Central Queensland Koala Volunteers

SUMMER EDITION 2015

Hello everyone

With this, our last newsletter for 2015, we wish you all a Merry Christmas. It has been a busy year for koala research activities. We have had three interns working with us this year, Jenny and Fanny from France and Kristina from Denmark.

Fanny, Jenny and Kristina on St Bees Island during the July 2015 koala audit (Photo: Alistair Melzer)

With them we have been working on koala behaviour on St Bees Island, and at Bill Ellis's site at Mt Byron, near Esk in South east Queensland. We also visited the Cape Otway site in southern Victoria following the sad fate of that population (see article in the newsletter). The annual koala census on St Bees Island was completed in July, and results suggested that koala numbers have remained low. However, a quick check of the koala population near Nebo indicates that a healthy koala population exists there. At the desk, we have completed the habitat mapping for the central Queensland shires. This work will be publically available in the new year. The results suggest that there has been a nearly 90% loss of potential koala habitat since clearing commenced. Not surprising really, as we have developed an extensive grazing and agricultural landscape. However, now there are opportunities to rebuild the koala landscape. We have joined a community coalition to re-establish koala populations in the remnant koala habitat across the region. Although it is early days yet, and there are many bureaucratic hurdles to overcome, there is great potential for the future. We look forward to progress in 2016.

The CQKV also joined with CQUniveristy and Queensland Parks and Wildlife Service in establishing a research work base at Beverly Bay on St Bees Island. Earthwatch has partnered with the university to fit out this facility and to support research teams over the next three years. We had the first field trip in November this year. However, the field program really kicks off in 2016 with trips in May, July and October.

However, we are also intending to keep in touch with our other sites near Tambo and at Hughenden. There is also a possibility of a visit to the Monto district too. We did not get the time to visit these in 2015. It looks like another busy year in 2016 and we look forward to it.

There will be volunteer opportunities on some of these trips, so please stay in touch. Finally, thank you to everyone who has helped us over the year.

We hope everyone has a great time over Christmas and we look forward to working together again in the New Year.

Alistair Melzer

Cape Otway koalas choose to starve rather than to seek new food supplies

The koala population we have been studying in southern Victoria, around Bimbi Caravan Park at Cape Otway, has collapsed as the available food resources have been exhausted. We have been following this population since September 2011.

Mixed eucalypt forest in the Great Otway National Park. This forest abuts the manna gum koala population. Koalas are present and at a relatively low density. (Photo: Alistair Melzer September 2013)

From 2011 to 2013 the koala population that was based on the coastal manna gum forests had grown from 10 to over 18 koalas per ha. Under this browsing pressure the health of the forest declined by more than 71%. Although the amount of foliage declined and trees died, the manna gum koalas only slightly increased their search area. Consequently, by September 2013, more than 70% of the manna gum koalas were dead due to starvation or by euthanasia due to poor condition.

We observed desperate koalas eating fallen dead leaves, ferns and grass. Even at that stage the surviving population still carried young and the males were trying to mate. This koala population was not in an isolated forest. The site was within an intact woodland and forest area that was linked to the mixed eucalypt forest of the Great Otway

Dead manna gum forest, near Cape Otway. A few koalas scrounge a living among the few relic trees. (Photo: Alistair Melzer September 2013)

National Park. This failure to move in response to significant habitat degradation may indicate that Victorian koalas will be particularly sensitive to habitat modification associated with forestry activities or clearing for agricultural or urban development. This behaviour contrasts with the ranging behaviour of Queensland koalas.
These animals have much larger home ranges and have been shown to move over quite long distances (100's metres to km's), and to forage across a range of plant community types. (From a paper by Desley Whisson, Victoria Dixon, Megan Tylor and Alistair Melzer, Failure to respond to food resource decline has catastrophic consequences for koalas in a high-density population in southern Australia; Plos One In press)

Alistair Melzer

Density and Distribution

*(From **Adam-Hosking** et al. (2015) Use of expert knowledge to elicit population trends for the koala (Phascolarctos cinereus). Density and Distribution 1-14; DOI:10.1111/ddi.12400)*

Australia's koala population estimated at between 144,000 and 605,000; declines of up to 54% expected in coming years.
Alistair Melzer
A panel of 15 koala researchers and managers (including Alistair Melzer and research partner at Cape Otway Desley Whisson) have estimated koala numbers across the koala states and provided advice on expected trends in those koala populations. The average population estimate for all of Queensland was just over 79,000 animals. Australia-wide the average was 330,000. Victoria was estimated to have the most koalas (about 182,000 koalas) while South Australia had the least with just over 33,000 animals on average. The prognosis for Australia's koalas was expected to be poor. The panel predicted declines throughout Australia. Expected increases were identified for one region of north-eastern New South Wales and southern central South Australia. It is important to note, however, that there is a lot of uncertainty around these estimates, reflecting the lack of detailed auditing of koala populations across most areas of the species' range. It is clear from this work that koala researchers across Australia do not foresee a bright future for this iconic species. Indeed, since this work was completed in 2012, severe drought in Queensland has seen the loss of most koala populations in the Mulgalands, overpopulation and habitat collapse is resulting in the loss of koalas and koala habitat in southern Victoria (see storey in this newsletter), and coalmining threatens the one population in northeastern New South Wales identified as likely to increase.

Adam-Hosking

Dieback of *Eucalyptus viminalis* in the Monaro Tableland

Dieback is a phenomenon which is characterised by the more or less severe death of trees. This has occurred and is occurring in various parts of the world as well as in Australia.

Acknowledging that this occurs in many parts of the world, doesn't diminish its severity and ecological relevance.

In fact, as we are aware, the death of a large number of trees is also the death of an ecosystem as many associated plants and animals also succumb.

So, what causes dieback, why does it occur, can it be stopped, can it be prevented?

The dieback that we are referring to, in particular, is that of the Ribbon Gum/Manna Gum (*Eucalyptus viminalis*) on the Monaro area in New South Wales. This species is also koalas' preferred fodder.

Dieback of the Monaro manna gum population has been occurring for a decade, and now more than 2000km^2 are affected and most of the trees are standing like skeletons on the landscape. Areas most severely affected are between Cooma, Berridale and Dalgety (Fig. 1).

Many theories have been suggested to explain this ecological disaster which is impacting on biodiversity in the affected area, but so far none have been confirmed as the only cause. In fact, as in other areas where dieback occurs, farming practices, the changes in understorey communities, the attack from Eucalyptus Weevil (an insect native of the Eastern Eucalyptus communities), fungal infections as well as change in fire regime, were all listed as potential causes.

However, recent research has determined that, whilst in most cases of dieback, a combination of the above or either were the determining factors, in the Monaro dieback case, the main reason is climate change which causes the strong decline in, as well as the change in pattern of, rainfall. The Millennium drought has caused strong decrease in autumn rainfall which, in turn, has limited the recovery and growth of trees.

Ribbon gums are normally found in wetter areas than the Monaro Tableland which is at the best of time under extreme temperature conditions; the decrease of rain had, therefore, extreme consequences.

Dieback of this kind seems to be unstoppable, fast and unavoidable given the severity of the phenomenon and its cause. Attempts to replant this species have failed and land management is now looking at selecting others more drought tolerant. The question is: what are the species that could replace what has been lost?

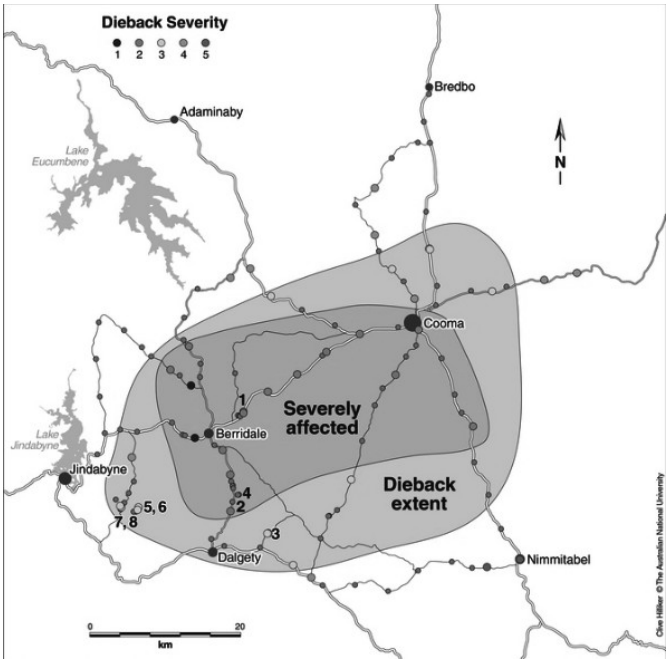

Fig 1

Ribbon Gum/Manna Gum are important trees for koalas and their death is another example of the delicate balance between the forest ecosystem and this great Australian icon.

(Above information was obtained from Brack C and Ross C. 2015. Death of a landscape. Why have thousands of trees dropped dead in NSW? https://theconversation.com/death-of-a-landscape-why-have-thousands-of-trees-dropped-dead-in-new-south-wales-48657 ; Ross C. What's Killing the Trees? An investigation of Eucalypt dieback in the Monaro region NSW http://fennerschool-associated.anu.edu.au/documents/HonoursAbstracts/AbstractCatherineRoss.pdf ; Recovery Plan for the Koala (NSW) 2008 https://www.environment.nsw.gov.au/resources/threatenedspecies/08450krp.pdf

Figure 1 was obtained from Brack C and Ross C. 2015 Death of a landscape. Why have thousands of trees dropped dead in NSW?: https://theconversation.com/death-of-a-landscape-why-have-thousands-of-trees-dropped-dead-in-new-south-wales-48657)

Flavia Santamaria

Mission

CQ Koala Volunteers seek the conservation of the koala and other tree living mammals in Central Queensland by

- *Supporting research into koalas, other arboreal mammals and their habitat through (a) providing volunteer support to research projects, and (b) assisting in the raising of funds for research and the volunteer teams;*
- *Developing public awareness of the needs of koalas, tree living mammals and their habitat requirements generally;*
- *Fostering community support for koalas and tree living mammals generally;*
- *Encouraging and assisting with the development of habitat rehabilitation projects where necessary through the region;*
- *Supporting the rehabilitation and release of sick, injured or displaced koalas and tree living mammals.*

The Central Queensland Koala Volunteers are not about stopping development. They seek to encourage planned development, which allows for the co-existence of koalas and other tree living mammals with human activity.
Funds are used to buy equipment for the researchers, to fund volunteer field teams and provide limited support for animal carers.
Donations may also be made to the Koala Research Centre of Central Queensland and are tax deductible.

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