

Written Transcript
On The Line Episode 2.7 “Smart and Smarter”

Copyright: On The Line. All Rights Reserved. This transcript cannot be transferred, quoted, or shared without written authorization.

Charlie Palmer: Welcome back On The Line, a podcasts for today's wild land firefighters. Doing this podcast has been a tremendous amount of fun for us and one of the neat things, but also one of the challenges for me then is to try and figure out potential guests that we can bring onto the show and people that are going to be interesting and have something to share that's hopefully useful to our wild land firefighter listeners. And so my challenge for this show then was to continue that kind of saga and find some folks that could come in and share some of what they know. And one of the neat things about working at the University of Montana is that I oftentimes don't have to go very far to find very talented, very knowledgeable people who are nationally and even internationally acclaimed for the work that they do. And so in the case of today's two guests, that meant I just simply had to walk across campus over to the W.A. Franke College of Forestry & Conservation at the University of Montana.

Charlie Palmer: Where today's two guests are both professors in that college. They're both also on staff at the National Center for Landscape Fire Analysis, which is based at U of M. Dr. Lloyd Queen Teaches Courses, workshops and field camps in remote sensing, GIS and fire management. His research focuses on assessments of landscape dynamics at regional scales and Dr. Carl Seielstad research interests are in forest and range management in wildfire and prescribed fire settings as research integrates, innovative fuels, inventory methods, fire monitoring, fire weather and technology development and transfer, so that's all pretty cool. And then one of my other challenges is trying to figure out a title that's descriptive and informative for each podcast and after thinking about it for a little while, decided to go with smart and smarter. I've had the pleasure to work with these two guys on some different projects and each time leave those interactions just blown away by how knowledgeable and intelligent and dialed in these two guys are. So gentlemen, thanks for being on the show.

Lloyd Queen: Thank you Charlie, our pleasure.

Charlie Palmer: Alright, so as I mentioned, you guys are both on staff at the National Center for Landscape Fire Analysis. In fact, Lloyd, you have been the director of the center

since 2000, so Lloyd, what can you tell us about some of the work that's done there at the center?

Lloyd Queen:

Yeah, thanks Charlie. The idea for the fire center came out at work we were doing in the late 1990's with mostly NASA money. Carl and I did a lot of work on looking at remote sensing NASA assets, satellites and the like and trying to find applications for them in fire. And so in 2000 we were able to work with forest service research and establish what we call the Fire Center here at the University of Montana and we're, you know, an organization that's constantly morphing itself in terms of how we communicate, how we're organized in what we do. But our work really comes down to, three basic themes. We do what we call core fire science, fuels, characterization and mapping, fire behavior and the like. In a lot of that work is very outward looking, kind of nontraditional in an academic sense. Secondly, we do a lot of work with technology based in things like remote sensing, computer mapping, remote networking and wilderness areas.

Lloyd Queen:

Monitoring networks and things like that, so we've had a real strong footprint Charlie, in developing applications. So seeing a need out there where fire was maybe just a little bit retarded in terms of the adoption of say a new solution, so things like the national fire restrictions page came out of our center here at the University of Montana. The large fire report system called the 209 that a lot of people see, certainly the press uses and fire does transactionally too. That reporting daily intelligence on a fire through a website. Again came here at the University of Montana. Master Action Program that keeps track of smoke jumper actions nationally, both in training and operations. Came out of the University of Montana. Our center also developed something called the air shed management system, which keeps track of prescribed fires and burning activities in Montana and Idaho. And so that was an instance where our capacity with technology and the Internet allowed us to find a real on the ground solution for a lot of different aspects of fire.

Lloyd Queen:

And I guess the last thing I would say, again staying kind of above the fray, is that we do a lot of work with our students and with practicing fire managers out there today. An initiative we call workforce development. So as we partner with the fire research enterprise nationally, one of the things that's unique about us being at the University of Montana is our work with students and so a significant amount of our work is in working with our students who see fire maybe initially as a job ultimately as a career into inculcate them into current practice science understanding and hopefully produce a firefighter that, that sees a career and the challenge that fire needs to be part of land management. It's not an island unto itself. And you know, our fundamental belief is that comes from students that pursue those advanced degrees here at the University of Montana and see fire is more than just a singular occupation, say in a suppression sense. So I think that, you know, at 30,000 feet, that's a fair summary.

Carl Seielstad:

Yeah. And maybe I would add to that, you know, when the fire center came about in 2000, we really wanted to try to do something different and I think

that's just our nature, both of us has been to let's look and see what everybody else is doing and not do that. And so the fire center has, has taken a track that has taken us in a little different direction than I think what many people think of with the university center. The other thing is like you, Charlie, I came out of fire management and I loved fire. I still love fire. I liked all the work that I did in the, in the field. I still engage in that work, but I could that I was not going to be content doing the same kinds of things again and again and again for an entire career. And I sort of wound up in academia by accident. And I thought that perhaps, you know, the fire center, this is again thinking back 20 years, that the fire center could be a vehicle for fixing some of the troubles that I saw with fire management. Because I could see that it wasn't going to fix him from the position that I was in and I had thought that working with students and educating the next generation of professionals was a way to go so that that's kind of my own personal recollection and motivation. It still remains a motivation for why I'm at the university and I worked for a center like this.

Charlie Palmer: Yeah, and one of the neat things you get to do as part of your curriculum is to bring folks down to Georgia typically correct? And do some prescribed fire work in December and January. Tell us about some of those experiences.

Carl Seielstad: Yes! Well, I could see that one of my frustrations when I was in fire was that young people sort of had to wait their turn to get opportunities to do what I considered really meaningful learning assignments. You know, for example, we had the Forest Services PFTC or prescribed fire training academy program that every year we would go through this nomination process and send very deserving people to be trained in prescribed fire. But that program always selected for the people who were 10, 15 years into their careers and I thought, well the people who really need that training in my mind were the people who were really just getting started and so Lloyd and I through the fire center initiated through a, to be honest with you, a set of serendipitous circumstances at a field practicum in the southeastern United States in partnership with the Nature Conservancy, Georgia, and we take students down to Georgia and teach a class. This has been year 12 that we've taken students down there and it's I think unlike any academic class that is offered anywhere. The responsibilities for the burning really fall almost exclusively on the students. Again with oversight, but it's an opportunity for students, some with just a year or two, of fire experience to be able to see what it takes to not just put fire on the ground, but to set up an organization and get a complex job done and then to see how it is that the work that they're doing fits into burning. That has really specific tight objectives. Usually within the case of the Nature Conservancy, restoration objectives, ecological objectives, so we've been able to blend kind of ecology and learning with the fire that gets put on the ground. And our feedback and formal feedback and then the feedback from students over the years has been that it's, it's a transformative experience for students.

Charlie Palmer: That's pretty neat to be able to go out and apply the knowledge that you're getting and do that very, very quickly in a pretty cool setting.

Lloyd Queen:

Yeah. Charlie, I guess I would amplify two and maybe a quick story. The first year that Carl and I took students down to Georgia and we spent weeks and weeks, you know, writing a syllabus, learning objectives. We packed Pelican cases full of powerpoint slides, readings, academic materials, really trying to amp up the scholarship, you know, it's not just a burn detail that say any firefighter might do to the southeast and, and we were really wondering sort of philosophically, Charlie, how does this fit into what we're doing with our students and does this really deserve credit? Is it pass, fail? How do we really judge this experience? And I'll never forget, I think it was Carl, maybe morning three, four, five. I got up and was walking across a parking lot. I'm dead ass tired, dirty unshaven, same clothes I had on when we left Missoula and, and Carl was sort of standing out there drinking a cup of coffee and I said, "Carl, the lectures, the powerpoint, the readings..." and we just looked at each other and I don't think we actually said a word, but we both had this light bulb that went on and said we gotta get to work. And again, it's more than just the acres accomplished. It's a new ecosystem for these students. It's a completely different organization. The Nature Conservancy doesn't function the way our public land management agencies do. As Carl said, it's a, it's a transformative experience because. And this idea really is to Carl's eternal credit. These students are put in a leadership position. Again, we're right there, you know, TNC or Georgia Forestry Commission might have some people on site, but it's really the students who are given the objectives. How are we going to light this unit? How are we going to have control? And yet meet our objectives and to continue to stay engaged in that process throughout the day. It sounds fun and exciting at 0900 briefing, but at 1400 when that burn window opens up and it's go time. That persistence and that commitment to I'm responsible for meeting these objectives, keeping people safe, keeping fire in the unit, but having the impact on the ecosystem we want is just amplifying what you said Carl, but it's, it's a responsibility that in a typical fire career can take a long, long time before that's put at your feet. And I think in the end, Carl, that's why it's transformed. Formative.

Carl Seielstad:

Yeah, but maybe one last thing on that theme though, is what I've learned over the last decade working with those students is that developing relationships with students where you're working side by side with them is probably what the students value the most. And it's time consuming. And so it occurred to me that if we want to improve our educational offerings at the university, one of the easiest ways to do it conceptually at least is for faculty members to spend more time with the students in settings like that. But it's difficult to find time to do that with all the other things that faculty do. So. But that's been very much central to all of the feedback that we get are the relationships, the advice, the perspective that students get when you're stuck with them for 14 days, 15 days instead of an hour a day, three days a week.

Charlie Palmer:

Right. And then for the little time that I've spent down there, just eyeopening that it could have poured rain the day before and we're operational tomorrow. Let's go in here thinking you're bringing your slides and your perspectives perhaps from the western US down there thinking we're screwed. We're, we're

not, we're not lighting anything for days at best. And then no man were. We can go in a couple hours here. This shit's going to dry out and we're going to go.

Lloyd Queen: yeah. We had an, an event. Charlie just two, three years ago where we were stood down for day, there was seven inches of rain in the gauge at the compound where we were staying. We burned the next day and so it's not just how that system responds to that water, but it also, you know, as students get a glimpse into the TNC mentality and so, you know, for a prescribed burn here in the northern rockies, it takes a tremendous amount of work to get the plan done and to involve the public and to get permission from the air shed. So realistically we've got one entry into that stand, right? So in my career, if I'm going to treat marsha woods like Missoula Ranger district is doing now, they really have only one shot at it. I mean realistically in your career. And so back to the moisture burning. It wasn't a rip roaring fire day. It was a pretty benign behavior. But TNC's mindset is we have multiple entries into these stands and so if we don't have wall to wall black today, that's actually a positive outcome for us. And again, it forces the students in a site specific way to... Where are the receptive fuels today, how is it different at 1500, than it was this morning when we lit the test fire? And so that persistence of engagement in recognizing that we don't have to get this ecosystem pushed in the right direction. This stand doesn't have to live or die based on what we do today. There are stands down and the coastal plain of Georgia that in 11 years I've burned five times and that's just unprecedented for up here.

Carl Seielstad: And that has to do with the ecology of fire in the southeast, right where many of those longleaf pine systems historically burned in some cases every other year naturally. And so we don't have any of those kinds of environments in Montana...

Charlie Palmer: But neat for a student to understand that and see that.

Carl Seielstad: Yes, The, other nice thing about the southeast is to see the fire culture down there because the fire in SE has a long history of prescribed burning. And if you look at the statistics, most of the RX prescribed fire in the United States is in the southeast and it's not a coincidence they have a landscape that needs fire, that is in some respects relatively easy to burn. It's used to taking fire, but then they also have a culture that is used to putting fire on the ground. And so many of the barriers you see here are applicable in the southeast.

Charlie Palmer: Cool. And so that's a good segue. They didn't do a much broader but more complicated question. But we're gonna we're gonna ask it anyway. So I think it's fairly clear that fire seasons are getting hotter and drier and longer and almost to the point where we really, it's tough to say we have a fire season anymore versus just a year round kind of fire perspective. And so just want to get your guys's impressions and perspectives on that concept that, uh, we just

Carl Seielstad: seem to be dealing with fire on a year round basis anymore. I thought a lot about this, about what these longer fire seasons, how they impact firefighters

and and what we're doing and natural resource management and one of the things I keep coming back to is how little time it leaves for fire management to engage in the kinds of things that I think they need to engage in longer term to to change how they do business, to make things more efficient and create more resilient landscapes. And so one of those things I come back to because I've spent so much time in prescribed fire is that there's really very little time in the year anymore to conduct prescribed fire or to plan for it more significantly. And so we have a national cohesive strategy that identifies these places. In the United States. Montana being one of in which are x is seriously underutilized and we always come back to.

Carl Seielstad:

The reason it's under utilized is because there is no tolerance for smoke and the risk is too high. But really fundamentally I think a lot of those challenges could be overcome if people would spend or could spend the time and energy to solve those problems. Or talk about those problems and innovate and the longer fire seasons. I look at a fire season now and it's really starting in January. It's training and hiring. And we know that the hiring that at least at the federal level, the hiring process has become very time consuming and cumbersome. The training has become more time consuming and cumbersome for a whole variety of reasons and that's a separate issue. And so a lot of the spring is spent hiring and training. There's a short period of time in the spring to do some prescribed fire and then you're into fire season and then during fire season. My observation is that the fire management community prepares, waits, fights fire, comes back, prepares, waits, fight fire and this goes into the fall. And then maybe if you're lucky and conditions are right and you still have bodies standing after the fire season, there's an opportunity for our RX. There tends to be a rest period over the holidays in December and then you're into it again. And so it's been frustrating even on the fire center side with conducting projects to, to recognize that the fire management community has very little time to do anything but fight fire and prepare for the next time they have to fight fire. And that's unfortunate because it makes change difficult and we can talk about other things too.

Lloyd Queen:

Yeah. But I mean it's certainly relentless Carl. I mean, you know, Charlie, it affects our students and their ability to come back to school in the fall or to stay in school in the spring and you know, every firefighter that that's thinking about school faces that challenge, do I stay in school, do I complete my degree? What does it mean? And how does that counterbalance with my experience in fire, the opportunity to have to make a difference out there and to work hard and to have that impact. And it just, it's just like with prescribed fire, it shortens the window within which you really can consider other options. And so to me the impact is it just demands patience. It's clear that there's not a silver bullet out there in terms of say, amplifying our expire here. It forces us to take a longer term of how we're going to get to those goals, which again is the opposite of a fire season. That's just relentless public tolerance for long fire seasons is a serious question. The social license to be able to, even if we have a good window and fuels are good and the plans are on the shelf and ready to go, to tolerate smoke from an RX fire this fall after our fire season last year, it's totally

rational that the social license just wasn't quite there. And so I think that these longer seasons make us believe that, gee, I guess this is the new tomorrow, Charlie, that this fire season's going to be like last and I don't know what you know overtime hours you use to put in, but a thousand 1200 1400 is not an irrational number and that's unprecedented. And so just thinking about the fatigue that these firefighters have, but then again the backing out from that, what are people's expectations in terms of dealing with this wild fire problem? And so I think it continues to focus our energy on fighting fire and we just have less time to think about trying to get ahead of the curve in other ways.

Charlie Palmer: Right. We talked about it in our kind of pre meeting this morning about how would there be in such a high demand. Oftentimes at the district level, those folks are pulled off and they're needed somewhere for a fire that's going on maybe early in in the spring and it's on an R3 and then those people are just continue on a roll. And then, one of the effects of that then is that projects and other work that might need to be done at the district level. There just isn't much of a workforce there to be able to accomplish some of that. And Carl, you had mentioned how a lot of that, the knowledge that district knowledge, then oftentimes isn't necessarily with fire people. It's with some of the other folks that might be working on the district and the cost then that's associated with that.

Carl Seielstad: Yeah, and I do see that again, you know, this is when I engage in fire, which is a few times a year now in the summers and I go to districts and I...

Charlie Palmer: You're a type three IC (Incident Commander) just so we're clear with folks that are listening,

Carl Seielstad: You know, I end up, you know, as a kind of an academic IC three, I tend to get asked when the local resources are depleted so I show up on a district, didn't have to find out what I need information about what's going on on the district in terms of roads and projects and gates and how you get places and where the public is. And I'm often disappointed that the firefighter, certainly the fire crew is not always the most knowledge. Usually not knowledgeable on things that I think that they should be knowledgeable on it. I have to find people on the district that know what's going on and I tend to find the recreation shop as being the source of the most information. And I understand why that is because the recreation shop is crawling all over the district, with trails and looking at the status of gates and what the public are doing and that sort of thing and so...

Charlie Palmer: The firefighters are operation on the fire, so it is not their fault.

Carl Seielstad: Absolutely, and they are operational and they're gone a lot. I mean they're like you say they're in the southwest and then they're in... They're all over the place and so they don't have as strong a tie, I think as they used to to their local unit. And so I see the longer fire seasons and the movement, the transients of people in a particular place is, is coming at a cost to natural resource management. Now. I think that there are people who view fire increasingly as a separate

entity that is going to be a professional firefighting workforce and that's their responsibility in the management of the forest is somebody else's responsibility and there's tension there. And there's discussions, there have been for a decade about where fire fits, but I come from a background and my thinking is that fire, at least wild land fire and prescribed fire should be integrated with natural resource management. And so I, I get frustrated or I have been frustrated that fire doesn't seem to know more about what's going on on the land than they do. I was also going to point out too, I was on a fire three or four years ago and it was in September and worked with the hot shot crew from Arizona that was approaching 2000 hours of overtime. And so if you think about putting in 2000 hours of overtime from starting say in March and ending in November, what else are you going to do? But fire when you are jumping. And I were jumping, you know, a good fire season was what, 400, 500, 600 hours sort of fantastic...?

Charlie Palmer: A thousand was sort of this mythical number.

Carl Seielstad: And now we have students at the university that if they're not getting approaching a thousand hours, it's a bust. It's just amazing those changes and again, that part of that is reflecting the fact that we're having more and more fires and bigger fires and so there's work for people to put in the time, but part of it also is that we've tried to meet, I think the increasing fire load with, I wouldn't say a dwindling workforce necessarily, but with a workforce that isn't significantly larger than it was, say 15 years ago. And I think the statistics show that, so it's nobody's fault. That fire may not be as connected to natural resource management as it used to be, but I think that it's a, it's a problem or it's not how it should be in my, in my view.

Charlie Palmer: So I guess, aligned with that. Then this debate about whether bigger fires are the result then of human made climate change. Let's stick our foot in that pool. Is there a debate?

Lloyd Queen: You know, Carl and I have talked about this a lot, Charlie. I think there is a debate. I mean, certainly in the American public there's a debate and there are people that... I think increasingly what we see is that people are accepting the fact that change is in hand, but maybe they want to debate causation. From a sort of scholarly scientific evidentiary line there's just no question. I remember on the Rodeo-Chediski Fire back, I think it was in 2002 putting up, you know, fire behavior forecast and hauling charts and things like that and our models weren't functioning at the upper end of the behavior and rates of spread and things like that we were seeing. And you know, I'm printing out all these fire behavior forecast and maps and forecasts and I'm way in the upper right hand corner of severity and acres burned in forecast and you know, people just sort of looked at each other and I was like, "wow, this is really something I mean I've never seen this before". And we almost don't hear that phrase anymore because the new reality is sort of embraced that. And so that, you know, from just an experiential basis in the workforce that we have out there dealing with what's changed, it has changed. No Question.

Carl Seielstad: I agree with that completely. I guess in this day and age, if you ask the question about is there a debate, there's always debate because we debate whether the sun rises and sets or the world is flat. I mean it seems, it seems like we're in a period of time where we debate everything, but I think if you talked to the fire management community and you talk to the scientific community, there's no question. There's clear understanding that the changes in fire activity nationally over the course of a fire season, year after year after year, are directly tied to climate change and the, the evidence is strong that, that change is in large part a function of human activity. So there isn't a debate amongst the fire management community.

Lloyd Queen: No, but I think I think too, and again I agree Carl, but I think fire has a real challenge and I, I'm not sure I'd give those of us in fire and obviously we consider ourselves insiders in this as well, Charlie, but I think that, that changes our expectation in terms of what we define as an effective response. And the cohesive strategy talks about that nationally. And so I, you know, I don't see fire using climate change or warming or whatever it might be as an excuse, but I think there's this constant head-scratching in this evaluation of what is a rational strategy. And I think that that part of the debate that you allude to is fire not doing a great job and in my opinion, in communicating back to our public that we can't catch every fire at IA (Initial Attack). IA success has not changed Charlie, in 100 years. And so there's this sort of statistical inevitability that at this upper end we're going to see these acres. We're going to see these long duration, very impactful events to the public. And so as a measure, IA effectiveness is kind of meaningless because at that upper end, a real small percentage of fires, a lot of acres, a lot of impact on us. And so I think this goes back to the whole fire being part of land management, Carl, that this sense of, we've set up an expectation in the public, at least here in Montana, but I think it's true nationally, that we can put these things out when they're small every time. Jeez, "if you guys had just put this out, wouldn't have the impact that we've had" and the, at least statistical inevitability is there. And so fire communicating back the rationality of the decisions we're making, which are different today than they were 10 or 15 years ago. Um, I think is something that we really need to continue to work on. At this rate of change., we're not going to catch up in spite of the 2000 hours of overtime. We're still falling behind the curve, I think in some dimensions of public perception at least. And so resetting the clock in terms of why are we going six miles down the mountain and putting initiated fuel break. "Why don't you get up there and put it out?" Charlie, you hear this debate at least here in Missoula all the time.

Charlie Palmer: Lolo Creek Fire, last year!

Lloyd Queen: That's exactly right. And so again, you know, we talk a lot about the decision space is it's kind of structured. There's a lot of support in terms of decision support, technology, science, a lot of policy directives that all factor into this big cauldron of where are we going to make our stand, what, what is the most realistic opportunity we have for success? And I feel like we haven't brought a lot of people along with the adaptation that, that fires made. Fire's really good

at getting out on the hill and figuring it out. You know, they stand up organizations the logistics to support the operations is, is in my mind unprecedented. But there's sort of that other. I'm not sure if it's back end or front end Charlie, but you know, just helping people understand that this impact on the decisions that we can make. And what we may have to tolerate is pretty tough.

Carl Seielstad: Yeah. And I think we can tie it back to the conversation we had earlier about the longer fire seasons. It's that getting out ahead of like what are we going to do next year, the year after the year after? For example, the fire at Lolo Peak, which is going to be inevitable again in the future. If we're going to do anything different or if we're gonna expect the public to be more receptive or less receptive of what we do. There's a longterm sort of communication and demonstration effort that needs to occur for that to happen. And it doesn't seem to happen. I mean Fire has always been an organization that is very confident and very capable and reactive in that, you prepare and you wait and then the fire happens and you get in there and you figure it out. And I think what Lloyd is talking about is that where I think fire management, maybe collectively the academic community have dropped the ball a little bit, is in starting to plan a little more, prioritize a little more. So that when something happens, a fire occurs up Lolo Creek, we can say here's what we're going to do and here's why we're doing it.

Carl Seielstad: You know, one of the things I've thought , my sense was generally that the shaded fuel break approach under the circumstances was pretty effective. And this is my personal opinion and I've been up in those landscapes and I've looked at, you know, the three big fires around Missoula and thought, wow, this was really quite a job that the forest service did and others did to manage this. But I mean, if this is the way that we're going to manage these fires in the future and there's a lot of work that could be done to anticipate and communicate what's going to happen next time.

Charlie Palmer: It seems so easy to just Monday morning quarterback at to say, well if they just eyed Lolo Peak quicker. If they had just gotten up there right away. Then none of that would've happened in a month later. It wouldn't be ripping down the hill into Florence and Lolo and...

Carl Seielstad: Yeah. And that's, that's always the case though. It's funny, I've been over overseas for almost a year now and one of the things that strikes me when I come back reading the Missoulian is how opinionated everybody is. And to be honest with you, from my perspective, how uninformed most of those or, many of those opinions are. That's just a reaction having stepped away from the community for a while and come back.

Charlie Palmer: I think that's pretty accurate...

Lloyd Queen: I mean, I, I think that the debate's important. I mean, NEPA embraces that, that sense of bringing opinions. Certainly at the university, Charlie, we understand

the emotional engagement and the attachment and the connection that our students and that, you know, Carl and I appreciate that in the fire management community as well, but you know, this is not about that. This is about being objective and stepping back and being willing to be critical, but not from a negative standpoint. You know, effectiveness is something that I think we can build consensus around. I might not agree with your definition of effectiveness. A lot of the public sees effective as every fire gets put out. At the same time, we're having this national dialogue from fire science and fire management saying, but that's part of the problem that's led us to where we are today. And so to me that these worlds are far apart. There's not an intersection in those two dialogues and to me the plug in terms of fire needs to be part of land management in a broader sense that I think part of the way you build that consensus, that nexus of "we need to agree that something should change here" is to, for example, you know whether Lolo Peak, Rice Ridge, or Liberty or any other fire was managed the way I would have liked it is acknowledgment that those fires have conferred a benefit to us as a society, that we might not have wanted to have fire visit those acres and because of when it burned it burned ecologically. Maybe it's not the best, but it's there. I mean, you know, those acres are there and what happens with that landscape gives us opportunities to say actually, can you imagine going back into the Lolo peak?

Lloyd Queen:

I don't remember the footprint. I know how, how many acres it was, but to say "we're actually going to go in there and fire out some of these locations. We're going to put fire in there now and get this stand moving in the right direction". I mean, people would think you're insane. "Well, you spent how many million dollars putting it out, now you're going to go put fire back in?" We're like, "yeah, but now's the opportunity! Instead of having to put in a set of cultural practices and thin from below and limb up, the fire sort put us on the right path, man. Let's get in there and amplify this benefit". Let's extend that benefit at sort of a landscape scale. What is the combination of the Lolo Creek Fire versus Lolo Peak Fire? I mean that landscape, you know, a public sense of, "well too bad at burned, but boy, I'll never have to worry about fire in Lolo Creek again" is really misguided and from a management perspective, what we can do to recognize, understand, amplify, or to redirect that benefit, to me, is part of the land management mindset. And that's really what we try hard to do with our students is to acknowledge and celebrate the success of our suppression community. But there's still two chains to the top. We have to keep going. Now's not the time to shut down. And that's again to me, back to your question of impact. That's an impact.

Charlie Palmer:

Yeah. You've both kind of alluded to it. Let's talk about it directly of this kind of relationship between the academic world and in this case, the academic world of fire scientists and the professional world of fire managers and that there is a tension between those groups at times. Sometimes a healthy tension and maybe at other times not so healthy tension. What can you to share kind of on that relationship, that's absolutely necessary, but at the same time, not necessarily easy?

Lloyd Queen: Yeah. You know, Charlie, I thought I was gonna sleep well tonight, but now I'll lay awake struggling with this question. You know, programmatically, yeah. This dates back to when we started the fire center back in 2000. When you look at how we spend money on fire, and again, back to your impact question, part of the impact is that increasingly we don't, as a country see investments in science as being part of the solution. And I, I just reject that model. I mean, I think that investments in core fire science and technology have to be part of what we do moving forward. But if we, if we put that front end investment in place, it requires that connectedness, that relationship that you allude to and if you ask people in the fire center what, what is it that we do? The answer is unanimous and consistent on a decadal time step.

Lloyd Queen: We build durable relationships with people out there on the ground. Now it means that our academic peers are like, "Carl, you spent 60 days in Seeley Lake on a fire. What's that about? You know, where's the publications? Where is teaching Johnny to read, write and spell." And yet on the other side of the aisle, if we're not careful, fire people are like "you're not a real fire guy. You're, you're a professor from the University of Montana". I think Carl would agree. One of my coolest things is that, you know, I'll go spend time on a district or a fire in camp on the hill and people have no idea. I have a PhD, and I'm a fire scientist and whatever. And yet I'm there because hopefully I can bring something different. I mean, there's times when we have to just be citizens and, and part of the response. But building that connectedness, it, it takes a long time. Charlie and I think that for scientists, certainly academics nationally, they just don't have that, um, that capacity, that durability, you know, projects are funded on a one to two year basis. You have a graduate student that's there for one to two years or three to five depending, and so even if I want to get involved in fire, it's difficult for me to find a way to pay for it and commit to it and stay engaged in. And I've learned that lesson that, you know, sometimes it's seen as maybe a dalliance on the part of the scientists, but for at least an organization like our fire center here at UM they're long term durable relationships and, and that's where the impact happens.

Carl Seielstad: I agree with you Lloyd, and I think tension is probably the right word between fire science and management and it's not sort of negative tension. I think originally when you framed the question you said conflict and there's not.

Charlie Palmer: Words matter.

Carl Seielstad: There's not a conflict, there's just. But I think really what it boils down to is that people don't have time. Managers don't have time to embrace science and scientists don't have time to build the durable relationships and do the things that are necessary. So the biggest obstacle to the problem is the fact that both groups of people are doing different things and are interested in different things and have different missions and are burning the candle at both ends. I like to think that it's time. I think there's a little bit of sort of inclination to that.

Carl Seielstad: Scientists aren't always inclined to work with managers and managers aren't always inclined to learn new tools and that sort of thing. But I mean, part of that is, is it going to be useful and is it going to be easy or easy enough for me to do as a scientist or a manager? The other thing too is that I think a lot about like what I'm doing in my profession and you know, the academy and the university and how the university is changing and I think some of our very best scientists at UM, aren't interested in management, they're interested in their science and the reason that they're the very best scientists is because they spend all their time thinking about a scientific problem and their entire career studying it. And I think that that's very appropriate. I mean, like I said, that's, that's some of the best science that comes out.

Carl Seielstad: So what I've thought a lot about on the academic side is that the university does have a responsibility to share science with managers, but to kind of expect that every individual is going to contribute to that mission is not... It's a silly argument and it wouldn't even optimize the productivity of the university. And so somehow collectively universities need to be able to accommodate core fire science or core science in general and be accepting of the fact that some people that are involved in that probably their very best scientists are not going to be spending a lot of time transferring science. And same with management, right? It's, they're going to be managers that are going to be very adept and inclined to embrace science and diffuse that. But it's unreasonable to expect that all of them are going to split their time. You know, 33 percent each on teaching research and science delivery or management, learning new things at adapting new tools. So it's a tricky problem. Well, we talked about it a lot in the university and there's a lot of discussion about are we collectively doing a good job connecting with management and doing good science?

Charlie Palmer: As long as there's people on both sides I guess that are willing to construct those bridges and figure out ways to intersect with one another and share what they know. Realizing that there might be an, that there are some in each of those communities that that's just not their strength or their interest in doing that. But as long as there is somebody and, and obviously fair also to note that that's not just a problem, unique or a challenge unique to what we do. I mean any, anything that has folks studying it intensely and then other folks who are trying to make it work on the ground that there's just going to naturally be some dynamic tension between those two groups.

Lloyd Queen: Yeah, I mean you think about sort of supply demand side of this Charlie, whether managers are demanding science or scientists are supplying that and you know, you use the term bridge and to me the bridge is not in classic economic sense a product or a service. The way we think of, you know, this product hits a niche, has demand and so on. I may be wrong, but the bridge to me are people. And your part of this community, Charlie, the program you come from epitomizes that as much as anybody on campus. And you have to have people willing to accept that the academic structures Carl talked about are important. But to me in the fire center, our mindset as a commonality and we

have people literally from all over the country that work here and that have stayed for a long time on, you know, short term volatile funding and durability.

Lloyd Queen: Sounds good. But it's damn hard to pull off. But we all came out of fire in some way, shape or form and you know, sort of earned those academic credentials. But as I described, the fire center being in that nexus, I think people are good at occupying that niche if they see that I can really be a bridge between science and management. It's way harder orders of magnitude harder to build an institution that embraces that middle ground. And, and I tell a lot of people the thing about a guy that's got a red bag in the back of my truck today and a tablet running a point cloud model from a drone image at the same time, in the same vehicle, usually get kicked in the ass from both sides of the aisle. And if you can't embrace that and say it's okay, but today I'm going to introduce myself as a firefighter and tomorrow I'm going to introduce myself as a PhD.

Lloyd Queen: Is part of being nimble in that environment. But again, I think that organizationally, we don't have a lot of models nationally that build that bridge through a durable organization that changes your risk. Who can really take the risk? Time is never gonna not be the problem, right? Carl? Everyone's busy. Um, I, you know, I haven't had anybody tell me in a long time, I just don't have enough to do. I've got so much free time, I'm just, I don't know what to do. And so I think that you have to say no, we have to make time.

Carl Seielstad: And you have to get people who want to do it, right? I mean fundamentally the fire center is a cool organization to work for, but we're doing what we want to do. And I talked, I talked to my students about that too, that you know, you need to put in the work and see the problems and solve the problems, but you got to see some, gain some satisfaction in doing it. There's no carrot, it's just work. You're not gonna do a very good job. And so,

Charlie Palmer: So we've got you guys in the studio. You're a conduit. So let's share some of that knowledge. What do you guys have that you know, thinking about who is probably our core listener, which is the person out there on the ground trying to make it happen. What do you guys have for that guy or that gal that's going to be helpful for what they do?

Carl Seielstad: I guess I would come back around to what we talked about earlier when I expressed my frustrations about the lack of general knowledge, about the geography of the landscapes that the firefighters are working in. I would like to see the fire management community and the firefighters become the most knowledgeable people regarding the landscape that they're working in. I think that that. I don't know. I mean remember I come from a geography background. I've always been interested in maps and so this to some extent, this is my own personal perspective or the way that I look at, but one of the things I always loved about smoke jumping was flying around on that airplane and seeing the country and connecting the drainage's and knowing where places were and what was going on. I mean, I. that's. I love that

Charlie Palmer: Given a bad map and told to figure it out.

Carl Seielstad: Yes. And telling the guys on the ground that they could hike to a trail and in an hour when it actually was going to be bushwhacking for 15 or something like that. But I mean, I always loved that and I always, as I said, I've come in as an IC and I'm always frustrated by the lack of knowledge. Again, this is my perception and I, always find it amazing when I find somebody who really knows what's going on on the district. And again, often that's recreation or resource advising or something because they're the people who can tell you what you should be doing, you know, in terms of assets on the landscape and what the district really wants. And you know, a trail project and it's halfway finished and we don't want firefighters cutting the corners because we've invested all of this. I mean, those little tidbits that as an IC are important.

Carl Seielstad: And it harkens back to, again, maybe to nostalgia, right where things used to be better than they were now, but it harkens back to a time when. I felt like people were more grounded in their landscapes and really wanted to know what was going on and fire management is really good at protecting things, fixing things, you know, if you have a fire and you can communicate clearly, hey, we've got these trees that we really don't want to burn, or we've got this stand or we've got this trail system, here are our priorities. We've got these archeological sites. Fire is unbelievably good at responding to that effectively. It gives purpose to fire management. I often find that we don't connect fire management to the people that have those perspectives and fire management doesn't have a good feel for what is going on in the landscape. And so I feel like we're missing an opportunity there because fire management would be good at serving the needs of the district, but they need to know what the needs of the district are. And to some extent that should come from the local fire people. Not just the FMO but the kids driving around on the ground.

Lloyd Queen: Yeah, I mean, one of the things Charlie to that I think about is a student recently, um, was in my office after a long fire season talking about staying school, not staying school, what's my career path in fire? And you know, in a nutshell what she was sharing with me is "I'm, I'm really good at one thing and I'm really good at it. I'm really fit. People like me, my FMO listens to me and I really am good at fire." And I thought that, you know, in a global sense that it was just the coolest thing to hear that this person took tremendous pride in the commitment that they've made and the acknowledgement that other people gave to her that, you know, we're glad you're here. And I think to me, Fire is the most awesome organization in the world because in the end, know you, not know you, like, you not like you, when you come together around this; They're like, "we're glad you're here, man, you know, I need you to do this, that, or the other thing." So I think reinforcing that is the single biggest advice, but it also means that commit to being better at something. I think about this maybe a silly little example, but every day we start with a briefing where someone reads the weather, right? And I look around the circle, you know, in the division breakout and be like, yeah, you know, here's a fire behavior forecast, here's the weather and I don't know that people, especially early career people reach out and

embrace that and say, "well, what does this mean?" You know, frontal passage, the inversions going break, you know, down canyon winds, up canyon winds. And to really not just listen to the person reading the weather, but saying, "what the hell does that mean to me today on this shift?"

Lloyd Queen:

"Hey, we saw that Carl! Didn't we see that last Tuesday up in, you know, Shanley Crack?" And so that curiosity, that sense of fire is, not a checklist and fires become a checklist. We all know this, the safety checklist, the refuse and assignment checklist. Boy if you don't have your IRPG you're in big trouble with the safety officer, whatever, knowing the district SA, anticipating what's going on out there is the opposite of a checklist. And so I think my simplest piece of advice to boots on the ground is, go ahead and do the checklist, you know, as listening to your WW podcast just yesterday and he talked about things like fitness and his safety, helping us or hurting us checklists and so on. And I think that that mindset of pay attention to what's going on around you as you hear radio traffic, can you build a mental map of where people are? And again, going back to Georgia, some of our students are not wired that way. They're not necessarily good at it. So I feel like we are compelled to admonish them to, you know, when you're listening to that traffic, build a mental map in your mind. Conflate that with weather, with your experience, with what you're hearing from other people. And to me that's SA. SA is, not looking at your, you know, crew boss or squad leader saying, you know, Gee Charlie, what should we do? It's that individual ownership of that mental picture of the fire environment it is to me equally as important as prior experience and it's hard to checklist that.

Carl Seielstad:

Yeah, I totally agree. One of the things that we've learned in Georgia is that the situational awareness that you gather unconsciously. It probably happens, but people aren't any good at it and so I think for example, you know, a crew could think about an after action review where they talk about reconstructing not like an event or how they could do things better, but about a picture of what was going on over the course of the day. Where were people? Because you don't know. I mean I talked to my students about this all the time, right? You don't actually have perfect situation awareness. You just have this sense of what's going on. Particularly like in prescribed fire, you know where your resources are. You know where stuff is going on. You can hear things in the tone of people's voices. You can hear stress. I thought that everybody was hearing that, but most people don't hear that and I think that maybe that's a learned behavior, but an exercise would be to build the picture over the course of the day and then talk about what got missed, because something somebody would say, well, did you hear when Lloyd called at 1500 with that problem he was having, and you could tell that it was a bigger problem than what he was saying on the radio from the tone of his voice? And people say, no, I didn't hear it. I didn't even hear that. I didn't even hear that. And so you know, I'm trying to tie this into something that a crew or a group of firefighters could do that would maybe challenge them and I think be interesting would be to think about doing an AR or it wouldn't even have to be on fire, but it's like, okay, what was everybody doing and what were the other resources doing and where were the stresses and that sort of thing. Because I think it's super valuable.

Charlie Palmer: Yeah. This is the puzzle and you're just missing pieces. You've got some of it, but how much of the puzzle do you have and what pieces are still out there that you need to figure out where they fit.

Carl Seielstad: I've even talked, you know, I've done these training assignments with like IC3 assignments with trainees and you have, you know, one of the things that a trainee doesn't often have a lot of experience with is in the interface with the public as, as like the formal entity responsible for the fire or in these meetings with the sheriff. And so you sit in these meetings and a lot of times the issues you sort of tap dance around the issues. A lot of these conversations are not direct conversations and so then I have conversations with my trainees about, okay, what did you get out of that? Did you sense that the sheriff wanted this but didn't say it? And I found that those conversations are really, really useful because I'm not always right in my perceptions about what's going on, but I've done it for a long time. And so I go into a meeting, I come out of the meeting and I think, okay, I kind of got this picture of how things are and then I find out that the person that I'm working with didn't hear any of what I heard, which means maybe I was just making stuff up. But I think what I've learned is it means that they're just not comfortable or they haven't had practice in hearing those things.

Charlie Palmer: How important those soft skills are. A couple of things I've already seen that we need to get you guys back, because there's just so much that you guys have to offer and knowledge that is going to be an is useful to our listeners. But if we're going to wrap this one up for now, Lloyd, what do you have to kind of finish things off at least for this episode?

Lloyd Queen: Well Charlie, thanks for inviting us here today. We appreciate it. I was also really glad to hear that, you know, as we talked before, the session this morning, how significant it is in terms of the people that listened to these podcasts and I think it's important for me to send this message out there that, you know. We're here, we're available and I'm talking about Charlie in your program and Carl and what we do. I think that the willingness to step across that aisle and to say what the hell is Carl Seielstad doing here? He's a PhD and he uses lasers and stuff from NASA and whatever. Is recognize he has the same motivation that you do. You know, Charlie so do you and your program. So you know, be open minded about that opportunity. Sometimes we involve ourselves in fire because we do bring something different to the table, but it's really a sense of common purpose. And I just hope that the fire people out there on the ground know how much we appreciate what they do and that we want to be part of this moving forward to. And at least our fire center, and I certainly think our college is committed to that long term.

Carl Seielstad: Yeah! And I guess I would say more of a thank you. I mean I think that like Wayne's podcast and then I've, subsequently listened to the other podcasts are really interesting and I think it's cool to have a, I guess what I would consider an alternative outlet for loosely fire science or perspectives on fire science. You know, I've wanted to do this when you asked me because I thought it was cool.

So thanks. And I'm excited to see these alternative medias is coming out of the university because I think it fits actually into the void and my vision for the fire center, which is this constant struggle for like how do you transfer lessons to people or at least give people things to think about. And this is a good way to do it. So thanks Charlie. ,

Charlie Palmer: Our academic world is so weird in different ways and yeah, there's so much emphasis on, on creating knowledge and then yet we... Our tools for disseminating that knowledge are so restrictive in terms of people being able to access it. And so that's part of the reason we've had so much fun with these podcasts is having another conduit to be able to hopefully share something that somebody out there might find useful. And you guys have absolutely done that today. So, again, thanks for coming on the show and sharing what you know. And, again, we'll have you back if you guys are willing. Again, thanks to our guests today, Dr. Carl Seielstad and Dr. Lloyd Queen for appearing on the show. And we will catch you next time On the Line.

Charlie Palmer: You've been listening to On The Line, a podcast for today's wildland firefighter, our audio engineer is, Mike Matthews, production assistant, Joey Moore, and I'm your host, Charlie Palmer. Thanks for listening and we hope to connect with you again in the future. On The Line.

Copyright: On The Line. All Rights Reserved. This transcript cannot be transferred, quoted, or shared without written authorization.