

# PROOF VERSION ONLY

## STANDING COMMITTEE ON THE ENVIRONMENT AND PLANNING

### Inquiry into fire season preparedness

Bairnsdale — 27 September 2016

#### Members

Mr David Davis — Chair

Ms Harriet Shing — Deputy Chair

Ms Melina Bath

Mr Richard Dalla-Riva

Ms Samantha Dunn

Mr Khalil Eideh

Mr Cesar Melhem

Mr Daniel Young

#### Participating Members

Mr Greg Barber

Mr Jeff Bourman

Ms Colleen Hartland

Mr James Purcell

Mr Simon Ramsay

#### Staff

Secretary: Mr Michael Baker

#### Witness

Mr Garry Squires (affirmed).

**Necessary corrections to be notified to  
executive officer of committee**

**The CHAIR** — Garry, this inquiry is in relation to bushfire preparedness. I understand you have a submission. We will wait for that, but you might want to start talking now. Be brief with the submission and then we will follow with some questions. We are on a reasonable time line.

**Visual presentation.**

**Mr SQUIRES** — Just to start off, thank you for the opportunity. I come from a practical fire background. I was a forester by training. I spent 30 years in the department that is now called DELWP. I have done fuel reduction burning, ground and aerial burning, slash burning for regeneration purposes and lots of fire suppression.

My focus today is going to be on the terms of reference that relate to fuel reduction burning because I think that part of fire preparedness is to actually reduce the number of fires or reduce the intensity of the fires we might have. I will also just be focusing on public land issues, but recognising that there is a lot more to do with fire then just that on public land.

I did want to take up the term of reference that talks about preventative burning, which to me is a new term. We have always called it 'protective burning' or 'fuel reduction burning'. Preventative burning seems to give the indication that we are going to stop fires, and that is not the case. We are reducing the fuel, but we can still have fires, so that is a very important point I think we need to bear in mind.

A quick bit of background: fire has always been a part of the Australian bush. The Aboriginals certainly used fire. There is a lot of discussion about how much they used it, but it certainly was a big part of their management of the land. Lightning has always been an impact and there is no dispute that that has always been there and always started a lot of fires in the forest area.

The impacts of intervention over the last 100 years or so have varied from time to time. There have been some periods when there has been total intervention and that is in more recent times where we tried to put out every single fire that occurred, so that has changed the nature of the bush. There have been periods when we have done a lot of fuel reduction burning; there have been periods when we have done less fuel reduction burning for various reasons.

The other thing I just wanted to talk about was mega-fires. Mega-fires are something that has happened over the last couple of decades. Mega-fires really are about two things, not just the area that is covered but the intensity of the fire we are getting.

**Ms SHING** — Was 1939 a mega-fire?

**The CHAIR** — It was 1851.

**Mr SQUIRES** — They certainly were, but the intensity over large areas was nothing like what we are getting with these current fires.

Just quickly on the importance of reducing fuel loads, we need to go back to fire basics. We all know we need three things to have a fire. The only one of those things we can control is fuel. There will always be a source of ignition, whether it be humans or whether it be lightning. Oxygen is there in the form of obviously the wind, which is the one that really kicks the fire along. The fuel is the only one we can control. We also need to go back to a few basics about fire, which are what makes a fire intense. There is a formula there up on the board. The importance of that formula is it leads us in rules of thumb. If you double the rate of spread, the intensity is four times as much.

**Ms BATH** — But it is an exponential — —

**Mr SQUIRES** — It is because if you go back to the formula, the weight of fuel has two components. In the formula there is the 'w' which is the weight of fuel, but in 'r', rate of spread is also affected by fuel, so it is a double whammy. So if you have four times the amount of fuel, you actually get a 16 times intense fire.

**Ms SHING** — Is this universally accepted, this particular formula?

**Mr SQUIRES** — Absolutely, yes.

**Ms SHING** — Good. Just to confirm it for the record.

**Mr SQUIRES** — So why do we want to reduce fuel loads? Obviously to reduce the intensity of fires, to reduce their rate of spread and hence reduce the damage to the assets.

In the terms of reference, which I want to focus on, there are four of them that talk about fuel reduction or fuel preventative measures and the effectiveness of fuel reduction on community safety. The new approach in the forest areas, which is about focusing the burns closer to communities, closer to assets, is certainly a tool that will assist those assets in those communities. What is left out of the equation, though, is that back further deeper in the bush there is this building up of fuel loads, and the less we burn them, the more likely you are to get 4 times intense or 16 times intense fires. Those intense fires are going to do two things. One is they are going to throw spot fires a long distance, way over the strips of fuel reduction that have been created, but also they are going to be very intense fires, which are going to have a real effect on the environment, and I will come to a couple of those points a little later.

If you compare fuel reduction with the effect of a mega-fire, you get things like this — and it is a bit hard to see with the light. This is a fuel reduction burn. If you look deeper into that forest, beside the edge effect, we have still got green trees, and on the ground deeper into that forest we have still got some vegetation. So that fuel reduction burn does not burn everything out of the deep forest. Patches of the fuel reduction burn burn a fair bit of the stuff and a bit of leaf litter falls again. Here is perhaps a better one of what a fuel reduction looks like, with a little bit of scorched vegetation on the ground, some bare earth and deeper back there you can see some green vegetation where there has not been.

**Ms BATH** — Garry, where was this taken?

**Mr SQUIRES** — This is in East Gippsland; this is near Cabbage Tree — these particular photos. Compare this with the effect of a mega-fire. This is the fire of two years ago that came out of the Snowy. I know that is a bit harder to see with the light back on, but, as you can see, everything has been stripped off the trees, everything has been stripped off the ground, and all you have got is a bit of bracken growing back because this was taken perhaps a month after the actual fire. So a couple of real differences there when we start talking about the environment. It has really stripped everything off the ground, including in the gullies, so threatened species, important vegetation, wildlife — there is nowhere for it to go. If it did not get killed in the fire, it is going to have nowhere to feed or it is going to be predated because there is no cover for it. So that is one of the differences, and the term of reference does not seem to look at the alternative. It looks at what is the effect of fuel reduction burning going to be on the environment, but it does not look at the alternative, which is if you do not do fuel reduction burning you are going to have this sort of effect.

This is the forest coming back six months later. This is another one. This is up the Bonang, same fire, and up Yalmy Road, same fire, coming back a year or so later. They are some of the important issues with the difference between fuel reduction burning and mega-fires on the environment. The terms of reference do not actually pick up a couple of other really important things, and they are: what is the effect of a mega-fire on soil and catchment values, or soil and water values. What we do know is that is when we do a fuel reduction burn there is minimal effect on soil and water values because you do not burn everything; you do not burn the gullies out; you do not burn the duff layer. But when we have a mega-fire, what you actually do is burn so deep into the ground that the soil becomes hydrophobic, so it repels water. So the first time you get a decent storm, it takes all the soil away.

**Ms BATH** — So there is erosion as well?

**Mr SQUIRES** — And there is erosion.

**The CHAIR** — I think we have just got to keep moving if we can. We are just on a short time fuse.

**Mr SQUIRES** — Yes, okay. This is an example of that. It is a little bit hard to see. Another big gully forms through a big storm straight after a fire. Once again, you cannot see it there, but there is some soil movement in that one. Not only do we need to be doing fuel reduction to prevent fire, but we need to do it to prevent this sort of thing happening to our environment.

I now quickly want to move on to actually doing burning. One of the things we need to face up to is all burning has the potential to have some environmental impact at a local level, but the key issue is what is it doing at a broad level? At the end of the day, a rich ecology is maintained by a diverse structure in the forest, not a single, uniform structure, such as we have got over up to 3 million hectares of our country over the last 20 years if you look at the high country of Victoria and southern New South Wales. We have got all this forest that is badly burnt in one fire at one time, or in three separate incidents, which is now all one age. The effect of those sorts of mega-fires on the environment is very hard to gauge at this stage. I think one thing is for sure; there will be a lot into the future.

**The CHAIR** — We have got about 10 minutes left in total, including questions.

**Mr SQUIRES** — In doing burning we seem to have developed a risk-averse culture and you can see why this happens. As soon as something goes wrong during a planned burn, there is the media beating it up, politicians hate adverse publicity and this adverse culture filters right down to the DELWP staff, so it is much better for your career to not do the burn because nothing goes wrong then.

Burning requires some risk-taking and those who take the risk need to know that they will be supported. This is really where government has got to step in. Government has got to actually support those who are taking the risks. There are always going to be some risks and occasionally something will go wrong. Instead of looking for someone to blame, government has actually got to create the environment where those that are required to take these risks know that they will get support. They will get support from government in the media; they will get support from their own organisation. This to me is one of the greatest issues we can achieve. You can do all the planning you like in the world, but if people out there do not actually light the match, then we will not get burning achieved.

So reducing fuel loads is essential. Stopping fire from spreading is a better option than fighting a wildfire. Many of the environmental impacts will not be clear for many decades, as I have already said, and it is clear forests are being burnt more intentionally now than in the past.

A final statement: we have no choice with fire; it is a natural part of the environment. The only choice we have is whether we have fire in the environment as intense wildfire or less intense fuel reduction burning.

**The CHAIR** — Can I thank you, Mr Squires, for your submission and for your presentation today. If I can just put on the record, my own view is that your point about bureaucrat behaviour and the risks that are there for them is a very significant factor in this. It is in part for that reason that one of the issues that are inquiry will need to grapple with is the decision to move to a more risk-based burning approach and to abandon the 5 per cent target. I wonder if you could succinctly say what your view on that is, whether you support that strategic burning, particularly close to townships, and whether that is compatible, incompatible, additive or otherwise with a broad target.

**Mr SQUIRES** — The risk-based approach which DELWP is now working with is looking at the risk to the assets.

**The CHAIR** — Yes.

**Mr SQUIRES** — It is not looking at the risk of doing the burn.

**The CHAIR** — No.

**Mr SQUIRES** — My last comment was about the risk of actually doing the burn.

**The CHAIR** — No, I understand, but we actually have to come up with a public policy solution.

**Mr SQUIRES** — Yes. So addressing your point, focusing the burning where the risk is highest is certainly the best use of a limited resource. What needs to happen, though, is some broader burning in the areas further away for the reasons that I said before. If you let the fuel build up in the areas that you are not burning, then eventually they are going to get a major fire in them and they are going to throw spots straight over the top of the areas that you have burnt. If you have got a strip, let us say, of 4 or 5 kilometres wide adjacent to the north-west side of private property, that is great. When you get the fire that is 6 or 7 kilometres out, it burns up and is going to throw spots over that 4 or 5 kilometres into the private assets.

There is another part of this. Some of the burning that needs to be done in the more remote areas does not have to be broadacre burning. For instance, in the past there was a lot of burning done on the ridge tops, so a departmental person, the old graziers, whoever it might have been, would drive along the ridge tops at the appropriate time of year dropping matches.

**Ms SHING** — The mosaic approach.

**Mr SQUIRES** — The fire would burn a few hundred metres over each side or usually on the northern side, and that is as much as was done. That is very critical burning, because where do most lightning strikes occur? On the tops of ridges. If we have got all the ridges burnt out, then there is a good show that we are going to get all those lightning strikes at first attack.

**The CHAIR** — I am going to conclude, because I am conscious of the time. Let me just press you on this. The risk-averse nature of bureaucrats, and I understand their attitude, was directly intended to be counteracted by the 5 per cent target and to hold them to account for a higher burning target, broader numbers and seeking over a longer period to reduce the fuel load. Do you believe such a target is necessary?

**Mr SQUIRES** — I do not believe the new process will hold bureaucrats to account anymore.

**The CHAIR** — No. Do you support the 5 per cent target or something akin to that?

**Mr SQUIRES** — Yes, I do.

**The CHAIR** — You do. I just wanted to hear you say that. Thank you.

**Mr SQUIRES** — I see what your question was. Yes, there should be 5 per cent or more.

**Ms SHING** — Thanks very much, Garry, for your contribution and for sharing your years of experience with us, particularly given the technical elements of dealing with fire preparedness on the ground. We have heard a lot of evidence that relates to the use of incendiaries, mosaic burning and Aboriginal approaches to fuel reduction/land management. What I would like to understand more of, going back to the example that you just talked about around ridge tops and around the way in which smart burning can reduce risk, is it not also the case that being smart about mosaic burning, ridge tops and the use of technology might not get us to the 5 per cent but might in fact result in a better chance of protecting an asset or life or property, which is the key objective in all of this? I am keen to hear your thoughts in that regard because fuel reduction could be anywhere holus-bolus. Five per cent could apply to the densest forests in the alpine area and the high country and out near Mallacoota and Gypsy Point, or it could apply to grassland.

In terms of the smart burning, though, how do we actually go about being smarter in adopting the Aboriginal approach, the mosaic approach and the approach used by earlier settlers and landholders around minimising risk where it might occur — for example, lightning strikes, as we heard earlier, and roadside areas where it acts as a wick. These are the sorts of things that we have to also grapple with when we are looking at a risk-based approach versus a fuel reduction targeted approach and/or the extent to which any overlap might occur?

**Mr SQUIRES** — With the new risk-based approach, accept it — accept that you are going to do the strategic burning closer to assets and so on. We then need to have another on top of that, if you like — some other burning — which can also be strategic, as I think you are saying, and it might be along all the ridge tops. It might be along some specific areas that need the northern faces burnt out. But to do this we have got to be prepared to take some risks that sometimes something will go wrong, because the current DELWP processes are basically saying you need to burn out a whole block so there are no running edges anywhere so there is no risk of anything going wrong. That just cannot happen if you going to try and be strategic. You are going to have to light up this ridge and let it burn in April or something —

**Ms SHING** — Pick the conditions in which to do it.

**Mr SQUIRES** — and if the conditions get worse and worse it is going to burn deeper and deeper down and occasionally something will go wrong.

**Ms SHING** — Just as a follow-up to that, how do we bring the community along to get that, not social licence, but buy-in from people who live in the immediate areas or surrounds, particularly when smoke drift

particularly around the Latrobe Valley or eastern Gippsland can often be something which creates enormous anxiety for people?

**Mr SQUIRES** — I think bringing the rural communities along is not a major problem. I think bringing the city communities along, or the more urban centres — the Latrobe Valley, the edges of Melbourne and so on — I am not sure how you educate people that some smoke now is much better than a month of smoke in summer, with fires damaging houses, causing deaths and so on and so forth. It is something that I do not have the answer to.

**Ms SHING** — That is all right. I am just keen to get your view given your experience. Thanks very much, Garry.

**Ms BATH** — Thank you, Garry. What an informative presentation. It is always good to see the science behind your comments and the real in situ position because it gives us a good appreciation. I am interested in terms of the gentler burns or the cooler burns. Do you have knowledge around the technologies required? It is an ancient history tradition, but do you have commentary around the technologies that we need to apply now — DELWP, CFA, the agencies — for those gentler burns?

**Mr SQUIRES** — Yes, it is quite simple. It is how much fuel is going to be available to burn and what are the meteorological conditions you are going to burn under. One of my criticisms of DELWP would be that we do not do enough burning in the winter, because there is an option of getting quite an amount of this strategic ridge-top burns, edge burns and so on done in East Gippsland right through June, July and August because the meteorological conditions are right for that to occur. We have got a problem, though, in that it becomes a little bit more difficult to do cool burns as your fuel quantities are increased. Because we have not burnt for years, many of our areas have now got very high fuel quantities and so what you are trying to do is burn the top off it in one burn or burn —

**Ms BATH** — The understorey?

**Mr SQUIRES** — one aspect in one burn and another aspect perhaps next year or perhaps a few months later, but the technology is there. I still think the biggest issue is having the support for the staff so that when something goes wrong and they have a go, they do not get hauled over the coals.

**Ms BATH** — I asked this question of Mr Bernard Teague the other day at our Melbourne inquiry, it feels to me like there does not need to be an either/or. Is there potential to still have those 5 per cent target burns and have the risk management-based approach? In your opinion, do we have to have one or the other or could we not have both?

**Mr SQUIRES** — No, I am saying we should have both. Even before this risk-based approach, there was quite a percentage of the burning that was done to protect assets. There is just more emphasis on that in this new risk-based approach. Let us go along and give it a go with what is being proposed, but let us add to that some of the more strategic burning in the more remote areas, if you would like to call it that.

**Ms DUNN** — Thank you, Garry, for your presentation today. I am just going to follow on because I want to clearly understand the issue for you around this risk-based approach that we do have. It is about the primacy of life and assets, and protection as well. Your view is that the current modelling does not take into account that broader landscape and the potential for fuel build-ups that might exist further out from where communities are. If the modelling did take that into account and looked at that broader landscape, is that something you would support?

**Mr SQUIRES** — Absolutely. I think that is the only fault I see in the risk-based approach, that we are neglecting the areas deeper in the bush if you like —

**Ms DUNN** — That have the potential to impact on community safety.

**Mr SQUIRES** — and the impact on the bush itself and the catchment and water values and the flora and fauna — all the sorts of things that happen when you get a mega-fire.

**Ms DUNN** — Just on mega-fires, would you have considered that Ash Wednesday was a mega-fire?

**Mr SQUIRES** — Absolutely.

**Ms DUNN** — So, yes, that does fall into that category.

**Mr YOUNG** — Thanks for coming in today. I just wanted to get your thoughts on what the differences are between public land and private land. We have heard a lot of evidence to this committee as far as people on private land not picking up their end of the deal and not doing enough, and it has been suggested that that is part of the reason why we have increased fuel loads in some areas. Do you have any thoughts on that? You keep saying ‘deep in the bush’, and I am assuming you are talking about public lands, national parks and things like that.

**Mr SQUIRES** — Yes, I was, Daniel. It is a significant issue. I think about 5 per cent of the land mass of East Gippsland is private forested land, so we do need to integrate the burning processes with what is happening on the public land. That is an interesting problem because a lot of landowners do not have the resources to do a fuel reduction burn and be sure that it keeps within its boundaries. We had an instance here at Mallacoota not long ago where a burn got out of a private area in Erica.

**Ms SHING** — Yes.

**Mr SQUIRES** — You have heard about that one. So there needs to be a lot of cooperation with DELWP, and perhaps the government needs to help private landholders through DELWP to integrate a burn that is being done on the public land with the adjacent private forested land. Most farmers would be more than happy for that to happen — most of the ones that I know that own bush country. In fact most farmers are more than happy to protect their own fence lines when there is a DELWP burn going on and so on. If that interaction goes on at that interface, we can get a lot more of that very important, strategic stuff done right next to assets.

**Mr YOUNG** — You talked before about public servants being a bit risk averse. Do you think a similar sort of thing happens with private landholders?

**Mr SQUIRES** — Absolutely. A private landholder is just not going to start a burn in a broad area that may get out of control and he will be responsible.

**The CHAIR** — Can I thank you, Mr Squires, for your evidence. I think it has been most instructive and has brought a different perspective, so we are appreciative of that. The secretariat may be in contact with you in coming weeks to follow up on some details.

**Ms BATH** — Garry, could you provide that PowerPoint presentation?

**Mr SQUIRES** — Yes.

**Ms BATH** — Great. You are ahead of us.

**Witness withdrew.**