

Wildfires and Indigenous Populations

Narrator: This is Global Environmental Health chat, the podcast that explores environmental health issues that transcend national boundaries. This podcast is produced by the National Institute of Environmental Health Sciences.

Prompted by a changing climate, record heat, dry vegetation, and low humidity, unprecedented wildfires have burned throughout the world. Wildfires and exposure to wildfire smoke pose multiple human health threats from burns and injuries, to respiratory illnesses and mental health issues. These health effects of wildfires are disproportionately impacting vulnerable groups, such as indigenous populations. These indigenous populations however hold unique ancestral knowledge of the land and have cultivated their own best practices for managing it.

In this three-part series we'll hear from experts in Canada, the United States, and Australia about the health effects of wildfires and emergency management, indigenous fire practices to mitigate wildfire intensity, and the compounding effect climate change has on the future of wildfires.

Part I

Narrator: In our first conversation, we will be joined by Dr. Emily Dicken to discuss the effects of wildfires on First Nations communities in British Columbia, Canada. Dr. Dicken is the Director of Emergency Management at First Nations Health Authority and is part of the Little Red River Cree Nation. The First Nations Health Authority is governed, run, and operated by First Nations people to deliver a variety of health services.

ED: Wildfires in British Columbia have become more significant. They've become larger in scale and magnitude. They've also become more frequent. Especially in 2017 and in 2018, we saw back-to-back years with the most significant wildfires in British Columbia's history or most recent history. It really made us cognizant that the impacts on First Nations communities are disproportionate. It really required us to take a critical look and perspective to understand why that's the case. And I feel like as not just First Nations Health Authority, but as entire field of practice, this is now fundamentally recognized.

Narrator: In the absence of wildfires, First Nations populations in Canada have faced disparities because of social determinants of health, including housing, race, and income. Wildfires and exposure to wildfire smoke can exacerbate existing challenges.

ED: We definitely do see a significant impact for wildfire smoke, especially given that the predominant age makeup of populations living in BC are really young people and a lot of elders. We find that people of middle age are living primarily off reserve for working purposes. Based off the age demographics living on reserve wildfire smoke has a much more negative and profound impact.

ED: The disproportionate impact comes down to a number of elements. Due to the placement of reserves in isolated and more remote parts of the province, what we see are those impacts, as fires burn, communities that are more isolated, more remote, more rural, have a greater incidence of being impacted by fire.

ED: There has also been a systemic lack of funding for First Nation communities. In many communities, there isn't an emergency program coordinator or there isn't a lot of capacity to respond to a natural disaster, specifically a fire, through administrative approaches. Quite often communities won't have an evacuation plan in place. They wouldn't have trained staff to stand up an emergency operations center; they wouldn't have participated in exercises or different training opportunities. Quite often, these wildfire events will catch communities off guard, even though we know BC is incredibly susceptible to interface fires.

Narrator: Apart from the physical stress, these wildfires can inflict mental stress.

ED: There is another element to health though that is incredibly important likely all indigenous populations, we see it really dramatically here in BC, is the multi-generational trauma. What we find when we have those tactical evacuations or evacuations where people don't have a lot of time to evacuate their community in a calm and organized way, that these spaces of trauma really simmer up and are really present in that space of evacuation. It's really important to think about how we create that mindfulness and awareness what trauma in indigenous populations looks like and how we create more culturally safe approaches to evacuation and relocation during wildfire seasons.

ED: Prior to 2017, we've never seen fires to the same magnitude that we saw in 2017. I think what it did was really heighten that awareness for First Nation populations across the province, and for everyone across British Columbia. When we saw it happen again in 2018, I think what it did was it created a fear-based response. Now, unfortunately, when we do see wildfire smoke come in it still triggers that oppressive space of response for people.

Narrator: Dicken explained that the way forward is to empower First Nations knowledge and voice.

ED: When I reflect back to prior to 2017, we would still have smokey sky events from different wildfire events that have happened but because there wasn't such a triggering and traumatic circumstance tied to that I feel like the response from communities and the general public wasn't the same to what we see today.

ED: In many ways I hope that we can transition out of this fear-based response to finding that greater capacity in the community to respond in an informed way, in a way that there is appropriate advocacy for support and resources, and in a way where First Nations communities can exercise a space of self-determination, which is incredibly important in this work.

ED: For too long, First Nations communities have been talked to from the top down in terms of how to respond to disaster events. I think a big change that we've seen in the last handful of years is that we're seeing communities come into a space of empowerment and advocate from the bottom up. It really provides a truer glimpse into what community specific needs are, culturally specific needs are, and it tailors that response in a much better way.

Narrator: Resiliency and sustainability has been an important part of indigenous teachings and culture. When working with governments, understanding that is critical.

ED: If I think about the knowledge or learnings that I can bring to this space around what indigenous approaches around fire response looks like would really be from the perspective of honoring and understanding indigenous resilience within this space and how indigenous communities are inherently resilient. To be indigenous is to be resilient. These are communities and people that have faced catastrophic adversity for generations and are alive and thriving in their communities and celebrating their culture in profoundly beautiful ways.

ED: When we look at how to be resilient in the face of natural disasters or in the face of wildfires is to be able to lean on those cultural learnings and cultural practices, and to be able to draw on that cultural tool kit. All the way from traditional burning practices, to traditional approaches to health and wellness, to traditional approaches to food preservation, to traditional approaches to housing and land management and how communities are constructed and governed and what those leadership governance structures look like. When we walk alongside First Nation communities to honor those practices in their communities that's where we see the spaces of resilience and hope.

Part II

Narrator: In our next conversation, we will talk with Bill Tripp. He is the Director of Natural Resources and Environmental Policy for the Department of Natural Resources of the Karuk Tribe located in Northern California and parts of Oregon in the United States. Like Dr. Dicken, Bill Tripp has seen the effects of wildfires on his indigenous community, the Karuk Tribe, a sovereign, independent nation. Bill has worked at the Department for 27 years.

BT: We get wildfires most every year here and so we're fairly used to that occurrence, but they've been getting larger over the past decade or so and more frequent and larger scales. This year we had two major large wildfire events in Karuk territory. Which is not uncommon to have more than one large fire occurring simultaneously. This year we had the Red Salmon Complex and the Slater Fire. The Slater Fire burned over 90,000 acres in the first couple of days. Took out about 200 homes and killed two people.

Narrator: Fire has a toll on human health and a toll on wildlife as Bill explains.

BT: It seems to be getting worse and worse when it comes to the human health impacts from wildfire. It creates all kinds of problems with respiratory and cardiovascular issues. My dog got diagnosed with smoker's cough this summer and so it has impacts on animals as well. Birds were falling out of the sky dead. It's not just people getting impacted, it's wildlife as well.

Narrator: The Karuk Tribe like other indigenous communities in combustible landscapes has a long history with fire. Bill shared with us how he learned about fire and the effects of not being able to do traditional fire management in his community.

BT: I started learning about how to use fire and why when I was four years old. And so that lesson started with some experience. And it wasn't that easy to pull off. It was wet and I had to figure out how to get fire from one point to another with a little box of stick matches.

BT: That led into a whole series of our creation stories that talked about the animals and the spirit people and their relationships with each other, what they do and who they are. A lot of our knowledge about these things are in those stories, they're in the way our regalia is put together and how it's used during our ceremonies.

BT: So when it comes to some of these health disparities in indigenous populations you know our relationship with fire was taken from us, without due process. Without us ever ceding our aboriginal lands and so getting separated from our relationship with fire has profound impacts on our relationships with food sources. It's been 150 years we've been going through this. The further we get through time the further separated we're becoming from our food sources. There's effects to us from not being able to use fire that are then added to and exacerbated by the level of fuels that are accumulated because we no longer have that access at the scales we need to be able to keep the types of things we're seeing today from happening.

Narrator: There are challenges, but also progress on how federal agencies work with indigenous communities on fire management. The Karuk Tribe has retained some of their fire practices while engaging in joint National Environmental Policy Act or NEPA planning.

BT: Right now we have individual tribal people that still burn in their places. It's not at the scale it needs to be so as a tribal government agency I guess you'd say we're trying to find ways to change the systems that influence this discussion so we can more appropriately build our program around supporting these folks in doing that. In the meantime we're also training our staff in how to you know be considered qualified to burn and respond to fire and be part of the fire management system that's currently in place.

BT: We've made full use of the government consultation processes that have been established in the United States when the federal agencies are working with the tribes. And we're trying to build some of those relationships with the state, right now, as well. We've been deeply ingrained in this conversation with the federal side for the past 30 years or so and change is incredibly slow. But you know, were getting to that point where we're able to use collaborative processes to do joint NEPA planning and use some of the agreement structures that are out there to actually lead in the implementation, research, and monitoring, and adaptive management process.

Narrator: In addition to federal agencies, Tripp is working with other tribes to sustain indigenous knowledge of how to manage wildfire.

BT: One of the one's we're doing locally is the Indigenous Peoples' Burning Network, where the Karuk, Yurok, and Hupa people combine. We're looking at our three territories and starting some conversations around how we can build systems of intergenerational learning and to support one another in scaling up our indigenous burning activities as well as supporting family-based practice.

Narrator: The Karuk Tribe and others used prescribed fire to control the scale of wildfires. Bill explained why prescribed fire or controlled burns could have less health effects.

BT: If you're doing a burn that's planned or set within a known set of conditions that you know is coming, then you can more easily avoid being overly exposed to smoke. And so if you can do that often enough and at large enough scales in a strategic manner, you can also end up over time reducing the level of exposure that comes from the wildfire scenario. You're not going to stop fire it's going to happen one way or another. But if you can distribute that exposure out to be lesser per occurrence, then hopefully we get to a point where we're not exposing to long duration hazardous levels.

Part III

Narrator: In our final conversation, we will talk with fire expert Dr. David Bowman about wildfire landscapes and the consequences of a changing climate. Dr. Bowman is professor of Pyrogeography and Fire Science, and director of the Fire Centre at the University of Tasmania in Australia. Dr. Bowman is the author of *Fire on Earth: An Introduction* and his research has been published in the National Institute of Environmental Health Sciences' Environmental Health Perspectives Journal.

DB: My title, professor of pyrogeography and fire science, has really tried to be an evolutionary marked point in my understanding of fire on earth and particularly fire in Australia. I've been privileged to study landscape fire globally and locally right down to local scales.

Narrator: Today, human influence on our natural environments and burning of fossil fuels have led us to the Anthropocene.

DB: Well the Anthropocene, some people like Stephen J. Pyne talk about the Pyrocene, but the Anthropocene is the recognition that human populations and human agency has become a global force, a global factor. One of the dangers of immediately thinking our problem is climate change is that we're not really understanding that actually climate change is a symptom of a much bigger process and at the core of that the process is the combustion of that biomass.

DB: Carbon is a big deal in the earth system. We're pouring all this carbon into the atmosphere, and guess what, when you do that, you get a whole lot of feedbacks, not just climate change feedbacks but atmospheric feedbacks. We're just burning through that carbon, and polluting the atmosphere. Things are swinging back and climate change and all these feedbacks are kicking in and one of them is fire itself, that the fire regimes and fire has changing as well

Narrator: Wildfires and humans have a long history. Professor Bowman reflects on the history of fire in Australia.

DB: As the humans colonized the planet, they invaded new environments, they were sometimes a novel fire agent, but most typically, they just changed the natural fire regimes, as we call them. They were able to introduce fire. Through that they were able to manage land and wildlife with fire.

DB: By the time Europeans showed up in Australia, aboriginal people all over the continent had figured out how to use fire in a sustainable way and those traditions got disrupted by settlers and this had an incredibly rapid impact. Basically revolutionary, overthrowing highly refined forms of fire management. You know that created and then building structures in flammable environments, that created a bushfire problem.

DB: So what's been happening in the last two decades is that those institutions' attitudes, cultures are just simply being crushed by the scale of the fire crisis and the reason for that is that climate change is making a bad problem and a dysfunctional problem way way worse.

Narrator: 2019 was the most active fire season in Australia in nearly two decades. The record setting bushfires in the past several fire seasons mean there is not only a need to decarbonize, but also to dramatically adapt and reconsider the approach to fire management.

DB: It's very easy to grip onto one view in the multi-dimensional cloud. You can say it's because aboriginal fire management or the lack of fuel management or you can say it's climate change, but really it's all of those things. We need better governance structures, we need better planning, better buildings, better fuels management, and underneath it, we need to start thinking about stabilizing the climate. You have to adapt in real time, very fast because the bushfire situation is escalating. It's incredible to scale and speed of the fires.

DB: The adaptation problem is enormous because the biggest adaptation I think is going to be moving from you know the idea, the tendency is to consolidate more, the American approach, to consolidate more and more fire power in terms of firefighters, bigger aircraft, more trained people to do more stuff on the ground to suppress fire. Total war on fire. The Australians have never really followed. We've been a lot more into fuel management, a lot more into individual responsibility.

As the fires are becoming bigger, and there are a whole lot of demographic changes which are occurring in Australia, it means that we're tending to want to have more and more aircraft to fight these fires. But it's obvious to me that the solution is going to be in the community and we need to be capitalizing on Australian traditions of independence and community mindedness.

DB: I think that the solution in Australia is going to become, it's proven certainly by the Aboriginal approach. It's about devolving power back to the community to let communities and individuals have the skills and the knowledge and the resources to create fire safe landscapes.

Narrator: Though he focuses on local solutions, Bowman concludes that wildfires are a global problem and countries can learn from each other.

DB: Pyrogeography leverages those scales of time and space. So it's not a problem to be thinking globally and think about how fire activity is changing. I think one of the ways we're going to adapt to our new circumstance, we humans, is through comparative analysis. And go well let's have a look at what they do in Portugal, let's have a look at what they do in California, and let's have a look at what they do

in Australia. Can we mix and match? Because it's got to be good things in all of those places, in terms of living with fire and there's got to be some dysfunctional things.

Conclusion

Narrator: Additionally, the National Institute of Environmental Health Sciences funds research to better understand wildfires and exposure to wildfire smoke, including areas of urban wildfires and health effects of wildfire smoke. You can learn more about the institute's research by visiting our website at www.niehs.nih.gov/GEH. Thanks again to Dr. Emily Dicken, Bill Tripp, and Dr. David Bowman for joining us today. You've been listening to Environmental Health Chat, brought to you by the Global Environmental Health program at the National Institute of Environmental Health Sciences.