REPORT OF PROCEEDINGS BEFORE

JOINT SELECT COMMITTEE ON BUSHFIRES

———

At Sydney on Friday, 31 May 2002

———

The Committee met at 9.00 a.m.

———

PRESENT

Mr J.C. Price (Chair)

Legislative Council	Legislative Assembly
The Hon. R.H. Colless	Mr E.T. Page
The Hon. A.B. Kelly	Mr R.H.L. Smith
The Hon. J.S. Tingle	Mr G.R. Torbay

Transcript provided by Legal Transcripts Pty Limited

KURT ALBERT LANCE, Retired, Hawkesbury Fire Brigades, Merit Farm, West Portland Road, Ebenezer,

KENNETH ARTHUR PULLEN, Manager, Hawkesbury Fire Brigades, 140 Mahons Creek Road, Yarramundi, sworn and examined:

CHAIR: Would you please state your occupation, which you have already done, and in what capacity are you appearing before this court?

Mr LANCE: I am in the capacity of the Hawkesbury Fire Brigades, I have 27 years as a deputy captain, and 34 years as a life member of the Hawkesbury Fire Brigades, Bushfire Brigades.

CHAIR: And did you receive a summons issued under my hand to attend before this Committee.

Mr LANCE: No, I have not.

CHAIR: You have not?

Mr LANCE: This one here.

Mr PULLEN: The blue form.

Mr LANCE: Yes, I have, I am sorry.

CHAIR: Thank you. Would you please state your occupation, and in what capacity you are appearing before the Committee?

Mr PULLEN: I am a manager, as I said, of a conference centre, and I am appearing as a private citizen, but with many years experience as a rural fire brigade member, I have been a captain of the Yarramundi Brigade for 12 years, having just stood down from the position.

CHAIR: Thank you. Did you receive a summons issued under my hand to attend before this Committee?

Mr PULLEN: I have.

CHAIR: Thank you. Now, Mr Lance, would you care to make an opening statement in support of your submission?

Mr LANCE: Yes. Ladies and gentlemen, as you have received my submission already, and it is only a two and a half page submission, I am sure you have all read it, and because it is such a short submission I will not talk to that part of it. There are some additional matters I wanted to bring up, which came about by statements made by the Commissioner for Fire Services and the Manager, National Parks and Wildlife Service, Brian Gilligan, on media, on television and so forth, and I felt that we needed to give you some further information which I have now handed out to every member and for Hansard, and we will talk to that. To start with, if that is all right, Mr Chairman, I would like to show a four and a half minute video of the fires that came, that started in Grahams Creek, and came down to Roberts Creek.

CHAIR: I am happy for you to do that, Mr Lance, but remember, we are recording this with Hansard, so you may need some-

Mr LANCE: May have to talk.

CHAIR: -verbal description as you go.

Mr LANCE: Yes, all right.

VIDEO PLAYED

Mr LANCE: Basically, the fire started at Graham Creek, and during the first day of the fires, it travelled 20 kilometres to Roberts Creek and that is what I wanted to show you. Here we are. It is on there.

CHAIR: The furnished statement?

Mr LANCE: The fire, the fuel loads on the way there, are a nine year - or 1990 was the last time that burned, it came down from Blaxland Ridge. At that fire, there were four, to start with three brigades there, and eventually four brigades, a total of sixteen fire fighters, four of which were brand spanking new. This was their first fire, and this is something I want to point out. The lack of hazard reductions, we are getting new recruits coming in, thrown into fires of this nature. From that situation which you will see in a minute, when it gets worse, it arrived there at 7 o'clock at night, and it went down towards the Singleton Road, and it crossed, if you just notice the amount of sparks coming from the trees.

From there it went down to Singleton Road, and the next morning, jumped the Singleton Road, and it then hit a hazard reduction that was five years old, and it took a day and a half to travel one and a half kilometres up the hill from there, to where, to Coobah Road, where we eventually had seven brigades up there, but as I had the hazard reduction on my own property, the fire was actually, a very new hazard reduction, it was done in August, it actually stopped there, that section of it, and I will show you a couple of overheads of the fire on that five year old hazard reduction, of the results of the fire, and then the hazard reduction, how far it has gone into that.

CHAIR: Was that house saved?

Mr LANCE: Beg your pardon?

CHAIR: Was that house that we see there, saved?

Mr LANCE: That was saved. Yes. There were two houses there that were both saved and one of the reasons they were saved, because there was a dam there, that we could fill the tankers up continuously as they were running out of water, and also, there was quite a large area of cleared land around the houses themselves, I mean, there were some trees there, but there was no scrub and no bush there, and also the bravery of the people that stayed there with it.

Thank you. That tape, that is only four and a half minutes out of a twenty minute tape, because we did not have time to go through the whole thing. If I may ask my colleague to give you an overhead of the five year old hazard reduction, what it looked like, and then as it hits the hazard reduction that was done in August this year. This is on the western side of Coobah Road where the fire came up from Singleton Road, up towards Coobah Road, and that was done in, was hazard reduced in 1995, and that is the sort of - you see it is still a fairly hot fire, but you have still got leaves on the trees, and that is now quite green, it is recovering perfectly okay now. Then it hit the end of my property which was hazard reduced by local brigades in August this year, and as you can see, there is ten metres or fifteen metres, and the fire has gone out. The reason I am saying this, giving you that evidence is that hazard reductions do work, if they are done properly, they will work, they will not always stop a fire, but they will make it so that you can get at it.

CHAIR: Make it manageable.

Mr LANCE: And manage it, and it will not crown unless you have got a lot of fuel on the ground, and as we will show you on some charts which you have, I have handed out to you, all the training manuals, the Rural Fire Brigade and we will be using some charts on the screen so you can see what we are talking about and Ken Pullen who was a captain of one of our brigades, will be doing that talking to you from now on, then you can ask me various questions. Thank you. Ken Pullen, please.

Mr PULLEN: Mr Chairman, is it all right for me to talk from here for Hansard purposes?

CHAIR: Yes, by all means, as long as they can hear you, they will let you know.

Mr PULLEN: Thank you. Folks, one of the main reasons that we are here is to indicate, as Kurt has mentioned, that hazard reductions do have a purpose and do work and we really believe, as Kurt's presentation to you has made, that the way things have gone over the last few years, particularly the last five or six years, hazard reductions have been a thing that have been extremely hard to accomplish. A bit of background history if I could. I became captain of the Yarramundi Brigade in 1990, I moved to the area in 1984, and essentially the brigade at that stage, had had a major fire move through the whole area in 1968, and very little had been done from that time onwards in terms of hazard reduction. As I took on the role of senior deputy captain in 1988, I talked with the then captain, and we sat down and tried to work out with the fire control officer, some programme that would form a protective barrier between the Blue Mountains National Park with twenty eight kilometres to our west, and the assets at risk in Yarramundi.

Now, I put together a plan, this is the current plan. There were some additions that have occurred over the last ten years, but essentially, you have a map in your handout, that shows blocks that were then drawn up, so that essentially we have Blue Mountains National Park to the west of Yarramundi, and we have all the assets featured in these areas, in the open areas here, with river and river, and so a mosaic pattern was developed, taking into account the fire histories, where fires had come out of the Grose Valley, and out of the Mountains over the past times, the fires have impacted on Yarramundi and I put together the programme, and went to see the fire control officer, he thought that this was great, that somebody had actually gone to the trouble of putting something like this together, I submitted a three or four page document with the map at that time, outlining all the areas, how they could be burned and so on, and so we established a pattern, he and I, and the local National Parks and Wildfire ranger at that time, whereby the plan was that every six years or so, we would endeavour to get through all the burns on the western perimeter to form a barrier between the National Park which then had not burned since 1968, and the properties.

We started on that in 1989, and through 1988, September of 1993, we basically finished the first cycle of that hazard reduction plan. Of course, as everyone remembers, in January of 1994, the bushfire struck Yarramundi and it struck towards the Mountains from a fire that started out near Mount Wilson, or on the Bells Line of Road at Mount Wilson. Now, the effect was, and just for your interest, I live approximately that quarter spot there, the junction of areas 2, 3, 4 on the map. This aerial photograph taken six weeks after the fire has moved through, shows the effect of hazard reductions, and how long a hazard reduction remains effective for, in terms of something that will help you protect the home. My wife and I, and my partners in business, at Grace Lodge, at the time when the fires moved through, had come to the conclusion that in the event of a fire, my role as captain, would prevent me from being at a fire at home, so we had done some protection on some of our buildings, we put sprinkler systems on and so on, because I thought it was important to indicate that the last place that I could in all honesty, put a tanker, if somebody else's house was also at risk, would be mine, because I would hate to have somebody point to me later, and say, Well, you protected yours, and not mine. So, we tried to make ourselves in some ways, self sufficient, and I can honestly say there are many many many fire brigade, volunteer fire brigade members who take that attitude, and there are people who, as we know, lost their homes this time around, while fighting fires to save other people's homes.

So, the results. If we take a look at this aerial photograph taken six weeks after the 1994 fires. Hazard reduction had been done on the April of 1991, so two and three quarter years, we had a green canopy. Hazard reduction 1990, four and a half years ago, green canopy. This area here, bounded by the line and the roadway, had been burned in 1986, I am sorry, I am not sure of the date of that burn, and it burned hard. Okay? And we suffered, well, the arrow is pointing probably slightly to the wrong spot, the area we suffered damage was right on that boundary of the eight year old hazard reduction, so, this, to my mind, just reinforced what I had and the experience I had gained by being a member of the brigade, and everything I read, that says, Try and reduce hazards before they hit that magical fifteen tonne per hectare that people talk about, in our training and manuals and so on. If as the paperwork says, forest basically accumulates at about two tonne per hectare, again information that we provide in our training, then every eight years you have reached that magical figure where

fires are going to burn hard, so I look at that picture, and it encourages me to keep on trying. So, I will come to some points later in the talk, where we look at what has happened since 1994, in terms of hazard reduction.

Just very briefly, I am sure you have all seen training materials available to us, we presented within the lot, that talks to us about the fact that realistically, we cannot remove the oxygen, it would be very difficult to remove the heat, we can remove the fuel, by hazard reduction. We can remove the fuel by hazard reduction. Forest fuel loads, particularly their high fire risk, you would expect the following, and the intensity of the fires. When they are talking about 300 kilowatts per metre, they are talking about the equivalent of three hundred one bar radiators per metre. So, fifteen tonne per hectare, seven and a half tonnes per hectare, is very very hot, so that keeping fuels to a real low level is, as far as we are concerned, for fire alarm purposes, very important.

Mr LANCE: All these things are in the manuals.

Mr PULLEN: In the manuals?

Mr LANCE: Yes. Before you.

Mr PULLEN: We are provided with information about how fuels accumulate, how many tonnes per times this last fire, you know, if you have got fifteen years, open canopy, closed dense canopies, and so on, so, all of this goes to just show you, fuel accumulates and we need to on a regular basis, reduce the fuel. Fuel quality does have a significant effect on fire behaviour and difficulty controlling it. Again, information lifted from our training manuals. If things are under five tonne per hectare, there is a chance of controlling it. Now, remember that we are talking about fires, and that the fire danger index varies. Some days you get extremely hot fires, or extremely high fire danger, others, not. The great majority of the fires we are fighting, are when it is not really extreme, and yet we are finding they are even more difficult to control, because we do not have the hazard reductions that we used to have in place, helping us. There is a chart, it is probably going to be very difficult to read, but once the fire danger index reaches 50, which is where we are going to, is extreme, crown fires occur, still only occur in the high, high fuel loads, twenty, twenty five tonne per hectare, and more.

CHAIR: Is that figure in our documents here?

Mr LANCE: It is all in your-

Mr PULLEN: Yes, yes, it is. So, that chart-

Mr LANCE: Everything we are showing you, you have in writing there.

CHAIR: Yes.

Mr PULLEN: That chart is part of the MacArthur Meter, it is something used, and I believe there is some discussion going on that that is probably conservative, and may need some work, but at this stage, that is what we have to work with. The fire combustion triangle. Oxygen produces fire and - let us put it together. Add the direction from academic career bureaucrats without hands-on fire experience, leads to disaster. We are really finding that the bureaucratic process that currently exists to try and get hazard reductions approved, has stopped hazard reductions. I am sorry. I have read things that say there is no impediment, that the District Committee system works well. The District Committee system, in theory, is good. I have no problems with it. In practise, however, it has just caused a major bottleneck that is not enabling us to get through, and we will talk to that shortly, as well. Kurt would probably just like to talk to a couple of these slides which we have also got.

Mr LANCE: I am just showing you fuel loads that are around - this is not in the Hawkesbury, this is around Kosciusko, because I read all the submissions that have been put to your Committee from down the south, and I read what Mr Fleming told you, and having been on the Advisory Committee of Kosciusko National Park for eight years, I knew what the fuel loads were there, so I got somebody, a friend of mine, who is still a member of the Advisory Committee, to go up

last Monday, to some locations, and take photographs of fuel loads to let you see that Mr Fleming sits in an air conditioned office in Queanbeyan, and is fed information from various middle management staff, but he does not really know what is going on in his area. That is in the Bogong wilderness area, I mean, I have six or seven there, but I think that one probably shows you, I have got six photographs there, but there are all that type of load with about eighteen inches of actual small fuel plus the green scrub that is growing through it, you cannot even walk through it, and it is a disaster waiting to happen.

CHAIR: Mr Lance, in that slide that Mr Pullen just showed us, what do you estimate the fuel loads would be there?

Mr LANCE: Approximately thirty tonnes per hectare or more there.

CHAIR: Gentlemen, given the time, and the fact that we did start late, I think we should move to the questions at this stage, and I will ask members of the Committee if they have any questions. Russell?

Mr SMITH: Mr Lance, in your submission, you state that the current system of getting hazard reductions approved, is unworkable. This Committee has had evidence given to it, which seems to indicate that it is working well in other areas, can you give us some examples where you say it is not working?

Mr LANCE: I can give you some examples, although my colleague probably has more up to date figures, but for instance, take where the fire stated, the Grahams Creek fire started down here, that - what was the date? The hazard reduction was approved there in 1995, I think, by the Local Committee, have you got the figures there?

Mr PULLEN: 1996 it was endorsed.

Mr LANCE: 1996, I am sorry. 1996. Since then, Hawkesbury Fire Control is still waiting for National Parks to do the REF. Now, that is five years. That is where the fire started. There are other, I think you probably have a full list, if you can give a quick run down for me, what sort of time frame we are having in the Hawkesbury and that is all I can go by, I cannot go by what happens in other locations.

Mr PULLEN: In a summary of thirty hazard reductions which will be presented in more detail, by the next presentation, the average time between a proposal for a hazard reduction and endorsement of a District Committee was five months, the average time for then, an REF to be drawn up, that is the Review of Environmental Factors to be produced by the Land Managers, the average time was two years. The average time generally, by Council and RFS was .75 of a year at the most, right? Or less than that. Up to six years and still waiting in some instances for National Parks to produce the REFs. The reasons given include nonfunding, but essentially, the District Committee may have endorsed a burn, so we, as a brigade or somebody makes a proposal, the proposal is there, the District Committee endorses the burn, but then we have to wait for the environmental procedures to take place, and once they come to us, they may come in the form of something like a 135 page report like that, which I, with very few skills in terms of environmental stuff, am supposed to absorb and take into account when then planning the burn, and argue the case as to whether I can or cannot burn, depending on what this says, and that may further delay it. One of these recommends we delay a burn a further three years after waiting two years for the REF.

So, all these delays just add up and add to the frustrations to the point where fire brigades are wondering whether, captains are wondering whether it is now, if I have identified an area as not being safe and in need of hazard reduction, if a small fire is burning in that area, is it now prudent of me to allow my crew to go into that area, to stop it while it is still small, or should I wait for it to come out, and let it get big, because if I do take a crew in there, or ask a crew to go in there to fight that fire, will, if somebody gets hurt, I be held accountable, because I had identified it in need of hazard reduction, and the District Committee had endorsed it as being in need of hazard reduction, and yet, the Land Manager had not been forced to produce the REF and get it done.

So, if we are looking for solutions, my suggestion would be that we need to see the REF process, if there has to be such a process, must be greatly simplified, back to the days where you could literally go to the local National Parks office, and with them, sit down, take a look at their known information, if there is no known problem, then proceed, rather than employing consultants to go through the whole process every time, every five years, every time you want to do a new hazard reduction, if you change the size of it, get it done again. REFs are very limited, they look at a specific block, not what is around, so if there is something in that block, it causes a further delay, but the same items may exist outside. So, in all of this, we are being frustrated and concerned and worried from being allowed to proceed with our burns.

When the fires came through Yarramundi - sorry, when the fires threatened Yarramundi, and actually burned into portions of Yarramundi in January of this year, I was extremely concerned, as captain, extremely concerned, because I firmly believed that in 1994, I had virtually the whole of the western boundary had been hazard reduced within a period of four years before the burns. When these fires struck, three of those areas had been completed after much pushing, shoving, spending hours and hours literally, of my volunteer time with National Parks representatives and so, all our training says, all our common sense says, all our experience says, we need to hazard reduce the buffer area around homes that needs to have decent depths so the fire cannot get going again, and we need to do that on a very regular basis, within a six year cycle is what I would like to see, others are suggesting five, but I would be happy with six, but trying to do it in five, and then giving myself a year off, and allowing for weather.

CHAIR: Mr Colless, would you like to-

The Hon R.H. COLLESS: Thanks, Mr Chairman. Mr Lance, have you got any idea of what the fuel loads were in that video that you showed us, prior to the fire getting there?

Mr LANCE: Well, in 1990 was the last burn through there, so, I would say probably about twenty, I have not measured them, but I would probably say twenty tonnes to the hectare.

The Hon R.H. COLLESS: Right.

Mr LANCE: But not the whole of that area was burned in 1990. I mean, there was a fire came down from Blaxland Ridge to there, but there were some areas that were not touched by that fire, and some area also did not burn in the 1994 fires.

The Hon R.H. COLLESS: When you are doing your bushfire planning, what fire danger index do you use for those plan purposes?

Mr LANCE: Well, I mean, we try and go by the book, but I am not - I am now a life member, I am not actively involved in it any more, and as you know, that changes as we get new information and really, fire control in Wilberforce looks at those sort of things as well as the captains. I have basically been a deputy captain for twenty five years but, twenty seven years, but really, in my days we sort of - local knowledge was the most important thing and you went and picked the floor and saw what - this will burn or this will not burn, and nowadays it is much more technical and it is - I am not involved in that any more.

The Hon R.H. COLLESS: That figure 20, I think, carries a very strong message there, because it shows that a fire danger index of 50, and a fuel load of fifteen tonnes is the threshold at which you could-

Mr LANCE: The crown.

The Hon R.H. COLLESS: Yes.

Mr LANCE: Yes.

The Hon R.H. COLLESS: So, when you are doing your plan, would you do your plan based on that 50 index or-

Mr LANCE: Sure.

The Hon R.H. COLLESS: -and higher?

Mr LANCE: Yes.

The Hon R.H. COLLESS: So, in other words, you want to reduce the fire so you can get into the crown.

Mr LANCE: That is right.

The Hon R.H. COLLESS: That figure twenty also indicates to us that even an extreme fire danger index, up to a hundred, if you have your fuel loads below ten tonnes per hectare the fire will not crown.

Mr LANCE: That is correct.

The Hon R.H. COLLESS: You say that is true?

Mr LANCE: It is true.

The Hon R.H. COLLESS: From your experience in fighting fires?

Mr LANCE: Yes, that is true. If you do not have the fuel load on the ground, it will not crown.

The Hon R.H. COLLESS: Right.

Mr LANCE: It is the rising heat from the burning fuel on the ground that will actually start the fire in the-

The Hon R.H. COLLESS: Okay. And-

Mr LANCE: It will crown for some distance-

The Hon R.H. COLLESS: Sure.

Mr LANCE: -the wind will carry it, and it might crown, but there are umteen occasions where I have seen fires go out at the edge of a - crowning fires go out at the edge of a hazard reduction where there was no fuel load on the bottom, over the years, and in fact, I presented photographs of that to the, what is the group that we went and saw? The Conservation Foundation, National Conservation Foundation talk on bushfire, I took folders and showed them these things, and I have got them here, but they are not in your-

The Hon R.H. COLLESS: Just one more, Mr Chairman, if I may. It is obvious from what you are saying then, that in order to stop that fire from crowning, we must keep the fuel levels below ten tonnes per hectare.

Mr LANCE: That is what we would like to see.

The Hon R.H. COLLESS: Now, what are the options for keeping those fuel loads below ten tonnes per hectare

Mr LANCE: The only option is to do regular hazard reductions on a planned checkerboard pattern.

The Hon R.H. COLLESS: So, you are talking about hazard reduction burning?

Mr LANCE: In most cases, it is burning. In some open areas you might be able to slash, you might be able to put goats in for that matter, if you want to, but when it comes to wooded areas, forests, there is really no other way of reducing the hazard than burning.

The Hon R.H. COLLESS: What areas do you see that it would be appropriate to use some sort of grazing animal in there, to keep the fire risk down?

Mr LANCE: Well, where you have got open land, wherever you have open farmland for instance, or the lower edges of the Snowy Mountains. You could not any more, because it is much too thick there, but areas of that type where you have open space where there is - I mean, I do know in California, they are using two trailer loads, semitrailer loads of goats which they - the contractor goes to the area, puts electric fences on and let the goats out, and they reduce the hazard on these very steep areas where they cannot do any mechanical work, and they are too close to land - to buildings, so they use these goats, and the contractor travels around California doing that. So, that is one option that perhaps could be looked at for very difficult areas.

The Hon R.H. COLLESS: It has also been suggested to me privately, that there are some areas, some forested areas in the state now, which because they have not been hazard reduced for so long, the fuel level is probably in excess of twenty five tonnes per hectare, but those areas now, it is very difficult to in fact hazard reduce them, because of the amount of fuel there, and as soon as it is dry enough to burn, you are going to essentially start a wildfire, would you agree with that?

Mr LANCE: Actually, I have talked to the Fire Control Officer in Berridale, Barry Atkins, and I would suggest, well, I do not know how much he is allowed to say, but I would suggest perhaps the Committee should contact with him, because he told me that there is no way he could possibly risk any hazard reduction in the wilderness area of Kosciusko, because the fuel loads are armpit deep, and he has not got any fire trails to cut the fire off with, the trails are overgrown and he cannot, now, and that shocked me, because I read that, what Mr Fleming said, that the fire trails within the wilderness area are the same as the fire trails with the rest of the park, and that is what he said in there, well, that is why I rang Barry Atkins, who I know, from being down there in the Advisory Committee for eight years, and that is the reply I got from him, and perhaps it should be sensible for the Committee to subpoena somebody like him, I do not know how much he is allowed to talk, but I do know that it is - there are - the Kosciusko area is a disaster waiting to happen, like the Yellowstone fires in America, and it will not stop until it gets to Canberra.

CHAIR: Mr Page?

Mr PAGE: Are you aware the Government just introduced legislation to streamline the approval process for hazard reduction?

Mr LANCE: I was shown that by the lady this morning, and obviously I am not aware of the details, but I am very happy that something has been done about it.

Mr PAGE: So, can you have a look at it, and give another submission to the Committee on your opinion on-

Mr LANCE: Well, I am going overseas today, I am afraid I will be out for two weeks-

Mr PAGE: All right, well, what about-

Mr LANCE: -but my colleague will.

Mr PAGE: All right.

Mr LANCE: Most certainly.

Mr PAGE: A view on whether you are happy with that-

Mr PULLEN: Sorry, was the legislation introduced yesterday on the approval process, or was that-

Mr PAGE: Yes, streamline the approval process for hazard reduction.

Mr PULLEN: As well as saying that the Commissioner can go into a property, even if approval has not been given.

Mr PAGE: Yes, yes.

Mr PULLEN: Okay. Sorry, I understood it to be just the latter that the Commissioner could order that it be done. I would certainly like to take a look at that then.

Mr PAGE: All right. Okay. Give us your opinion?

Mr PULLEN: I certainly would.

Mr PAGE: Okay.

CHAIR: Mr Tingle.

The Hon J.S. TINGLE: Thank you, Chairman. Mr Lance, you started your submission, or your presentation by saying that you had been concerned by statements you had seen attributed to the Rural Fire Commissioner and the Director General of the National Parks and Wildlife Service, before this inquiry. Could you just crystallise what it was about whatever they said that concerned you? What did they say that-

Mr LANCE: The thing that concerned me that they both said that hazard reductions are not the answer, and they will not work and the fact that if hazard reduction is more than two years old, you might as well not have it, basically words to that effect.

The Hon J.S. TINGLE: And you do not agree with that at all?

Mr LANCE: I totally disagree with it, and what is more important, that all fire fighters are being taught, you have got the proof in your things, are still being taught the effect of fuel loads and that is what we have got to, we have been working on that, when I was beginning in the fire fighting service and we are still working on that. Now, if they have some information that tells us something different, then surely the firefighters ought to know about it and I do not believe it, but that is from the layman's point of view, as an outsider but perhaps like the CSIRO or Mr Cheyney who has been looking at fires for years, can verify this.

The Hon J.S. TINGLE: Can I say to you that, in the evidence given to this inquiry, so far, there has been a great deal of argument about what is appropriate hazard reduction. What is appropriate. Now, in Nowra, the Director, the Southern Directorate of the NPWS, Dr Fleming, told us that over a period of four years, out of a total area they control of 1.6 million hectares, they had cleared or hazard reduced 22,000 hectares. I asked him whether he thought that was enough, and he said:

> Well, it is a question of strategic burning.

When I put the same question to the Rural Fire Commissioner here at a later hearing, he said that really, hazard reduction was a matter of quality, not quantity. I do not quite know how you define that. Do you have a comment on that?

Mr LANCE: Yes, I do. Hazard reductions really, that are being done now, are for the protection of property only, and we do it around areas, for instance, take my instance, I wanted a hazard reduction done in the wildlife reserve at the end of my property which I have had there for the last thirty years, and I used to do hazard reductions every eight years. It was not the position of our local fire service to do the REF. Therefore, because I wanted it, and it was not protecting property, I paid for the REF. It cost me $1,600, which is very cheap, because I had done a fauna and flora report

separately before which I could give them. I paid for the $1,600 for that, and I handed it over to our fire brigade and asked our Control Officer, Karen, could she please do that and she was rather concerned that they had a lot to do, and I said:

> Well, either you do it or I will do it.

And she said:

> You cannot do that any more.

But that is the sort of thing that is happening. If it is not for protection of property, it will not get done because there is not enough time or money to do it, and I think that what we really have to look at in the long term is strategic burning overall, not just for burning the ridges in the mountains so that you have got a fire coming through, that you have gone somewhere where you can stop it. The bottom part in the valleys usually, you have got rain forests and that sort of area, if it is done at the right time, they will not burn anyhow. If you can have the ridges fire reduced, you will stop it at the next ridge, and I think that is what we have got to plan to do.

The Hon J.S. TINGLE: One more, if I may, Mr Chairman, to Mr Pullen. You spoke of the delays, the long delays, sometimes running into years, involved in the REF and so on. I sense in what you were saying that in those delays you were missing a lot of windows of opportunity to do hazard reduction at appropriate times and in the right weather conditions. Not being an expert in these things, can I just ask you, what is your opinion, I am not the expert, you are, what is your opinion of the fact that surely in a given area, REF should be something that should be almost permanently available, I mean, if the thing is being properly monitored, the relevant authority would have a pretty good idea of what the relevant environmental factors are, and it seems to me that it seems unnecessary to start from scratch and build one over a period of time, when they should almost have it at their fingertips.

Mr PULLEN: Thank you, Mr Tingle. That is actually the situation that used to exist, I mean, when we put our proposals up in the early 1990s, a review had to still be done. But what would happen is the Fire Control Officer and the local National Parks ranger would get together, or local National Parks Manager would get together, look at the existing database for the whole area and say, Okay, we should be able to go with that. Now, what has happened is that they have introduced this thing that you have to, for that specific block, get a review of environmental factors done, and that is really what is killing us, because it costs money to do that. The resources were not necessarily provided to be able to do those hazard reductions, REFs and we, if a land manager does not particularly want that burn to go ahead, for whatever reason, or that hazard reduction to go ahead, sorry, but they could just sit on the requirement to do the REF, every District Committee meeting, I assume that somebody would raise the question as to why it has not been done, and there will be some reason, I have one classic where three different times I met with three different people who were starting on the REF for a particular block, I spent two hours with one, I spent another hour with another one, and I spent three hours with a third, and then finally, the report came through and I and my senior deputy spent time with the mitigation officer and two people from the National Parks, three were being paid, two were not, for four hours one day to go through this document, to try and have a discussion about burning a thirty hectare block. We finally got permission to burn a thirty metre strip behind some buildings, when these fires came through this year, I turned to the National Parks Manager, while in the control room at one stage, and said:

> If the Lawson Street fire breaks north, as it has the potential to do, I will have a long chat with you about stopping and starting that hazard reduction earlier this year.

The Hon J.S. TINGLE: So, the time taken had really-

Mr PULLEN: Just-

The Hon J.S. TINGLE: It had left you unable to do the burn.

Mr PULLEN: Well, we are unable to do burns, or you are prohibited from doing burns, and my proposal in 1994 was, the whole area burned, not the whole area, but a good portion of it burned, but we still need to restart the mosaic, not wait eight years or ten years, restart it at four, you

will get a couple of scrappy burns, but you are still continuing the training of your brigade, but you have got the pattern going. If I start at the end of eight years and do a six year cycle even then, it will be fourteen years after the last fire, and the fuels will be too high and heavy a load, and so, please, we need to do regular burns, and we need to keep them up to date.

The Hon J.S. TINGLE: Thank you.

Mr PULLEN: And yes, we lose windows of opportunity of having to wait.

Mr PAGE: Mr Lance, in your submission, there were many generalisations concerning the inadequacy of fire trails. Have you got any specific details, and if so, have you or anybody else normally raise the issue with your District Bushfire Management Committee?

Mr LANCE: It has been raised, obviously, and we had great trouble during this last lot of fires, to clear, to open trails to get category 7 vehicles in there, and in fact, that is the very reason why I asked Mr Pullen to come with me, because he happened to be in fire control during that period, as the planning officer, so I think I would prefer him to give you exact details on that, because he was working as a planning officer and he can give you delays of particular fire trails which caused another 10,000 hectares to be burned, because we could not get into there, we had to 'doze it out. The other problem is, if you 'doze them, then, the 'dozer driver just pushes everything out, he does not think about soil erosion or drainage, it is a quick process of getting in there. Getting the trucks in there, whereas if the fire trails are kept in order, and maintained, you can do proper maintenance and make sure that the drainage is done properly, and you do not get the soil erosion.

Mr PULLEN: I actually think Mr Lance has answered that very well. The only thing I would like to add, is that, yes, delays did occur, because you have to ship bulldozers from one part of a major fire front to another, you have got to then wait for the bulldozer to cut the trails and so on, if there could be a way found, and Mr Lance has suggested three options, of keeping trails open, but still they are not available for the public to then have access to cause arson problems, and certainly there is something to be weighed up there, and the District Committee, and the people have different points of view on this, but having trails that are accessible, and useable, certainly aid in firefighting.

CHAIR: Mr Torbay?

Mr TORBAY: Thank you, Mr Chairman. I suppose to either of the gentlemen. We have heard in evidence, a great deal about the weather conditions, and I heard your comments about hazard reduction and the disagreement with some of the evidence that we have been given. I suppose, I am interested in your view of how much the weather conditions were a contribution, and how much hazard reduction, just weighing up the two issues, I would just be interested in your view on that?

Mr LANCE: Well, obviously both are very important. But just to give you an idea. When your weather condition eases, for instance, the day that fire came up the five year old hazard reduction, I am just giving that as an example, because it is near my place, and I was fully aware of it, the temperature was 27 and a half, 27.5, whereas the first day it was around the 29, so, it had cooled down, but against that, you also need to look at the terrain. It was coming up the hill where a fire normally moves faster, so in my opinion, the fact that there was lack of high fuel load there, was more important and slowed it down than the actual weather condition, the 2 degree weather condition, because it was coming up a slope, whereas the other one was going down a slope, and did 20 kilometres down the slope. If you have got anything else?

Mr PULLEN: Yes. Weather conditions are obviously extremely important, but we only face weather conditions like this once every so often. The major work that we do from year in year out depends on us being able to put fires out, put them out regularly, fast as we can and so on, and to do that, hazard reductions help us there as well, so, I do not think we just have to look at this in isolation and say:

> Well, this is one major set of fires, would hazard reductions have helped.

I believe they did help. I certainly know that the Mountain Avenue hazard reduction conducted last year, the fire at the Vale of Avoca which is on the list of fires in the Hawkesbury, spotted across the Gross River on Christmas eve. I led the crew of some thirteen people down the Gross River, and we were able to put that out, it was burning on the edge of the river, where in fact we are now not allowed to burn when you do hazard reduction so you are prescribed to stay away from the edge of the river by some twenty metres. We actually seemed to stop 20 to 40 metres from the river when we did the hazard reduction in August. So, there was plenty of fuel at river's edge for the fire, when the temperature is higher and everything drier, three months later, to spot into, and it did. But we were able to, with the aid of these thirteen people, to get in there, and to put that little bit out. If that hazard reduction had not have been performed, the 900 hectare fire at Vale of Avoca, would, I believe, have been more than doubled in size, because it would have passed straight through Yarramundi, as well as Gross Wold, Gross Vale, and it would have come straight through our area, so that hazard reduction performed, yes, only sort of fairly recently beforehand, had an affect, despite the extreme weather we had on Christmas Eve, so it worked, and if you are doing hazard reduction on a pattern every six years, you are going to have blocks side by side, areas that are, you know, one block apart, that are reduced pretty well, and so that you have hope as a fire fighter, which, where you cannot do hazard reductions, you really do not have that home.

Mr TORBAY: That is excellent, thank you.

CHAIR: Thank you very much for your presentation gentlemen, and we have gone over a little bit of ground. I think it has been a valuable exercise for the Committee. Thank you again for the additional information, and (indistinct)

(The witnesses withdrew)

BRIAN WILLIAMS, Company Director, Kurrajong Heights Rural Fire Brigade, 13 Stanley Avenue, Kurrajong Heights,

PHILLIP MICHAEL HURST, Deputy Captain, Kurrajong Heights Rural Fire Brigade, 1214 Bells Line of Road, Kurrajong Heights, sworn and examined:

CHAIR: Thank you, and did you receive a summons issued under my hand to attend before this Committee?

Mr WILLIAMS: Yes, I did.

CHAIR: Did you receive a summons issued under my hand, to attend before this Committee?

Mr HURST: I have.

CHAIR: If you will just excuse me, I will hand over to my deputy, and Mr Kelly will (indistinct)

The Hon A.B. KELLY: Okay. Thank you for that. If either Mr Hurst or Mr Williams, would you like to make an initial statement to the Committee-

Mr WILLIAMS: Yes, I would.

The Hon A.B. KELLY: -and then we will ask Mr Hurst.

Mr WILLIAMS: Thanks very much. First of all, I would just like to say, we are very grateful to be here to represent the grass roots level of the organisation. My background is, I have had thirty three years continual service as a front line fire fighter. The last eighteen years, I have been the captain of the Kurrajong Heights Brigade. I am a RAFT team leader. RAFT stands for Remote Area Fire Fighting Team and the object of that team is to go into remote fires and take them out as quickly as possible before they develop into large scale fires, those fires are usually within the depths of the national park quite often started by lightening and the normal insertion method is by helicopter. In both the 1994 fires and the 2001 fires, I was a divisional commander. A divisional commander is a person responsible for a significant part of a major fire and you command a fair amount of troops and resources.

My evidence is coming to you, direct from the coal face. In my spare time, I am quite an avid bushwalker, I am quite skilled in the sports of abseiling and canyoning as well. Ever since I was a boy, I have been exploring the areas now known as the Blue Mountains and Wollomai National Parks, and I have a fair knowledge also of Kosciusko. In my lifetime, I have been studying the effects that wildfire have on the environment, and I have been comparing that with areas that have been managed over some fifty-year period, by the local brigade and the difference is dramatic. Areas that are only subject to wildfires, I have seen a marked decline in the biodiversity and a marked decline in the quality of the flora and fauna, and I can give you some typical, just some quick examples, the Mountain Ash in the Blue Mountains is disappearing at an alarming rate, where there are no hazard reduction practises in place. The wallaby population since I was a boy has been dramatically reduced and the wildfires of 1994 crucified the lyre bird population, they still have not recovered today, so they are just a few quick examples. When you compare that to the areas of hazard reduction, and in our submission we ask, could you accompany us on a tour, I would love to take you on a tour of the Blue Mountains and show you areas that have been managed by hazard reduction over a fifty year period, and give you a first hand look at those areas, compared to areas that received no form of protection. Hazard reduction, a lot of the people coming here to give evidence, I have been reading some of their presentations. They are trying to get to you, you have to balance hazard reduction against environmental values. They are not on opposing sides of the scales. It is my observation over my life, that they are both on the same side of the fence.

Good hazard reduction practises are good for the environment, so you get good community protection, and you get good protection for the environment, and it disappoints me. I can to this inquiry in 1994, and I spoke to the Director General then of the National Parks and asked her to escort me on a tour, and I would like to show her what I discovered in my lifetime. She never took up the invitation, it disappoints me. Not only do we have best results from community protection and for hazard reduction, hazard reduction is cost effective. Drip torch fuel is cheap. The volunteers work free of charge. The cost of these fires has been enormous, not only in the direct costs of fighting the fires, but as someone in the tourism industry, it took me until April of this year, to get my business back on track. It was widely reported throughout the press, that the tourism industry in the mountains were down something like 80 per cent, and even, I spoke to people as far as Bathurst, their business was down the same. People would not travel through the Blue Mountains. So, the cost to the tourism industry alone, as politicians, I hope you take that on board, it is not only the direct cost of the fires.

A couple of examples, you have heard evidence to say we only need to hazard reduce close by to village areas. I totally disagree with that, totally disagree with that. The 1994 fire kicked off on the Bells Line of Road near the Mount Wilson turnoff, and it ran 30 kilometres through the depths of the Blue Mountain National Park to where it burned out five homes and a youth hostel at Hawkesbury Heights. We had, to my knowledge, 11 helicopters working on that fire. We did no good whatsoever, we had unlimited resources. You simply cannot stop a wildfire when it is running under heavy fuel conditions. It does not matter how much training we have, how much equipment we have, how many resources we throw at it, you simply do not stop a wildfire, until it runs out of fuel. The same with the Graham's Creek fire. The previous speakers told you it ran 20 kilometres on a single day. Christmas day it ran that 20 kilometres. On its through that 20 kilometre run, it came out of the Wollomai National Park and it destroyed fourteen homes. Again, we had a lot of resources, could not stop it. Fires stop when they run out of fuel.

Could we have the first slide, thank you? This is a graph. This might show it a little bit more clearly. This is the same information but it is in a graph form. The column on the left, seven and a half tonnes per hectare, that is three and a half years of build up, it produces a fire equivalent to 300 single bar radiators for every metre of fire front. If we go across on the other side, the thirty tonne represents fifteen years of fuel build up and you get a fire intensity there, of 5,200 single bar radiators for each metre of fire front. If I give you gentlemen a knapsack, and ask you to stand in front of one of those fuel loads and stop a fire, which one are you going to take. I mean, you simply cannot stop a fire running with that intensity. It is impossible. What burns in a major fire, gentlemen? The major run of the fire, that is all the fuel that burns up to the thickness of that pen, up to six millimetres, that is all that burns, that thickness. When we do a hazard reduction, all we are wanting to do is remove the fuel loads up to that thickness. We are not trying to burn the very guts out of the parks, like people would have you believe, that is all we are doing. It is just a cleansing process, to remove the fuels of that, we only have to have a flame height of one, maybe two metres, and that is our objective to do that.

How much was 30 tonne, I heard a question asked earlier. That distance there represents thirty tonne. If there is that much fuel on the forest floor, you have thirty tonne.

The Hon A.B. KELLY: In depth?

Mr WILLIAMS: In depth, yes. You go for a walk through any of our public lands and I can tell you what, you will find fuel a lot deeper than that. Mr Lance spoke of fuel eighteen inches deep. If that is thirty tonne, how much is eighteen inches? How often do we need to hazard reduce? Can I have the next slide, thank you? This is our mosaic pattern that we use at Kurrajong Heights to protect the community, maybe you could do a little pointing there for me, Phil, and just point out the Kurrajong Heights area. Okay. That is there. What we do there, we have eighteen burns in place, and we try to achieve two burns per year, and that means we get around on a nine year time frame, our cycle, you cannot read it from where you are sitting I do not think but most of those burns are burned somewhere between seven and a twelve year cycle. What we do, and this is why I would like the Conservation Movement to try and take on board, we have at least two blocks in depths, and preferably, we would like three, but we are not allowed to do that, in a lot of areas. By going to a two or three block depth, it allows us to burn on a seven, ten or even longer cycle, but still have a fuel reduced area that will pull up a wildfire. It will still run into a block that maybe only up to five years old. I am very confident under any conditions, fuel levels up to five years old, we can pull up a

wildfire. Even under extreme conditions, why the fire will still cross fuel levels like that, it does not come across with any great gusto, and I will go into a little bit more detail in that, in a little while.

We might just go through to the next slide if we could, please, Phil? This, New Year's Day, was our worst day at Kurrajong Heights. The fire spotted into an area, and it had thirteen years of fuel build up and it was extreme conditions. We had winds of 65 kilometres per hour. It was hot, it was extremely low humidity, and the fire took a major run through this area. It simply burned everything. The fire height there was twice the height of the tallest trees. I had several crews in there, protecting three homes, and as a captain, I can tell you, I am getting sick and tired of having to put people into areas that have got high fuel loads around it. It is getting tougher and tougher, our fires are getting bigger and bigger, and it is not just weather conditions. In 1994, this inquiry was told, the reason the 1994 fires were so bad was that it was the worst weather conditions you had ever experienced in the State. Guess what, gentlemen? This year, what did we trot out? The same old argument. It is not weather conditions. Weather conditions certainly play an important part, but it is fuel loads. Fuel loads are the crucial issue. Fuel loads. But there is nothing left on there, there is no humus, there is nothing left on the ground whatsoever.

Next one, thank you, Phil. This is again, running through, keep moving Phil, time constraints, onto the next one thank you. This is an apple orchard. The apple orchard is, the actual orchard was all green. There was no, the orchard did not burn at all, but the entire orchard was baked by radiated heat that came out of the forest. That orchard is about a hundred metres wide or more, and if you had been in the middle of that orchard, I do not think you would have survived.

The Hon A.B. KELLY: That is near the highway, is it?

Mr WILLIAMS: Beg your pardon?

The Hon A.B. KELLY: Is that one near the highway?

Mr WILLIAMS: No, it is in off the highway, probably a kilometre in from the highway, but the entire orchard was baked. This is our hazard reduction. The back of the photo, the top of the photo, is an area that was burned prior to this, the year before, and it was a joint National Park Rural Fire Service effort. The fire went through, as I said, double the height of the tallest trees, it spotted across the gully and the brown area, Phil, if you could point? Yes, that area up there, the trail that we used for the hazard reduction ran along that ridge at the top of the burned area. The fire burned severely into the unburned area, that slope is 15, 20 degrees in lots of places, if ever a fire was going to run through the tops of the trees, and I am sure people have told you that, the fire will simply run through the tops of trees, that is absolute rubbish. The fire will not run through the tops of trees unless you have got considerable build up on the forest floor. If ever a fire was going to run up a mountain, that is the time it would have run. It did not run. The fire did work its way in that hazard reduction. We had a number of gullies that did not burn during the hazard reduction, and the fire did trickle through them. It took - the first gully it came up in ten hours, and in places, the fire was five metres wide, maybe ten metres wide, we had no problem dealing with it whatsoever, it run up three other gullies, and again, it created no problem. We did have three spot overs, over the top of that hazard reduction, and they started fires on the other side of it, which we dealt with, but at no stage did the fire run through the hazard reduction and continue to burn. If you have been told that, then it is wrong.

Okay. The quality here is not that good, but if we could point to the 1997 hazard reduction, please, Phil. Two big blocks on the northern side of the Bells Line of Road. We carried out a hazard reduction in there. When the fire came into that hazard reduction, it took six days, six days to travel five kilometres in 1997 fuels. Six days to travel five kilometres. Remember you have been told these are the worst weather conditions we have ever had. It took six days. Certainly we had some water bombing activity on it, but those helicopters were only there periodically, there were more important jobs to be done most of the time, in the way of saving houses, so we certainly did get some water bombing, we even had the sky crane up there, who dropped some twenty two loads for us, but without it being hazard reduced, that fire would have come through there in probably an hour, an hour and a half, maybe, maybe half a day even, but it took six days, and that six days gave us crucial time to seal up areas that were not protected by hazard reduction. So, it bought us time. It is the thing that saved the fire impacting badly at Kurrajong Heights, that fact that we got six extra days to deal with it.

Even the 1994 fuels, after the fire went past our hazard reduction, the big one that stopped the burn, it kept burning to the south, in areas that were not mitigated, it got into 1994 fuel loads and it messed around in there. We were able to deal with that fire, and stop it impacting down into the Grose Valley. If that area had not been burned in the 1994 fire, it would have been away to Faulconbridge, Springwood, and over to those areas. Even the 1994 fuels bought our time and enabled us to deal with the fire, so, it is my experience that even fuel reduced areas up to ten years old, offer you a significant advantage, a significant advantage. You will get less of a fire, in fuels at least up to ten years old, under any conditions. Block number 13, which is an area, we spoke about the REF process earlier. That is marked in our district plan as a strategic burn. It has taken me five and a half years, since the District Committee approved it, not since I submitted it, but from when the District Committee approved that to be done, it was five and a half years, the fuel there was twenty years old, gentlemen, twenty years old, well over thirty tonne, and the REF still had not been done for it, and the Parks were not interested in doing the burn. It was strategic. Twenty years fuel. I wanted it done. As the local captain, I believed that my expertise should be taken into account, it was not done, the REF was never done, it has had the very guts burned right out of it. It has gone.

Local Government, this is the REF process or how we go about getting a hazard reduction done. It is a fairly complicated system but as volunteers, we can work with that, except when we get down to the REF stage, Phil, can you just point where the REF stage, once it gets down to there, local government is in one to six months is the common time frame in the Hawkesbury for local government to get their REFs done. One to six months. The Parks are taking three to six years. It is just not acceptable. We cannot deal with that. Three to six years is just totally unacceptable. The only other point I would like to raise is the four and a half million dollars that has been - just before I leave that I am sorry, once the REF, even if the REF is approved, the Land Manager then, even though it has been approved by the District Committee, the Land Manager can do it at their leisure, so the District Committee need more teeth to be able to say to the Land Manager:

> You will do that hazard reduction or we will move in and do it for you.

We cannot have the Land Manager with the overruling right, they will get around to it when they feel like it. It is simply not acceptable.

The four and a half million that has just been announced that is going to go to hazard reduction, I am extremely concerned, we need to spend a lot of that money on rip torch fuel and get out there and do some burning, I am extremely concerned that that is going to be eaten up in a bureaucracy process and we may not see much of that. I am quite concerned that that money, if we are going to spend money on hazard reduction, let us get in and do hazard reduction, let us not just formulate this big bureaucracy that is going to manage it. We do not want any more managers, we need practical people. We need practical people on the ground. Practical people not academics, theorists, we need people that have been out there, been in the bush, love the bush.

I have got a couple of documents I want to introduce as evidence to you. This first one is called protecting our forest. This has got a lot of literature from America, after Yellowstone, devastating fires in the Yellowstone National Park that burned for fourth months and virtually destroyed it. There has been a lot of scientific research done. It has been, in here it will tell you in that in a single thunderstorm after a wildfire, you can lose up to 2000 years of topsoil build up, in a single thunderstorm, 2000 years of topsoil build up. When we do a hazard reduction, we have to burn to a prescription, we leave a certain amount of moisture in the ground. The humus layer does not burn. Our objective is to leave that humus layer on the ground and that will protect the soil from erosion, to a certain degree. After the 1994 fires in my sport of canyoning, I was personally in top soil a metre deep in the canyons in the Blue Mountains. A metre deep. So, I can vouch, I cannot talk about the 2000 years, I can certainly vouch to you that there has been enormous loss, and I can take you for a walk through a lot of the Blue Mountains National Park where the topsoil is no longer existent, it has gone, it has disappeared, a lot of it, in my lifetime. I hate to think what is going to happen over the next 200 years. I have also got a letter here, that you have in your folder. This is written by a gentleman that had twenty four, twenty three years, sorry, with the National Parks, he is of Aboriginal descent, and please, I really beg with you to read this letter before you come to any conclusions. This man has no axe to grind. He is just a fantastic man. He is a great bushman. He has a love and an understanding of the bush. He has seen it from both sides of the fence, and he really

does understand what it is all about, so gentlemen, please, if you could, take five minutes to read this, I would appreciate it.

The Hon A.B. KELLY: Okay. So, those items that are in the folders-

Mr WILLIAMS: They are in your folder.

The Hon A.B. KELLY: -we will take them as part of the evidence for the inquiry.

Mr WILLIAMS: I think with the time constraints maybe, I could go on, but I think under time constraints, maybe question time?

The Hon A.B. KELLY: Yes. We will ask some questions. Who would like to start some questions from Mr Williams? Yes? Thanks Mr Colless.

The Hon R.H. COLLESS: Mr Williams, what do you consider the maximum fuel levels that can accumulate?

Mr WILLIAMS: Look, I have been in fuel, it depends on the forest, okay, but I have been in fuel, no problem being in fuel knee deep.

The Hon R.H. COLLESS: What would that relate to in terms of tonnes per hectare.

Mr WILLIAMS: I do not know, I have never worked it out.

The Hon R.H. COLLESS: In your estimation?

Mr WILLIAMS: Too frightening.

The Hon R.H. COLLESS: Right.

Mr WILLIAMS: Too frightening, I-

The Hon R.H. COLLESS: We have received evidence previously to say that fuel loads will not accumulate above about forty tonnes per hectare because the biological rate of breakdown increases to the same-

Mr WILLIAMS: Go for a walk in Kosciusko and that will prove-

The Hon R.H. COLLESS: Well, what my question is, is do you believe that statement and-

Mr WILLIAMS: No, I believe they can get much much higher. Much higher.

The Hon R.H. COLLESS: To a hundred tonnes per hectare?

Mr WILLIAMS: Well, if that is thirty tonne, what is eighteen inches. You know? It is common sense.

The Hon R.H. COLLESS: But it is quite, it is quite feasible-

Mr WILLIAMS: Yes, quite feasible, yes.

The Hon R.H. COLLESS: -that we could be looking at fuel loads in excess of a hundred tonnes per hectare?

Mr WILLIAMS: Mind you, the process, once you start to get above that thirty tonne level, it takes much longer to build. You do not sort of accumulate it at the two tonne per hectare per year, so much, and I have got areas around me, on the eastern side of the mountain that get

a lot of, the sunlight is restricted and it stays quite moist, where the fuel would not get to thirty tonne, it is rare that it gets to thirty tonne because it breaks down rather quickly, because of the humus, and this is part of the whole concept of keeping big trees. Once you get big trees, and interlocking canopies, they restrict the entry of sunlight, that helps the breakdown process. What is happening, what I have seen in my lifetime is the big trees have been eliminated from a lot of our public owned lands and now all we have left is scrub. Big fires kill big trees. Once you kill out the big trees, the scrub tends to come back thicker. That scrub will burn hotter next time. Having big trees is very important and if you go back to the early days of when the explorers arrived, that is what the Australian landscape was like. The Conservation Movement say we cannot burn because we are going to change the ecology. White man has changed it, dramatically, it is nothing like what it was when the First Fleeters arrived, and in the back of that, you will see extracts taken from early explorers, from First Fleeters, and you will find that the forests were much more open. There is practically no grass growing now within a lot of our National Parks. It has disappeared because the trees are now too thick. The Americans are spending fifty billion dollars, fifty billion dollars over the next fifteen years, taking chainsaws into the National Parks and thinning them out. They have discovered, and it is my observations too, that once a forest gets to a certain thickness you lose your biodiversity. It has gone. You need to open them up and need to let them breath.

The Hon R.H. COLLESS: Just following on that issue of the breakdown, the organic matter that lands on the forest floor and then breaks down, as you rightly said, into a humus component, would it be fair to say that in extreme weather conditions and with a wildfire approaching, heating it up and drying the forest out further, that even that broken down humus layer becomes flammable as well, does it not? It can be ignited-

Mr WILLIAMS: The whole thing, one of our earlier slides showed that-

The Hon R.H. COLLESS: -it will burn? Contributes to the burn level, as well?

Mr WILLIAMS: -you burn right down to mineral earth, in a bit hot fire there is simply nothing left and unfortunately this burns right into the deepest of gullies in those situations, even the gullies, and this is the problem with wildfires, they burn a hundred per cent virtually. When we do a hazard reduction we are looking at burning maybe seventy per cent, and we leave the areas-

The Hon R.H. COLLESS: So when you do a hazard reduction burn, you are basically taking off the material that is on top of that humus layer-

Mr WILLIAMS: That is correct.

The Hon R.H. COLLESS: -and leaving the humus layer there?

Mr WILLIAMS: That is our objective, yes.

The Hon R.H. COLLESS: Right.

Mr WILLIAMS: I mean, you do not always achieve the ideal result.

The Hon R.H. COLLESS: No.

Mr WILLIAMS: But that is certainly what we achieve to do.

The Hon R.H. COLLESS: Your intention is to run that fire at a cool temperature-

Mr WILLIAMS: Yes.

The Hon R.H. COLLESS: -so as to preserve that-

Mr WILLIAMS: That is exactly right.

The Hon R.H. COLLESS: -that humus layer.

Mr WILLIAMS: Yes, and our prescription, we have to burn to prescriptions in this day and age, and our prescription says we cannot burn when the soil index is too high.

The Hon R.H. COLLESS: So, the two differences are, the two big differences in terms of the ecological stability of the soil surface is that a hazard reduction burn would remove that litter on top-

Mr WILLIAMS: Yes.

The Hon R.H. COLLESS: -but not the humus layer?

Mr WILLIAMS: Yes.

The Hon R.H. COLLESS: And a wildfire will remove the humus layer-

Mr WILLIAMS: Everything, right down to mineral earth-

The Hon R.H. COLLESS: Correct?

Mr WILLIAMS: That is correct, yes.

The Hon A.B. KELLY: Okay. I will just ask a question just to clarify something you said earlier, because we have heard a lot of evidence, people suggest that there really should be hazard reductions every five years or so before, but what you have shown us on your map, is that you have basically two properties deep-

Mr WILLIAMS: Yes.

The Hon A.B. KELLY: -and you said that some of them might not be hazard reduced in twelve years-

Mr WILLIAMS: Yes.

The Hon A.B. KELLY: -but that is okay, you are suggesting, because you have got-

Mr WILLIAMS: A block in front.

The Hon A.B. KELLY: -a blockage-

Mr WILLIAMS: Exactly.

The Hon A.B. KELLY: -either one of the two will be hazard reduced in less than that.

Mr WILLIAMS: Yes. And for environmental reasons, I do not support this one block cleaned up behind the assets. I believe to get the best result for the community and the best result of the environment, three blocks in depth is ideal, and two is, you can suffice, but three, and most conservation groups say twelve to fifteen years is the ideal time between-

The Hon A.B. KELLY: So, that is what you mean, mosaic, is it not?

Mr WILLIAMS: Yes. You just create that mosaic and it works.

CHAIR: Mr Page?

Mr PAGE: There has been a substantial increase in funding over the last seven years, what is the difference in your equipment now? In your brigade since ten years ago.

Mr WILLIAMS: Since the 1994 fires, we have got better equipment, we have got better training, we have got modern technologies. I mean, it is, we have made big advancements and we are very very grateful for that. What we have fallen back on, is - what we are really becoming now, is a fire fighting force, instead of a fire preventative force. When I first joined the movement thirty three years ago, our objective was to stop the fires happening, we now react to them rather than stop them, but as far as equipment, yes, we are miles, streets ahead, but we are falling behind in the fuel management side of it.

CHAIR: Mr Smith?

Mr SMITH: Mr Chairman. I do not know the makeup of public lands in the Blue Mountains, but in your experience is there much difference in the management of hazard reduction between the different agencies, National Parks as compared to State Forest as compared to Land and Water Conservation and such?

Mr WILLIAMS: Yes, the people on the ground level, at the ranger level we talk to with the National Parks, seem to be thinking down the same net as us, but they are driven by a higher bureaucracy, and that I think where the problem arises. The Parks, while they have this public image of, Yes, we support hazard reduction, we are all in favour of it, the reality is, it is simply not happening, you know, it is just not happening. There are always these obstacles being put in the way, you know, like, our District Manager at a meeting with our District Committee prior to the last season, said she would be happy if they accomplished two hazard reduction burns in the Blue Mountains, and two in Hawkesbury. Now, we have got something like forty on our list. We cannot live with that. We simply cannot live with it.

CHAIR: Mr Tingle?

The Hon J.S. TINGLE: I just want to raise with you, Mr Williams, something you touched on before in one of those charts. You were talking about the difficulty of getting the final approval to burn, and you said, when you get to the REF stage, is where you are blocked. This coincides with a lot of other evidence we have heard from other witnesses in this inquiry, and the suggestion seems to be that the blockage point, the log jam, if you like, occurs with NPWS. Now, I think you have probably answered that in what you have just said to Russell Smith, but just pin that down for us. What do you think is the reason that that is the obstacle, that that particular agency, that particular Land Manager seems to be reluctant to do hazards.

Mr WILLIAMS: I just think it is not, the big problem is, they do not want to burn more than they have to, I think that is the problem

The Hon J.S. TINGLE: But who decides how much they should burn? They do.

Mr WILLIAMS: Yes. We, the District Committee has a plan, and that plan is a gazetted plan but that restricts us to small amounts around the assets that need to be protected. We do not have any say in what should happen out in the depths of the park. We have got no say in that at all. The District Committee is just responsible for this plan which protects the assets of the District, and we can only go a certain depth.

The Hon J.S. TINGLE: But you are saying there is an imbalance because of that?

Mr WILLIAMS: Yes.

The Hon J.S. TINGLE: Exactly.

Mr WILLIAMS: Yes.

The Hon J.S. TINGLE: One other if I may, Mr Chairman. You mention in your submission, the question of fire trails which has also come up in quite a lot of the evidence that we have heard, and you make, what I find a very interesting suggestion that fire trails should perhaps start on private land.

Mr WILLIAMS: Yes.

The Hon J.S. TINGLE: The big problem seems to be to have the fire trail kept in good order and condition, but at the same time, keep it locked, and this seems to be the practice so that in fact, arsonists and vandals cannot get access to it. How practical do you think it would be, and what sort of a guardianship do you think you would find if you did have the fire trails starting on private land and as part (b) to that question, you would be aware that on a number of occasions that I am aware of, four wheel drive clubs have offered to keep those trails open, if in fact they are allowed, responsibly, to go into them. Can you comment on either of those?

Mr WILLIAMS: Yes, I would love to comment on that, I really would. Once a fire trail is locked off, okay, even if it maintained, it soon gets covered with leaf matter, and when a fire is coming, we then still have to be a grader over it.

The Hon J.S. TINGLE: Yes.

Mr WILLIAMS: Even if it is in, if it is not in disrepair, we still have to put a mechanical machine down that, to remove the leaf litter. If tracks are used, that leaf litter is not on there, so, and that leaf litter tends to get into the gutters, block the gutters, and you get more erosion, it is my experience that trails that are locked off, actually erode quicker, quicker than trails that have been used in a common sense sort of way.

The Hon J.S. TINGLE: Would you be, yourself in your own area, satisfied the four wheel drive clubs were responsible enough to do that?

Mr WILLIAMS: I certainly yes, yes, I certainly am.

The Hon J.S. TINGLE: Thank you.

CHAIR: Mr Torbay?

Mr TORBAY: Mr Chairman, there has been a lot of discussion about fuel loads and some of the questions you got from Mr Colless which I think are important, but there does not seem to be a measurement of fuel load, something we can accurately draw upon. There seems to be a lot of people saying, I think this, or I believe that, would there be benefit in having some sort of system that measures fuel loads, so that they can be accurately predicted as to where they are going?

Mr WILLIAMS: Well, we can accurately measure fuel loads, that is not a problem. What we cannot do is give you exact fire behaviour. There are lots of variables that come into it, slope, humidity, temperature, wind, but generally speaking the higher the fuel load, the much severer the fire is going to be, given any conditions.

Mr TORBAY: I agree, that is why I am saying, is there benefit. There will be variables I appreciate that, but is there a benefit in measuring those fuel loads and having some sort of system that has, that we can draw upon?

Mr WILLIAMS: Once fuel loads get above a certain level, there should be a requirement for that block to be done, if it is close to assets. I would like to see that including environmental reasons as well, but purely for the protection of assets, fuel loads should not get high near assets.

CHAIR: What do you believe that threshold is?

Mr WILLIAMS: Well, depends again on the size of the hazard reduction you are going to put in place, big hazard reductions like that one of ours, is 1000 acres, you can go with slightly heavier fuel loads on something that size. If you are going to burn a 200 metre strip, and strip burn has been a catchphrase over the last decade, strip burns, you know, you then have to reduce, remove every tree from it, and that is not a good outcome for the environment. It depends. Once you start getting up into that medium range, then you are asking for trouble, but the areas directly behind

the assets, maybe they can be burned on a little bit more regular basis, maybe on a five year cycle, but once, if you go to the two or three block in depth, let us burn them on that ten year cycle.

CHAIR: Mr Kelly?

The Hon A.B. KELLY: You suggest in your submission that consideration should be given to using lighter material for the construction of tankers and trailers.

Mr WILLIAMS: Yes.

The Hon A.B. KELLY: Are you aware that tankers are available, have been for some time, in an aluminium build and that is, you know, the components are all aluminium.

Mr WILLIAMS: Yes.

The Hon A.B. KELLY: Are you aware that these tankers are available to any brigade across the State?

Mr WILLIAMS: Yes. We have got one of the very latest tankers, actually.

The Hon A.B. KELLY: Where was it built, actually, just as a matter of interest?

Mr WILLIAMS: Where was it built? I cannot tell you, to be honest. If I could get a prompt from the audience.

Mr HURST: Alexander Berry.

Mr WILLIAMS: Okay. Righto. Yes, but even there, there is still, I still think there is still room for improvement. I mean, what we are saying there, it needs to be constantly looked at.

The Hon A.B. KELLY: The ones I have seen are totally aluminium. The ones that they build at Yamba, a nice decentralised industry.

The Hon A.B. KELLY: Following on from that you also mentioned that there was the problem with plastic fittings on them.

Mr WILLIAMS: Yes.

The Hon A.B. KELLY: And that is something that has been brought up by other brigades as well.

Mr WILLIAMS: It is quite a worry, yes.

The Hon A.B. KELLY: What do you see the solution to that problem is?

Mr WILLIAMS: Well, a material that will not burn. It would be shocking to go to a door handle that had melted, trying to escape a wildfire. Probably by the time the door handled melted, you would probably be dead anyway, but it is certainly something I think that should be taken, I am sure it is being looked at. It is my information that it certainly is being looked at but we are concerned that there is just too much plastic on our vehicles.

Mr HURST: It is a cost factor. If they are going to take a mass produced truck and turn it into a fire, rather than producing a fire truck..

The Hon A.B. KELLY: The cab chassis, just, you know, you just have to get a standard cab chassis at double the cost.

CHAIR: Could I just ask a general question? The conditions that prevailed over the Christmas period this year, in spite of what you said, do you think there would have been any way

that the fire would have been less intense than it in fact turned out to be, given the weather conditions and the duration of those conditions?

Mr WILLIAMS: Yes. Less fuel. Less fuel, under any conditions will give you less fire. It is as simple as that. Less fuel, less fire.

CHAIR: Except that, does that contradict some evidence we have had from other areas, but-

Mr HURST: While you were out, we showed a slide there of our hazard reduction which we put in, and the fire which hit on a really hot day, got to that hazard reduction and only moved to a little bit, and that, the hazard reduction, the fire hit where that hazard reduction was on quite a steep slope, so it should have, if what people are saying, that hazard reductions have no use, it should have gone through that hazard reduction but it did not.

CHAIR: Right.

Mr WILLIAMS: You could not have got worse conditions than we had on that day, they were pretty bad, and I am talking to you from-

CHAIR: No, no, I am after the practical experience.

Mr WILLIAMS: Yes, well, thirty three years of experience and I have never hazard reduction not be of some benefit.

CHAIR: Thank you. Are there any further questions?

The Hon R.H. COLLESS: Just one more, Mr Chairman, relating to starting ferocity of fires.

Mr WILLIAMS: Yes.

The Hon R.H. COLLESS: Where you have low fuel levels, say, less than ten tonnes per hectare, is that sufficient to give you, even when conditions are extreme, do you still get in there and attack that fire before it gets out of control?

Mr WILLIAMS: It certainly does. The less fuel on the ground, certainly gives us a greater opportunity of rounding that fire up, and it is particularly relevant when we go into RAFT, remote areas, if we can get there and the fuels are not too high, we have got a very good chance sometimes.

The Hon R.H. COLLESS: Let us assume that the fire starts by whatever method, during the period of extreme conditions, in high fuel loads, how long would it take that fire to be out of control, say in the crown, say twenty five tonnes of fuel?

Mr WILLIAMS: In virtually no time.

The Hon R.H. COLLESS: Minutes, hours, days?

Mr WILLIAMS: No, be ten minutes, ten minutes and it will be off and away. On a really bad day, you could have a helicopter sitting on the ground, and it would not keep up to the fire. They just move so fast, frightening, absolutely frightening.

CHAIR: Gentlemen, if there are no more questions. I thank today's witnesses and appreciate the time that you have given up to be here, and also the quality of your submissions.

Mr WILLIAMS: Thank you very much, we really appreciated the opportunity to be here.

CHAIR: We will now withdraw and join us for a cup of tea.

Mr WILLIAMS: Thank you.

(The witnesses withdrew)

(Short adjournment)

ROBERT JOHN WHELAN, Professor, Institute for Conservation Biology, Department of Biological Sciences, University of Wollongong, Northfields Avenue, Wollongong, affirmed and examined:

CHAIR: Thank you. Did you receive a summons issued my hand to attend before this Committee?

Professor WHELAN: I did.

CHAIR: Thank you. Professor Whelan, would you care to make an opening statement in support of your submission.

Professor WHELAN: Thank you. I understand that you all have a copy of the submission, so I do not wish to repeat what I said in the submission. I would like to elaborate on a few points in it, to give a little bit more background that is present in the submission, then I am happy to answer questions. First point I would like to make really, relates to why I made a submission in the first place. I have worked in the field of fire ecology, this is not the conservation movement, this is the science of fire ecology, namely the responses of plants and animals to fires both wildfires and hazard reduction fires and experimental fires. I have worked in that field for about twenty five years now. I am the author of a research monograph, that is used internationally, called, The Ecology of Fire, published by Cambridge University Press. In this text, I examine the role of fire on plant and animal populations in various eco systems throughout the world, it is not just an Australian treatment. At the time of the 1994 fires, and then again at the time of these fires, I was offended, I guess, by the flurry of ill informed and simplistic criticism of various groups in the press and the discussions, the commentaries that followed each of those fires. I understand why it happened, but I am still offended by it, especially the pretence that this is a simple problem and can be met with a simple solution. It is not. In fact, in my whole research career, I have been dealing with the complexity of fire responses of plants and animals, so that was what really motivated me to make a submission.

I tried to examine why it was that this simplistic response appeared. It seems to me that all commentators and critics lost sight of the fact that management actions for a parcel of land, whatever the land is, need to be tied to the objectives of that land. For a lot of the national park land and other conservation lands such as conservation lands within the State Forest Estate, the objective is to protect and conserve natural heritage and that natural heritage includes the native plants and animals, in fact, dominantly, in many national park areas, so my points 2, 3, 4 and 5 go to those issues I have just emphasised. So, this is a very complex situation, with no simple solutions, and we have known this for decades. We have known that it is a complex situation. We have known that the problem of conserving native plants and animals, and also protecting human life and property, is a challenging one and a complex one. Certainly, even pre 1994, the research discussions about the relative effects of wildfires and hazard reduction burning have been much published on, and in fact, I am frankly surprised at the emphasis given to frequent hazard reduction burning, in this debate, that has been running at the moment. The reason I am surprised at it, is that the research community in the area of fire ecology has accepted for many years, that a broad scale application of frequent hazard reduction burning or frequent burning of any sort, frequent wildfires would be just as bad, the high frequency of that is going to have detrimental impacts on biodiversity conservation.

That is so accepted within the scientific community in the area of fire ecology that the research frontier in that area now, is looking at other aspects of fires and the impact of other aspects of fires and frequency, namely, the effect of burning in different seasons of the year, the effect of different levels of patchiness of a fire, those are issues that are now occupying the attention, worldwide, of fire ecologists, because there was an acceptance that if one applies high frequency fire, effectively, across a whole landscape, it will be detrimental for the biota, for some elements of the biota. To illustrate that, I have presented, I have extracted some data and presented it to you in the handouts, and I would like to very briefly speak to each one.

These are simply examples of many, they are examples chosen from the Sydney region, largely. They are examples chosen because they are conducted not by conservation agencies, not by conservations NGOs, but by researchers working in independent agencies such as universities and the CSIRO and if you would refer to the first handout labelled 1 in the bottom right hand corner it

is the results of a study conducted at a landscape level by researchers at the University of Technology, Sydney, Carey and Morrison studied twenty six areas in Brisbane Waters National Park, and among those 26 areas, they were able to obtain accurate fire history records over the previous 26 years and among those 26 areas, there were blocks of vegetation with a range of different fire frequencies. Some had very short frequencies, one to three years, some had what they called short frequencies, four to six years, some medium, up to 14 years and some long frequencies, they had only been burned once in that 26-year period, and they measured the number of species of native plants in each of those 26 areas, and the graft that I show there, summarises the results of the number of species of native plants in the different sorts of areas, so the one labelled, "Very Short," on the left hand bar, shows about 22 species of cedars, that is the white bar, and cedars are the species of plants in which the adult plant dies in the fire and the only way that species can recover after fire, is from seeds, the seeds are protected in cones in the plant, an adaption to being burned.

The total bar represents all the native plants including the group called the sprouters, they are the species that can resprout from roots after a fire, even a high intensity fire, and so looking at the white bars alone, they are the ones most sensitive to high fire frequencies, you can see that over this twenty six year span, the number of species of native plants in this group, present if there are a very short frequencies through that history, there is only twenty two species, the long fire frequencies, the long gaps between fires, permit a diversity of, a richness of native species of thirty three, fifty per cent higher, and the intermediate fire intervals are intermediate.

CHAIR: Can I just ask what you mean by the landscape level?

Professor WHELAN: By the landscape level, I mean that they studied the whole of Brisbane Water National Park, the whole of that region, and within that area, they were looking at blocks of vegetation, so the survey, the collection of data was from large blocks of vegetation. It is not a small scale study of only a few metres that might be burned, which many fire studies have been.

Mr PAGE: Distributed across the wide area?

Professor WHELAN: Distributed across the landscape

The Hon A.B. KELLY: There is not much change in the sprouters, only marginally?

Professor WHELAN: That is quite correct. In fact, sprouters are much more resilient, much more resistant to frequent burning, because they are able to resprout again from their root stocks. The reasons that the seeders show this response and the sprouters do not show the response is that the first, and I am sure you will have heard this already in this Committee, well, if you have not, I am telling you again, or tell you now, that the first fire kills the adult plants of the seeders and the second fire, if it comes prior to the time in which the young seedlings have been able to accumulate their own seeds, the second fire kills those not yet mature offspring and those were the total reproductive output of the previous generation, so the first fire kills the first generation, if you like, the adult generation, the second fire kills the children before they can get to be adults, and then there is nothing left to make the next generation.

The Hon A.B. KELLY: So, there is nothing left, because there is an old saying, one year's weed, seven years' seed.

Professor WHELAN: That is true for species that have a soil stored seed bank, and if you live in an area near the coast where there is Bitou Bush, that is exactly the problem with Bitou , because it has a storage of seeds in the soil. Many of the plants in this category of seeders, in our Australian bushland have seeds that are stored in cones in the canopy and not in the soil, and they are all released when a fire comes through so the whole next generation is, if you like, exposed to the rigours of what happens afterwards. The plants that have seeds stored in the soil, the fire can come across, the first fire kills the adults, and stimulates those seeds to germinate and those seedlings come up, the second fire may kill them prior to their opportunity to reproduce but there will still be some seeds residual in the soil, able to come up after the next fire.

The Hon A.B. KELLY: So, the fire actually stimulates more seed than would normally grow in one year, so it stimulates probably a couple of years growth?

Professor WHELAN: That is quite true that the fire will stimulate seeds to germinate where they would not have done so had they not been heated. Yes. If you could turn to the second handout. I have extracted some data from a study by a researcher at Macquarie University, Adrienne Nieuwenhuis, she studied in West Head, surrounding Sydney Harbour, an area of bushland, and studied a number of locations, once again making use of the fact that there were good fire records. Within West Head she found fifteen locations along fire trails, at which on one side of the fire trial there was a block of vegetation that had been frequently burned, in the recent past, meaning in the last twenty years, and a side of the track, the other side of the track, in which they had been only one fire during that period, a rarely burned site, a similar sort of design, if you like to the Carey and Morrison study, so there are fifteen locations and the way you read this graph, is by looking at any one of the points, say, one that is highlighted, the first one that is highlighted, if you look across the horizontal, the per cent cover, that means the density of vegetation represented by these obligate seeder plants, was twenty five or thirty per cent in that case on the frequently burned side of the track, but looking down from that point, it was sixty five per cent cover, on the rarely burned side of the track for the same group of plant species.

If the cover of those plant species was equivalent on the frequently and rarely burned sides of the track, then the points would fall along the line, the line of no difference. Every point falls below the line, in fact well below the line, indicating that the per cent cover in the frequently burned side of the track, is always much less than the per cent cover of these plants on the rarely burned. I must point out that the explanation for this is not the time since the last fire, because that was constant across all sites, it was the history prior to the last fire that has caused this effect. You would expect to see an effect like this, of course, if your frequently burned site, you looked at three years after it, had last been burned and the rarely burned you looked at twenty years after it had been burned. That is not the case. All the sites had been burned in a single fire, but prior to that, they had been burned frequently or rarely. Do you have a question?

The Hon R.H. COLLESS: The question I come to out of that is, is in the rarely burned sites and the frequently burned sites, what were the intensities of those fires?

Professor WHELAN: For most cases, I believe that record-

The Hon R.H. COLLESS: Hang on, most cases I believe, is not an accurate statement. If this research is accurate, we need to know what the conditions of those fires were. I do not want to hear anecdotal evidence. We need strong hard evidence.

Professor WHELAN: I make two observations on that. I am reporting another study, and you can have access to the study, the citation is the Australian Journal of Ecology on the bottom left, I do not know the detail of those, and I was about to say, I believe the records were inadequate to give you a precise estimate of the fire intensity in all of those fires, and I would like to make another observation and that is there has been a lot of anecdotal evidence presented, not all factual evidence.

The Hon A.B. KELLY: I think if we ruled out anecdotal evidence, this inquiry, we would have been finished in the first hour.

CHAIR: We are talking about research papers here, that is slightly different.

Professor WHELAN: Yes, and if you are unable to get it, I am happy to follow up and provide you with a copy as a follow up to this, this meeting. The third and fourth sheets that I have-

CHAIR: So, can you do that for us, you will do that?

Professor WHELAN: If you would like me to, I will do it. If you would look at the third one, I am reporting here on studies conducted over a twenty year period, more than twenty years, by Dr Peter Catling. Peter Catling is a researcher at CSIRO Wildlife and Ecology recently

changed its name to be called CSIRO Sustainable Ecosystems. He is a fire ecologist. Has studied the effect of fire on mammals throughout south eastern Australia. Has an international reputation. He has conducted long term studies over a, well, it varies across the regions, but up to twenty five years, at ninety seven sites across regions in south eastern Australia. These regions include Nadgee Nature Reserve, Kosciusko, Jervis Bay.

The compelling outcome of this large body of work is that the mammal species diversity in areas depends on the complexity of the vegetation. His research effort has been designed at working out what you can measure in the environment, that would explain why there are more mammal species in some areas than others, and he has measured many different variables and the variable that explains the variation from one location to another, in mammal species diversity, the best, is the complexity of the vegetation. By complexity, I mean the number of layers and the density of different layers of vegetation. A grass, herb layer, small shrub layer, tall shrub layer, a low canopy, a tall canopy layer. So, the areas of forest that have the greatest complexity score, the greatest number of layers, support the greatest numbers of species of mammals, and areas in which the complexity of the vegetation is less, so they are missing a shrub, a herb layer, have lower diversities of mammal species, and secondly, high fire frequency reduces the complexity of the vegetation, after all, if it did not, it would not be a useful tool to use in hazard reduction burning. One of the things high fire frequency does, is remove the middle dense shrub layer, and in some systems, replace it with a grassy layer, so you can have a forest with a grass layer and a canopy layer and very little inbetween if there is high fire frequency.

Peter Catling's conclusions are listed on the next sheet, on page 4. Some fire regimes, particularly frequent low intensity burns in autumn, currently used in forest management, will reduce and eventually eliminate the dense understory. As it is lost many native mammal species will be disadvantaged and for south eastern Australia he lists 25 species, and many exotic species will be advantaged, things like foxes, rabbits, cats, he lists twelve species of exotics that would be advantaged by this change in the vegetation as a result of different fire frequencies. Of the twenty five disadvantaged species that Catling identifies, four are listed as endangered on the Threatened Species Act of New South Wales and six are listed as vulnerable. So, it is clear, I will return to my points which are points 6 and 6 in my submission, thanks to Microsoft Word which automatically puts numbers on the paragraphs, I am sure most of us have experienced that, but although it is incomplete, although we do not know the answer to how any individual, every individual plant and animal might respond to different fire regimes, there is compelling evidence that when applied effectively across a landscape, high frequency hazard reduction burning, or high frequency burning of any sort will have a detrimental effect on at least some native plant and animal species.

CHAIR: You call high frequency, two to three years, do you?

Professor WHELAN: Well, if you look at the Carey and Morrison results, even areas that had seven year, in the seven to fourteen category, had reduced species richness of obligate seeder plants compared to other sites.

Mr PAGE: Can I just interpose here. You were here during the previous submission.

Professor WHELAN: For not all of it, but part of it, yes.

Mr PAGE: The previous witness indicated that, his view was that the regular backburning was actually providing improved conditions for native species. Now, what you are saying is contrary to that?

Professor WHELAN: Partly, and it is only partly, because different species in the landscape respond differently to-

Mr PAGE: I am talking about native species.

Professor WHELAN: -different sorts of - yes, different native species respond differently to different conditions, so within a landscape, you can imagine you have some gully areas and some drier ridge areas, high frequency fire in the ridge line areas may pose less of a threat to the

species that live in that environment than high frequency fires in a denser forest environment. Among the species within Royal National Park for example, among the species of mammals, there are some that specialise on recently burned or recently cleared vegetation, they are native species, they occur in vast abundance within the first three or four years after a fire and then decline enormously in abundance and are rarely seen until some other fire or another fire in another area, and within that same landscape, there are species such as Long Nose Potoroos, Eastern Bristle Birds, both on the Threatened Species Conservation Act lists, which would be highly sensitive to fire, even if it were every ten to fifteen years, because of the way the fire would affect the habitat in which they live.

CHAIR: Mr Colless?

The Hon R.H. COLLESS: Thanks, Mr Chairman. Professor Whelan, have you got any idea what the fire frequency was prior to European settlement of Australia?

Professor WHELAN: Well, given that you want me to respond only if I have accurate data, so I do not have the precise answer to that.

The Hon R.H. COLLESS: Well, surely that is important, because we know that the Aboriginal people did burn on a mosaic pattern on a regular basis, I am not sure what the time frame was between those burns, but certainly fire was a regular part of the Australian environment prior to white settlement. You would agree with that statement?

Professor WHELAN: Absolutely. Wildfire even prior to Aboriginal settlement.

The Hon R.H. COLLESS: Right. Okay. So, how did the potoroos survive the Aboriginal burning.

Professor WHELAN: Yes. The interpretation of that, and the most obvious answer to that question is that the landscape is not burned, was not, even in Aboriginal burning times, burned uniformly with high frequency fire across the whole landscape, and that they would have burned most frequently in areas where they were moving through, and areas surrounding camp sites and would have burned infrequently, if at all, in dense vegetation where they did not move, and areas which they did not use, and it is those areas which would have supported through that long period, populations of the dense vegetation dependant animals, such as potoroos, such as - and among the birds, the Eastern Bristle Bird.

The Hon A.B. KELLY: They would not have had too many arsonists going through the areas either, starting fires.

The Hon R.H. COLLESS: Also, there were not too many Aboriginals either.

Professor WHELAN: But even if they were burning frequently, and we know, for example, that in the western slopes region, the natural vegetation there has a much more open woodland, a much more grassy understory, would also certainly have been burned at greater frequency, even with wildfire as the only ignition source, than the steeply divided gorges and plateaus of the Hawkesbury sandstone region where maybe the ridge tops might have burned more frequently, and been burned deliberately more frequently, and we know the gullies cannot have been burned frequently because, and this is the logic you are rightly using, because had they been, the species of plants we see in there now, could not have possibly be there still.

The Hon R.H. COLLESS: Were you here this morning when the Rural Fire Brigade people spoke to us?

Professor WHELAN: I was here for the second half of the second presentation.

The Hon R.H. COLLESS: Well, they made the point in their presentations that the sort of burning they are talking about, the hazard reduction, is not on a broad scale, they showed us maps of different blocks and how they would rotate it and that sort of thing.

CHAIR: Mosaic.

The Hon R.H. COLLESS: Yes. So, would that, would you, can you see any resemblance there between that type of hazard reduction burning and the burning the Aboriginals might have done, we are only talking about burning ridge tops too, essentially. We are not talking about burning gullies.

Professor WHELAN: I do not know the answer to how that would resemble what Aboriginal burning would have done, but within the landscape, if the plan were to burn each area, each of those areas, every five years, then even though it is a mosaic, every portion within the mosaic has got to be five or fewer years old, if that is the objective and the objective is satisfied. So, that puts that landscape and especially if we are effective in doing that burning, that puts that landscape at a too young a stage, all of it, to support a range of species even those which are currently there.

The Hon R.H. COLLESS: Let us look at the fires that have occurred in the Royal National Park over the last, since 1988, and I am not sure when the fire before 1988 was, but from 1988 onwards, the intensity of those three fires that have gone through there in the last twelve or fifteen years, whatever it is, do you think that they would have done more or less damage that if that area had been hazard reduced say even three times during the same period, and we heard from the previous witnesses about the impact on, particularly on the soil humus and the way a wildfire burns it right back to the mineral component of the soil, and a hazard reduction burn, a cool hazard reduction burn will leave that humus layer in tact. Have you got any comments to make on that?

Professor WHELAN: Yes, I do. You are referring to Royal National Park. A good portion of Royal National Park is on Hawkesbury sandstone vegetation, on plateau vegetation. That vegetation does not have much in the way of humus. If you walk through Royal National Park, it is sandstone outcrop. The soils there are sandy soils, derived from the breakdown of the sandstone. The vegetation is sclerophyll or a woody vegetation. The decomposition rates are quite slow, so the humus tends not to build up because there is not much breakdown.

The Hon R.H. COLLESS: What happens to the organic matter, the leaf litter that has fallen, and it does not break-

Professor WHELAN: It gets burned in the next fire.

The Hon R.H. COLLESS: Right.

Professor WHELAN: So, referring to Royal National Park, we have fires there in 1988, 1994 and the recent fires, which represents a six and a seven year span between fires. Some of the park was burned in all of those three fires, and in those areas, we can now measure a decline in the cover and the species richness of the obligat cedar species because three fires consecutively-

The Hon R.H. COLLESS: Three wildfires.

Professor WHELAN: And they are wildfires, and that was a point I tried to make earlier, is that it is the fire frequency itself that is a problem here, it does not matter whether they are, for the native plants and animals, it does not matter what caused them, they do not distinguish between whether it was a wildfire or whether it was a hazard reduction burn that caused them to be burned, it is the frequency or the short time between them.

The Hon R.H. COLLESS: So, what you are saying is then, that there is no difference in the environmental impact of a wildfire, a wild crown fire, and a hazard reduction fire where the flame height might only be one metre high?

Professor WHELAN: No, I would like to return to that second part of your question which was about the difference between a wildfire and a hazard reduction fire, but let me explain a little further about the frequency of fires, and whether there is a difference in principle between wild fires and hazard reduction burns, the high frequency of ignition of fires in urban, in areas that are close to big urban areas, means that wildfires occur more frequently now. We call them wildfires because they are out of control, we do not call them wildfires because lightening started

them necessarily, so the high frequency of fire is what is a problem for, and this is true even if they were cool fires, is a problem for vegetation and some animal species in these landscapes.

Now, to return to the second part of your question which was about whether there was a fundamental difference in the effect of a wildfire versus a hazard reduction burn on animals and plants, the answer is yes, there almost certainly is. The immediate effect of the fire on native animals, for example, vertebrates, would be much greater in a wildfire but the long term effect by virtue of the way in which the habitat is changed by high frequency fire, is actually greater, as a result of high frequency, even if it is a hazard reduction burn.

The Hon R.H. COLLESS: Okay. I will accept what you are saying there, but as you just said yourself, the problem now that we have in the area surrounding the populated areas is that they are all wildfires. Right?

Professor WHELAN: Well-

The Hon R.H. COLLESS: Well, certainly the Royal National Park.

Professor WHELAN: No, they are not.

The Hon R.H. COLLESS: The last three fires have been wildfires.

Professor WHELAN: Those, there have been three wildfires-

The Hon R.H. COLLESS: Yes.

Professor WHELAN: -but that is not the only burning the National Parks and Wildlife Service has within their land, yes.

The Hon R.H. COLLESS: No, right, yes, but in the case of the broad scale where we do have problems with arsonists and so on-

Professor WHELAN: Yes.

The Hon R.H. COLLESS: -lighting fires when it is inappropriate.

Professor WHELAN: Yes.

The Hon R.H. COLLESS: Are we better off to have wildfire on a regular basis, or a cool hazard reduction burn on a regular basis, because whatever happens, we are going to have a wildfire every six or seven years anyway.

Professor WHELAN: Well, I do not accept that you have to have the wildfire every six or seven years-

The Hon R.H. COLLESS: I do not either, but that is what is happening.

Professor WHELAN: That has been what has been happening, and that is why this is such a complex issue, because we have an agency charged with the responsibility of conserving the natural heritage, and we are imposing on the land that they have to do that conservation on, too frequent fires, whether it be by wildfires or hazard reduction burning. Now, they have, as I understand it, and you have got people you can talk to, to ask about this, they have responded to the issue of protection of life and property by focussing attention on boundary areas, therefore hoping that they will provide the flexibility for them to apply an ecologically beneficial burning programme more centrally within a large reserve.

The Hon A.B. KELLY: There is also the added advantage that most of the fires actually start outside the National Parks, so it is actually protecting the National Parks from fire.

Professor WHELAN: The thing that concerns me about the history of that is, as you have just pointed out, that has not, while that might have protected lives and property, it actually has not protected Royal National Park very effectively.

CHAIR: Mr Torbay?

Mr TORBAY: Thank you, Mr Chairman. Professor Whelan, I am just interested in your comments which you mentioned in your submission, the relationship between fuel loads and the weather conditions and I would just be interested in your view. We have had, sort of contradictory evidence on this particular issue and I would just be interested in your view.

Professor WHELAN: I do not quite understand the question. The relationship between fuel loads and weather conditions?

Mr TORBAY: Yes. Some of the evidence that we have been given would indicate that hazard reduction measures are pretty much the most important thing to control the fire, and others have indicated that, given the weather conditions, that it would not have made any difference.

Professor WHELAN: Well, the information that I can offer to contribute to that discussion is, it is an anecdote if you like, my apologies.

CHAIR: Let me make it clear, I do not have a problem accepting anecdotal evidence, but I do have a problem accepting anecdotal evidence presented as scientific evidence.

Professor WHELAN: Okay. Thank you. I have some research students who are working on endangered plant species, and one of them had spent all of October and November of last year, putting out about 8000 seeds of this plants, to look at what animals dispersed the seeds and how far the seeds would disperse, we are trying to understand why some plants are rare and some are not rare, and he phoned me up on Boxing Day to say:

> All of my study is ruined, I have to give up, the fires have burned all my study sites and two months work has gone to complete ruin.

And I said:

> Do not worry, you can now become a fire ecologist instead of a conservation biologist .

That is where most of us started our careers, when fires burned through our study site in this area. One of his study sites was burned in 1997, in a wildfire near, this is near Wollongong on the top of the escarpment on the sandstone near Bulli Tops. That fire burned through a population of the plant he was studying, and we knew there were twenty five plants there, we had tagged them, we knew where the other plants were. That fire in 1997, killed the adult plants and brought the young seedlings up, this fire now burned through in an area where you could go through and say, it is only that deep, so it is only a few tonnes per hectare, and it burned with sufficient severity that it burned all five hundred and eighty seedlings that were present in the site. It was continuous through that site, and the site was maybe, it is about three hectares, 300 metres long and 100 metres wide. That was part of a vast fire, the one that burned from inland through the Sydney water catchment and out to the coast. So, that is an area that had a low fuel load, however you want to quantify low, it had been burned in 1997, and nevertheless it burned under those conditions with the strong westerly winds and the hot temperatures sufficiently well that it was uniform and killed all the seedlings of both species. So, that population of the species, we presume now, unless there is any residual seed in the soil, which we will find out, we presume that may be locally extinct as a result of that high frequency of fire.

CHAIR: Mr Tingle and Mr Kelly.

The Hon J.S. TINGLE: Thank you, Chairman. A couple of things Professor, if I may. The study carried out by Carey and Morrison in the Brisbane Water National Park, was that a study, was that research into fire or into environmental factors arising from fire. What was the purpose of, I mean, I realise we only have a brief outline of it here-

Professor WHELAN: Yes.

The Hon J.S. TINGLE: -but what were they actually looking for?

Professor WHELAN: They were interested in quantifying or finding out if there was any effect of frequent and medium frequency and low frequency fire on the flora.

The Hon J.S. TINGLE: So, it was really looking at the flora, how it survived this sort of burn, was it?

Professor WHELAN: That is correct, yes.

The Hon J.S. TINGLE: Okay. Then I find myself grappling with the, what is the correct definition for high frequency burns, and I notice that Catling on page 3 of your handout, suggests that less than eight year intervals is a high frequency burn. We had a lot of evidence presented to us about the desirability of the cycle of burning in terms of hazard reduction, and it is becoming very difficult to actually work out what the ideal situation is, so from that can I then move you to locking in your point 5 and your point 8. You made the quite relevant point in your part 5, about what the responsibility of the National Parks and Wildlife Service is to protect and serve national and cultural heritage. Then you talk about, you mark in part 8, the question of how hazard reduction burning needs to be applied. Now, I suppose what I am trying to work out in my own mind, is how you reconcile those two requirements, in other words, if the National Parks and Wildlife Service has that responsibility as you quoted it there, how did that fit in with the need for hazard reduction over whatever cycle we are talking about, to protect the natural environment from being destroyed by wildfire, if it can do that?

Professor WHELAN: Yes.

The Hon J.S. TINGLE: How do we fit those two things together?

Professor WHELAN: Yes. I think you have put your finger on the challenge that an agency like the National Parks and Wildlife Service has given that as its objective, as I have pointed out. The intention as I understand it, of several agencies, including the Rural Fire Service of focusing attention close to life and property areas, is to make it possible to defend people and properties in those areas. The intention therefore of extensive, paying a lot of attention to the nature of the environment close to properties, makes eminent sense to me, and in fact, you may end up, if you are an agency like the National Parks and Wildlife Service compromising in that boundary zone, your primary conservation objective in order to, for the socio-economic benefit and, so that is one part of it, and you might be highly successful in that, and my concern is that, in itself, that does not also achieve the other side, which is preventing the fire from burning through that protection zone at the boundary and into the reserve, because we have had, in 1988 and 1994 and the 2001 fire at Royal, which is an area we can get resources to much more readily than some other reserves. The reason for that, by my reading of it, is that left by itself, without further protection, a zone, say, half a kilometre wide, which has been frequently hazard reduced on the boundary does not guarantee that a wildfire will stop, when it gets there, under the conditions that we had this last year.

The Hon J.S. TINGLE: No guarantees with wildfires anyway.

Professor WHELAN: No guarantees with wildfires, and so while we might be satisfying one management objective quite rightly by focusing our attention on the boundaries, we have got to find a better way than just that boundary area, to protect against frequent wildfires within reserves. Now, it does not happen so often, it is not a problem in more remote reserves, because the frequency of ignition is not as great for more remote reserves, but in areas where there is high frequencies of ignition, we have got problems, and Sydney is surrounded by areas of great biodiversity value. So, I think it is, I mean, if I, I would be delighted if I or anyone else could come here and give you the solution to that, because you could sign off on it and we would go ahead and do it, but it is not going to be that simple.

The Hon J.S. TINGLE: Are we suggesting in fact, that we may be facing two needs which are incompatible?

Professor WHELAN: Or may need different types of solutions and to my mind, a big emphasis on reducing the number of ignitions somehow would go a long way to helping us out, because it is not to say we do not need to do the hazard reduction, we would continue to do that, to protect installations and protect other resources, and in fact, there are studies in Western Australia in the forestry areas, where they have identified habitat that is really important for some native animals species. There is something, there is animal, called a Bettong, that is a rat kangaroo, that occurs in South Western Australia, in the Karri Forest, it needs a really high density shrub layer vegetation under the canopy, and if it is burned frequently, that vegetation disappears and so does the Beton. It is a really important species in the area. Those agencies that, which are the Department of Conservation and Land Management have identified those areas as in need of protection from wildfires, and so they use hazard reduction burning around the edges of them, to help them protect the core area from the wildfire. So, that is an example of identifying an asset but in this case, a natural biodiversity asset and using strategically, hazard reduction burning to help protect it, but they do not, they cannot leave that alone, as the sole measure of protection. They need to put resources in terms of helicopters in to help when the fire gets to that hazard reduction zone in order to protect the central portion.

The Hon A.B. KELLY: One of the people this morning, Kurrajong, some of the submissions suggest hazard reduction should be done say every three years to be effective, but the people this morning from Kurrajong said that they way they do theirs, where it is possible, I know this is not possible everywhere, is that they get enough land that they can stagnate it, if you like, and do it in a mosaic pattern, so you might have one block that they do, every five or six years, say six years, and then another block behind that that they do every six years, so effectively-

Professor WHELAN: They all sort of alternate.

The Hon A.B. KELLY: -they only come round every twelve years to each block.

Professor WHELAN: Yes.

The Hon A.B. KELLY: But they have still got that sort of buffer. They do not actually burn the same block every six years, they might do this one or the next one.

Professor WHELAN: Yes. I think that is a really nice idea, that is well worth exploring, and one would hope that the Bushfire Management Committees would be the groups that could explore that for a particular area, because it is going to be site specific, how possible that is.

The Hon A.B. KELLY: Yes, that is right, well, obviously there-

Professor WHELAN: We cannot make a blanket statement that it would work, or it would be achievable everywhere but it sounds like a-

CHAIR: Mr Page, we are running out of time. One question?

Mr PAGE: It was indicated to us by the previous witness, anecdotally, I would believe, picking up from what Rick has said.

Professor WHELAN: You have started something.

Mr PULLEN: That eight centimetres of rubbish on a forest floor was equivalent to twenty tonne of fuel. Have you any comment on the validity of that?

Professor WHELAN: Well, it is not rubbish to start with.

Mr PAGE: I am using slang rather than scientific terminology.

Professor WHELAN: Well, I can comment on that. The thing that I can offer about, on that, I have had some students who have been working with the Sydney Catchment Authority over the years, measuring fuel loads, within the Catchment Authority areas, and measuring fuel load in relation to fire history of the sites and the thing that I was struck with in the results, is how variable fuel loads are across the site, even if the site has a particular fire, all one fire history, so it is

the same age since the last fire, but nevertheless there is enormous variation, so you can go into one part of the site and be thirty centimetres deep in fine fuels and twigs on the floor of the forest, and you can walk twenty metres and be in an area where there is almost nothing, and so the average fuel load we got for those sites which was around about twelve to fourteen tonnes per hectare, represents an average of some sites where it might have been as high as thirty tonnes per hectare, and some sites where it might have been only one or two so there is an average across the site and that variation amazed me, and yet, one's impression, leaving the site, is of the highest fuel load, so you get the impression that you know, it was knee deep in fuel there, and it is very difficulty actually, psychologically to average things like that out, so I think if you ask people, even the researchers that are doing the data collection themselves, if you ask them to guess at the fuel load and then ask them to measure it, they would probably come up with different responses.

Mr PAGE: So, we take that evidence as being anecdotal? Not yours, the previous fellow's?

Professor WHELAN: I am sure he would say that as well?

CHAIR: So, can you quantify that 12 to 14 tonne.

Professor WHELAN: Beg your pardon?

CHAIR: That 12 to 14 tonne per hectare, can you quantify that in a depth, or does that vary as well?

Professor WHELAN: It varies enormously. It does. And in fact-

CHAIR: Depending on the type of material?

Professor WHELAN: I was just about to say that. You can have, I have done some work in the Savanna, in Savanna shrubland and grasslands in Brazil and in, very similar to vegetation in Northern Australia, from Townsville right through to Darwin and that sort of landscape. The fuels there are live fuels, they are grassy fuels, they carry high intensive fast moving fires with relatively low fuel loads, and the fuel load recovers within a year, so I can burn again within a year, it is a grass fire.

CHAIR: Do you mean (indistinct) the energy in the fuel as well as the amount of fuel itself?

Professor WHELAN: Usually you can do, but usually - there are people who have done that and produced curves, grass that allow you to go now out and measure the biomass, just the dry weight of the fuel, and by dry weight that means taking a sample of the fuel, drying it, so that it does not lose any more weight, getting rid of all the moisture, and then relating that to the curve, to say how much energy would have been in that and the reason for that is, that there is a fairly constant relationship between the dry weight, the dry biomass, and the amount of energy in it, so that, and that varies a little bit between different types of fuels, but remarkably little, actually, from a woody fuel through to a grassy fuel. So, dry weight of fuel, which is different from going out and picking it up and weighing it, because the amount of moisture in it varies a lot.

CHAIR: Gentlemen, if there are no more questions. Thank you, Professor Whelan for you evidence, and the scientific component of which we have had a lot, and we look forward to further clarification of those points that have been raised by Mr Colless. Thank you very much for your attendance and you may now withdraw.

Professor WHELAN: You are welcome.

(The witness withdrew)

(Short adjournment)

WARREN IRVINE TAYLOR, Manager, Advice and Development, Local Government and Shires Association, 11 Farnborough Road, Dural, sworn and examined:

CHAIR: Did you receive a summons issued under the Chairman's hand, to attend before this Committee?

Mr TAYLOR: Thank you, I did receive that summons, yes.

CHAIR: Thank you. Thank you very much, Mr Taylor, would you now like to make, (indistinct) your submission, and then we will ask you some questions.

Mr TAYLOR: Thank you. I will not need a great amount of time. I come to you with a degree of apologies for not being able to present to you any particular volume of views or expressions or comments or data from councils. At the time when this inquiry was announced, councils were very heavily devoted into the SEP5(?) activities, and in the planning regulations and to my submission, I attached a copy of a recent letter that had gone to the Minister for Planning, some of those activities, some of those comments, some of those problems, are consistent with your terms of reference, and others possibly are a little beyond that, but I thought I should give that to you as an indication of the weight of concerns that exist in local government, on fire, development applications and the general situation. I am not particularly qualified to give you much comment on planning regulations, that is outside my expertise, but I am happy to take anything on notice, if I find I cannot give you a response.

CHAIR: Questions?

Mr PAGE: Yes, a couple. You mentioned about rate pegging legislation prohibiting additional increases in council rates above a fixed level. Are you aware of the provisions under the Rural Fires Act, for councils to use that as a reason to go to the Minister to seek a variation?

Mr TAYLOR: Yes, certainly, the Association and local government generally are aware of the ability to go to the Minister for Local Government of the day, to seek an increase in rates beyond the pegged amount and that has been discussed very heavily in the recent Minister's Rural Fire Service working party, and there have been discussions between Minister Deavis and the current Minister for Local Government, on the operations, the operational process for a council being able to request a variation to the rate pegging for rural fire service activities. However, at the end of the day, it becomes a political decision. Will the ratepayers in a certain area, accept an increased rate bill to pay service wide programme charges or some other component of council's 13.3 per cent RFS contribution, so it is political evaluation by the local council.

CHAIR: Are you aware of any council that has applied for that?

Mr TAYLOR: I believe there are a small number.

CHAIR: My question was going to be, are you aware of any of those councils, any councils that have applied and got knocked back?

Mr TAYLOR: I do not know that information.

Mr TORBAY: Warren, in your submission under A, I think it is page 3, you have said:

> Despite huge efforts made by volunteers and residents, particularly in rural areas, existing resources are inadequate to maintain fuel loads to acceptable levels.

I would just be interested in what you mean by, acceptable levels, given that there has been contradictory views about that in evidence. Do you have a basis for what are acceptable levels?

Mr TAYLOR: No, I am afraid it is possibly a sweeping statement. There is no particular documentary evidence come to me from councils. Bear in mind, we do not have a supply of

data of our own particularly. We rely on the comments and feedback and submissions, the councils give us in order to be able to make an industry wide submission.

Mr TORBAY: But they could be providing expertise, they may have sought expertise to give you that advice?

Mr TAYLOR: We did see that advice, and the comments came back, based on what I have said there.

Mr TORBAY: Okay.

Mr TAYLOR: But without any supporting documentation.

Mr TORBAY: Just one further point. The first dot point there, where you say:

> Burning intervals of about three years is generally accepted standard.

Is that a sweeping statement or is that a standard that local government believe is appropriate?

Mr TAYLOR: It was a statement that came to me from the handful, left hand of councils who replied to me within the time limits we had.

Mr TORBAY: Okay. Thank you.

CHAIR: Mr Smith?

Mr SMITH: Thank you, Mr Chairman. In your section G of that Bushfire Risk Management Plan, you state:

> There is major concern that thirty per cent of the Bushfire Management Plan is still not finalised some years after statutory completion date.

What, I mean, this is worrying in itself. What is going to get this extra thirty per cent done, so as we in fact do have the plan.

Mr TAYLOR: I am of the opinion that most of that thirty per cent has now been overcome, but there was a distinct reluctance for councils, for other agencies, to come to grips with a new philosophy, a new process, because this was something new, that had not generally been a requirement of local councils, to have a five year master plan for hazard reduction or for management of fire risks, and it was a learning process. The Rural Fire Service, to their credit, gave a lot of help behind the scenes, the associations, myself and our two presidents were available and did give a lot of comment and encouragement to councils. At the end of the day, became a resource situation and possibly a skill, a knowledge process that was not necessarily readily available in councils, particularly in rural areas.

Mr SMITH: This is a totally different question, but I notice at the end of your submission, or towards the end of your submission, you say you have some concern about these two agencies, the Fire Brigade and the Rural Fire Services having overlapping-

Mr TAYLOR: Yes.

Mr SMITH: Could you expand on that a little bit, I mean there is-

Mr TAYLOR: Actually, I should have possibly withdrawn-

Mr SMITH: -quite strong feelings both ways-

Mr TAYLOR: I possibly should have withdrawn that comment when I was given the introduction. The Shires Association has its major annual conference Tuesday and Wednesday of next week, and in the process of receiving motions to go to that conference, I anticipated from a wide

number of sources, a motion to that effect. When the chips were down and the time limits came off, it did not turn up. So, it is not there, so I have no justification for having put those three paragraphs there. So, to that extent, I do apologise. However, in the workshops that come into place next week, at the Shire's conference, there will be a workshop on Rural Fire Service matters, and I am open to any sort of policy development that may come up from that venue.

CHAIR: Mr Tingle?

The Hon J.S. TINGLE: Thank you, Mr Chairman. I suppose this may sound like a strange question in light of the answer that you have just given us a little while ago, about the Bushfire Management Plans, and the fact that you believe that most of them have now been completed. Earlier in your submission you say:

> Bushfire Management Plans and annual operation plans require fast track procedures.

Now, have those fast track procedures come into place or did those plans just get completed sort of in the normal course of event, years after they should have been?

Mr TAYLOR: They became completed with, as I mentioned, extra help from the Rural Fire Service, the initial plans, I believe were possibly done to a time schedule, rather than necessarily being comprehensive plans, so it was a philosophy, it was a profession, that had not really been accepted or had not been developed in rural councils. Sure, the Rural Fire Services does have that expertise, and they are developing that at a quickening pace, but earlier on, and we are talking about two or three years ago, that expertise was, the council always looked to its Fire Control Officer to have that expertise and he or she was generally the only person on the staff that could give comment about rural fire matters.

As the reforms came through, and amendments to the Rural Fires Act came about, the FCO became an employee of the RFS until July 1 last year. Whilst that should not have affected this technical ability to prepare Fire Management Plans, councils tell me it did, and it created a difficulty in councils being able to keep going with that same pace of professional preparing of fire risk plans and operational plans. The operational plan is nothing more than a one year work's programme of what, of the five year operations plan, what will we do in the next twelve month period. That then brought in a number of environmental factors. The conflict between threatened species legislation, and other legislation which is now very, very - fully looked at in the bill that was presented to Parliament yesterday on developing the environmental code and a fast track process, so I think there has been a rapid coming of age within councils, and within the framework of the legislation that is coming, the bill currently before Parliament. I still think the annual operations plan may be a difficulty, and the Rural Fire Service has pledged additional help, as much as it possibly can, to help councils come through that process.

The Hon J.S. TINGLE: If I might just, also you make the comment in your submission that:

> Environmental assessment skills are in short supply and many councils have inadequate access.

Who do councils rely on for environmental assessments, normally?

Mr TAYLOR: They either have it in house as an expert or they may be able to get it by process from an adjoining friendly council, or they rely on the skills-

The Hon J.S. TINGLE: What you seem to be suggesting is that the pool of expertise is not very big and the councils do not have much access, is there anything being done to improve that?

Mr TAYLOR: I am not aware of any specific programme to do it, other than the Rural Fire Service is upgrading its environmental processes, and council will be relying pretty heavily on that.

CHAIR: Mr Page?

Mr PAGE: You say in your submission that SEP5 developments should not be permitted to take place in hazardous bushfire prone areas. Do you believe council should have the power where they have got a SEP5 application, to require any buffer zone to be provided on the SEP5 development and not rely on someone else to provide it.

Mr TAYLOR: That is correct. The Local Government Association's view is really, if there is bush there, a SEP application should be immediately unsuccessful for a start. Then, if indeed, the process goes a bit further, and a development becomes approved, one of the conditions should be that there is a considerable buffer area on the property itself, not necessarily National Parks and Wildlife property, or State Forest or some other agency's property. To take that one step further, however, concerns of the Associations and the councils, indeed, are that once a development consent is either given or rejected, then the Land and Environment Court appeal processes come through, and very many incidences are well documented where an approval has been given over the council's dead body, almost that, where they very strongly agree that the project should not proceed because of the bushland threat.

Mr PAGE: So, in cases where the council has overridden, that the Land and Environment Court should be held responsible for any further loss of asset or loss of life?

Mr TAYLOR: Or to put it another way, there should be no appeal on SEP5 applications.

CHAIR: Mr Colless.

The Hon R.H. COLLESS: Thank you, Mr Chairman. Mr Taylor, I have received a few comments from councils regarding the appropriateness of fire fighting equipment, particularly from councils in areas which are less fire prone that those, that some of the coastal councils may be. Their concern of course is, there is no flexibility in the allocation of equipment and that pushes up the overall cost of providing equipment in which they (Indistinct) Have you had any reports back from councils about the lack of flexibility in the equipment they are allocated?

Mr TAYLOR: That has arisen from time to time. I am not aware of it coming up in recent times, but certainly there is a standard catalogue of types of equipment be it tankers, be it fire fighting equipment, be it assets. The councils need to determine an annual bid, but their annual bid must come from an approved list, so if there is a - I remember confusion some twelve, eighteen months ago, about tanker trailers, and there were many councils who believed they were eminently suitable for their particular conditions, and expert evidence suggested that they were far from satisfactory in some situations. I think that situation did eventually get clarified, after extensive discussion with RTA and other authorities. But certainly councils are limited to the fairly comprehensive list though, a fairly comprehensive list of assets available.

The Hon R.H. COLLESS: Do you feel there is enough flexibility for a council, say, in the areas of the north west which has a relatively low summer **bushfire** hazard compared to councils around the Sydney basin where there is a very high bushfire hazard?

Mr TAYLOR: I think more flexibility would be greatly appreciated. Some of the councils tell me that the standards, that the RFS requires, whilst no doubt being essential in some particular areas of the State, those particular features are not necessarily needed in a more remote place.

Mr PAGE: Can you provide any detail on that, or is that just a general statement?

Mr TAYLOR: No, I can provide some detail on that.

Mr PAGE: Does the LGSA encourage councils to conduct community awareness campaigns?

Mr TAYLOR: Yes.

Mr PAGE: How effective do you think these are, and could more be done?

Mr TAYLOR: More could be done, again, we do rely to a fair extent on the Rural Fire Service for the material they provide, for the public relations side of the service. It does fluctuate thought, between councils. Some see it as a very essential part of their councillor role, their community commitment to education, others see it as possibly being a State Government role, so it is not a consistent view across the State, but overall, councils do encourage it, and where possible, they like to get more of that done. I remember seeing the Service Level Agreements which came through effective from July 1, last year. That Service Level Agreement was required for the council to have the, its former employee, the Fire Control Officer, carry out work on behalf of council to the same extent that happened before the employment changeover, and in quite a number of those agreements, I was quite impressed to see that the council had specified a particular standard of community awareness, community education, even community and staff training on various activities. Training in fire matters to staff who were not normally associated in fire control, because come an emergency, it is all hands on deck. So, in many areas of council, many council areas, it is certainly an encouragement given for training and a wider look at things.

CHAIR: More questions? Mr Colless?

The Hon R.H. COLLESS: Thank you, Mr Chairman. You mention in your submission that thirty per cent of the Bushfire Management Plans are still not completed. Have the councils indicated to you, what extra resources they might need in order to complete that programme?

Mr TAYLOR: Initially, that was the actual mapping expertise, the contrast between what was available and what was needed. The State Government has been putting further resources into land mapping, and it was really the seeking of information across all departments, seeking information from the Rural Fire Service, seeking the most up to date maps, get them all integrated and come to an arrangement. Some councils were reluctant to get that done because of resources, money resources, but particularly staff resources, and it was a hard process and the Rural Fire Service again, did help them in getting that done, so, it was a new process, it was something that I had not done before, particularly, and some of them did not really find it as a priority beyond other more, to them, more important projects.

CHAIR: Mr Page?

Mr PAGE: Yes, are the councils doing a great deal in making assessments on private land and chasing up private land, where they feel there is a **bushfire** problem?

Mr TAYLOR: Well, again, I hark back to the dependence that councils have on the Rural Fire Service, because traditionally, the fire risk has been part of the requirements of the councils Fire Control Officer, that person is no longer the Council's. He or she is employed by the Rural Fire Service. But that Service Level Agreement gives council the ability to retain those services for council's activity in relation to fire. In the growing, the twelve month period in which the, this new arrangement has occurred, I think both parties, the Fire Service and the councils are still adjusting to the new relationship, some councils are hell bent in giving additional resources of their own to help with land notices and other says, well, it has traditionally been the FCOs role and we will leave it that way.

CHAIR: Would not the town planner be involved, each council should have a town planner?

Mr TAYLOR: Well not all councils do have a town planner. The majority of them do. It is not, each council determines its own organisation structure. It determines who is responsible for what within its organisation, either town planning or health and building.

CHAIR: There would be someone that would handle the town planning portfolio though, would there not?

Mr TAYLOR: Yes, yes. Sometimes it is by contract from a neighbouring council. There is always a discipline available in the council, whether it is a staff resource or someone brought in, there is always that ability, that town planning requirement.

CHAIR: Does not that person or whoever is contracted or inhouse, would not that person have some influence over-

Mr TAYLOR: They would have some influence, yes, but there again, it depends on the structure of that council.

Mr PAGE: Is it too early to give an opinion on the effectiveness of the new arrangement?

Mr TAYLOR: Yes, it is too early. Right now there is a survey being issued by a project management team to draw conclusions-

Mr PAGE: On behalf of the association?

Mr TAYLOR: No, on behalf of both. The RFS has a Service Level Agreement review team and that is by law, reviewing how effective the Service Level Agreements were, and what are the areas where amendments to the act, amendments to the procedures, amendments to the processes should take place, and that is going out, last week or this week, to councils to give a comment, and it would be premature for me to give a comment. I hear largely from the elected people, and the elected people comment, probably quite rightly, does not concentrate on the how to, the day to day side of it. So, I would hear the political side, I would hear the complaints about the 13.3 per cent contribution equals a bucket of gold, I do not necessarily hear what the general manager or the staff are saying about the day to day relationships. That is what will come out of this survey.

CHAIR: On the 13.3 per cent, do you have many councils complain about the quantum of that, do you? And on the other side, that they cannot (Indistinct)

Mr TAYLOR: They nearly all complain about the size, what the 13.3 equates to. One of the influencing factors of those complaints is that the service level charges, that is the services provided by the Rural Fire Service, training, workers compensation, strategic planning, purchasing, the whole normal overheads of an organisation and special programmes. They are-

The Hon R.H. COLLESS: Which includes all the helicopters and all that.

Mr TAYLOR: Yes, all that.

The Hon R.H. COLLESS: Yes.

Mr TAYLOR: A page and a half of activities. They have been discussed at the recent working party, and up till now, the way the overhead, the charges are being calculated, apportioned back to councils, has been in the direct proportion of their total annual bid, and the total annual bid consists of capital requirements for the next twelve months, reimbursements for the last twelve months, and a component of the service charges from RFS and it is that service charge from RFS that councils have not known what they would be, how large they would be, so when council works out its 13.3 per cent, it says:

Yes, 13.3 per cent of what?

Now, the working party has come through with an amended recommendation about changing the formula and if that is adopted, I believe that will be a major step forward because it would not, the service charge, the 13.3 per cent would not fluctuate dramatically as they do now. They will be more consistent with the system that the State Government has for the New South Wales Fire Brigade, which is based on a five year moving average evaluation. So, these recommendations are now in the pipeline, they have been released by the working party, they are before the Shire's conference next week, and before the Local Government Association at the end of next month. I think these things will bring about a big change in the service charge calculation. Councils, of course, it is still the same amount of money we area talking about, it is really the allocation of how they are split between individual councils, is the complaint.

CHAIR: Two things come out of that. The first one was, the reason I was asking the question was that five or six years ago, a lot of councils were complaining that they wanted to put more money in, they wanted to get more equipment and therefore there was never a concern about the 13.3 per cent, because, well, my council anyway, we were always trying to get twice as much equipment as they would give us, so, that was not a concern, so, if now councils are concerned about the 13.3 per cent, then obviously there is a lot more money being spent on fire, it must have doubled in those few years so that is what your comments lead me to say. Can you just explain what this recommendation of the working party is, they are not talking about charging on valuations are they?

Mr TAYLOR: No, no, no. The recommendation of the working party comes in two parts. The first part is, there are some standard services, that should be charged on a user pay basis. Training, for instance. If your brigade is very upskilled, and it does not need a major continuing upskilling programme, why should your brigade pay for that training to be given across the whole State. So, part of the recommendation is that there are four or five particular nominated expenditure headings, which can be allocated by the council putting in its bid, they will want $20,000 worth of training. So, that would take it out of the service charge category, which brings us back then, instead of having a page and a half of a list of service charges, maybe there is a page left, of the classifications of expenditure and this other recommendation relates to calculating the apportion on an adjusted population basis.

Now, if that, and there is a formula that the increase will be capped by nothing more than ten per cent and there will be no reduction of less than ten per cent, that particular mathematical spread sheet, and if that gets adopted by the two associations, that would mean that a hundred and nine councils pay less and twenty nine councils would pay slightly more than the average of the service charges they have paid for the last five years. Now, whether the technical side of this can be grasped at a Shire's conference or another public venue, remains to be seen.

CHAIR: Are you up to date with what the new legislation that was introduced yesterday, is all about?

Mr TAYLOR: I would not say I am up to date. I now have a copy of the bill, I have not studied the bill. The version I have, is a draft, and it may or may not be the one that went to Parliament yesterday. I have a fair idea of the general direction it is taking, and remarkably they are similar to what we had in our letter to the Minister for Planning on 6 February. A lot of our requirements, a lot of our requests-

CHAIR: Are in that legislation.

Mr TAYLOR: -are in that legislation.

CHAIR: The part that I was going to ask you was that a lot of discussion this morning about REFs and how long they were taking to be completed. My understanding is, that they will be abolished or the need for them will be abolished in the new legislation.

Mr TAYLOR: I believe that is correct, but I am not the expert on that topic.

CHAIR: Okay. I will have to get some evidence from somebody else about it. No more questions? Thank you very much for you time.

Mr TAYLOR: Thank you.

(The witness withdrew)

(Luncheon adjournment)

IAN BARNES, Professional Forester, New South Wales Division of the Institute of Foresters of Australia, 26 Tenara Close, Batemans Bay, affirmed and examined:

CHAIR: Did you receive a summons issued under my hand to attend before the Committee?

Mr BARNES: Yes, I did.

CHAIR: Thank you. Would you care to make an opening statement in support of your written submission?

Mr BARNES: Just brief comments, thank you, Mr Chairman. I thank the Committee for the opportunity to speak before you. I want, firstly, I would like to ensure that you have got our updated submission, the last three pages, on the last page there should be an update of 24 May notation.

CHAIR: Just wait one minute and we will circulate them.

The Hon A.B. KELLY: Is there any major difference?

Mr BARNES: There is in one area-

CHAIR: Have you withdrawn parts of it, have you?

Mr BARNES: Yes, one part in particular.

CHAIR: Well, would you like to start on your submission, while we circulate those, Mr Barnes?

Mr BARNES: Yes, certainly. I would like to present to the Committee, the fact that I am representing the collective experience of many foresters from around Australia and in New South Wales, in particular. The Institute has over 1200, 1300 members, about 300 of which are in New South Wales and foresters, members of the Institute, which started in the 1930s, incidentally as a reaction to the dramatic loss of vegetation or concern about the loss of vegetation including from catastrophic wildfire, but our members in the past have been actively involved in bushfire fighting in this State in particular, and the names of Alan MacArthur and Harry Luke come to mind, both of whom were members and both of whom served this State extremely well in the construction of co-ordinated bushfire fighting. I come before you as a professional field forester, with twenty five years experience in New South Wales, on both the north coast and the south coast, and I have been involved in the field management of bushfire in the areas of both prevention and suppression, and prevention including the formulation of hazard reduction plans, and in suppression, at the local and the co-ordinated the emergency team level. I am also a board member of the Institute of Foresters of Australia so I came to you with some collective opinion, I believe, on how foresters around the country feel about bushfire management in New South Wales.

You will note, as you read through the submission, that we have a reasonable amount of argument there for the continuation and indeed, the upgrading and performance in the field of hazard reduction, because we believe it is a very very strong component for fire control, I can easily expand on that from your questions. We also have a strong belief in the ability to read and predict the weather, and the ability to take advantage of the cycles in weather, in effective bushfire control, and we are a little concerned that in recent years, the overall strategy on fire control in New South Wales, appears to go towards asset protection which is a defensive mechanism, rather than to field confrontation which is more of an attack strategy.

There are a few simple forester maxims which we believe in, one is that fire is inevitable despite the amount of discussion in the public arena about arsonists and how they should be treated. Foresters generally accept the fact that fire, or ignition will start one way or another, so that all fire suppression plans should take that into account. We also know from our collective experience

that it is less than ten per cent of the fires which do more than ninety per cent of the damage and it is those less than ten per cent of fires that bushfire management should particularly concentrate on in future years. We also believe that much of our fire fighting is done well before ignition even starts.

Fire prevention is extremely important and there are a number of elements of that woven through our submission. We also believe that small fires are a high priority, in other words, when ignition starts, try as much as possible to keep fires small rather than let them get big, because the difficulty of control rises exponentially as the size of the fire rises, and in line with the previous comments, that we were a little worried that the strategy on fire control generally has gone to the defensive line rather than an attack mode, we believe we should be taking advantage of fighting fire on its own terms and to do that you must fully understand the factors that drive its behaviour and along those lines, foresters both in the field and in the research field have been actively involved in researching the components of fire behaviour and ways in which we can mitigate them. Thank you, Mr Chairman.

CHAIR: Thank you. Members. Any questions? Mr Smith.

Mr SMITH: Mr Chairman. Mr Barnes, this morning we had Professor Whelan here from the University of Wollongong, the Institute of Conservation Biology and there would seem to be, certainly in his mind anyway, a conflict between hazard reduction burning and the environment and the effects on the environment. I guess his thing was, it was not the intensity of the fire, but it was the frequency of the fires that in fact changed the ecology of the particular lot of land under the, particularly, National Parks control. Could you give some of your thoughts on how we might see through these two conflicting types of arguments?

Mr BARNES: Yes. There is no doubt that in some forest ecosystems, and in some parts of the landscape, too frequent a burning cycle can lead to a change in biodiversity or the components of biodiversity, I think that the, those elements are reasonably, not so much rare but are less common in the landscape, particular species which require combinations of different environmental factors, their ecology is less common, those pieces of the landscape are still being researched. I think there is still quite a bit more to know about that but I do believe that those elements can be accommodated in a broader hazard reduction programme because the vast majority of Australia's landscape, which has evolved from a regime of fire, for many years, even before Aboriginals came to this continent, and to me, and to the Institute, hazard reduction burning, in many ways simulates that condition. There is evidence in Western Australia coming to light where some of these quite rare and less common ecosystems, are by their very nature, protected from low intensity fire anyway, because they may be in swamp areas of rock areas, so a lot of those are naturally accommodated. But the difficulty the Institute has at the moment is, that the level of hazard reduction burning is just so low, that we can still improve performance dramatically, without endangering those particular parts of the landscape.

CHAIR: Continue, Mr Smith.

Mr SMITH: It is another different, not on the same topic at all. It was also stated this morning, by one of the fire captains in the Blue Mountains area, that National Parks and Wildlife Service can take up to three to six years to do their REF whereas it takes local government six months, and one generally does not credit local government with being very quick in their particular field. Three to six years would seem to be an extreme period of time to get your hazard reduction on a reasonable footing so as you can keep up with it, and have a reasonable regime.

Mr BARNES: I believe you are aiming towards the bureaucracy of environmental protection being a hindrance perhaps to hazard reduction burning programmes?

Mr SMITH: Yes.

Mr BARNES: There are some, we address that within our submission. To a couple of comments along those lines then, to add. I have some sympathy for the National Parks and Wildlife Service from two respects in that they do have, within their estate, to be managed, high conservation areas which do need to take account of fire, whether it is protection from fire, or whether it is the deliberate ignition of fire to ensure that those ecosystems or other values are sustained, it can

work both ways. Secondly, they have recently inherited some quite large land areas, and it will take a few years for them to gradually get, become familiar with those lands and their management and I think they are still progressing through that, especially in the southern parts of the State where the more recent land use changes have taken place. However, having said that, as we pointed out in our submission, it appears that there is at least one other government agency, which seems to have overcome that bureaucracy of planning, and if you look at the statistics of how much area is burned by, State Forests of New South Wales, you will see that it is possible to be done, it is expensive and it takes effort, but it can be done.

The Hon R.H. COLLESS: Thank you. Mr Kelly?

The Hon A.B. KELLY: Well, a follow up on that to start with. Are you aware of the new legislative changes to do with the need for RES, introduced to Parliament yesterday?

Mr BARNES: I only heard some discussion on the ABC this morning on it, and I have no problems with that, the Institute has no problems with that. The difficulty is that I believe the legislation, the arrangements in place, allow for hazard reduction to take place-

CHAIR: They also abolish the need for an REF from then on.

Mr BARNES: Yes. Well, that would improve matters. The difficulty the Institute has is that despite all this, we do not seem to get the hazard reduction actually done in the field, and it is not necessarily always because of the existence of the necessity to do an REF or whatever, it can be done anyway. Certainly the abolition of an REF though would-

CHAIR: It cannot be done in the past, if the REF had not been done.

Mr BARNES: Sorry, the hazard reduction burning could be achieved in the past, they had to go through an REF process.

CHAIR: Yes.

Mr BARNES: Yes, definitely but it was achievable, with an REF.

The Hon A.B. KELLY: In your submission, you state that many roads and tracks and the ridges and culverts have been closed or allowed to deteriorate. Can you give specific examples of such closures or maintenance decisions been taken without prior consultation with the relevant district bushfire management committee?

Mr BARNES: Well, the key there is, without consultation with the district fire committee.

The Hon A.B. KELLY: Yes.

CHAIR: So, in other words, it is agree to?

Mr BARNES: Yes, well, these things normally are. If they are not, then certainly, people on the committee who have an interest in those tracks and roads being opened would raise it during committee meetings.

The Hon A.B. KELLY: So, if any of them have been closed, then the committee's obviously felt that it was not necessary to be open?

Mr BARNES: Well, I believe they would either agree to it, or they have agreed by default.

CHAIR: How do you mean, agreed by default?

Mr BARNES: Well, by not raising it-

CHAIR: Not turning up on the day?

Mr BARNES: Sorry?

CHAIR: Not turning up on the day or something?

Mr BARNES: No, by not raising it as an issue, because these, often roads and tracks in all tenures are being opened and closed without necessarily being referred to the district fire committees, so, unless-

CHAIR: Okay. No, that was the question I asked. Can you tell me an example of that?

Mr BARNES: Where it has been raised?

CHAIR: No, where it has been closed, without approval, without the consultation of the committee?

Mr BARNES: I personally cannot, because I am not a-

CHAIR: Could you take it on notice, and get us some answers?

Mr BARNES: Yes, certainly.

CHAIR: Okay.

Mr BARNES: Sorry, Mr Chairman, the reason I cannot answer the question, is I am personally not a representative on a District Fire Committee.

CHAIR: No, that is fine.

Mr BARNES: So, that is why I-

CHAIR: It is just that on page 11 of your submission, you alluded to it, and I just wanted to know if there were any that have actually been closed without being referred to the Committee.

Mr BARNES: I am not aware of, personally, any.

CHAIR: Mr Tingle?

The Hon J.S. TINGLE: Thanks, Mr Chairman. Mr Barnes, we seem to be in a situation of being on a pendulum in this inquiry. One witness will come and tell us that hazard reduction is a problem, and should be controlled, the next one comes and says it is essential, and somewhere between the two (Indistinct) is what it ought to be. Can I just then clarify some of the comments made on page 6 of your submission, where you produced a table showing the relative areas burned and the relative areas managed by the State Forests and National Parks (Indistinct) equivalent. Let me just quote, you say:

> We estimate-

After some other calculations:

> -that less than four per cent of the New South Wales public forest area is burned each year.

And then you say the two things go together, if I am putting them together correctly?

> About two thirds of this area was not controlled hazard reduction but burned as uncontrolled wildfire.

Which would suggest that probably the hazard reduction component of that, what about two and a bit per cent.

Mr BARNES: It would certainly be less than four per cent, yes.

The Hon J.S. TINGLE: Well, you say that is unsatisfactory, then on the next page you suggest that at least seven per cent would be a desirable burn, I presume by that you mean a hazard reduction burn, if that is the case, how do you arrive at the seven per cent figure, what is the basis for it?

Mr BARNES: The seven per cent that is on page 7?

The Hon J.S. TINGLE: Yes.

Mr BARNES: That seven per cent is part of a model which we have put forward suggesting an approach as to how anyone might derive a figure or a target of hazard reduction on a gross area basis, across the landscape of New South Wales. The seven per cent is deduced from the argument above it, of course, so, the Institute believes that that is a top figure, which we should be aiming for.

The Hon J.S. TINGLE: Are you saying in effect, that on the figure, on page 6, which we suggested was something like two and a half per cent-

Mr BARNES: Yes.

The Hon J.S. TINGLE: -you are obviously suggesting an increase of three times.

Mr BARNES: Yes.

The Hon J.S. TINGLE: To go to seven per cent?

Mr BARNES: Yes, that is true.

The Hon J.S. TINGLE: Which indicated, I guess, that you are saying that what we are actually getting is obviously very insufficient, inadequate.

Mr BARNES: Yes.

The Hon J.S. TINGLE: Thank you.

Mr BARNES: And that is the collective experience of the field foresters who are around the State.

The Hon J.S. TINGLE: Can I just ask one question? I know this may not be within your area of management or comment, but can you offer any explanation as to the disparity between the burning percentages of the State Forests and the National Parks, because there is quite a big disparity, is there not?

Mr BARNES: Yes.

The Hon J.S. TINGLE: Four per cent in the case of State Forests, one per cent in the case of National Parks.

Mr BARNES: Yes. We were loathe to use the figures to be honest, because there are many factors which will influence that. It is the relativity between the two roughly that we were most concerned about. To try and illustrate, it seems that either because of difficulties in implementation or an actual policy, an approach, which may or may not be legitimate, but should be explored, when two government departments, have two quite different approaches or results in how much fuel reduction in an area basis, takes place, however, they were the only figures available, as we have mentioned in our submission.

Now, that is not necessarily totally a bad thing because a particular department, because of its objectives decided by the owners, the people of New South Wales, it may naturally flow that their hazard reduction policy would be different to another department's, and State Forest is a classic example where they are charged with the production, long term production of timber for the needs of the people, and timber is an asset, it is worth a lot more money than most people realise.

Mr PAGE: There is a profit motive involved then?

Mr BARNES: There is a, well, there is certainly a motive to do what the government asks of it, and that is to protect-

Mr PAGE: The problem though, they sell the timber, so obviously if they are selling something, they are looking for a return.

The Hon J.S. TINGLE: Who is answering the question.

Mr PAGE: I just want to clarify it.

Mr BARNES: I think, it might be best to ask State Forest that question, but what I can say is, that because they manage forests for timber, as an asset, then they have a great incentive to protect it from the damage of fire, and one of the greatest ways to do that over a broad area is, broad area hazard reduction.

The Hon A.B. KELLY: Do you not have fire for different reasons? You alluded to earlier that they, the National Parks and Wildlife have got some areas that need protecting from fire, because of its high conservation value, or threatened species or whatever, I think you have said that at the start, so that is one of the reasons why they would be probably not, not big fires in the area, conversely, do you not, you are really a cropper, you know, the same as a paddock of wheat, you put a paddock of trees in, and then after you have cleared the trees, you burn it to get rid of all the rubbish before you plant the next lot, so, you have a totally different outlook on the way you deal with things. It is just like burning the stubble in a wheat paddock, really, is it not?

Mr BARNES: There are some similarities, I would agree, but I point out, foresters work in both reserves and in production areas but the difficulty-

The Hon A.B. KELLY: I am just trying to point out that-

Mr BARNES: Yes, there is a difference there anyway.

The Hon A.B. KELLY: The fact that you are both Government departments, you are quite dissimilar really, in what you do?

Mr BARNES: Those two departments do have differences in their approach, naturally, because of what they have to manage the land for. However, the Institute still is worried about this strategic, this sole, almost sole reliance of strategic burning by the reserve manager, the National Parks and Wildlife Service, because as good as strategic burning is, especially close to the assets being protected, that type of protection is severely compromised if there is not indepth burning behind it, the broader area burning, and as a general guide, fuel should be reduced at least the distance of spotting that might occur from catastrophic wildfire under extreme conditions, which is, can be five, ten kilometres and the Institute is quite worried about how restrictive some of the policies that the National Parks and Wildlife Service has taken towards a reliance on that strategic burning.

The Hon R.H. COLLESS: What other methods are they?

Mr BARNES: Well, the broad area burning, that we have got within our submission.

The Hon R.H. COLLESS: Sorry, so just following on from that, what other methods are there, if you are concerned about their emphasis on strategic burning, how else could that hazard reduction be achieved in those areas?

Mr BARNES: By the cyclical broadacre, broad area burning. Now, it becomes more difficult in National Parks, I would concede because their roading network is not as intense as some other tenures. However, it is not being pursued enough in New South Wales.

The Hon R.H. COLLESS: Do you believe their road network needs to be more intense for fire management purposes?

Mr BARNES: In some areas, I believe it does have to be. Yes.

CHAIR: Just going back to the annual hazard reduction and the seven per cent that you were speaking about, in those areas, what monitoring do you do of fuel levels, and how do you assess the fuel level or risk in conjunction with the fuel level?

Mr BARNES: Firstly I just point out one thing, the Institute of Foresters does not manage any land. As a profession, foresters who have charge of fire protection of land would monitor fuel levels. Now, this can be done in a number of ways. It can be down to the simplest, just by sheer experience and being in the field and breaking twigs and rolling leaves and that sort of thing to get an idea of not only fuel levels but the fuel moisture contents. It becomes a little easier as time goes on with experience, but there are other methods which are statistically sound, the more accurate you want the estimation then the more expensive it becomes, but it is basically a sampling procedure and those procedures are well known amongst fire managers.

CHAIR: In your table on page 6, where you refer to the wildfires in averages from 1979, 1980 to 1998, 123,000 hectares in National Parks and 77,000 hectares in State Forests. Have you got the figures for the State Forests that were burn in the wildfires this summer?

Mr BARNES: No, I am sorry, I do not. The Institute does not have that.

CHAIR: No, I guess the Forests will have that information.

Mr BARNES: Yes. Just to follow up on your question on the fuel estimation, a point that I think the Institute would like to make, it is not necessarily direct tonnage which is always the major factor in fuel, when dealing with the management of fuel levels. It is also the spatial arrangement of the fuels, especially the vertical arrangement, because the greatest danger to firefighters and the ability to control fires on the ground relies on keeping the fire below the crown in the forest, and the most effective way of keeping the fire below the ground is to, number one, keep fuel levels down as far as sheer tonnage goes per hectare, but also the vertical arrangement so the same tonnage of fuel between two fires, one of which, all the fuel is at ground level, and the other where the fuel is hung up in other vegetation in the understory, will have quite dramatic differences, because it allows, in the vertically arranged fuels, it allows the fire to climb into the crowns and sustain a run through the crowns, and at that point, it is almost, well, it would be almost folly to try and confront fire on those terms.

CHAIR: So, in that situation where you do have a lot of vertically arranged fuel, is hazard reduction difficult in those areas, to get that high fuel-

Mr BARNES: It is.

CHAIR: -controlled?

Mr BARNES: It is. One of the difficulties we have got is that many of these areas around the State have not been burned for so long that the understory has developed well, in parts, and the fuel levels have become very vertically arranged and it is very difficult to wind that ecosystem back to a two tier system of a crown and an ground story, and as difficult as it is, once it is down to that level, then it is reasonably easy to maintain, and you can start to lengthen the time between fuel burning, hazard reduction burnings, so that you can allow the fuel tonnage to rise a little higher than normal, knowing that it is mainly at ground level, and you will still have some protection from the development of crown fires.

CHAIR: Mr Page?

Mr PAGE: You are broadly representing all foresters, not just foresters in the State Forest.

Mr BARNES: The profession, my members, the Institute of Foresters which is most of the professional field foresters in New South Wales.

Mr PAGE: Not just in the State Forests?

Mr BARNES: That is correct, yes, we have foresters in all areas, I think, probably only about a third are in State Forests.

Mr PAGE: In your submission, you seem to highlight that there are highly developed skills of fire suppression in foresters and in State Forests, as compared with National Parks. Are you aware of the number of experienced foresters working in National Parks?

Mr BARNES: Yes. Many of them used to work in State Forests.

Mr PAGE: Do you have any idea how many?

Mr BARNES: Well, I can think of about six of my cohort at university.

Mr PAGE: All right. Well, actually a third of the National Parks regional managers and area managers are foresters.

Mr BARNES: Yes.

Mr PAGE: And many of these have worked in national forest, State Forests, and about half of the 22 fire management officers that currently work for National Parks, have worked for State Forests and are foresters. Do you believe that somehow when they transfer into National Parks or something, they lose their experience and their integrity?

CHAIR: Change of spots, is it not?

Mr PAGE: That is why I said, integrity.

Mr BARNES: I think what it does, is demonstrate their professionalism. When they have moved from one department to another, they have not changed their skill base or their attitude to fire necessarily, what they have changed is, or what has changed is, their instruction on what type of fire control or the policy that they should be following, and as I mentioned before, there is a difference between State Forests and National Parks, that I have other members have detected in recent years and that is the reliance by the National Parks and Wildlife Service on the strategic protection around areas of asset and the Institute does not have a problem with that but it is the lack of indepth broadacre burning behind those lines which worries us.

Mr PAGE: Is there not a play on words here, You talk about National Parks and Wildlife Service and the strategic hazard reduction, and suddenly you are saying that they have not got that right. Your strategic view was different to their strategic view. Is that what you are saying?

Mr BARNES: Only in this element, yes. We believe that the protection - the suppression of fire on national park would be greatly increased if they were to adopt the next level and that is the broadacre burning behind their strategic burning.

Mr PAGE: There could be a strategic view but it should be twice what you suggest or three times what you suggest, now, it is a matter of the land manager making an informed decision.

Mr BARNES: Yes.

Mr PAGE: On what is required in that particular strategy.

Mr BARNES: Well, there will be differences of opinion, there is no doubt about that, but it really boils down to how do you measure the success of the two different strategies. The Institute is a little worried that the success of the Park's policy is not as good as what it could be at the moment.

Mr PAGE: Are you aware that the National Parks publishes it prescribed burning statistics in its annual report every year, and has done so for many years and the State Forest has not done so, does not do now, and has not done for some years. Have you got any comment on that?

Mr BARNES: No, I do not have any comment.

Mr PAGE: People talk about, you know, being up front and open on these things, and yet the National Park group which comes into some criticism, publicises what it does, and State Forest does not.

Mr BARNES: I thought the State Forest did publish their results, the results of their hazard reduction burning in their social environment and economic reporting which is part of the annual report, but I could stand corrected on that.

Mr PAGE: That is why you have not made any representations, because you thought they do?

Mr BARNES: Sorry? Just rephrase that?

Mr BARNES: You have not made any representations, to State Forests about giving that information, because you believe they already did it?

Mr BARNES: Well, the thrust of the Institute's submission is that it is the co-ordinating committee which really has carriage of it, and that is where we would expect it to come from, but we were not able to unearth that information, because even though you may pull statistics from one department, and a separate department, you cannot necessarily be ensured or assured that they are compatible because of the differences perhaps in the reporting and that is why we look towards the co-ordinating committee to provide that information, but we did not have it.

Mr PAGE: But if State Forest does not publish the figures at all, it is a bit hard to have compatibility or make comparisons.

Mr BARNES: Well, it is difficult, well, it is self-evident, it would be difficult to make comparisons, yes, but whether it publishes it or not, I have an open mind on that one.

Mr PAGE: Check it.

CHAIR: Mr Tingle?

The Hon J.S. TINGLE: Thanks Chairman. Mr Barnes, do you attach any particular significance looking at your table on page 6 again, to the fact that the National Parks were something like nearly twice the total forest area managed of State Forests, hazard reduce only about a quarter of the amount that the State Forest do, and yet have something like seventy per cent more wildfires? Are you suggesting that if you interpret those figures that way I believe you might be, that a greater level of hazard reduction would mean a smaller incidence of wildfires?

Mr BARNES: That would be the conclusion I would come to.

CHAIR: Mr Colless.

The Hon R.H. COLLESS: Thanks, Mr Chairman. Mr Barnes, on page 9, you refer to the increase in sophistication of technical tools with (Indistinct) Is there any work being done in developing some sort of remote sensing technology to map fuel levels?

Mr BARNES: A little. A little. Nowhere near enough, I think there has been perhaps more work done on simulating the level of fuels, from the data collected on the history of events on the land, in other words, knowing the sorts - because there is data available on how fuel accumulates over time in the absence of a further fire, then I believe the CSIRO have done some simulation so that, which could be operational but like all these simulation models and GIS's, they are not worth a cracker if the data which goes into them is poor, and at the moment, I believe the data sets are not available, certainly not compatible, so that some sort of mapping or predictive modelling of fuel levels across the landscape would be quite, it is achievable but at the moment, it would take some work to get to that level.

The Hon R.H. COLLESS: So, there is not an appropriate amount of research money going into it, you see that, for example, that should be something that the CRC environment management should be addressing?

Mr BARNES: I think the public funding of fire research has diminished over the years, and it is one of the critical reasons as to why there is some difficulty in understanding fire behaviour by some land managers.

CHAIR: Right. Mr Kelly?

The Hon A.B. KELLY: In response to a question from Mr Tingle, you agreed with him, and his assumption, that State Forest was about two and a half per cent burning, hazard reduction, and also somewhere else you pointed out that you suggested, Mr Barnes, that it should be seven per cent, so it is only a third of what you are suggesting they should be doing. Also, in your submission, the State Forests fire suppression capabilities, that you suggested that they have seriously declined. How have they declined, and can State Forest meet legislative obligations if they are, in your, as you have suggested, they are not keeping up with hazard reduction, probably only a third, as Mr Tingle as pointed out.

Mr BARNES: I prefer not to comment as to whether the State Forest is meeting its obligations under the Rural Fire Act, except to say that I believe that there is a methodology within government to assess fire coverage, and I have not seen the results of that, so I do not know, certainly they are finding it difficult to meet their obligations under the Rural Fires Act, and increasingly over the years, have had to think of smarter ways of going about things. In recent times, as we have noted in our submission, there is increased reliance on first attack, being achieved by the local bushfire brigades and that is in response to taking advantage of the fact that the brigades are there, they are closer to where the action is, because as you appreciate, government departments in their shrinking, in their decentralisation of their administration are getting more and more remote.

CHAIR: Centralisation I think you mean.

Mr BARNES: Sorry, yes, centralisation. You are quite correct, and the bushfire brigades have increasingly become skilled and equipped to handle first attack fire, and there are just so many of them, bless their little hearts, and they, so that, some of those advantages have been utilised in exchange for works done by for example, State Forest and National Parks in their ability to train up their staff for their fire management role in emergency positions, which the local brigades would find much harder to do, and in road and trail maintenance and hazard reduction works. So, that trade off between the two arms of co-ordination, to co-ordinate fire fighting resources has worked reasonably well, but I think some of those win/win situations are fast running out and I think not only State Forest but National Parks would be finding it difficult to resource their fire fighting commitments.

CHAIR: Mr Page?

Mr PAGE: On page 8, paragraph 3, you talk about:

> The occasions of reluctance to deploy backburning operations because of an overestimated perceived field risk to firefighters.

And that is a quote. Are you seriously suggesting that OH&S requirements are too stringent, and should be relaxed?

Mr BARNES: No, I think it was just in relation to the recent fires, as much as anything, it was an unhappy coincidence to come so close after the Kuringai Coroner's findings and the, some of the interim measures that had to be put in place to ensure that firefighters' safety was guaranteed at least to a large extent, but no, I am not suggesting that the OH&S obligations are too stringent, but I do think that over recent times, it is becoming a little clear that the OH&S obligations need to be clarified in some areas, and-

Mr PAGE: Like now?

Mr BARNES: Like a lot of I suppose, you know, liability is a pretty hot word around town at the moment, and when it comes to firefighting there are few other occupations which are more dangerous, and I would think that it is a, there will always be a difficulty in the public mind, as to how it balances the guaranteed safety of firefighters and yet still achieve fire suppression under extremely difficult working conditions which rely on very fast decision making and usually, by a single, by an individual, in isolation from a lot of the luxuries of having the time to reflect on the consequences of making a right or a wrong decision, so, I think that in the end, the OH&S provisions are as good as they can be legislated, still has, in firefighting, still has to recognise that in the hurly burly of field operations there is a very real risk at all times, to firefighters, and it has to be accepted, where that level is, that level of acceptance is, will always be debated.

Mr PAGE: Well, in view of that, would you not prefer to have an overestimated perceived field risk than an underestimated perceived field risk in that case?

Mr BARNES: Well, we, the Institute believes-

Mr PAGE: It is better to be wrong, so they do not get burned, rather than be wrong and have someone get killed?

Mr BARNES: The comment there is a comment from the observation of the Institute's members in the recent fires where we believe that in some cases, the fire management reaction was too cautionary, simple as that.

Mr PAGE: That is a pretty brave assessment.

Mr BARNES: Well, somebody has to make it.

Mr PAGE: It is certainly would not be one that I would make.

CHAIR: Mr Barnes, I might ask a question at this juncture. Given the size and the responsibility of National Parks and their relatively close interface with residential areas compared with forests, given the incidence also of wildfire occurrence allegedly in National Parks, do you have the same incidence in forests, or are there likely to be more incidents of arson in a forest situation other than the National Parks, or do you suffer, primarily, from fires generated on private or leasehold property that may be adjacent to the forests?

Mr BARNES: I do not believe there is too much difference in the incidence of fire on any of the tenures. There will always be fire on all tenures. In some areas there will be more fire incidence or ignitions I would prefer to use for the moment, on State Forests because of the roading network, and the difficulty or the issue-

The Hon A.B. KELLY: So, that arsonists can get in, is what you are suggesting.

Mr BARNES: That is right, yes, sorry. So, that wherever, well, one of the other, in our experience, where there are people there is fire, and it is inevitable, whether it is by arsonist or accident or whatever, it will happen, so the incidence of ignition is not necessarily the issue here from our point of view. The issue here, is once ignition starts, we believe that fast response, the ability to get onto the fire ground, is very important in keeping the fire small because once fires get big like they

did this year, and because of circumstances that we can go into but, once they get big, the important thing is, once they get big, they become very very difficult to control, and you will inevitably have a position where you are always on defence. The problem with going from small fires to big fires is that you lose time, because, and you set yourself up for the inevitability that when the weather cycle comes around for the next run of the fire, you will have a much bigger fire taking off again, so, there is a strong belief in foresters, that if you get to the fire, as soon as possible, and keep it small, it buys you time before the next weather cycle comes around, and you have, if you attack it rather than wait on a defensive position, then you will have a better chance of containing it.

CHAIR: My concern was the extraordinary circumstances that prevailed this Christmas and the duration of these unusual conditions. There did not seem to be any correlation that I could see from the documentation we received, that would relate a worse situation, National Parks to Forests. I was just trying to draw on your experience, or those of your members, as to whether there was a significant difference because of the different fuel loads in those two units of State ownership.

Mr BARNES: I believe the difference is, because of the ability for small fires on non-hazard reduced lands to get to be large fires, that is the primary difference.

CHAIR: Right.

Mr BARNES: As for the extraordinary conditions, the institute would like to submit that the weather conditions in this season just passed, are not as extremely as what has been publicly touted. If you look at the historical weather cycles in New South Wales, well, there are a number of factors. One is, there were large areas of New South Wales which were not in a high fire danger condition, in the far south, the south west, and in the north west, they were reasonably ordinary seasons right up until the Christmas period. That is one thing. In other words, a lot of the activity was in that sort of central Sydney and north coast area.

The Hon A.B. KELLY: Sorry, a lot of fire activity in central Sydney?

Mr BARNES: Yes.

The Hon A.B. KELLY: And the north coast areas.

Mr BARNES: And the drought conditions prevailed in those areas, so if one was to say, this was an extreme event, it was not as extreme as it can be and has been in the past.

The Hon A.B. KELLY: Where were you in that period?

Mr BARNES: On the south coast.

CHAIR: I guess the reason for my-

Mr BARNES: Could I just follow up on that.

CHAIR: Yes, certainly.

Mr BARNES: The other thing is that the actual weather conditions, if you look at the historical weather conditions in New South Wales, you will always get five or six extreme days, on average.

CHAIR: We had eighteen.

Mr BARNES: We had about five or six in that period, I believe, that were extreme, there were, and you always, and they follow the usual pattern of coming about every six days as the weather cycle rotates, as the fronts go through. The difficulty that we had in this season, which is noted, is that of the five or six average days we have a year, then, in this case, they all happened on each frontal system going through, so we had five or six days happen every five or six days and that is unusual, because in most average seasons you will get those five or six days scattered over the five month period of the spring and summer. So, it, from that point of view it was. But the difficulty we

have got is being able to accurately judge that, because we have not yet seen the data which is backing up the claims that these were extreme weather events. They were certainly extreme on the particular days, but the season itself was not necessarily, it certainly was not as bad as previous seasons.

CHAIR: Well, I have got to say that evidence we have received indicated that, and it was allegedly based on meteorological reports which are available, it was an extraordinarily long and unusual period, in fact, it was virtually unique in case history. Anyway, I will not dwell on that.

Mr PAGE: Can I say that everyone who commented on this, disagree with what you are saying, everybody.

CHAIR: Can you get us some facts on that? Can you get us some facts-

Mr BARNES: Well, this is one of the difficulties I have got, is that the data is not readily available, but I-

CHAIR: So, it is anecdotal?

Mr BARNES: It is only our opinion, yes. I would like to emphasis, we are not saying it was not a bad season, it was certainly a bad season, (Indistinct) but it is not as bad as what it can be.

CHAIR: Well, that is quite interesting, because that is the first statement we have had of that in four days of interview. Mr Colless?

The Hon R.H. COLLESS: Thanks, Mr Chairman. Just following on from that first, when you use the term, extreme, are you referring to the Fire Danger Index and at what level would you call extreme?

Mr BARNES: It is just a descriptive term, but it does highly relate with the Macarthur Fire Danger Index, yes, which it does have, as its top level, Extreme. Yes. On those days, on those particular days, it certainly was extreme.

CHAIR: You had better make this our last line of questioning, too, Mr Colless?

The Hon R.H. COLLESS: Just one, I would just like to go back to the evidence that Professor Whelan gave us this morning and get your thoughts on the statement that he made. He put forward a theory to us, that the environmental impacts of regular wildfires such as we have seen in the Royal National Park over the last, since 1988, there has been three very severe fires in the same area, in some areas of the park, were not all that much worse than cool hazard reduction fires of a similar frequency. Have you got any thoughts on that?

Mr BARNES: Sorry, on the-

The Hon R.H. COLLESS: Well, if you were going to burn an area three times-

Mr BARNES: Yes.

The Hon R.H. COLLESS: -which would have the biggest environmental impact, would it be three wildfires-

Mr BARNES: Sorry.

The Hon R.H. COLLESS: -or three cool hazard reduction burns?

Mr BARNES: Yes, well, definitely three cool hazard reduction burns without a question, in our minds anyway. It would have the least effect on the biodiversity of the area.

The Hon R.H. COLLESS: Sorry, three-

CHAIR: The least effect.

Mr BARNES: Three cool hazard reduction fires would have far less effect on the biodiversity of an area, than three catastrophic wildfire events, even if you took that over a number of decades.

CHAIR: Mr Barnes I have to draw this section to a close, but I must say it has been extremely interesting, and we have been very grateful for the time you have given us today, and the answers that you have been able to provide.

Mr BARNES: Thank you.

CHAIR: Thank you very much for your time and you may step down. I will call an adjournment for fifteen minutes, and if anybody would like coffee, there is some outside.

(The witness withdrew)

(Short adjournment)

BOB SMITH, Director General of the Department of Land and Water Conservation, 33 Bridge Street, Sydney,

EDWARD JOSEPH CUMMINS, Senior Reserve Management Officer, Department of Land and Water Conservation, 14 Mitchell Parade, Orange, affirmed and examined:

TIMOTHY WILKINSON, Co-ordinator, Land Assessment and Management, Sydney South West Region, 86 Crown Street, Wollongong, sworn and examined:

CHAIR: Did you receive a summons issued under my hand to attend before the Committee?

Mr B. SMITH: Yes.

CHAIR: Thank you. Did you receive a summons issued under my hand to attend before the Committee?

Mr CUMMINS: Yes.

CHAIR: Thank you. Did you receive a summons issued under my hand to attend before the Committee?

Mr WILKINSON: Yes.

CHAIR: Mr Smith, would you care to make an opening statement in support of your submission?

Mr B. SMITH: Thank you, Mr Chairman. I would like to make some brief comments and thank you for the opportunity to bring forward some issues raised by DLWC. I will just summarise the submission the Department has made, and will not go into detail.

The Department of Land and Water Conservation manages about fifty three per cent of the State under the Crown Lands Act or the Western Lands Act, and the majority of that land is actually under the Western Lands Act. Out of that block of land, only about five per cent is actually the direct responsibility of DLWC. The others, she has delegated management, either to trust or licence or lessees in the main. Each of those particular groups of people has a duty of care associated with the management of land including the management of fires. The legislative framework in which DLWC work, is actually outlined in section 63.1 of the Rural Fires Act which obliges the occupier of public land to take the notified steps if any, and any other practical steps to prevent the occurrence of bushfires on, or to minimise the danger of the spread of bushfires under its control. Other legislation which DLWC administers which has an impact on the interests of this Committee, are the Native Vegetation and Conservation Act, the Threatened Species Conservation Act of 1985 and the Environmental Plan Assessment Act.

An information brochure prepared by the Department in January 2000, titled, Bushfire Hazard in Rural New South Wales under the Native Vegetation Conservation Act, is part of our submission and I will not go into the detail outlines, the role that Act plays in bushfires. I think it important to state the DLWC is not a leading agency in bushfire management. We actually defer to the Rural Fire Service as the head and co-ordinating committee's associated with that organisation is actually managing fires. New South Wales co-operates with bodies in trying to meet its responsibilities.

The management arrangements will apply to Crown land and other DLWC land, are specified on pages 4 and 5 of our submission and these include, as talked about earlier, the responsibilities of lessees, licensees, land hand by the community in forms of trust, some of the research centres and State owned lands and vacant Crown lands. We work through the structures which are set up under the Rural Fire Authority in terms of the Bushfire Co-ordinating Committee and

I can go into that in more detail later, if people are interested. It is important I suppose to (Indistinct) document from our point of view, is the document, the agreement which was signed in February 2000, between the Minister for Land and Water Conservation, and the Chairman of the Bushfire Co-ordinating Committee. This agreement does not create new responsibilities for DLWC than those already contained in Legislation, but it actually clarifies the responsibilities and operationalises some of those responsibilities. The actual document is actually attached to our submission as attachment A. I will not go into the detail of what is in it. In terms of the specific questions that were asked in the Terms of Reference, I will now turn to the hazard reduction and other fire prevention measures. A key component of this in the preparation for DLWC, and implementation of our statutory management plans by each district, Bushfire Committee, DLWC is a participant as I have said in these Committees and how we participate in that, is also outlined in detail in our submission.

The Bushfire Co-ordinating Committee administers a bushfire mitigation works fund, which is directed to implementing agreed risk management strategies and works on Crown lands. The guidelines for this fund are also attached as part of the DLWC's submission and it allocates about 600,000 in funds a year for work on Crown lands. It should be noted that some of these works, even though they were approved, are not carried out in any given year, because of seasonal factors. In terms of environmental impact of bushfire management and control, one of your terms of reference, DLWC has made some comments on pages 7 and 8 of our submission and it recognises that fire whether hazard reduction or wildfires does impact on local population of plants and animals and it is important that actually, that these facts are mitigated. Also, of more interest to DLWC and more focus, is the physical impact of building tracks and clearing of bushfire lands for protection and the impact of increased human activity on natural areas, particularly the impact associated with erosion. The impacts associated with wildfires are documented in a DLWC publication called Managing After Bushfires, produced in 1996, and that is also part of our submission. In terms of research technology and management techniques, these are discussed again on page 8 of our submission, which we outlined the extensive research which has been conducted into better predictive models and assessing bushfire risk, categorising bushfire prone land, and determining management actions. The document I am referring to is Bushfire Planning Package produced by the New South Wales Fire Service in 1998, this package has been used by DLWC staff, and by Bushfire Management Committees to prepare their bushfire plans across the State. We strongly support the procedures and processes which are in that document.

With regard to the management techniques, DLWC has been active since recent bushfires in inspecting and making recommendation for the restoration of damaged areas, particularly where soil erosion. An example is a comprehensive fire rehabilitation assessment prepared for the Blue Mountains Fire Control, this is also attachment G to our submission, people might be interested in having a look at it. Probably one of the major points I would like to make today, with the Inquiry, is the casual factors, bushfires, which actually impact on DLWC's operations. As stated in our submission, DLWC is concerned that in the past subdivisions have been approved with building lots located on elevated, sloping and relatively isolated sites, many of these are adjacent to bushland and often Crown land.

I would like to actually table, if I can, gentlemen, two photographs which actually highlight the problem, this is in Shoalhaven, this is a housing development which has actually been approved by the local council, and you can see that actually, the house has actually been put right up against the boundary. This is actually Crown road. In wider view, that is the house there, you can see, this is the Crown road, and that is actually private property, but often, the approval is actually given for a house to abut onto Crown land and often the council will actually request that the, about eighty metres of land be cleared on Crown land to actually give the required protection. The point I am trying to make there is, that one of the major points we would like to make is that improved planning, so that a lot of the impact associated with bushfire management is actually - goes back on the landholder not actually the adjoining neighbour, as is often the case with Crown land.

With regard to development planning, the publication, Planning for Bushfire Protection 2001, we consider is a comprehensive outline of the way the business should be conducted in the future, and how complementary bushfire planning should be implemented, we fully support that approach. In the main, development decisions should not be made which impose substantial requirements on adjoining lands. DLWC considers they should be consulted before development approvals are considered and that all proposals which adjoin Crown land fall into this category. I

understand that new powers which are given to the Rural Fire Service will actually help overcome some of these problems. It is very important that the responsibilities of property owners are well understood and are acted upon, and has a proper compliance strategy.

We would also like to see that policy implemented to the land that we actually have Crown lessees, licensees, holders in trust, management, et cetera. Other measures which could be taken by private land holders to reduce risks such as keeping fuel loads around premises at acceptable levels, and ensuring that emergency access is not impeded in this regard. There were some examples on the recent fires over Christmas on the south coast where often the adjoining Crown land was used as a place to store caravans, other household effects, and it actually completely obscured people's ability for access. Often we actually found boats actually blocking the entrances to get behind houses to actually fight the fires.

With regard to the adequacy of building regulation DLWC fully supports the adoption of the standards criteria such as the Australian Standard 3959 Construction of Building in Bushfire Prone Areas. This building code is deemed to satisfy all the requirements that we would wish to put in place. DLWC does not have any comments on, again, it is not a fire fighting authority, on the adequacy of equipment, the training et cetera, or the use of aircraft. DLWC considers that the agreement made between the Bushfire Co-ordinating Committee and the Minister for Land and Water Conservation has resulted in improved co-ordination and co-operation by hazard reduction on Crown lands at all levels. It has been used to prepare statutory bushfire management plans for the rural fire districts where we have an interest, and this is included in the assessment of the status and the risk of the natural resources of the impact of fire. The agreement has led to improved processes and greater co-operation, and understanding amongst the stakeholders, both our clients, our licensees and lessees and also the office of the Department and associated brigades. With regard to development planning, DLWC has participated in an interdepartmental committee examining the planning processes, this committee has made recommendations to streamline the approvals processes for bushfire hazard reduction through Codes of Practices. DLWC fully supports these initiatives.

In conclusion, DLWC welcomes the opportunity to answer any questions people may have, and thank you for the opportunity.

CHAIR: Thank you, Mr Smith. I will ask Mr Kelly to start.

The Hon A.B. KELLY: Is grazing a hazard reduction tool used on land measurement by DLWC, and if so, to what extent, and what impact does it have on the fire intensity.

Mr PAGE: And if not, why not.

Mr CUMMINS: A lot of our land is licensed for grazing, and that is regarded as a sound bushfire hazard reduction method, that is why we have a lot of licensed (Indistinct)

The Hon A.B. KELLY: What impact does it have concerning biodiversity?

Mr B. SMITH: Well, I guess, we do not graze areas with heavy biodiversity values. A lot of the, most of the grazing licences are reasonably accessible country, agricultural country.

CHAIR: Like around Burrandong Dam.

Mr B. SMITH: Around Burrandong Dam.

CHAIR: A question?

The Hon A.B. KELLY: Perhaps Bob, to you, you have talked about this a little bit. Can you comment on the government's decision to streamline the approval process, for hazard reduction works and will these changes make a difference to the extent of hazard reduction on lands managed by DLWC?

Mr B. SMITH: I fully support the changes. Actually, I think it actually will, particularly if it is followed up by a proper compliance strategy, will actually greatly improve the hazard objection of the rule over the interface, the processes actually will streamline some of the approval process which have been required in the past and I think what the, a better understanding of what happened over Christmas, people will be more willing to participate.

The Hon A.B. KELLY: You showed us these photos. Can you tell us what you understand is happening in regard to the planning side of it? Are you up to date with what is proposed there? It might be a question I should ask Bill Kopperberg, and I just thought we could get a bit of a perspective on it.

Mr WILKINSON: I was on the interdepartmental committee-

The Hon A.B. KELLY: Of course.

Mr WILKINSON: -(Indistinct) Yes, I believe that at the moment there is a wide raft of legislation that has impacted upon bushfires and at last count there was 22 pieces which could potentially impact upon us. The idea is that similar to the Native Vegetation Conservation Act, that a lot of this legislation (Indistinct) to a code, where people actually, if you complied with certain conditions, that you did not need to have, you know, an REF or (Indistinct) and it is a very much streamlined process and a lot of it is actually common sense. I think one of the things that we came up with, is, I looked, personally looked at eighty REFs for bushfire hazard reduction and out of those, some eighty per cent of the (Indistinct) perhaps slightly different wording. (Indistinct) you know what the outcome is going to be. (Indistinct)

The Hon A.B. KELLY: If I can just go on from that. So, can you just explain the mechanism that is going to be used for that, because we heard about REFs this morning, and there was some severe problems with some of them taking up to six years to get through. So, what you are saying is, if they were not done away with, and my understanding is the councils have a map that is coded. Is that the right sort of word?

Mr WILKINSON: I was on the (Indistinct) and we had some slightly different recommendations to the bill (Indistinct) on the bill, however, the idea is that you comply with the basic code of practice, you will not have to a part 5 assessment, and therefore, as long as you are doing a standard thing that is common with the Bushfire Risk Management Plan, that, I believe that ninety nine per cent of the State will (indistinct) Code of Practice (Indistinct) you do not need to have to go getting (indistinct)

Mr B. SMITH: To answer your question, it would greatly streamline the processes.

CHAIR: Mr Russell Smith.

Mr R. SMITH: I am just having a little bit of trouble seeing how Land and Water fit into this whole equation. Most your land, as you said, would be western division, and that would be grazing land, presumably. How much land do you have that would be directly under your control, and not leased and of that, how much was burned in the recent fires, and how much hazard reduction would have been done on that unleased land, in the last few years?

Mr CUMMINS: About five per cent of the State is under the control of the Department, not under the (indistinct) licensee. With regard to burning-

Mr R. SMITH: So, that is still a larger land mass (indistinct)

Mr CUMMIINS: (Indistinct) but it does include things like, we do have submerged land, which is not a-

Mr R. SMITH: Leaving aside the submerged land.

The Hon R.H. COLLESS: Does that five per cent include the submerged land?

Mr R. SMITH: So how does that compare to-

Mr B. SMITH: We have a graph that shows what all the -

Mr R. SMITH: Can you just put it in context, compared to, as you were saying, to forestry and to National Parks, what, how bit is it?

Mr WILKINSON: Similar to State Forests (indistinct) a very rough map showing where the fires occurred and showing the tenures that were under our control here. I should point out that under the agreement, we do not actually do hazard reduction ourselves, but the fire fighting authorities, the Rural Fire Service, the State Forest, (indistinct) the New South Wales Fire Brigades, National Parks actually undertake-

CHAIR: Do them on your behalf?

Mr WILKINSON: So, it is a very preliminary map.

CHAIR: Is that done without approval? Can the authorities move in and hazard reduce your land if there is a perceived need, or must they seek-

MR CUMMINS: That is the subject of the agreement between the Minister and the Chairman of the Bushfire Co-ordinating Committee, it is all about the procedures under which proposals would be brought forward that they would be assessed, the status of the land would be determined and then the required works would be agreed, and then implemented, largely utilising the Bushfire Mitigation Works Fund which is administered by the Bushfire Co-ordinating Committee.

The Hon A.B. KELLY: That is, if it is hazard reduction.

Mr R. SMITH: So, what is your general policy on, leaving aside the leased land that you have in western division and everywhere else for that matter, the stuff that is under your control, I mean, there has been a great discrepancy in hazard reduction between National Parks and State Forest. Where do you fall in that?

Mr B. SMITH: We are actually part of the co-ordinator response, part of the hazard reduction programme for the given regions. If there is a requirement, there is a risk assessment at certain blocks of Crown land, require hazard reduction incorporated in the plan, and as Tim said, it is then that activity is undertaken.

Mr R. SMITH: Do you go along with the philosophy of you know, broadacre hazard reduction or use strategically doing hazard reduction.

Mr B. SMITH: No, I think we are more strategic, where it is, case by case, basically, Mr Smith, it depends on where it is, some areas might require broadscale hazard reduction, others might require a strategic intervention, so it is done on a risk assessment basis.

Mr WILKINSON: We take a lot of our advice directly from the local Bushfire Committee, so (indistinct) in saying that, you know, (indistinct) to have something right out the back somewhere, burn, that we will look at that, we will help them develop an environmental conditions and those sorts of things and then the works will go ahead. So, it is up to the local Bushfire Management Committee because they are fire experts, to identify what areas of our land needs to be burned (indistinct) A lot of activities may not actually be burning (indistinct)

CHAIR: Could I just expand on that a little. If you use another authority to assist you, in other words if you have no firefighting group within your organisation, is there a cost involved by DLWC, to obtain the services of the New South Wales Fire Brigade or the Bushfire Brigade or is it done by volunteers. How is it done to ensure that it is done?

Mr WILKINSON: In the case of actually works on the ground, the Bushfire Co-ordinating Committee has got a fire mitigation fund which, a bushfire mitigation fund which

prioritises for our various lands, and that would be the majority of the works, that actually have a physical cost such as new tracks and trails, (indistinct) The actual bushfire hazard reduction burning would actually depend on who was the agency or (indistinct) to do those works, (indistinct) A lot of our fires, our lands adjoin other tenures (indistinct)

CHAIR: Does your department control heavy machinery that can construct fire trails or participate in bushfire fighting activities?

Mr B. SMITH: Yes, it does. The DLWC actually has a business called, (indistinct) Services, which actually has about seventy bulldozers around the State and a lot of those 'dozers, as indicated in our submission, actually are doing rehabilitation work at the moment. They did participate in a firefighting activity, they were part of the resources which were made available, so the quick answer is yes.

CHAIR: Thank you.

Mr CUMMINS: Mr Chairman, could I add something important?

CHAIR: Yes, certainly.

Mr CUMMINS: And that is that there is a certain enthusiasm amongst the brigades to undertake our hazard reduction works in a lot of places. They use it as a training exercise and they are quite comfortable with doing the work, because they have access to the land under the agreement and under the Bushfire Risk Management Grant, and they will get together and use that as a training-

CHAIR: Well, that clarifies my question actually, I was trying to tease whether in fact, there was, well, I use the term enthusiasm, but whether there was a reluctance to do the work which you are saying, No, they are quite keen to do it, and as soon as approval is given-

Mr CUMMINS: In general, we do not have a lot of trouble getting the work done as long as the conditions are favourable and the people are available.

CHAIR: Mr Colless? Did you have any questions?

The Hon R.H. COLLESS: Thanks, Mr Chairman. I have a couple of questions I would like to ask Mr Cummins if he would like to respond to and it relates to soil structure, and being an old soil conservationist, I know you must agree with this. Could you tell us what the determining factor in the stability of soil structure is?

Mr CUMMINS: All right, I suppose there are a couple of factors. The clay silt sand content of the soil, whether it is intrinsically stable or otherwise, organic matter, level of the soil, the amount of compaction of the soil, whether it is water logged or otherwise.

The Hon R.H. COLLESS: The thing that I want to focus on, is the organic matter, but that is what we talked about, it is organic matter that gets lost in bushfires. What factors could led to the degradation of soil (indistinct)

Mr CUMMINS: It could be, you mean, relating to fires or any factor?

The Hon R.H. COLLESS: Any factors.

Mr CUMMINS: I mean, we know that soil structure is affected by over cultivation, by-

The Hon R.H. COLLESS: Organic (indistinct)

Mr CUMMINS: -over cultivation.

The Hon R.H. COLLESS: We are talking about organic matter now.

Mr CUMMINS: I imagine being burned would not improve soil structure.

The Hon R.H. COLLESS: Right. Have you got any idea of what sort of temperatures that soil organic matter will begin to oxidise?

Mr CUMMINS: Well, it is an interesting thing, I mean, I do not know the exact temperatures, but I do know that I saw the results of a fire of a zigzag which was a sort of a (indistinct) community and it was an extremely hot fire, and straight after it, it rained and we had considerable quantities of ash and soil going down watercourses, dropping in culverts and blocking up water courses and that is detailed in our publication which is (Indistinct) but I am not sure about, I mean, the heat in that fire would have been intense, and there was not a thing left standing, but then again, in a lower intensity fire, probably not a lot of damage would be done.

The Hon R.H. COLLESS: So, where is the soil (indistinct) present in the soil profile?

Mr CUMMINS: In the first top ten centimetres.

The Hon R.H. COLLESS: And that would be the top ten centimetres of course which would get most heat during the fire, would it not?

Mr CUMMINS: Well, it gets, they are all issues which we could research and I am sure, very good research is being done to determine the long term effects of hot fires.

The Hon R.H. COLLESS: In the fire you just described where everything was destroyed, in your experience and assessment, what would have happened to the soil organic matter level in the top, say, fifty millimetres of the soil in that fire?

Mr CUMMINS: All I guess, destruction was there, there was a lot of ash, which I guess, I mean, fell on the surface as a result of the fire, but I dare say, but you know, the top few centimetres anyway, would have had ignition, I guess.

The Hon R.H. COLLESS: Right, and that would have led to a destruction of that organic component of the soil structure-

Mr CUMMINS: Well, I just do not know how-

The Hon R.H. COLLESS: -makes the soil more liable to erosion.

Mr CUMMINS: Well, it certainly is more liable to erosion, because if you get heavy rain straight after, you can see the soil is more liable, I guess, because of the effect of the rain falling directly on the soil as well, instead of being filtered. I do not think those things would be in any doubt, and I feel there is a big factor straight after fires, if you get heavy rain afterwards that the damage to infrastructures like drains and, stormwater drains.

CHAIR: Yes.

The Hon R.H. COLLESS: In a big fire like that then, where there has been destruction of that organic (indistinct) of the soil, can you give us any idea of how long it may take to rebuild that?

Mr CUMMINS: It is just thinking about whether the damage is, it is obvious the damage, but how many times would that have to happen before a certain level of degradation occurred. That is a very interesting question which you could research, so that perhaps after a number of fires, you might find very little-

The Hon R.H. COLLESS: A number of hot fires?

Mr CUMMINS: After a number of hot fires you might find that the humus, the organic layer had been depleted considerably, you would have to research that.

The Hon R.H. COLLESS: Would it be fair to say in your estimation then that if you had a series of hot fires, that that would do a lot more damage to the structure of the soil, and the inherent stability of the area, than a series of cool fires would, (indistinct) hazard reduction (indistinct)

Mr CUMMINS: I would not like to be too descriptive because I think there is a whole Phd doctorate in studying that. You know, the observation is that hot fires do more damage than cool fires.

CHAIR: Mr Tingle?

The Hon J.S. TINGLE: Thanks, Chairman. Just two small questions just to clear up in my own mind just exactly what we are talking about. Mr Smith, I take it in general terms, because what I have heard about outside agencies actually doing the hazard reduction work for you, that the (Indistinct) is absolutely happy with that, you are happy for that situation to continue?

Mr B. SMITH: Yes, we do not have the capacity, Mr Tingle, to do that in our own right, so we depend on the others, and the level of service we get and the preparation and planning beforehand has been very satisfactory.

The Hon J.S. TINGLE: You are satisfied that it is being done well?

Mr B. SMITH: Yes.

The Hon J.S. TINGLE: Just one other thing which I would just like to clear up in my own mind, because I am not quite sure why it has been said. On page 8 of your submission, the second and third paragraphs, you mention and I quote in part:

> It is established that the application of inappropriate fire regimes can devastate vegetative communities-

And quoting again:

> Building of tracks, making fire breaks and clearing buffer zones can affect the environment by causing erosion, sedimentation and the spread of weeds. These practices also allow easier access to natural areas which increases human impact and the threat of ignition.

Do I take that you are simply making those as observation, you are not suggesting that these are undesirable practices?

Mr B. SMITH: No, not at all. I think it is actually part of the risk which has to be managed, and the major point we make there, like, everything we do, if done correctly, you can minimise impacts, but unfortunately a lot of the trail work was actually done inappropriately and actually leads to unintended consequences, that is all we are trying to say.part of the risks which have to be managed and the major point we are making there, like everything we do, if done correctly, you can minimise the impacts, but unfortunately a lot of the trial work was actually done inappropriately and actually leads to unintended consequences, that is all we are trying to say.

The Hon J.S. TINGLE: Does it then suggest, if that is the case that if trails were perhaps more efficiently managed and kept in better condition you would not have to have the sort of hastily constructed trails that you are talking about here.

Mr B. SMITH: Yes, I think that is correct.

The Hon J.S. TINGLE: Thank you.

The Hon A.B. KELLY: So who maintains your fire trails?

Mr B. SMITH: Sorry.

The Hon A.B. KELLY: Who maintains fire trails that you might have?

Mr B. SMITH: A mixture actually.

Mr WILKINSON: Just to go back, a lot of our trails are managed-

The Hon A.B. KELLY: By the lessee.

Mr WILKINSON: by the lessee or licensee (indistinct) licence they own. Directly on our land we have a program with the Local Bushfire Management Committee where we would actually split the trails and then through the Bushfire Mitigation Fund we would work out who was going to best (indistinct) We do have a process of where we are looking at those trails and actually rationalising which trails are the best ones and in some cases we have the Bushfire Management Committee coming to us asking us for those trails, fire trails. But because arson, particularly in the city (indistinct) where people are wanting to dump a car out, take the car out to the fire trail and so fire trails actually create more of a fire hazard than (indistinct) firefighting (indistinct). So the question then is, is it best to close a trail down altogether or gate it. We have a situation, say, at Bowen Mountain, where we have put up a gate sort of ten or 15 times, to even going to the point of actually putting (indistinct) cable on either side and having two and a half kilometres of (indistinct) cable sort of ripped out and taken away, to prevent the arson component.

So the important thing I think is, with the Bushfire Management Committee working with the firefighting authorities to work out which of the trails are necessary and ensuring those are in good condition for firefighting situations.

Mr CUMMINS: There is a case there too that fire trails can actually be dangerous, as you know, that a fire trail leading nowhere is very dangerous in a bushfire situation and we are inclined to close those in consultation with the fire authorities.

CHAIR: Mr Smith, you said there was $600,000 set aside annually for fire mitigation work or protection, and some work could not be carried out from time to time because of seasonal factors. I certainly accept that but would that be an annual occurrence, would you not be able to spend that amount annually or are you occasionally able to expend the lot, because it does not seem to be a huge amount of money for the amount of area that you have available, but may need some form of fire protection?

Mr B. SMITH: Yes, I think that is correct, not that we do not spend the 600,000, we do spend the 600,000 but it works within an initially approved program because of weather maybe not be able to take (indistinct) Tim can actually give you a lot more-

CHAIR: So the amount could be cumulative, then?

SMITH: Yes.

CHAIR: Transferred with subsequent (indistinct)

MR WILKINSON: Generally, apart from the 600,000 that is spent in each year, I think this year it accelerated to about 800,000 (indistinct).

CHAIR: Right.

Mr WILKINSON: The difficulty is actually (indistinct) carry over funds and use some of that. So when we get towards April we contact each of the Bushfire Management Committees and say are you able to expend much funds this year, if not, we have a number of standby projects ready to go where we can get a contractor to do the work quickly.

CHAIR: And the bottom drawer is always useful, I must admit. But I just wondered also, did you have any statistics on how much land has it reduced over the last four years or subsequent to the 1994 bushfires and do you have any records of fires that got out of hand, that actually started on land under the Department's control?

Mr B. SMITH: We do, Mr Chairman. We do; if you take a last question mark, we do.

Mr WILKINSON: On the last (indistinct) there certainly are fires that start on our land. Prior to the agreement, the Minister for Lands had an agreement with Mr West that the firefighting activities would actually be done by the (indistinct) Fire Council on the DLWC lands so we had very little involvement historically in what was actually done on our land. To date, as we have already outlined, other firefighting authorities actually so the works on our land so we do not have to keep those statistics or the amount of hazard reduction burns that are done on our land. What we do have statistics on, and we can provide those, is things such as how much fire trail works or slash breaks (indistinct) have physicals costs, external costs. The last component of your question was, yes, the highland fire, I believe, in the Shoalhaven commenced on Crown land from lightning strikes. We had a number of other fires in the South Coast, mainly wicker start fires (indistinct) Crown lands are immediately adjacent to (indistinct).

CHAIR: Do you find arson a problem with your lands?

Mr WILIKINSON: A significant (indistinct) fire on our land.

CHAIR: Have you ever been successful in pursuing and prosecuting arsonists?

Mr CUMMINS: We certainly would prosecute if we found somebody committing illegal activities, for example, say, burning stolen cars on Crown land and that became a-

CHAIR: Well, that is a double whammy, is it not?

Mr CUMMINS: Yes, it is dumping on Crown land as well. I (indistinct) that we would prosecute-

Mr B. SMITH: We would prosecute and we would fine them, but to answer your question, I cannot recall in the last five years since I have been there; we have had one successful prosecution of arson.

CHAIR: Right. Gentlemen, any more questions? Mr Colless?

The Hon R.H. COLLESS: I just have got a couple of questions. I am sure, on the Native Vegetation Act and the burning off issues, I understand from your submission that burning is regarded as a form of clearing under the Native Vegetation Act. Is all burning, including prescribed burning, regarded as clearing and if it is, is it also included in the clearing statistics that you publish in your-

Mr B. SMITH: Yes, that is correct, yes. It is considered clearing, it is where we actually, say, woody weeds in the western region, that is part of the clearing statistics incorporated. In terms of the Native Vegetation Act, where the activity is undertaken in conjunction with the approved fire management strategy and hazard reduction strategy, it is exempt from the Native Vegetation Act.

CHAIR: Exempt from the act, but is it still included in the clearing stats?

Mr B. SMITH: No.

The Hon R.H. COLLESS: Right. What about-

Mr B. SMITH: None of the exemptions are actually incorporated in the clearing statistics.

The Hon R.H. COLLESS: Right. What about the 752,000 hectares of the National Park State that was burnt in the wild fires this summer, are those wild fire figures included in the clearing statistics?

Mr B. SMITH: No.

The Hon R.H. COLLESS: Thank you, Mr Chairman.

CHAIR: Thank you. Just getting back to the comment you made earlier on landholders being responsible, ultimately - I am sorry, the leaseholders - ultimately, you as landowners are responsible. Is there any mechanism enforcement that you take because ultimately, in a legal sense, I imagine the Department would be totally responsible?

Mr WILKINSON: Under the Rural Fires Act, it is my understanding it is the owner or occupier of - one of the conditions of the leases and licences that we issue is that they actually implement bushfire hazard reduction. In fact, one of the houses that was burnt in the last fire was in the Shoalhaven, part of that area was actually licensed for bushfire hazard reduction but it appears now, after the house has been lost, that that land had not actually been used for that purpose.

CHAIR: So, based on your history of not having a major problem, the Department has not found a need to enforce that with their landholders, but I am just trying to get why the statistics are vague, to say the least, or non existent.

Mr WILKINSON: I think if it was a lease or licence holder and there was a problem, it would be more likely that local fire authority would, say, issue an S66 notice on the lease or licence holder and we may not even be aware of the fact that that notice has been issued and it would be those fire mitigation officers with the Rural Fire Service that would actually probably take that out. They would be almost treating that leased or licensed land as though it was freehold land.

CHAIR: Right. And there would be no mechanism available under the present system that would advice you ultimately that that demand was not being satisfied?

Mr WILKINSON: That is correct.

CHAIR: I see.

Mr B. SMITH: I think it is also important, Mr chairman, that a lot of the Crown land leases we are talking about are actually incorporated in large pockets of freehold. They are normally very small blocks, so it is actually done as an integrated package.

CHAIR: Well, gentlemen are there any more questions? There being no more questions-

Mr PAGE: Could I just interpose here?

CHAIR: Yes.

Mr PAGE: Is it worthwhile continuing on with State Forest now? Have we got some time? Is that a problem?

Mr B. SMITH: Yes, I would-

Mr PAGE: All right. If there is any problem, we should not do it, that is all.

Mr B. SMITH: No, because it requires a different team, Mr Page.

Mr PAGE: Yes, all right.

CHAIR: All right. Well, thank you very much for your attendance, Mr Smith, we are thankful for your time.

(The witnesses withdrew)

(The Committee adjourned at 3.45 p.m.)