to effectively cover the 420 ha property. We have now installed a permanent 140 point grid across the entire property using star pickets, a GPS and a tagging system. The grid can be used in a number of ways such as photo-point monitoring of habitats, setting of trail cams, running spotlighting transects, etc but most importantly to develop localised trapping events for Eastern Barred Bandicoot's that will hopefully provide some more useful and consistent data.

A Mammal Management Plan for Mt Rothwell was

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Paul Mervin after the annual bandicoot trapping at Mt Rothwell

completed in Dec 2008, bringing its own challenges for the year ahead that we are hopeful will secure this habitat and our endangered species into the long term future. We have reluctantly decided to remove Red Bellied Pademelons and Red Necked Wallabies from the reserve in an attempt to speed up the recovery of the habitat and improve our carrying capacity for Eastern Barred Bandicoot's.

Another important step we have taken is to install 150 mm

holes, 10 m apart along our internal fence that separates the Zone I woodland from the granitic 'Rocky Rises'. This has allowed for the dispersal of Eastern Barred Bandicoot's around and over the granitic hills, beyond to the basalt grasslands, and the management of the species as a single population.

Mt Rothwell offers a model for conservation that has at times been challenging but essentially is working. The Eastern Barred Bandicoot is evidence of that.

We are confident we can continue to play an important role in the recovery of this species and in the recovery of other endangered species. Nigel, myself, our staff and volunteers are all working diligently to make it happen and we look forward to a bright and wildlife rich future.



Mooramong Hanging On

David Coutts and Jim O'Brien

The Mooramong bandicoot population is hanging on, despite the adverse weather conditions we have been experiencing, and the ever present pressure from fox and cat predation. Only six bandicoots, of which two were cleanskins, were caught in two monitoring events during 2008. These bandicoots are restricted to the Homestead garden and surrounding parkland. The reason for this continued decline is largely unclear but contributing factors could include the unrelenting dry conditions at Mooramong and the change in policy regarding the use of 1080 liver baits, which is considered to have severely handicapped predator control work over the last few years.

Despite this continued decline it is worth remembering that the Mooramong population has persisted during prolonged drought, when many other bandicoot populations became extinct, and it did this in the

presence of foxes. Between 1993 and 1994, 82 bandicoots were released at Mooramong and no 'top up' releases have occurred since, making Mooramong the only reintroduction site not to have subsequent releases. However, the population did decline to low levels during 1999 but it managed to bounce back on its own. At this time the nature reserve dam dried up, and bandicoots shifted from the reserve to the Homestead gardens, where they have remained ever since.

Mooramong is planning to take part in a trial of a new fox poison 'Pap' in conjunction with the Invasive Animals CRC. The trial to commence later in the year may run for 12 weeks and will be timed to replace the traditional winter baiting program.

Plantings undertaken to augment the existing vegetation in the parkland and around the homestead are doing well. It is

hoped that islands of *Poa labillardieri* and *Themeda australis* will strengthen a habitat for the remaining bandicoots. These plantings have a number of *Acacia paradoxa* dotted within them to provide an additional impediment to predators. A number of hollow logs have also been strategically placed to provide refuge for bandicoots.

Even though the Mooramong population is currently declining, Jim O'Brien, who has been monitoring this population for the last 16 years is confident that it will bounce back as it has done before.



Graeme Coulson, Peter Courtney and Jim O'Brien bandicoot trapping at Mooramong

"...the population is currently declining ... [but] ... it will bounce back as it has done before"

Zoo News

Peter Courtney

Currently in the breeding program we have 40 effective individuals, 23 males and 17 females. The breeding pairs are at three institutions Monarto Zoological Park in South Australia, and Kyabram Fauna Park and Melbourne Zoo in Victoria. During 2008 nine bandicoots were bred, this number was low when compared with previous years due to the lack of holding space available to separate pairs and offspring after breeding. Generally the numbers held are reduced through release of bandicoots into

one of the release sites. This year due to the extremely dry spring there was no release and carrying capacity in holdings was reached. Luckily a heavy rain period occurring in early summer allowed us to release eight bandicoots at Mount Rothwell near the You Yangs. The plan is to commence breeding again to allow another release into Mt Rothwell in autumn of 2009.

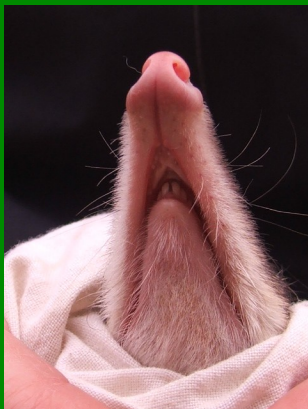
One of the concerns of working with a small population of animals is the possibility of inbreeding occurring. The Eastern Barred Bandicoot breeding

program has now been in action for nearly 20 years using a limited gene pool. Recently we have had our first indication of a possible undesired trait, in that one pair of bandicoots produced young with an undershot jaw. In captivity this trait seems to be no hindrance, but on release one animal has had its palate punctured by one of the lower teeth, leading to impaction and loss of weight. In conjunction with Melbourne University, further research into the genetics of the remaining bandicoots will go ahead to look deeper at the genetic variation found in the Victorian population.



Paul Mervin releasing a bandicoot at Mount Rothwell

“The Hamilton population appears to be showing signs of inbreeding”



Undesired trait: undershot jaw found in a handful of bandicoots

Population Genetics

Andrew Weeks

Megan Lutton completed her honours year last year at the University of Melbourne on the population genetics of Eastern Barred Bandicoots in Tasmania and Victoria. The project was a collaboration with the Tasmanian Department of Primary Industries and Water (DPI&W) and funded through the Australian Department of Environment, Water, Heritage, and Arts ‘Fox Free Tasmania’. Dean Heinze and Shannon Troy from DPI&W in Tasmania trapped 226 animals from 10 populations and sent hair samples of these to

Megan for genetic analysis. The samples from Tasmania roughly represent their current distribution within Tasmania. Megan also obtained hair samples from 34 individuals from the Hamilton Parklands population and 30 individuals from the breeding program at the Melbourne Zoo, collected between 1998 and 2001. All samples were genotyped at 7 nuclear microsatellite markers to determine genetic variability of populations for comparison.

The results indicated that there are high levels of

differentiation and limited amounts of gene flow amongst populations of bandicoots in Tasmania. Whilst most populations showed some degree of genetic isolation, despite origin within Tasmania, populations from the north had higher levels of genetic diversity and were generally more distinct from populations in the south. Interestingly, however, trapping numbers were always lower in the north than in the south. Tasmanian bandicoots are highly genetically distinct

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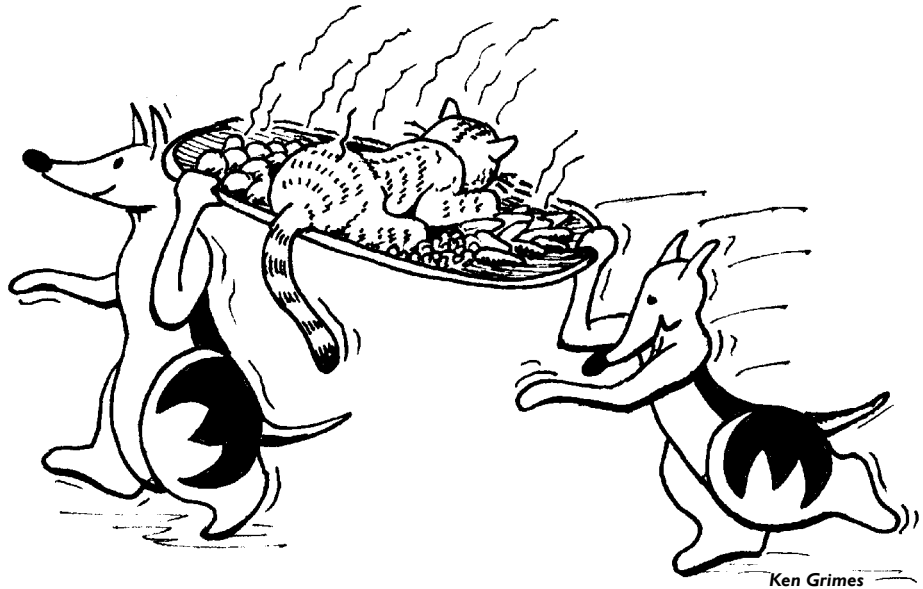
from Victorian bandicoots, likely reflecting the time of isolation from the mainland.

The Hamilton population appears to be showing signs of inbreeding, with a significant decrease in genetic diversity and increase in homozygosity when compared to the Tasmanian populations. Similarly, in comparison to samples taken from the breeding program ~10 years ago, the Hamilton population has reduced variation and increased levels of inbreeding.

The Eastern Barred Bandicoot has very limited gene flow amongst populations in Tasmania. This appears to be both historical and contemporary. Management strategies will need to be considered care-

fully to preserve the current diversity throughout Tasmania. The results from the Hamilton samples are concerning and a clearer understanding of ge-

netic diversity in the current breeding stock and at Mooramong and Mt Rothwell are needed to determine appropriate action.



The Way Ahead

Richard Hill



The current recovery plan states that the Eastern Barred Bandicoot population must increase to 1000 individuals by 2011 to secure its conservation in the short-term. Our long-term target is 2500 animals, which is the minimum number our best information tells us is necessary to secure the conservation of the species in perpetuity. This figure cannot be met by managing the

three current populations at Hamilton, Mt Rothwell and Mooramong, as we know that these three sites alone are not big enough in area. Our work over the past three years has shown that only releases into predator-free areas are likely to successfully grow into large enough populations to reach our target figure. The recovery team is currently looking into establishing other release sites. One option is to make Woodlands Historic Park predator-free. This site supported several hundred bandicoots in the early 1990's. In January 2009 members of the recovery team and Parks Victoria met to discuss how

this could happen. Currently Parks Victoria and the Recovery Team are preparing a budget for upgrading the fence and its ongoing maintenance, however, we do know that it will be very expensive and possibly take several years to implement. Other release site options currently being considered include establishing a new reserve in Dunkeld and introducing bandicoots onto a fox free island.

There is no guarantee that any of these current ideas will go ahead but the recovery team will continue to propose projects that we think will work, seek the funds and release sites necessary, to secure the long-term conservation of this species.

“...the recovery team will continue to propose projects that we think will work, seek the funds and release sites necessary, to secure the long-term conservation of this species.”



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The Eastern Barred Bandicoot Recovery Team was founded in 1989 after a continual decline was noted in the wild population. Bandicoots have since been reintroduced into eight sites but are now only known to be present at Hamilton Community Parklands, Mooramong and Mount Rothwell. Eastern Barred Bandicoots are considered critically endangered in Victoria and the population is estimated to be around 200 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.

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