

Plenary Session 3 on the value of protected areas for fauna conservation

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CHAIR: MIKE CALVER (Murdoch University)

PANEL: AYESHA TULLOCH (Australian National University), **ALISON CURTIN** (Office of Environment and Heritage), **LIZ TASKER** (Office of Environment and Heritage), **CHRIS DICKMAN** (University of Sydney).

MIKE CALVER (Murdoch University): Any questions?

JACQUI MARLOW (Northern Beaches Road Kill Prevention): A question to Chris Dickman. On Landline last week they were talking about cats bringing in toxoplasmosis. Have you been looking at the impacts of toxoplasmosis?

CHRIS DICKMAN: (University of Sydney). No, we haven't been looking specifically at the effects of toxoplasmosis. The most immediate, obvious effect of having cats in the environment is their selective predation on native animals. There may well be additional effects of toxoplasmosis, but we haven't looked at it.

MAT VANDERKLIFT (CSIRO): My question was for James Brazill-Boast. So, Alison, apologies in advance if this is unfair. James presented a method which is sometimes called conservation triage. It tells me two things, one is that perhaps a more honest name for the program you've got going is *Saving Some Species*, and the other is that there's an assumption that we make when we go into this sort of triage approach that we don't have enough resources. So my question is, what would it cost to fully meet the objectives and how much is it costing to partially meet the objectives of species conservation at the moment?

ALISON CURTIN: (Office of Environment and Heritage). I can answer some of that. If James was here he could give you the figure. We calculated the cost for 400 of the roughly 1000 threatened species in New South Wales for site-managed species for a 50 year period. In terms of what we're doing at the moment, and what I can report on, is that we're investing at OEH, through the waste environmental levy which is, over a three-year period, an investment of \$4.8 million on about 80 threatened species projects. That is only part of the investment because there is also a substantial in-kind contribution, particularly from National Parks and other landholders, that we haven't been able to evaluate fully.

So what we do know is how much money we have and where we're putting it, but for now, we can report on where that money is being invested and how much it is.

SUSAN RHIND (University of Wollongong): I have a question for Chris. In your research have you been able

to measure what's going on with dingoes, are they present and are you getting pulses and that sort of thing?

CHRIS DICKMAN: We have in fact been keeping a reasonable record of dingo activity and in the last three to four years we got a very good record using remote cameras. The picture seems to be that during bust periods, dingoes are able to effectively suppress the activity of foxes and they also manage to maintain a suppressive effect on cats during boom periods, but not on foxes. So top-down control on the foxes seems to weaken during boom periods, but the suppressive effects are maintained on cats. We don't know what the effects of having large numbers of dingoes would be because dingoes are baited. They're taken out on the surrounding properties, not on the conservation reserve on which we work, but on the surrounding properties. It's quite possible the strong top-down effects that we see during a bust, and on cats during boom periods, would be strengthened if there were more dingoes around.

ADELE HAYTHORNTHWAITE: (University of Sydney). I have a question for Liz Tasker. I enjoyed your talk, Liz. It's fascinating hearing about the fire ecology of the Blue Mountains. Now, this is an area that also had quite a substantial human population that demands protection from wildfires moving through and there's very strong pressure for regular hazard-reduction burns in those areas. I'd just like to have a comment from you about how that impacts on the management of the park being able to manage for your pyro-diversity for the benefit of biodiversity while balancing the need for protection from fires for the human population.

LIZ TASKER: (Office of Environment and Heritage). The National Parks and Wildlife Service does it by having different zones in the landscape that it burns for different objectives and at different frequencies. Around human settlements there are asset protection zones. They are burnt more frequently to reduce the hazard. They are a very small part of the landscape; about half a percent of the landscape, and they're located immediately adjacent to assets and they are very visible near settlements. But 95% of the park is zoned as a land management zone, and it's managed for biodiversity - the fire regimes are managed for biodiversity.

DAVID PRIDDEL: (recently retired). A question for Liz. Your strong conclusion was that to get good pyro-diversity you need large areas. I presume they're large contiguous areas, but it occurred to me that in that area you had a great deal of variability. Can you not get a large pyro-diversity or high pyro-diversity in a large number of separated isolating reserves?

LIZ TASKER: You do, but the problem is that you don't have the ability for populations to move around and recolonise. So you have a complete disconnect in the functioning of the biota. You can have diversity in pyro-diversity, but it's disconnected from the biodiversity because when you have a network of isolated areas, some of them will have no fire or very little fire, and they need fire but there's no source of fire. For example, when you have forest patches in an agricultural landscape, they tend not to be burnt. Lots of patches in the urban environment, for example a forest in an open environment where they're well embedded in the open environment, won't get the fire that the plants need.

Conversely, lots of areas adjacent to human settlement get burnt often because of arson and so on, but when patches are isolated, the flora and fauna have nowhere from which to recolonise and there are many examples of isolated patches where species have gone extinct because they can't recolonise after the fire. Subjected to the same fire regime in a landscape that's vegetated, the species will come back, but when the patch is isolated, they have nowhere to come back from. The noisy scrub-bird in Western Australia is a classic example where entire reserves were burnt and the birds were wiped out because they had nowhere to return from. So, yes, you still have biodiversity, but it's no longer coupled to the ability of the biodiversity to respond. Does that answer your question?

DAVID PRIDDEL: I completely agree with that, but it's not what you said. You said that the pyro-diversity was high in big areas and maybe you need to sort of re-address that, but I agree with you conservation-wise.

DEBBIE ANDREW: Chris, do you think it's feasible to control foxes and cats in your arid landscape without impacting on dingoes?

CHRIS DICKMAN: I think it's probably possible to manage the impacts of foxes without the presence of dingoes. I don't see anything we can do about cats. I don't think there's anything really on the horizon that will allow us to control cats and their impacts on a broad scale. There are certainly some possibilities on the horizon. There are the cat baits, Curiosity cat baits. There are the Assassin traps. There are all sorts of things that are being trialled. I think that, broad-scale, the only thing we've got in our favour is the dingoes as a biodiversity regulator. If there are ways of working through the problems of having dingoes in the landscape, such as by using guardian dogs on properties, then I think we probably can have our cake and eat it too. Some hazards that I was talking about of the influx of predators, foxes and cats, into these environments after boom times wouldn't be anywhere near as hazardous or as damaging if dingoes were there to reduce their impacts.

TANYA LEARY: (Office of Environment and Heritage). Liz, I'm very interested in fire intensity in the patches.

Is this being captured in National Parks' current fire management plan? Because I only see it as a succession of fires that they're putting in their models to work out the fire management plans. For years, something that has been really obvious to me is that some of our parks are getting intensely burnt repeatedly and it's not on a schedule for a hazard-reduction burn or an ecological burn because they fall inside that time interval.

LIZ TASKER: No, it's not currently in fire management planning and that's getting integrated into management planning. For managers to be able to manage, they need to have maps and guidelines for what to do with information on when it matters and when it doesn't. So when people talk about species being fire-sensitive, it's correct to talk about what component of the fire regime they are sensitive to.

Lots of species are fire-frequency sensitive, and that's well documented. Other species are fire-severity sensitive, probably many more than you realise at the moment because it's much less known. At the moment, apart from in the Blue Mountains World Heritage Area where we are working, fire severity is yet to be in management guidelines or management planning anywhere else in national parks.

TANYA LEARY: But I'm not sure they're actually capturing anyway that data in any of our other parks.

LIZ TASKER: That's right, so one of the products - products is not really the right word - will be guidelines for how maps vary and when you need to do it, and why you wouldn't, because everything costs money. It's not particularly cheap to do because you need remote-sensing imagery and it's important to justify the cost. But we are coming out with guidelines for when to map severity, when you need to, and what you do with it.

And I just wanted to add one thing to my response to Dave Priddel's question. In terms of pyro-diversity, in fragmented landscapes you retain some components but you lose other components. You might have areas that have very low fire frequency and areas that have very high frequency. You'll keep that diversity frequency, but in fragments you lose the variability in other components. For example, severity, small patches pretty much never get burnt in high-intensity fires because you don't have the momentum, you don't have the fuel loads. So, yes, you get some of the pyro-diversity, but you don't get all aspects of it in a fragmented landscape.

CHRIS SLADE: (Forestry Corporation). A question to Chris Dickman about the baiting and the perceived need for it. Presumably that's mostly cattle grazing. I've done some work around sheep where there's a real need. What are your comments on the need for baiting for dingoes in that part of the world?

CHRIS DICKMAN: I haven't seen a lot of evidence that dingoes take lots of cattle. Probably the thing that really does take more cattle than anything else are the droughts. During the dry times you see cattle of all shapes and sizes wandering around looking like just bags of bones. It may well be that dingoes take some animals while in that condition, but I'm not convinced they do take very many while they're in better shape. One of the traditional ways of getting an idea of the impacts of dingoes on cattle is to round up the stock every so often, every couple of years perhaps, to get an idea of how many females are pregnant and then estimate the number of youngsters you might count at the next round-up, and anything less than that is due to dingo damage. It's clearly an imprecise measure of what the dingoes might be doing. It doesn't look at any other aspects of management, and I think it's something that really does need to be looked at much more closely.

MARTIN DENNY (Biological Monitoring Services): Back in the 70s and 80s in western Queensland 1080 baits were being given out. Several of the cattle properties would bury the baits and get rid of them. The philosophy used was that when times get bad it's better for the dingoes to take the calves so that the females survive into the next generation, and so by the time we'd even get the figures from 1080 they're not actually true at all.

DAN LUNNEY (Royal Zoological Society of NSW): A question for Ayesha. You had some little pink spots on the eastern part of the map in northern New South Wales and southeast Queensland. What are they, and what animals are there, what areas are they in, and what are we doing

about it, because they're likely to be lost?

AYESHA TULLOCH: (Australian National University). The pink spots in north-western Queensland, yes, and south-western Queensland, were the areas on private property generally. The reason they came out in terms of the most cost-effective areas to put some level of protection in the landscape is because they provide the best complementary set of species to the area that is already conserved. So there were areas that were not necessarily giving you the same species that are already protected in other areas. They're covering some of the species that are currently under-protected. So we set targets for those species.

We wanted to ensure that 17% of every species range was covered in some kind of protection and we set a target for protection. For those areas, no matter what objective we had, whether it was, "Let's conserve the distribution of a species," or, "Let's conserve the parts that, over all time, on average provide the best habitat for their species." No matter what objective we set, these are the most cost-effective areas because there's generally poorer agricultural profitability. It's not as expensive to buy them back and they're providing the best complementarity in terms of what we have already protected for those nomadic species.

MIKE CALVER: It's time to adjourn now for afternoon tea. Would you please join me in thanking the panelists.

PLENARY 3 CONCLUDED

PHOTOGRAPHS



James Brazill-Boast
(all photos by Dan Lunney)

James Brazill-Boast



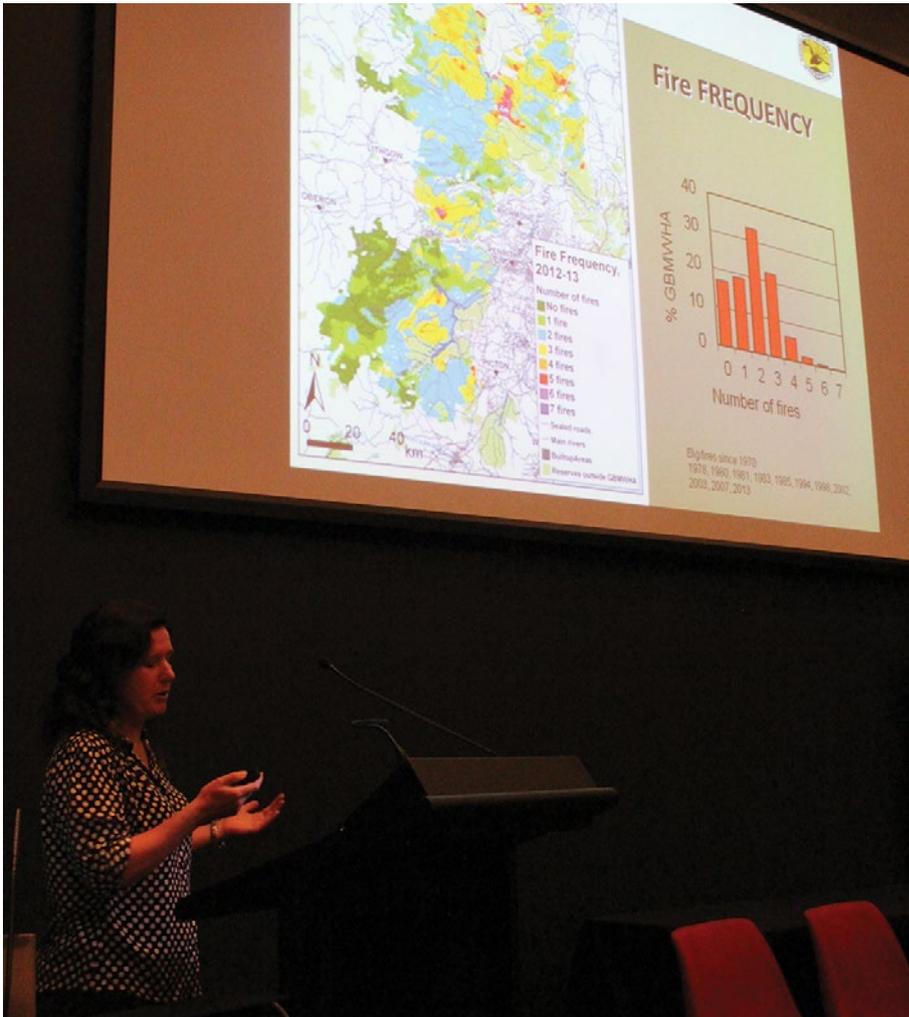
Ayesha Tulloch



Liz Tasker



Liz Tasker



Chris Dickman



Chris Dickman



Plenary 3



Panel (left to right) Liz Tasker, Chris Dickman, Ayesha Tulloch and Alison Curtin



Panel. (Mike Calver as Chair)



Audience.