

REPORT ON PROCEEDINGS BEFORE

**PORTFOLIO COMMITTEE NO. 7 – PLANNING AND
ENVIRONMENT**

**INQUIRY INTO KOALA POPULATIONS AND HABITAT IN NEW
SOUTH WALES**

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At Smithurst Theatre, Gunnedah, on Friday 13 December 2019

The Committee met at 11:45

PRESENT

Ms Cate Faehrmann (Chair)

The Hon. Mark Buttigieg

The Hon. Catherine Cusack

The Hon. Mark Pearson (Deputy Chair)

The Hon. Penny Sharpe

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The CHAIR: Welcome to the fifth hearing of the Portfolio Committee No. 7 inquiry into koala populations and habitat in New South Wales. The inquiry is examining the current status of koala populations and their habitat and focusing on the impacts and effectiveness of existing policies relating to land management reform, forestry and the environment. Before I commence I would like to acknowledge the Kamilaroi people, who are the traditional custodians of this land. I would also like to pay respects to Elders past and present and extend that respect to other Aboriginal people present.

Today is the fifth of several hearings we plan to hold for this inquiry. We will hear today from environmental and community organisations such as Upper Mooki Landcare; Wando Conservation and Cultural Centre, Maules Creek; the National Parks Association Armidale Branch; the Maules Creek Branch of the Country Women's Association; as well as from local landholders. We will also hear from independent koala researchers Mr Mathew Crowther, Mr Phil Spark, Mr John Lemon and Mr David Paull, in addition to a representative from Shenhua Watermark.

Before we commence I would like to make some brief comments about the procedures for today's hearing. Today's hearing is open to the public. A transcript of today's hearing will be placed on the Committee's website when it becomes available. In accordance with the broadcasting guidelines, while members of the media may film or record Committee members and witnesses, people in the public gallery should not be the primary focus of any filming or photography. I also remind media representatives that you must take responsibility for what you publish about the Committee's proceedings. It is important to remember that parliamentary privilege does not apply to what witnesses may say outside of their evidence at the hearing, so I urge witnesses to be careful about any comments you may make to the media or to others after you complete your evidence as such comments would not be protected by parliamentary privilege if another person decided to take an action for defamation.

The guidelines for the broadcast of proceedings are available from the secretariat. All witnesses have a right to procedural fairness according to the procedural fairness resolution adopted by the House in 2018. There may be some questions that a witness could only answer if they had more time or with certain documents to hand. In these circumstances, witnesses are advised that they can take a question on notice and provide an answer within 21 days. I remind everyone here today that Committee hearings are not intended to provide a forum for people to make adverse reflections about others under the protection of parliamentary privilege. I therefore request that witnesses focus on the issues raised by the inquiry terms of reference and avoid naming individuals unnecessarily. Witnesses are advised that any messages should be delivered to Committee members through the Committee staff.

To aid the audibility of this hearing I remind both Committee members and witnesses to speak into the microphones. In addition, several seats have been reserved near the loudspeakers for persons in the public gallery who may have hearing difficulties. Audience members should be mindful that noises and interruptions make it difficult for witnesses to communicate with the Committee and I request that audience members refrain from talking for the duration of the hearing. I note that photos and videos may not be taken whilst the hearing is underway except by authorised representatives of the media. If you would like a photograph of today's proceedings please approach the secretariat. Finally, could everyone please turn their mobile phones to silent for the duration of the hearing.

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LYNNE HOSKING, President, National Parks Association, Armidale Branch, sworn and examined

ANNA CHRISTIE, Research Officer, Wando Conservation and Cultural Centre, Maules Creek, affirmed and examined

MARTINE MORAN, Koala Coordinator, WIRES, affirmed and examined

The CHAIR: Would any of you like to make a short opening statement?

Ms MORAN: As you know, my name is Martine Moran. I am a volunteer wildlife carer with WIRES, rescuing, looking after and potentially releasing a variety of native animals, mainly koalas. Presently I am the WIRES coordinator for the central northern area of New South Wales, stretching from Corindi in the south to north of Moree, covering an area of approximately 100,000 square kilometres. In this area there is a very significant population of koalas, even though they are often difficult to find. My role, like the small band of dedicated, hardworking WIRES carers, is entirely voluntary.

Koalas are the original tree huggers. Male koalas throw their arms around their trees and rub their scent gland against the tree to establish ownership; they consider them their trees. They need their trees for shelter and food and dating female koalas. Female koalas want to eat and have babies in peace in areas that allow their young to survive and thrive. With increased drought and heat conditions, many more koalas are coming into care. Some of these koalas can be saved, but when it comes time for them to be released they need their homes to go back to—their trees. WIRES volunteers attend koalas affected by many things such as disease, dog attacks and vehicle strikes, but all these factors are magnified by habitat loss.

I do what I can to save as many koalas as I can. You in government are in a much, much better position to save many, many more koalas than me. Politicians of all persuasions need to work together. They need to stop listening to lobbyists, who are often motivated by greed. You need to listen to your heart; you have the fate of koalas in your hands. Thank you.

Ms CHRISTIE: In the Namoi region there is a high level of public concern about the loss of koala habitat through coalmining. That is why the 500-page document I am about to share with the honourable Committee members, obtained through freedom of information laws, is so significant, because its contents undermine trust in the biodiversity offsets that might be promised in the Namoi valley and Liverpool Plains. Correspondence between Whitehaven Coal and the NSW Biodiversity Conservation Trust, the Department of Planning and NSW Treasury reveal that the BCT, charged with the role of negotiating the conservation agreements for Maules Creek mine offsets has repeatedly found the majority of the offsets are not correctly mapped and do not represent the koala habitat and critically endangered ecological community, or CEEC, whose destruction they were intended to offset.

For the first time we know clearly why Whitehaven Coal has been unable to fulfil its consent conditions and has been granted two extensions in time since failing its original deadline. It is over 18 months since the first BCT site inspection of the offsets, and conservation agreements are still not completed. The extended deadline is March 2020. In the interim, between now and March 2020, next year's approved clearing window will commence on 15 February, during which Whitehaven will expect, as per business as usual, to be allowed to clear more of the Leard State Forest. The Maules Creek coalmine would not have approved but for the requirement it provide offsets for clearing the Leard State Forest, under which Whitehaven Coal would acquire like for like CEEC woodland and secure it in perpetuity.

The Maules Creek project approval, clause 49, states, "For all threatened species on site, the Proponent shall ensure that the Biodiversity Offset Strategy and Rehabilitation Strategy are focused on protection, rehabilitation and long-term maintenance of viable stands of suitable habitat for these species." A note to clause 49 specifically names the koala among the threatened species concerned. Despite clause 49, the Maules Creek mine offsets have not been secured despite six years of clearing of the Leard State Forest. Simply put, the BCT ground truthing notes of the offset state, "Vegetation mapping provided to BCT has poor accuracy on some sites, with some areas mapped as box EEC, inconsistent with site observations." Critical of Whitehaven Coal for being unable to provide a final map for consideration by the BCT, one email states, "It would be much better to be reviewing the final product, not a draft in development, and there is no point in us reviewing a draft product."

We request that the honourable Committee members seek a representative from the Department of Planning, Industry and Environment [DPIE] Resource Approvals branch responsible for oversight of the Maules Creek Mine conditions and seek answers as to how this state of affairs occurred and how the department of planning approved the Maules Creek offsets on the basis of draft incorrect mapping. What next? After the insight provided by these documents into the complete failure of offsetting for the Laird Forest, why would anyone trust

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the department of planning to regulate biodiversity conditions of a Vickery or a Shenhua coalmine? It is obvious that the Maules Creek mine offsets have breached the trust of the people of New South Wales and are a deception of the greatest order, resulting in a serious loss of koala habitat, which undermines the regional biodiversity strategy and the aim to create a corridor from east of the Nandewar Ranges to the Namoi River and possibly Pilliga East. Thank you.

The CHAIR: There is a lot there to unpack. Ms Hosking?

Ms HOSKING: I ask that documents be tabled.

The CHAIR: Yes, please.

Ms HOSKING: There have been changes of circumstances since our original submission, so this is a supplementary.

The CHAIR: Thank you very much, we have copies here.

Ms CHRISTIE: May I also table some documents for the committee members?

The CHAIR: Yes, please.

Ms CHRISTIE: These documents are additional information and a schedule for the 500 page Government Information (Public Access) Act [GIPAA] request.

The CHAIR: Thank you. Ms Hosking, do you have an opening statement?

Ms HOSKING: Yes, thank you. While koalas are the icon species, they cannot survive in isolation. They depend on a whole suite of interconnected species, on flora, fauna, habitats, dark skies and healthy intact landscapes and water. The decline of our iconic koala species indicates a decline of all forest species. The environmental benefits for establishing protected areas for koalas is indisputable and the Armidale branch of the National Parks Association supports NPA New South Wales' proposals for the establishment of koala reserves throughout New South Wales. It is vital to protect existing western slopes and plains public lands. It is important not only to provide adequate resources and staffing for government agencies and organisations, such as National Parks and Wildlife Service [NPWS], Local Land Services, State Forestry and Landcare, and also to provide assistance for landholders to facilitate long-term protection of native forested areas on their land that provide koala habitat.

It is a mockery to destroy a koala habitat while trying to reproduce ecosystems elsewhere—for example, the offsets—and it is more economic to leave intact remaining forests for koala habitat than to acquire land to attempt to regenerate forests. Time is a major factor. We are running out of time to protect koalas in many areas of New South Wales. The koala databases need resources to be maintained and there is a real danger that we will lose koala populations entirely. There is a unique opportunity to create essential corridors and hubs across Western slopes and plains linking east-west and north-south by developing a plan that includes connectivity with public and private land in cooperation with landholders as over 60 per cent of koala habitat is on private land. This could be done through a range of strategies. Travelling stock routes and reserves as well as forested areas on private land, particularly for creating connectivity, are really important. There is a range of options available to do this.

Many of the vegetation communities of the western slopes and plains are poorly represented and inadequate under the federally legislated comprehensive, adequate and representative, or CAR, reserve system. I note the Government is not meeting its statutory obligations. One of the very important things to consider is water. Water is life. Careful husbanding of our water resources is vital for survival of all and it can coexist with conservation and with farming practices. Threats to the survival of koalas include land clearing for mining and agriculture as well as increased incidence of high temperatures, fire and drought. It is essential that there is a moratorium on coal seam gas and no expansion of coalmines, as well as on logging native forests. There is strong community support for a moratorium on coal seam gas in New South Wales—for example, the Moree Plains Council has just declared one over their concerns of water depletion and contamination. The Nationals, at its State conference in Inverell, this year passed a motion to extinguish petroleum exploration licences, known as PELs, again due to farmers' concerns over water.

The CHAIR: Ms Hosking, could you wrap up your comments because we need to get the questions?

Ms HOSKING: It is vital to protect all remaining koala habitat in New South Wales. I draw your attention to the Pilliga and Leard State forests. The Pilliga is the largest continuous remnant semi-arid woodland and the Leard Forest forms part of a corridor of vegetation that can link Mount Kaputar National Park to the north with Pilliga Forest reserves in the south. There are many threats to the Pilliga including pollution from coal seam gas mining, which also affects the dark skies. It is called light sky pollution and this has very important ramifications ecologically as well as scientific impacts. It also impacts on tourism because Warrumbungle

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National Park has been declared a dark sky park and for the observatory at Siding Springs, where tourism is affected as well. This is caused from gas flares and bright lights from the mines.

Fragmentation is a really big issue not only from the roads and traps and pads from the coal seam gas wells but also from the longwall coalmining in the north-east Pilliga that has impact. I think that is in the report. There is also fragmentation from unexpected areas such as the well-intentioned rewilding project with a large number of mature trees and other vegetation permanently cleared for the feral-proof fence. This also impedes migration of native animals in the Pilliga to water and food sources and mating sites. We recommend that the Pilliga State Forest and the State conservation areas be given national park or nature reserve status.

Nature-based tourism is very important for long-term economic gains. The New South Wales Government states that koalas support 9,000 jobs and generate up to \$2.5 billion annually. According to Destination NSW, nature-based tourism is a large and growing industry that contributes \$21 billion to New South Wales every year. In New England and north-west last year 4.6 million nights were stayed and visitors spent over \$636 million. The Northern Tablelands MP, Adam Marshall, said that "visitors come to our area for various reasons that include our outdoor adventures and the natural beauty of that part of the State".

The CHAIR: Thank you, Ms Hosking. I assume some of your opening statement is in your submission and we now must get to questions. Clearly there are a lot of issues in this part of the world that we want to know more about. I will kick off with a question for Ms Christie. Please expand for the Committee on how important these offsets are. Are they adequate for the koala population in and around Leard Forest? Thank you for your submission and the recent update that indicates the level of habitat that has been cleared. Why is it so important that we have offsets that do their job?

Ms CHRISTIE: The offsets are part of what is known as the regional biodiversity strategy and they are an essential part of connectivity linking the Nandewar Range across the Maules Creek area and north and south of the mine, over to the west, to the Namoi River and potentially to Pilliga east. That is a framework of connectivity that was referred to by Ms Hosking and is agreed upon that it is part of the territory of koalas in the region.

The CHAIR: I also understand that Maules Creek mine has some Commonwealth imposed offset under the Environment Protection and Biodiversity Conservation [EPBC] Act?

Ms CHRISTIE: Absolutely, yes.

The CHAIR: Do you want to expand on those and how they are progressing?

Ms CHRISTIE: And they are not even included. When the State of New South Wales approved the Maules Creek mine it was referred to the Commonwealth under the EPBC Act and the Commonwealth imposed additional conditions including the purchase of additional offsets. The Wando Conservation and Cultural Centre has repeatedly written to the Commonwealth calling on them to enforce their conditions. They keep referring us back to the State under so-called bilateral arrangement. Strictly speaking the Maules Creek offsets do not fall under the current bilateral arrangements because they predate them. However, they have fallen into this like a practical, a default method. As a result the Commonwealth conditions are just being neglected.

They are in the hands of the New South Wales Department of Planning to enforce and we can see very clearly now that the New South Wales Department of Planning's resource assessment branch is not doing that. I want to quickly point out, whenever you hear anyone say that the coalmines in this region are strictly regulated it is completely incorrect. The example we have now in the GIPAA documents of a complete lack of a enforcement of the offset conditions is repeated time and time again in different aspects of mine regulation. Back to your question. There are Commonwealth offsets. They are not even mentioned in this list, that would take another task to bring them into it and, in fact, one of the offsets, Whitehaven had to be dragged kicking and screaming to actually even purchase it.

The Hon. PENNY SHARPE: This is pretty basic stuff but I think it is important that it is clearly on the record given what you have said today. Those offsets were a requirement as part of the mine approval in the beginning, were not they?

Ms CHRISTIE: Yes.

The Hon. PENNY SHARPE: There was an extensive process to get to get an agreement for that approval was that these would be met?

Ms CHRISTIE: I will just clarify, not all the offsets were part of the approval at the beginning. What happened was there was an original offset strategy and it was severely caned. A company called Cumberland Ecology had prepared an offset strategy which then became the subject of severe criticism so another consultancy came forward and prepared a revised offset package which included a much larger amount of land but we maintain

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there is no point having a larger amount of land if it is not like for like and it is not suitable habitat for the animals. I just wanted to clarify that actually there are more offsets now than in the original EA.

The Hon. PENNY SHARPE: It is the case that your understanding would be that clearing should not have gone ahead until the offset plan was actually finalised?

Ms CHRISTIE: We think the clearing is dependent on the availability of offsets at that point in time, not a time into the future. Now, when we see six years of clearing of the forest—

The Hon. PENNY SHARPE: With no finalised agreement on offsets?

Ms CHRISTIE: —and there is no end in sight because it is clear from the documents that these offsets will never fulfil the requirement they were meant to fulfil including some of them that are meant under the Commonwealth conditions to be rehabilitated from the grassland version of White Box woodland into the woodland version. It is not happening.

The Hon. PENNY SHARPE: I want to ask you specifically about Lawlers Well, which is very important. Could you tell the Committee about that. It is an important water source for all animals, not just koalas?

Ms CHRISTIE: Absolutely.

The Hon. PENNY SHARPE: It has been completely filled in. What attention has that well ever been given through the planning process?

Ms CHRISTIE: This is one of the real tragedies. It is a real inhumanity to go and remove the only permanent water source in the Leard Forest that all the animals depended upon, including, of course, koalas. Lawlers Well had cultural significance. Let us talk about its significance of being the water source. The nearest permanent water source would be Elfin Crossing and that also has now been destroyed due to the community's belief and it is currently under investigation by the natural resource access regulator, due to damage to the Maules Creek aquifer—not only Lawlers Well but the other water source.

The Hon. PENNY SHARPE: How far away is that from Lawlers Well?

Ms CHRISTIE: I would say it is maybe, I stand to be corrected, maybe eight kilometres.

The Hon. PENNY SHARPE: It is a fair way away?

Ms CHRISTIE: It is a fair way away but it is still part of their area which they are known to move across.

The Hon. CATHERINE CUSACK: It has gone now. That second water source is destroyed now?

Ms CHRISTIE: Yes, there is just stagnant water and dead fish there now unfortunately. I just will point out that community members have met with Boggabri Coal just in the last week and they are planning to put up to six water drinking stations for koalas within the corridor to try and compensate. At lack of water is a terribly cruel fate for the animals in that forest.

The Hon. MARK BUTTIGIEG: Just to follow-up on questions regarding the offset process. Just so we get the process right. Presumably there were offset parameters in the original approval requirements and then you said there were a couple of consultancy companies that came in and did plans?

Ms CHRISTIE: Yes. There are other speakers who you will be hearing from later who are experts in ecology and experts in the calculation of offsets. However, just to say, we have other freedom of information documents that show that when the Maules Creek mine was referred to the Commonwealth a new calculation tool had just been introduced. These documents, that I am happy to share with the Committee if you are going to go into that detail, demonstrate that the Commonwealth department of environment was struggling with the new tool and were desperately seeking help as to how to interpret the new tool at the very time that they were being pressured, forced to make a decision to approve the Maules Creek mine and to deliver that Commonwealth approval. It was a chaotic state of affairs.

The Hon. MARK BUTTIGIEG: From what I picked up from your previous explanation of the Commonwealth ones are they technically are not legally enforceable, is that what you are saying?

Ms CHRISTIE: Well, we do not think that. It is a practice that the Commonwealth defers to the State and they did that also with the regional biodiversity strategy. We kept writing to them and saying, "Look, are you giving attention to these Commonwealth ones, because we do not see that it is happening". They would write a letter to the State Department of Planning and come back with the response that, "It is all good". Then there were notes on documents saying that they were stepping out, they were just going to be observers to the process because the Commonwealth did not see themselves as being necessary to the process of the regional biodiversity strategy.

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Given that the Commonwealth conditions were an extra layer of condition, more strict, insisting on a 500 metre corridor between the two mines. Between the Maules Creek mine and the Boggabri mine there is a 500 metre corridor, which is an absolute requirement upon which the Commonwealth approval was based. Then there are other conditions as well which are an extra layer over and above the State conditions.

The Hon. MARK BUTTIGIEG: If those State conditions were not met, how did the clearing go ahead?

Ms CHRISTIE: That is a question for the department of planning. That is the question we ask year after year and extension after extension. Why are they getting extensions? The documents that we have received are the culmination of literally years of community groups writing to the department through the community consultative committee and through GIPAA requests. By the way, the applications for disclosure have been very strongly opposed by Whitehaven Coal and some have even had to go to the Information and Privacy Commission for determination.

The Hon. CATHERINE CUSACK: But corporations do not have—

Ms CHRISTIE: The documents we request through the Government Information (Public Access) Act are government documents that may mention something that is commercial in confidence. Names may be redacted and so on. Typically, they will try to put things as commercial in confidence that are not commercial in confidence. For example, it might be monitoring information. That is not commercial.

The CHAIR: Ms Hosking, in the updated submission you provided there is quite a bit of information about what the heatwaves and climate change are doing to tree species in the area and what that means for koalas. We are tasked with investigating the adequacy of various planning instruments, including State Environmental Planning Policy No 44—Koala Habitat Protection, or SEPP 44. In your submission you mentioned that the trees species list in SEPP 44 is woefully inadequate. Would you like to expand on what the National Parks Association would like to see in relation to SEPP 44 and the tree species list?

Ms HOSKING: Because of the drought and the bushfires in Armidale the eucalyptus viminalis ribbon gums on the ridgelines are dying. A member of our branch, Kate Boyd, produced that document. She is suggesting that all trees that retain moisture along the creek lands should have protection. At the moment people are putting out water for the koalas. Can I take that question on notice and consult with the NPA and Ms Boyd, who produced that document?

The CHAIR: Yes, of course.

Ms HOSKING: Will I get a written request?

The CHAIR: Yes, we will get that to you.

The Hon. CATHERINE CUSACK: How much money has been spent on GIPAA requests to try to obtain this information?

Ms CHRISTIE: I cannot answer for other groups, but the Wando Conservation and Cultural Centre would spend about \$500 or \$600 for a large GIPAA request. For a small GIPAA request that is looking for very confined set of information it would cost just a very small amount. When it goes beyond that we cannot do it. We do not have the funds to enter into fishing expeditions for documents. We usually have a clear idea of what we are looking for and we try to be very strict about the words that we search for.

The Hon. CATHERINE CUSACK: But is it fair to say that it is expensive and is a barrier?

Ms CHRISTIE: It is. It is one of our main expenses. We are a completely volunteer-run group and the kind of expenses that we typically have are research related, for examples costs related to seeking government information, either from the State or the Commonwealth, or costs related to the essential monitoring we do of the forest and the region, which includes aerial surveillance.

The Hon. CATHERINE CUSACK: You have outlined the current really complicated method of regulating compliance—if I can put it like that—with development conditions, which is clearly not working. Do you have any suggestions about compliance activity by government and also transparency around compliance activities?

Ms CHRISTIE: I think that coal mines are a special case in point because coal mines have been essential to our economy for generations. But coal mining is now in retreat. Now we what we need to be focusing on is a just transition and an honourable retreat from coal mining. There should be no new coal mines. In this region there is simply no capacity, even from the water point of view.

The Hon. CATHERINE CUSACK: But in terms of those conditions—for example, the Commonwealth conditions—I presume that a lot of work and time was put into those condition, but then there is

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no compliance activity. It is in some kind of limbo. How do you think compliance should be undertaken for conditions? For example, you seem to be suggesting that clearing should cease until compliance has been demonstrated.

Ms CHRISTIE: Definitely. Whitehaven has already indicated to the ASX that its estimation of the next year's production forecast is that it is going to be millions of tonnes less, from about 12.5 down to 10 or something. They do not need to expand further out; they can dig further down for the moment. But they do not want to do that because it is cheaper for them to fan out and dig up more forest. We do not know their intentions or how much they plan to clear this year because they do not tell us—they refuse to tell us. Every year we ask, "How much are you planning to clear? Afterwards we ask, "How much have you cleared?" But they will not disclose.

The Hon. CATHERINE CUSACK: How many different agencies do you work with in terms of compliance? Is the Department of Planning, Industry, and Environment meant to be managing this whole thing or does the Office of Environment and Heritage also have a role? There is also the Biodiversity Conservation Trust. Does they also have a role?

Ms CHRISTIE: Yes, they do have a role. We do not deal with them directly, although we have spoken to them about conducting a workshop in the area for the public to come and learn more about the system of conservation agreements. There is a real hunger for people to understand what these documents are. They are a financial document and they are a management plan. They are a new beast of document. That is the limit of the relationship with have with the BCT. The Environment Protection Authority does not regulate things to do with clearing. It is mainly the Department of Planning, Industry, and Environment through resource assessments. It always goes back to them. Right now there is a story going on just up the road around what is widely believed to be an unlawful pipeline being constructed. It is being waved through by the very same people who have allowed this situation to continue.

The Hon. MARK PEARSON: Ms Moran, in your submission you talked about a lot of your volunteers. How many are there?

Ms MORAN: There are not many.

The Hon. MARK PEARSON: Are you the only people who are providing water for koalas in this crisis situation?

Ms MORAN: We are not providing water for koalas; we are picking them up off the road and taking them to vets or taking them home. We do not provide water unless we see them out in the bush and we can put a bowl down for them.

The Hon. MARK PEARSON: They are called "Blinky Drinkers", aren't they?

Ms MORAN: Yes, but that is not me; another group is doing that. I commend their efforts. It is fabulous to have those Blinky Drinkers out.

The Hon. MARK PEARSON: But there is no way that could be looked at as an answer to the hydration or water supply issue for koalas when we are dealing with the issue of climate change, is there?

Ms MORAN: One of the reasons that koalas come into care is that they get very, very thirsty and dehydrated. They get very stressed and end up getting sick. Stress leads to disease. They get sick and then they get even thirstier. Then they get eaten or bitten by dogs. The trees, if they have got trees and they have got water in the leaves of the trees that is good, so they get a bit of moisture that way. With the drought there is less moisture in the leaves of the trees, so those animals are suffering doubly. They are moving into the watercourse areas. People say they do not see the koalas anymore. Most of them are down in watercourse areas, like you and I and people will go down to the river and sit on the riverbank if we can find a cool spot, and that is where they are moving to at the moment.

If you leave some water in the river system so they can move down to that, that is very, very, very important—it will probably save the whole species west of the range. Very, very little work is being done or spoken about of the koalas west of the range, but they are there. You do not see them all the time because hardly anyone comes over the range; they do not see them. I see them every single day, koalas constantly coming into care.

The Hon. MARK PEARSON: When that water source was removed, I forget the name of it now, by a mining company, it was filled in, apparently there was an offset eight kilometres away. Is that an offset that is actually going to truly offset what has been the harm that has been caused? If water is made available eight kilometres from where they usually source water, is that really an offset?

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Ms MORAN: I know what you are saying. You see how you feel today or tomorrow when it is going to be heading towards 40 degrees and you have got to walk eight kilometres in the heat to get to a drink of water, and you are probably going into another koala's territory. You might have to cross a road, you might have to deal with some dogs that someone has; it is a long walk for a koala.

The Hon. MARK PEARSON: When an offset is announced, is your understanding that the offset does not really do anything for the habitat, the biodiversity, the environment there in situ for those animals and the flora if an offset is created somewhere else?

Ms MORAN: It is like putting you in a car and saying, "I am going to send you out to Bourke tomorrow and you are going to live out at Bourke." You are not going to live in Sydney, you are not going to live on the Central Coast, wherever you live; you are going to have to live at Bourke from now on and you have to deal with it. You have to deal with the lack of food, the water and the heat.

The Hon. MARK PEARSON: But they are not taken to the other place, that is my comment.

Ms MORAN: But they have to take themselves there. It is even worse that way. Sometimes I have to take something to somewhere if there is another tree that I can find if the other trees have been knocked down. If their habitat has gone I have got to find somewhere to release them to if they survive.

The Hon. PENNY SHARPE: My question is a direct follow-up on that. How hard is it for you to find places to release the koalas and other animals that you are able to save?

Ms MORAN: It is extremely difficult. I have people who kept remnant bushland on their places, which is great; others have gone out and planted trees. They planted trees a couple of decades ago and they have kept them there and they have kept the water up to them and so they can be released into those places, which is fabulous.

The Hon. PENNY SHARPE: Are you finding in the offset areas that they are not suitable for release?

Ms MORAN: Where are the offset areas? Nobody has sent me a list of them and nobody has given me access to them. I do not know where they are.

The Hon. MARK BUTTIGIEG: Let us assume for argument's sake, and, Ms Christie, this seemed to be the implication, notwithstanding my colleague's concern, in an ideal world the offsets were done properly and they were substantial, the koalas can survive, is what we are saying, but we are not even getting to that stage because the offsets are not even enforced. Just for the sake of brevity, has not the Office of Environment played a role? What is the interface, the communication with planning, because it seems to me one of the things coming through this Committee is that the Department of Planning has the ultimate say and pushes the Office of Environment aside?

Ms CHRISTIE: Are you talking about the Commonwealth Department of Environment or—

The Hon. MARK BUTTIGIEG: No, the State.

Ms CHRISTIE: I think the name of the portfolio, DPIE, says it all. Yes, the Office of Environment and Heritage is the first agency that has a look at the offsets, but I feel that the people in OEH that I have had dealings with, they have intimated that their hands were tied. I will give you an example, a very quick one. One of the Whitehaven offsets is located—guess what is located in that offset? It is a new exploration licence that they are developing. I spoke to the OEH officer and I said, "Look, this offset is exactly contiguous. There will be a mining footprint right next to it. Surely that is going to diminish the ecological values." And the OEH officer said, "No, we don't like it but there is nothing we can do about it." Under their guidelines you can have the mine operating right next to it and no, they do not consider it.

Ms MORAN: Can I just say one thing? Koalas going to those offsets, they are territorial. So moving into offsets comes with great problems.

The CHAIR: Thank you very much for appearing. I am very sorry that we have not had more time. Please be assured that the submissions that you have provided will be used by the Committee and your evidence obviously as well. Any questions you have taken on notice will need to be returned within 21 days. The secretariat will contact you in relation to those questions. Some Committee members may also have supplementary questions based on your evidence and the fact that we have limited time today. Thank you very much for the work you are doing and for appearing.

(The witnesses withdrew.)

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ROSELYN DRUCE, Environment and Agricultural Officer, Maules Creek Branch of the Country Women's Association of NSW, sworn and examined

ANDREW PURSEHOUSE, Local Resident, affirmed and examined

HEATHER RANDCLAUD, Committee Member, Upper Mooki Landcare, affirmed and examined

NICOLA CHIRLIAN, Chair, Upper Mooki Landcare, affirmed and examined

The CHAIR: Are any of you making an opening statement? If so, please keep them to no more than a few minutes.

Ms CHIRLIAN: Thank you, Chair. May I request that our submission is given to the minutes of the Committee?

The CHAIR: Yes, we will do that.

Ms CHIRLIAN: Ms Randclaud and I are presenting a joint submission, so there will be points that I cover now and she will present additional information. First of all we acknowledge that the terms of this inquiry were developed before New South Wales was affected by the current devastating bushfires. However, the fires to the east and the south of us here in critical koala habitat and the drought in this area have shown us that term of reference (c), "the effectiveness of State Environmental Planning Policy 44 - Koala Habitat Protection, the NSW Koala Strategy and the Biodiversity Conservation Act 2016 ... in protecting koala habitat and responding to key threats ..." has failed. This is clearly evidenced by koala death and injury from fire and drought. We have not been able to protect an unknown number of koalas that have already died.

Term of reference (d), "identification of key areas of koala habitat on private and public land that should be protected, including areas currently at risk of logging or clearing, and the likely impacts of climate change on koalas and koala distribution", is critical. However, even where these habitat areas exist, we have not been able to protect them in the climate chaos that we humans have created. Ongoing land clearing is a huge issue. I have a recent study that has quantified that 7.7 million hectares of potential habitat and communities declared between 2000 and 2017, and states that of this 93 per cent was not referred to the Federal Government and therefore not scrutinised under the EPBC Act. I would like to table that article, if you are able to take it.

The CHAIR: Yes.

Ms CHIRLIAN: Thank you. We share the shock-horror and terror at the situation we are now in and acknowledge our own and others' anger and grief at the loss of possibly thousands of koalas and, I expect, millions of wild and domesticated animals, birds, insects and their habitat. We will never know how much wildlife and ecosystems we have lost. We are now seeing the impact of climate change and chaos and our inability to control forces that, I believe, we have created through mismanagement and arrogant abuse of the natural ecological systems of our world. We need to approach the climate crisis that we are now clearly in as if we were in a war with pitched battles needing to be fought on so many fronts. To that end, we ask that the New South Wales Government, firstly, look urgently at all measures that may assist in repairing and maintaining habitat for koalas and other wildlife. We must demarcate critical habitat for listed species, including koalas, which provides absolute protection that is enforced, monitored and investigated by the regulator.

Due to previous involvement with the Shenhua Watermark project, we call for an immediate review of this project in the light of the changing climate. We call for an immediate cessation and moratorium of logging in native forests and the curtailment of the rush for urban expansion into bushland areas. We must discontinue any expansion or addition of new coal and gas extraction, as we know that these are the major cause of global warming, no matter who extracts or who burns across the world. Scope 3 emissions must be counted in further decisions about approvals. We must accept and implement a transition to renewable energy sources as quickly as practically possible. We must address soil degradation and desertification by urgently interpreting carbon soil sequestration, regeneration and rehydration measures at landscape to molecular levels.

We must implement cool or mosaic burn strategies along with planned and managed grazing of livestock to reduce fuel load in our forests and farmlands. We must repair the hydrology of our landscapes and the water cycle. Keeping water in our environments at all levels must be a major goal. We can do these things. We know how to do these things. People are doing them now across Australia and the world and they are at acceptable cost. I believe, in truth, we have no choice about this. Thank you.

The CHAIR: Thank you. Would anyone else to make a short opening statement?

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Ms RANDCLAUD: Yes, I would if I may. Members of our group, Upper Mooki Landcare, have ongoing concerns about the future of the populations in our area. We have concerns about the impacts of opencut mining on koala populations—for example, the Shenhua proposal is looking at 847 hectares of habitat being bulldozed. A scenario that may be worth considering is if half the houses in Gunnedah were bulldozed and people moved in with their neighbours for 20 years while their homes were being rebuilt, that is the impact that some of these decisions are having on the koala population. The potential for what will happen if more habitat is destroyed is very serious. We are concerned about proposals for translocation and we feel that, from the evidence that we have seen, it does not work.

We feel that there needs to be more consideration for the impacts of climate change on our environment. We are concerned that the current SEPP 44 has not delivered the outcomes that we would have hoped. Referring to climate change, we are concerned about the current impact of drought and fire on koala populations. I will just mention that there is a North West Local Land Services strategic plan available online and that identifies five local government areas in this region where protection of critical habitat for identified priority fauna including koala is a priority. We feel there should be commitment and investment in habitat conservation and revegetation, particularly when this drought ends. We will need some very serious investment in revegetation projects that provide habitat for koala, in particular.

Mr PURSEHOUSE: Thank you. I would like to thank the Committee for being on our property this morning and having morning tea. I am not sure exactly what more I have to say, other than just to set the scene. I am here as a concerned citizen and local landholder of 35 years. I have witnessed the decimation of a koala population on Breeza. I am terribly concerned about what is going to happen with the proposed Shenhua Watermark coalmine. We are talking about a decimated population now and we will be talking about no population if that mine goes ahead. That is where my emphasis will be today.

Ms DRUCE: The Maules Creek branch of the CWA are here to tell you that the koala and its habitat are in trouble. We ask the Committee to recommend both urgent action and then in turn responses by government to save the koala and protect its habitat through powerful and amended legislation. How shameful to this Government it would be if the only surviving koalas are in zoos in foreign countries. After the inquiry in 2011, The koala: Saving our national icon, we should have seen the koala population protected and increasing and not declining, if recommendations were implemented by the Government and legislation not watered down. What we did witness were policies and planning for environmental destruction and risky coal and gas projects instead. Will we now have to have the koala listed as endangered before they are truly protected?

Our urgent recommendations, in consultation with the local community, are, firstly, to fund and implement water stations in koala communities and, second, to create massive awareness campaigns and simple solutions by putting out water. The wider community will act if it is sufficiently empowered. On climate change, you must acknowledge and have plans put into action to reduce our CO₂ emissions to save the koala habitat. Listen to the community, engage the community—rural women are great communicators. Tap into our resources and we can save the koala. Our medium- to long-term recommendations are to have accurate koala habitat mapping, regardless of the presence of koalas. Legislation must be amended. Koala habitat protection under SEPP 44 and the Biodiversity Conservation Act have failed to protect koalas and their habitat, after being weakened to allow land clearing, urban development, coalmines and CSG. Remapping and rezoning of old growth forests must not be allowed. Leard State Forest was rezoned to allow opencut coalmining.

This was the worst thing that could have been done. The local koala population have lost their habitat. Further, we recommend a cease to any further clearing of habitat for mining in the north-west. Ensure State significant developments are not self-regulated. Ensure State significant developments and mining projects work to their project approval, increase the penalty significantly for the lack of compliance, ensure compliance and monitoring is independent and place the onus of proof on the proponent. Ensure that mine rehabilitation bonds are money in the bank and not just a guarantee. No new coal or gas projects. Strengthen the ICAC with the power to enforce findings. Finally, reward small landholders and land managers to regenerate the landscape and increase water holding capacity in the soil.

Empower these landholders and educate them regarding koala communities on their properties. Large broadacre holdings and managed companies must follow strict rules to protect koala habitat. The Biodiversity Conservation Trust must prioritise funding for properties on the western side of the Great Dividing Range and offsetting should not be used. We request the Committee call for and examine the offsetting reports for our region as requested by the Biodiversity Conservation Trust. Exclusion fencing must have approved koala safe access points along boundaries to allow free movement to and from public and private land. More staff for National Parks and Wildlife Services. Remove political appointments to Local Land Services boards and retain and strengthen the independence of the IPC.

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The CHAIR: It sounds like the Maules Creek Country Women's Association has just written half of our report.

Ms DRUCE: Thank you. I hope you use it and I hope it gets implemented.

The CHAIR: I will kick off with the first question. It is a broad question. All of you have mentioned climate change to some extent and we are seeing that play out to devastating effect across the State. Recognising that unfortunately some of the warming is locked in and it is going to get worse before it gets better and that means worse for the koala too; what adaptation strategies would you recommend to the Committee need to be done to do as much as we can to help koalas in this part of the world survive a warming climate?

Ms DRUCE: First of all it is water. I think we all agree that we are lacking water, whether it is in the rivers or out in the bush because the trees are so dry. That is why we recommended watering stations. I think we have to look at our river systems: They are dying. There is no water coming down them. At least if there was water in the river systems the koalas might have some chance along the riparian zones.

The Hon. MARK PEARSON: You have all made comments about the fact that the land clearing legislation, which was reasonably strong before 2016, since that has been weakened have you witnessed a major impact on fauna and flora as a consequence of that? How much of that is as a consequence of the land owners not being able to access proper advice if they are going to clear any land?

Ms DRUCE: I guess from our perspective with the clearing in the Leard State Forest it has been notable that the animals have been moving out. Who would want to live in 24/7 blasting noise and light.

The Hon. MARK PEARSON: Was there somewhere for them to go?

Ms DRUCE: Because the Leard State Forest is quite a small block of forest, it is basically surrounded by farming entities, they are coming out on to the farming lands. I have noticed small birds that I have never had at my place, red capped robins and things.

The Hon. MARK PEARSON: In relation to my question would you say that the land clearing that has been allowed to occur from land owners, where they would not have been able to do that before 2016, is that having an impact on where these animals can go?

Ms DRUCE: I cannot say with land owners because in my situation it is basically the mines. I have been further out west and I have seen a lot of destructive land clearing with bulldozers going 24/7. I am sure some of the other witnesses will probably fill you in on that.

Ms CHIRLIAN: I think when you realise that we are in an era of industrial agriculture and those huge machines that are used and the scope of the farming.

The Hon. MARK PEARSON: It is corporate farming.

Ms CHIRLIAN: Of course. Even in our area, the south eastern corner of the plains, I would not say that I have witnessed in the time I have been there willy-nilly land clearing but certainly when you drive through areas that would have been woodland areas there are isolated trees there now. I actually had an encounter with a koala about five weeks ago. It was most unexpected. It had come across the road, it had obviously been drinking at a watering point designed for stock but it was so unexpected to see this koala. I pulled up my vehicle and jumped out and it came stomping up the road towards me to about five feet and then went "maybe this is not the person I want to meet" and it went across the road. Then it had to head out across another area of cleared agricultural land.

It was heading towards the creek. Whether it was a young animal that was finding another home or whether it is making its way south for a cooler climate, I am not sure. Our Landcare group has been part of koala mapping in our area. There were very, very few reports of koalas down our end of the plains. For me it was extraordinary to see one in the middle of the day. If you walk across that country that has been farmed it is hot, the ground temperature is high when there is no crop there. We are seeing that heating up of the ground. Animals are not going to want to stay there. I think somebody in the earlier panel referred to wanting to go to a creek where it is cool and if the creek is drying up where are you going to go? Are you going to survive?

Ms RANDCLAUD: If I could add a further point. What we are experiencing with drought is having a serious impact on woody vegetation. A lot of natural regrowth has died in our area and a significant number of mature Yellow Box trees that must be well over 100 years old, we are seeing those trees die.

Ms CHIRLIAN: I would also like to acknowledge that the current priorities as I understand them from North West Local Land Services [LLS] and Landcare New South Wales are very much towards supporting and

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encouraging regenerative agriculture which is looking at re-establishing water in the soil and ways of managing cropping and grazing that will facilitate better conditions. We need more of that and we need it really fast.

The Hon. PENNY SHARPE: I want to ask a question about the role of the travelling stock routes [TSRs] and what you think needs to be done. Obviously weeds are a massive problem. Just lack of care and attention. What would you suggest to the Committee in relation to how we are dealing with travelling stock routes as part of the solution of this quite dire situation.

Ms RANDCLAUD: My view would be that TSRs are not the answer to this problem. My own view would be that we would need to consult with ecologists that have more knowledge in that area but it would be around vegetation species and with the change in climate look at possibly some different species being planted. There has been a suggestion that more drought tolerant species from perhaps further west are suitable habitat, that we look at introducing these into some of our areas to form corridors that could be used by koalas or any other species.

Ms DRUCE: Can I just add to that, I still think that the TSRs are extremely important, even if they are only there for the corridors. But a lot of the TSRs do have reasonably good habitat. The only thing is weeds. With the cut back in staffing and the tremendous areas they have to look after, weeds have probably gotten out of control. The very important TSRs really do need to have a bit more attention paid to them, especially in relation to tiger pear, which was mentioned earlier. That was something that was noted because when they are right at the foot of the trees the trees become useless and then the koala cannot use them. But our TSRs are still very important.

Mr PURSEHOUSE: I would just like to point out to the Committee that today you travelled from Tamworth to Breeza via Werris Creek and you travelled from Breeza to Gunnedah. The black soil plains that you passed were tree-less plains from the start. I do not want there to be confusion around whether they have been cleared. In the hill lines that you followed, particularly from Breeza to Gunnedah, there was clearing in the early days. That was a condition of settling here. If someone wanted to settle a plot it had to be cleared. These days a lot of that land has been returned to being permanent pasture because it is uneconomic to grow grain or other crops. There is a transition and it is happening. The black soil plains are basically not cultivated anymore. Each crop is grown in the previous crop's soils. The next generation is now focused—as Ms Chirlian mentioned—on regenerative agriculture and multi-species cover crops. It is a whole new world that I have not experienced. My sons are now taking it on to teach their dad. The vegetation is being looked after better now by the future generations.

Tree planting has been neglected. We are seeing a lot of the old trees, which could be 400 to 500 years old, gradually declining and they are not being replaced. There have been Landcare schemes—we have done them to death—but at the end of the day when you get five hot summers in a row like we have had and you are trying to plant in conditions such as these, it is not easy. Livestock, particularly cattle, are not very gentle on the natural suckers that survive. But you can put a tree guard around them as soon you see them to help them survive. We all need to be conscience to plant more trees. In 200 years' time we may not have many trees left.

The CHAIR: Mr Pursehouse, I would like to ask you about Shenhua Watermark. The Committee visited your property today but we did not get any of that conversation on the record. I was hoping you could once again tell the Committee about the issue. As I understand it, the number of individual koalas that was recorded during the Shenhua environmental impact statement [EIS] process was 282. Is that correct? During our visit today you talked about the decline in the number of koalas that visit your property. What are your concerns about your local koala population? What concerns do you have in relation to Shenhua's massive footprint?

Mr PURSEHOUSE: My concern is that 35 years ago when I lived at Breeza—I still do—there were koalas on the property every day, quite often with young. There would be five to seven koalas on any given day. Today you are lucky to find one individual. It is a koala corridor all the way from Gunnedah to Breeza. We have noticed that koalas are moving east and south. Call it climate change or whatever else. I do not care what you call it—it is happening. There has been a decrease in the population. If the Shenhua mining development goes ahead 2,500 hectares of land will be clear felled and made into three big open-cut pits. That will stop that natural migration process happening. In terms of numbers, I do not know where those numbers in the EIS came from. I assume they are right, but I also know that they will not be right now. We have seen massive devastation in the past five years.

As I pointed out this morning, the Federal Government had an unemployment scheme called the Regional Employment Development scheme where a tree line was put in west of the Mooki River, following the river, because there were no koalas of any consequence south of Breeza. Now there are. That tree line has done its job. We now have koalas to the east towards Werris Creek. Some farming friends of mine have been there for three generations and they have just started seeing koalas there in the past 15 years. This mine will clear fell an area that will stop in its track the government tree line that was put there to help koalas. It is going to turn it into an

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industrial area. It does not matter how many offsets you have or how many areas you put aside for koalas; they will not survive.

The CHAIR: I have one last question on that. Coming from Gunnedah to Breeza, I am picturing koalas walking along, trying to migrate because of climate change. They will be walking along and then all of a sudden they will hit this massive coal mine. Are they going to walk to the offset area and then come back to Breeza? Is that what Shenhua thinks they are going to do? Or will they just stop at the edge and then teeter out? It sounds like this means the end of the koala population in this part of the world if this mine goes ahead. Is that right?

Mr PURSEHOUSE: Yes, it is certainly not like herding sheep. Quite often we see them on the road between here and Breeza. There are plenty of road signs that indicate koalas. That is quite a common occurrence. The sheer traffic load will be detrimental.

The Hon. MARK PEARSON: What do you mean by that?

Mr PURSEHOUSE: The number of vehicles that will be going through an area like that will create a real problem. We are not talking about only the highway, but also boundary roads that at the moment might see half a dozen cars a day. With this mine, those roads will see hundreds of vehicles day and night. There will be a lot of night traffic with workers.

The Hon. MARK BUTTIGIEG: Ms Chirlian and Ms Randclaud, both of you referred to SEPP 44. I think you used the word "failure" Do you have an opinion on whether that failure is a result of the SEPP 44 instrument being inadequate in terms of the specifications or is it because of a lack of enforcement?

Ms CHIRLIAN: My statement was a reflection of the fatality numbers coming out of the fires that we have seen throughout those coastal areas, which have had all of those regulations around protected areas of native forest applied to them. But we have not been able to control the fires that have gone through. It is a general statement.

Ms RANDCLAUD: Regardless of the SEPP, we have seen a decline in the koala population. That is a very serious situation and that is why I feel that SEPP 44 has failed. It should have been an instrument that protected koala habitat. But we are seeing populations decline. That is my concern.

The Hon. MARK BUTTIGIEG: No, the reason I ask is because we have heard evidence from previous hearings pre the catastrophic events of the last few weeks with the bushfires, which indicated that the SEPP was not necessarily a bad instrument in terms of what it did, it is the fact that it is not really enforced, it is overlooked by the Minister. That is what we have heard but I was just interested to get your views on that.

The CHAIR: You can take anything on notice if you feel you cannot answer it.

Ms RANDCLAUD: Yes, I will take that on notice.

The Hon. CATHERINE CUSACK: Ms Druce, I wanted to ask you about weeds. We are looking at challenges the koalas are facing and I have not actually seen that submitted before and I wondered if you could tell us a little bit more about that. You mentioned specifically the tiger pear as potentially injuring koalas.

Ms DRUCE: Yes. I guess you have probably all seen prickly pear, but tiger pear is very different; it is a smaller plant. There is a photo of it in our CWA submission. It has small segments and those segments break off very readily and are probably transmitted and carried around by kangaroos and other stock, so it grows wherever it is distributed and on stock routes, because we do have a lot of stock and kangaroos that travel in those areas. That is where it seems to really proliferate, but there are a lot of private properties that have it on as well. Those spines on the tiger pear will go through a leather boot and you actually need to have a pair of pliers to remove them—they have a little barb on the end of them. So you can imagine a poor koala or dogs—I know they have trouble sometimes with dogs because they will get it in their feet and then they will try and pull it out with their mouth and I guess koalas probably do the same. So that is an issue.

The Hon. CATHERINE CUSACK: That is on the ground in koala habitat?

Ms DRUCE: Yes.

The Hon. CATHERINE CUSACK: So they are having to get through this weed to get up to their tree.

Ms DRUCE: It tends to be around the base of trees and in TSRs and on private property. It is not everywhere but it does get carried quite easily by stock and by kangaroos. You think there is nothing there—it is very hard to see.

The Hon. CATHERINE CUSACK: So essentially you are calling for more resources to maintain the understorey in these forests and keep the access clear.

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Ms DRUCE: Yes. Because the LLS has such a big area to look after with weeds and everything, I guess their resources are stretched. So to get somebody to go around and just particularly spray that—they tend to work along the edge of roads, on road verges and things like that. But yes, it is difficult. Another issue that I might be able to bring up too is the exclusion fences, which I found were a real worry way out in the western districts. These new fences that they are putting up, which are as tall as me, that are barbed wire on top and they also have another piece of netting on the bottom of the ground, so nothing can actually get through it. And that is what it is for, to keep all the kangaroos and the livestock and everything out.

The Hon. CATHERINE CUSACK: Out of where?

Ms DRUCE: Out of private properties basically. A lot of the landholders are putting these up around their perimeters and edges of fences. But the trouble is the koalas usually have a lot of favourite trees and habitat on private property, so accessing those trees from State conservation areas and TSRs to a private property—normal fences are sometimes a bit of a challenge for koalas, but they usually find a way over them with wooden posts or a tree leaning over a fence, but with these there is just no possible access at all, and that is why we suggested that there needs to be like in the cities where they have high fences and things and they have a log or something so that the koala can get up and over it.

The Hon. CATHERINE CUSACK: I am not 100 per cent sure. Which local government area is Maules Creek in?

Ms DRUCE: It is in the Narrabri district.

The Hon. CATHERINE CUSACK: Does Narrabri have a koala management plan?

Ms DRUCE: I would have to take that on notice. I am presuming they do, but I am not sure.

The Hon. CATHERINE CUSACK: In relation to Gunnedah I understand that there was a proposal for a koala management plan. Have you participated in that at all?

Ms CHIRLIAN: I am not from this area, Ms Cusack.

Ms DRUCE: I think there is, but I think the experts on this—

The Hon. CATHERINE CUSACK: They are in the next round, absolutely. Thank you.

The Hon. MARK PEARSON: Just in relation to the exclusion fencing, what is the distance of some of those fences that are being put up?

Ms DRUCE: Because most of the ones that I have seen out west are around broadacre farming areas it could be kilometres.

The Hon. MARK PEARSON: Therefore, a koala and other wildlife cannot get through that? It is an actual complete barrier?

Ms DRUCE: Yes.

The Hon. MARK PEARSON: What about being trapped inside the fences. What happens?

Ms DRUCE: I guess the same thing. If they are normally accessing habitat on the private property and fences have been put up, then they cannot actually move anywhere else because they will be inside that area. There are also some photos in our submission as well with the exclusion fencing. But it is quite horrendous to see, and it is not just koalas and stock—

The Hon. MARK PEARSON: Emus, kangaroos, wildlife.

Ms DRUCE: Yes, everything.

The CHAIR: What is the material of that fencing? I must admit I have not seen it.

Ms DRUCE: It is quite a heavy mesh. I do not know. The boys will probably know. It is like the normal Ringlock fencing type thing except I do not think it is Ringlock, but it is quite heavy construction and, as I say, it is very tall and then they put barbed wire on top of it.

The Hon. MARK PEARSON: Have you found koalas hanging?

Ms DRUCE: No, but I have noted that emus have been hooked up in the fence trying to—

The CHAIR: Just on that, is there any kind of approval process for that fencing in any way before it is put up?

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Ms DRUCE: I have no real idea about that, but I think a lot of this has come about in relation to the new Biodiversity Conservation Act where now fence lines if they need to be replaced they can put new fence lines and also there is quite a distance of clearing either side of the fence lines, and a lot of properties out west have had trees and things along old fence lines. It is like, wow, now we can get rid of them; we can put new fences up. I think if you refer back to our submission I extrapolate on that a little bit.

The Hon. CATHERINE CUSACK: The exclusion fencing is occurring particularly in the irrigation country because we are having a massive death event of wildlife, so they are coming onto these properties looking for water.

Ms DRUCE: Yes, but I think it is out west as well.

The Hon. CATHERINE CUSACK: That is where I have seen it. I have visited those properties. It is distressing all round, the whole situation.

Ms DRUCE: And because of the new biodiversity conservation laws they can clear quite a distance, as I said, either side of the fence, but when those fences join the national park or a conservation area or the TSR they are obliged to clear that distance as well, which I think is wrong because on road verges sometimes they are the only strips of trees out in the western areas anyway.

The CHAIR: Thank you. We are out of time. I just wanted to check whether there was any other burning contribution from any of you? No? I am sure there is. We have got your submissions and we are looking at the issues you have raised very closely. Thank you very much for appearing before today's inquiry and for the work you all do.

Ms CHIRLIAN: Thank you for your time and thank for coming to Gunnedah.

(The witnesses withdrew.)

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DAVID PAULL, Local Koala Expert, affirmed and examined

JOHN LEMON, Local Koala Researcher, affirmed and examined

PHILIP SPARK, Wildlife Ecologist, affirmed and examined

MATHEW CROWTHER, School of Life and Environmental Sciences, University of Sydney, on former oath

The CHAIR: Would you like to make a short opening statement?

Mr SPARK: I have worked as a consultant ecologist in the north-west for 22 years. From what I have observed I am extremely concerned about koala conservation in the north-west slopes and plains. Since 2017 I have conducted 282 koala surveys for OEH and Local Land Services across the lower slopes and floodplains of the north-west. I have tabled a PowerPoint presentation that describes and maps the results from those surveys for you today. I have found there has been local extinction of koalas from the western limit of the Walgett, Lightning Ridge, Narran River and Pilliga. The most western koala found was at Collarenebri, on the Barwon River. Koala numbers increase going east towards Moree, but the total population is very small and is restricted to small linear areas of riparian woodlands and small patches of open forest on sandy soil dominated by dirty gum. Those small areas of core habitat are increasingly being threatened by clearing. The trees are dying and the streams drying from the prolonged drought. Vast areas of floodplain have no koalas, with the Namoi floodplain being much worse than the Gwydir and Gil Gil Creek catchments.

At koala conservation forums in the past we have discussed all the conventional conservation actions of reducing threats to koalas, planting trees to create corridors and suitable habitat and increasing reserves managed for conservation. Now we must include what has been learned from past koala decline events to also improve access to water, shade and diversity of feed tree species. From what I have been observing over the past two years I believe the time has come to be more futuristic than that and acknowledge that the current pace of climate change will quite likely override whatever conservation actions are undertaken. That said, we should not give up the traditional actions to improve the resilience of koalas, but to have an each-way bet we must contemplate and prepare for the worst-case scenario and have a captive breeding program for western koalas. Without rain this summer we will see the worst decline in history. Never before has the landscape and vegetation been so dry. These, coupled with a heatwave, will deliver koalas and all exposed wildlife a fatal blow.

With the trees dying and the streams drying there is a recipe for disaster. Koalas are really on the brink of not surviving. We have seen how successive extreme events in the past have reduced the Gunnedah population by 50 per cent and the western population become locally extinct. From talking to carer Elaine Anderson at Moree what we have feared has begun, with a flood of koalas coming into WIRES in the last couple of weeks with symptoms of starvation, dehydration, chlamydia and tick infestation. Koalas and other exposed wildlife are on the brink. A crisis can happen with very little warning. We have seen how the cataclysmic events of hot and dry weather and fire have wiped out many koala populations in the last two months.

To plan for the future we need to remind ourselves that the impacts we are observing are just one degree of warming. Worse is yet to come. Going by this year's increased global emissions we are on track for two degrees of warming by 2050. The IPCC predicts the climate of 2050 to include extreme one-in-100-year events every year. We can expect 50 degree heatwaves in the next 20 years. To be prepared for the future we need to prioritise the needs of wildlife carers and secure the genetic diversity of koalas in captive breeding programs. Unfortunately the wild is no longer the safe place it used to be. Thank you.

Mr LEMON: I will provide a brief summary addressing both koala habitat and populations in the north-west of New South Wales and the Northern Tablelands. Regarding populations in this part of the world, it is pretty dire and it is potentially terminal. Phil Spark and David Paull are more qualified to speak to the decline of many thousands of koalas in the Pilliga in recent decades, down to possibly hundreds. Koala population in the Gunnedah Basin, I estimate—Phil Spark said 50 per cent but I think it is much higher than that—has declined by 70 to 75 per cent. That is from research undertaken by myself and others as well as anecdotes from local farmers. That has happened within a decade. It is a combination of heatwaves, drought and disease—they are the major drivers. The Tableland's population has only recently been researched, probably since we undertook studies in 2015. This current drought is having a devastating effect not only on the koalas but also on their habitat.

We are in uncharted territory. Trees are dying in huge numbers, especially on the slopes and ridge tops. I will give a very brief example. I collected two dead koalas on the way down here today from Uralla. The carer who brought one of those koalas in has been going to the same paddock for 30 years and the trees where she collected browse leaves are dead. We are in uncharted territory and I would say it is an ecological emergency. Coupled with the bushfires, it is devastating.

CORRECTED

Mr PAULL: Thank you for the opportunity. I want to verify what my two colleagues have said. The situation is dire. The population decline in koalas on the north-west slopes started really in the mid-2000s during a hot period then and has continued to occur ever since then such that an analysis of the populations on the north-west slopes—I include the Brigalow Belt and Nandewar bioregions—is very insecure. There has to be a question mark over those as there is for the population on the southern Liverpool Plains and the population around the Inverell-Warialda area. They seemed to have the most numbers around six months ago. The current drought and dry conditions certainly have not helped those populations at all. We might be looking at a total koala population of a maximum of 2,000 animals in the whole area. The area includes Culgoa, Moree, Gunnedah. I was unfortunately witness to the decline of the Pilliga population, once one of the largest populations in the State. Numbers vary about how big that was and now it is probably, I would say, a completely unviable population.

Understanding the current status of the koalas has been inhibited by a lack of repeat surveys. As you heard Mr Lemon say, real surveys have not started and Mr Spark has done heaps of work. If we leave those recent surveys out, can I say frankly there has been bugger all done surveying koalas. Certainly repeat surveys have been few and far between. Dr Crowther might fill us in with information that Sydney University have been doing in that respect. Populations out here are not only highly exposed to land clearing and habitat change but also to climate change and the lax restrictions in terms of vegetation management on private lands. You have to remember most of the koalas out here are on private land. We are only now finding with this ongoing heat and drought crisis that some animals are going up into higher country as some people might be able to verify.

The other thing that has not helped koalas here is the lack of a koala plan of management, particularly for the Gunnedah koalas. They were supposed to implement a statutory plan of management and utterly failed to do so and instead came up with a koala management plan that basically uses offsets without any scientific foundation at all. BCT funding has been poor out here and in my submission I believe there is an opportunity now to protect some public lands that koalas use. I have called it the Namoi koala park and they are particularly four State forests: The Liverpool Plains, Breeza, Doona and Black Jack Mountain. They are currently refuge areas for koalas and, very important, the timber industry is in abatement. A good time with very little public distress about getting those ones transferred over.

The CHAIR: I acknowledge how distressing it must be for those of you who have worked so hard in conservation over so many years and decades to be witnessing this decline of koala populations in your areas after what I know have been strong recommendations for action on the cause of their decline for a long time. The evidence you have given us is incredibly distressing for everyone. Mr Paull, just a clarification, you said that in this area you think there is less than 2,000 koalas all up. Where are the numbers from and over what time?

Mr PAULL: They are pretty rubbery. As I said what has really inhibited koala conservation is a lack of understanding about populations and demographics. Less so with absolute numbers because they are not necessarily that important. You know what I am saying. I did a study for the World Wildlife Fund at the start of the year doing a population density modelling exercise using all records to identify priority areas across the State where koalas now live and historically were known. I did a population assessment and I looked at all the different meta populations, Moree, I do not think there is anything left on the Darling River. We have the Severn River population, Ashford, and we have Inverell, Warialda, Gunnedah, Liverpool Plains, Pilliga, and they are basically the main ones. I just use whatever information I could find to come up with those numbers, chair.

The CHAIR: In relation to climate change, Mr Spark, you mentioned that this is what we are seeing with a one degree warming. We have a situation locally where we have the Shenhua coalmine and the potential coalmines and the loss of Leard forest as a result of coalmines. Koalas do not have a chance, do they? If it gets too much hotter we have the absurd situation of coalmines in this area which are leading to climate change. Unless something drastic is done we are witnessing what happens to koalas under climate change which scientists have been warning for decades. That must be incredibly frustrating for you?

Mr SPARK: That is how it is. Habitat loss is really important and it is a major part of the big picture but even the best habitat, where I found those core populations still hanging in out there on the streams running from Moree to Mungindi, even those really good habitats are dying and the streams are drying. It is secondary now.

The CHAIR: Do you think it will get better when this drought ends? Is it not just the current drought?

Mr SPARK: You are right. It can take one extreme event to completely collapse the population. We could be staring at that this summer. Certainly there will be rainy days again, I am sure that is going to happen. Looking to the long-term we have real issues about how we are going to address this.

The CHAIR: I suppose the point is that koalas have been around for a very, very long time and some people in very high places will tell us that droughts end and this is a drought and it is a severe drought but it will

CORRECTED

end and koalas have survived droughts: What is different? Why are you so concerned about the chance of koalas surviving what is going on now? Why is this any different to what happened 100 years ago?

Mr SPARK: If you look at what is happening around us with all the tree death, everyone has talked about tree death. It is incredibly broad. I have been monitoring some sites and we are looking at 50 per cent tree death and communities are completely changing from a stringybark-white box community to all the stringybarks dying and it becoming only a white box community. These are unprecedented events. This is not the research from 6,000 scientists that are telling us things are wrong. This is what we are looking at on the ground, Chair.

The CHAIR: Mr Lemon?

Mr LEMON: You used the analogy "100 years". I was not born 100 years ago but when I was born there were 2.5 billion people on this earth and now there is 7.5 billion and heading north. In that rapid period of transition we have an unprecedented demand on the earth's resources and the koalas and other native species in Australia are collateral damage in that demand. I read an article just before I came here. China at the moment is completing a new coal-fired power station every two weeks. I came back from Japan recently and most of the nuclear power generation plants have been decommissioned after Fukushima and they have increased their use of coal-fired power generation. They have increased their renewable use too. It is a very challenging position we find ourselves in as a species.

The CHAIR: In terms of hope for the future of koalas in New South Wales, this is a Committee that is going to make recommendations early next year as to what the Government can do in terms of koala populations but also to make stark findings, maybe update, what is on the record so far in terms of New South Wales koala population and its viability. You sound like there is not much hope. Is there hope?

Mr SPARK: There is always hope.

Mr LEMON: You have to have the approach that there is always hope.

The CHAIR: Is that captive breeding?

Mr SPARK: Certainly, that will maintain the western koala into perpetuity. You are virtually hedging your bets and if things do not get as bad as that we have still got them to recolonise areas and build numbers up again. You have not had Dr Crowther do his talk.

The CHAIR: We will get there.

The Hon. MARK PEARSON: If what we are looking at here is a serious crisis for koalas and even if we do get a wet season after summer there are essential factors that will not be rectified by that. What would be your three critical recommendations for actions we need to take, putting aside the hope for rain? What are they?

Mr SPARK: I think it was raised before. Maintaining water down some of those streams is really important. If we could have storage that was dedicated to maintaining the water in some of the streams that run north from Moree to Mungindi, where the core population is, that would be a really big one. Certainly, we should be protecting what we know is habitat. We can draw lines around that. We have actually mapped what we consider to be core koala habitat up there now. We need to make sure that no more of that gets cleared and that no more of that gets fragmented. The landscapes that are already really over-cleared should be total no-go zones. In a lot of that country around Moree, east of Moree and over to Croppa Creek, the vegetation is virtually just little linear strips along roadsides and TSRs. As Ms Druce was saying earlier, people can clear 30 metres either side of a fence line and totally wipe out what little vegetation is left. Those are the issues.

Dr CROWTHER: Climate change is important, of course, but we are also looking at a crisis in chlamydia levels. We have 65 per cent to 75 per cent of them, depending on the survey, with chlamydia prevalence.

The Hon. PENNY SHARPE: Which area? Is that up here?

Dr CROWTHER: In the Liverpool Plains region. We have been working here since 2008 and it was about 10 per cent when we first came here. Now it is hovering around the 70 per cent mark. That will eventually kill the animals, but what is probably even worse from a population point of view is that it causes sterility. Within one of the populations we were looking at on the Liverpool Plains only 18 per cent of the females of a reproductive age were having young at any stage. That figure was 23 per cent in another population. That cannot replenish the population when you put that into a model. Even if we tackle the issues around water, habitat and adult survivorship, the koalas will be gone in 30 years. They cannot replenish their numbers at such a low reproductive rate. It is just impossible. Those figures should be above 60 per cent, with about 80 per cent fertility. There are a few reasons why that may be happening. The climate may be interacting with it, but if we do not address the fertility question, even if we do get a large amount of rainfall, the koalas will be gone from this region.

CORRECTED

The CHAIR: We have heard that chlamydia is a result of stressors such as land clearing, heat, drought and climate change anyway. Are you saying that this is a direct cause as well as a symptom?

Dr CROWTHER: First of all, it is an infectious disease. The problem is that we do not actually have evidence that the increase is a result of stress. Maybe stress does play a part in the problem. We also know that the strains of chlamydia come from cattle and sheep. Maybe strains have come into an immunologically naive population and maybe their immune systems are a bit downgraded because of the effects of heatwaves. That is what kills them. They do die in heatwaves. They come down to the ground and basically die. They cannot get enough water. Koalas are quite good at dealing with heat but when it is excessive over a number of days it does kill them, particularly large adults. But again, we do not really know—and this is what we are trying to investigate now—what the interaction is between stressors, including climate change, land clearing and a lack of water, and chlamydia. We need to be careful because if we get the adult survival rate up we could also increase the spread of chlamydia. We need to be careful to target them at the same time. It has been very difficult, but we think we may have some solutions in the future that we are trialling at the moment.

The Hon. MARK BUTTIGIEG: Does that mean that a disproportionate amount of the effort should be directed to ascertaining the causes of chlamydia within the populations?

Dr CROWTHER: That is difficult. That is a research question. Again, it has to look at the methods of transmission. Chlamydia can be transferred between adults and from mother to offspring, as well as through the environment. The problem is that we do not know—we are looking at the moment—what the sources of the chlamydia in this population are. There is a number of strains of chlamydia and there are genetic differences between the strains across the Liverpool Plains. They seem to result in different clinical expressions. Some seem to be more severe than others. That could be part of it. We want to know the method of transmission of this chlamydia and the sources of this chlamydia. Then we can start looking at what happens to the population. We know from looking at a number of populations—and we are doing some monitoring in those populations—that you need to do demographic modelling. You cannot just count numbers; you also need to look at what the age structure is like and how many koalas are having young. That is what determines the population into the future.

The Hon. PENNY SHARPE: On a different issue, the New South Wales Government has continued to trumpet the Koala Strategy as having a huge amount of money going into research and monitoring of koala populations. It sounds like not much of that funding is heading towards this part of the world. Is that correct and, if so, why do you think that is?

Mr LEMON: Of course, the koalas out here do not surf. I mean that in the sense that—

The Hon. PENNY SHARPE: Is it the case that the Government has pretty much written off these populations? The situation you have just outlined is a pretty dire scenario. It is very distressing. Is that a factor?

Mr PAULL: I think so. There is that attitude not only amongst people in government but also those within the environment movement. We can still do something for the koalas out here. It is not that hopeless. There are issues with disease and things like that, but we really just need to sit down and make a plan. There has never been any planning for koalas. That is the problem. There has always been a resistance within both local government and State government to sit down, make a plan and do anything practical about the issue. We need to change that culture. That is a cultural change we need to make so that the people within local government can take it on board, rather than the obfuscation that we have always seen.

They are willing to call Gunnedah the "koala capital", but they have done bugger all in terms of doing anything about that. It is disturbing. But we really need to identify where the climate change refuges are and where the most important connectivity sites and rivers are. As others have said, the rivers are really important for koalas, but so are some of the mountainous areas. I have given you a list of the State forests that are really important for the Liverpool Plains koalas. But we also need to take private land conservation seriously and get private landholders to start throwing money at the issue.

The Hon. PENNY SHARPE: Is the Biodiversity Conservation Trust also part of the issue? It has quite a lot of money in it. It is a rare bucket of money that is supposed to be available, but it is just not finding its way onto the ground. Is that part of the issue?

Mr SPARK: I can give you a good example of that. One of the largest remnants in the Moree area was assessed for the BCT. I thought, "At least we are going to get that one." But what they offered that farmer was a pittance, so he pulled out of it.

Mr PAULL: I have another story of that happening in Inverell. The same thing happened. They had a field day out there. The farmer had a beautiful patch of yellow box woodland—about five hectares or something—but they said, "It's too small—go away."

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The Hon. PENNY SHARPE: Mr Lemon, you look like you have something to say here.

Mr LEMON: I definitely do. I will preface my comment by saying that in 2013 the Office of Environment and Heritage had a restructure and Dr Dan Lunney and myself were found to be surplus to requirements. We were the two people—in collaboration with Dr Crowther and the University of Sydney—doing on-the-ground research in this part of the world. I have been involved with koalas since before 2008, when I was a farmer. A lot of the recent money and funding from the State Government has been spent on modelling and strategy, with very little spent on on-the-ground works.

The Hon. PENNY SHARPE: Are there people on the ground looking for koalas and looking for their trees?

Mr LEMON: No, not just that. There is much more to it than that. You need to be informed; before you can make your strategy decisions or policy decisions you need to know if koalas are moving from the west to the cooler climates, which is a hypothesis that I share with a number of other people. Unless you can make informed decisions, unless you know the connectivity, like Mr Paull and Mr Spark have been saying—and a lot of this has been mapped—it is about pulling it together and it is about implementing it, and that needs to be done sooner rather than later.

The Hon. PENNY SHARPE: And that is just not happening.

Mr LEMON: No, I do not think it is.

Mr SPARK: There have been projects. In Gunnedah here there was SOS, \$100,000 on regenerating corridors and patches around Gunnedah, but that only achieved 30 hectares of regeneration.

The Hon. PENNY SHARPE: Is that regeneration—this goes to a question Ms Cusack asked earlier—in areas that are actually protected?

Mr SPARK: Planting trees.

The Hon. PENNY SHARPE: But where?

Mr SPARK: Planting 30 hectares of trees that provide—

The Hon. PENNY SHARPE: Where? On what type of land? Private—

Mr SPARK: Yes, private.

The Hon. PENNY SHARPE: The landholders are obviously very good because they wanted to have that done. What sort of protections and support are they getting for keeping that in good shape into the future?

The Hon. CATHERINE CUSACK: In perpetuity.

Mr SPARK: It would be their own personal cause that they would be protecting. I would imagine if it was sold on there would be no protection.

The Hon. CATHERINE CUSACK: Thank you for the suggestion of a reserve population, I guess is what you were suggesting, Mr Spark, in terms of a captive population that would breed as an insurance population, I think is the term that Tasmania used in relation to the Tasmanian devil. I just wondered if you could tell us what that would look like as a project; who would design it and how it would be managed, and if we could get comments from other members of the panel.

Mr SPARK: I have not thought any further, but we do it with lots of other species so why could we not do it with the koala?

The Hon. CATHERINE CUSACK: The implication is that we are getting towards the line for the local koala populations. You are the first person to suggest that, but I can totally understand how you get to the point where you actually think we might lose it altogether. That is where those ideas start coming in.

Mr SPARK: One of the WIRES ladies at Moree raised it with me. They presently have a lot of trouble finding places to release their koalas, as Ms Moran talked about, and they would be ideal to use in a captive breeding population. Those koalas that have been in care, that are still healthy enough to be breeding, they could be used. But I have not thought any further.

Mr PAULL: I believe the biggest koala breeding program in the world is in Guangzhou in China. Maybe we could get some koalas off them or get them to help us, breed our own koalas.

The Hon. CATHERINE CUSACK: Can you tell us, Mr Paull, what happened to the Pilliga koalas?

Mr LEMON: Bushfires, drought, all of the above.

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Mr PAULL: It was dry.

Mr LEMON: Lack of water.

Mr PAULL: Lack of water. That was 2003 we first noticed that they were dropping in numbers. We did surveys in 2012 and even then we estimated that there probably were not more than 100 left. Now, I know that there were koalas seen last year and I have found scats in the south-east corner.

The Hon. CATHERINE CUSACK: But it has been very dramatic. It has been terrible, has it not?

Mr PAULL: Yes, irrespective of how many people think that there were in the first place, which varies considerably, it does not matter, there is still a significant population.

The Hon. CATHERINE CUSACK: Dr Steve Phillips told us that he did survey that population previously and felt that it was a thriving koala colony.

Mr PAULL: We all did. There were about three or four scientists that did surveys 20 years ago and then we replicated that in 2013.

The Hon. CATHERINE CUSACK: I am trying to understand if there are any lessons to be learned from that experience.

Mr PAULL: The lesson to be learned from that is that was mostly public land. So the crash is on public land. It is basically saying that they are suffering some sort of environmental crisis. What else could it be really except for the dry conditions, the deteriorating quality of their foliage, lack of water—all of those things? We cannot blame land clearing for them going. It should be really sending off alarm bells that here we are on public land and they are just disappearing. And this was not recent; this was like 10 years ago they disappeared. That should be a warning for us.

The Hon. MARK BUTTIGIEG: I think it was Mr Paull or Mr Lemon or both who referred to—and it has been referred to a couple of times, I think—the council is required to submit a koala plan of management to the department. You said Gunnedah had not done that. Is there a view on why they have not done that? Have they given reasons why they have not done that?

Mr PAULL: I have not talked to anyone from council. I do not why—they have got a lot of money. BHP gave them a stack of money to develop their plan of management and as well they have got Steve Phillips and Greenloaning Biostudies, or whatever it is, as a consultant to do all that work. Also there is a lot of work done by consultants for mining companies, particularly for Shenhua. The koala work for the Leard stuff was discussed; they basically knocked that down without any prior assessment. Basically they were supposed to have a plan of management but they decided to take the soft option of having like an unofficial plan of management, not a statutory one. They made that decision. Even though the State Government gave them money as recently as a few years ago to help them exercise that process, nothing happened. There has never been a plan of management for Narrabri, Coonabarabran, Moree, Inverell. All those places need koala plans of management because the local governments and those authorities have done nothing about it and, what is more, probably would not be happy with the idea.

The Hon. MARK BUTTIGIEG: You referred to the ability for us to ascertain populations and what is happening is a little bit difficult. Maybe if I could direct the question to Mr Crowther. Are we in a situation now where the technology is sufficiently sophisticated to allow us to determine population growth, disease areas, movement patterns? If we were to have an extensive project from, say, day one now and start doing this properly, can it be done? Is the technology sufficiently sophisticated to allow us to do it?

Dr CROWTHER: Yes, absolutely. We have been doing a lot of that in limited areas, but we are funded through the Australian Research Council, so we do it as research, but it can form management later on. But what you need to know is the demographics of the population and a whole lot of science; you need to know where the koalas are—that is what is called occupancy; you also need to know the demographic categories, as I mentioned before; you have got to know the age structure; you have got to know how many females and males; you have got to know how many juveniles; how many juveniles are being born, how many juveniles are surviving. If you have got monitoring programs it can allow that. It is a costly exercise but they certainly can tell you what is happening to a population. Within a couple of years you can work out if the population is declining or increasing because you have got to know births, deaths and immigration. That tells you everything you need to know about a population.

The Hon. MARK BUTTIGIEG: And that has not been done in a comprehensive overarching way, has it?

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Dr CROWTHER: No because it is very difficult. People do koala surveys; most surveys are based on koala scats, koala droppings, which you cannot get that sort of information from. We have looked at that type of data too to see how it correlates. It can correlate with densities but it is not a great correlation. You can get some ideas of whether the population is increasing or declining, but it does not tell you why. The good thing with our programs is that we take into account movement as well as demography so that we can answer some of those questions, and we have a full vet team so we know the prevalence of not only chlamydia but every other disease we have in that population. But, again, it is an expensive exercise. We do it under research funding; it could be done under government-type funding and that would tell you exactly what is happening in a population and it can pinpoint what are the causes of decline in that population, because it is a bit complicated. Some of these things interact. Climate change, access to water and disease prevalence all interact and you cannot just say there is one blanket for the whole thing, you have got to look at each individual population.

The CHAIR: I have one final question, possibly for all of you. We have heard a bit about offsets, particularly in relation to offsets used by coal companies. Mr Paull, in your opening statement you suggested that other koala plans of management had offsets based on pretty much no scientific evidence at all, I think. From an ecological perspective, how are offsets helping or maintaining in any way koala populations? Can you tell us on the record your views on the Government's offset program in this area?

Mr PAULL: They basically fail in their attempt, because you are allowing the removal of habitat. Say you want to clear 100 hectares of koala habitat and under current rules similar vegetation is required to offset that. Now it does not have to be exactly like for like. It could be anywhere, so in terms of strategic location it does not make sense. There might not be that habitat available to offset. If Shenhua goes ahead they have already secured their offsets. One is at Tambar Springs and there are a couple of other pockets all over the place. They have no relationship to the vegetation being removed—in fact, all offset policy has done in this State is facilitate more land clearing by big companies, which can afford to do those kinds of studies. They have been lobbying the Government successfully for about 10 years to weaken environmental laws. That is the situation we are in now—all the offset policy does is facilitate clearing. What is even worse is the policy cons the public into believing that something is being done when, in fact, nothing is being done. The offset policy has not saved any koala population at all—in fact, the opposite.

The CHAIR: It sounds like a PR stunt. Is that what you were saying when you said it cons the public?

Mr PAULL: Yes. Initially I was one of the first people to become accredited as a BioBanking assessor, in 2008. That was a tortuous process. I did not like it but I went along with it because at least there was some science in there, some numbers that gave some validity. If they wanted to make it a robust scientific process, they could have kept it tough. But they wanted to water it down and it does not mean anything anymore. It is just a publicity exercise. Gunnedah is basically copying that offset process, and so its koala strategy includes an offset arrangement. It is as bad as the State Government's offset policy.

Mr LEMON: I almost entirely agree with what Mr Paull has said. There is a flip side to this, and it is probably a bit more of a strategic approach. It is a bit of an upside and it is habitat reconstruction, which is my area of expertise. I started that in 1990-91 when it was extended across the sheep-wheat belt in the 2000s at different sites. There was an increase in species richness and numbers on the research centre in Gunnedah. I have just completed funding from 2017. We have scientific rigour and proof that you can improve habitat. Most of this was done on degraded farming land, with the cooperation of landholders.

The Hon. MARK PEARSON: How long does it take to regenerate an area from nothing to something that is useful for koalas and other wildlife?

Mr LEMON: That is a really good question. Ten years after I planted some of those sites at the research centre, the common dunnarts had re-colonised. They are a little marsupial mouse. To get to meaningful occupancy you are looking at 20 to 25 years at least, but you can get a good return in 10 years and upwards. The interesting thing and the reason I started to do it was because the koalas were stripping the leaves off the river red gum trees on the research centre and they were dying. They needed to be replaced and I refined the methodology. The interesting thing was that, up until 2008—I would do a three kilometre walk around the research centre because I lived there—I would see eight to 12 koalas a week. I have seen one koala in the last two years that I have been backwards and forwards between Armidale and the research centre. Most of the landholders, although I have planted a lot of trees, hardly see a koala these days. There is a lot of unoccupied habitat; other species are occupying it, but the koalas are in a lot of trouble.

The CHAIR: I have one last question. In terms of the potential migration of koalas, we heard from Mr Pursehouse that landholders are reporting they are starting to see more koalas. Could we deduce in any way that some koalas, which you say are disappearing from an area, are migrating through the creek lines to somewhere else? Are they able to migrate and, if not, why are they being seen in other places?

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Mr LEMON: I entirely agree with that. The hypothesis that I have shared with some people is that some of the Pilliga population, over a number of generations—and you can only prove this with DNA sequencing—has probably moved towards Gunnedah. In the 1980s the population increased and probably peaked in the early 2000s. In 2009 it started to crash, with people seeing more koalas on the slopes around Moonbi and places like that. I have done some surveys there and we have talked to landholders. The tablelands could be a potential refuge area, running down the Great Dividing Range. But what is happening up there now is really concerning, because that is potential refuge. We have only had a third of our annual rainfall, less than 300 millimetres. Last year was less than two-thirds of our annual rainfall, and there is no rain in sight until May, according to long-term Bureau of Meteorology predictions. We have to think strategically. We have to really look into the future. Ten years ago I used to say we should have been doing this for 10 years already. We are at least a quarter of a century behind where we should be.

The CHAIR: Thank you very much for your evidence today. It was good to finish on a slightly hopeful note, after quite a depressing session. Thank you very much for all the very good work that you have done over the decades on koala research. I do not think you took any questions on notice.

(The witnesses withdrew.)

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JOHN TROTTER, Environment Manager, Shenhua Watermark Coal, sworn and examined

The CHAIR: Would you like to begin by making a short opening statement?

Mr TROTTER: My title is Environment Manager at Shenhua Watermark Coal and I have been in my current role for 18 months. I see my role to be one of progressing the environmental approvals and compliance with the conditions of such approvals, such as preparations of required management plans, for the commencement of the Watermark coalmine, which will be constructed near Breeza, New South Wales. I note that the Watermark coalmine is an already approved and commenced mine, the main approvals being the Federal approval, which is considered a controlled action under the Environmental Protection and Biodiversity Conservation Act 1999 with reference 2011/6201 and the State planning approval, which is defined as a State significant development with application number 4975.

Several of these required environmental management plans involve elements of koala management including the interim koala habitat plan which is approved and currently being implemented. The koala plan of management is currently in preparation, the biodiversity management plan is also currently in preparation and a rehabilitation plan is also in preparation. These plans are being prepared by subject matter experts and will be approved by the relevant government agencies at some point in time. In terms of the koala plan of management the condition of the State significant development approval 4975 states in part, it is a long condition, I will state the early parts of that requirement:

The applicant shall prepare and implement a koala plan of management for the development to the satisfaction of the secretary. This plan must:

- (a) be prepared by suitably qualified experienced koala experts whose appointment has been approved by the secretary in consultation with Office of Environment and Heritage, council and the koala technical working group.
- (b) be submitted to and approved by the secretary prior to the commencement of construction.
- (c) prepared generally in accordance with SEPP 44.

This is a process the company is working through. That is my statement. I am basically saying that we are in the early stage of a lot of that process at the moment.

The CHAIR: Thank you, Mr Trotter. How long did you say you have been with the company?

Mr TROTTER: Eighteen months.

The CHAIR: We heard about the biodiversity management plan, where is that up to?

Mr TROTTER: It is at revision two at the moment. We have provided one first revision to Federal and State agencies and we have received a comment back on the first revision, which we have then considered and responded to in the second revision of that document, which has been provided to Federal and State agencies. I think we have received Federal comment back in the last week or so on the biodiversity management plan but we are yet to receive comment on revision two at a State level.

The Hon. CATHERINE CUSACK: Is it true you needed to change consultants?

Mr TROTTER: Not in terms of the biodiversity management plan, no.

The Hon. CATHERINE CUSACK: In terms of the koala plan?

The CHAIR: They are two different things. The water management plan has not been approved yet, is that correct?

Mr TROTTER: Correct.

The CHAIR: I understand that you have said the whole mine has been approved. What work has begun on the mine then?

Mr TROTTER: Preconstruction work has commenced.

The CHAIR: What is the preconstruction work that has commenced?

Mr TROTTER: Preconstruction work to date has involved environmental geotechnical surveys, effectively a series of test pits to environmentally test ground conditions at certain key locations, basically coinciding where infrastructure will be for the mine.

The CHAIR: Clearing of trees, thing like that?

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Mr TROTTER: No trees were cleared in that process.

The CHAIR: What is the difference between preconstruction and construction?

Mr TROTTER: The meaning of preconstruction is as defined by the Department of Planning, Industry and Environment. Shenhua had applied for a modification to the development consent and that modification was determined in December 2018, last year. In that modification one to the State the development consent introduced the concept of preconstruction. I have not got it in front much me in terms of the exact wording so I would not like to quote from it. It does allow certain tasks to be considered preconstruction and not deemed to be considered construction.

The CHAIR: In relation to the preconstruction work that you have undertaken that includes test pits and things like that?

Mr TROTTER: It does. All the work we have done as part of our commencement of preconstruction works meets the definition as defined by the department.

The Hon. MARK BUTTIGIEG: Was that a discretionary granting? Is this a standard thing for those projects or is this a discretionary decision by the department to say you can go ahead and do the prep work notwithstanding the fact that we are still waiting for other things to square off before you start construction?

Mr TROTTER: I am not really sure. I cannot talk on behalf of the department. I think in the early negotiations between the company and the department obviously the company was aware that there were some difficulties with the consent as it stood at the time. In addition to this preconstruction issue there were some dates that were embedded into the consent that were not achievable. Again it is for the department to explain better than I could but the initial consent was granted in January 2015. There were dates in it, for example, that an independent environmental audit was to be conducted by a date in 2017, a certain date in 2017 but because Shenhua had not taken up the consent by 2018 trying to do something by the year before was nonsensical. In conversations with the department the department agreed that it was appropriate to alter wording such that all those obligations were still there but they were meaningful in the sense that they were time linked to the taking up of the consent.

The Hon. MARK PEARSON: How much money has been put into the preconstruction so far?

Mr TROTTER: I am not aware.

The Hon. MARK PEARSON: You are not aware of the funds?

Mr TROTTER: I am not involved with budgeting, no, so I cannot say.

The Hon. MARK PEARSON: Does any of the preconstruction cause harm to the environment?

Mr TROTTER: No, I do not think so.

The Hon. MARK PEARSON: Including animals?

Mr TROTTER: I do not think it has or it could.

The CHAIR: Do you have any temporary on-site offices or structures as a result of this preconstruction works?

Mr TROTTER: No.

The CHAIR: Nothing?

Mr TROTTER: No, if there was a requirement to use a pre-existing building that was utilised, which was a farm shed on a property that Shenhua owns.

The CHAIR: You have a preconstruction works management plan, do you not?

Mr TROTTER: Yes.

The CHAIR: In that preconstruction works management plan it does say that there are things such as clearing of trees of a diameter of less than 0.3 metres, excavation of a three test pits, use of an existing shed as a preconstruction works office, construction Portaloo; is that all in the preconstruction works plan?

Mr TROTTER: From my recollection, that is correct.

The CHAIR: That has happened?

Mr TROTTER: I think there was provision for that. When the plan was written there is understandings that certain things may happen, it does not mean that they ultimately did happen. The first phase of those preconstruction works are being conducted at the moment. It is the intention that there will be a second phase at

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some point in the future. The plan was written to cover all phases of preconstruction. Some of those elements, as to whether there was a Portaloo installed at the site, I am not aware of that, actually. There was provision that it could occur, as to whether it did occur I am not aware.

The CHAIR: It is interesting that you do not have an approved biodiversity management plan [BMP]. What would happen if the Minister did not approve the biodiversity management plan? They are coming back to you with suggested amendments so that it can be approved. Is that correct?

Mr TROTTER: Yes. My understanding is that the practice is to provide a document and then receive comment. It is prepared in a consultation process. It is to be expected that regulators will provide comment back. They may want additional information or there may be a section that is not there that they believe should be there. It is expected that it will be an iterative process. I think that would be the same with all BMPs for all mines at this point in time. I do not think that there is anything untoward with the fact that regulators ask questions about a submitted plan.

The Hon. CATHERINE CUSACK: Mr Trotter, do you have a background in conservation?

Mr TROTTER: I am not an ecologist. I have a science degree with a major in chemistry and I have an economics degree. I have experience working for coal mines as an environmental manager across underground and open cut mines. I have worked as an environmental manager in planning for a consultancy and I was instrumental in writing an EIS for an open cut coal mine. I have worked as an inspector for the State Government in the Resources Regulator area. The answer to your question is no, I am not an ecologist. But I have broad, generic knowledge of lots of environmental aspects that come into play in a coal mine scenario.

The Hon. CATHERINE CUSACK: Can you talk us through the change in the consultancy for the koala plan of management, or KPoM?

Mr TROTTER: As I mentioned, the State consent has an obligation for Shenhua to prepare a koala plan of management. The preparer of that document has to be to the satisfaction of the secretary. Shenhua is able to offer up a particular consultancy that it believes is sufficiently experienced and adequately qualified and knowledgeable to prepare such a plan. But before we make that application to the secretary we have to consult with various other groups, as nominated by the consent. The company did that towards the end of last year and during the first portion of this year the company nominated a particular consultancy to prepare the koala plan of management in conjunction with an independent reviewer.

The Hon. CATHERINE CUSACK: Which consultancy was it?

Mr TROTTER: Cumberland Ecology. Shenhua nominated Cumberland Ecology to prepare the KPoM. Dr Stephen Phillips was the independent external peer reviewer. The department and the secretary accepted that and advised Shenhua in writing that they accepted that arrangement. But before the commencement of the writing the KPoM Shenhua was advised by Cumberland Ecology that Dr Phillips would be unavailable to fulfil his role as a specialist independent peer reviewer. On that basis Cumberland Ecology informed Shenhua that it was no in a position to prepare the KPoM. Shenhua then looked at a replacement to prepare the KPoM.

The Hon. CATHERINE CUSACK: Thank you for explaining that. In terms of community concerns, do you understand the concern that the mining planning is going ahead before the conservation planning has been put in place and that that seems to prejudice conservation planning?

Mr TROTTER: I cannot talk to the concerns of—

The Hon. CATHERINE CUSACK: Let me put it differently. Do you participate in the community consultative committee?

Mr TROTTER: Can you repeat that?

The Hon. CATHERINE CUSACK: There is a community consultative committee, yes?

Mr TROTTER: The company has one. We had a meeting with that group this week.

The Hon. CATHERINE CUSACK: Sorry?

Mr TROTTER: I agree that there is a community consultative committee. It met this week. That meeting was prescheduled.

The Hon. PENNY SHARPE: Was that the only time it has met?

Mr TROTTER: The frequency of the meetings is determined by the chair of the committee, Mr Gary West. Mr West has sought advice from members of the committee as to how frequently they think the committee

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should meet. He has taken into account the fact that in the past few years Shenhua has been in the early phases of getting the mine going. It has not commenced construction yet.

The Hon. MARK BUTTIGIEG: But were there meetings prior to that?

Mr TROTTER: Yes, there were.

The Hon. MARK BUTTIGIEG: But you have only attended the very recent one?

Mr TROTTER: No. I started in July 2018 and since then I would have been to possibly three.

The CHAIR: Given the time—we do need to finish off—could you provide a record of those meetings on notice?

Mr TROTTER: The details of those meetings are provided on our website.

The CHAIR: Thank you.

The Hon. PENNY SHARPE: Today we heard a lot from the scientists about the impact of climate change on koalas in this area. Given that you have been through an EIS process and the development of a water plan, a biodiversity plan and a koala plan, how are you taking into account climate change and the impact of the mine's works on biodiversity generally? How is that being taken into account?

Mr TROTTER: The project calls for a series of biodiversity offset areas to be established. Some of them are on the mine site, some of them are adjacent to the mine site and some of them are remote to the mine site. But it is quite a large spatial area with various ecosystems in terms of their condition and whether they are degraded or not degraded. There are requirements to enhance those areas, hence the biodiversity management plan. That plan will have quite a degree of detail around that enhancement.

The Hon. PENNY SHARPE: I will stop you there. The ecologists who spoke to us today said there is quite a detailed plan for replacing the types of trees that are currently there. They made the point that the trees that are being planted are the ones that are currently dying because of climate change. Is your process able to take that into account and look at other tree species that may need to be planted for, as one example, koalas so they have a better chance of surviving the extreme drought and other scenarios that are being felt right now?

Mr TROTTER: I take your point. Essentially Shenhua is obligated to comply with its EIS. So there are commitments and statements in the EIS about types of plantings et cetera. I think to deviate from commitments and obligations of the EIS and the consent would require a conversation with DPIE and potentially OEH and our BCD to see whether they supported a change of vegetation type in replantings and whatever and we would have to know the legalities of—

The Hon. PENNY SHARPE: You have already been through modification one—this plan will probably go through several modifications—surely there is room for that to be considered.

Mr TROTTER: It could be considered, yes.

The CHAIR: On the same topic, when was the EIS originally undertaken and the surveys and everything for this mine?

Mr TROTTER: I think the preparation for the EIS might have been about 2010 to 2012, that sort of period.

The CHAIR: Are you aware of the community's reports and ecologist reports of declining koala numbers since then and increased stresses for koalas since then?

Mr TROTTER: Yes, I am aware of that.

The CHAIR: Taking Ms Sharpe's point we have got increased stresses, has anything been done to take into account the fact that koalas are decreasing in number around the mine site and also with some of the offsets as well—you are talking about offsets in different areas, like not adjacent to the mine site—how are the koalas going to use those offsets?

Mr TROTTER: That sort of detail will no doubt become part of the KPoM, which we are only in the very early stages of having it written by our specialist team. So the issues that you are raising here potentially will be also made by BCD and DPIE and whatever. So there is a pathway for experts in that area at a government level to make similar comment and then it will be incumbent upon Shenhua and its consultant to take those matters into account and to address them adequately before DPIE will be in a position to approve the KPoM, and the KPoM has to be approved before construction can commence. So there is a nexus there between, I guess, the comments that have been raised here and the mine being able to proceed.

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The Hon. MARK BUTTIGIEG: But there is a presupposition in all of that that with the right configuration of offsets, koalas can be accommodated. Is it not possible that they cannot be accommodated and therefore the mine does not go ahead at all? Is that a possibility or is it based on the fact that let us come up with a solution, it will work and the mine is going to go ahead?

Mr TROTTER: I think there is sufficient opportunity in the areas that are available in terms of the assessments done today that koalas that are displaced by mining activities we will be able to be provided an adequate release point and there will be an obligation to track those relocated animals over time. So there will be a lot of assessment and evaluation of that whole process. But if you ask me my opinion, I think that process, as long as it is well structured, well managed, well monitored, well reported on, will be successful.

The Hon. MARK PEARSON: What does Shenhua say to the community who want the koalas to remain exactly where they are or move where they want to go if they choose to move?

Mr TROTTER: I do not think that is really tenable with the approval for the mine.

The Hon. MARK PEARSON: Yes, but what does Shenhua say to the community who have those concerns?

Mr TROTTER: I think I would say to the community that those concerns were possibly evident at the time of the application for the mine and those concerns were taken into account and in the wisdom of government it has endorsed the application.

The Hon. MARK PEARSON: What is the habitat plan, the interim habitat plan, that you are talking about?

Mr TROTTER: I do not think I have spoken about that, but there is another plan—

The Hon. MARK PEARSON: You said those words.

Mr TROTTER: The Interim Koala Habitat Plan is another plan required under the development consent and it is a plan that has been prepared and has been approved.

The Hon. MARK PEARSON: What is it?

Mr TROTTER: The purpose of the plan is to construct what is considered a key koala corridor to link stands of remnant woodland that contain koala habitat between an area known as Long Mountain and Breeza State Forest. The plan gives the detail around dimensions for that corridor and the species mix of the plantings and spatial arrangement, and the plannings of that work commenced in the first week of December and it is a two-year program to plant out that linking corridor.

The CHAIR: Have you seen any koalas during the preconstruction work or have any workers while they have been on-site seen any koalas?

Mr TROTTER: I have not seen any. I cannot speak for all the people who have been on-site, but can I say that two members of our team preparing our koala plan of management were on site about two weeks ago and spent four days at site looking at known koala high-potential locations to sight koalas and saw two individuals.

The CHAIR: With, for example, those two individuals, I think your words were "release them", can you explain for the Committee what that looks like?

Mr TROTTER: That is a matter again for the content of the KPOM.

The CHAIR: With respect, you are here before an inquiry looking into koalas. It is a very specific situation that Shenhua is suggesting that they do with these koalas, which is translocating, and it has been in the media a lot; there is significant detail of what you are doing. Surely you know what release and translocation means and it does not have to be contained in a document.

Mr TROTTER: Can I say that I was involved in some discussions between Shenhua, DPIE and BCD the week before last where the concept of translocation refers to an OEH document and it was put to the departments that if koalas are moved from an area that will be subject to mining activity or construction activity and they are released within the project boundary, that may not be considered translocation; it may be considered under a different term and a different concept. Shenhua and Shenhua's KPOM preparers have provided written correspondence to the departments asking for clarification on that issue.

The CHAIR: Do you mean you are just going to get the koala and release it at the edge of the mine site? Is that what you are saying, so it is not defined as translocation?

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Mr TROTTER: Potentially it could be released into an offset area that lies within the property boundary.

The Hon. MARK PEARSON: And that is not translocation?

The Hon. CATHERINE CUSACK: You mentioned earlier in an appropriate release area.

The CHAIR: That is a local extension plan.

The Hon. PENNY SHARPE: I have one more question, which comes back to this issue of preconstruction. Does modification one in relation to preconstruction suspend the trigger that if you have not started within five years that the licence could be cancelled?

Mr TROTTER: Shenhua had legal advice that preconstruction work effectively takes up the consent. Hence, once the consent has been taken up it cannot lapse.

The Hon. PENNY SHARPE: So essentially it has been approved? That particular condition on your licence has basically now been overcome through the agreement of having the preconstruction?

Mr TROTTER: That is the company's understanding, that it will be a determination for the department. Shenhua will provide a report to DPIE as to the nature of the works that we have done.

The Hon. PENNY SHARPE: Seek their agreement that that is sufficient?

Mr TROTTER: Yes.

The CHAIR: Sorry, I am getting hurried up by the Committee secretariat; we have to catch a plane. I am very sorry that that is the end of our questions. Thank you very much to everybody who has come to this hearing today. That is the end of today's session.

(The witness withdrew.)

The Committee adjourned at 14:51