



Mammal Mail

The Newsletter of the Tree-Kangaroo & Mammal Group

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What's Going On? Don't Miss These Upcoming Events

Thurs, June 5th: 5:30pm Committee meeting at the Malanda Hotel, followed by a presentation at **7:30PM** by Dr. Sandra Abell-Davis from James Cook University about **Efforts to conserve the Northern Bettong (*Bettongia tropica*)**

SPECIAL MEETING JUNE 26TH at the Malanda Hotel 7:30pm Dr. Lisa Dabek from Woodland Park Zoo, USA will be giving a presentation, entitled, "The Tree Kangaroo Conservation Program in Papua New Guinea: Partnerships for wildlife and people"

Thurs, July 3rd: 5:30pm Committee meeting at the Malanda Hotel; TKMG members welcome to attend.

Community Action Plan for Lumholtz's Tree-kangaroo: what does it mean for Tree-kangaroo and Mammal Group

By John Kanowski, President TKMG

TKMG has been a major supporter of the development of the *Community Action Plan for Lumholtz's Tree-kangaroo*. Development of the action plan began at a workshop in 2012 involving scientists, wildlife carers and other members of the community. Since then, a committee has taken the ideas presented in the workshop and developed a series of actions aimed at improving the conservation of Lumholtz's Tree-kangaroo. The document listing these actions is called the *Community Action Plan for Lumholtz's Tree-kangaroo*, or 'CAP' for short – a copy will soon be sent to all TKMG members.

Effective conservation of Lumholtz's Tree-kangaroo will require actions by government and local councils, by community groups and members of the public. Not surprisingly, TKMG is a potential contributor to many of the actions listed in the CAP. So many, in fact, that the TKMG committee has spent the last few months prioritizing the actions which we think are most important/relevant to TKMG. In this article, I'd like to briefly summarise the fruits of this discussion. There are five major goals listed in the CAP. The TKMG committee ranked the importance/relevance of these goals for TKMG as follows.

Goal	Importance to TKMG
Goal 1: An aware and engaged community	★★★★★
Goal 2: Adequate LTK habitat in sound condition, protected and well-connected	★★
Goal 3: Direct human-related threats are mitigated	★★★
Goal 4: Protocols based on sound knowledge and experience are applied in LTK husbandry, rehabilitation and release	★
Goal 5: Knowledge of the species is adequate to guide conservation actions	★★★

Each goal encompasses a dozen or more actions. For the major goals considered important/ relevant to TKMG (ie, goals 1, 3 and 5), some of the actions ranked as most important/ relevant by the TKMG committee were as follows (note: 'LTK' = Lumholtz's Tree-kangaroo).

Goal	Action	Importance to TKMG
Goal 1: An aware and engaged community	Adoption of LTK as the iconic species of Atherton Tablelands	★★★
	Develop and deliver educational material on LTK	★★★★
	Utilise media and social media to distribute information on LTK	★★★
	Promote adoption of LTK CAP goals in conservation and land use planning	★★★
Goal 3: Direct human-related threats are mitigated	Establish database on LTK road-kills and dog-kills, determine mortality 'hot spots'	★★
	Support research/ effective mitigation measures at mortality hot-spots	★★
Goal 5: Knowledge of the species is adequate to guide conservation actions	Better understanding of distribution/ abundance of LTK	★★
	Better understanding of LTK population dynamics	★★
	Identify and support research into key knowledge gaps	★★★

Where to from here?

The tables above show how the TKMG committee ranks the perceived importance/ relevance of CAP actions to TKMG. We invite feedback from TKMG members on our deliberations: if we've missed an action you think is particularly important, or overemphasised an action you think should be lesser priority, please let the committee know. We will consider any feedback received from members.

Our next step will be to draft an 'investment plan' against priority CAP actions: that is, what projects should we fund to implement the actions. Projects on the drawing board include a new TKMG website, development of education materials, funding for key research projects, assistance to wildlife carers, and so on. The TKMG committed will put the investment plan put to members for comment (via newsletter/ meeting), for further comment. Then, we will implement the plan, using TKMG funds – together with the skills and energy of TKMG members - to advance the conservation of Lumholtz's Tree-kangaroo.

COMMUNITY PARTICIPATION NEEDED FOR A STUDY OF BREEDING SUCCESS IN LUMHOLTZ'S TREE-KANGAROO

By Roger Martin

We are most fortunate to live in an area that harbors a wild population of tree-kangaroos. Lumholtz's Tree-kangaroo is still relatively common here on the Atherton Tablelands and, as well as contributing to the delight of living here, the chance of seeing a tree-kangaroo in the wild brings a number of visitors to the area. So, for many reasons, they are a valuable resource yet relatively little is known about the population. We do know that motor vehicles and dogs kill a number, each year but we don't know the impact this is having. If you attended the talk given at the TKMG meeting in April, you'll be aware that we (that is, Amy Shima and I) are launching a field study to address this and a range of other questions about the local tree-kangaroo population. This study will start to fill in some of the knowledge gaps about LTK that were identified in the TKMG Community Action Plan.

One major knowledge gap is the breeding success of female tree-kangaroos. While both wildlife carers and the TKMG have been keeping track of the number of deaths each year, we have little information about natality (birth rate). This is significant as the only way you can make an informed assessment of the conservation status of a population (i.e. whether numbers are stable, increasing or decreasing) is to have data on both mortality and natality.

So in our research project we intend to look very closely at natality. We plan to capture adult females (after first tranquillizing them) to assess their age and reproductive status. The age of any joeys will also be assessed (there are published data correlating the age of young tree-kangaroos with their head and hind foot lengths). Based on years of experience tranquillising and capturing tree-kangaroos, we know that this method is safe and that the animals show no residual effects from being captured. The data collected will give us information on when the majority of young are born, on the interval between successive births and on the age-specific fertility of females. This is essential information for understanding the status of the population.

One essential piece information that we won't get from a single examination of breeding females is the survival rate of their young. And this is where **YOU** come in...

We would like to involve the wider community of "dendrolagophiles" as 'citizen scientists' to contribute to this study.

There is a long period of association between female tree-kangaroos and their young. After permanently leaving the pouch at 8 - 9 months of age, a young tree-kangaroo will remain in close proximity to its mother for up to 2 years. Compared with other kangaroo species, this is a very long period of maternal association and, we assume, it is because of the complex environment that tree-kangaroos live in. In a rainforest there is a huge variety of potential food resources (some nutritious, some toxic) to choose from as well as sophisticated predators (such as pythons, dingoes) to avoid. So there is much for a young tree-kangaroo to learn and presumably the longer they spend with their mother the better their chances of survival. However, their first 6 months out of the pouch is probably a perilous time and we suspect (but don't know) that many don't survive this period. We would very much like to have data on this.

We intend to monitor some females over the longer term to collect this sort of data but our resources are limited and we will only be able to monitor a small number of animals. Our population viability models will be a lot more robust if we can get a larger data set to make better estimates of the survival of young,

particularly in their first 2 years of life. We hope to get this data by enlisting and training a larger group of observer as “citizen scientists”.

From conversations that we have had at TKMG meetings, markets and TREAT plantings, we know that many of you frequently see female tree-kangaroos on your properties. What we are proposing is that each time you see a female, you record some simple data: such as the date, the ID of the animal (more about that later), the location and, most importantly, whether she has a young. This young could be a large bulge in the female’s pouch or be a small animal at her side. We are interested in the fate of these young and the only way we can get this is if you systematically observe the animal and record your observations over an extended period of time. In most cases this will simply be a matter of confirming the identity of the female (more about that later) and noting whether she has a joey in the pouch and whether she is accompanied by any older young. We will provide you with a standard data sheet so that it will be easy to record the data and to ensure that everyone collects the same information.

With your permission, we would also like to capture these females to collect information on their general health as well as estimate their age (and the age of any accompanying young). We have all the necessary scientific permits and ethics committee clearances but we realize that not everyone will be comfortable with us doing this. We hope that you will seriously consider this request and give us the opportunity to address any concerns you might have about our procedures. The information we seek would make the data set a lot more powerful but please know that we will respect your decision.

Citizen Scientists--Identifying individual tree-kangaroos

For this to be successful it is important that each time you record data, you are confident it’s the same female. This is not easy.

One fact in our favour is female tree-kangaroos occupy discrete home ranges. In rainforests on basalt soils here on the Tablelands, this range is usually between 0.5 and 2 hectare in area. So if you see a female in the same area each time there is a good chance that it is the same female. However, it is important to confirm this and we are hoping that, with a little training (and perhaps the aid of a digital camera), people will be able to identify individual animals. Andrew Morta, a Traditional Owner and guide at the Malanda Falls Visitor Centre, is able to identify individual animals there and has agreed to help our ‘citizen scientists’ develop this ability themselves. TKMG member and professional photographer, Martin Willis, will also be helping us with this.

At this point, we are asking people to contact us (e-mail: treekangaroo.research@gmail.com or telephone: 0499-180-961) to let us know of your interest. We will shortly be organizing workshops on data recording (we’ll be providing standardized data collection sheets) and on identifying individual animals.

So, if you’re interested or if you’d like to learn more about the project, please contact us and become one of the Tree-kangaroo and Mammal Group band of ‘citizen scientists’ helping to learn more about Lumholtz’s Tree-kangaroo on the Atherton Tablelands.

Red-legged pademelon browse on bleeding heart seedlings in the “Kickstart” pasture conversion plots

By Amanda Freeman-Centre Director
The School for Field Studies, Centre for Rainforest Studies

The “Kickstart” project is a collaborative project to investigate low cost methods of converting pasture to rainforest. Spear-headed by project leaders Carla Catterall (Griffith University) and Luke Shoo (University of Queensland), the project aims to convert disused pasture to forest by using herbicides and bird attracting perches and water troughs. Three 0.64ha Kickstart pasture conversion plots have been established – two at Cloudland Nature Refuge (Dave Hudson & Robyn Land) and one at Ringtail Crossing Nature Refuge (Mark & Angela McCaffrey).

The idea is that frugivorous birds, that can disperse the seeds of rainforest plants, will be attracted to the perches and water troughs installed in the pasture sites and thus spread seed there. The plots are sprayed to control grass so that, in theory, seed germinating in the plots will not be suppressed by competition with grass. So far so good - bird drops seed; seed germinates; plant grows. Then however, as in conventional revegetation, a growing plant faces browse by herbivores. Pademelons love the succulent leaves of young bleeding heart seedlings! In November 2013, a small group of School for Field Studies students and I conducted a pilot study of red-legged pademelons (*Thylogale stigmatica*) browsing on bleeding heart (*Homalanthus novoguineensis*) seedlings in the Kickstart plots. Over the course of four nights we recorded the damage done to potted seedlings placed in the plots at different distances from the forest edge and monitored them with motion sensing cameras in order to catch any culprits on “candid camera”.

Damage was variable. Severe damage was done to seedlings placed in the Ringtail Crossing plot, while very little browsing occurred in the Cloudland plots. As predicted, red-legged pademelons were captured on camera, conspicuously munching on the plants and thereby declaring themselves responsible for the damage. Within heavily browsed plots, areas in close proximity to the forest edge appear to be particularly affected (see Figure 1).

With data made available by the project collaborators, Kayla Simpson, one of our students who hailed from the University of Cincinnati, compared our seedling browse results from potted seedlings to the number of bleeding heart seedlings that had been recorded as natural recruits in various parts of the plots. This suggested that there are indeed lower levels of bleeding heart recruitment and survival in areas with a higher degree of browsing by pademelons. In future trials, fencing will be used to exclude pademelons from sections of the Kickstart plots to experimentally disentangle the relative effects of seed supply and browsing as barriers to seedling recruitment.

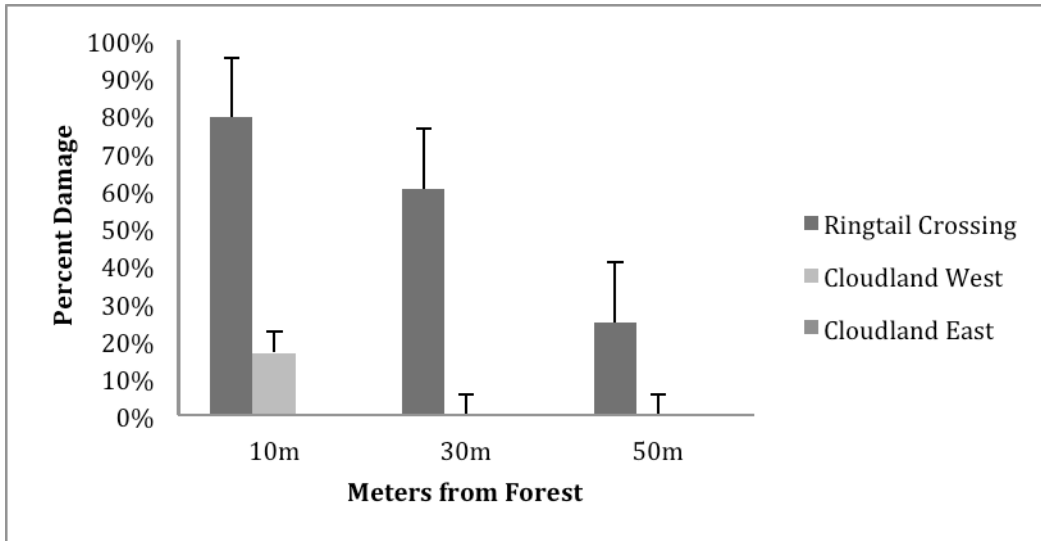


Figure 1. Percentage damage to individual potted bleeding heart (*Homalanthus novoguineensis*) seedlings (+ SE) with distance from the forest edge (n = 3 seedlings x 3 stations x 3 distances x 3 sites = 81 seedlings).

The School for Field Studies gratefully acknowledges financial support received from the Norman Wettenhall Foundation, via TKMG, for the purchase of seedlings and rechargeable batteries.

REPORTING INJURED AND DEAD TREE-KANGAROOS

By Amy Shima, DVM

It's a sad fact of life in the modern world....Animals like tree-kangaroos fall victim to cars, free-ranging pet dogs, wild dogs and diseases. By reporting injured and dead tree-kangaroos, you can help us learn from these unfortunate accidents. As part of a PhD project with James Cook University, I am investigating causes of death and a variety of questions we have about the health of our tree-kangaroos population.

I am a licensed veterinary surgeon and with over 25 years of experience in the care of treatment of wild animals. Any injured or dead tree-kangaroo that is reported to me will be evaluated, have samples collected which will help us determine health status and, if appropriate, the animal will be turned over to a licensed wildlife carer for rehabilitation and release. I am **not** trying to take animals away from carer; indeed by examining the animals I am helping fulfill the standards set forth in Code of Practice for the Care of Sick, Injured or Orphaned Protected Animals in Queensland which states that sick or injured animals should be provided with appropriate veterinary care as soon as possible. Examining an animal **before** it has entered the wildlife care network enables me to include information from these animals in the database of 'wild' tree-kangaroos. This is extremely important from the standpoint of learning about the free-living population. Once the animals enter the wildlife care network, they become part of the 'captive' population of tree-kangaroos. If carers are willing to collaborate, health information can be collected on them but it is not the same as information collected from free-living animals.

Dead animals will receive complete post-mortem examinations (think of it as a sort of "CSI-Tablelands"). The dead can make valuable contributions to how we can care for the living and can provide important information about the overall health of the free-living population.

So, if you'd like to help us learn more about tree-kangaroos, PLEASE ring me (phone: **0499-180-961** any time) to report dead or injured tree-kangaroos. I will need to know the location of the animal (cross-roads, landmarks, rural number or GPS coordinates). Your call will be answered at anytime, day or night (as long as there is mobile phone coverage) and we will go out to collect the animal as soon as possible. If you have any questions about the work I am doing, please feel free to contact me at: treakangaroo.research@gmail.com or 0499-180-961.

Don't Miss the SPECIAL MEETING of TKMG on Thursday, June 26th 7:30pm at the Malanda Hotel

Tree-kangaroo and Mammal Group is privileged to be able to host a presentation by Dr. Lisa Dabek on The Papua New Guinea Tree Kangaroo Conservation Program. The project is based at Woodland Park Zoo in Seattle, Washington, and has offices in Lae, Papua New Guinea and Cairns, Australia. Under the direction of Dr. Lisa Dabek, a National Geographic Society/Waitt Grants Program grantee, the program has been working in Papua New Guinea on Matschie's tree-kangaroo (*Dendrolagus matschiei*) since 1996. Tree Kangaroo Conservation Program works in close partnership with Conservation International and other conservation organizations and universities in Papua New Guinea and throughout the world

Papua New Guinea, particularly the Huon Peninsula, is considered a high-priority area for conservation efforts due to the significant amount of intact rain forest, high species endemism and lack of protected areas for wildlife. Destruction of the rain forest by mining, logging, and development threatens the continued existence of Papua New Guinea's unique fauna and flora, including the endangered Matschie's tree kangaroo (*Dendrolagus matschiei*), a flagship species for Papua New Guinea's people.

CALLING ALL TKMG MEMBERS WITH 'TECHNOLOGY' SKILLS

The Committee of Tree-kangaroo and Mammal Group readily admits to being somewhat 'challenged' when it comes to modern internet technology. We're looking for members who'd like to help us out by sharing their knowledge and skills in social media and internet technology. If you fit that description and would like to get more involved with TKMG, we'd love to hear from you. Please contact Amy (tkmgnewsletter@gmail.com) or Simon Burchill (sbburchill@gmail.com).

The opinions expressed in "Mammal Mail" are not necessarily those of the Tree Kangaroo and Mammal Group. Your comments on the newsletter and suggestions for future articles are always welcome. Please e-mail: tkmgnewsletter@gmail.com



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