Preparing For The Next Fire

How do we heal an ecosystem traumatised by fire? How will climate change result in more intense fires? And why aren't we listening to Indigenous fire management recommendations from past inquiries?

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More information on cultural burning: Rekindling Cultural Burning

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Oliver Costello:

Look what's happened to the land. It's devastating. I've been to some of the areas that have been burned and they are just devastated. People lost their lives, homes, millions of animals, millions of plants, heart wrenching. Look like, you know, like it's hard to think about it in a negative mindset because it's just crippling. It's not a new story for us. We've been taught this story like when you lose your way, you don't look after country, then you get sick.

Julia Carr-Catzel:

Do you think that this is an important turning point?

Oliver Costello:

I absolutely do. If it's not a turning point, you know there is no hope.

Julia Carr-Catzel:

On March the third, the New South Wales Rural Fire Service declared that for the first time in 240 days, there were no active bushfires in the state. The torrential rains that lashed the

east coast of Australia helped to mark the end of the worst bushfire season the country had seen in over a decade. 28 people lost their lives, over 3000 homes were destroyed and up to one billion animals died. But as the new cycle moves on, Oliver Costello is just one of many warning now is not the time to turn our heads, to forget our anger. On this episode, how do we heal an ecosystem traumatized by fire? And why aren't we listening to fire management recommendations from past enquiries? You're listening to Think: Sustainability. I'm Julia Carr-Catzel.

Clearly, a lot has happened since we last spoke to Oliver on Think: Sustainability. As the CEO of the Firesticks Alliance Corporation, he's been busy helping to clean up the aftermath of the bushfires. Oliver has been advocating for sustainable fire regimes and hazard reduction measures informed by indigenous knowledge for years without as much progress as he'd like. So when Oliver heard Prime Minister Scott Morrison's announcement of a royal commission into the fires back in February, he wasn't particularly optimistic. Someone who shared his scepticism upon hearing the news was Dr Kevin Tolhurst. Kevin is an associate professor of Fire Ecology and Management at the University of Melbourne. He's given expert advice to about seven public enquiries, reviews and Royal Commissions into Australian fires of which there have been 57 since 1939. And a lot of those recommendations have been left to the dust.

Dr Kevin Tolhurst:

There’s a lot of discussion about it soon after a disaster, but people's memories soon drop and the importance of it drops off. So we're talking about at least 10 or 20 years to really see the full benefit of a good fire management and in political terms, that's too long. The support for having a program in place that achieves the outcomes over such a long period is difficult for governments to sustain their support for.

Julia Carr-Catzel:

And indigenous fire management methods like Oliver's have been tabled at these enquiries. One of the national goals of the 2009 Victorian Bushfires Royal Commission was to promote indigenous Australians knowledge of fire management like cultural burning. Kevin warns that using time and resources on a new royal commission would be a waste of time and that instead we should simply implement the recommendations of all the past ones.

Dr Kevin Tolhurst:

So a lot of the framework and thinking has already been done. It's a matter of getting behind that and providing the resources to do it and the resources aren't just dollars. As I say, it's also about making sure we are recruiting the right people and we're training people with a level of expertise to deal with the complexity, sophistication that fire management really requires.

Julia Carr-Catzel:

The majority of fire regimes in Australia are conducted by government agencies like the National Parks and Wildlife Service in New South Wales. Much of these regimes involved hazard reduction burns: that is stripping out the bottom level off the forest, all the grasses and shrubs to limit fuel for intense fires. And although hazard reduction burns are very similar to cultural burning practices, they lose much of the complexity off the latter.

Dr Kevin Tolhurst:

We can learn a lot from indigenous burning that talks about that customizing a fire in the landscape, to customize it to the weather conditions we have, to customize it to that different parts of the landscape. To deal with different species in the landscape so that we're using fire as a proper land management tool, rather than just as a way getting rid of undesired fuels in the landscape.

Julia Carr-Catzel:

The Firesticks Alliance Indigenous Corporation focuses on these complexities, on slow burns that give animals notice to flee the fire front or to clear room for small plants to re-emerge. Drawing animals back.

Oliver Costello:

We burn throughout the year, but often it in the cooler times to keep the temperatures, you know, the flame and the fire intensity down. So all the different ecosystems come together in different country types. And so we burn them at different times, you know, like so you end up burning, you know, fairly regularly across the landscape, in different places, over different timescales and end up with these mosaics. And so that's sort of what you know, cultural fire management does. It creates diversity in the fire regimes and diversity in the plants and animals so that everything and everyone has what they need.

Julia Carr-Catzel:

Whereas standard hazard reduction burns focus on larger areas of land. After the 2009 Black Saturday Fires Royal Commission, Victoria implemented a plan to burn 5% of public land each year. But this goal partly failed because it targeted land that posed little risk to communities anyway.

Dr Brad Murray:

So it was like you have to burn so much amount, that you know, so much of the landscape this year. It misses the point.

Julia Carr-Catzel:

This is Brad Murray.

Dr Brad Murray:

I'm a senior lecturer in the School of Life Sciences here at UTS.

Julia Carr-Catzel:

He says cultural burning can inform current practices.

Dr Brad Murray:

Hazard reduction activities. You know, I think they've been shown recently that they're not the panacea. They're not going to stop wildfires. Regions that went up with intense fires recently had, for instance, some regions had experienced hazard reduction burns just a month previously. I think this is where cultural burning practices can really inform us because it helps us to look at parts of the landscape that need burning, not just a total amount that we just burn off in some remote area where it has no effect. It's about burning the right places at the right time, with the view to not just asset protection but biodiversity.

Julia Carr-Catzel:

Oliver says he's noticed a difference

Oliver:

Particularly in the last couple of years. The fires have gone out when they've gone into those areas so they like literally where the fire meets, where we burnt like 18 months ago or six months ago, three years ago, or whatever the fires, just gone out or it's gone into it maybe 10 or so metres and gone out. And I'm in other areas, the fire is carried through, but the impacts on those areas are much less so. You know that hasn't done so much damage to the environment there.

Julia Carr-Catzel:

But the impact hasn't been widespread enough.

Oliver:

They're not. They're not the outcomes that we'd love to show. We'd love to show you a whole landscape where we've had a cultural fire regime and the impacts of that. Because a burn here and a burn there, you know you can't hang your hat on that. You know, the idea of cultural fire management is it's on the landscape thing. It's like you have like all the country types, but at the right time and then that way you don't have the opportunity for these big wildfires to occur. We rely on donations, volunteers, small grants. We're trying to pull together the resources for a national cultural fire practitioner framework. So an indigenous led training and mentoring program that brings together knowledge holders and cultural fire practitioners from across the country. You know those recommendations? Hopefully, recommendations of future royal commissions and enquiries can actually, one, be informed by best practice knowledge of country, but can also then turn into best practice through its supporting indigenous led fire management regimes back into these landscapes so we can heal the country from the damage of mismanagement. We can heal the country from the fires and we can heal the people that want to have a true connection to these landscapes.

Dr Kevin Tolhurst:

We need to get the discussion going rather than relying on saying, OK, we've done all this research, we've put it into published papers. We've done all this monitoring. We got it all in this database, and we've got all this wonderful technology where all this knowledge is, it doesn't matter how many papers are sitting on the shelf on how many gigabytes of data you've got there. It actually needs to be in the people's heads that are actually doing the management and make sure that they understand the land, can read the land, and to understand the role fire plays there. So that's what I say. It's a very different skill set to a firefighter, which is much more response focused training. We actually need people trained that really understand the land, and working with the indigenous people is a great way of both acknowledging the knowledge that indigenous Australians have but also improving how we actually manage land in the modern environment.

Julia Carr-Catzel:

The fires ravaging Australia's east coast over summer have had a devastating impact on the ecosystem. The problem is, not all of the damage is immediately obvious to the untrained eye.

Oliver:

That's going be one of the legacy issues of this recent wildfire season that there's going to be huge areas that were really sick and are going to come back, even sicker. You know, vegetation can change very rapidly, and people will see that over the next months and years. They'll see landscapes that were just black sticks turn into green things again, and they'll think all the environment's responding. But what they don't understand is that all of the wrong relationships are going to be in place. What people have come to understand is the truth is not necessarily the truth, because there's a longer time scale. And so that's one of the challenges that we've seen over the last couple of hundred years since colonisation. There's a whole heap of natural sort of ecosystems that have evolved through a lack of appropriate management into quite unhealthy systems.

Julia Carr-Catzel:

This a lack of knowledge of the right vegetation on the right land means some fire practitioners may fail to stop the growth of invasive species.

Oliver:

If you don't start to manage some of those invasive natives really early on before they get sort of too big and too strong for cultural fire regimes or more low intensity fire regimes. Um, they'll start to then become really dominant and they'll start to then suppress the biodiversity and suppress a lot of the kind of species that belong there and and then become probably somewhat sort of stable and dormant for some time. But then as they mature and start to sinness, about 10 years or 15 years, they can become very susceptible to high intensity fires again

Julia Carr-Catzel:

Other changes to the ecosystem, are just as slow and therefore just as hidden.

Oliver:

When the plants you know, the trees start to regrow, you know all the epicormic growth, and they start to shoot off all the trunks. And, you know, that's all energy that they would be putting into their core structure, their trunks getting bigger, their canopies getting

stronger. So a lot of those trees are being hit over the last 100 years, over and over again with wildfires. We're losing those trees and with the drought as well, with losing a lot of our parent trees. So we're seeing all these structural changes in the ecosystem. We know because of their cultural understanding of resource use and oral history, and our understanding of country. We know those landscapes are sick.

Brad:

Australia as a whole, really did experience a very traumatic period of time. I know it was it was not a very peaceful time over the Christmas for myself with my family.

Julia:

After the fires, Brad was inspired to start researching again.

Brad:

I want to really, really go much harder on my research. I really want to do as much as I can, for fire management, but also for the conservation of biodiversity in that context. I'd like to look at how different species do different things, different plants that look different and they just do different things. And so I've taken that approach looking at flammability, that's like, well, some species are they more flammable than others? And so that forms the scientific backbone, if you like of green firebreaks.

Julia:

The idea of green firebreaks is to plant low flammable species and vegetation in large strips across the landscape to stop or slow down bushfires. The method isn't new to Oliver.

Oliver:

So one of the things that you know that I learned very early on you burn around particularly, like rain forest interfaces to create a kinship line between rainforest country and the other country, which might be like grassy or grassland or things that like more fire. And so what happens is you create this sort of green firebreak. You know the good fire will go out, but that will also help to put out the bad fire too because you're managing the relationship between the fire country and the less fire prone country. We've been doing something like that for thousands of years,

Julia:

So you might be wondering how the flammability of plants are assessed.

Brad:

We've set up what's called a plant barbecue. It's up on the roof over here on top of the science building. And if you see smoke coming off the building, sometimes it'll just be myself from my students burning plants. So what we're burning in that case is 70 centimetre long shoots, plants, so that not only has all the plant parts, but it has their architecture.

Julia:

And they're looking for a number of things.

Brad:

How quickly does it ignite? Ignitability? How long does it burn for, which is called sustainability. And then how intensely does it burn, which we call combustibility. So, for instance, an introduced species called Lantana it will ignite really quickly, but then it doesn't burn for very long, so it ignites and it's out almost as quickly. Other species, like some of the Eucalypts, for instance, will burn with great intensity. So we're seeing some really interesting variation among species so far on. A big question now is how does leaf flammability scale up to the larger plant parts?

Julia:

During the bushfire season, a report went viral on social media. One quote was shared thousands of times. It read 'fire seasons will start earlier and end slightly later and generally be more intense. This effect increases over time, but should be directly observable by 2020'. The chilling quote was written by economist Ross Garnaut, who 12 years ago led an independent study of the impacts of climate change on the Australian economy. For most, the effects of a warming climate has been no surprise. Climate change is affecting areas once fire retardant, like moist and dark rain forests, which are now burning with leaves drying out and becoming flammable. Fireproof, invasive species are taking over ecosystems and fires themselves are so intense they creating their own weather patterns.

Brad:

In terms of what's happening in the future. Yeah, fires will become, will be this intense, as they've been. There'll be more intense fires, more frequent fires. Unless we really, really get on top of climate change, that's one of the key drivers.

Julia:

But when Prime Minister Scott Morrison announced a royal commission into the fires, climate change was merely acknowledged. Rather, the commission was to focus on disaster response.

Kevin Tolhust:

So it's like saying we're going solve the national health problem by buying more ambulances. A lot of the terms of reference of the Royal Commission is how should we react in the face of these disasters, to deal at the time of the disaster, rather than looking at how we can prevent these disasters from occurring in the first place. Other than looking at whether we should be using the Army, whether we need more aircraft, whether we need more fire fighters, we ought to be looking at the other end. How can we actually reduce the need for all these emergency services in the long term. So yes, we need those emergency responses, resources. But wouldn't it be great if we only needed half as many and they could do the job much better because it's less pressure on them. So I think it's looking at the wrong end of the problem, in a sense.

Oliver:

I live up in the hills behind Byron Bay and Lismore, so I live in sort of fairly rainforest dominated landscape. I live up, sort of on the ridge lines. Got Hoop pines and all sorts of your beautiful sort of trees and landscape around us. Gum trees and box like Brush Box and the Hoop pine is the totem of the Widjabul people where I am now and near where I live. Our society was built on an interconnected relationship with country. The plants and the animals are our family. The trees make the air that we breathe, they were here before us. They've looked after us for 1000 years, shelter from the sun from the rain they've given us food the same with the animals. They've taught us all these laws and stories and practices, you know, we're all connected.

Julia:

Oliver says it's important to question your own narrative.

Oliver:

Everybody's ancestors go back to a connection to land. It's in everybody's DNA. But people have been colonized. People need to reflect on that. Like what parts of their identity, are actually not theirs, they're actually things that they've been imposed on them that have been ingrained in them, or that they've assumed because it benefits them. But it's not actually true to them. You know, nobody wants to be clouded in smoke or be threatened by fire and to see all their, you know, life and property and resources burnt, it's really

important for all people to understand that connection and to support their own identity in connection so they can become a part of those systems so they can look after them.

Kevin:

We tend to look at the world, quite, almost industrial sort of processes where we expect every year is the same when it becomes the first of January. Something's going to happen. The 30th of June is the end of the financial year, when the world is more, the natural environment is much more complex than that. The way that we deal with it in our sort of simplicity, civilized sort of view of the world. When we're dealing with the natural world, we need to be a lot more flexible to deal with those complexities and the interactions that are going on. So we're not going to solve the problem with some, set steps of 1 to 10. We actually need to be much more sophisticated about that.

Brad:

There's a lot of similarity in what different groups might want. People who are interested in the science, in the outcomes, in the positive outcomes, as a lot of similarities and, I think those similarities. We want to have a defensible landscape. We want to have a landscape that protects lives, biodiversity and assets, the houses we live in, transport but also cultural features of the landscape and places that are culturally important. I think it's just acceptance of the importance of a range of interests in this, but that we do have common goals and if we all you know, work towards that and inform each other sensibly. I think we can, we can. We can make a change.

Julia:

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