

# Plenary I

## Wildlife and climate change: Towards robust conservation strategies for Australian fauna Saturday, 23 October 2010

**PETER BANKS:** (President of the Royal Zoological Society of NSW). For the plenary session, I'd like to hand over to two people who will facilitate the discussion. They are Daniel Keogh, from the ABC Science Show and Hungry Beast, who's kindly agreed to come and help facilitate, and Chris Dickman, council member of the RZS. You are welcome to ask questions of any of the speakers who've spoken so far. Dan Lunney, Shelley Burgin and Pat Hutchings will be running up and down the stairs with microphones. If you do have a comment, could you please make sure that you say your name, and perhaps your affiliation as well, because the session is being recorded.

**CHRIS DICKMAN:** (University of Sydney and council member of the RZS NSW). Good morning, everyone, and welcome to the first of the plenary sessions. Thank you also to the first three speakers. This is really your chance to have your say in response to some of the themes that were brought up, and in particular regarding the theme of today's meeting about conservation and how we can help, and do we really need to help.

**JOHN LEMON:** (Department of Environment and Climate Change and Water NSW). I'd like to address a question to Lesley Hughes. Having some experience in eco-management and environmental planning, you are looking at a lead time of between at least 10 and 20 years to get any meaningful structure in revegetation of native species and recolonisation of the grass and understorey species. Is there a way that we can stress the urgency to address this issue, because it does take a long time to actually produce fruitful environmental results?

**LESLEY HUGHES:** (Macquarie University). Thanks. I wish I knew the answer to that question. I think there are some things that we can do, and the most obvious one is to stop stuffing up the environment any further. So no more land clearing, for example, it is a simple but seemingly impossible target. I think there are certain proactive things that we can get going now, indeed we should have done them 20 years ago. My hot topic is to identify important tree species that provide structural habitat for a lot of things, identify those that are going to go locally extinct where they are now, and start moving them around the country, and then start moving animal species as well. That is a really, really controversial and highly unpopular suggestion in many quarters.

For many species, I think the alternative is to just monitor them until extinction. So I do agree with you, the time scale for setting up really effective conservation programs is uncomfortably long. I think most land management agencies at least do have climate change policies now which, five or ten years ago, they certainly didn't. But I do think there are certain key species that we could be focussing on, and certain key vegetation types, and actually start moving them around. But there will be lots of people in the audience that don't agree with me, I'm sure.

**REBECCA SPINDLER:** (Taronga Conservation Society Australia). My question also touches on one of Lesley's last points, but I'm open to an answer from anyone. The slide of yours that scared me the most was how much insects are moving. Of course, insects are vectors for many diseases. I was just wondering whether this was actually receiving enough research attention, or in fact any research attention, from any of the government bodies.

**LESLEY HUGHES:** The short answer is nothing receives enough research attention for our liking. There's been, I think, very, very little. There is a little bit going on in the agricultural sector about pest species. There's also some going on in the marine sector about diseases; QX disease in oysters, for example. I was just talking to Alex Campbell here this morning. She's working on diseases of seaweeds. But really very little, and in fact Lynda Chambers and I were chatting before this talk this morning. We were lamenting the fact that, when we give talks generally about impacts, in longer talks than we've been giving today, we both tend to show the same one example from the Netherlands, which is the best example we have of climate change affecting a tri-trophic interaction. We both were lamenting the fact that there are very few examples to show in talks relevant to Australia.

So, yes, I think there is a lot of research to be done. But to raise your first point, when you said it was alarming to see insects moving around, of course, from the point of view of the conservation of insects, it's a great thing to be seeing insects moving around. It really illustrates the point that, in everything we are going to see, there will be winners and losers. For every winner there will be an equal number of losers. So, in a sense, it depends on your perspective as to how alarming or otherwise you see those sorts of figures.

**DANIEL KEOGH:** One of the points that was raised was the issue of whether we just monitor until the point where there's no point in monitoring any more.

**KERRY PARRY-JONES:** (University of Sydney). I get a bit worried about people considering more research to find out what we know is happening. It is always good to have research, but we really need political action. I must admit I don't know how to exert this. But I think an organisation like the RZS might contemplate being a bit more active in the lobbying field or - I don't know, something needs to be done, and I think monitoring a species to extinction gives a lot of good data, but it's not going to do much to help.

**DANIEL KEOGH:** Is anyone opposed to taking any action?

**CLIVE McALPINE:** I'm not opposed to it, but I think it's really important that we start anticipating these risks now, rather than become victims of them because things are changing and, at the moment we're concerned about land use and resources and food security, which is important for us and for our future. But, our ecosystems are also going to have an impact. So I think we need a national strategy of

that integrates the vegetation, the biodiversity, the water, rather than look at all these issues separately. I've been speaking to Richard Hobbs in Western Australia, where he's been involved in large scale restoration, which I think is a really important strategy for climate change for a number of reasons. But he's finding now that the drought is limiting their capacity to actually get vegetation in the ground and get it established.

In eastern Australia we've got an opportunity to, with a good season, to start investing in large-scale vegetation restoration, and get that vegetation established. And, as Lesley Hughes said, maybe it means shifting tree species out of their current climate range into new areas, and try and anticipate where a species is going to be in the future. But I think revegetation is already critical, because we're heavily over-cleared and, from our research, that over-clearing it actually accentuates some of the feedbacks on the climate. It is going to make the climate and the extremes worse.

So, we really need a strong policy that has a bit of vision about what the Australian landscape is going to be like under a future climate. To restore areas that are going to conserve biodiversity means moving away from small fragmental landscapes, and putting back large blocks of vegetation into the landscape, which actually can help to buffer some of these extremes.

**PAT HUTCHINGS:** As a member of the RZS council, I'd like to take up a point that was made about whether the RZS should become a lobbying organisation. I think if we were going to do that we would have to certainly change perhaps the composition of our council, because I think in order to get information out there to the media, we need to get some people who are really good at doing that, rather than perhaps the scientific people on the current council. Perhaps it is something that we should be considering in the future.

**HARRY RECHER:** (Retired). I'd like to leapfrog this debate. It's not impossible that it is already too late to save biodiversity on this continent. In fact, my opinion is it is way too late and, maybe instead of thinking about saving biodiversity, we should really focus on what is really critical for survival of life on the planet, and that is conserving functional ecosystems. If you're going to start shifting biodiversity around, stop thinking just in terms of shifting Australian organisms around the Australian continent, and start thinking about creating functional ecosystems by bringing in species from other continents in order to maintain functionality. That may be essential for long-term survival of life on the planet, given the way the human species is going.

**DANIEL KEOGH:** Rely on Harry to stir up the room. Anyone want to respond to that?

**KAREN NIPPARD:** (Pittwater Council). I think that's already happening. We don't actually have to do that; there's plenty of species invading now of their own accord, and that's probably the problem. It's really important not to look at things too simplistically. We need to act, but we also continue to need to monitor and look at a complex system, because a lot of the problems are, when you take out key species and you ignore the symbiotic relationships,

that interaction when one species changes, what happens up or down the chain. I think it's really important not to be simplistic about a response to this and yet at the same time have a very proactive response. I think we need to approach this on a two-pronged fork - we need to look at the complexity and also look maybe locally and regionally what we can do on those areas, along with large-scale responses.

**BOB MAKINSON:** (Australian Network for Plant Conservation). Clive McAlpine mentioned the opportunity that's presented by the breaking of the current drought or the recent drought, at least in eastern Australian, to seize an opportunity for broad-scale restoration, or at least revegetation. There's two obstacles to that, as I see it, and they're not ones that can be overcome. One is the fact that, for agriculture, a return to more measured conditions means a return to business as usual. We have not implemented, and we are in no way in striking distance of implementing, meaningful land use zoning regulation in Australia, and without that we cannot respond to opportunity, we cannot respond to oncoming drought either.

The second factor - and there's recent work from Kingsley Dixon and others at Kings Park in WA that elucidates this - is we simply don't have the tonnages of seed that we need for meaningful restoration or even revegetation across the acreages that would be required. We have not invested in seed orcharding or seed production areas to anything like the extent that we would need.

**CONNIE HARRIS:** (councillor at Warringah Council). I want to say something in regards to restoration of habitat on a large scale. The thing which I think was very good was the campaign by the National Parks Association about travelling stock routes. So on one side we have our core ecosystems, the big areas, and then the connection between them, that that has been kept by the travelling stock routes. The one point I find very sad is that these travelling stock routes are acknowledged to be inland, but here on the coast, where we have a lot of species migrating, there does not seem to be this system of connectivity by our stock routes. I think that is one point which needs to be approached.

**CLIVE McALPINE:** (University of Queensland). In response to the question about agriculture and their immediate concerns of economic recovery, I think, in Australia, we need to put a higher value on the vegetation. Farmers need to get money for vegetation, and for restoring vegetation. In the case of seed banks, I agree that they are a critical issue. In Queensland, we have something like 6 million hectares of regrowth which is sitting there, which could be restored through passive regeneration without being continually cleared, because it hasn't got enough protection under vegetation management policy. That's the case in northern New South Wales as well.

So I think there is still opportunity to act on the vegetation issue and not leave it too late. The governments now are starting to put financial incentives to people to keep vegetation. But that needs to be scaled down a lot more, and I think the other point is getting carbon credits for vegetation. That's a big opportunity, and that could be a big income-earner for farmers in the future.

In terms of Harry's point, I agree with point from participant from Pittwater council. I don't think we need more exotic species in Australia. I think we've got too many exotic species now, and that they're likely to bring in unknown problems we can't deal with.

**ANDREW GREGG:** (I'm a long-term member of the society). What seems to be a big threat is the increasing acidification of the oceans. I'm wondering how big a threat this is and, of course, if it does occur, what steps we might have to take to conserve all sorts of marine species.

**LESLEY HUGHES:** The short answer is we can't do anything really in an adaptation sense; that's where the only thing we can do about ocean acidification is to reduce the amount of CO<sub>2</sub> going into the oceans, and that's a mitigation problem. I don't think there's actually anything from a management point of view we can directly do other than reduce the other threats and maintain and expand the marine protected area system to reduce threats from overharvesting and other sorts of degradation. I actually think ocean acidification is just really, really hard.

**DANIEL KEOGH:** Doesn't it fill you with hope?

**JANET HARWOOD:** (I'm an RZS member). I think the role of the public media is very vital as a public broadcaster. As we see in the Murray-Darling debate, society seems to be divided into the serious scientist who knows the answers, the activists on the other side who are dedicated to fighting for particular areas to protect them, and the large mob at the back. And the role of the media is vital in bringing the two energies together, the scientist and the activist, and then - because each supports the other, or should - informing the vast majority, because legislation, as I see it, is being undermined, and the public needs to be far more aware of the problems.

**DANIEL KEOGH:** And, you know, public opinion as well is a big driver of that, but then you get these sorts of occasions, like this week's Q&A, where it just deteriorates into who can shout the loudest and interrupt the most. I guess the media's role as well is a big one, and it was one that was touched on at the beginning, and that was that basically your voices aren't being heard in this argument. You know, there isn't really much of an issue; it's always about land use and water, and they're the big societal impacts. But where does biodiversity fit in in that argument, and what argument does the public really need to hear from that? Does biodiversity matter to them? I think that would people agree that that's not a message that's getting through at all?

**UNIDENTIFIED SPEAKER:** It wasn't mentioned in the election--

**DANIEL KEOGH:** It definitely wasn't mentioned in the election, except for the Green team. Any responses to kind of strategy that needs to be taken to get that message across?

**FRED FORD:** (the National Wildlife Collection in Canberra). I'm a bit scared that people think that scientists know the answers, which was the start of that last comment.

**DANIEL KEOGH:** You don't?

**FRED FORD:** I know an answer to some things. I'm a bit surprised that some of the discussion so far in regards to habitat restoration. It is the Zoological Society, and we've been talking about plants. Really, the fundamental baseline we're starting with in Australia is that we have actually quite large reserved areas in a lot of places with an almost ideal target of what you want the habitat restored to, but the animals aren't in those areas.

So when you look at restoring areas to try and meet your vegetation targets, you might not actually be achieving anything in regards to conserving the wider biodiversity, until you start addressing the baseline, that is, we need to get animals back into the existing ecosystems as well. Otherwise they are not ecosystems that are functioning as we would want, and they are going to keep deteriorating because the ecosystem processes, that are vital for maintaining those vegetation communities in the long term, are missing.

David Freudenberger, at a talk he gave recently in Canberra at a forum we had on ecosystem restoration, spoke about the really appallingly low rates of success planting out 100 species over the vast areas in Gondwana Link, getting maybe five that survive. One of the reasons is that a lot of vegetation restoration programs don't do nearly as well as we would want is because the animals, that are necessary for successful inoculation of those root stocks and other things, are not in the system. We have to start thinking much more broadly. It is something that was touched on a couple of times today. It is politically very hard to move animals; it is politically very easy to move plants and do very big plantings. We're not going to succeed unless we start really addressing that gap.

**DANIEL KEOGH:** Thank you for that. There were some great points well raised.

**TONY SAUNDERS:** I have a question for Harry. I'm trying to come to terms with what you were suggesting as a part solution. Could you provide us with an example of an organism that might be appropriate for the strategy that you're talking about and explain how that might work, please.

**HARRY RECHER:** Well, we don't have to look very far. There are lots of examples of organisms in Australia that have returned functionality to ecosystems, and one of my favourite ones is camphor laurel [an evergreen tree native to China and Japan]. It proliferated on abandoned dairy farms and banana plantations in north-eastern New South Wales, and reached flowering and fruiting size. Three species of rainforest pigeons that Harry Frith had written off in the 1950s as virtually extinct recovered because camphor laurel provides the food resource for these birds, white-headed pigeons, top-knot pigeons, during the three months of the year where they had very little food, thanks to previous land clearing which removed the native species of trees from that same family.

The other food source that they had used in between was being at that time cleared abundantly on the north coast of New South Wales to make space for oxygen thieves to

migrate from Sydney on retirement to live along the coast, the palm forests. I listen to this debate about restoring natural ecosystems. I just drove through the northern wheat belt of Western Australia, an area I'd never been in before, but I was impressed by the extent of trees that had been planted, often in quite large blocks, as part of the program in Western Australia to try and reduce issues of dry land salinity. It is obvious these trees had grown very well because they were quite large.

It's just unfortunate that, as I drove past a month ago, they were all dead because, perhaps, they had reached the water table where the salinity had killed them, as many people had predicted would happen; it just took 20 years to get there. Perhaps it was the cumulative effects of drought. You talk about large-scale restoration of habitats; you haven't got a chance of doing it. It's not going to happen because we don't have a political or social system that allows us to conserve biodiversity. What I'd like to hear are the people who are saying, "We need to save biodiversity, we need to move species around" - how are you going to change community attitudes? We're sitting here, we have already missed the single most important factor that needs to be changed. We need to control our own avarice.

We eat too much, we breed too much, we consume too much of everything, and until we stop doing that, we're going to have climate change, we're going to continue to lose biodiversity on a global scale. It maybe essential for survival of life on this planet just to take the species that can survive with us, the camphor laurels, the sulphur-crested cockatoos, and be content with them, and look for something that will actually maintain ecosystem services at a level where other species, besides ourselves, can survive on the planet.

**DANIEL KEOGH:** Thanks, Harry. I'm glad you finished on a bit of a challenge and a question, because there was a point there where it was like, "You can all just go home, we're done."

**UNIDENTIFIED SPEAKER:** You might as well, sometimes.

**DANIEL KEOGH:** Is it futile? Well, we've got one from the back.

**MIKE ARCHER:** After listening to Harry Recher, I think I'm just going to retire now too. I think it's all over.

**DANIEL KEOGH:** Remember, you're stealing oxygen is what he's saying, essentially.

**MIKE ARCHER:** I'm delighted to hear Harry with some positive tones there. He's long been warning that the world is coming to an end. But the reality is one of the suggestions that he made I think is extremely good, about geo-engineering completely new ecosystems. Hopefully it doesn't have to happen in Australia involving non-Australian species.

But you look at what happened in, for example, Reunion Island, which sailors originally saw in the southern Indian Ocean was just a big, barren giant rock. Every sailor who came through from every continent dumped plants on that rock on the assumption they'd be able to come

back and eat some of them if they ever went past that area again. Now it's a colossal ecosystem of plants that never coevolved, from top to bottom. It's a spectacular place, with thousands of species in an environment that they didn't exist in before. So I think flexing up our ideas about what might be possible in terms of maintaining biodiversity by creating new ecosystems is definitely something we should be thinking about. But please, not in Australia.

**HARRY RECHER:** We're already creating new ecosystems in Australia, we're already using exotic species. We import a vast number of agricultural plants and cultivars into Australia every year and propagate them, and for those of you that want to really be depressed, I was just reading that the guava rust has now arrived in south-west Western Australia and is potentially threatening all species of native plants in the family Myrtaceae. These things are happening whether we like it or not, and we really should be looking at leap-frogging, as I said initially.

**CLIVE McALPINE:** I live in Brisbane, and there is a camphor laurel forest where we go walking. There is also a patch of dry land of sort of rainforest scrub next to that, which has large *Eucalyptus tereticornis* [forest red gum]. So, I agree. I'm very familiar with northern New South Wales. Camphor laurel can provide important resources for frugivores, but there is a lot of other birds and reptiles that don't get resources out of them. *Eucalyptus tereticornis* is a major source of nectar. If that resource goes, then all the nectarivores go with it. Also, this consumption issue is a global issue. We need to get off an economy that is driven by consumption and growth and get down to something that is sustainable, and that means major changes in lifestyle and consumption patterns.

**TEGAN BURTON:** (I'm a ranger with National Parks). I want to go back to the point made a little while ago about moving wildlife around, and our current protected area system. I'm not sure that animals aren't in our protected areas. I look after a 15,000 hectare park on the outskirts of Sydney, and we don't know what animals are in it, because it's never had a systematic survey. Also, if we are going to introduce wildlife into protected areas, or any other areas, we need to first be able to effectively manage the threats that caused those animals to have disappeared in the first place. We need to be fox baiting, we need to be containing our lantana, and we need to be reducing the other threats, and that's not happening yet either. There is a perception that once you've got a protected area, it is protected. Those areas also lack resources for management, just as our broader landscapes are being impacted by ongoing clearing.

**KERRYN PARRY-JONES:** When you think about it, we've created lots of different new ecosystems. I'm thinking of the urban situation we have in Sydney where complete random planting of street trees and in people's backyards has provided huge amounts of habitat for native animals. The change that has happened in the last 20 to 30 years and the number of animal species found in Sydney is huge. I don't know whether maybe we're being a bit too control-freak oriented.

The Reunion Island situation was random. I don't know whether we can actually control new environments like that, and there will be unforeseen consequences. Who would have thought that flying-foxes would have moved into Sydney to the extent that they have. It's something that has happened randomly. Maybe we aren't actually competent enough to control environments, and come up and actually replant things that are going to work. But we do do it accidentally. The amount of habitat in Sydney has changed, but it's changed completely unexpectedly. Could we have controlled it if we even wanted to?

**DANIEL KEOGH:** And, you know, there is the moral issue as well: should we be controlling all of that? And with that, there is - leaving us with a lot of food for thought, that's the end of our first plenary session. There will be two more, so you will get a chance to make your points, but hopefully there is some stuff to discuss over morning tea.

**CHRIS DICKMAN:** And morning tea will be served and we need to be back here at 11 o'clock sharp to start the next session.

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