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79-fire-archaeology--transcript

00:00:26 **Kirsten**

Hello and welcome to the women in archaeology podcast, a podcast about, for, and by women in the field. My name is Kirsten Lopez and I'll be your host for this episode. Today we will be chatting with our co-host Emily long about her experience as a fire archaeologist and Chelsi Slotten will be joining us as well. Thank you so much for being here.

00:00:49 **Emily**

Happy to be here.

00:00:50 **Kirsten**

Glad to be back.

00:00:52 **Chelsi**

Yeah.

00:00:53 **Emily**

It's nice, it's been a while. So it's great to hear your guys voices.

00:00:58 **Chelsi**

Emily today you get to sit on the other side of the table. Interviewee not the interviewer

00:01:04 **Emily**

or geez. Okay, here we go.

00:01:07 **Kirsten**

No , pressure, no pressure. So it's been a little bit since you've done the fire archaeology. If I'm correct a couple of years.

00:01:23 **Emily**

Yes, it's definitely been a couple years, so just for context for listeners. So I'm a federal archaeologist. I work for the government and for a lot of land managing agencies- Forest Service, Park Service, Bureau of Land Management and so on. Part ff the job of being an archaeologist is being a fire archaeologist. It's just one of the many hats that you have to wear. So not only are you serving for trails as soon as your agency catches on fire. You're probably going to have to have the training to be

able to go out and help protect these resources. And so, this is just from my experience from working for the Forest Service and the Park Service, doing a lot of fire archaeology for them being a what is called a resource advisor or read and we can get into that but yeah, so it's been a few years. My family is very happy I don't really do this anymore. I work for a different agency now, that works more with private land as opposed to federal land and so that opportunities not really there anymore. And so my mother in particular is very happy. I'm not being you know popped in helicopters and sent out to fire locations or you know going on these 14 days stints to be running around with bulldozer crews and HotShots and stuff and being like burn that, don't burn that you know,

00:02:50 **Kirsten**

yeah, but it sounds like a lot of fun.

00:02:53 **Emily**

Oh, it's so much fun. It's absolutely terrible and so much fun all at the same time.

00:02:59 **Chelsi**

Yeah, and so obviously with everything that's going on in the west coast of the US right now. There's a lot of fires burning and a lot of reads are, you know actively working, probably without very much sleep. Do you maybe just want to start by giving us a quick peek into what a standard, if such a term can be applied, but what a standard 24 hours as a fire archaeologist looks like

00:03:26 **Emily**

sure um, so you're definitely right and that you don't get very much sleep and a lot of that really has to do with the general fire schedule. Usually like you start with meetings at like 6:30/7 o'clock in the morning. There's a general roll call for all the resource advisors, the fire managers, the camp managers, all of these folks all come together and we look at a map of where everything is happening on the fire. So where are the lines, if there's containment of the fire? Where's the fire going? What is proposed for that day? And then people get split up into different groups. So you might have a Hotshot crew. Those are the, they're the most amazing groups of people. Amazing men and women that like there on the front line trying to contain that fire in any way possible and you get your smokejumpers, people who are jumping out of helicopters to try to get into these areas and even our type 2 crews are amazing because they're out there trying to clean up these fires, create fire lines, all this stuff. So you're working with a major group of people, huge groups of people and each of these groups might get a resource advisor and that can be an a biologist, a geologist, all the -

ologists you can possibly imagine and so if you're a fire certified read, because there's different categories of that as well, you are probably staying in the camps and then you're going out on the front lines of the fire. And so you need different trainings, and I can get into that later. So it really depends what you're doing whether or not your a read that stays in the camp or at the Management Center like doing GIS mapping or if you're within the Camp's themselves and then working directly with different groups. So for one example is I've been out a bunch with Dozer Crews. So there are folks who, there's a dozer boss who directs a bulldozer and then the bulldozer and they're cutting line. So these massive areas of just exposed Earth to be able to create a firebreak and so the archaeologist runs in front of the Dozer boss to try to survey that area before anything could potentially be destroyed. So that's one thing you could be doing. You also could be working directly with crews on helping them direct where a hand line might be put, directing crews on putting lines around fire, around cultural resources. It really depends. So if a typical day you're getting up, you're getting going and then you pretty much working a 10 to potentially 16 to 18 hour day.

00:06:14 **Chelsi**

That's brutal.

00:06:15 **Emily**

It really is and it's 14 days straight or 21 days straight and you will get sick because camps are disgusting and I mean the camp managers are amazing. There's everything you do but you got a whole bunch of folks in one location using Porta-Johns, germs are going to spread you get what's called the camp crud. So everybody's getting sick, you're not sleeping and it's just because when you're in an emergent situation, it's really go go go go go and so if you know reads there's a good reason why they're exhausted when they get back from a stint. I always manage to get sick on these on these fires- usually like really crazy combinations of like bronchitis and you know strep throat and a cold

00:07:04 **Chelsi**

Well and I can't imagine that the air quality is doing anybody any favors in terms of feeling good.

00:07:13 **Emily**

Oh it's not. And it's possible your Camp can get evacuated because of fires coming. There are Spike camps and then main Camp so it depends where you are. I've been in Spike camp locations where you're in a further out location. And so it's easier for you to quickly get to maybe an engine crew that needs to be able to put out certain areas like get water to certain areas and then you can help them

say like that area is okay to draw water from because that's not a historic dam. Where as over there we have some historic sites- don't touch those or that kind of thing. And so when I first started as a read, I had a paper map and a trimble and I would literally be like, where are you going? Look at the map look at the trimble and be like you can go there, you can't go there, you can go over there, can't go there. We don't know about this area. Nobody surveyed it and then as you're going along getting more information you're doing a little bit of everything. Now as a read, it's always possible too that if you're getting into an extreme emergency situation, you could then be put on a fire line to help dig lines with the fire Crews because it's an intense desperate situation. So I've dug line too. I am short and chonky and so I do not keep up well with fire crews and it's very obvious, like they are in the peak of physical condition. It's amazing. That was very long and drawn out but that pretty much like a full day- you can be in the fire Camp doing a ton of like writing reports trying to get GIS information together trying to get everything put together so you can give the fire Crews the best information that you have because we have such sensitive information. We can't just give it to people, you know to be like here's all the information. Also working with tribal fire Crews is really cool. A lot of tribes have their own fire Crews and so working with them and their Elders can be a major part of it as well and trying to help protect sacred locations, working with maps with that and so it really, you could be out on the fire line directly, you could be indirectly within the fires that you're trying to create larger fire breaks for when that fire will eventually or potentially get to those areas, or you might just be back at camp or you could be at the fire Center or you can be in your own office doing GIS work, so it really depends where you are within all of that and I've done a bunch of those different roles, but I've primarily been at the fire camps and then on the fireline,

00:09:45 **Chelsi**

So there is no standard day.

00:09:47 **Emily**

There is no standard day it one day could be the most boring thing on the planet. I've had fire situations where nothing was happening. Nobody needed me and I was told to take a nap in my truck. Other days it was a literal 18-hour day and I had a bunch of those in a row because the fire spiked so quickly my other archaeology colleagues and I were put on a fire line. And we're like we're archaeologists and they're like, they said we don't care. [laughter] I was put on a fire engine crew at one point. I no, what, you like, and they're like we don't care, go put out that fire and I'm like how

00:10:31 **Kirsten**

I am not trained for this

00:10:33 **Emily**

Exactly and there were these things called Piss pumps and it's like a giant bag of water with a little pump and so the backpacks already about 40 to 50 pounds and then they threw like 60 pounds of water and I mean I just fell over, like I'm not built for this. So a read day can really run the gamut of you're in your office, to you're in a spike camp in the middle it.

00:10:59 **Kirsten**

That's fantastic. And it's something that's interesting out here on the West Coast right now. I know a number of archaeologists both federal and state agency archaeologists that have been put on the front fire lines with this September's surge of fires that has completely devastated the West Coast. Much of that is ongoing but as of today, which would be September 20th for the recording, a lot of the Oregon fires and Washington fires are fairly well contained or like under control. California's still pretty, pretty wild out there. And then what does Colorado's fire front look like right now?

00:11:53 **Speaker 3**

Um, it's definitely a lot calmer. Unfortunately. I don't really know containment levels wise, but I can at least tell you the smoke isn't as bad near where I live. They're getting closer to containment. I mean these were some of the largest fires in Colorado history, but for looking comparatively speaking to California, these fires are smaller.

00:12:20 **Kirsten**

Yeah, and that's something that's pretty much across the West right now. All of these fires, like it's a record-breaking fire season for sure. And I think it'll be interesting to see how our government decides to handle this in terms of funding capacity and getting enough bodies and knowledge out there to handle these fires properly in the future because we all know that this is just going to continue

00:12:53 **Emily**

Exactly that's a really good point. And so bringing up: one we have climate change which in general is just going to make everything far more intense. But also what you're talking about with funding, most federal funding for fires tends to go more towards putting out the fire as opposed to preventing the fire and we have a wealth, I mean, there's so much amazing information coming out of, about looking at prehistorically and historically indigenous groups using prescribed fires for the landscape and we also have indigenous groups today using prescribed fires as a mean of reducing the fuel load of having so many dense trees and brush and whatnot. And so it is shown, it's proven

that this wealth of knowledge is desperately needed and desperately needs to be used and so we need to, well not we but you know federal agencies really need to get on board with doing more with prescribed burns in that sense. And then also trying to get more funding towards that but yeah, obviously then climate change is a whole other...

00:14:05 **Kirsten**

But management is a big part of that and I'm glad you brought that up because I remember for the brief amount of time that I was working with the forest service last year. I remember the forest archaeologist for the week, I think it was the regional district manager was there for a presentation or a learning something or other that I was at and in 2019 the forest service was running at 40% staff based off of the funding that they were given and in the time of climate change and the amount of fires that have been growing annually for the last 20 years, that should not be a thing and...

00:15:09 **Emily**

Those federal agencies are poorly understaffed, poorly poorly understaffed. And that's true all across the board,

00:15:18 **Chelsi**

which is crazy because I feel like there are actually some very well qualified archaeologist who I know who are looking for jobs.

00:15:24 **Kirsten**

exactly. Right?

00:15:27 **Chelsi**

There are people that can fill those positions. It's just a matter of like cutting through the bureaucratic red tape to get the positions up and get the money.

00:15:35 **Kirsten**

And a lot of technicians out there are in, if not Peak than close to Peaks physical shape from doing many 10 or 12 our survey days, you know digging, depending on where you are in the country, many tiny holes or many very large holes throughout your day. So it'll be interesting to see how this whole changes because it will need to. And it's really encouraging Emily to hear about all of the different roles that you fill for a couple of reasons, but one is that there's, you know, definitely a need, especially with the growing number and intensity of fires, for fire archaeologists out there that can wear all of the hats.

00:16:29 **Emily**

Mhmm. My experience the Forest Service tends to be the most proactive in terms of making sure that their archaeologists and have their, it's your type 2 training that means you're qualified to be with a type two firefighters. You're not on the front, front lines. You're not a Hotshot, but you're able to do a lot of the other work and then you have this read training and whatnot. Now I again this that's my own experience. And I feel like there's quite a few other agencies where they could be far more proactive in terms of making sure that all of their -ologists have the read training. Even if they are a land managing agency that doesn't tend to have fires. One of the things that happens with reads is that you're called upon throughout the country. So there are reads from Arizona fighting on fires in Oregon and California. There is such a desperate need for all of these different specialties that they go all over the United States and sometimes even the world. There's been a number of reads who have gone to Australia when there have been bad wildfires there. And so it's one of those things that, I mean it's a little bit of one of my own soap box that I feel like it's something that's needed by all federal employees that if they have a specific specialty we should be able to be that resource during these emergency situations.

00:17:54 **Chelsi**

Yeah, and it's interesting that you bring up the reads can be shipped around the country because I would imagine that in the past when we didn't have it these megafires that you could get people from other counties in the same state that you're in or from a nearby state but when you have multiple states that are having megafires at the same time that you would have to pull from further away and well I did some of my training down in Louisiana where hurricanes are a much bigger concern than fire, but I don't remember ever hearing about fire archaeology as a thing as an undergrad, in the field school I went to which was in Pennsylvania and granted we have occasional fires, but nothing like what you see out west. But it does seem like doing some more across the board training would be really beneficial.

00:18:54 **Emily**

I lived out west and had no idea it was a thing until I got my first job in the federal service and it was like surprise you need to buy some fire boots.

00:19:04 **Kirsten**

Yeah. That was an interesting thing that popped up just this fire season because there's so many archaeologists that I've seen like in the past couple weeks that have posted photos of like well, I'm

out on the fireline now today or like we all got transferred in to go help with the fire at different levels. Like you're saying from front lines to there's a state forestry archaeologists that I know that ended up helping with evacuations and getting people who lived in the rural areas of the Coast Range in the dense forests up there, getting them off of their property safely and to a an evacuation zone. So that was really interesting to see both the intense need all of a sudden and how like everyone just kind of transitioned and moved so quickly when that need arose but it definitely like you guys were just saying, like oh shit this is something that we're really going to have to expand on.

00:20:21 **Emily**

Oh, yeah. It's and it's going to be something that's ongoing needed and I do have to say probably the scariest I have ever been was on a wildfire and I can't say enough how brave the firefighters are and everybody associated with them. But then also too the reads that put themselves in some pretty crazy situations that are far from, I mean they're as safe as they can be but at the end of the day, these are very dangerous situations. And so we always need more people. We need more support but then can't say enough about the people we have who are incredibly brave.

00:21:07 **Kirsten**

For sure for sure. Well, I think we are at a wonderful pause point for our break. So we will be back here shortly and continue discussing the ins and outs of fire archaeology here with Emily Long.

00:21:27 **Emily**

Whoo-hoo.

00:21:42 **Kirsten**

And here we are back again. Thank you for hanging out with us for our second segment. So Emily is here. Emily Long, one of our regular co-hosts, is talking about her experience as a fire archaeologists with several different managing agencies over the years and to talk a little bit about protecting cultural resources as a fire archaeologist and kind of what looks like so take it away.

00:22:16 **Emily**

Cool. One of the big things is I mean fire in the way wildfires are treated. It's constantly in a changing and and so if any of the information I'm providing is outdated I certainly apologize. Please contact us. We are always happy to get more information. So this is all based, you know on my experience from starting my first job with the forest service to about four years ago. So things have changed, things are always changing same with the retraining but in how to protect cultural resources there's only so many different ways. You can go about it and pretty much like with any undertaking the

easiest way to protect an archaeological site is avoiding it. So if you can have just like a site be completely avoided by fire, by construction, that's the easiest route. And so if you know a fire, the fire is going to just pretty much like go up a different area and you don't even need to worry about the site. Excellent. Also, there are a number of sites that can burn it all the obviously depends on the level of intensity of that fire, but there's certain things like certain lithic scatters. You probably wouldn't be able to do certain kinds of research on the flakes and stuff. I think fire can change like obsidian hydration dates? I could have be wrong with that something along those lines or the flakes will look heat treated when they actually weren't heat-treated. But beyond that I mean lithic scatters and stuff like that, they probably burned over many times since the creation of that site. And so there are certain things that can just burn

00:24:00 Chelsi

I imagine anything that still underground right, because Archaeology is kind of digging stuff up. So if there are sites that you've surveyed and you know exist but haven't ever been excavated like presumably letting that burn... I don't live in a state where fires happen I've never been a fire archaeologists I try to avoid fire it's a little bit scary to be honest.

00:24:23 Emily

That's a really good question. And again, it all depends on that level intensity of the burn, what kind of, so when you hear like fuel load is like how much stuff that can burn around it. And so for something that's buried you can have root burn. And so the fire, if it gets the entire tree and it goes all the way down through the stump into the roots. If you have buried material next to it, let's say a wall, a hearth, or something like that and then the tree is gone. You're going to have erosion to that particular site, that feature because what was keeping it, you know, maybe upright, or in place is no longer there. And so that fire could then it can mess with charcoal dating, it can mess with your hearth if you're trying to get dates from that, it can also completely destroy something that's buried. So it all, it all depends on the context [laughter] as with everything in archaeology context is key. So it really depends so there are certain. Yes. So there are certain things where you probably don't need to worry as much but if you have a lot of buried material and trees, then you'll probably have root burn and you're probably gonna have erosion to that site or like with the pit out where that tree used to be you might have exposure of the archaeological remains. Same with brush and that kind of thing if there's nothing holding the grass or the brush in place because it's all all been burned then you're going to have a lot of exposure of subsurface material potentially, right?

00:26:01 Chelsi

But that's also potentially months or years after it was fire itself.

00:26:05 **Emily**

Exactly. That one's tricky and that gets into post burn analysis and stuff. So like I said certain things can burn, like there are certain historic artifact scatters- tin cans and glass that might be okay to burn but if it's a really heavy hot burn it's going to melt glass, it's going to melt tin cans. It can make if you have like bedrock metates, if it gets hot enough that rock will spall and rock art, if it's there's like a wall of rock art that rock art can fall or gets sooty or completely disappear if it's paint, you know, if a fire gets right up next to it, so it really depends, A lot of stuff can burn and then a lot of stuff can't it all depends that level of intensity and then what kind of archaeological remains you have. So one of the things you can do if you have like a pueblo and field house or something and it's standing structure something you can do is dig a fire line around it and decrease any potential burning fuels within that site boundary. So if the fire comes up towards that site, it's just going to kind of puffer out once it hits that line and then if there were like embers and stuff nothing could catch within that site. So that's one thing that can be done. Reducing fuel load around sites is always a good thing. You can set up sprinklers around structures, buildings, that kind of stuff, so sprinklers are an option. There's, so the material that's used for fire shelters that firefighters carry around, it's used if you're going to potentially have a burn over or be too close to the fire and then you have no way to escape. You have a fire shelter and you look like a burrito you kind of like go into this little shelter thing that you flip out and you crawl into and then you hold down. That same material can be put on rock faces where there's rock art. So you try to protect that as best possible and you can also wrap entire buildings. I've seen Pope Puebloan structures have that material put on it so it can be very versatile. And I mean, obviously if the fire gets right up next to it you're building could still burn and that kind of stuff where you can still have spalling, but it's a really great thing to protect it from the heat and then embers and stuff so that material is really cool to work with and they come in like giant rolls. So just looks like a big giant rolls of aluminum foil. It's very crinkling and it's like a foil blanket. Other stuff that can be done, you can use like there's slurry, fire retardant foam. You see a lot of stuff dropped from planes onto buildings, red goop coming out of planes and so that's a possibility and there's like a foam you can like cover stuff in the downside to it is that stuff can really be bad for archaeological sites. It can stain everything red and you can't always get it off and like there's certain chemical reactions. That could be really bad. But I guess then the I mean the flip side is but you still have the site.

00:29:29 **Kirsten**

Yeah. Yeah,

00:29:29 **Emily**

it's one or the other type of thing. Water drops are always a possibility and so same idea plane or helicopter dropping water. The hard thing with that is that can cause erosion and so like the intensity that it's hitting something because I've heard that like during these water drops. It can knock firefighters off their feet depending on the intensity in which it's being dropped. And so if you think of it like hitting a fragile structure or something that'll collapse.

00:30:00 **Emily**

Yeah, there's kind of like a flip side to every potential treatment or possibility but there's just certain things that can be done. But at the end of the day no site is worth a life. And so that's why, I mean it's really sad, when a lot of these places burn. I'm hearing a lot of stuff about like state parks with historic buildings.

00:30:25 **Kirsten**

Yeah

00:30:25 **Emily**

About our national parks with like ranger stations or a lot of buildings burning but at the other end of that it's like if it would have been an extreme danger to life then it's just not worth it. Better it burn than get somebody hurt

00:30:41 **Kirsten**

and it does add, I mean it's one of those things that we sometimes have to remind ourselves as archaeologists is history is being created all the time. So for example, a red staining to an archaeological site that was saved may be a really good, say like years down the road interpretive signal of this was something that was able to save the site like it's something that it can add to the interpretation and richness of the site and just being in this "Well, we have to save everything a hundred percent" mindset can be distracting from why we're saving it like you're saying making sure that life is important. You know, it's paramount, but even if you can't save it a hundred percent knowing and having these places as examples for why forestry management, global warming, good administration, funding for agencies are all really important. It's just an example of you know, how things are changing through time.

00:31:56 **Emily**

That's a really good point. With some of the firework that that is done, unfortunately, it's highly possible for archaeological sites to just be completely obliterated by some of the fire activities. When lines are being created by bulldozers, by hand lines and that kind of stuff and that's not an uncommon thing to happen is then trying to find the archaeological site like it was here and you just find little bits and pieces of it and a bulldozer went through it because they were trying to plan ahead for where a fire was going and then they just put in the line because of an emergency situation, but that ended up destroying a whole bunch of things in the process. So, there's kind of, there's that side of it too that you mean you can't always have a read on every on every little thing that's happening and unfortunately cultural resources do sometimes get destroyed in the process, but then it goes back to that like, well, it was an emergency situation things need to be done.

00:33:04 **Chelsi**

But like a human life

00:33:06 **Emily**

exactly.

00:33:07 **Kirsten**

Yeah,

00:33:08 **Emily**

But there's, I mean in the words of a fireboss that I met that like a crew went Dozer crazy and just there like let's put in lines and a dozers like putting in lines everywhere and destroyed a whole bunch of stuff and the fire didn't even go anywhere near there.

00:33:27 **Kirsten**

Oh no no

00:33:29 **Emily**

But it's like stuff happens and it's unfortunate and all of that gets recorded. So even a destroyed site still gets recorded.

00:33:40 **Chelsi**

I also think, some of the stuff that I read in preparation for this episode, because as I stated zero experience or knowledge about fire archaeology, talked some about the possibility of fires to you know, expose sites that may not have been obvious before or you can see you know depressions are

ridges in the ground that maybe the outlines of previous structures and that sort of thing. So I feel like along with the potential for destruction, which is obviously bad. There's also the potential for discovery of new sites or information.

00:34:21 **Emily**

Mmm. It's yeah a definite possibility and it happens and it's really pretty spectacular especially... so when I worked for the forest service you get in areas with really dense Pine Duff. And so you might know there's a site there, you maybe found a piece of pottery or you found a few flakes or something. Fire goes through and you find an entire Pueblo complex because it was all hidden by pine duff, by trees, by fallen limbs, all this stuff and so fire does have the potential to expose so much information and so that's why a major part of wildfires, and you don't see this really on the news, is the post burn analysis of everything and sometimes it's called bear work or it's different things, like while they're doing erosion control and whatnot, trying to prevent mudslides and stuff. After a fire part of that is also having reads on that or archaeologists from that particular agency going out and trying to see which sites were burned, what's still there, and if there's anything new? and yeah, there's tons of new sites. When I worked in California a big thing that was done by the indigenous communities there was creating these bedrock mortars on these massive boulders, and they had have a pestle to go in it and forgot Acorn seat. Well, those would get filled with pine Duff and the entire boulder would be covered in Pine Duff. You get a light burn in there and all that pine duff is gone. Oh my gosh, look, there are five Boulders full of you know these Bedrock mortars. So it's really there's a lot of possibility with that. Sad side of that is if the fire was really hot and intense it can destroy a lot so you may not get the full of what that site would have been because so much of it burned. That's just kind of unfortunately how it is and then on top of that either you got a public land an agency and you suddenly have tons of archaeological sites exposed. You're going to have vandalism.

00:36:36 **Kirsten**

Yeah,

00:36:38 **Emily**

There's a weird looky-loo thing on wildfires. People will literally go out on their Gators, ATVs, and stuff during a wildfire that's closed off to the public and try to drive around like to watch the fire.

00:36:52 **Chelsi**

Why

00:36:52 **Emily**

I don't know and I've seen this happen where it was literally a golf cart on a forest road and we were maintaining the road and like what the hell was just that?! It was like a bunch of old people in a golf cart like hello and just like driving by and it's like there's a fire. What are you doing? And so there's a lot of people trying to just look around but then on top of that there are those who will then go steal artifacts, destroy archaeological sites that kind of thing.

00:37:22 **Kirsten**

Yeah, because it's exposed.

00:37:24 **Emily**

Oh, yeah. Yeah. I mean it's a amazing on the archaeological end being like, oh my gosh, look at all of these amazing artifacts, but the flipside then...

00:37:32 **Chelsi**

Leave them in place.

00:37:33 **Kirsten**

Yes, we've been there and there's often around here, when that happens, not the looting part, but the exposure part. When people leave it alone the archaeologists from that agency will often create a like an exhibit or some sort of presentation in the local cultural center or the local ranger station on the history of that area based off of the archaeology that they find that there's been stuff, you know around here that has been exposed by fire. It's something that happens pretty commonly. Enough that CRM companies are often actually hired to do the post-fire analysis stuff. For the the archaeology anyway.

00:38:27 **Emily**

Oh, yeah. Oh, yeah, it's always worth noting like there's so much educational opportunity with this exposed stuff and I always feel like you got to mention it is very, very illegal to take anything from public land. That's Forest Service, Park Service, anything that belongs to the government or tribal lands. You cannot remove anything from it. It would be a dumb reason to go to jail- having stolen some artifacts.

00:38:54 **Kirsten**

Or and that's where you know, it's one of those things that's not only very illegal, but it's very expensive. The fines are what \$300,000 per occurrence if you are, you know...

00:39:09 **Emily**

That might be for a repeat offender.

00:39:12 **Chelsi**

Both morally and ethically repugnant. Don't do it.

00:39:15 **Kirsten**

Yes. I mean there's many reasons why not to do it. But for those who are attracted to the idea going "Oh, this is cool. Like it's going to be out there." It's dangerous to go out there. When you're that close after the fire people who do go out there for the archaeology are trained to keep an eye out for embers that pop back up

00:39:34 **Emily**

And we're wearing special equipment .

00:39:37 **Kirsten**

Exactly and it's not safe for anyone to go wandering. Out right after a fire and collect artifacts for so many reasons.

00:39:47 **Chelsi**

I just don't understand why you would do that. There was a fire.

00:39:51 **Emily**

People are dumb, people fly drones into fires and the crazy thing with that, like that's been a huge issue. It will mess with air traffic in terms of like the planes trying to drop water. It messes with radio traffic. It's like just don't don't do stupid things.

00:40:11 **Kirsten**

Yeah, it's hard to prevent people from doing stupid. But you know you do what you can to try and inform people as to why it's a bad idea.

00:40:19 **Emily**

Yeah, like don't do gender reveal parties with fireworks. Come on people.

00:40:22 **Chelsi**

And like how many of the forest fires in the last three years been started by fireworks?

00:40:30 **Emily**

Oh, a good thing to note if they are able to trace the fires to a specific person or group of people. They have to pay for the cost.

00:40:40 **Kirsten**

Oh, yeah.

00:40:42 **Emily**

Millions, billion, millions, and millions of dollars. They will have to pay for it

00:40:47 **Kirsten**

A couple of years ago there was the Eagle Creek Fire up here, just outside of Portland that evacuated some of the Portland suburbs. And this was in the the Columbia Gorge Scenic area on a trail. They were able to track down who did it because it was a group of teenagers who threw a firework down this Ravine and posted it on YouTube. And this kid now has to do community service and fire training. From like now to, I think he was 15, so from then through adulthood like into adulthood, like he had community service every summer, plus fines paid by his parents for like six years or seven years or something, but it was like , you know, millions of dollars. They were able to save in a weirdly miraculous way the Multnomah Falls historic lodge and falls area, but a lot of a lot of stuff burned and went up and a lot of the trails are inaccessible even today and this was like three years ago. So there's a lot of work that's had to go into like reconstructing a lot of the trail area because it's a very densely visited hiking spot because it's a half hour from the city or from the central part of the city. So it's it's interesting to see how that is applied because people, I mean agencies are not afraid to prosecute arsonists for sure. And a lot of these ones are definitely being sought after for reparations and payments

00:42:39 **Emily**

As they should be.

00:42:40 **Kirsten**

Yes, so don't start fires people.

00:42:42 **Emily**

Yeah the loss of life, property, and then on our end of things culture resources, it's not worth letting people know the gender of your baby.

00:42:53 **Kirsten**

Yeah. I mean I did a stamp in the card or Facebook.

00:42:59 **Emily**

That's cool that won't set anything on fire.

00:43:01 **Kirsten**

No, not at all. It's all happy and supports the post office- important these days.

00:43:13 **Emily**

On that note.

00:43:16 **Kirsten**

We are at the end of our second segment. Thank you Emily for going into some detail on how we protect our cultural resources during a fire. So we're going to take a quick break and be back and to chat about how to become a read if you are so inclined. We'll see you soon.

00:43:48 **Kirsten**

Well, thanks again for sticking around for our last segment here on the women in archaeology podcast with Emily long and talking about fire archaeology. So Emily, can you tell us a little bit about if someone is interested in getting in on all of this fire business that's going to be, as we mentioned, probably ramping up over the next several years. What are some of the ways that people can get into being a read or a Resource advisor, was that it?

00:44:29 **Emily**

Yup. Well even before just talking about a read. I know a number of people who have been on Hotshot Crews, type 2 fire, fire fighting engine Crews, and whatnot. And they those jobs they're really unique. If you're a person who loves being outside, has an interest in forestry and Um, you feel like you have an adventuresome spirit and you're ready to tackle a fire with an axe and a Pulaski, might be up your alley. Someone I knew in grad school they paid for a lot of grad school from being a Hotshot. So it can be a really good opportunity working in Fire and especially if you're right out of high school, right out of college Etc that can be a good job to look into and the Forest Service, Bureau of Land Management, they're constantly posting online. So if you're looking for a job, you can start there. Now if you're an archaeologist, whether at the GS5 level or higher, it's highly likely that one of the roles that you're going to have to play may be a read, a resource advisor. You're

going to need to help with working on fires in some sort of capacity. And so honestly, it's not something I really looked to do it honestly just fell into my lap and that happened with the forest service and the park service. It's something you can try pursuing as well. There are agencies where working in fires is really just not something they do and the likelihood of a fire occurring within their managed lands is highly unlikely. So if it's something you want to pursue you are probably going to need to ask your supervisor and get the training and go from there. So becoming a read there's person trainings and webinars. So you start with that like 'how to be a resource advisor' depending on the level of where you want to be on a fire. If you need to be on the fire line and you want to work directly with the firefighters in a potentially hazardous situation you have to take what's called a pack test and a pack test is you're wearing a, oh gosh how many pounds was it? I think it's like 50 pounds, so a 50 pound weighted vest and you have to walk three miles under 40 minutes. Something like 40 pounds under 40 minutes 3 miles something like that. I'm having a bit of a brain fart at the moment of the specifics. And the crazy thing about that to you're wearing this vest and your power walking, you're not allowed to run, and so it's this kind of crazy movement and you feel like you're going to fall over afterwards but it's this test you have to take for the physicality and the idea is that you're able to carry the fire back pack, your tools and be able to get your self out of dangerous situations in a calm and collected manner. So you wouldn't be running. That's kind of their mentality behind it. And so you're just trying to get that and then there's a smaller version of the pack test where it's like 2 miles under 35 minutes something along those lines. And so that's if you're going to be maybe at the Fire camp or in an area where the fire hasn't gone to yet or you're in a burnout then you can take that kind of pack test, but you can't be on the front line and then if you don't take the pack test you're essentially, you might be in the camp, you might be in your office, but you're working in some capacity for the fire. So there's that kind of thing and then you have to get trained. So part of the training is literally going on fires and that builds up the number of hours you have in order to become like a certified read. So it's like you're a read in training and then you're a read and that kind of stuff and I believe the training changed relatively recently, but that's the general process and then you're going to need fire boots. So they're very highly specialized boots that won't completely melt if you're working on a fire and that's always a good thing. [laughter]

00:48:54 **Kirsten**

That seems like a good thing

00:48:54 **Emily**

Exactly and then you get kitted out and, usually by your agency, you get fire-resistant pants and a shirt and the shirt is yellow, the pants are green and I've always heard them referred to as yellows

and greens and you get your backpack and your backpack comes with a standard issued fire shelter and that's what really does make the pack kind of heavy and you're issued a tool and the tool can be a Pulaski which is kind of like, has like a pick axe in the front and like an axe on the back or shovel or a Combi which is like a little pick and a little shovel and then there's a rake and then I can't remember what the other one's called, but I've always liked the combi because it's small and it's light because I've always had to carry all my archaeology crap too. And then hard hat and gloves, safety goggles, a headlamp, fuses, so if you needed to like create a like a little, it's like those things you put on if you're in an accident or something on the road so they light up red, um, you get specialized water bottles. I'm try to think what else you get your kit.

00:50:35 **Chelsi**

You get all kinds of stuff.

00:50:39 **Emily**

yeah, you get a lot of random things. so yeah a poncho, a sleeping bag. oh yeah you get like your kit if you have to throw everything into, it's your red bag and you get a sleeping bag, sleeping pad, a tent. And yeah, then everything else is yours. So yeah.

00:50:54 **Kirsten**

Nice. And I'm gonna see about trying to put some links to trainings for fire work in the show comments as well. So people can take a look at that.

00:51:10 **Emily**

There's a lot of great resources out there too just on wildfires in general. Again, indigenous communities doing current work in a prescribed fires and working in fire, to how cultural resources are protected during wildfires. There's all kinds of information out there that's put out by the forest service, the park service, BLM(Bureau of Land Management), to journals. Oh and there's been a recent article with a Kassie Rippie who we had on the show and she talked about how she manages and protects cultural resources for the tribes.

00:51:51 **Chelsi**

Yeah, that was a really great article.[mummers of agreement] So in terms of kind of people who are potentially interested maybe at an undergraduate level, of getting into this, are there any field schools that you know of that's specified or specialized in kind of Read or fire archaeology?

00:52:18 **Emily**

I don't think that's really a thing and how cool would it be if it were. I mean to be honest, in my undergraduate I didn't even know cultural resource management was a field that you could even go into, let alone fire archaeology and the role of a Read on a fire genuinely just surprised me out of nowhere- where they're like "oops the forest is on fire. Emily order some fire boots." and I was like what are fire boots and so I mean, it's like it comes kind of, it can come out of nowhere and so I don't think they're really is. I mean and I could be wrong but I genuinely don't think there's like field schools or specialized training or courses at the undergraduate level in fire archaeology. Fire archaeology is something I mention when I teach principles of archaeology or intro to anthropology, I do talk about it, but I haven't really noticed it in any textbooks and stuff because there are very few positions that I've seen that where it's specifically like you are only a Read archaeologist or you are only a fire archaeologist. Usually, it's like your federal archaeologist and you also can be a fire archaeologist. I've only seen a couple positions where it's a full time thing and that's in areas with like super sensitive cultural resources and/or high fire danger areas.

00:53:44 **Kirsten**

With any, I don't want to say luck, but with any positive movement in the funding and supplying of agencies with proper staffing in the coming years, maybe we'll see some more of those jobs pop up across the West.

00:54:00 **Emily**

Definitely and I mean, it can't hurt asking if you're a federal archaeologist and you're interested in fire archaeology, it definitely can't hurt looking into if that's something.. the agency I currently work for, since we mostly work on private land this hasn't been something that has come up, but I think it'd be great if we could be a resource for other agencies in these mega fires so I figured it can't hurt to ask.

00:54:33 **Kirsten**

Yes and I can imagine even working with, depending on you know, what kind of environment you're in, working with private landowners that they would appreciate the resource if such danger were to pop up as well so you know, if you're in that position maybe poking some advocacy links or networking in that department might also be helpful if you're really wanting to sell getting that job.

00:55:04 Emily

On a very different note. I think if people are interested in looking at kind of culture resources and firing general, there have been a few articles coming out from California about archaeologists working for state parks that were like racing to save cultural resources in their museums or from even offices and I mean hearing about these different cases where it's like, you don't always think about necessarily like the management buildings housing a ton of cultural resources. It's like oh my gosh we're not protecting the building per se but what's in it and it really made me think about like if you have even a small collection within your office, what do you do if there's a fire coming in? This guy he like raced to different state park offices and was like chucking stuff in his vehicles like taxidermy animals, records, archival stuff...that kind of thing and just like chucking as much as he could in his car and just kept going and other people were trying to do the same and like all that's left in some of these archives is like photographs and whatnot, are what some of these people have saved and so it's a very different way for me thinking about fire archaeology. It's like let's say you're not even a fire archaeologist how would you on earth protect some of the stuff that's like just in your office? so it's like the other end of the spectrum of like you can't necessarily fight the fire how are you gonna protect all this stuff before it gets there?

00:56:37 Kirsten

Yeah fire plans... that actually makes me think of, I think we I want to say we discussed this on another episode. I can't remember which, with the fire from the Brazilian Museum [murmured yesses] a few years ago. I think it was a few years ago where it's just kind of like what is your fire plan knowing that fires are such a high risk these days in certain parts of the world like where? You know, if something were to pop up what are some backup plans, like what kind of safety mechanisms do you have in your building, around your building. If I remember correctly that building in Brazil they didn't have sprinkler systems in that historic building so once it caught there wasn't really much that could have been done. Having a fire plan and looking to see what kind of fire resistant or fire retardant materials or vault let's say that your collections are being housed in, or if it's quonset hut which would go up in you know a snap of your fingers and

00:57:47 Emily

that honestly is what I think most federal agencies have, you know older collections that if they don't have a museum it's gonna be like your quonset hut or mission 66 like square building. It's not gonna be like top of the line state of the art sprinkler systems

00:58:08 **Kirsten**

no and that's where you know, just starting to think about like you're saying what the plan is. If you don't have a you know, really good location for the housing itself, you know, is there a relocation plan and do you have prioritized materials or prioritized collections that need to get out first, backup copies of a paper archives, is there a, are all of your digital archives kept on site in which case you need to have an off-site and/or secure cloud component to storage for that as well because I've definitely seen that raised as an issue where people are like, oh yeah we keep all of our digital backups here

00:58:56 **Emily**

yeah in my desk

00:50:00 **Kirsten**

Right. So that's, that could be problematic

00:59:08 **Emily**

All our file records. I remember at one agency we're just like, you know in wooden cabinets and it's like well yes that's screwed.

00:59:14 **Chelsi**

I would also add, a lot of times with these kind of preparedness for any event, whether it's you know, fire, hurricane, tornado, active shooter and the list goes on. But I think it's important to both like have periodic meetings. I've been in some of those meetings where like we're going over to the fire plan today and you get some people who are like "yep, this is really important", you get other people who are like "ugggh we do this every year why are we doing this". Having that information, even if it's stuff you think you know, like having it be refreshed so it's something that's easier to access is really important. I also read the same article about the guy driving around trying to rescue all these objects

00:59:54 **Emily**

let's give it.. Mark Hylkema. Like good on him for trying to protect stuff from state parks in the Santa Cruz district.

01:00:09 Chelsi

yeah, but I think that piece also mentioned that you know, he got in touch with the government who hired some movers to come help him, which is great, but if you have a system that is not easily discernible to an outsider like they're gonna grab whatever they can, but whether it's you have all of your "must rescue first items" in the same area so that you can kind of clear area by area, whether you have you know your collection system color-coded but it has to be something that can be easily, quickly, and visually communicated.

01:00:49 Kirsten

Yeah, that's definitely key, you know, we are talking today about fires but you know, there is a whole lot of that on the east coast. That's where you get as Chelsi mentioned for New Orleans or relating to New Orleans is the hurricane danger. Hurricane season is upon us as well and that's a whole other ball of wax, but similar emergency preparedness concepts should really be explored.

01:01:16 Emily

I think that's an excellent point and I mean, I think it's one of those tricky things. A lot of these plans, a lot of different ideas of how to protect culture resources, all of the things usually comes after an event, so I guess the hope is then after these massive wildfires we would be able to move forward with better protection plan so that the loss won't be as quite intense.

01:01:39 Kirsten

yes mitigate before not after.

01:01:46 Emily

yeah, so thank you for listening to me go on and on about one of my favorite topics- fire archaeology!

01:01:52 Chelsi

super interesting as something that I will probably never do.

01:01:59 Kirsten

I've known a number of firefighters over the years out here and only until recently, in the very sudden enormity of the wildfires across the west coast here have I seen the mass recruitment of archaeologists into the fire lines and with any luck, you know, positive changes and management will come around in the next few years and we won't have to see that pop up again, but that's

something that I feel like we should be keeping an eye out for. Other resources to on this note that I wanted to mention at the end of this episode are locally across the west there are calls for volunteers for recovery archaeologists to help with people who may have been lost in their homes and recovery of remains for people all across the fire zone out here in the coming year, so those calls have been made in Oregon that I've seen, as well as California and I'm sure we'll continue over the next several months keep your eyes out for that.

01:03:07 **Chelsi**

Excellent. I will also add for anyone who has gotten this far who is not an archaeologist but just kind of interested in knowing what's going on with fire lines and archaeology out west, there are still things you can do like vote for people who believe in climate change and help tackle the underlying problems.

01:03:26 **Emily**

Vote for people who believe in science

01:03:32 **Kirsten**

All of those things are greatly appreciated and very important in helping put a lid on this... well any other last-minute comments before we head out for this episode?

01:03:45 **Emily**

oh just to check out our other episodes on iTunes and you can find our episodes on our blog the womeninarchaeology.com. You can find us on Twitter at @WomenArchys. We're everywhere yeah.

01:04:01 **Kirsten**

So well thanks everyone for listening and sticking around with us. Keep your ear open for upcoming episodes as well and if you would like to be a guest on our show shoot us an email at womeninarchaeology@gmail.com and we can see about arranging a time to sit down and chat. It's been lovely hearing all about fire archaeology Emily and thank you Chelsi as well for joining us and sitting down and chatting together again for the first time in a while. See you all again soon!

01:04:46 **All**

Bye!!