



**LEGISLATIVE ASSEMBLY FOR THE AUSTRALIAN CAPITAL TERRITORY**

**STANDING COMMITTEE ON ENVIRONMENT AND TRANSPORT  
AND CITY SERVICES**

(Reference: [Inquiry into nature in our city](#))

**Members:**

**MS S ORR (Chair)**  
**MISS C BURCH (Deputy Chair)**  
**MR J MILLIGAN**

**TRANSCRIPT OF EVIDENCE**

**CANBERRA**

**WEDNESDAY, 22 MAY 2019**

**Secretary to the committee:**  
**Ms A Jongsma (Ph: 620 51253)**

**By authority of the Legislative Assembly for the Australian Capital Territory**

Submissions, answers to questions on notice and other documents, including requests for clarification of the transcript of evidence, relevant to this inquiry that have been authorised for publication by the committee may be obtained from the Legislative Assembly website.

## **WITNESSES**

<b>BOOKER, MS STEPHANIE</b> , Chief Executive Officer and Principal Solicitor, Environmental Defenders Office (ACT) .....	<b>160</b>
<b>BREADEN, MS JANE</b> , General Manager, Business Services, Icon Water .....	<b>187</b>
<b>BRYANT, MR BENJAMIN</b> , Manager, Environment and Sustainability, Icon Water.....	<b>187</b>
<b>BUTCHER, MS LINDY</b> , Volunteer, ACT Wildlife Incorporated .....	<b>168</b>
<b>LIND, MR MARTIN</b> , Vice-President, ACT Wildlife Incorporated.....	<b>168</b>
<b>MABBOTT, MS BARBARA</b> , Volunteer, ACT Wildlife Incorporated.....	<b>168</b>
<b>Oakey, MS HELEN</b> , Executive Director, Conservation Council (ACT Region) .....	<b>179</b>
<b>PEACHEY, MS HEATHER</b> , Volunteer, ACT Wildlife Incorporated .....	<b>168</b>
<b>SILBERT, MS NICOLA</b> , Policy Lawyer, Environmental Defenders Office (ACT).....	<b>160</b>

## **Privilege statement**

The Assembly has authorised the recording, broadcasting and re-broadcasting of these proceedings.

All witnesses making submissions or giving evidence to committees of the Legislative Assembly for the ACT are protected by parliamentary privilege.

“Parliamentary privilege” means the special rights and immunities which belong to the Assembly, its committees and its members. These rights and immunities enable committees to operate effectively, and enable those involved in committee processes to do so without obstruction, or fear of prosecution.

Witnesses must tell the truth: giving false or misleading evidence will be treated as a serious matter, and may be considered a contempt of the Assembly.

While the committee prefers to hear all evidence in public, it may take evidence in-camera if requested. Confidential evidence will be recorded and kept securely. It is within the power of the committee at a later date to publish or present all or part of that evidence to the Assembly; but any decision to publish or present in-camera evidence will not be taken without consulting with the person who gave the evidence.

*Amended 20 May 2013*

**The committee met at 3.01 pm.**

**BOOKER, MS STEPHANIE**, Chief Executive Officer and Principal Solicitor,  
Environmental Defenders Office (ACT)

**SILBERT, MS NICOLA**, Policy Lawyer, Environmental Defenders Office (ACT)

**THE CHAIR:** Good afternoon, everyone, and welcome. I declare open the sixth public hearing of the Standing Committee on Environment and Transport and City Services inquiry into nature in our city. The committee announced this inquiry on 6 December 2017 and has received 71 submissions, which are available on the committee website. This is the sixth of seven hearings that will be conducted between March and May 2019.

Today the committee will hear from the Environmental Defenders Office, ACT Wildlife, the ACT Conservation Council and Icon Water. On behalf of the committee, I would like to thank all the witnesses for making time to appear today.

Before we begin, on behalf of the committee I would like to acknowledge the traditional custodians of the land we are meeting on, the Ngunnawal people, and pay my respects to their elders past, present and future. I extend a welcome to other Aboriginal and Torres Strait Islander people who may be with us today.

We will now move to our first witnesses appearing today, Stephanie Booker and Nicola Silber from the Environmental Defenders Office. On behalf of the committee, thank you both for appearing today and for your written submission to the inquiry. Can I remind you of the protections and obligations afforded by parliamentary privilege and draw your attention to the pink-coloured privilege statement before you on the table. When you have had a chance to read over it, could you both please confirm for the record that you understand the privilege implications of the statement?

**Ms Booker:** Yes, I understand.

**Ms Silbert:** Yes, I understand.

**THE CHAIR:** Thank you very much. I also remind you that the proceedings are being recorded by Hansard for transcription purposes. Before we start questions, do you have any brief opening remarks that you would like to make?

**Ms Booker:** Yes, we do.

**THE CHAIR:** Yes, please do.

**Ms Booker:** I am the CEO and principal solicitor of the Environmental Defenders Office in the ACT. Firstly, we too would like to acknowledge the traditional custodians of the lands that we are meeting on, the Ngunnawal people, and their continuing connection to country and community. We pay our respects to these people and their culture and to elders past, present and future. We aspire to learn from traditional knowledge and customs so that together we can protect our environment and cultural heritage through the law.

Secondly, we would like to thank the committee for inviting us to prepare submissions after the due date. This is an important inquiry and we are very happy to contribute. As you know, we at the Environmental Defenders Office are a public interest community legal centre specialising in environmental law in the ACT and surrounds.

Our role is to empower the community to protect the environment through the law. We are the only service in the ACT and surrounds which does this. We provide advice and representation on issues impacting the natural environment in our city, including planning and development where it relates to biodiversity protection, tree protection et cetera. The ACT is in a position to be a leader on integrating nature in our city yet, as this inquiry has heard, there are concerns about how we grow in a considered way, given our existing natural environment and existing pressures.

The concerns that we raised in our submission to the standing inquiry have emerged from systemic issues we have noticed in working with members of the community who are working to protect nature. This inquiry has confirmed what we see at the EDO every day: that there is a high level of public support for nature and the natural environment in Canberra.

Community members are also concerned at the incremental loss of their natural environment. In light of this, we have recommended, amongst other things, continuing support for groups protecting the natural environment in the ACT; improving consultation processes in order to make the most of local community knowledge in making decisions that impact the natural environment; and improving access to justice, including a review of government decisions where they impact the environment.

In our submission we have discussed the impacts of greenfield development on the natural environment. We discuss the need for good practice environmental assessment and planning processes where developments on greenfield do occur. We have also highlighted some of the broad changes necessary to integrate nature in urban areas, including legislation and policy that promotes green infrastructure. Living infrastructure requires a mix of tools, not only legislative changes.

One point of clarification. On page 4 of our submission we discuss the non-urban zones, and parks and recreation zones contained within the Territory Plan. We note that any rezoning of these areas for development must consider the benefits that they provide to nature in our city, through processing in the impact track, so that environmental impacts are assessed. To clarify, when considering variations to the Territory Plan which ultimately rezone land for future development, which irreversibly impacts on the environment, there is no legislative responsibility for decision-makers to take into account climate change mitigation and adaptation for such spaces. These need to be considered.

Lastly, given that the ACT government last week announced a climate emergency in the ACT, we must look at the role of nature in the ACT from a climate mitigation and adaptation perspective. A whole-of-government approach must be taken in regard to this. This means that all sectors of government must take into consideration the impacts of decisions on climate change, including the ACT's own emission reduction

targets.

**THE CHAIR:** Thank you. There was quite a lot in that. Thank you for your submission; it was quite comprehensive. There are a few things I want to do. To start with, I go to one specific topic—that is, tree protection. We have heard quite a bit from different witnesses that currently the protections are good or not so good. In your experience, where do you think the ACT is going right or wrong in the current tree protection regulations?

**Ms Booker:** That is a really good question. We have seen a range of different issues with respect to tree protection. In comparison with other jurisdictions, tree protection is quite strong. We have had complaints from community members about, for example, not allowing neighbours to cut down trees that impact on solar access. By solar access, I mean access to solar panels—light on solar panels et cetera. The direction that is relevant is quite comprehensive. There are clearly laws around prioritising the protection of trees to access to solar panels.

At the same time, there are many that do not necessarily think that that tree protection is enough. At an individual level, when it comes to individual trees, there seems to be quite a lot of emphasis on what the law says in protecting trees. Where it comes to ecological communities that are vulnerable, I think that there might be different opinions with respect to that. So a backyard that drops leaf litter et cetera is treated differently to a community of trees that are otherwise protected under commonwealth environmental law.

I think that the ACT's tree protection laws are okay. I think that, with respect to broader communities, there are a couple of issues around whether or not environmental impact statements, and the way that those are formulated, adequately take into account the impacts of development on trees in that regard.

**Ms Silbert:** I am a policy lawyer at the Environmental Defenders Office. The mechanisms to protect trees in the ACT are interesting and unique to the jurisdiction in that we have this special role for the conservator and these trees that are designated regulated or registered trees. However, what we have seen in terms of outcomes, as I am sure you have already heard throughout the inquiry, is that there has been an overall reduction in the number of trees in the ACT. So something somewhere in the process is not working. I would also add that from our experience there is an issue with enforcement where trees are incorrectly damaged or removed. We have seen a lack of enforcement and penalties for that.

**THE CHAIR:** But overall you would say the settings for tree regulation are good for the environment. I draw a distinction between backyard trees and areas of environmental significance. I think that is one distinction. Our regulation covers both. We sometimes do not focus on it enough. I similarly take your point. I think that applies very much to the environmentally significant areas. If we focus on backyard trees, for example, do you think the settings are quite right for those, in the sense of maintaining the environment?

**Ms Booker:** I think it is an interesting question. When the conservator assesses whether or not a tree should be modified or removed it takes into account a list of

considerations. I am unsure as to what extent considerations around, for example, the biodiversity that is collocated within those trees or uses those trees as a habitat is taken into consideration. When we talk about the protection of trees, we are also talking about the protection of trees as a habitat. I do not know that that is actually more broadly reflected. And it should be, essentially. I think that would probably be my answer to your question.

**MISS C BURCH:** Just on backyard trees—I just want to clarify—were you saying that it should be easier or more difficult to cut down trees that impact solar panels?

**Ms Booker:** I do not have a view either way.

**MISS C BURCH:** Or just that you get a lot of complaints about it?

**Ms Booker:** Yes, from both sides.

**MISS C BURCH:** Yes, okay.

**Ms Booker:** Yes, absolutely. When you are talking about backyard trees, generally where it comes to two protection laws, it is for registered or regulated trees, so they are of a certain height. They are not young trees et cetera. Having an assessment of the value of trees, with respect to their habitat value, I think is also really important. So, yes.

**THE CHAIR:** I have got more, but I am done with that line of inquiry.

**MISS C BURCH:** You suggest in your submission that the notification period for major development should be extended from 15 to 30 days.

**Ms Booker:** Yes.

**MISS C BURCH:** What outcome do you think that would achieve?

**Ms Booker:** I think that would provide the community with a better opportunity to provide submissions to the government to enhance the protection of the environment. At this point in time people have 15 days. The documents provided are extensive and complicated. It takes people a very long time to get through those documents and sort out what is and is not relevant, what is there and what is not there, let alone having to write a submission. Taking all those things into consideration, 15 days is not a long time.

**THE CHAIR:** Can I clarify, Ms Booker: is that in regard to looking at the environmental assessments that have been put in as part of a development application?

**Ms Booker:** No, even a normal development application. Are you talking about clarification at the start of my submission, extending the minimum notification period for major developments from 15 days to 30 days? In major developments I guess we include developments where there is likely to be an environmental impact track assessment. However, I guess what we have also found is that there have been a

number of developments in the merit track that impact on the environment that have not been lodged appropriately. Therefore, 15 days is an even shorter time because you are not able to assess environmental impacts against something that has already been prepared. We have seen that a few times.

**THE CHAIR:** In your opening statement you said you had comments on legislative and policy settings that promote green infrastructure. I am trying to decipher my own notes here. I want to go back to your opening statement where you made comments about green infrastructure. Are there any suggestions you might have, particularly from a regulatory point of view or a legislative point of view, where they may or may not be enabled?

**Ms Booker:** Do you want to talk about that?

**Ms Silbert:** Sure. We have detailed a few examples in the submission itself. In terms of regulatory barriers, you have already heard in this inquiry from people who are working on the ground—the submissions of Lyneham Commons or SEE-Change—where they see barriers. Then we have given a couple of suggestions from other jurisdictions about how regulation or policy can be changed—which I can detail for the written—

**THE CHAIR:** Would you run us through them and then we can maybe ask some more questions?

**Ms Silbert:** Firstly, on the research, I think it is important to note that some of it is about changing legislation, but a lot of it is not. Some of it is about mandatory rules and some of it is about taking a voluntary approach. Research shows that a mix of tools is important.

**Ms Booker:** For example, in the Territory Plan, obviously, depending on the development, there are a set of codes that developers need to abide by and make sure that they have compliance with when they lodge. Having codes varied to include green infrastructure where it is a new development might be useful.

We were looking at an example today in Toronto, where they have incorporated mandatory green roofs for developments that are over 2,000 square metres GFA. In fact, they list a couple of other requirements. But having something like that might be useful. The regulations or the codes would be different depending on whether or not it is new infrastructure or retrofitting existing infrastructure.

There are a couple of really good examples out there. In addition, I think we had also pointed to some information that the City of Melbourne and a couple of other local councils have developed, including the growing green guide, which is very difficult to say quickly. It essentially provides some advice and information for people that are interested in those sorts of living infrastructure tools.

**THE CHAIR:** Your submission suggests the introduction of a minimum requirement for green infrastructure. Can you expand on that a little and how you would see that being implemented?



**Ms Silbert:** I think that this has probably also been brought about as part of the ACT's living infrastructure paper and the next steps from that.

**THE CHAIR:** Yes, the discussion paper that went out.

**Ms Silbert:** I think that may look similar to the initiative in Toronto. We were having a look at the bylaw today and it is really interesting how it sets out the gross floor area and then compares that to the required green roof that they need to have.

**Ms Booker:** I think I would say that, in general, what would be really useful is to get a sense of what goals we are trying to achieve. If we are trying to achieve a minimum for green infrastructure, what is it that we want to achieve from that? Are we wanting to use it as an offset for climate change? How is that the case? I guess that is what I would emphasise generally.

**THE CHAIR:** Is it the Toronto example that you provided for high rise? They take a gross floor area and they—

**Ms Silbert:** I can send you the information.

**THE CHAIR:** Yes, if you can shoot the secretary a copy of the link, that is fine. It is just that we have heard a little about green roofs and we have heard different opinions. Some of them have said it would be better to invest in the environment that is not on the roof. Others have said green roofs are—

**Ms Silbert:** I think it is not an either/or.

**THE CHAIR:** I think there are pros and cons in both columns.

**Ms Booker:** Yes, absolutely. We have spoken about it a little in our submission with respect to greenfield development. Really it is about preserving, protecting and maintaining what we have and ensuring that its quality improves.

**THE CHAIR:** That is an interesting point. I think I have heard in this committee, but if not I have heard it elsewhere, a bit of a discussion about not just preserving something but actually improving the quality of areas. Is there anything that you would like to add on that particular point?

**Ms Silbert:** I guess coming from an environmental law perspective, besides our traditional environmental law principles that are in the legislation there are also other principles that have been recommended by experts. One of them is a principle of environmental restoration. We should, I guess, accept that what we have at the moment is not perfect and work towards improving that and making sure that there is no regression in the environmental values of the area.

**Ms Booker:** I guess the way that the law fits into that is by ensuring that it takes into consideration when development occurs, particularly development occurring around these fringes, that it is not likely to decrease the quality of existing natural assets. I guess the repeated complaint that we have heard is that a development will be made in an area where its environmental values have declined on purpose to make it clear for

development. Really it is about not just ensuring that we are maintaining what we have but ensuring that it is improved.

**THE CHAIR:** In your experience as environmental lawyers, is there anything in the current regulatory framework that really encourages this restoration, as opposed to a strict preservation of what is already there?

**Ms Booker:** No.

**Ms Silbert:** I would say not at the moment—as in, talking Australia wide?

**THE CHAIR:** Yes.

**Ms Silbert:** I guess the words that are often thrown around are that it is a managed decline of environmental values. I am not sure specifically. I cannot think of any examples off the top of my head.

**Ms Booker:** No. Obviously we have the Nature Conservation Act. It has action plans which we have commented on in our submissions. Those action plans are not linked to the Planning and Development Act in any way. The conservator has a role, essentially, when he is assessing and making comments on development, to take into consideration action plans that relate to species that are going to be impacted by development. But I cannot think at this stage of anything. There was something. But we can take that question on notice.

**THE CHAIR:** If you could it would be appreciated.

**MISS C BURCH:** Your submission also talks about best practice techniques when greenfield land is developed, and you mention things such as conservation corridors and no-go development zones. Do you have any other examples that you would like to see?

**Ms Silbert:** I think in addition to having conservation corridors and reserved areas, what we have seen is that sometimes there is an attempt at these areas but they are not designed in a way that would be, I guess, good practice. It is important that, in addition to making sure that your development has an area that is reserved for biodiversity, you make sure that that area is managed and designed in a way that will actually achieve that purpose.

**Ms Booker:** It is about having conservation goals and ensuring that the greenfield development that you are avoiding or that you are protecting actually reaches those goals, essentially. I think the issue of goal setting from a landscape perspective has been mentioned a few times in evidence to this inquiry.

**Ms Silbert:** To have an outcome space for it.

**THE CHAIR:** I have put this question to quite a few people. It has been raised by some submitters. In particular the Institute of Landscape Architects suggested the idea of a landscape plan or landscape strategy for the whole city including the urban area, not just the reserves. In your opinion, is there any value in a proposal such as that,

having an overarching strategy or plan for the landscape within the city?

**Ms Booker:** I think, with regard to an overarching plan, it would be good to get a sense of what that plan intends to achieve and how it intends to achieve those goals. If the landscape plan is to ensure that there is an aesthetic that is preserved then that is great. If it is to maintain, protect and restore biodiversity then I think any such plan would need to be engaged with by experts. There is value in such an approach, as long as that approach is done, I think, carefully and with community consultation in mind.

**THE CHAIR:** I think we have covered all the questions I have. We might conclude there. On behalf of the committee, I thank you for appearing today on behalf of the Environmental Defenders Office. When available, a proof transcript will be forwarded to you to provide an opportunity to check the transcript and identify any errors in transcription. I think you undertook to provide some information on Toronto.

**Ms Silbert:** Yes.

**THE CHAIR:** And there was a question about whether there were any areas of restoring—

**Ms Silbert:** An example of environmental—

**Ms Booker:** In the regulations and law, yes.

**THE CHAIR:** Whilst the committee has not set a deadline for the receipt of responses, answers to these questions would be appreciated within one week of the hearing, if possible. But if you have a chat to the secretary after this we can coordinate that.

**MABBOTT, MS BARBARA**, Volunteer, ACT Wildlife Incorporated  
**BUTCHER, MS LINDY**, Volunteer, ACT Wildlife Incorporated  
**LIND, MR MARTIN**, Vice-President, ACT Wildlife Incorporated  
**PEACHEY, MS HEATHER**, Volunteer, ACT Wildlife Incorporated

**THE CHAIR:** On behalf of the committee, thank you for appearing today and for your written submission to the inquiry. I remind you all of the protections and obligations afforded by parliamentary privilege and draw your attention to the pink-coloured privilege statement before you on the table. When you are ready, could you confirm for the record that you understand the privilege implications of the statement.

**Ms Mabbott:** I agree, thank you.

**Ms Butcher:** Agreed.

**Mr Lind:** Agreed.

**Ms Peachey:** Yes.

**THE CHAIR:** Before we move to questions, would someone like to make a brief opening statement?

**Ms Butcher:** I am doing that. I am a long-term carer with ACT Wildlife. Thank you for the opportunity to speak at this inquiry and expand on some of the issues raised by Barbara in her very comprehensive submission earlier this year. We are really appreciative of the financial support we already receive from the ACT government, including grants to test the suitability of Cydectin as a treatment for mange in wombats; money to cover the short-term employment of an administrative assistant; a building at Jerrabomberra Wetlands free of charge; and a small amount of annual funding to offset the cost of running a 24-hour wildlife phone service.

The role of ACT Wildlife is largely driven by point 4 in the terms of reference of this inquiry. Native animals come into our care almost exclusively as a direct result of the intersection of their natural environment and our urban environment. The exception to this is mange in wombats, which is another area of concern for our group.

We currently have about 40 volunteers in our 200-member base who are active in the organisation. They undertake many roles, including the phone helpline, transport and rescue of animals, training, carers to rehabilitate and release animals, mentors for new carers, growing and collecting food, sewing pouches, setting up aviaries, and fundraising, as well as coordinators and committee members who keep it all running smoothly.

In 2018 we received a staggering 9,500 phone calls. This has increased by about 30 per cent each year. We accepted 1,600 wildlife into care. About half of these were released back into the wild. There are more details of that in the draft annual report. We have a copy for everybody here.

**THE CHAIR:** Do you want to table that report? We could do that now.

**Ms Butcher:** Thank you. There are essentially two points in our concerns. The first is to reduce the numbers of wildlife that come into our care as a result of human and urban impact. We think we can address this by working with rangers, other interested groups and urban planners to identify hotspots where animals continue to be hit by cars and to have urban planners use that information to construct mitigating measures. We have just suggested things like animal overpasses and underpasses but there are a lot of other things that could be done. On this point we note the reduction in injured macropods as a result of the barrier along the Tuggeranong Parkway. That has made a big difference.

The second issue is the pressure placed on the volunteers themselves to maintain the level of servicing commitment, knowing that this will only increase as Canberra grows. Although we have a core of very committed volunteers, the stresses of the role mean that we also have a very large dropout rate for volunteers. I have a news article, which is number one.

**THE CHAIR:** Do you want to table those?

**Ms Butcher:** Yes, please.

**THE CHAIR:** We will table those. Do you have other documents that you want to table?

**Ms Butcher:** I do, yes.

**THE CHAIR:** If there are newspaper articles that you would like to table, we can take them in one go and you can make reference to them as needed.

**Ms Butcher:** You can take all of those. They are all numbered.

**Ms Mabbott:** We want to give you our calendars as well. Cute, furry animals—you cannot go wrong.

**THE CHAIR:** I will seek some advice on that. If we table the calendar, does that mean the committee members get to use it?

**Ms Mabbott:** No, but we will hand them out anyway.

**Ms Peachey:** You will love them.

**Ms Mabbott:** The year is half over—

**THE CHAIR:** We will not table those ones.

**Ms Mabbott:** It is hardly corrupt.

**Ms Butcher:** They represent what we do.

**THE CHAIR:** That is all right; we are just tabling the rest.

**Ms Butcher:** It can be very demoralising to continually be rescuing birds, possums and other small animals that have been attacked by domestic pets or entangled in inappropriate garden netting. Many of these require euthanising or die of their injuries in spite of our best efforts. We acknowledge the ACT government's draft ACT cat plan, which tries to address some of those things.

Our volunteers have seen the appalling suffering of wombats from the sarcoptic mange parasite, both in treating mange-affected orphan wombats coming into care and in treating mangy wombats in and around Canberra. We know the work we do is a drop in the bucket. One of the newspaper articles just tabled is from yesterday's *Canberra Times* about a severely mange-affected wombat.

ACT Wildlife fundraises for specialised foods. Last year that cost us over \$7,000. Some of the animals we care for, such as bats, possums, wallabies and wombats, cost their volunteer carers additional hundreds and even thousands of dollars in food and enclosures. Our fundraising volunteers work tirelessly to raise the money required for our needs. But this income is not predictable and does not provide our group with the financial confidence to grow in order to meet future needs. Searching out fundraising opportunities, writing grant submissions and planning how to raise money for our consumables and infrastructure is being done at the same time as the round-the-clock work of caring for our wildlife in our own homes and at the same time as managing our own work and family commitments.

The pressure on volunteers is huge. It could be reduced, though, with regular funding to offset a lot of our regular costs. It would be wonderful to have a regular source of income from the ACT government that would allow us to not only purchase animal food and mange treatments but also to have—this is our big wish—a wildlife veterinary clinic to provide specialised care needed by our wildlife and reduce the pressure on vets that currently do the best they can for our wildlife with no payment. That is article number three in the papers that I just gave you.

There are four things we would really like this inquiry to take away. One is that infrastructure such as wildlife overpasses and underpasses can reduce the suffering and death toll of our wildlife and reduce the pressure on our volunteers and on park rangers, who also have the task of euthanising so many injured animals after vehicle strikes. Ongoing funding to cover the cost of specialised consumables would allow our experienced wildlife carers to do what they do best, which is rehabilitate and release wildlife and proactively treat mange in the local wombat population.

The third thing is the establishment and funding of a specialised wildlife clinic. This would provide vital professional support to injured wildlife and their carers and reduce the load on the generous vets who do the best that they can to provide timely care, and frequently euthanasia, for our injured wildlife. Fourth, we would like to be involved in ongoing discussion of and planning for any of these solutions.

It is encouraging to note that the values that our whole group hold so dearly are recognised in the government's animal welfare and management strategy, which begins with a statement acknowledging that animals are sentient beings and goes on to

speak about the importance of wildlife in the environment as a part of our identity as the bush capital, and also has a goal of the ACT becoming an Australian leader in animal welfare. We are hoping that opportunities such as this one today will help keep the needs of the ACT's wildlife at the forefront of the minds of the people tasked with urban planning and infrastructure. Thank you.

**Mr Lind:** Could I make a little clarification? When I proofread this I must have missed point 3 on the last page: the establishment and funding of a specialised wildlife clinic. The ACT government, through the ACT environment grants round of 2017-18, provided the funds to essentially set up a clinic and to provide the building. What we do not have is the staffing. We have an empty building which we staffed fulltime for about three months with some money that was kindly provided by Minister Gentlemen. That funding has now expired. It is now staffed on a very ad-hoc basis by volunteers when they are available, which is minimal at best at the moment. If we were looking for any additional funding, it would be for professional staffing rather than the actual clinic, because we have that.

**Ms Butcher:** Veterinary clinic.

**Mr Lind:** Yes, okay: an actual vet clinic rather than a drop-off centre; that is true. That is slightly different to what we have. We have a drop-off centre, not a vet clinic. We can do a little bit of veterinary stuff, but not much. True.

**THE CHAIR:** I am particularly interested in, from your experience, whether you have any ideas on how we can better manage the urban-nature interface. You have made reference to two things around roadways and those sorts of things. I wanted you to expand on the sorts of measures we could take to better—

**MISS C BURCH:** Mitigation measures.

**THE CHAIR:** Mitigation measures, yes.

**Ms Butcher:** I did some reading into other states and territories which have constructed overpasses and underpasses. But I could not find any updates on their measurement of the effectiveness of those. We have already noticed that just the simple measure of the barriers on the side of Tuggeranong Parkway has reduced the number of kangaroo deaths in particular. This is obviously a cost as far as insurance and stress to people and the animals. Heather, you talk about the spillway and the ducklings.

**Ms Peachey:** We do see animals coming in on a regular basis because of particular infrastructure or there could be hotspots within ACT. There is a specific spillway in Yerrabi that waterbirds fall into and which we do not have access to. We need rangers to be able to access it, and that is when they are available. If it lands on a weekend then that bird is stuck there for a couple of days. There are examples like that that we can pull out of our data. Yes, we can review the data, see where the hotspots are and work with our local rangers to work out exactly what solutions could be provided.

**Ms Mabbott:** Some rangers were saying to me that even providing a post in those spillways so that they could climb out would address a lot of this problem. They are

also aware of the problems.

**Ms Peachey:** They could be really simple, cheap and effective solutions. We are quite realistic about these things.

**Ms Mabbott:** While overpasses and underpasses for wildlife would be lovely, we know there are simpler solutions. Some people even suggest flashing lights at the hot spots. What they are can be clearly identified. The rangers know where they are too. Animals can be trained to go in particular directions, otherwise they would not keep going to the hot spots. Even if motorists were slowed down to a slow speed in those places all the time, that would surely help.

**THE CHAIR:** Are the injuries to the animals you see sustained mostly from car strike? Are there other causes?

**MISS C BURCH:** You mentioned pets as well.

**Mr Lind:** We have some statistics, which you can find in our annual report, about the main causes of animals coming into care. Car strike is certainly one of the main ones in the ACT. It has also been documented by AAMI insurance that the ACT has the worst record. This was as of last year I think.

**Ms Butcher:** In 2018.

**Mr Lind:** In 2018 we had the worst incidence of vehicle versus wildlife accidents in Australia. The other things that we see that are as a direct result of urban-nature interface, interactions, are poisoning events in animals, in particular possums. There is the use of poisons. It is usually rat bait. The worst ones are the long-acting rat baits. They can not only kill rats but can also make their way up through the food chain because they hang around in animals for longer.

The other things are fruit tree netting. Through our education program, where we can, and when we are at community events we promote the use of fine grade type fruit netting. Animals do not get caught up in that. We find the loose mesh stuff is still available for sale. What are some of the other reasons? I think habitat loss is one of the biggest ones too.

**Ms Butcher:** Barbed wire.

**Mr Lind:** Yes. Habitat loss. When new suburbs are being developed the removal of old growth eucalypts, yellow box/red gum woodland, generally means that things come into care through being orphaned. When large trees are being removed from suburban infill and developments, as that habitat is removed around the region, orphaned animals, birds and possums in particular, come into care.

It is car strike for wombats and wallabies; for possums, it is being very close to the human interface. The main thing we encounter there, as well as collisions, is vehicle strikes right across all the species. For possums it is particularly poisoning. There are cat and dog attacks. There is electrocution.



For birds, it is vehicle strike. There are also attacks by domestic animals, cat and dog. There are lots of orphans coming into care. That is over half the animals that we are seeing coming into care. With bats, flying fox are the main ones that we see come into care. They are now becoming an endemic species in the area. There has been an almost 104 per cent increase from last year in flying foxes in the region coming into care. Almost half of this has been from being caught in fruit nets. It is quite deadly. That is the large mesh fruit netting.

The interesting thing, when we are comparing urban interface to wildlife, is that we do not see many microbats, which are not flying foxes—they are the smaller ones—coming into care. We believe it is because there is very little interaction with humans as they tend to be in the outlying areas. They tend to be in the Canberra Nature Park and in the reserves. Because they do not come into contact, they do not come into care.

Reptiles, which we also deal with, are mostly affected by dog attacks, are hit by cars or have humans encountering them, picking them up and giving them to us unnecessarily. That is quite a common thing. That also is the case for orphaned birds. We find humans discovering these things, removing them from the parents and handing them on to us, by which time they are then in care and it is too late to reunite them with their parents. They are just some of the main human-wildlife interfaces that we are encountering.

**MISS C BURCH:** You mentioned education programs that you run about fruit tree netting. Did you have any other suggestions in terms of education programs that could help?

**Mr Lind:** I will put my vice-president hat on from ACT Wildlife. Because our entire organisation is made up of volunteers, it is all based on capacity. Most of the fruit tree education has been attendance at things like the Connect and Participate Expo, which was a couple of weeks ago, and the Canberra Show, where we usually have a stall.

There are a couple of other ones. There used to be Green Savvy Sunday at the bus depot markets. These community based things are on a regular rotation in the ACT calendar. When we are there, we have those displays. When we have someone at our office at Jerrabomberra, we also have information about that available for members of the public that come in. It is ad hoc. Other education tends to be very piecemeal.

**MISS C BURCH:** Putting aside the resourcing issue, are there other education programs that you have thought about that you think would help?

**Mr Lind:** There are so many. One of the pipedreams, one of the big vision pictures for ACT Wildlife, is to have a centre where rehabilitating animals and animals that cannot be released can be held on a long-term licence so that we can provide an ACT Wildlife education centre. We have the premises where we can do that. We pay rent on that. It is not provided by the ACT government. We fund that out of our own pocket. What we do not have is the time and professional resources to get that running. But certainly it has been envisaged.

**THE CHAIR:** To continue on the theme of education—particularly with netting, it

seems like it is quite an easy to achieve scenario where you just change the netting you use—is there anything you can see in education programs where that could be promoted? Or is there anything you are aware of where it is using netting that is not as dangerous to wildlife?

**Ms Mabbott:** The biggest problem is that most people shop at Bunnings and Bunnings supply the loose netting at a cheap price. Really it is getting to people like Bunnings and getting them to pull them off the shelves and put something that I think is \$30 there, versus \$10. It is availability. People are time starved. That is how I see it anyway. Beyond education, it is what happens when you go into the store to buy it and you are pressed for time and you have only got that one choice, which is the \$10 net. If you can put a finger through it, it is no good.

**Ms Peachey:** Just on that, I have spoken to the Belconnen Bunnings store, in light of the bat nets, and they have to go to head office to make any of those changes. But if we had backing from you, that would certainly help. This particular store is willing to help us to purchase these through them wholesale and then sell it via us, which we can do via our Facebook page, where we can educate people through that means.

**THE CHAIR:** You also mentioned the cat containment policy. I think the discussion paper is out. You said you support that. Can you expand on the reasons why?

**Ms Butcher:** The birds that come into care, predominantly birds but also possums and lizards, have obviously met the cat outside. Having cats that are inside or in caged areas or runs and things like that would prevent that happening. It is the biggest cause of injuries, and the animals frequently do not survive the injuries because of the bacteria in cats and dogs now. Cats in particular are hardwired to catch things that move. We need to have more advice about that for people who own cats, to keep them contained where they cannot get out and in with the wildlife.

**Mr Lind:** About 30 per cent of birds coming into care are as a direct result of an attack by a domestic animal. We have not separated cats from dogs in those statistics, but it is 30 per cent. As Lindy has alluded to, cat attack is particularly nasty because if it is not treated very, very quickly death is almost certain.

**THE CHAIR:** And that is from bacteria in wounds?

**Ms Butcher:** Yes. That is the reliance on local vets, who do not get paid for their services for wildlife. We rely on them hugely. There are a few vets locally who are open at night and, because a lot of the things that happen to animals happen at night, that is when we go to see them. They are so generous with their time and their expertise and they do not charge us. To have access to our own, funded wildlife veterinary centre would relieve the load on them as well. But we rely on the vets a lot for things like that. Every bird that is attacked by a cat needs to have antibiotics and it may then still not survive.

**Ms Mabbott:** I would add that there are some fantastic vets but there are also vets who are running a business and the wildlife comes in and it gets relegated to low priority. They are injured, they are in pain, and they perhaps go into shock and die just waiting. A lot of vets also know nothing about wildlife. They are ignorant.

**Ms Butcher:** It is very specialised.

**Ms Mabbott:** In fact, some of the people here know way more than the vets know. It is nerve-racking on the hotline, thinking, “Can I get them to a vet and will the vet just euthanise them because they could not care less? Or will that poor animal get a chance?”

**Mr Lind:** They have to, under the Animal Welfare Act, relieve pain and suffering. Often euthanasia is the most cost-effective and effective method of relieving the pain and suffering, which is unfortunate for members of the public taking animals to vets.

**MISS C BURCH:** On wombat mange—

**Ms Butcher:** Where would you like us to start?

**MISS C BURCH:** I had not really heard much at all about it before.

**Ms Butcher:** I have just stepped down for a brief time from being the wombat coordinator and the wombat mange program coordinator. Mange is a huge problem in the wombat population all around the country. It is a parasite. Sarcoptic mange burrows under the skin of the animal. It lives its entire life under the animal’s skin. It sets up an itching and irritation. It also sets up an infected dermatitis which then can cover the animal’s eyes and ears, making it blind and deaf. Because the animal then cannot do its normal night-time eating behaviour, it is constantly thirsty through fluid loss through the broken skin. It is an appalling disease and it is almost always fatal, assuming the animal is not hit by a car, because it is weak, before it dies of mange. It is a huge source of suffering. There is no animal with mange that is not suffering, no matter how mild the mange is.

**THE CHAIR:** You say it is in wombats. Is it in any other species?

**Ms Butcher:** We have seen it starting to spread across now to echidnas, who also share the burrows. We suspect it is in the fox population and that foxes are actually spreading it from burrow to burrow as well. Because wombats share burrows, they spread it to each other, and mothers spread it to pouch young.

**THE CHAIR:** The way you have been trying to combat it has been to treat the entrances to burrows. Is that right?

**Ms Butcher:** Yes, we treat the entrance to the burrow. We have got a program of treatment that runs over about 12 weeks. And we monitor the animals before, during and after treatment. The two-year, roughly, project we carried out a couple of years ago with funding from the government showed that it was very successful. We treated close to 200 burrows in that time. The before and after photos showed mangy wombats at the beginning and we found no severely mangy wombats at the end. They had not died; we would have noticed if they had died. They are very large.

**THE CHAIR:** Because it is in the wider Australian population it has come back into the ACT? Is that fair to say?

**Ms Butcher:** I am not sure how it has spread from state to state, but it is certainly in the ACT population. When we have little wombat orphans in care—and we have 11 in at the moment—and when we release them we have to find an area that not only meets all the criteria for their health but has no mange in it as well. We have got a program treating burrows, as we are notified by members of the public. But we would like to do population treatments and work on dealing with the entire problem.

**Mr Lind:** The Murrumbidgee corridor is pretty much the most affected area; would you say, Lindy?

**Ms Butcher:** I am not sure. I have not been to the right places to know. That was the area we chose.

**Ms Mabbott:** When I have worked as a volunteer on these programs I have noticed that the burrows are quite close together and the vegetation that they have to live in is littered with rubbish. They have been relegated to the worst parts of the countryside by land clearing. I am not surprised that their health suffers and they start spreading mange, because they are not well. There is not enough grass of the quality they eat. African lovegrass is taking over vast areas of the ACT and the program for all these new suburbs in Canberra has pushed them further and further to the outskirts of rubbish dumps almost. That is something that we really need to resolve.

There is an important professor in Queensland who does mathematics—he is world famous for mathematics—on exterminations and conservation and he says that Australia needs to spend five to 10 times what they are spending on conservation to address these issues. There just is not a willingness to fund and look after the environment. We are all going to suffer because of this. Species decline is really right up there in the news. It is true. We see it every day.

**THE CHAIR:** Ms Butcher, you did the program and you were able to not eradicate but get rid of a lot of the mange in Canberra. Have you seen an increase in the level of mange infection? I am trying to get a feel for where the mange situation in Canberra is at.

**Ms Butcher:** There was recently a survey that went out amongst all the wildlife carers. It was conducted by an individual person. She was not part of a large organisation. One of the things that she wanted was a national audit on mange in the country, because they are secretive animals, they live underground and they are nocturnal. Another carer and I were out a couple of nights ago with spotlights looking for mangy wombats, as you do in your own time, and in the area we went to we saw six wombats and they were all beautiful and healthy. We are fairly confident that that area is clear of mange. But we obviously have not been everywhere. We need an audit to know how big the problem is.

**Mr Lind:** I would argue that, from my knowledge as a para ParkCare coordinator in professional life, the further you get from the urban environment—you have got the Murrumbidgee River corridor that runs to the west of the ACT, quite close to the urban fringe, down to Namadgi and down to Gudgenby, beyond Paddys River, down through Gudgenby and through that southern section of the ACT—the prevalence of

mangy wombats that I have seen when I have been out doing fieldwork seems to drop off. Where did you go and look?

**Ms Butcher:** We were at Tharwa Sandwash.

**Mr Lind:** You were down that way, fairly south. As you head further south, we have seen them down along Paddys River Road and the old Boboyan Road, and generally around there they are not anything like the ones you see in Tuggeranong that are seen coming into the suburbs, around Tuggeranong Creek, where we know there are mangy wombats, and, as I say, north up through the Murrumbidgee River corridor all the way to Uriarra Crossing. The prevalence of mange through there is quite high. Most of the treatment that was done as part of the mange program was from around Lanyon and around the Tharwa bridge and on the lower Gudgenby, and that is where the treatment was quite successful. What has happened since then?

**Ms Butcher:** We are doing individual treatments. We have just been able to work under a licence to trial Cydectin. The Cydectin that we used was not cleared for treating wombats at that stage. It was a cattle treatment. Since then we have got a permit to use it for treating wombats under an approved method, and our group has a licence to do that. Just because of funding, we can only treat small numbers because the treatment medication is expensive. It is a new program.

**Ms Mabbott:** It is \$600.

**Ms Butcher:** People can call in on our line or notify us where they see a wombat and we will do our best to treat that wombat. We are hoping that there will be a ripple effect, that eventually we will treat more and more wombats. The other option is to get funding to do population treatments. We have got about 40 people in the mange program who are a little separate from ACT Wildlife in that they have become volunteers specifically to treat wombats. They are available to do treatments. It costs around \$20 a burrow to treat an animal and you are looking at many hundreds and hundreds of burrows.

**Ms Mabbott:** My husband and I have been going to Uriarra. I put on a wetsuit and I swim across and I treat one wombat mange station. We see other stations. If we had better resources, in our time we could be treating a lot more than we are. But I am just treating one. And this wombat has gone and moved on. Now I have got to try and work out where it has moved. But it is quite an adventure and we are all willing to do it. There are 40 people who are keen. But it is \$600 for one litre.

**Ms Butcher:** That is for five litres.

**Ms Mabbott:** Five litres of Cydectin.

**Ms Butcher:** But it is roughly \$20 to treat one burrow.

**Ms Mabbott:** We have approached Virbac to get a bigger discount. We are just waiting to hear what they might do for us.

**THE CHAIR:** We have come to the end of our time. Thank you very much for

coming in today. On behalf of the committee, I thank you for appearing and for your submission to the inquiry. When available, a proof transcript will be forwarded to you to provide an opportunity to check the transcript and identify any errors in transcription. I do not believe you undertook to provide any further information or took any questions on notice. Thank you very much.

**Oakey, Ms Helen**, Executive Director, Conservation Council (ACT Region)

**THE CHAIR:** On behalf of the committee, thank you for appearing today and for your written submission to the inquiry. I remind you of the protections and obligations afforded by parliamentary privilege and draw your attention to the pink-coloured privilege statement before you on the table. Could you please confirm, for the record, that you understand the privilege implications of the statement?

**Ms Oakey:** I do.

**THE CHAIR:** Thank you. Before we move to questions, would you like to make any opening remarks?

**Ms Oakey:** Thank you for the opportunity to present today. The city of Canberra is lucky to be located within a landscape that delivers wonderful opportunities for exploring nature in close proximity to our city and right across our city. Residents who live here also have easy access to nature spaces through living next door to and around the Canberra Nature Park. We also have many urban open green spaces that are utilised for a number of purposes, some of which facilitate that connection and engagement with nature as well. However, we do face a number of challenges, on which many people have already presented to this committee and which you have discussed at some length.

First, of course, we are a growing population and there is pressure to expand our urban development through greenfield development or urban infill. Greenfield development obviously raises challenges about the interface between reserve areas and the urban footprint, and the ever-expanding impact of urban development on some of our precious ecosystems. Infill development raises different challenges about how we protect and invest in urban green space as we increase the density across the city. We are also facing potential impacts of climate change that we should now be preparing for: issues around water, bushfire risk, more hot days, potentially dry winters and potentially more intense rain events.

I think we are a community that potentially is increasingly disconnected from nature, which means that there is a risk of devaluing what nature has to offer us. That is not speaking on behalf of everybody, but it is part of the modern life we live. When we are very busy and inside our houses and travelling in our cars, we sometimes miss out on that. Nature in and around our city has an important role to play in meeting those challenges. There has been considerable discussion recently about the importance of investing in our urban forest. The Conservation Council wholeheartedly supports that. Investment needs to be not just in maintenance but also in expanding the coverage of the city, for many of the reasons that I have already outlined in terms of the challenges we face.

Increasing tree cover alone offers many benefits, such as protection against urban heat effects. The CSIRO study into the urban heat effects in Canberra starkly demonstrated the temperature differences between those of our Canberra suburbs that have good quality tree cover and those that do not. Increasing tree cover generally helps improve air quality and improve soil quality. Building natural habitats in our city will also

assist with water quality. Allowing water to drain away through the landscape rather than run off down our stormwater is something that becomes increasingly important, particularly if we are facing more intense rain events.

Trees of various kinds provide habitats for different species of birds. The spread of natural spaces and trees across our city can improve connectivity for different species. Tree cover facilitates active transport, people walking and cycling around their neighbourhoods, and recreational exercise improving wellbeing and health. It is important that we try to build connections between people and their natural environment to grow community understanding of what the ecosystem offers us and also to build an appreciation of its intrinsic value.

Even in Canberra, where some of our nature areas are well used, there are probably many people who do not get out beyond our urban parks. We see some real opportunities to improve the natural values inside the urban footprint area, value-adding to urban green spaces to improve their quality. We have had a recent conversation about the fact that the ACT has been left with many play spaces, potentially too many play spaces, to manage. These reserves and pocket parks with lawns and grass across the city could be revegetated with native trees and bushes. Low-level vegetation is also going to be important, as it provides habitats for other species, including insects and smaller birds.

Another issue that we want to touch on is the space that is available in new developments for planting trees, both in the public domain and in the private domain of people's back gardens, and how those new developments are structured so that they provide enough space for people to do that. Maybe we could think about collocating developments so that we maximise or build a green space for trees and porous surfaces. It is really important that people who are living in high-density housing have easy access to high quality green space.

The Conservation Council supports consolidating urban development to reduce the pressure on the environments at the edges of our city. We support this for many reasons, including transport and access to services. But one of the primary reasons is that extending the urban footprint puts pressure on endangered grasslands and woodlands that exist at our urban edge. This is something we have done a lot of work on over the years, advocating for the protection of valuable ecosystems through our bush on the boundary projects and our *Managing the urban edge* paper, and building community understanding of the values of those areas and how far-reaching urban impacts can affect the ecosystems.

Those environments can be really impacted by weeds; feral animals; recreational pressures such as orienteering, mountain biking and walking the dog; domestic animals such as cats, which I will come back to; and bushfire protection measures. So we really need good planning to minimise the risk of humans damaging the environments we are trying to protect. A key point is that we actually need to be planning for environmental protection at the beginning of development processes and doing that planning with really strong community consultation and engagement, making decisions about what we conserve, protect and restrict for human use.

I would specifically like to mention the issue of cats and cat containment, something



that we have been working on for many years. As you are probably aware, the government has released its cat plan, which is out for consultation. We are very much hoping that this will deliver a strong policy outcome, making the whole of Canberra a cat containment area by 2025. In terms of policy, plan first for the environment. We need to think about funding for the environment and continuing with community engagement and education.

**THE CHAIR:** In that opening statement, one of the points you made was that there can be a value improvement, particularly within the urban area. Can you expand on what you mean by that and what you see the opportunities as being?

**Ms Oakey:** Quite a few spaces in Canberra have been established as traditional parklands or parks. They are areas that are mown. We spend quite a lot of energy and effort mowing them. Obviously we need urban green spaces for a variety of different purposes and for a variety of different groups in the community, but there is probably an opportunity there to enhance some of those green spaces using native planting. It does not necessarily have to be big trees. It can be bushes and shrubs and things like that, which deliver a different kind of urban nature experience.

We obviously have our nature parks but there are also tiny little parks and areas that can actually build connectivity across the city. If we can do that, we can provide a different amenity for people. It reduces some of the maintenance, potentially, and also provides connectivity for different species across the city. Big trees provide habitat connectivity for certain species, but lower shrubs and ground-level habitats provide connectivity for other, different species.

One of the things we feel very strongly about is facing the impacts of climate change. That would be a really powerful way to build resilience in the city to climate change and to those climate impacts—fewer hard surfaces, more soft surfaces, more bush, more shrubs, more greenery, native species and species that support some of the native species. Then you have got nature reserves that can actually be connected by other green spaces through the city.

**MISS C BURCH:** I think this is somewhat related. You said that we potentially have too many play spaces. I wonder—

**Ms Oakey:** It is a discussion that has been live around the play equipment and the management of the play equipment. One conversation that has been quite live in the last couple of years is that several playgrounds have been put into many of the suburbs. If you look at a map of any particular suburb, you will see a lot of playgrounds. One of the ideas was to develop playgrounds and move them into being nature spaces.

Playgrounds are a bit outside my area of expertise in terms of the Conservation Council, but there are a lot of little green spaces through our suburbs. Some of them have play equipment. Getting around and maintaining that play equipment can be quite a big job for government. So one of the conversations is about how we can turn our urban green spaces into offering different types of experiences for different people within a suburb. You might have a junior playground and a playground for older people. You might have a bush area or a nature play area or something like that.

Where we see the opportunity is where there are green spaces that are literally just being mown and nothing else is being done with them. I happen to know about one. They do exist. You probably know some in your own neighbourhood. I have one across the road from me, just a green space. It gets mowed every now and then. Interestingly, mowing is expensive but mowing also can spread weeds. It does not necessarily get used for anything. The ground can get very hard so that the surfaces are not permeable to water, so we get those run-off issues. If we have a more natural environment in some of those spaces, we are building biodiversity, offering a different kind of experience and probably improving the water permeability of some of the soil under the trees and under the vegetation.

**MISS C BURCH:** We have heard from other witnesses that we need more playgrounds and more nature play space. I do not think you are disagreeing with that; it is just the way that we use it.

**Ms Oakey:** Yes. They are not necessarily incompatible and I think what I am saying is not necessarily incompatible. It could then become a different nature play experience.

**MISS C BURCH:** It is just about better utilising those spaces?

**Ms Oakey:** Yes, and there are green spaces in our city that do not have playgrounds or do not have anything, really.

**THE CHAIR:** Can you run us through what you see as the priorities for the urban forest investment? You said you support more investment in the urban tree canopy. What do you see as being the priorities?

**Ms Oakey:** I think we have two challenges. One challenge is maintaining the level of urban forest that we currently have. That is going to be a real challenge. In the areas that are already well forested and that have good tree cover, often the older areas of Canberra, and where we know the urban heat effect is lower, we have the issue of an ageing tree population.

In the areas where we do not have such good urban tree cover, we have new suburbs. But we have the issue that the initial investment perhaps was not as big as it should have been or the space does not exist there potentially to build that urban tree cover. That is a longer conversation that I am probably not in a great position to make a call on at the moment. There is a real requirement to probably invest much more heavily in both of those things over time. I suspect it needs to be a long-term investment over a number of years.

One of the things that I think we need to consider are different types of species so that we are not so locked in—obviously there are areas of our city with heritage values with regard to some of the tree scapes in the urban areas—to the species that we are using, whether they are native or non-native; getting a good mixture and diversity; and looking at those species in the context of the connectivity and in the context of what other animal species we are supporting.

**THE CHAIR:** Yes.

**Ms Oakey:** Not every tree is going to suit every animal or bird. We need to have a bit of flexibility about that. We probably need a really good conversation with the community about what they value in our urban forest. I am pretty sure that there are some people in the community who think it is really important to have the same kind of tree down the side of a street, whereas other people are less concerned about that and just want to have trees in their environment.

Even if you are going to go for some of those areas where you are repairing or restoring the street trees, there are other areas where you could potentially add more native species that are not necessarily down the sides of the nature strips. I think that is a big question. It needs a really serious look at again.

**MISS C BURCH:** You spoke briefly about greenfield developments. What measures and best practice would you like to see to improve that?

**Ms Oakey:** One of the concerns when we do greenfield development is that we are interfacing with areas around our grassy woodland ecosystems. Obviously the two biggest development areas recently have been Gungahlin and Molonglo, both of which had strategic environmental impact assessments done on them.

It is really important that we are very clear at the beginning of those developments which environments we want to look after and put aside and how we will do that. For example, we need to think about not only the reserve areas but also the interfaces between the reserves and the urban footprint.

There are a whole range of issues that we need to take into account. There are the urban edge impacts, people, domestic animals, bushfire mitigation and planning for bushfire, things like that. What kind of uses are we going to have next to those areas? We know that cats go, for example, up to a kilometre into nature reserves if they are not contained. Putting those cat containment zones in those new areas has been great and a real improvement.

I think some of the planning processes can seem quite opaque and difficult for the community to engage in. For example, at Molonglo we have an ongoing conversation about the buffer that will be put in place around the Kama Nature Reserve, and about the processes that led to the decision around how that will happen. I do not think that the conversations are necessarily over. It is a conversation that we are having to continue to have. It is quite a complicated one about making sure that that buffer is wide enough to maintain the values of that reserve, which has woodlands and grasslands in it. It is really about planning processes that the community can easily engage in and understand. I appreciate that it is complex.

**THE CHAIR:** You made the comment about connecting people and environment. You made the comment that you worry that we could become disconnected. Can I get you to expand on that? What are some of the opportunities you might see for promoting the connection between people and the environment?

**Ms Oakey:** That is a comment that comes from knowing that many people who live

in Canberra value our nature areas and our nature reserves. But many people do not actually get out in them. They do not see them and they do not walk in them routinely. If we do not value our natural areas then we are not going to invest in them as a community. One of the issues that has come up is that it does take an investment. I think your previous witnesses were talking about the lack of investment in protecting the environment, in protecting the species and the habitats.

Of course, we are constantly pushing against this development pressure. There is the need for people to have houses and places to live and to build new suburbs. Those two things are very much at odds with each other. If people do not have that connection to nature and if they do not realise the benefits then they are not going to value that in our political conversation and in our public conversations. It is crucial that we try to remind people and bring people back.

It sounds melodramatic, but we are facing a biodiversity crisis. That became very clear in the report released a couple of weeks ago, before the federal election, the international report—

**THE CHAIR:** This is the United Nations report?

**Ms Oakey:** Yes. When we talk about it as a biodiversity crisis, people can shut down very easily because they are words that do not really mean very much to them. But when we talk about the fact that everything that we do and everything that we rely on is relying on another species, which is relying on another species, which is relying on another species, and that we all are interconnected, then we start to value and appreciate how important those things are. We are not immune to those biodiversity challenges.

In Canberra we live in some very fragile environments that are very easily impacted. In terms of opportunities, I think we should be working with our young people, making sure that they have really good opportunities to get into nature play spaces. We could invest in our nature reserves and the Canberra Nature Park more strongly and make those places where people, in an appropriate way, engage with those nature parks.

The Conservation Council has done work around the bush on the boundary groups. They are working with the new communities and the new development suburbs. There are things like that to look at mitigating the impacts on the local reserves. The bush on the boundary groups are now operating quite well in Ginninderry. They are just starting up again in Molonglo. There is engaging with people around things like cat containment and those sorts of things. There is getting people out into those places that are really special. There is the Woodlands and Wetlands Trust. We were talking about how they were doing that and offering those sorts of ecotourism and engagement opportunities for the community.

**THE CHAIR:** I have put this question to everyone else, so I will put it to you too, Helen. The idea has been raised of a landscape strategy or a landscape plan, particularly for the urban area. Do you see any value in a proposal like that? Is there anything you think should be considered as part of that?

**Ms Oakey:** It would be good to have some policy settings that guide our urban development. I understand that the government has started thinking about the living infrastructure plan. It is a good time to be coming at things from a living infrastructure perspective. It will be important, as with all of our plans and policies, that it does not stay at the policy level and that we figure out ways of getting that implemented into planning law and development. For me, that is the real challenge. We have these ideas about the public realm, but when the public realm is so significantly impacted by private development what will happen? It needs to translate into real change, in terms of thinking about how we will build our houses and what kinds of buildings we are living in.

How do we organise them so that we can have shared community and green space? How are we going to invest in improving the quality of those spaces so that people do not go out in them and say, “There’s nothing here to do. It’s just like a green paddock.” People need to feel that there are things to do there that engage them and connect them. Having a plan like that is probably a good idea. It needs to have flow-down effects through the system so that we get real change on the ground in terms of prioritising the environmental outcomes and prioritising the nature outcomes.

**THE CHAIR:** You spoke about the impacts—you have touched on this a few times—of climate change to the area. Can you elaborate a little bit on what you see as some of the impacts to our particular local environment from climate change?

**Ms Oakey:** Obviously changes to our climate will affect how livable the city is. We are looking at more hot days in summer. There is no doubt that anyone who was here this year felt the very real effects of that. People do not want to go outside because it is too hot.

If it is too hot to go outside, you are changing the way that you live as a result of climate change. If that is happening in a leafy green suburb in Canberra, it is hard to imagine what is happening in a suburb where there is no tree cover, where people are basically going out of their front doors, and jumping in their air-conditioned cars to go to the air-conditioned shopping mall because they need to escape some of the heat. I think longer hot summers is one thing.

I think managing our water and rain is going to be an issue. There is not only water as a resource but also the ecosystem and how our city operates in providing those ecosystem services in terms of cleaning and filtering the water. There is not getting that really high run-off that you get in a storm event. If we are going to get more intense rain events then we are going to get rain events where the water is not soaking into the ground, where it is just running off into the stormwater system. That is great; it is going to go back into the river system. But it is not going to perform the many ecosystem services on the way down.

Having porous surfaces where water can actually be absorbed is going to be really important. That is about having natural surfaces that are looked after and maintained. With a hard ground surface the water can just run off. You can have 10 millimetres of rain, but if the ground is as hard as a rock it is not going to make any difference.

Probably the other issue is transport and active travel. We are going to need to reduce

our emissions in the transport sector. We are going to need to think about different ways of getting around and how we get around. We need to make sure that our urban form supports that for people. They need to feel that they can get around on foot, on bike and on scooter. It needs to be a pleasant experience and they should not be discouraged from doing that. There is obviously bushfire risk. All of that planning needs to be done through a lens of bushfire management.

**THE CHAIR:** You mentioned cat containment. Can you elaborate on why you view cat containment as being important to the environment in the ACT?

**Ms Oakey:** I think we now see cat containment as low-hanging fruit in terms of improving biodiversity outcomes. We know that cats are natural predators. I think they have categorised four different types of cat population, right through from owned to feral, semi-owned cats, and cats fed by people. But if we move towards a cat containment model right across the city then we start to reduce the numbers of semi-owned, un-owned and feral cats that are out in the environment.

The study done in 2008 indicated that cats hunt up to 67 different species. They are known to roam up to a kilometre from where they live. They hunt night and day; they do not just hunt at night. Locking them up at night does not make any difference. They are out and about all the time.

The other thing that we have come to realise—and the RSPCA would support this—is that cats that are kept inside have longer lives and are happier. They have higher levels of wellbeing. In fact, the RSPCA are basically saying to people, “If you’re going to buy a cat then it’s probably nicer for your cat to keep them contained.” It keeps them safe from predators such as not only snakes, for example, but also cars and other human impacts.

This is an issue that has been on the agenda for a while. We do not let our dogs roam free. That is because dogs can present dangers and risks to human, potentially more than even other animals. It does not make any sense to let our cats roam free when they are effectively a pest species, even if when they are at home they are not; they are a much-loved member of the family.

**THE CHAIR:** Thanks. I think that covers all my questions. Candice, did you have anything?

**MISS C BURCH:** No, I am all right. Thank you.

**THE CHAIR:** On behalf of the committee, I thank you for appearing today on behalf of the ACT Conservation Council. When available, a proof transcript will be forwarded to you to provide an opportunity to check the transcript and identify any errors in transcription. I do not believe you undertook to provide any further information or any questions on notice. Thank you very much for appearing today.

**Ms Oakey:** Thank you very much.

**BREADEN, MS JANE**, General Manager, Business Services, Icon Water

**BRYANT, MR BENJAMIN**, Manager, Environment and Sustainability, Icon Water

**THE CHAIR:** We now move to our fourth group appearing today, Jane Breaden and Benjamin Bryant from Icon Water. On behalf of the committee, thank you for appearing today and for your written submission to the inquiry. Can I remind you of the protections and obligations afforded by parliamentary privilege and draw your attention to the pink-coloured privilege statement before you on the table. Once you have had a chance to have a look over that, can you please confirm for the record that you understand the privilege implications of the statement?

**Ms Breaden:** I do.

**Mr Bryant:** I do.

**THE CHAIR:** Can I also remind you that the proceedings are being recorded by Hansard for transcription purposes and they are also being broadcast live. Before we move to questions, do you have a brief opening statement that you would like to make?

**Mr Bryant:** I do. Icon Water is the water and wastewater utility for Canberra, and in that role our purpose is to protect public health and the environment. We are essentially a giant recycling scheme. What we do is take water from the catchment, we treat it, we deliver it to people's taps and then we receive it back after they have used it, through toilets and sinks, and we treat it so that it can be discharged to the environment safely. Eighty per cent of the water we provide comes back to us and goes out as environmental flows. That is part of our green and blue in our city.

Like Icon Water, nature can be this invisible service as well. It provides habitat for ecology, the clean air we breathe, our fitness areas for recreation et cetera. We want to highlight and make visible for you today some of that invisible in talking about the green and blue.

To summarise our submission, we have got three key themes we want to highlight for you. One of them is this function as a green easement and buffer for our utility services; secondly, a place for redirection of recreational pressures that might be undesirable in our drinking water catchments; and the third one being that there may be some more opportunities for all of us, including the different stakeholders involved, to take better care of our urban forests.

In terms of theme 1, the green easement and buffer for utility infrastructure, these green and blue spaces have multifunctional purpose. They are vistas. They are these beautiful landscapes: the hills, ridges and buffers, right through to the street trees. That is very visible and tactile. We have got the transport function—pedestrians, cyclists et cetera—but what becomes less visible is the utility element. We have got telecommunications, water, wastewater, stormwater, energy, all going through conduits in these green spaces as well. Then we have got nature. We want to invite nature into our city.

We think it is possible to balance these competing demands, and there are a few incidents I want to touch on briefly to give you the flavour on that. Some of them are that, although we cannot have trees growing over our major pipes, we can have shrubs and other grassy vegetation, because we have got asset protection requirements we must consider so that we can keep providing those essential services. We must have tracks to be able to access our 50-odd reservoirs on those hills and ridges around Canberra. But they also perform as strategic firebreaks for the parks and conservation service. We can consider these things holistically.

The other one is that we have got a lot of natural space, and what it does is provide a buffer around our water pumping stations, which some people might find noisy, and around our odour vent stacks, which some people might find smelly. It gives those minimum separation distances from sensitive receivers. It is really important to recognise the function that that provides. Considering those requirements is important to prevent incompatibility and conflict in our spaces. Particularly as we develop and have urban infill, we need to make sure we are thinking about those services as well. In summary of that theme 1, we are providing for those invisible community services as well as the direct social and environmental value the green and blue spaces have.

In terms of theme 2, as an appropriate place for recreation outside our drinking water catchment, the ACT was located as the nation's capital because of water security. The whole of the west of Canberra is all around the Cotter catchment. Source water protection is our first point of control in protecting that drinking water supply and, with the parks and conservation service as land managers, when they are regulating what activities are and are not allowed in the catchment they need a place to direct undesirable activities somewhere else. While we cannot swim in our catchments, in the Cotter catchment, we can swim down the Cotter, we can swim in Lake Burley Griffin, but only if the quality and proximity are suitable. We really need to maintain the accessibility and quality of these spaces, particularly with the urban development and encroachment occurring. That way, we can have a way to redirect otherwise undesirable activity.

The third theme is really around those opportunities for the improvement of our urban forest. These are all potentials. In terms of consistency and harmonisation of species planting guides in the ACT, you could probably find, if you looked, some different guidance by the National Capital Authority, by Transport Canberra and City Services, by Icon Water and by Evoenergy because the guidance is based around the needs of the person promoting that guidance. There is an opportunity for better harmonisation in that space between all those entities.

There is also the potential alignment of our pipe asset replacement program, major upgrades where we actually have to dig up and take pipes out, with our street tree replacement programs. I remember seeing some of the presentation from the ANU Fenner School that Canberra is this great arboretum, this urban experiment. Some of those trees have failed. Is there a potential for us to replace those street trees while we are doing the pipe replacement? Or do we change our program around to make sense of that? We could all do better in that space, I think.

There might even be more potential for smarter collocation of our assets in the verges, if you will—and things we do not even know yet, potentially—and some innovation



and some research thinking that we do not want root intrusion into pipes because that causes blockages and that causes sewer overflow as well. Can we put pipes under footpaths instead that have gravel above them that retards root growth going into them? Can we lay things out smarter in the first place? We do not necessarily know the answer to that. We are just saying there is potential to further look at it.

Lastly, there is another opportunity, possibly when someone is undertaking tree removal in the ACT. Is there a role for them to be responsible for putting another tree back in its place to look after our urban canopy one for one or whatnot—a policy or program? Whether that is that proponent directly or whether that is funding something towards an ACT government program, it would make sense for us to look after these natural assets for the broad, livability benefits.

In summary of our submission, maintaining nature in our bush capital is essential for the livability of our city and it is going to require ongoing protection, enhancement and balancing of these multiple functions for these green and blue spaces to serve our future generations.

**MISS C BURCH:** Talking about water catchment areas, you mentioned directing undesirable activity elsewhere.

**THE CHAIR:** Can I clarify undesirable activity? Is it undesirable activity for the quality of the water catchment?

**MISS C BURCH:** That is how I took it.

**Mr Bryant:** A prohibited activity like swimming in the catchment.

**MISS C BURCH:** That was essentially my question. What restrictions would you like to see?

**THE CHAIR:** We are not talking about graffiti?

**Mr Bryant:** There are existing protections in place.

**MISS C BURCH:** What additional restrictions would you like to see there, or are there ways that the existing ones can be improved?

**Mr Bryant:** We have got a good collaborative relationship with the ACT parks and conservation service, with the land custodian and manager. They are our eyes and ears in the catchment, and we work with them collaboratively to make sure that it is enforced and protected. It is a relationship, and there will always be some level of undesirable activity that needs to be managed. We also work with the Australian Federal Police and get them involved. We met only a few months ago to make sure that we are all on the same page with those expectations.

There are also planning requirements. We are a referral entity. If someone is proposing to do something in the catchment, like a piggery or an abattoir, something we do not really want upstream of our water offtake, we have the opportunity to provide advice to ACTPLA when they are considering that type of development. We

have got a few different ways to consider preserving this good quality water for the community.

**THE CHAIR:** Do you think the mechanisms or the paths that you have for putting forward the water catchment issues are adequate? Are the current settings adequate? I think that is what you were—

**Ms Breaden:** One of the biggest impending concerns for us and for the broader catchment is feral animals, including feral horses, pigs and the like. The arrangements in place are probably adequate in terms of our interaction with parks and conservation, who take the lead on catchment management. That is an issue we know our colleagues at parks and conservation are quite concerned about, and we are certainly liaising with them, because it is of concern to us as well.

**THE CHAIR:** Is this the brumbies down in Namadgi?

**Ms Breaden:** Yes.

**THE CHAIR:** So it is sometimes not within the jurisdictional remit of the ACT to solve the issue at hand?

**Mr Bryant:** Yes.

**THE CHAIR:** We have had a lot of discussion on that particular issue in the Assembly. My question on the source water was just going to how we can better protect it, but I think we have covered that off. Going back to the comments you made about providing for invisible services, we have also had it raised by other witnesses that perhaps the requirements for those invisible services are too great to enable nature. I am interested to hear, from your perspective, how the two could be better balanced so that we can have both, so that we can have nature and still provide for these services. I would be interested to hear some of your ideas around that and your experiences as to how it can be better promoted.

**Mr Bryant:** For instance, we have the seven-mile long Bendora gravity main. Along that pipeline, which is a defined wilderness area, the Namadgi National Park, when we do asset protection we are interested in taking out the big mature trees, or any trees whose roots, when they fall, can rip up that pipe and rip it out of the ground. We leave the shrubs intact and in place. We leave the grass in place. We can do it sensitively in these areas. That is possible. So we do have instances where that is compatible.

Sometimes we are much more space constrained. With multiple services in a very small area with pedestrian requirements, where we cannot go into the road easement requirements or the street trees in the way, we have no-dig technologies that we employ with pipe relining. Jane was out there a few weeks ago looking at these technologies. We can do pipe relining on the inside and we can also do pipe breaking and ramming through. We choose sensitive approaches where we can. That does, however, involve some impact, because you need to get a point of entry to get into the horizontal plane. But certainly they provide that function.

**Ms Breaden:** The invisibility itself is an issue that we need to continue to tackle in

our business, in that there is probably an opportunity for us, working with ACT government colleagues, to improve customer awareness and understanding of what we are doing, and that we are actually using the best techniques possible. Even when we use the latest technology, as Ben said, we still have to excavate a fair amount to get down there. So what the community sees is a giant excavation, not knowing that it could be five times worse if we used different technology. So we need to continue to be out and about educating the community about what we are doing and why it is important. If we can do that with a united voice, with our TCCS colleagues, for example, it is not just Icon Water saying, “This is how we have to operate because we have to operate that way,” but a united voice from a couple of government agencies saying, “We’ve considered the pros and cons, and on balance we have decided that this is the best approach.”

**Mr Bryant:** While we do have asset protection guidelines, where we have these protection corridors that we may implement, we implement that with discretion and only as far as required. So while it may say strictly a six-metre corridor excluded of vegetation, given that size pipe, given its depth and given all the subtle local context, we might only need a two-metre buffer on the surface protecting it in practice. But what our standards are made for is the lowest common denominator, because we need to protect these essential services of a sewered city and a watered city.

**THE CHAIR:** You also brought up the idea of harmonisation and consistency of planting guides and other guides. I am interested in drilling into that a bit more and getting some guidance from you on the opportunities that you see coming from harmonisation and how it could be done.

**Mr Bryant:** I think there is an opportunity here. It is something that has been in my head for a while, and we have had some initial discussions with the National Capital Authority. The timing is right, because there are quite a lot of species in Canberra that are declining. The tree age is at that stage; we are getting some climate change impacts. The NCA are looking at, say, how they can replace the tree the Duke of Edinburgh planted on such-and-such date and what is the appropriate way and species. Transport Canberra and City Services are doing the same with their street trees. We would like to be involved in a discussion about what trees should be in what places, or what plants in what places, for Canberra, because our guidance is from our interests, and their guidance is from their interests. We are currently acknowledging that these are shared spaces and we need to have guidance that works for everyone.

**THE CHAIR:** I have put this question to everyone, and it seems timely time to bring it up now. It has been suggested by the Institute of Landscape Architects and by other groups as well that we have a landscape plan or a landscape strategy for the city. They have floated this idea. I have been asking all witnesses whether you would support such an idea and what you think it should consider.

**Mr Bryant:** From my perspective it should consider those otherwise invisible elements that form part of the city landscape that we need to have. That they form this green easement and buffer function is going to be critical. We do not want to plant a certain landscape and set it out and then create a future legacy for something else. We do not want to cut down trees because they were planted in the wrong spot or whatnot; we want to do something, do it once and do it properly. So if landscape

planning can be holistic in that sense, that is going to work for all of us.

**THE CHAIR:** You would be supportive of such a thing?

**Ms Breaden:** I think a key contribution that such a plan could make would be to balance those competing interests where, as Ben said, a certain tree might suit for conservation purposes or biodiversity but might not suit for utility purposes. Until all those parties get into the same room and talk about their competing interests, we are probably unlikely to get to that shared position on what is best for the city overall, on balance.

**THE CHAIR:** I noticed you were nodding your head when I asked the question, but can I get you, for the purposes of *Hansard*, to state an answer?

**Mr Bryant:** As in supporting the landscape plan?

**THE CHAIR:** Yes.

**Mr Bryant:** Yes, we are supportive of a landscape plan for Canberra.

**THE CHAIR:** I am also interested in the conversation we are having about pipe replacement and tree replacement programs. Can we get a bit more detail on where you see the opportunities in that being?

**Mr Bryant:** With asset management and infrastructure management, we are transitioning over time from paper-based highlighters and lists, and people going out and doing things based on old plans in a written form, to a much more digital decision-making analysis and geospatial asset management. So we are getting in a much better position to do that, and I understand that TCCS are doing something similar. As this becomes more digital, it allows us to connect our plans and interrogate them together, to say, “Our time lines are this; your time lines are that. Is there a sweet spot where, if Icon Water is going to do this activity anyway, Icon Water can capitalise on the replacement of those trees to minimise this disruption?” Because it may involve disruption to people’s driveways and their streetscape, they feel strongly about this, and rightly so. It is tricky. We want to be able to collaborate better in these disruptive events that we have to do to continue our services.

**THE CHAIR:** I think you put forward an idea of tree replacement. It is an interesting proposal. I think the devil might be in the detail on this one, so can you give us a bit more of an idea of what you have in mind?

**Mr Bryant:** We have an urban forest on public land. We have various reasons why we may need to modify that and so remove vegetation. For whoever has required the removal of vegetation, there is not currently an obligation to put back any vegetation. So could we change that? We all have the benefit of this living forest. Why can we not all preserve it too? If we are going to do modifications, then could each one of us who does this be responsible for that activity too?

**THE CHAIR:** Correct me if I have misunderstood, but your proposal is for it to be based on public land, and where a tree is removed, for argument’s sake, then another

tree is planted somewhere else within the public land. Is that essentially it?

**Mr Bryant:** Yes, because most of Icon Water's assets are on public land. On private land, that would be a decision at the private landowner's discretion.

**THE CHAIR:** Unless there is anything you would like to add, I think I have covered off everything.

**Mr Bryant:** I might add one thing, if that is all right.

**THE CHAIR:** Yes, please do.

**Mr Bryant:** You said originally "any concerns in the catchment". One of the things we have been working on with the upper Murrumbidgee catchment network, which we are part of, and with the ACT and region catchment group, is looking at our erosion hotspots.

We have three catchments: the Cotter, the Googong and the upper Murrumbidgee. Back in 2012, when we implemented the water security major projects, we brought on the upper Murrumbidgee as our third catchment. In doing that, we did an actions for clean water plan, an ACWA plan, and came up with the erosion hotspots. As part of that, we prioritised them from extreme through to the rest, because turbidity in our water is hard to treat once it is there. It also has an ecological impact, so there are two values there.

We have recently completed one for the Googong catchment and are about to do one for the Cotter as well. I understand that you met with the southern ACT catchment group earlier. I just saw them walking out. There is a certain funding pool available in the ACT for grants for dealing with these erosion hotspots. We have gone back from the 2012 report and had a look at what is still there and what it looks like. A third of them had reduced in intensity and had some interventions, but two-thirds of just the extreme-rated ones were still present.

Regarding natural resource management grants by the agencies—I am informed that they are challenged to find funds to do the work they need to do. So I wonder whether in our catchments that might be something we look at when we are having more intense rainfall events, more turbidity coming through and the catchment condition changing with climate variability.

**THE CHAIR:** Great, thank you. On behalf of the committee, thank you very much for appearing today. When available, a proof transcript will be forwarded to you to provide an opportunity to check the transcript and identify any errors in transcription.

**The committee adjourned at 4.51 pm.**