A New Angle

MTPR Episode 8

Kimi Barrett

Justin Angle This is A New Angle, a show about cool people doing awesome things in and around Montana. I'm your host, Justin. This show is supported by First Security Bank, Blackfoot Communications, and the University of Montana College of Business.

Hey, folks, welcome back. I'm excited today to be joined by Dr. Kimiko Barrett of Headwaters Economics. Kimi is the lead wildfire, a natural hazard researcher at Headwaters, where she also leads their community planning assistance for wildfire program.

Kimi Barrett This isn't a physics problem. We know the physics. We know how a wildfire behaves. We know the risks. We know the trends. This is a social science question.

Justin Angle She grew up in Bozeman, attended Montana State University and earned her Ph.D. in Forestry from right here at the University of Montana. We had an amazing conversation about the wildland urban interface that some of you might have heard parts of on Fireline, and I'm excited to have Kimie back to A New Angle for a longer form treatment of some of those topics today. Kimi, thanks for coming on the show.

Kimi Barrett Thank you, Justin. I'm excited to be here as well.

Justin Angle Yeah. So tell us about Headwaters and what space do you fit in here?

Kimi Barrett Yeah, so Headwaters Economics is a non-partisan research, independent group. We're analogous somewhat to a think tank. We are based in Bozeman, Montana, but we also have staff up in Helena. And then most recently, one of our colleagues moved to Missoula as well. So we're kind of around the Western part of the State, even though we're a relatively small team of 10 people. And we are really unique in that we're divided roughly in half in terms of a research effort and college group and then alternatively, a very tech savvy, data intensive group of experts. And so we complement each other really well in that the four of us who consider ourselves researchers and we lead our own kind of area, our field of expertize. So I'm wildfire. We have a colleague who does flood work. We have another colleague who does recreational and demographic public lands issues and then another colleague who does energy work. And so we are heavily supported and work very closely with a tech team that helps us dig through all the data out there, helps us interpret it, put it into online interactives and web formats and make it much more digestible to different audiences that we're working with. And that's really kind of where Headwaters Economics is excelled, is taking existing data and research and essentially repackaging it for broad consumerism to different audiences and different groups of people that we're talking to. So from the policy maker up to federal legislation and then down to local decision makers and elected officials. So it's very broad, but we work very closely, again, with both a kind of communications outreach side as well as a research and science piece.

Justin Angle Sure. So talk a little bit about the consumers of your research. You mentioned a few of them, policy makers, managers, et cetera. What purpose is your

research in general surveying? How is it advancing governance of our state and region and so forth?

Kimi Barrett We always start with an audience in mind when we do any sort of product or deliverable or research tool on our end is who are we trying to talk to? Say I have a wildfire piece, an article that I've been working on. Am I writing that for to to change legislation and policy? Or am I writing it for a city planning department who needs to think about regulations? And so because of that broad spectrum of audience, we really tailor the product to specifically speak to that person. And so our udiences a very broad because we work at the community level, that's one part of it. But then alternatively, we use what directly comes out of that community to inform policy at the federal level. And so I feel like what I say is we speak two languages. Because we work at that community scale, we're all trained as academics, and yet we work very closely with policymakers as well. So multiple scales, multiple audiences, and therefore we have multiple products based off of, again, who we're talking to. So we always say our mantra is, who are you talking to? What are you trying to say? How does that person need to say it or hear it? And then who needs to be the person to say it? So who is the messenger of what you're saying? Because sometimes it's me, but sometimes it comes better if I train a planning director and he's the one who talks to the elected official. So we use those four pillars of communication to package any kind of product or research effort we do.

Justin Angle So let's talk about the wildland urban interface or WUI. I mean, let's that's a term that gets used a lot. I think in our last conversation you explain why it's actually a a term and a framework or a way of looking at development in the West that

you all don't really use as much anymore. How do you think about development in the West?

Kimi Barrett Yes, the wild land urban interface, the WUI. You know, it's an acronym that's evolved over at least over 20 years and for a long time it was just considered wild land, urban, and then it became urban wild land. And, you know, because it came out of the federal level, you always have to have an acronym to shortcut everything. And so, you know, the wildland urban interface, it designates the area where the unbuilt landscape, wildland vegetation meets and intermingles with the built environment. And by that, we're talking about development, human presence, human dimensions of landscape. And so it defines this kind of geographic region, particularly in the American West, that because it is this fusion of both the un-built and built environment is highly prone to wildfire. And that's either through forests and timber or through grassland and shrubland. Either way, it's still considered a wildland urban interface. And so we use at Headwaters Economics wildfire prone lands because in the context of community wildfires, it means the same thing and it isn't a nasty acronym and it gets right to the point. Having said that, it is an area that is increasingly not only exhibiting wildfire risk and behavior, but is also the fastest growing land use type in the country. Currently as of 2010, so data that's already 10 years out-dated, one in every three homes, is now situated in these wildfire prone lands or thirty four percent. So that accounts for tens and tens of millions of households that are situated in areas that we know have experienced and are going to experience a wildfire. And so it's an area of extreme concern and it's where growth is being directed, which is only going to be exacerbated by the pandemic and exurban exodus that we're seeing

Justin Angle And some of the reasons why growth is being directed in those areas, they're not quite what you think. I mean, there's a lot of rich people, you know, moving up into the hills to get fancy views. But that's not all of it. It's the development in the WUI is fairly widely distributed, right?

Kimi Barrett It is distributed and it's heterogeneous, not just in terms of of state demographics and topographical characteristics, but across the entire West, it's very, very different. And so what the wildfire risks are in, say, California and who is being most impact vary quite a bit when you look at the risk here in Montana and who is being impacted. And that can vary in terms of what the risk is in Gallatin County, in contrast to what the risk is in Powell County. So, yeah, it it's very diverse and therefore the solutions and the approaches to address that risk, while there are a set of universal tools that can be applied, they also have to be very nuanced when you actually implement them on the ground. Because these challenges tend to be very diverse and localized in the sense that they happen either at that county or kind of multi county scale. The approaches, therefore, must meet that kind of nuance. And so what works in one county to reduce wildfire risk? It may not necessarily be the same measures that you would want to apply in another county or even larger at a different state. So you have to consider that when you're talking about wildfire risk and the complexity that goes behind some of the solutions and approaches to it.

Justin Angle So let's maybe start with some of that you mentioned at the head of that answer that some of the risk mitigation efforts that we can make are universal. Let's maybe start with some of those and then we can get more into that nuance and move forward.

Kimi Barrett Sure. While we always say there is no single silver silver bullet, we will have to address wildfire risks with everything we have at our disposal, we also push the idea that for too long, the federal level and down to the state level and you're seeing it manifest at the local scale as well, has focused very heavily on the landscape resiliency or the forest treatment piece. And that is managing and essentially trying to domesticate the wildfire issue in terms of how you can control the forests and plan the forest. And the fire adapted community piece is kind of referenced as an afterthought. And so what we're saying is, well, no, you can't really they have to work in tandem with one another. You can't talk about reducing community wildfire risk without bringing in the community and the urban within the wildland urban interface. You have to address this more holistically. And so we can't continue to just treat our forest and log our way out of some of these challenges. We're going to have to start thinking very deliberately about that human dimension side as well. And so in that light, there are a number of things that can be done at that community scale to help address and mitigate wildfire risk. And that's when it starts to become a little bit more nuanced when you bring it down to, you know, more of that county or community level of implementation.

Justin Angle Yeah, I mean, what are some of the things we're talking about that a community can do to become more wildfire adapted? What does that even look like?

Kimi Barrett You know, we know wildfires are inevitable. Indigenous tribes have known this their entire existence, and we know that they're also increasing in terms of severity and frequency, and that is largely driven by by climate change and decades and decades of suppression. And so we understand that given these increasing risks, homeowners can start to do things to their structure and their property to to live

alongside that inevitability. And really, this comes from the great work of Dr. Jack Cohen, who is based in Missoula. He's formerly with the Forest Service and worked at the local fire science lab. And his seminal work that came out the late 80s and into the 90s that looked at the home ignition zone has really pioneered our understanding and the research behind the process of home ignition. In other words, how does a home burn down in the first place? So when you start taking Jack's work and looking at it and his thesis, it's arguing that we need to shift our understanding of how a wildfire disaster occurs in the first place. What does that sequence of events that leads to an urban conflagration? And so when you break that down, the big fallacy that occurs is people— media, homeowners, elected officials, society at large —always envision it's a massive wildfire front or it's this kind of wave of flames that comes down a mountainside and engulf the community. But the reality is, is that 90 percent of homes lost during a wildfire event, urban conflagration as a result of embers that fly one to two miles ahead of that wildfire front. And if that ember, that little matchstick, that ball of flame, lands on any flammable surface, they can grow in intensity and size to burn and threaten a structure. And so think about a campfire and all those embers that shoot out of a campfire. Or even better, think about what a home is in the first place. Which is, I always say the analogy is, you're taking a bunch of gasoline, petroleum based products, wrapping it entirely of wood and then placing it in a very dry, dead forest. And so when those little fireballs, thousands and thousands of an entire storm of embers, comes showering over your home and your property, think about what is flammable. And that comes down to the dead debris and your gutters or what your roof is made out of. If you have wet shingles on it, if your deck is made of wood, what is on the deck? Did you put your your firewood is it stored on top of the deck or is it under the deck? What's your what's furniture made out of. It's usually wicker with petroleum based cushions on top of it. And you start to think and account for all of these little

surfaces, know the bark mulch around your home, the juniper's up against the home, all these little pieces that collectively can make your home very, very vulnerable to those embers. And so it only takes one little ember to grow large enough. And if your home isn't effectively suppressed at that point, it can lead to these that home igniting. And then the radiant heat from that structure is going to be big enough and intense enough that it can threaten neighboring homes as well. And so we always say when you're dealing at that community scale, looking at the built environment, really what you're trying to do is protect homes from those ignition vulnerabilities, from embers. And so there's ignition resistant techniques and materials you can start to use. We have the science we know how to do. We know how to build a wildfire resistant home. And now we just need to start actually implementing and adopting those practices on a broader scale.

Justin Angle Yeah. And what do we know about how to make progress there? I mean, the social science piece of getting individual homeowners to adopt some of these things getting because there's a collective action problem, as you referenced there as well. And then some of this probably has to be enforced through building codes and policy. What's the sort of collection of tools we have to try to make these changes happen?

Kimi Barrett So we know that voluntary homeowner measures don't work right. Only in in light of we've had great educational programs out there for quite a while now. Fire wise, ready, set, go. A lot of them backed by fire associations and they are outstanding in terms of getting neighbors and individual communities to understand and recognize the risks and then to take mitigation measures on their property. But it's voluntary. And so only one homeowner can do everything appropriate in light of wildfire mitigation

measures. They can do defensible space. They can use the appropriate building products and materials in the home. But if their neighbor doesn't do anything, then their home is still threatened, again, due to radiant heat that comes off of a home once it starts burning. Therefore, you have to have an entire neighborhood compelled to take those mitigation measures. And the only mechanism we have in place to enforce that kind of compliance comes down to the regulatory framework, and that is the land use planning piece. That is thinking about building codes, regulations, ordinances, covenants, other tools and measures within land use planning tool kit that can actually incorporate and integrate wildfire mitigation into the development framework. And so when you're talking about proposed new developments, what is it that needs to be incorporated into the vision of that that development to make it more wildfire resistant? And a lot of that does come down to the building products and materials used in the home. So looking at things like what is the decking material composed of? What's that immediate landscaping or that five foot perimeter around the home contain? Are you allowing bark mulch, for example, or are you going to require rock mulch? Some communities require that the first 10 feet of a fence isn't made of wood because that is going to be like a wick during a wildfire and lead it directly to a home. Things along these lines that actually look at the construction design and materials within the structure itself and then the property is the broader vegetation management piece. Unfortunately, the metaphor that has really come to light to illustrate this best is when you look at the covid and the mask compliance, we know that one person wearing a mask is not nearly as effective as the entire community wearing a mask and reducing covid. And it's similar with wildfire spread. One homeowner alone is not going to achieve community risk reduction. It does require the entire neighborhood.

Justin Angle Yeah and let's talk about sort of the just variation in these communities. I mean, I think when people think of the WUI and in particular new building in the WUI, they think often, you know, fancy homes up on a mountainside. And often those are the sorts of people that can afford its new construction and they can afford these sorts of building techniques. But a lot of times the WUI isn't that wealthy and doesn't have that kind of resources. Or maybe it's old homes or maybe it's outside of city governance and other things or people that can't afford those sorts of things to talk about how just the variation within the WUI and where some of these places or some of the places where these sorts of investments in homes are really difficult to make happen.

Kimi Barrett Like you said, there are certain locations where it's high wildfire likelihood and hazard. And then you also have homeowners that are intentionally building in those locations because they want the amenity or the recreational access or the scenic views, any of those attributes that kind of come along with rural locations and living in those areas. And for those homeowners, there is this whole understanding. You know, the this is one of several homes they likely own and they do it here in Montana, for example, if their architect is told that they just have to use these building product, that it's not a question of and B, it's you just have A and they say this is the set of different building products that you can meet to in this a column that homeowners are not going to question, they're not going to push back. Because they're likely coming from a place like California where they do have to comply with those kind of building requirements.

And on the other end of that, you have a big challenge, as you referenced in your question about housing affordability and homeowners that are situated in wildfire prone lands that do not have that level of disposable income to pick and choose against a wildfire resistant home or not. And in that situation, I I strongly believe that

there is a role for the federal government to provide subsidies to help offset some of those costs. We've done it with energy before. And and I think if we were to apply a similar model for homeowners that are at high risk and retrofitting some of those structures, as has been done in California and increasingly proposed for some of these places that are experiencing wildfire disasters, that is one step in trying to address this and and seek to to not put all of the blame on the homeowner themselves, particularly when you bring in some of the questions regarding housing affordability. And where else are these people supposed to live if they can't live in their home that they've had for many, many years? Or if they do need new homes and there's a housing pressure in the community, where else is development supposed to go?

Justin Angle We'll be back to our conversation with Kimi Barrett of Headwaters Economics after this short break.
Welcome back to A New Angle. I'm speaking with Dr. Kimi Barrett of Headwaters Economics about how citizens and policymakers must think differently about wildfire.

In our previous conversation, we talked a little bit about moral hazard. And some of the municipalities in these wildfire prone zones rely so much on property taxes, for example. So when homes burned down, there's like a perverse incentive to rebuild the home right there, regardless of whether or not it's a smart idea to build on that piece of land.

Kimi Barrett Yeah, absolutely. And, you know, even since our last conversation, Justin, I've been reading this great piece by the authors, Patrick Baylis. He's an economist who is formerly with Stanford. And he wrote a report that looks at the moral hazard and wildfire suppression. And in the report, he talks about this concept of moral hazard. So

to begin with, let's define that. That is this idea that decision makers or individuals, you in your own position perhaps, can agree to something where you are not going to be responsible for bearing the consequence of that outcome or that decision. For well over one hundred years, we have a system in place where fire protection services are public good. It's a public service. It is provided and paid for by the federal government and by taxpayers. So local governments, again, are not going to have to pay for a vast majority of wildfire protection or also known as suppression costs. When they approve of any new development and so they get increased property revenue and they don't have to pay the bill for firefighting. So what is in it for them? Why would they want to ban or prohibit development in the area that they know is likely to burn when all that's going to do is increase their tax revenue? So that's what we talk about with a moral hazard, is they're able to approve those new developments because they're not going to actually bear the cost of protecting those developments when it comes to a wildfire. And so until that very complex but often overlooked fiscal mechanism is addressed, it's going to be hard to incentivize local governments to take the action that is needed.

And so what Patrick Baylis points out in his report so well is we might have to look at alternative policies that might not be received very well because it is going to start shifting some of that responsibility and accountability to local governments, perhaps homeowners, insurance companies and others who who have up to this point not had to bear a lot of responsibility for the actual suppression costs. And I think it's important to note, though, that what we're talking about is actual firefighting costs or the costs related to contain and extinguishing a wildfire that's known as suppression. We're not talking about the long term expenditures that come out many months and years following a wildfire, for example, watershed rehabilitation or infrastructure repairs, hillside stabilization. All these other impacts that come out as a result of wildfire.

Those costs, in fact, are largely borne at a local scale, but they're very often overlooked in terms of how well connected they are to a wildfire event.

Justin Angle It's a complex problem, but it's so thorny in the remaining time, Kimi, like, how do we make progress? What gives you hope? Who's doing this well?

Kimi Barrett You know, I believe very adamantly that change is going to come from the community scale. I don't think it's fair and I don't think it's going to be an effective use of our time to rely on the federal government or the insurance companies, for that matter, to do something about this. So when you're talking about the anticipatory planning of living alongside the inevitability of wildfire, that change is going to come from the community scale because it's communities that have either experienced a wildfire very recently or have seen their neighbors go through a wildfire. And they realize that they're going to have to start taking that action very locally in order to get ahead of this train. And there's a lot of great examples out there of communities who have done this well. Boulder County, Colorado, they have a great wildfire partnership program that merges that the private in the public sector to address wildfire mitigation at that parcel and homeowner scale. The city of Austin has just passed a really great building code to address wildfire hazard and new developments in wildfire prone areas. California, as I said, is always kind of leading the efforts here in Montana, Missoula County is doing great work in terms of their collaborations and partnerships. Which is hard in a state that has been so antiregulatory in how its infrastructure and its its legislative mechanisms have been adopted and put into place. So Missoula is doing great work. Park County, where I live here, Livingston's also doing really good work and having interesting conversations. Gallatin County. So it is happening kind of piecemeal across the country. And and collectively, there are some really great

examples out there, not as many as obviously we we need to have, but it's some momentum. And I think people are recognizing, as with all of these natural hazards, that they're only gaining in severity and scope and that we need to start thinking about this rather than retroactively. We need to think of it again in an interest free lens.

But then the thing I always like to talk about, and I always try and leave on an optimistic note, because it comes down from a great wildfire historian named Steve Pine, he's a he's done a ton of research on the history of the 1910 great wildfires that prior to that kind of the settlement and the progression of of kind of the colonial movement across the country, and he talked about in the late 19th century and into the early 20th century, as we progress westward, we built entire cities and urban areas made of wood that continually burns down repeatedly. The Chicago and the Peshtigo fire of 1871 later the night six fire of San Francisco, where these cities didn't burn down just once but multiple times from structural ignitions. The Peshtigo go fire, for example, killed seventeen hundred people. Imagine an event nowadays where seventeen hundred people perished in one natural hazard. And so after those events happened, we as a society collectively decided to stop building our cities to burn down. So we replaced our wooden boardwalks with cement and non-flammable surfaces. We stopped using sawdust for insulation. We put in fire alarms and evacuation systems and hydrants, and we started very thoughtfully designing our urban areas with fire in mind. And we don't see those those kind of devastating disasters anymore because of those early efforts and that thoughtful process and thinking that went in at that time. So Steve Pyne always says we've solved this problem before from an urban planning perspective. If you apply those same principles into the wild land, we can solve it again. And we have the science, we have the materials, we have the technology and the research to know how to build smarter, safer homes in wildfire

prone lands. If you look at it that way, it simplifies the problem. And this isn't a physics problem. We know the physics. We know how a wildfire behaves. We know the risks. We know the trends. This is a social science question. And so once we get over that, that societal hump and the inertia with how we perceive wildfire, then I think it opens up a lot of opportunity to think about how we can live alongside it.

Justin Angle Indeed, I think that's a wonderful way to kind of close out. It is a social science problem, although that I don't know if that necessarily makes me more confident or less confident that we can solve it again. But knowing that we solved it once in a different context, you know, is a reason to have optimism about the future.

Kimi Barrett Yes. Well, we have to have something right.

Justin Angle It's better than the alternative. So Kimi this has been great. How can people who want to learn more about you and Headwaters find you online?

Kimi Barrett Yeah. Headwaters Economics dot org. It's our website. And if you go to the team bio, I'm listed there as well as my colleagues, and I'm always happy to entertain questions, respond to phone calls, interviews, whatever is helpful to get the word out and spread the love.

Justin Angle Awesome. Well, thanks for sharing the love with us. And keep pumping out that important research. We need it.

Kimi Barrett We'll do. Justin, thank you so much.

Justin Angle Thanks for listening to A New Angle. We really appreciate it. And we're coming to you from Studio 49, a generous gift from University of Montana alums Michelle and Lauren Hanson. A A New Angle is presented by First Security Bank, Blackfoot Communications and the University of Montana College of Business with additional support from Consolidated Electrical Distributors, Drum Coffee and Montana Public Radio.

Aj williams is our producer. VTO, Jeff Amett and John Wicks made our music. Editing by Nick Mott, and Jeff Meese is our master of all things sound. Thanks a lot. See you next time.