T R A N S C R I P T

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Ecosystem Decline in Victoria

Melbourne—Wednesday, 21 April 2021

MEMBERS

Ms Sonja Terpstra—Chair
Mr Clifford Hayes—Deputy Chair
Dr Matthew Bach
Ms Melina Bath
Dr Catherine Cumming
Mr Stuart Grimley
Mr Andy Meddick
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Dr Samantha Ratnam
Ms Nina Taylor

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Ms Georgie Crozier
Mr David Davis
Dr Tien Kieu
Mrs Beverley McArthur
Mr Tim Quilty

WITNESS

Dr Kim Lowe, Research Director, Arthur Rylah Institute for Environmental Research *(via videoconference)*.

The CHAIR: I declare open the Legislative Council Environment and Planning Committee 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.

I would like to begin this hearing by respectfully acknowledging the traditional custodians of the various lands which each of us are gathered on today and pay my respects to their ancestors, elders and families. I particularly welcome any elders or community members who are here today to impart their knowledge of this issue to the committee or who are watching the broadcast of these proceedings.

I would also like to welcome any members of the public who may be watching these proceedings via the live broadcast as well.

I take this opportunity to introduce committee members to you at this point in time. My name is Sonja Terpstra. I am the Chair of the Environment and Planning Committee. Mr Clifford Hayes is the Deputy Chair; Dr Samantha Ratnam; via Zoom we have Ms Nina Taylor, Mr Stuart Grimley and Dr Matthew Bach; and then back in the room we have Ms Melina Bath and Mrs Bev McArthur.

All evidence that is taken today 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. You are protected against any action for what you say during this hearing but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege. 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.

If I could just get you for the Hansard record to please state your name and the organisation that you are appearing on behalf of today.

Dr LOWE: Thank you. My name is Kim Lowe. I am the Director of Arthur Rylah institute, which is a branch within the Department of Environment, Land, Water and Planning.

The CHAIR: Great. Fantastic. Thank you. All right, and with that, if I could ask you to make your opening comments but if you could just keep them to about a maximum of 5 minutes, that will allow all the committee members to ask you plenty of questions. So over to you.

Dr LOWE: Great. Thanks very much, and thanks to the committee for the invitation to appear today. As I said, I am the Director of this institute out in Heidelberg. We are a part of the Department of Environment, Land, Water and Planning. So I am going to quickly cover what we do, a bit about our vision, staff capabilities, and just one quick case study, if I can squeeze it in.

So Arthur Rylah Institute for Environmental Research is the biodiversity research centre for DELWP. We do work that is commissioned by all areas of DELWP and our primary expertise is about biodiversity conservation, so ecology. We have been part of the science community for 50 years and our work is rated by independent scientists as being world class.

Here is our vision statement. Our science is directed towards high-quality evidence-based decision-making by governments and the communities. Here is the statement about our resources. Currently we have about 112 staff and associates. That number varies depending on the funding that comes into the institute from commissioned work. Of those staff, 31 of them at least, latest count, have PhD qualifications. Most of the rest of the staff have science qualifications or are technicians or are administrators. The statement here about our particular expertise is in plants and animal ecology; biometrics, which is statistical analysis of biological data; we have genetics expertise; and increasingly more recently we are developing social science expertise. We have been known for a long time to have very sophisticated global-standard spatial analysis and so that is mapping, modelling, using remote-sensing data. And of course we have associations with most of the Australian universities and several international universities.

The way we operate is heavily based on field data collection. We operate right across the state and in fact we operate interstate sometimes. We always try to keep abreast of the latest technology using the latest equipment. So, for example, we are actually using laser scanning devices to see if we can estimate tree abundance, tree density, instead of just doing it through manual observational techniques. Because we are embedded within a policy division, the biodiversity division within DELWP, we have very strong links to policy and management, and in fact I would say that we are unique in understanding the context of providing science within a government institution. I am not casting aspersions on my academic colleagues; it is just that a lot of us have worked in government for a long time. In fact my previous appointment before this one was as a policy director within the division, and I had responsibility for native veg policy, which is exciting. We really feature on collaboration with many partners.

So I just want one quick example, if I have got the time: one of our really unique, innovative, globally leading science projects has been a project with this horrible name, Strategic Management Prospects, but it is basically intended to identify the highest benefits for biodiversity at all locations—so what management interventions can Victorians do to get the highest biodiversity benefit at a particular location? And it requires some very, very sophisticated modelling and mapping using species habitats, mapping of threats and how they impact on species, estimations of the benefit of actions—and we use the academic community particularly to help us estimate the benefits of the actions—and we also factor in cost. And that produces this fantastic map, this colourful map, which I have often said I would like to have as a T-shirt—I think it is a ripper—and it gives us the relative priorities about where to invest for the best biodiversity benefit. This is the bang-for-buck map. Another way of saying this is that this piece of work, which has been subjected to global peer review—we have published it in the literature and it has stood up to great test—allows any Victorian and indeed any Australian to ask these sorts of questions: what actions should we do to help species to get the best benefit? Where should we act to maximise benefit? What actions at which locations give us the best return? What actions promote biodiversity of what species? So that is the really classic example of the applied research that we do to inform government decision-making.

We have got a fabulous website and this wealth of information. There are over 250 technical reports, there is a variety of leaflets, there is a heap of stuff on there, so I would direct the committee to have a look at that if you have not already had a look. So that is it for me, I think. Thank you.

The CHAIR: Great. Thanks very much. Ms Bath?

Ms BATH: Thanks, Chair, and thank you very much, Dr Lowe. This is most interesting, and you have raised some really critical points that I would like to look at: data, research, in-field sampling, spatial analysis. These are really key drivers for your research, and I would just like to highlight an example and then ask a question. There was a report in December 2019, and the report was titled *Spatial Analysis of Logging on Steep Slopes across Special Water Supply Catchment Areas in the Central Highlands of Victoria*—as I said, 2019. Now, that alleged that there were widespread breaches by VicForests. The OCR, Office of the Conservation Regulator, came back, and I will just quote it for reference:

> The overall proposition raised by the report that there is … widespread breaching of slope prescriptions could not be substantiated. The allegation was found to be based on modelled data and insufficient in-field sampling to be able to make a valid reference.

That was from Matthew Zanini from the OCR, and it is now closed—the case is closed. My question is: it is very important, and accurate data modelling goes a long way and it is important, but in-field sampling is also vital. What would the Arthur Rylah institute inform this committee about the importance of in-field sampling and the danger of too much data modelling?

Dr LOWE: Right. Great first question. Thank you. Yes. I guess the key thing that comes into my mind, Madam Chair, as you are asking the question is the trade-off between collecting field data accuracy and cost. The reality in the world today is that field data collection is incredibly expensive. A decade ago it would have been quite easy to get some of our scientists to hop in a car and go out and collect data. It is incredibly expensive. We have to have two people together, we have to have incredible equipment and so forth. So cost is a really big factor, and that has driven the tendency towards modelling, as you have referred to, and over that period the veracity of modelling techniques has really improved globally—absolutely globally. But I think it is a fair statement to say that both are required—both field data collection and modelling are required. The example that I used with the strategic management prospects indicates that trade-off between accuracy, reliability and cost. That is always a consideration in our minds, and it is certainly the way that Victoria's biodiversity plan is being implemented.

Ms BATH: A quick supplementary—thanks, Chair. Thank you, Dr Lowe. We hear the words 'citizen scientists' used a lot. I personally endorse it on one level, but I also have a question about it on another level, just because it is a danger to elevate somebody who is not a scientist with scientific background to the level of authority. I would like you to comment on that, but noting the very important work that people—volunteers—do in the environment. So can they be relabelled in terms of the work they do without elevating their authority? Could you comment on that?

Dr LOWE: Thanks for the question. Yes, this is one of our responses to this dilemma about cost and accuracy. For the last 10 years we have been actively involved in cultivating citizen science, running programs, and we have actually done analysis about the veracity of the citizen science data. We think it has got a really central place and it will continue to have a central place. The way to manage this issue that you refer to is a strong partnership between the scientists and the citizens. We have run numerous workshops with lots of community members where we have examined that issue, we have talked it through and we have come up with a formula. There is quite an extensive paper on our website about this issue. To summarise it: scientists need to be part of the initial design and establishment of the approach and methodology that guides citizens to go out and get the best data so it can have the best use, and then we partner with citizen scientists to do the analysis and publish the report and indeed feed it into the statewide databases. So there is a great partnership collaboration here. Personally I would like to see a lot more citizen science carried out across the whole of the community.

Ms BATH: With veracity tucked in the back there, isn't it?

Dr LOWE: Absolutely, yes. I mean data are useless if they are not reliable and if they are not collected in the right sort of way—they have very little use—to get the best benefit out of the data collection. This is a fantastic effort by members of the community. I do citizen science myself—I am a birdwatcher. I do not want to waste my time out there. I am having a nice time out there, but I also want to make sure it actually counts, so this partnership is really vital to make sure that happens.

Ms BATH: Thank you.

The CHAIR: Dr Ratnam.

Dr RATNAM: Thank you so much, Dr Lowe, for appearing before us today and the incredible work the institute does. It is so important, and we are certainly hearing through this inquiry just how important the data and research is to understanding what is going on and what we can do to fix things. I have a couple of questions. I would like to ask one first that I would like you to take on notice, if that is okay, so you do not have to answer it today, which is if you could provide us with a bit of an overview of the type of research projects you are doing, particularly in terms of biodiversity and extinction. That is one on notice for us in terms of background information. But in terms of today's questions, we have heard lots of extremely concerning evidence about the state of Victoria's ecosystems. We have the 2018 state of environment report that showed that biodiversity was the area that we were tracking the worst in. None of the 35 indicators were good—18 were declining. As someone who has worked in the field for some time, what is your assessment of what needs to change to improve this extremely poor report? What should we be doing to reverse this decline? And connected to that, if funding was not a barrier, what are the key actions that you think government should take to halt the decline in biodiversity that we are experiencing?

Dr LOWE: Great. Thanks for the question, Dr Ratnam. The approaches really are about—sorry, I am a bit distracted by the first question. So the second question—could you just repeat that?

Dr RATNAM: Certainly. The first question, on notice, was the type of research that you are doing—some background information would be excellent. The second question was: what needs to change to improve the decline in biodiversity? So that is the actions, but also connected to that, if funding was not a barrier, what research should we be doing and what actions should we be taking to halt the decline in biodiversity?

Dr LOWE: Yes, thank you. Apologies for the mind blank there.

Dr RATNAM: No problem. I asked a lot.

Dr LOWE: The first question is overwhelmingly that we need more citizens supporting biodiversity conservation. Activity that every one of us does every day of the week has an impact on biodiversity one way or another, so I would say overwhelmingly motivating and mobilising more citizens to act. In fact not only do

we do research, but we also do research-driven program work. David Cantrill has just referred to Victorians valuing nature—that goal about more Victorians acting. We are actually using a science-based approach to understand what motivates people and how to get more people to act for biodiversity, and it is a really quite novel and relatively new area of social science that we are actually doing the science on. The goal of that is mobilising more Victorians to actually go out and act. That is a really important part of it.

Money is a part of it, but equally citizens have money and corporations have money, and combined collaborative effort across that whole of society will actually make a huge difference. If we had more money, I think my honest answer would be: we are doing just about everything we can do. It is just a matter of scale. If we had more funding, we would scale up our activities. We would have more data collection from scientists travelling to the bush, but also we would have bigger citizen science programs. We would have better ways to collect data, store it in databases, analyse it and use it for decision-making. We would have more money for activity to do the management of threats, which is clearly the approach that the biodiversity plan has taken as well. And we would try to continually use decision-making tools like the strategic management prospects to focus effort to get the best return on investment. I think everyone in the community wants the best bang for their buck for the effort.

Dr RATNAM: Thank you. I have got more, but I can come back.

The CHAIR: Sure. Thank you, Dr Lowe. I might just ask a question here following on from the theme of citizen science. I myself have participated in that. I have got a particular interest in blue-tongue lizards, and my daughter is a very keen reptile person as well. I am just wondering: there are some really good apps out there at the moment where citizen science can be enabled. You can even take a photo of something you might see, and it uploads it and does all the geocoordinates for you and all the rest of it. Do you think local councils can be more involved as well in driving some of that locally based effort? Because I think one of the themes that is really obvious that is coming out in this inquiry is the lack of data or the patchiness of data or where data has been collected. Is it robust now, given the environment we are in? I guess, going on from what you are saying, would it be a good idea for councils perhaps to do more in this space? We have seen some councils have been doing some active work over many years. Could that be a thing where councils could be encouraged to do more?

Dr LOWE: Absolutely. I think all groups, whether they are one of the tiers of government or community groups, can actually do more in this space. The thing with citizen science is it collects a particular type of data. It is not the only data we need. We do need other more intensive data about the impact of management interventions. But literally, yes. I mean, all parts of society could do more with citizen science. It has sort of got a little bit of a stigma about it, and I think there was a bit of a flavour of that in one of the earlier questions—that scientists often say that data collected by non-scientists is no good. We are actually actively working around that as well, and I suspect that that is a bit of a barrier by some parts of society to want to invest further.

The CHAIR: The central theme of this inquiry is looking at biodiversity decline, and I note a lot of the witnesses have talked about decline, but do we actually measure improvements if there are improvements? Like, I know that some species have been shown to be quite resilient and able to adapt as well. So would your organisation, when you are looking at different species, whatever they may be, look at where there might have been improvements as well? And how would that be reported?

Dr LOWE: Absolutely. I have to confess that I and my colleagues are actually passionate conservationists of course, so we were really hanging out for good news stories, for improvements, and there are many of them. There are species that we thought were extinct that we have rediscovered. There are species that through the right sort of management have improved. There are lots of those stories around. But unfortunately there is a group of species that are still declining because we have not really managed a way to reduce the threats to them. So there is plenty to be done in that space. Again, on our website there are lots of good stories in there about how things have improved. One of the classic species I worked with years ago was the brush-tailed rock wallaby. Victoria has its own unique subspecies of rock wallaby. There has been a really interesting, intensive intervention program with that one that has improved the prospects. It is still early days, but the signs are great, and that is just an anecdote.

The CHAIR: Yes, and I think it is important, as you say, to talk about and celebrate the good news stories when they are there, because it demonstrates the commitment. Whether it is citizen scientists or the scientific community, if we can see those benefits, it actually makes people feel more invested in why they should actually care about the environment and do more.

Dr LOWE: Absolutely. Sorry to interrupt, but a book comes to mind. There is a book called *The Book of Hope*. I do not know how many committee members have seen that book or heard of that book, but it was actually responding to that exact issue—that we tend to talk about the terrible stories, and that is depressing and it is not very encouraging. A group of people got together, probably five years ago now, to produce *The Book of Hope*, and that is the book that describes the really good success stories that have happened and the huge diversity of activity that is being used for that. It is sort of a prototype for how we might go about it more generally, so I would refer the committee to that. If you have not seen it, it is actually a nice read and it is very uplifting.

The CHAIR: Great Thank you very much for that. Ms Taylor?

Ms TAYLOR: Thank you. Thank you so much for your passion for conservation as well. That gives us all hope, so I genuinely am grateful for that. I just want to understand more about your work with regard to the bushfires, the 2019–20 bushfires, and I suppose the limb to that is climate change and that sort of repetition of threat that we are going to see more and more. I know you were just talking about hope, but I always think you face the problem to create a better future. So, anyway.

Dr LOWE: Absolutely. So you would like a description of how we were involved in the post-bushfire work?

Ms TAYLOR: Yes, a bit of understanding of that.

Dr LOWE: Yes. So would you believe I was actually on leave when the fires were happening, so my colleagues jumped to the fore. We had field teams out as soon as it was safe to enter the forests, and they were part of a collaborative effort right across a variety of institutions—zoos, Parks Victoria, lots of community groups—going out there to actually assess what had happened. We also took the opportunity to roll out some brand-new remote-sensing work that we had done. So we had a postdoctoral fellow at the institute who was working out a way to measure fire intensity from satellites—previously all estimates of fire intensity had been done on the ground—and we were able to roll out that technique. And that very quickly, very efficiently—literally within a week or two—pointed out the areas that were most badly burnt, and we could direct effort towards that. So it is a really nice example of contemporary cutting-edge science being deployed at short notice and then directing effort—so people went to the best places rather than having to randomly search across the whole area. When we got out there the estimates as part of this broad community of effort were to figure out what had happened, so what did the extent of the burning mean? We were able to start getting preliminary estimates about potential populations that might have declined through the burning or been actually totally lost, and then that initiated a program that is still going today.

There was a massive investment by the government in responding to that, and we are now starting to see really strong signs of the recovery. We have been part of that monitoring effort for the recovery and we have also been actively involved with other parts of government in working with the community to feed the news back to the community so that the community is empowered. In fact another one of our social science projects that is led from the institute is the connection between human recovery from a disaster and biodiversity recovery from a disaster. There are some really interesting case studies that one of our staff worked on 15 years ago that showed that you can use the story of hope that comes from the biodiversity recovery to actually help with the psychological wellbeing of the community, so it is a really novel piece of work. We are engaged in that as well.

Ms TAYLOR: Thanks so much.

The CHAIR: Mr Hayes.

Mr HAYES: Thank you. Dr Lowe, thank you very much for your presentation and for your enthusiastic work. I do not want to bash the data thing too much, but data is important and we keep hearing that there are large gaps in data measurement and really, no matter how good the modelling is, if you have not got the data right in the first place you do not get the right results out of the modelling. So data collection being important, and presuming that we are able to spend more money on it, is there a way of ensuring that we do get the right data about what we need to model, other than relying on—I mean, I like the citizen science idea, but it does rely on volunteers turning up in the areas where they can measure rather than maybe where you want to measure. So is there a way of spending money to get the data that is required? Then my second question, which is probably a bit more thorny, is talking about how you put forward management plans to achieve the highest biodiversity—better bang for buck. That might be a hard question for you to answer, but how often do

governments listen to recommendations like that and put them into effect, or is that also a question of money too?

Dr LOWE: That certainly is a thorny question. Thank you for acknowledging that. The first question about data collection, again, the example that I used in my talk about strategic prospects is really just a decision-making tool to prioritise where to invest, and the same can apply to where to invest to collect data. The sort of target here might be where would we have the biggest gaps or where would we get the best benefit from data, and so we have actually got a series of projects that are looking at some elements of that right at the moment. Under the biodiversity plan there was development of a monitoring framework and there has also been subsequently development of a knowledge framework. Both of those are trying to provide policy direction, systematic thinking and guidelines for how to go about collecting monitoring data, but also new knowledge. One of the aspects of the knowledge framework, which is again world leading, and it is a cooperation between my scientists and our policy colleagues in the head office, is about understanding the value of information. It is a really novel concept. Not all information is equal. Some information is more important than others. We have developed a technique to be able to identify the highest value information, and that can be fed into these cost-benefit equations that I have actually been rabbiting on about a bit this morning. So that would be part of the answer, I would say. We would not want to collect data everywhere equally. We would want to target it, we would want to focus it, and we have got some emerging tools that are literally just going through international peer review at the moment to test their veracity to make sure that they have scientific integrity. That could be rolled out. The second question—yes, that is pretty thorny. Would you like to state it again, and I can have a crack at it?

Mr HAYES: It is just that, providing all this work that you do to government about how to achieve the highest biodiversity outcomes and 'bang for buck' as you say, how often does government put these recommendations into effect? Or is money also an issue in making these recommendations effective?

Dr LOWE: So it is not quite as thorny as I thought.

Mr HAYES: Well, there was a bit of an out clause there.

Dr LOWE: Yes, there was. Thank you very much. I am very grateful. Being a public servant, I have got a contract, but we will see next week.

I am a true believer, and I have been around for 30 years so I have seen both of the biodiversity strategies produced for Victoria. The first one was revolutionary in its own way, and that was 20 or 30 years ago. This one that was released five years ago, or whenever it was, is again quite radical. It takes an approach which is really trying to be better at providing government with good advice so that government can decide its priorities. Through that process lots of innovative approaches have been tried. So, you know, Victorians acting and valuing nature, that goal was really prominent. That has been a program the government has supported. We are hoping to expand that. On the other side of it, the more traditional—what sorts of works do you do; what sort of data do you collect—government has supported that. From recollection, the current government has invested $86 million in implementing the biodiversity plan over the past four years. All of those activities have been supported one way or another by the government.

It is really a measure of how effective the science has become and how good the policy advice has become. It has moved away from 'We don't have enough money; let's do everything, let's throw lots of money at it' to 'How do we use money more wisely?'. Because we are very well aware of the incredible amount of investment required of government and other institutions. It is not particular to government; it is equally about citizens. How do they best invest our money? Lots and lots of that information that has come out of the bio plan is quite world leading and is actually being supported by a variety of institutions, government and non-government.

The CHAIR: Mr Grimley.

Mr GRIMLEY: Thank you, Chair. Thank you, Dr Lowe. Just before I ask my question, can I just confirm, were you referencing a shared PowerPoint at the time during your presentation, because it was not coming up on my Zoom screen?

Dr LOWE: Ah, yes, I was. Sorry about that.

Mr GRIMLEY: No. I am just checking with the Chair if that PowerPoint was being shown.

The CHAIR: No, we did not see it either. But that is okay; we can get it. It will be provided.

Mr GRIMLEY: Yes. If we are able to get that sent through that would be fantastic.

Dr LOWE: I apologise. I thought it was being broadcast.

Mr GRIMLEY: No, that is okay. As you were talking, I thought you made reference to something, and I thought maybe it was just my end. But that is all good. My question is just in relation to part (b) of the terms of reference, which speaks about the adequacy of legislation in protecting Victoria's environment, specifically mentioning the marine and coastal environment. From the submissions so far, I tend to see that the marine environment is one that is quite often overlooked somewhat when we talk about ecosystem decline, which is surprising given that the majority of our species are located within marine habitats—so I am led to believe, and I will stand corrected; I am no expert in that field. But given that, are we doing enough to protect our marine environments? How important is this, and what should the government be doing as a priority in protecting our marine environments?

Dr LOWE: Thanks for the question. It is an answer that my colleague David provided earlier. It is actually not something that we do at our research institute, and, I think, Mr Grimley, that is really a product of history—that research institutes in Victorian government have had a separation between marine work and freshwater and terrestrial, and we cover freshwater and terrestrial but we do not cover marine, with the odd exception like the work that we do on whales, where we do the citizen science and analysis for whale watching in Victoria—the southern right whales. We do a little bit of estuarine work—that interface between marine and freshwater. So I do not actually have any expertise or any great knowledge in that space, I am sorry to say.

Mr GRIMLEY: That is okay. No, that is all good, thank you. Just one more question based on your research programs that you do undertake: are you able to elaborate upon how these research programs involve traditional owners?

Dr LOWE: Yes, absolutely. Again, an emerging area of work—over probably the last 10 years we have had a small number of projects where we have worked with traditional owners on their country, worked closely with them. We are really keen to ramp this up, and again there is an increasing amount of money that comes in to support us. The institute runs on fee for service. We do not do work unless someone pays for it, and so the amount of money for understanding traditional owners' views of the land and how they go about it is only really just starting to flow at the moment. We have recognised that there is quite a special difference between Western science and traditional knowledge, and we understand that there has been a lot of tension in that space between Western scientists and traditional owners. We are really careful to be as respectful and careful in that space as we can, and we are trying to understand it better. So we are actually working with TOs at the moment to understand how we can be more effective. We have literally just appointed a postdoctoral fellow with Melbourne University to understand what we call 'multiple ways of knowing country', and so we are actually taking an academic approach to that but we are also taking an approach that is supportive of the government's initiatives in this space.

Mr GRIMLEY: Wonderful. I look forward to seeing the progress on them, and thanks for the answer. Thank you, Chair.

The CHAIR: Thank you. Dr Bach.

Dr BACH: Thanks very much, Chair, and thanks, Dr Lowe, for being with us. There has been some discussion about the best ways to achieve particular biodiversity outcomes. I am really concerned about threats to our green wedges and other metropolitan green spaces. I have recently learned about plans to turn green spaces in the City of Kingston into a stabling yard, for example, for the Suburban Rail Loop. I wonder if you might speak to us about the potential impact upon biodiversity outcomes, based on your research and your entity's research, of any loss of our really precious green spaces and green wedges in metropolitan areas.

Dr LOWE: Thanks for the question, Dr Bach. I have to confess that my job prior to being the research institute director 10 years ago was this policy role that I referred to before. I was responsible for the Melbourne Strategic Assessment, so that was a policy role. That was, I think, a really good example of using available legislation and mechanisms to be able to protect the most important biodiversity but also to allow development to occur in appropriate ways. I reckon it is a really good model for how we have gone about it, and the primary feed into that, as your question alludes to, was understanding the biodiversity in the area. So this was the area just outside the urban growth boundary at the time and setting the next growth boundary, which is the boundary

we have now—surveys in that area, collecting citizen science data, rounding up community data about that. The analysis and assessment of that was fundamental to then identifying: what the assets are there, and prioritising them and then putting in place stringent protections for those assets. So that model, I think, is a really good model because it covered—I do not know—100 000 to 200 000 hectares around Melbourne. It really did the whole thing in a really short time period so you could actually deal with it rather than just chipping away at it over decades, which had been the previous approach. So I think that is really fundamental, and I would certainly advocating for the use of data for strategic priority setting.

There is another element to it, Dr Bach, I think. Some of our colleagues, particularly at RMIT—Dr Sarah Bekessy—have really led a strong initiative around understanding how to better protect biodiversity within urban spaces and how to get the harmony between humans and biodiversity. That is cutting edge work as well that is science driven, and it also shows that there are many, many opportunities in that space.

Dr BACH: That is great. Many thanks, Dr Lowe.

Mrs McARTHUR: Thank you, Chair, and thank you, Dr Lowe. Now, I am interested that you do do high-quality evidence-based science research and you provide good advice to government. So I am just wondering about ecological research and advice regarding the environmental approvals to dump contaminated PFAS soil in the ecologically sensitive area in Maddingley which of course drains into the Parwan Creek—and I have seen the drains from the tip into the Parwan Creek, which of course goes into the Werribee River. What advice did you give government on this very important environmental issue; and secondly, what advice would you have provided government on the issue of putting very extensive transmission lines through a biolink in the area near Darley particularly and through the Lerderderg Gorge and the Merrimu Reservoir and the effects on the particular species of flora and fauna in those areas? And given that the biolink was a citizens-led project—which actually handed over land so that this biolink could be created for a biodiversity area—they are now confronted with that being basically decimated, and there is also the fact that the environment group in Maddingley has had to take the government to court over the potential effects to the environment by this potential dumping of soil in Maddingley. So could you elaborate perhaps on the advice you would have given government in relation to those specific projects?

Dr LOWE: Thank you for the question. The advice about those sorts of pollution and contaminants issues is really led by the Environment Protection Authority, and they have their own scientific experts. Even with 112 people in my staff, we cannot cover every topic, and we have tended not to develop expertise in that space. One exception would be that we have worked with the EPA on ducks and PFAS contamination of ducks and some fish, but that is the extent of our involvement in that. So we have not provided advice; that would have been led by the EPA scientists. On the second question, I do not actually know the area in question, so it is a bit difficult for me to answer about biolinks and powerlines. The most relevant work we would have done is we have actually led the technical expertise, along with some scientists from the community and from interstate, about brolgas and powerlines, particularly in the south-western district, and that was used by government to revise brolga guidelines through development. That is effectively our extent of involvement.

Mrs McARTHUR: Okay. Then can I have a supplementary question, and it relates to invasive species in public spaces, particularly along roadsides, where nowadays blackberries, ferns and blackwood seedlings are out of control, and these invasive species are in public land. So what advice do you give DELWP potentially about controlling all this, because it not only is a road hazard but it also creates major problems for the neighbouring farming land as the seeds move into farming land—and they of course have to get rid of them and control these invasive species, but it seems governments do not. What is your position on that?

Dr LOWE: Our involvement in the weed programs has really been advisory to our policy colleagues. We have a real focus on the impact of weeds on biodiversity, not so much on other values such as agriculture or community assets. So our advice has been channelled in that way through to policy program. There is a series of weeds programs that is effectively coordinated by head office policy group, and we provide technical advice into that as requested.

Mrs McARTHUR: So why do you think it is that none of this—

The CHAIR: Sorry, Mrs McArthur, we are out of time.

Thank you very much, Dr Lowe, for your presentation and for answering our questions today. If there are any other questions on notice that committee members have, we will provide them to you and then that will give you time to answer them on notice. So thank you very much for your presentation.

Dr LOWE: Great. Thanks for the opportunity, and I hope it was helpful.

The CHAIR: Yes, very much.

Dr LOWE: All the best.

Witness withdrew.