

# TRANSCRIPT

## LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

### **Inquiry into Ecosystem Decline in Victoria**

Melbourne—Thursday, 3 December 2020

*(via videoconference)*

#### **MEMBERS**

Ms Sonja Terpstra—Chair

Mr Clifford Hayes—Deputy Chair

Dr Matthew Bach

Ms Melina Bath

Mr Stuart Grimley

Mr David Limbrick

Mr Andy Meddick

Mr Cesar Melhem

Dr Samantha Ratnam

Ms Nina Taylor

#### **PARTICIPATING MEMBERS**

Ms Georgie Crozier

Dr Catherine Cumming

Mr David Davis

Dr Tien Kieu

Mrs Beverley McArthur

Mr Tim Quilty

## WITNESS

Dr Jennifer Gray, Chief Executive Officer, Zoos Victoria.

**The CHAIR:** I declare open the Environment and Planning public hearing for the Inquiry into Ecosystem Decline in Victoria.

Please ensure that mobile phones have been switched to silent, and that background noise is minimised. So when you are not speaking, if all of you could please have your microphone on mute.

I would just like to also welcome any members of the public who might be watching via the live broadcast today.

Before we get underway I would like to acknowledge my colleagues and thank those who have provided apologies for not being able to attend today, and I will just go around and introduce those who are present at the hearing today. So we have with us Mr Clifford Hayes, who is the Deputy Chair of this committee. We also have Mr Andy Meddick, Dr Samantha Ratnam, Ms Melina Bath, Mrs Beverley McArthur, Mr Stuart Grimley and also Mr Cesar Melhem.

I want to also acknowledge the land that I am Zooming into this hearing from today. I am Zooming in from the lands of the Wurundjeri people of the Kulin nation, and I pay my respects to their elders past, present and emerging.

All evidence taken at this hearing is protected by parliamentary privilege as provided by the *Constitution Act 1975* and further subject to the provisions of the Legislative Council standing orders, therefore the information you provide during the hearing is protected by law. However, any comment repeated outside the hearing may not be protected. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded, and you will be provided with a proof version of the transcript following the hearing. Transcripts will ultimately be made public and posted on the committee's website.

So with that out of the way, Dr Gray, what I invite you to do is perhaps give an overview or make some opening comments perhaps of a maximum of 10 minutes, and that will ensure that committee members will have plenty of time then to ask questions or to allow for discussion. And again I will just remind everybody present on the hook-up to please mute your microphones when you are not speaking. And Dr Gray, if you have any technical difficulties at any stage, just disconnect—like if you freeze or whatever just disconnect. Perhaps then contact committee staff, using the contacts. Of course we have had some freezing during this, but not too much. It generally comes back around, but if it is ongoing technical difficulties, disconnect and come back. With that I will hand over to you.

### Visual presentation.

**Dr GRAY:** Thank you very much and thank you for giving me the opportunity to present today. The ecosystem and biodiversity are really important to us, and it is really important to be able to talk about some of the things we have observed through the work that we are doing at Zoos Victoria. I would also like to start by paying my respects to the traditional owners, the Wurundjeri people.

In terms of starting today, I wanted to share a little story with you, because the question was: what does the ecosystem and the decline mean to people? This little girl came in to see me about two weeks ago in the middle of November. Her name is Dani. She is seven. She is at that age where you do not have front teeth. She brought in an envelope which she handed over to me, and in the envelope was \$700, which she had been collecting for animals. In fact this is not her first donation; this is her second. During the bushfires she raised \$1000 for wildlife, and then in COVID she raised another \$700. That is a remarkable story, and one we hear fairly often. But Dani is deeply, deeply shy. She is shy to a crippling level. And with her mother she has been working on how she can make a contribution even when she is shy. And she raised this money by talking to her school friends, by talking to adults she did not know. Her parents also lost their jobs through COVID, and they still came in and handed over an envelope full of money. This is because Dani has worked out that she is powerful, that she does not need to be a worrier; she can be a wildlife warrior. And she has decided to support mountain

pygmy possums, because her understanding is that even if she is small and scared she can help others that are smaller and more scared than she is.

I know through the course of these hearings you have heard from a number of my colleagues on the state of the environment and biodiversity in Victoria, and I do not propose to go over that but rather to share some of the richness of the stories we have. But I also wanted to make the point that we are not alone here in Victoria, that the entire planet is undergoing an absolutely catastrophic decline in biodiversity and species. The recently released *Global Biodiversity Outlook* shows that this precedent is not only happening, it is getting worse. We are losing biodiversity right around the planet.

Of the Aichi targets that we all set out and committed to achieving, only one of the 20 targets has actually been achieved. On 19 targets we are failing to meet the plans that we have set out as a community committed to the environment and committed to making a difference. In this decade, which was the decade of biodiversity—this was the decade in which we were turning around the situation—we have actually seen the red-listing of species decline by 9 per cent. So this was in our best decade—we still had a decline in 9 per cent of vertebrate species around the world. And if you look at the 120 000 species that have been assessed by the IUCN red-listing process, 27 per cent are now listed as threatened.

It really is a dire situation, and we at Zoos Victoria feel very strongly about it to the extent that 10 years ago our board made the bold commitment that no Victorian terrestrial vertebrate species would go extinct on our watch—that we will make plans, that we will do things that change that trajectory. And this has led us over the last decade to work with 21 critically endangered species, and unfortunately last year we had to increase it to 27, because it is not getting better. For critically endangered Victorian species, more and more are tipping into the point that they need our help.

Of these 21 species, we have done research on all 21 over the last decade. We have learned about where they are and where they are not, what they need, what interventions help them and what are the threatening processes. We have been able to keep 17 of those species in captive care now with assurance populations. Fifteen have been breeding—and some breeding really successfully. For 10 of these species we have been able to release them back into the wild and to have success increasing the wild population, because our goal is not to keep lots and lots of animals in our zoos. Our goal is to keep these animals back in the wild. Success is healthy populations back in the wild.

We also work with the community. In a normal year 2.6 million people come through our gates, and these 2.6 million people, like animals, or like Dani, love animals, and they do not want to see animals in trouble. So we are able to teach them about the things they can do, and whether that is keeping your cat in at night, which is better for your cat and better for wildlife, through to whether or not you release balloons outdoors, we have a campaign. We have about eight campaigns running at any given time that empower people to make a difference. Sometimes they are as simple as looking out for bogong moths, because if we do not get more bogong moths coming back to the High Country our mountain pygmy possums that Dani cares about are in a raft of trouble.

So we have activities including buying a tote bag. For every tote bag we sell we plant a tree, and that provides more food for possums. We ordered 2000 and then had to reorder and reorder. The community care so much they bought 12 000 tote bags, so we are planting a forest to support mountain pygmy possums. Schools love this; 53 per cent of the schools in Victoria have signed up to be Fighting Extinction Schools. Every year they run a program to make a difference to species that live in their community and in their area. You would be amazed at the creativity, at the solutions and at the power of these young people.

I want to share very quickly in my next 5 minutes the lessons we have learned, and I want to share these five lessons with you, the first one being that it really is possible to reverse the trend. So while we can look at trends that are scary and horrible, the reality is we can do this—we can turn it around—but it takes time, money and bravery. We need to do new things with new partners. We need to follow a conservation planning approach which is really simple—assess, plan and act. We do a lot of assessing, we do a little bit of planning and we do not do nearly enough acting for wildlife. Partnerships work. Partnerships are the core bread and butter of everything we do, and we need to be working together as much as possible. We need to address the destructive practices I referred to and that people really care.

This is the conservation planning approach. It is pretty simple, but it really works. This is the example of our eastern barred bandicoot, where 10 years ago we came up with a plan. The plan listed 10 different activities at a cost of \$3.5 million over a five-year period to get us from where we were then to where we are now. As you can see from all those green dots in my plan, a lot of them were achieved. But destructive practice is foxes, so we had to find ways that we were able to hold bandicoots in the wild without foxes. I love this slide, because at the bottom if you look at all the organisations involved—I will keep saying that no-one saves a species on their own—what we have done in 10 years is we have moved from a position where they were presumed extinct in the wild to now we have over 1500 bandicoots back living outside of fenced areas, on islands, in big sanctuaries and with guardian dogs, and in another two years time we will have 2500 animals in the wild. Literally last week, two more populations of wild animals were released and new areas are coming online.

So I hold up the bandicoots, and if you had given me 4 hours I would have gone through all 21 species and told you how each and every one of them has progressed in the last decade. But this is just one example. People care. This little boy in the middle, his name is Isaac. When he turned five he started a campaign where every birthday he does not get presents. Instead he asks for money, and he uses the money to help save endangered species. On his fifth birthday he brought us money to help fund the Guardian Dog project, which literally went live last week. I am glad he started at five. If he keeps giving us his birthday money until he is my age, he is going to help us save a lot of animals.

So I really want to in my time with you share this simple message: Victoria can be a world leader in saving biodiversity and ecosystems. We have incredibly talented, smart people working within the state. We just need to follow these three simple steps. We need to assess the state of our environment and species against a common standard, and we need to do it frequently. If you only looked at your bank account once every 10 years, you would have no idea how you are going. When we talk about saving species, we need to empower scientists and researchers to look every year to see if what we have done in the year made a difference. We need to plan, and the *Biodiversity 2037* plan is a good plan. It is a good start. It brings together the wildlife components, the land management components and the social components of empowering communities to work with us to keep improving our ecosystems. Then in terms of acting to build a culture of collaboration, as I will keep saying, none of us do this alone.

The Department of Environment, Land, Water and Planning has been really good in the last 12 months at bringing us together with many parties. And so using a system like the IUCN Red List, we need to know how all of our species are going. We need to get really good at this planning, and while *Biodiversity 2037* is a good example, I think an even better example is *Victoria's Bushfire Emergency: Biodiversity Response and Recovery* plan. I was sitting on the threatened species commissioner expert panel during the bushfire recovery phase, and Victoria stood out head and shoulders above the other states in this country. This plan was brought together, they brought all of the experts in the state together and they ran a number of large workshops where they allowed industry and scientists to provide input and feedback into the plan, and what they have come out with is exceptional. I am really pleased that the Victorian government has chosen to put money into the delivery of this plan. This sets us apart, and it really is a fantastic step forward.

The culture of collaboration has never been more visible than during an emergency like the bushfires. Andy and I—and Andy, I know you are involved with the round table around animal welfare and how we treat animals during an emergency—we had vets from all over the world, we had vet nurses from different places joining to help with the this effort, we had AVA, Wildlife Victoria, we had the RSPCA and ourselves, and we all worked together in a seamless operation. Of course we can do it better, and I think the round tables have kept talking about that. We evacuated animals ahead of the fire front. I have never heard of that anywhere in the world—that we care enough about endangered species to evacuate them out of an emergency situation. We were even able to offer some bogong bickies, which are biscuits that are made up of the nutrients that you would get from a bogong moth. We were able to provide those to New South Wales, and they have been able to get starving mountain pygmy possums through a hibernation based on the ability to give them additional food when they needed it. It is a collaboration at a really impressive scale when we do these kinds of things.

Another one that I will throw into the mix is a collaboration that is newly formed, which is the Victorian landscape conservation partnership. This is six organisations that have come together—Birdlife; Bush Heritage; Greening Australia; Odonata, which is a private organisation trust; Trust for Nature; and Zoos Victoria—each of us with different skills and all of us with a passion for improving the environment. We are looking at four very big landscape-based projects that will move Victoria forward in this space.

Finally, when we do it, the community loves it. And so I come looping all the way back to where I opened. You asked what the environment and biodiversity mean to the community, and I can only say: a lot. During the bushfires people fundraised for us. Kids made cookies and sold lemonade; old-aged homes ran sausage sizzles; people came from around the world with bags of cash and donated it at the entry to the zoo because they cared. It has been the same right across all of the organisations that have worked to help and save wildlife. Those bushfires triggered in everyone a deep emotional response—the fear that we could really lose some of these iconic species—and the community came out with incredible support. I hope that in my time that I have got allotted—and I am really happy to answer questions, but I believe together we can change the outcomes. Together we can create consortiums and collaborations. If we create this culture of collaboration, we can do all kinds of truly amazing things here in Victoria.

**The CHAIR:** Thank you, Dr Gray. That was an amazing presentation. I will go to you, Dr Ratnam, first for a question.

**Dr RATNAM:** Thank you very much, Chair, and thank you, Jennifer, for that fantastic presentation and for bringing what this means to people back to the centre of this inquiry; that is really, really powerful for us. I want to start by asking about something you mentioned in your presentation about the biodiversity strategy. You mentioned that it was a great start and a great platform for doing more. In your view, what is needed next to make that happen so that we can actually stave off the extinction threat?

**Dr GRAY:** *Biodiversity 2037* needs funding and a team that is able to implement it, roll it out. There is a huge complexity in each of these projects, and so one of the comments that we have heard through bushfire recovery is to have projects that are expert and industry led, but are supported by government and enable the community to get involved. So I think that support is really important; government does not need to feel it needs to do everything. But often what I find is there are so little resources available that all the conservation and wildlife entities have to compete for very small amounts of money, and it is almost the worst practice you could have in place when you are trying to create collaborations; it is asking all of us to be very grown up. So I would suggest support and resources is what the plan needs, and there are some tough decisions to be made that are outlined in the report.

**Dr RATNAM:** Thanks so much. Do you see barriers to that emerging already? I think that sounds sensible and something that we should really move forward with and promote—the collaboration and the resources to make the strategy work. Have you experienced or seen barriers to that at the moment?

**Dr GRAY:** I think the barriers are more just all having the time and headspace to work together on things. One of the themes in *Biodiversity 2037* is to engage community in nature. Notwithstanding the COVID crisis we would have been doing something. But for the first time ever we saw DELWP facilitate a community-based nature festival, and all the entities across the DELWP portfolio and a number of private sector entities worked together to engage the community with how amazing wildlife and nature is. I am not even going to guess; they ran something like 2000 events. Because of COVID we did it all online, and we had people attending the penguin parade through to the zoo, through to Parks Victoria—listening to an Indigenous ranger talk about country. That is what we need, these collaborative opportunities. That ended being virtual, so it was really quite cheap, but the first time we costed doing a festival about nature in the city of Melbourne and making it huge—that is going to be \$2 million to \$10 million to stage that. But if we do not invest in this, how do you get out to people and get them brave about going out into nature? So the barriers are in the resources, sure, but some of it is in the creativity, the thinking and just starting.

**The CHAIR:** Thanks, Dr Ratnam. Mr Meddick.

**Mr MEDDICK:** Thank you, Chair, and hello again, Jenny. Great to see you again. For those others on the committee I had the great honour of travelling out to the zoo and meeting with Jenny and just having a really long chat about the amazing work that they are doing with the breeding of these threatened species and getting them back out into the habits that they belong in. We had a very long discussion about what that looks like.

My big concern is always around the fact of what happens to them when they are back out there, because there are other species that prey on them. People refer to them in different ways—some call them pest species, others call them invasive species and other people will call them introduced species. It does not really matter. They are predatory species, mainly, and they will prey upon these endangered animals.

But I did notice as well that one of your partner organisations is Mt Rothwell—an extraordinary place. I have had a lot to do with various Indigenous communities who want to reintroduce the dingo in their familiar situations for precisely this thing. I mean for them it is also spirituality—it is totem and other considerations—but they also understand the role of that native apex predator to take care of these introduced species and therefore let these other endangered species have the best chance possible at recovery. I am just wondering if you can share your thoughts on that with the rest of the committee.

**Dr GRAY:** Yes, Andy, you are absolutely right. The system is out of balance and so that is something we want to try. We are trialling guardian dogs, the big white maremma dogs. There are two living at Mooramong on the heritage land in a sanctuary there with sheep, and we literally last week introduced bandicoots into that landscape with the dogs and the sheep. It is the weirdest thing, because there are fences around to keep the sheep and the dogs and the bandicoots in. We actually put stepping paths over so foxes can get in, because we want to show that the dogs are keeping the foxes away. That effectively will prove exactly the argument that you are wanting to prove—that when you bring in these apex predators they start to control the rest.

The other project that I am really excited about and we should all be watching closely is Wilsons Prom, where they are going to be fencing off the isthmus—I cannot say that right—and then having the opportunity of really tidying up invasive predators and invasive animals but reintroducing quolls and critical weight range predators as well. So there are quite a few interesting projects happening. Mt Rothwell as well—they have just opened a new farm in Tiverton, and this is the biggest grassland sanctuary. And they will be able to hold up to 3000 of these small bandicoots and other creatures.

So we sometimes go fairly confrontational on the predators and invasives. Sometimes we have to find other options like island populations as well, but there is some really interesting and innovative work being done in this space now.

**Mr MEDDICK:** Fantastic. Thanks so much. I appreciate it. Ta.

**The CHAIR:** Okay. Thank you. Mr Melhem.

**Mr MELHEM:** Thank you, Chair. And thank you, Dr Gray, an excellent presentation. You said something about ‘Victoria is leading the way’, so I am pleased to hear that. My question is: how are we travelling nationally? Because it is great to do well in one state, but then if your next-door neighbours are not doing as great—

Are you able to shed some light on how we are going nationally? Particularly I am interested in post the bushfires. There actually was a documentary on the ABC a couple of nights ago—was it last night or the night before?—and there were some good stories and some really sad stories. So I am interested in how we are travelling nationally as a nation and, with your experience, how we can improve. It is a big question.

**Dr GRAY:** I have had unique insight into that from both ways. I think of the experience here in Victoria, because our fire season is the last, is we can literally watch that coming down the country. So we almost had a jump on it because we knew what was coming as it came the whole way down the coast. Because the plan was so well done here in Victoria the other states picked it up pretty quickly and got in and started doing it themselves as well. So there was a lot of sharing between the states, and I really saw states interacting and working well.

The panel I was on was a lot of experts, each one in a very specific field, so that was wonderful to watch them working together, being able to very quickly identify how many species were in the burn scar with a lot of their habitat. And the working together there was tremendous. That was followed by two rounds of grants that were issued. It was a little fragmented. If you ask me how we could have done it better, it was understanding the extent, doing cohesive planning and then looking at where we could get the best bang for the buck. But because there were so many partners and so many interests involved there were a lot of grants given out, but we made sure that it was equally distributed across states and across species to get the best outputs we could.

It was interesting for me looking at the human recovery. There is a brilliant guideline on what to do when there is a human emergency. There are guidelines on it. Bushfire Recovery Victoria is a really well polished operation, and they kick in quickly. We do not have something similar for wildlife, and that is some of the work that, Andy, you have been involved in as well—creating these guidelines for what is the equivalent of the CFA

for wildlife and how does that kick in, and how does that kick in seamlessly. In terms of that, we are learning from Queensland on that. Following the model of emergency management in Queensland, the Victorians have learned from them. So what I have seen at a national level is different states having different levels of expertise and sharing it very widely and very openly with each other and learning from each other.

I think on this as we come up with a model for how to deal with wildlife. Because we had so little loss of life—and the bit we did was tragic but we had actually very large areas of wilderness burnt—we have had more of a wildlife focus than I think many of the other states, and that means we will be able to lead the way in what wildlife response looks like in future and, again, how it can be done collaboratively. The carers network is enormous, the volunteer network that is involved in looking after wildlife. I know, Dr Ratnam, you asked, but it is entirely voluntarily run. We give them very little. No-one gives them much in the way of equipment, support. If you looked at equivalents, CFA stations are well equipped; our carer network is not well equipped. And that would be a huge step forward in terms of not necessarily critically endangered species but dealing with animals that are injured through road accidents, through fires, through animal confrontation et cetera. Andy, you know a little bit more than I do about the carer network, but they are incredible people doing a lot with very little, and they could do with more support.

**The CHAIR:** All right, thank you. Ms Bath.

**Ms BATH:** Thank you very much, Dr Gray. It is really instructive. I have got a couple of housekeeping questions that might be taken on notice, just for me to get my head around. In terms of the very important fundraising that the community does on a broad scale, of which you have identified some, how are you transparent in the way that you administer that? There needs to be confidence about hard-earned cash that is saved from lovely children's birthdays and the like—so admin, advertising and conservation. There will be something that you will have that will present for that.

**Dr GRAY:** Yes, you are absolutely right. You could say what keeps me awake at night is that we do not live up to the trust that these little people put in us. We have actually just had an internal audit into the bushfire funds that we have raised and how we are managing them and how we are transparent both with our board and with our governance organisation in terms of the funding and how it is acquitted. The second thing is we have been communicating. We had 33 000 donors over the bushfire period and we have them now within our customer relationship management model, and over the course of the year we have been able to share the stories of how the animals have recovered, what work we are doing and how we are spending the money. So we are keeping that very transparent and very open. We also—you are not going to be surprised we need to say this or pick it up—have a bushfire recovery plan for Zoos Victoria that itemises how we will be spending our money. So we laid out what work needs to happen, we are spending money against that and we are finding a number of organisations that have raised funds during the bushfire elsewhere are coming forward now and supporting us in a number of really interesting ways as well.

**Ms BATH:** Thank you. Thank you very much. I have got about three questions. I will try and be brief, but there are a lot of good questions, I hope. I am interested in a whole-of-landscape basis for species, we will say, understanding or collation of a species across a landscape—so on this hill, X hill, they may know the whatevers may no longer be there. Does Zoos Victoria have a species-wide understanding? What is your opinion on that? How do you best judge a threatened species? I am just trying to get a feeling about that whole-of-landscape position or understanding of a species.

**Dr GRAY:** Generally then I would turn and look our strong science people that I hire, the ecologists, but there are number of ways. So people like Arthur Rylah Institute know for many of our critically endangered species, 'What is the habitat they need?', and they are able to plot those habitats right across the landscape. Many animals, like a plains-wanderer, will only live in a grassland that meets very specific criteria, and you can then go and look for those criteria. That gives you an idea of where those animals are likely to be, and then there are a number of tried and tested different ways of actually measuring whether those animals are in the landscape. So right now we have scientists up in the High Country looking for some of the smaller—broad-toothed rats, smoky mice. They know the kind of habitat that those animals should be found in. We also can look at historic records, and you go back where they have been found previously and see if they are still there. Many of them move, but not as much as you would think, across the landscape. So the landscape approach often understands that you need a whole landscape for species to survive, because when there is a fire they will move to a wet gully. When there is a flood, they will move to high ground. When there is a drought,

they will move down into a wet valley. When you say this is their perfect range, they will move in and out of that range depending on the external environmental factors, and so when we break them up into smaller and smaller pieces of land and say, 'Well, that's perfect for bandicoots. They'll be fine there', what that misses is they might be fine there 80 per cent of the time but they will not be fine there all the time, and they need this complexity of a whole landscape and movement corridors to be able to move around in.

**Ms BATH:** Chair, can I borrow one more?

**The CHAIR:** One more, very quick.

**Ms BATH:** Thanks. I have got a couple. Interestingly, you said that there are three parts in relation to holistically looking at species and the assessment of a state against standards. And that is the theme that I am interested in and many of my constituents are interested in, because there is legislation around how private land and farmers must take their weed species down et cetera et cetera. There is legislation around it and on productive forests, but some of my constituents would say, 'Well, what about Parks and DELWP? What's their assessment? How do we know that they're good or bad custodians?'. So I was interested, when you said that—assess states against standards. Could you develop that a little bit more, Dr Gray?

**Dr GRAY:** Yes. Perhaps not so much on the forests—and there are people who are experts in that—but the challenge we have here is that there are slightly different standards. The global standard and the global benchmark are the IUCN red listing of species, and they list everything from fungi through plants through animals. We use slightly different standards in Australia at the federal level and then slightly different standards again at a statewide level. So what we really are often arguing for across the world is, 'Can we all just agree on one standard and then assess it?'. Often the assessments are expensive and difficult, and they are done very infrequently. So even if you go and look for IUCN red listing, you will find many of them were only done twice in the last 50 years, and that is just no way to understand whether you have got a trend or anything else. For many species it is very difficult as well because they are cryptic and they hide and they are difficult to find. Plants obviously are a bit easier, but even there you will find that good foresters will have a series of standards that they go back to. There is a quite a big push, and DELWP are part of this, as are we, Parks Victoria, Trust for Nature—it is called common standards for conservation planning. We are all trying to get skilled up so that we use the same measurements, we use the same systems and we can share amongst the different entities the information that we have all gathered, because that is really even more important—that we are all sharing whatever knowledge we have gained.

**The CHAIR:** Okay. Thank you for that—

**Ms BATH:** This is not a question. If there is any more information on that, could you present it later to the committee? Thank you.

**Dr GRAY:** Sure.

**The CHAIR:** And just a reminder, if there are more questions than we have time for, you can submit questions on notice or we can ask for witnesses to come back. You do not need to feel you are going to miss out necessarily. We still have got a bit of time. I will go to Mrs McArthur next.

**Mrs McARTHUR:** Thank you, Chair, and thank you, Dr Gray. I am most encouraged by your transparent approach to letting the public know how you spend their hard-earned dollars. You could give some lessons to the Treasurer, I think, on how we could approach that. We would be all enlightened.

Look, I think there is a major contradiction in an aspect of biodiversity, and that is the view that roadsides should be seen as conservation zones or wildlife corridors when in fact they should be safe places. Indeed the management of roadsides by state departments is by and large appalling, where native species are suffocated by and large by introduced species and the control of this is just non-existent. We also have a situation now where we have wire rope barriers. We have got native animals encouraged to breed on the roadside who are not good at looking right and left and right again, and so they end up as roadkill frequently—if they do not get tangled up in wire rope barriers. So do you see this conflict of why we encourage native wildlife on the roadside and then actually set about killing them as we all drive along the roadside? And we do not protect the native grasses or foliage that are needed, because we do not manage the roadsides properly. We do not like animals grazing, it

seems, which actually help to reduce the non-native vegetation and keep it at a reasonable level—and then we burn it out because we have a fire. How do you think we should approach this issue?

**Dr GRAY:** You raise a lot of complexity in that question. Most of the roadsides, as I understand, are fenced to stop things like livestock and animals wandering into roads, and that will often pick up your larger animals. I am a fan of planting native—

**Mrs McARTHUR:** Kangaroos do not subscribe to that.

**Dr GRAY:** Not kangaroos, of course. They will move across the landscape. I am a bit of a fan of planting native plants that support birds and butterflies wherever we can, and so there are other native species, insects, that will benefit from that. But you are right: roads are roads, and we need to have clear line of sight across the side of them. I am not an expert in the management of roadsides, so I probably do not have more to say. But I know in America, for example, with the monarch butterflies, they have been encouraging a planting program where the food for the butterflies is planted along roadsides, and that is just opening up these corridors that the butterflies need to migrate across the country. I think we need to think about what we are trying to achieve when we plant and see that we can achieve that.

**Mrs McARTHUR:** Well, we could do it by encouraging landholders to plant wildlife corridors.

**Dr GRAY:** Absolutely.

**Mrs McARTHUR:** And that is what many of us do. Just further to that, how do you engage with private landowners in the protection and the growth of native animals?

**Dr GRAY:** It is still early days for us. We have a couple, like the Tiverton and Odonata team that we are working with on a number of different projects. Trust for Nature does a lot more of the engagement with the private landholders than we do, and most of our releases to date have been into Parks Victoria land. We have not done a lot of releases back onto private land yet—literally the first one was last week—so we are starting this journey with private landholders.

**The CHAIR:** Thank you, Dr Gray, and like I said, I will come back around if we have got more time. I will go to Mr Grimley, if you have a question.

**Mr GRIMLEY:** Thank you, Chair, and thank you, Dr Gray, for your presentation. I was particularly impressed with young Isaac and Dani. I suspect we might be seeing a bit more of them later on down the track, and it is wonderful to see. During your presentation you mentioned that in the past decade we have had a decline of 9 per cent in the index of species survival and you said that, from that, some lessons can be learned—in particular that you need time, money and bravery. I just wonder if you can just expand on what you mean or what the organisation means by bravery?

**Dr GRAY:** Yes, good question. A lot of our tried and tested conservation tools are not working. The idea that we will put up fences and put animals behind fences and they will be all right is failing us. That national parks are all you need and we will be all right again is not working. So bravery is stopping and thinking about everything else we could do. The chair of the recovery team for the eastern barred bandicoots is a DELWP staffer, Richard Hill. He has been the epitome of bravery. He does not say no to a crazy idea; he says, 'Let's work it out, let's go through the risks and let's see whether or not that will make a difference'. And so now we have a species where we have tried things that have never been done before, like protection dogs. We have never done that before, but now we are trying it. Of course it comes with risks, but if we just keep doing the same things, we are not going to make a difference. And so that is what I mean by bravery.

I think there is going to be bravery in terms of things that we need to stop doing and there is going to be bravery in terms of things we start doing, and that is where the collaboration really comes in. We can only be brave if we live in a culture of collaboration and a culture of learning. When we punish everything that goes wrong or we divide and use it for pointscore, then we never get the bravery we need. So that is what I mean by bravery. We have done some gene mixing. When we get to bottlenecks where you have populations that are tiny—mountain pygmy possums living on the top of Hotham and Buller that cannot get together—they become more and more inbred. The bravery comes by saying, 'Well, let's crossbreed, and let's see if that works' We do that in a controlled experiment, and when it does work, we can then roll it out on scale. So there are a lot of things

where science is moving fast, and we can use that advancing science to start doing brave things to help animals come back.

**Mr GRIMLEY:** Fantastic. Thank you very much. And just one more quick one, if I may, Chair. You also spoke of destructive practices—in particular, pollution and clearing, among others. In your eyes what do you believe to be the biggest threat to critically endangered species in Victoria?

**Dr GRAY:** Habitat clearing is going to be the biggest threat for us, and across the eastern seaboard koala populations are in a world of trouble. We keep saying it is okay if we just take one more stand of trees and one more stand of trees. Not just Victorian but Australian wildlife needs big tracts of lands. Many of them live at very low densities because the land is not hugely productive in the way that they need it to be. A bandicoot lives in a hectare, so when you start putting up fences and roads, you start destroying that habitat. And so what we need is habitat protected. We need more national parks, which I have said is not just the simple solution. Yes, I would say habitat is the most destructive practice, but pollution is a problem. There are so many. I do not want to go into them. There are lots, and you probably know many of them.

**Mr GRIMLEY:** Thank you.

**The CHAIR:** Okay. Thank you. Mr Hayes.

**Mr HAYES:** Thanks, Chair. I was going to say, ‘Let everyone ask first’, since I was last, but I cannot help but follow up on Dr Gray’s last comments. We are seeing more and more development along the eastern coastline, and Melbourne is sprawling out further and further all the time. The green wedges are under threat as we speak. My big concern is Australia’s—and Victoria’s—plan to double its population over the next 30 years, and I am just wondering, with all those things that come along with it—land clearing and pollution—that seems to me to be a big threat. Would you like to comment on that or on how we could possibly manage those ambitious plans that we have?

**Dr GRAY:** Yes. I would suggest again it is getting the right group of people, the best land-use planners, the best architects. How do we build livable communities and livable spaces in infill? We are walking away from areas instead of infilling where people can live and doing it in affordable ways. I do not have all the answers. I have been involved in a group called Reverse the Red, and our goal is simply to change that Red List trend, to reverse it and start moving animals away from that critically endangered point. And I have had the unique experience of asking now about 12 of the top conservationists around the planet: what is the worst problem and what is the one thing you would change? And what comes up repeatedly is greed. Greed is a big problem.

We have a culture of individualism and of ‘We all need more all the time’—do we really? Can we get by on less land? How do we leave more behind for other animals? Fragmentation—there is a lot of those kinds of things. I think some of our solutions for the ecosystem and biodiversity will not be things we do out in the field; they will be things we do in people’s heads. It is those little children who grow up learning that there is a better way that is better for animals. Children have learned not to release balloons outdoors. In fact they will not even take them if you offer them a balloon. It is like you have offered to do something really horrible to them. Children are learning, but we have to change in our heads. We have to be more collaborative, we have to be less greedy at an individual level and we have to look at what we are consuming and reduce it. We cannot keep going like this.

**Mr HAYES:** Absolutely. Thank you.

**The CHAIR:** Thank you. Dr Ratnam.

**Dr RATNAM:** Thank you, Chair. Jenny, you have covered some incredible areas. You have touched on some of this, and I want to further what you have been talking about with another question. You obviously do a lot of really important programs, and you are modelling that partnership work. I really hear you about collaboration being really key to the next stage so that we are not competing against each other and that groups really come together. We can pay a lot of lip-service to it but actually putting some substance behind it—so I absolutely hear where you are coming from there and have taken that on board. One of the issues is: you can say we are collaborating, but then sometimes it is hard to know how the work is linked and what outcomes are being achieved right across the state, rather than just an individual program stating their outcomes in isolation.

So the flip side of that is you can get people together, but then how do you actually measure how effective that work has been?

The New South Wales government has a program called Saving our Species. It has a clear and transparent website which lists each listed threatened species, threats facing them, funding allocated to projects, how it is spent and what the outcomes have been, and it ensures programs right across the state are properly integrated as well. Do you think something like that would be useful in Victoria and relevant to our context?

**Dr GRAY:** Yes, absolutely. I think anything that can strengthen that working together, absolutely. I only hear good things about Saving our Species; they get a really good rap from the community.

**Dr RATNAM:** Great, thank you.

**Dr GRAY:** But equally, against the plan of 2037, that would be great as well to know, now there is a clear plan, who is doing what and how are those starting to deliver?

**Dr RATNAM:** In terms of the reporting framework for 2037 are you satisfied with what has been put out there or do you think there is a bit more work that we could do to make sure there is a proper reporting framework and monitoring framework?

**Dr GRAY:** I am not aware entirely of what has been done. I know the state of the environment—and that team talked to you earlier today as well—they do a lot of that work, so that is probably the go-to place to see the measures in terms of what is being done.

**Dr RATNAM:** Great. Thank you.

**The CHAIR:** Thank you. Mr Meddick.

**Mr MEDDICK:** Thank you, Chair. Jenny, look, this is a bit of a different one, I think. A lot of the stakeholders that I have dealt with have brought this up. It just seems to be a recurring theme. They talk about contingency programs to protect species, not only captive breeding but also some form of biobanking of reproductive potential, and perhaps the establishment of an assisted reproductive technology program has come up a few times, and that that should include all native animals in Victoria, not just threatened and endangered species. Do you have any plans for that? Obviously these things will require great monetary support from the government, but is there a possibility of establishing a larger collaborative program of partners to support it? What sort of funding model would you see as the most desirable to support that type of program?

**Dr GRAY:** Yes, we do quite a bit of biobanking of cells and reproductive organs where we can, but that is done in a very low key way here. We have fridges and freezers where we can keep samples. It is a big project, and I do not know who is doing it really well. I think the Germans have done quite a lot of work in this space. The challenge is not only do you need to keep all the cells and that material, you actually need wombs and live animals to put them into. Recently I heard really interesting feedback on even seed banks, which seem less controversial, but so many plants are coevolved with insects that do the pollination that just growing the seed is not the challenge; you actually need to grow the ecosystem. So honestly our money is better spent stopping ecosystems from falling apart than it is on trying to recreate them 10 years in the future out of frozen materials. Where it does help is for example where we have genetic material of eastern barred bandicoots from three or four generations ago that you can then reintroduce into current populations. It needs a really good proper plan. I have not seen a really strong plan around it, but there are teams around the world thinking and talking about it.

**Mr MEDDICK:** Great. Thanks so much.

**The CHAIR:** Thank you. Ms Bath.

**Ms BATH:** Thanks, Chair. I would like to understand, and I have not asked it previously today because there have been so many other questions. Fire on our landscape is still being so devastating, and we saw it over Christmas time in my electorate and in northern Victoria—1.6 million hectares burnt and the impact on species. I would like an understanding, and it might be out there and Zoos Victoria may have a snapshot, of the loss of biodiversity, so of the loss of our kangaroos and go down the list—wombats, koalas, whatever—and also the impact on threatened species from that fire. I have not got a clear snapshot, and if there is a document that you could direct us to as a committee I think that would be helpful, because we cannot sustain those huge megafires.

Whilst so much has been burnt there are still large fuel loads and there is still a lot of forest to burn, and that will be devastating twice over if it happens again.

**Dr GRAY:** Yes, there are really good resources available from DELWP, and I can get a contact through to Anique and she can get the plan that shows the work they have done. They assessed very quickly through ARI—Arthur Rylah Institute—and as well they have a really good database of where animals, particularly threatened species, are located and they were able to overlap that over the fire scar. A lot of the work that was done at the beginning of the year was a best guess, because we were not because of COVID and the fires able to get out and check it. There is a lot of ground truthing happening at the moment, going back to areas that were burnt to see if there are still species present there.

Just completely anecdotally, many species in Australia have coevolved with fire—not like this and not as frequent as this, but for example we released corroboree frogs up on Mount Kosciuszko in an area that was really badly burnt, and the researchers went out there fairly soon afterwards and they walked through and you could see the enclosures were burnt, the water tanks were melted, the whole landscape was blackened. The way you identify them—I do not know if you have seen someone do it—is they yell, ‘Hey, frog!’ and then they wait, and then the frogs go like, ‘Ribbit, ribbit’. They walked out into this blackened area where they were in the area where the frogs were contained, and they went, ‘Hey, frog!’ and then you just heard everywhere, ‘Ribbit, ribbit, ribbit’.

They dug down a metre under the ground. They created pits when they put the enclosure in, knowing they do this, and they actually went a metre down, survived the fires and came up. Then there is this question around how they survive when there is nothing left, but pretty quickly you get an insect load and you get plants back, so a lot of work is being done right now. Also on the threatened species commissioner website you will find for the whole of Australia some really good information on what was burnt and where it is, and there is some really good spatial mapping available as well.

**The CHAIR:** Thank you. Mrs McArthur.

**Mrs McARTHUR:** Thank you, Chair and Dr Gray. Now, during the fires in the High Country in northern Victoria there were areas that did not burn, and these were areas where cattle had grazed, and these were areas that provided sanctuary to native wildlife. Does that give you any idea of why it is important—grazing in forest areas—so that you actually create a fire-free area for the native wildlife as well as for the stock that a farmer might have? Do you see that as important?

**Dr GRAY:** I think landscapes are really complex, and you are right: for a number of reasons fire jumps over some areas. Wet areas are really important because they do not burn in the same way. The real tragedy in this fire was the hot canopy fire, and that just not let anything get away, neither birds nor koalas. In terms of grazing, there are some species we see that are very badly impacted by grazing in the High Country. We see the waterways crunched up and animals that cannot survive with that and other areas where short grass is a desirable attribute. So it really does depend where and how it is impacting the animals that would live there normally.

**Mrs McARTHUR:** So then, Dr Gray, you would agree that some of the species, the non-native species, in the country are damaging these waterways—the pigs, for example, the wild pigs, and even the deer—so how do you and your organisation and the ones that you are associated with deal with getting rid of these tens of thousands? They are multiplying in massive numbers. They damage trees and they damage waterways and they damage the environment for smaller species—let alone the wild dogs and cats, which do enormous damage. So how do you approach that problem?

**Dr GRAY:** So generally it is our partners at Parks Victoria who are doing the work, not us, but of course we are always talking to them. I think in the response after the fires there has been a large amount of work done around deer control and pig control where they could, and so that is really more of a Parks Victoria question, and I am sure they would be able to provide a response on the work they do.

**Mrs McARTHUR:** I would say it leaves a bit to be desired.

**The CHAIR:** Thank you. Mr Grimley.

**Mr GRIMLEY:** Nothing in particular. I have heard the expression ‘You learn something new every day’, and this is the first time I heard the expression ‘Hey, frog’ being used to gain the attention of frogs. I would love to know the scientific background behind that, but it may be for another day.

**Dr GRAY:** I have no idea, but it works.

**Mr GRIMLEY:** That is incredible. I am all good. Thank you, Chair.

**The CHAIR:** Fantastic, thank you. Well, that is a perfectly timed ending at 2.59 pm. I think your time was up until 3.00 pm, so we have timed that beautifully. I just want to thank you for your presentation, Dr Gray. It was fantastic. So I would just like to thank you for your contribution today.

**Committee adjourned.**