

TRANSCRIPT

SELECT COMMITTEE ON VICTORIA'S RECREATIONAL NATIVE BIRD HUNTING ARRANGEMENTS

Inquiry into Victoria's Recreational Native Bird Hunting Arrangements

Melbourne – Friday 26 May 2023

MEMBERS

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Michael Galea – Deputy Chair

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Jeff Bourman

Katherine Copsey

Bev McArthur

Evan Mulholland

Georgie Purcell

Sheena Watt

WITNESS

Dr Holly Sitters.

The CHAIR: Welcome, Dr Sitters. I will just read out our introductory statement and then explain how things are going to work.

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

For the Hansard record, can you please state your name and any organisation you are appearing on behalf of.

Holly SITTERS: I am Dr Holly Sitters, and I am here as an individual.

The CHAIR: I will shortly invite you to make an opening statement of around 5 minutes. Then we will introduce the members of the committee, and we will take it in turns in blocks of time to ask you questions. And that is about it really. It is pretty straightforward. Over to you.

Holly SITTERS: Great. Thank you. Thank you all very much for the opportunity to be here today. I really appreciate it. So I am an ecologist. I am affiliated with the University of Melbourne, where I am currently an honorary research fellow. I completed my PhD at the University of Melbourne in 2014. I currently work for a national conservation NGO, but as I said, I am here today as an individual. My background is in applied ecology. So I have been focused on disentangling the effects of multiple interacting threats in order to inform conservation management. In my current role I am particularly keen to better understand the status and trends in species that are currently common so that we can provide opportunities to prevent declines before it becomes too late or too difficult.

Visual presentation.

Holly SITTERS: So my first slide here – I believe that the global context to this inquiry is crucial because decisions that are made at smaller scales, such as within Victoria, underlie what we see at global levels. So how do we wrap our heads around a graph like this? It shows an average decline of 83 per cent in the abundance of freshwater species around the globe since 1970. When I presented slides like this to students at the University of Melbourne, their faces were often blank, and I do not blame them. We are becoming desensitised to endless tales of gloom at a time when we most need to act. So this information is based on data from 6000 populations comprising over a thousand species of bird, mammal, amphibian, reptile and fish. The *Living Planet Report* shows that populations in the freshwater living planet index have been hit the hardest. They host a rich biodiversity, including a third of vertebrate species, despite covering less than 1 per cent of the planet. Major threats that have driven this colossal decline include water extraction and pollution as well as hunting, fishing and a heating and drying climate. Only this past week a paper was published in *Science* showing that more than half of the world's lakes have shrunk over the past 30 years due to climate warming.

Next slide, please. So these widespread declines have spurred the recent international nature positive movement, which underpins the goals of the new global biodiversity framework and focuses on improving ecosystem extent and integrity inclusive of all wild native species. So rather than slowing declines, the aim is to help increase the abundance of native species. Within the past year both the Victorian and federal governments have made commitments that support the nature positive movement, including the development of the nature repair market. While this is a giant leap forward in the right direction, it is clear that we still have a huge amount of work to do. Our list of threatened species continues to grow. Australia is the fourth-worst country in the world for species extinctions, and the graph up here shows that we are in the top three for the number of endangered vertebrates.

Next slide, please. So what about native birds in Victoria? Like all native species in this country they are facing a suite of threats, as you have heard from other witnesses today. As a consequence they are in overall decline consistent with global trends. In my submission I filtered the eastern Australian waterbird survey data to analyse trends in species in Victoria. Unsurprisingly, the results were generally aligned to those from eastern Australia, but it was clear that Victoria provides particularly crucial habitat for species like the chestnut teal, which is scarce across much of the rest of eastern Australia.

So I believe that it is imperative that we do all we possibly can to mitigate threats. This is a rare opportunity where we have the capacity to remove a threat altogether, so I support ending recreational shooting of native birds, which would be aligned to recent commitments from state and federal governments and to the global nature positive movement. Thank you.

The CHAIR: Thank you. We will go around the table and introduce ourselves. I am Ryan Batchelor. I am the Chair of the inquiry and Member for Southern Metropolitan Region.

Jeff BOURMAN: Jeff Bourman from the Eastern Victoria Region.

Bev McARTHUR: Bev McArthur, Western Victoria Region.

Evan MULHOLLAND: Evan Mulholland, Northern Metropolitan Region.

Michael GALEA: Michael Galea, Deputy Chair, South-Eastern Metropolitan Region.

Sheena WATT: Sheena Watt, Northern Metropolitan Region.

Georgie PURCELL: Georgie Purcell, Northern Victoria Region. And I should just disclose that Dr Sitters and I do know each other, in case it comes up in evidence.

Katherine COPSEY: And Katherine Copsey, Member for Southern Metropolitan.

The CHAIR: We are going to take it in turns, and I am the Chair, so I get to go first. Just on that, it is a matter of public record that you were a candidate for the Animal Justice Party at the last state election. You briefly mentioned it in your opening remarks. What qualifications and expertise other than that do you bring to your perspective in giving evidence today?

Holly SITTERS: Well, I have a PhD in ecology. My focus was on fire ecology, primarily the effects of wildfire and prescribed fire on native bird populations. A lot of the work that I did was with DEECA in order to work out how we can best use planned fire for the benefit of native birds. Since then I have broadened my scope to consider, just generally, how threats interact. In ecology we often focus on the effect of, say, one threat on a taxonomic group, but increasingly it is clear that it is multiple threats acting together that are driving a lot of the declines that we are seeing. The effects of multiple interacting threats have become a greater focus more recently.

The CHAIR: It is interesting, because some of the evidence we had earlier today was looking at the combination I suppose of changes in land use, changes in climate and rainfall and then activity-based influences on waterbird abundance. You have got in your submission some detailed analysis of particular species, and we have heard evidence of long-term species decline. Other species that you have analysed here, are they showing growth or decline in their populations over time?

Holly SITTERS: In general they are tracking what we are seeing in the eastern Australian waterbird survey, so in general they are in decline. There were a couple of exceptions – species that seem to be doing relatively well in Victoria versus the rest of eastern Australia. I sort of take that to see Victoria as providing crucial refuge habitat for those species that are doing less well throughout the rest of eastern Australia. I find it difficult to sort of encapsulate all of the results in a nutshell, because there are quite a few nuances and all of the species of course are doing slightly differently, but in general we have seen, as you heard from Professor Klaassen and Professor Kingsford this morning, a massive reduction in suitable wetland habitats for these species over the past few decades.

The CHAIR: So you are basically saying there are some birds that, likely due to habitat loss in other parts of the country, are finding more conducive habitats in Victoria?

Holly SITTERS: That is definitely part of it. Again, the data I downloaded from the database stopped at 2020, so I do not have the most recent picture, but that is certainly part of it.

The CHAIR: But that would be a fair assessment of the trend over time?

Holly SITTERS: Yes.

The CHAIR: Okay. And of those types of species, given your background in habitat and concerning habitat loss, what sort of habitat and locations are supporting these species in Victoria?

Holly SITTERS: Freshwater wetland habitat is crucial. In Victoria we are fortunate to have 12 Ramsar wetlands which have been identified as particularly significant habitat for both feeding and breeding. There is a network of smaller wetlands that do not have that officially recognised status across the state, but of course they come and go; it is often very ephemeral habitat. We have had three wet years, I think it is now, and so the status of things currently is looking pretty good. But we have also heard a lot about El Niño, which is due to return later in the year, I think current predictions are, and is expected to stay around for a while, and of course that will lead to completely different conditions to what we are seeing now. I think, again with the way that climate change is playing out, it can be very difficult to predict the effects of decreased rainfall and increased temperature on wetland extent, but it is clear that it is going to reduce it overall.

The CHAIR: And in your opinion, based on the trends that we have seen over the last three-odd years in terms of the climatic cycle, so through the La Niña and El Niño effects – we have just had a couple of years of good rain, we are predicting a couple of years of not-good rain – what do you expect to happen from here based on what you have observed in the past, with respect to both habitat and therefore population numbers?

Holly SITTERS: I think a major challenge that we are facing here, and not just in the context of wetland birds but all native species, is just that using past data only takes us so far into predicting how things are going to play out in the future. As Professor Kingsford said earlier, over the past few decades it has really been the reduction in habitat availability that has been the key threat to these birds. But over the coming decades it seems that climate change, increased temperatures and reduced rainfall are going to be the key threats. So yes, I think that is one of the challenges that we are facing, just that we do not really have the background information to make robust predictions. In a fire context, we do a lot of fire simulation modelling, so we look at different climate scenarios and how that might play out in the landscape. While of course there are still major uncertainties involved, we can at least look at how a fire might play out. I am not sure whether that has been done in the context of wetlands –

The CHAIR: So if we do that in a wetland context.

Holly SITTERS: Yes, I am not sure if anybody has. It would help, but there are still major uncertainties.

The CHAIR: Mrs McArthur.

Bev McARTHUR: Thank you, Chair. Full disclosure, Dr Sitters: I am a member of Field and Game Australia. Are you still a member of the Animal Justice Party?

Holly SITTERS: I am.

Bev McARTHUR: And you hope to stand again?

Holly SITTERS: Possibly. I am a dual citizen, so I can only stand in a state election.

Bev McARTHUR: Very good. Now, if we banned duck hunting and bird hunting in Victoria, given the expert advice we have had from professors that habitat loss is a key driver in bird population, have you got any evidence that the Victorian bird population is going to increase as a result of us banning duck hunting here? Given that migratory birds, funnily enough, do not have a passport to go interstate, necessarily how will Victoria's bird population increase if the habitat loss decreases and we have less rainfall?

Holly SITTERS: I think that with the climate changes that we are expecting to see and the habitat loss that has occurred to date – I am not sure how habitat loss is likely to change in the future – both of those things will reduce duck populations; while I am not sure of the relative effects of, say, hunting, because as you have heard

from other witnesses today, a lot of the numbers around the proportion of different species that are harvested each year are unknown, the total proportion. So I cannot really comment on the relative numbers, but I can say that continuing the shooting will reduce numbers.

Bev McARTHUR: How can you say that?

Holly SITTERS: Well, because shooting an individual causes the death of that individual. So shooting large numbers of individuals across the state, even though we are not certain as to what those numbers are, will reduce the –

Bev McARTHUR: But given that the birds are migratory, may not the birds be shot somewhere else? How can you say that the bird numbers will increase in Victoria? They might be in New South Wales, not Victoria, or Queensland or South Australia or Tasmania or somewhere.

Holly SITTERS: I do not necessarily think that bird numbers will increase, but they will decrease less if we stop harvesting them.

Bev McARTHUR: I am not a shooter at all, but I totally admire the volunteer efforts of Field and Game members who go out and spend hundreds of thousands of man-hours and a lot of money in preserving and enhancing wetland areas. Do you do similar volunteer work in the wetland areas?

Holly SITTERS: I have done in the past but certainly not recently – not within, say, the past 10 years.

Bev McARTHUR: Not within the past 10 years?

Holly SITTERS: I used to volunteer with the Victorian Wader Study Group. They are focused on shorebirds. But more recently because my day job is more oriented towards the forests and woodlands, that is where I have been more focused.

Bev McARTHUR: Given your interest in, I guess, preserving the forests and the damage that was done in bushfires, what was the loss to the bird population in the bushfires that we had?

Holly SITTERS: Unfortunately I cannot give you a definitive answer. There have been estimates in terms of billions of animals killed by the megafires of 2019 and 2020. The number of invertebrates that are thought to have been killed of course is expected to be in the trillions. Another important point, I think, is that the effects of those fires clearly reduced a lot of the abundance of native animal populations, and that has consequences for the listing status of many species. Based on some work that I was involved in that was published in 2021, based on our modelling, it looks like between 66 and 91 species that are currently unlisted are eligible for listing, based on the overlap of the fire with the population extent.

Bev McARTHUR: Do you oppose all forms of hunting – you know, to reduce pig numbers, deer numbers? What about fox numbers? What do they do to the bird population?

Holly SITTERS: Foxes clearly kill many native animals, and so as an ecologist of course I see that introduced species threaten native animals. There is no doubt about that. I personally am against lethal control. I think that there are many alternative control methods available, such as immunocontraception and non-surgical sterilisation. They are starting to be used in New Zealand and the US. Sorry, what was the other part of your question?

Bev McARTHUR: I am just wondering if you oppose all forms of hunting: deer hunting, pig hunting or fox hunting.

Holly SITTERS: I do personally, but I also acknowledge that introduced species populations can harm native species populations, and I am certainly not suggesting that we just sort of sit back and let introduced species contribute to declines in native species.

Bev McARTHUR: Do you oppose fishing as well, as an Animal Justice Party member?

Holly SITTERS: As a child I went fishing with my granddad, albeit I always insisted that he throw them back.

Bev McARTHUR: After you had put the hook in their mouth.

Holly SITTERS: Yes. These days I would not go fishing.

Bev McARTHUR: So we should ban, do you think, all forms of hunting?

Holly SITTERS: Yes.

The CHAIR: Thank you, Mrs McArthur. Your time has expired. Ms Copsey.

Katherine COPSEY: Thank you. Thanks, Dr Sitters, for your submission and for joining us today. I would like to go to the types of data that you observed in forming your submission, and we have heard from some witnesses today around the gaps that exist within the EAWAS survey, the specificity that you can get down to with known numbers for particular species and so on. Given your observations of the data available, I am interested to hear whether you think that we have got a full picture of the threats posed to our native waterbirds and also what you think that means in terms of the application of the precautionary principle.

Holly SITTERS: Thank you. Yes, that is an excellent question. On the one hand I think in Victoria we have fantastic capacity. ARI have a brilliant team who are applying very sophisticated statistical models to the data that we do have available. But it is also clear that it is far from sufficient. There is major uncertainty surrounding the estimates that come out of even the most sophisticated statistical models, and again, as Professor Klaassen and Professor Kingsford highlighted this morning, they have been involved in collection of data in eastern Australia on wetland birds over 40 years, which is phenomenal and is among the longest datasets that we have in Australia. But there are still major knowledge gaps surrounding the status of species currently, and also another key thing is just the effects of the threats on these species, particularly given the unknowns regarding the rate at which climate change is going to play out over the next few years and decades.

Katherine COPSEY: Given those unknowns, what does the precautionary principle say we should take as a policy approach?

Holly SITTERS: Given all of the unknowns that we are faced with and the truly unprecedented times that we are in – we are in the midst of a climate crisis and an extinction crisis – to me the precautionary principle means removing threats wherever we possibly can, so ending the hunting of native birds.

Katherine COPSEY: Thank you. We have heard some evidence from witnesses and some, I will say, comments from my colleagues today – we all bring different perspectives to this committee as well – saying things like ‘Well, clearly the major threat to bird populations is habitat loss’ or ‘The major threat is climate’ or ‘The major threat is reduced rainfall and health of wetlands, therefore it is insignificant what we do in relation to the shooting of native waterbirds in Victoria’. Do you disagree or agree with those statements? What would be your reflection on that?

Holly SITTERS: I have heard witnesses talk about how hunting is a relatively small threat. I think it is really important to keep in mind the fact that the extent of the climate crisis as a threat and the extent of habitat loss as a threat are really in the leagues of what ecologists could not have imagined only 50 years ago, and so to say that one threat is relatively small – sure, it is smaller, and yet the climate crisis and habitat loss are colossal threats. I think it is really important to keep this in mind.

Katherine COPSEY: Thank you. And just one last one if I have time: we have observed and we regularly observe during hunting seasons that, prior to seasons, tools like EAWS are used to try and make predictions about what wetlands should open and so on. However, during seasons we frequently see observations of threatened species and non-game species congregating in large numbers in Victoria. I suppose I would just seek your comment on the sufficiency of our tools. Can those tools really be used to predict a sustainable season, given we see these issues pop up?

Holly SITTERS: Yes. I do not consider the current tools that we have to be adequate, particularly when it comes to estimating numbers of other species that are affected. Of course we are naturally focusing on the game birds, but shooting affects all the birds that are in the vicinity of a wetland. Some species are particularly disturbance sensitive. We know there has been evidence that freckled ducks and blue-billed ducks, for example,

get shot accidentally, but of course we have no knowledge as to the numbers across the state and the proportion of the populations of those species.

Katherine COPSEY: Thank you.

The CHAIR: Mr Galea.

Michael GALEA: Thanks, Chair. Thank you, Dr Sitters. Two of the species that you identified in your submission in particular were the Australian shelduck and the chestnut teal. Could you please elaborate a little bit more about the threats facing them, particularly with regard to their habitat?

Holly SITTERS: I suppose the threats facing all of these species I would consider to be broadly the same. It is fundamentally the loss of suitable wetland habitat, as other witnesses have spoken about in detail this morning. For example, we heard about how in New South Wales and Queensland off-river storage means that river flow water is not ending up in wetlands, and so this reduction in wetland habitat is affecting all of these species. Of course they all use wetlands slightly differently; they feed in different ways, and some of them are rarely seen on land, in paddocks, for example, and other species are, but fundamentally it is the habitat loss that is affecting all of them.

Michael GALEA: Yes. And recognising that you have also identified climate change as one of the major threats, to what degree do you believe duck hunting exacerbates the threats posed by climate change and also bushfires?

Holly SITTERS: I think a real challenge that we are grappling with as ecologists is we certainly do not have all of the answers here or even half the answers; we absolutely need more data. Of course scientists are always saying this, but it really is the case. It is one thing to examine the effect of one threat – for example, at its most simple, if hunters are harvesting 200,000 birds per year, then that is a very simple sort of estimation of the effect on the population, albeit we do not have the species-by-species data – but then to look at how the effect of hunting may interact with the effect of climate, so how the effect of hunting may depend on climate, is a very, very challenging question to grapple with. We certainly do not have the data; we do not have the answers.

Michael GALEA: Sure. Talking about habitats and those wetlands themselves, we have heard and had submissions from native bird hunters arguing that without them those wetlands— and we have had examples cited as well —would be left to degrade, which would obviously in turn lead to further degradation of the population numbers. Do you have a view on that or a response to that?

Holly SITTERS: Yes. I think in Victoria again we have some fantastic groups out there who are doing some brilliant work involved in wetland research and restoration – for example, DEECA working with ARI. So ARI has a really strong – as I am sure you are very well aware – team of researchers. For example, they are currently undertaking the WetMAP project, which is designed to improve wetland health across the state. They are working with CMAs and wetlands specialists to manage grazing such that it helps remove weeds and does not degrade wetland systems. ARI is also undertaking an assessment of wetlands habitat connectivity at the statewide scale. The Blue Carbon Lab's Victorian coastal wetland restoration program is a multidisciplinary project that is focused on restoring wetland condition in the more coastal areas. The Victorian Landcare program of course is highly successful. It is a community-based volunteer movement that facilitates and coordinates action to care for the environment again across the state and across ecosystems. Several NGOs, like the Nature Conservancy and Trust for Nature, work a lot with private landholders to restore habitat and maintain habitat quality, and the Wetland Revival Trust is also working with the community and traditional owners in order to restore wetland condition. So we have large networks of people out there working to conserve and restore wetlands.

Michael GALEA: That is quite a large number, so you are confident that those groups or their equivalent would be able to offset any other loss that would occur?

Holly SITTERS: Yes, I am confident that we have a very strong network of organisations who are out there working to conserve these wetlands.

Michael GALEA: Thank you. You have also referred to animal welfare concerns in your submission. Could you please elaborate on your principal concerns around animal welfare?

Holly SITTERS: Yes. I suppose I have sort of a dual perspective on these things. On the one hand I am an ecologist and a scientist, and so I am focused on species and populations and their persistence; on the other hand I am concerned about the suffering of individuals. I do not see the two as mutually exclusive. Compassionate conservation is sort of a buzzword these days. It advocates considering the welfare of individuals in a conservation biology framework and asserts as its founding principle, as I wrote in my submission, 'First do no harm.' I have seen very wide estimates in terms of wounding rates. I think the GMA estimated that wounding rates were between 6 per cent and 40 per cent, so it is a very wide range. And if we are considering that more than 200,000 birds are harvested in a year, that equates to very large numbers of individuals. I think it is something like 12,000 to 80,000 individuals. So yes, the suffering certainly concerns me.

Michael GALEA: Sure. Thank you.

The CHAIR: That is your time. Mr Mulholland.

Evan MULHOLLAND: Thank you for your contribution. You acknowledged, I think, earlier to my colleague Mrs McArthur that you have not done any volunteer work in the past decade. We have heard evidence, some to this committee, on conservation efforts – thousands of volunteer hours from hunters per year in preserving wetlands in Victoria. Do you acknowledge that without this conservation work the life cycle of ducks would be impacted and that without duck hunting many of these wetlands would simply not exist to the standard that they are kept today?

Holly SITTERS: I have no evidence to suggest that that would occur, and as I just mentioned, there are many organisations, including government organisations, the Arthur Rylah Institute, who are involved in research in order to help managers improve wetland condition. There are armies of volunteer organisations across the state who are working daily – weekly – to improve wetland conditions. So while I appreciate the conservation efforts of anybody who is out there improving wetland conditions, I would hope that duck shooters would continue to do so and continue to use the wetlands in different ways, like for camping, bird watching and photography, if duck shooting were to end.

Evan MULHOLLAND: Thanks. I am not sure they would, but that is just my comment. I know you have mentioned your AJP membership – I think you were a running mate of Mr Meddick. Send him our regards; I know Mrs McArthur misses him.

Bev McARTHUR: Dreadfully.

Evan MULHOLLAND: I am just trying to understand the position you have come to on this. Would you frame your position on this as academic, ideological or political, or perhaps a mixture of the three?

Holly SITTERS: I think that fundamentally it is about my values. I value native biodiversity, and so that has driven my day job. Every day I am faced with threatened species across the country and looking at ways that we can help conserve them. Also, I am concerned about the welfare of individual animals as well. Often we are faced with extremely difficult situations where there is no clear sort of winning solution where everything benefits, and so often it is about minimising harm, I think.

Evan MULHOLLAND: No worries. In regard to duck hunting more broadly, how it obviously comes to the table through the agricultural sector, is your position to end all practices – not only the duck hunting we are talking about but in terms of in the agricultural industry and banning the product, of bringing it to the table?

Holly SITTERS: I am sorry, what was your question again?

Evan MULHOLLAND: Just in terms of the broader industry, of bringing ducks to the table, if that makes sense.

Holly SITTERS: Yes, that is my position. Because, again, I am concerned about the future of our native wildlife, and I am truly alarmed by what we are seeing in terms of the declines across Victoria, nationally and globally, I am opposed to anything that threatens native wildlife.

Evan MULHOLLAND: Okay. Cool. That is all I had. Thank you.

The CHAIR: Mr Bourman.

Jeff BOURMAN: Thank you, Chair. Thank you, Dr Sitters. It may surprise you that Mr Meddick and I did talk a bit in his days, and there were a lot of things we did agree on – not a lot, but there was some common ground.

I want to ask you about your expertise in fire – let us take hunting out of the equation for the moment – and how it would affect a state game reserve. Basically, state game reserves were audited a while ago, and there was a lot of fuel – medium fuel and low fuel. Obviously the low fuel is not really concerning. If a fire were to go through, say, one with high fuel, what sort of damage would that do – depending on the time of year of course – to the ducks and their cycle? You would expect it during summer, but it would have a marked effect on the environment, I would assume. That is where you come in.

Holly SITTERS: Yes. So my focus has generally been on the effects of fire on woodland and forest animals. I have not studied as part of my work the effects of severe fire on water species, so can I take this question on notice?

Jeff BOURMAN: Sure.

Holly SITTERS: Thank you.

Jeff BOURMAN: It is an interesting one, because I have a different view, I guess, on why we have a lot of problems with fires around here, and one of them is the fuel load. The 2018–19 bushfires were massive and killed a lot of animals, but anyway.

I want to make a comment about something you said, and you can answer if you like. You said you hope duck shooters would continue looking after the wetlands should they not be allowed to shoot. Something that was put to me: if you had a go-kart track and you maintained it and raced your go-karts, and one day someone said you could race the go-karts, I do not think it would be reasonable to expect someone to maintain the go-kart track if they were not allowed to use it as such. Do you think that is a fair observation?

Holly SITTERS: I like to think that they could use the go-kart track in a different way. For example –

Jeff BOURMAN: It could be a running track, but I could not do that.

Holly SITTERS: For example, in the context of wetlands, many people enjoy wetlands through the year in various ways. Of course it depends on the size of the wetland; it depends on a whole bunch of factors. But, for example, birdwatching is huge. Photography, hiking, camping, boating – there are a range of different ways of enjoying wetlands.

Jeff BOURMAN: That is fair, but I also might point out that hunting is for three months of the year. There is another nine months people can and should use those things.

I have got a few little notes here, so if you just excuse me whilst I zoom around. My take on your original presentation was that there are a number of causal factors as to the decline of waterbirds. Hunting was one of them, habitat and things like that. Earlier on, in fact in our first presentation, Professors Kingsford and Klaassen said hunting was a tiny part of the overall mortality of the birds, and Professor Hiller – I am paraphrasing here, so forgive me if I am getting it wrong – said that they were, I cannot remember the correct word, but ‘extra birds’ that were not needed to keep the core population afloat. How does that fit in with your contention that removing duck hunting as a factor is actually going to, for want of a better term, make a difference? Obviously, it will make a difference to the ducks that do not get shot, but looking at it in a wider context as a complete and utter species-level thing –

Bev McARTHUR: Overall population.

Jeff BOURMAN: Overall population – that is what I was getting at. It has been a long day. I am just trying to reconcile the two, if you can help me with that.

Holly SITTERS: Yes. I think we can think of it as three key threats here: the climate crisis, habitat loss and hunting. It is clear that they are of different magnitude, but I think that they are all still important, and anything

that we can do to reduce the pressures that these species are facing I think can only be a good thing in light of the extinction crisis. I am very focused in my day job on looking at trends in what we consider species that are currently common and widespread, because a lot of our currently threatened species were once common and widespread as well, so if we can take action to prevent declines earlier than we have done in the past, then that should in theory save us money that we may be injecting now into recovery efforts.

Jeff BOURMAN: Yes. I do not know how I am going for time, but I might finish up with just an observation and a question. Connemara was brought up before. Connemara is actually a really good example, because I personally believe that it is still in the state it is in because it has been used as a state game reserve for hunting. Shortly it is not going to be, just because of the encroachment of suburbia. I think we all know what is going to happen once hunting stops and once someone is going to get a planning permit – they are going to pave paradise and put up a parking lot. I actually see in some cases hunting keeping habitat that would otherwise be used for development. Connemara is a beautiful place, but you can stand in there and shoot and they are a long way away, but you can see people's houses. I do not want to say 'I put it to you'; it sounds like we are at a trial, but I am raising the possibility that hunting may well work to retain habitat. You can comment on that or not, if you wish.

The CHAIR: Time is up, Mr Bourman, but you can respond if you would like.

Holly SITTERS: I can take that on notice perhaps –

Jeff BOURMAN: It was not an important thing, but I was just wondering about your opinion on it because it is one of those things where you can stand there and look at people's houses. As soon as we stop hunting, it will last about 10 years and then it will go.

Bev McARTHUR: It will be drained.

Holly SITTERS: I certainly would not want to see that happen.

Jeff BOURMAN: None of us do. That is the irony of it. Thank you.

The CHAIR: Ms Watt.

Sheena WATT: Thank you, Dr Sitters, for your submission and for coming and joining us today. There was a lot in your submission and there have been quite a number of questions before, so I only have two. One is that you speak about the dabbling duck, geese and waders as particularly disturbance-sensitive species, and that disturbance can affect pair bonds and family structures as well as reproductive output. Is there any reason from your studies that some bird species are more affected by disturbance sensitivities than others, and what are some of the things that we can do to make that less so?

Holly SITTERS: I think that it is a really interesting question. I think that there are a lot of knowledge gaps surrounding exactly how a disturbance affects a lot of these species, but it is clear that loud noises – gunshots – cause birds to take flight. It is possible that they affect pair bonds and reproductive rates, but again, we have relatively little data on this. Certainly anything that we can do to remove disturbances is going to be beneficial.

Sheena WATT: When you speak to disturbance sensitivity, how does that present itself over the long term, or is it more of a short-term occurrence? I am just trying to really understand this – what it actually means and therefore what we can do about it.

Holly SITTERS: I am not an expert on behavioural ecology. I did some limited work surrounding disturbance to shorebirds. This was in Western Australia. Some shorebird species are very disturbance sensitive – for example, if you walk along a beach, they will of course fly away. These are species which are under immense threat and pressure because they migrate up through the East Asian–Australasia Flyway, and it is important that they feed quite intensively such that they have the energy levels to migrate. Disturbance levels that cause them to constantly be flying have been shown to be detrimental, so huge efforts have been put into reducing disturbance of those species. Of course shorebirds are often seen in wetland areas; they are not exclusively along the coast. But in terms of the effects of disturbance on other species, I cannot comment on that.

Sheena WATT: Okay. No. That is one to perhaps leave and research further and see if we have got any other experts that we could perhaps pose that question to when they are presenting in this inquiry. The other point I wanted to ask about was this growing field of compassionate conservation in conservation biology. When you were earlier responding to my colleague Mr Galea, you mentioned some remarks on that. Do you have anything more, given it is a growing field? I have got to let you know it is new terminology for me, and I am interested to explore that, if that is something that you can share with us, as well as how it might apply to the area of conservation of native bird species in particular.

Holly SITTERS: Yes. It has sort of arisen in parallel with growing community expectations in terms of minimising the suffering that we may or may not inflict on species.

Sheena WATT: So is it at an individual animal level, or are you talking about whole species?

Holly SITTERS: I suppose it is both. It is about considering the welfare of the individual when we are controlling the species or a population in some way. In the past it was – and it still is – often common to go out there and shoot as many animals as possible. But this is looking at alternative approaches, so non-lethal sources of control, which are in development and have been shown to work quite well for some species in some contexts. It is a growing area of research.

Sheena WATT: Who is leading the push for this area of compassionate conservation? Is there a research body, a university or an advocacy group? Where is this coming from, out of interest?

Holly SITTERS: Arian Wallach. If you look at the reference list in my submission, you will see a couple of her papers cited there. I cannot remember off the top of my head which university she is at, but she leads the Centre for Compassionate Conservation. It is one of the Sydney universities.

Sheena WATT: Okay, so is it a New South Wales-based university researcher that is leading this work?

Holly SITTERS: Yes, that is right.

Sheena WATT: Okay. I reckon that is about it for me, Chair. I am happy to move to the next if that is okay. Thank you.

The CHAIR: Ms Purcell.

Georgie PURCELL: Thanks, Chair. Thank you very much, Dr Sitters, for appearing here today. You have received some questions about the conservation efforts of duck shooters which they allege to undertake. Could you go into more detail on that compared with the conservation work of other environmental and biodiversity groups and the work that they are undertaking?

Holly SITTERS: Yes. I cannot comment on how much conservation work duck shooters are doing, but I can comment on the conservation work that other organisations are doing. The reason I cannot comment on what duck shooters are doing is simply because I do not know. I am aware of, for example, the many research projects and management projects undertaken or led by the Arthur Rylah Institute. The WetMAP project was one that I mentioned earlier, and that is designed to improve wetland health across the state, tying in research with actionable science, so on-ground action for the betterment of wetland health. Also, of course, catchment management authorities are working across the state in collaboration with traditional owner groups and others in order to improve the quality of our catchments. The Victorian Landcare program of course is highly successful – a very large source of volunteers that are out there improving wetland health. The Wetland Revival Trust, as well, is a relatively new organisation that is focused on working with the community and with traditional owners as well on improving wetland health. So there are lots of people out there doing fantastic work for our wetlands.

Georgie PURCELL: Thanks, Dr Sitters. As we have heard today, hunters often describe themselves as conservationists. We receive reports regularly throughout the duck-shooting season of the opposite of this, including illegally using lead shot, discarding shotgun shells and beer cans into waterways and chopping down trees. Have you heard of similar behaviour as an ecologist with an understanding in this area, and is it a concern to you?

Holly SITTERS: I have heard about the level of plastic pollution that ends up in wetlands following duck-shooting season, and so, yes, that is certainly of great concern to me. I think knowledge of microplastics and their effects on our environment is really growing and is absolutely horrifying to learn about. So yes, the levels of plastic pollution in particular but any forms of pollution out there in the wetlands are of great concern because they affect the whole food chain.

Georgie PURCELL: Thank you. Obviously, you have a relatively good understanding of the game regulations in Victoria. Under these regulations, shooters are required to harvest the breast meat of the duck that they shoot and hopefully retrieve. However, on wetlands where there is a PFAS or botulism outbreak, this is actually prohibited. How can shooters possibly abide by both sets of regulations when they do not work together?

Holly SITTERS: Yes. In short, I do not know. I have heard that conflicting advice is coming out of each organisation. When those contaminants and diseases, like avian botulism, blue-green algae and PFAS, which have been turning up in soils and waterways, are detected on wetlands the Environment Protection Authority's advice is to shut the wetland, whereas my understanding is that GMA is inclined to want to keep the wetlands open for access for hunters. So, yes, there is conflicting information there from each organisation.

Georgie PURCELL: Thank you. And just finally, you received some questioning earlier from Mrs McArthur, and following on from Mr Mulholland, around your views on other areas of shooting and agricultural industries. This is obviously coming from an, I guess, ethics viewpoint that you hold as an individual person. But as an ecologist, can you please explain why duck shooting is more of a priority in terms of preserving the environment and protecting wildlife, as opposed to the examples you were given relating to pig and deer shooting?

Holly SITTERS: Firstly, I am fundamentally focused on protecting our native wildlife. I grew up in the UK, as you can probably tell from my accent, and I grew up with the impression, of course, that Australia is unique – the animals that we find in Australia, many of them do not occur anywhere else in the world. Many of our duck species are endemic – they occur nowhere else in the world. So my priority, both inside my day job and outside my day job, certainly as an ecologist, is on preserving our native species. I truly believe that we have an opportunity now to make decisions that are going to protect our native wildlife so that future generations – so that our children – are able to visit wetlands and see birds there.

Georgie PURCELL: Thanks very much.

The CHAIR: All right. Dr Sitters, we are at the end of our hearing. Thank you so much for coming in today and making your submission and your contribution.

Holly SITTERS: Thank you.

The CHAIR: You will receive a copy of the transcript of today's proceedings for your review in about a week, I suspect, before it is published on the Parliament's website. With that, the committee is adjourned.

Committee adjourned.