

CVA Podcast 12/17/20

Jessica ([00:00](#)):

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Paris ([00:23](#)):

Hello everyone and welcome to *These Lands*, a quarterly production of the USDA Northwest Climate Hub. I'm Paris Edwards, the voice behind the podcast that shares ideas, lessons learned, and other useful information about how to reduce the negative impacts of climate change on our forests, farms, and rangelands in the Northwest. Whether you're a manager, landowner, scientist, student, or just curious, this is a podcast for you.

For our first series, I speak with key players of a US Forest Service-led effort to conduct climate change vulnerability assessments across national forest lands. We ask why vulnerability is an important concept to natural resource management and get details about the process of engaging the most knowledgeable people, the land managers themselves. We also ask about how these assessments are actually put to use. I think you'll find the answers surprising and hopeful.

Our guest today is Jessica Halofsky, a research ecologist and the director of both the Northwest Climate Hub and the Western Wildland Environmental Threat Assessment Center.

Paris ([01:30](#)):

Okay.

Paris ([01:31](#)):

So Jessica, thank you for speaking with us about vulnerability assessments. Before we get into the details, can you give us some background on how you got involved in carrying out vulnerability assessments and how many you've helped to develop since you started?

Jessica ([01:47](#)):

I started on a project with Olympic National Forest in Olympic National Park and it was the first example in the country of trying to do a vulnerability assessment and think about adaptation. And so we, you know, learned a lot of lessons in that initial pilot and then continue to develop a process and the final product. And since that initial assessment we've done 10 others that have been, instead of individual national forests had been for groups of national forest and national parks, and, and in some cases, entire regions of the forest service. So we did assessments for the entire Northern Region for the Forest Service and then the inner mountain region as well. So those covered more than 12 national forests for each of those.

Paris ([02:37](#)):

So Jessica, I want to learn a little bit about your interest in vulnerability assessments. You've dedicated years to helping produce nearly a dozen of these. Is there something about this approach to understanding the landscape that appeals to you personally? Is there a story behind your involvement in these?

Jessica ([02:57](#)):

Yeah, well, you know, I have a background in forest ecology and fire ecology, but particularly once I started working in fire ecology and more and more realized the importance of climate change and what a game changer it is. And so I had the opportunity to work as a postdoc on one of these pilots and I've always been really drawn to applied science. I think that it's really important not to do science in a bubble to make it really relevant. So this is a project I was really excited about working on for that reason and really enjoyed working closely with land managers. And then, you know, once I saw that we had a process that could work and really potentially make a difference in how these national forests are managed, then it really was an impetus to keep working on these and expand them across the West.

Paris ([03:53](#)):

Let's jump into the basics of what vulnerability assessments are. You know, let's talk about what the documents cover and, and how these are developed.

Jessica ([04:04](#)):

So we develop them through science management partnerships. They are partnerships with the Forest Service Research and Development branch and other universities and agency scientists and natural resource managers, national forest, national parks, and other agencies and nonprofits. And so we do a process where we work with the natural resource managers to identify needs related to climate change, what they need to know about what information is available, what are their key concerns and work them through a process to develop reports that cover we cover multiple resources. So that includes hydrology, water use and infrastructure, fisheries, and vegetation and disturbance, wildlife, recreation, and then other responses and include carbon timber and cultural values. And so we work with the managers through, over a course of about two years to develop, peer reviewed scientific documents that outline the expected effects of climate change on those different resource areas. And then we use that as a basis to develop adaptation strategies and tactics to address those key vulnerabilities that are identified in the reports.

Paris ([05:26](#)):

So big, big picture we're looking at specific climate change impacts to a place, in this case a forest, and using that information to develop strategies. Is there also, you know, within that process, a strategy to identify hotspots or do we leave that to the managers themselves to decided what their priorities are going to be within those development areas or adaptation strategies?

Jessica ([05:53](#)):

Geez. Yeah, no, it, it depends a little bit on the resource, but we definitely try to identify geographic areas that might be more vulnerable and then, you know, particular situations as well. So for example, with the hydrology piece, we have projections for future streamflows, and we can identify where on the landscape we're expecting more flooding in the future. And we can also overlay that with things like roads. So where are there roads that are close to streams, where we expect more flooding to occur? So that can help really identify a place that will be highly vulnerable in the future. Um, and we can do that with certain wildlife habitats, stream temperature. We can identify places where we expect stream temperature to increase the most. And then on the flip side, where we expect it to remain more within a historical range so that we can identify where habitat is likely to exist in the future.

Paris ([06:49](#)):

Gotcha. So in many ways, this facilitates some targeted management in that, you know, with the limited resources and personnel that folks have on any given forest, they can try to pinpoint, in maybe a more efficient way, where to really target those in order to address some critical needs on the ground. To get us all on the same page before we get too far into the discussion, can we define vulnerability? What is it, what does it mean? And we kind of covered why it's a useful concept in this context, but maybe even outside of this context, why is this such a popular concept right now, do you think?

Jessica ([07:26](#)):

Because we know there's going to be a certain level of climate change, no matter what we do as a society at this point. And so this is something that natural resource managers are going to be dealing with. Um, but it can be a bit overwhelming. And so they really need to know what's going to happen on my landscape that I work on and manage and what can I do about it? And so technically in the concept of vulnerability there are three main components. So one has to do with the amount of climate change that we expect, so that change in temperature, precipitation and other climatic variables. And then there's, so that's the exposure component. And then there's also two other components that are sensitivities. So it's how much we expect a system to respond to a given change in climate. And then adaptive capacity, so the ability of either an ecosystem or an ecosystem component or a social structure to cope with expected changes in climate. And so we take all of those different those different components into account. When we think about vulnerability for those different resources.

Paris ([08:43](#)):

I'm curious about this concept being pulled into larger scale policies within the Forest Service. Can you talk about some of the background about why are vulnerability assessments, seemingly, if nearly a dozen have been done, such a focus?

Jessica ([08:59](#)):

So back in 2008, the Forest Service came out with a roadmap for addressing climate change, and vulnerability assessments and adaptation were a key component of that. And then on top of that, they, at the same time, came out with what they called a "scorecard for climate change." And this was, you know, the only example of an accountability tool for a federal agency in regards to climate change. What it did, is it had each national forest in the country rate itself in different categories related to climate change. So there was a sustainability carbon footprint component to that, but then working with partners using best available science conducting climate change, vulnerability assessments and doing adaptation planning were key parts of that initial scorecard. That was a big impetus for the agency to work on these climate change vulnerability assessments. And they just recently revised the scorecard. It's kind of the next step in the process. And again, adaptation and vulnerability assessments are key components to that scorecard called the Sustainability Scorecard, and it was just released as of fall 2020. And that again is encouraging all national forest units to think about how they're going to do this in the future and to help kind of rate them not as sort of a competitive process, but a way to think about how to move vulnerability assessments and adaptation forward.

Paris ([10:36](#)):

Sounds like it's really just kind of shepherding managers to build long-term management strategies. They have unknown levels of change attached that the job to manage our landscapes, our natural resources, and it is getting more difficult under climate change. And this is sort of, perhaps, one of our

best tools to sort of keep up with that uncertainty and still look toward the future of what is sort of the best path forward for continuing to carry out these difficult and really critical jobs, right?

Jessica ([11:04](#)):

Yeah, one of the key goals of the Agency is to manage for resilient ecosystems. And so doing vulnerability assessments helps in that regard.

Paris ([11:16](#)):

Can you talk more about the process of working with managers? I know that the term co-production and collaboration both are used often to describe the process, but how has this played out in the studies? And from your perspective, how is it important to the process of understanding vulnerability for each of these forests?

Jessica ([11:33](#)):

I mean, from that initial case study or pilot I did with the Olympic, I worked hand in hand with all of the resource specialists on the Forest to figure out what we could develop that would be useful for them. So, what information do they need, what time horizons would be most helpful in terms of climate projections, how can we interpret this information in the context of their management and their management constraints to make sure that we're, you know, delivering information and adaptation options that they can actually use on the ground? So it's, you know, we have them involved from the get-go in terms of determining what should be covered in the assessment, what resource areas should be covered, what data sources should be used. We have managers lead in terms of developing adaptation strategies and tactics. They're the ones that know their landscape better than anyone. And so we, you know, we have a presentation of the assessment and then we have them interpret that to then figure out what is appropriate to do on the ground.

Paris ([12:41](#)):

That's an interesting approach. I mean, just the focus on on-the-ground expertise and really capturing the richness of years, in many cases, that have developed local knowledge and expertise. So can you talk a little bit about what happens after the adaptation strategies are developed? What happens next? Do you know how these are put to use? Is there a process for following up yet?

Jessica ([13:06](#)):

Yeah, well we have everything, the vulnerability assessment and the adaptation strategies and tactics, incorporated in a peer-reviewed report. And we do that so that they can present a defensible document in a National Environmental Policy Act environmental assessments. And pre-planning, we are starting to see results where people are using this information for projects. We have a really good example here in Washington on the Mount Baker-Snoqualmie National Forest, where they took the assessment information, and in particular, the information about expected changes in hydrology and snow and how that might affect which roads might need more maintenance in the future. Um, which aren't really being used or are highly vulnerable, and should we consider actually getting rid of those roads or decommissioning them? We're also starting to see examples of Forests using this in their Forest Plan revisions. So every national forest has to have a Forest Plan, and they have to revise them every usually every 10 years, sometimes it goes up to 20 or more. And so we have a lot of national forests going through this process now, and they're starting. The 2012 planning rules are required to think about climate change when they do that. And so we've seen some great examples of people pulling

information from these assessments and incorporating them in their Forest Plans, which dictate how they're going to manage their landscape into the future.

Paris ([14:40](#)):

That seems pretty critical. And especially your example about the Snoqualmie Forest and their travel planning. I could see how funding planning could be much helped by having this sort of long-term view and strategic approach to prioritization and decommissioning, as you mentioned. Is there a strategy for helping other folks who may be impacted or could benefit from this information to have access?

Jessica ([15:05](#)):

Yeah, well, we do try to take an “all lands” approach as much as possible in doing the vulnerability assessments. So some of the analyses are specific to national forests and national parks, but generally we're looking at projections across whole regions. And we also really try to involve a lot of partners, particularly in the workshop process. So we've always invited large groups of partners to come and hear about what we've developed in terms of a vulnerability assessment and allow them to provide feedback. And in many cases they've also been involved as, you know, adjacent landowners and key partners to these forests and parks to be involved in developing the adaptation strategy tactics. We also have done public meetings to let the publics in the regions we've worked in know about it. All of the vulnerability assessments are available on our website, and then also through Treearch. They're Forest Service publications, so anyone can access them. We've thought more about trying to reach out to different groups who've done some work with small, private landowners and Tribes and taking all of the adaptation strategies and tactics and kind of curating them so that they're more applicable to different kinds of land owners or managers.

Paris ([16:31](#)):

Great, thanks. And just one short follow-up. I know the concept of “all lands” sounds pretty straightforward, but is there a kind of a standard definition for what exactly an “all lands approach” means?

Jessica ([16:42](#)):

Well, that means with our assessment we're trying to make the assessment relevant to all of the landowners and managers in a particular region.

Paris ([16:51](#)):

So in a given region, maybe there's a patchwork of public and private land. And of course, when you're assessing climate change impacts, they don't discriminate between ownerships. So you're saying that you're kind of drawing a bigger bubble and that, of course, includes private land owners, Tribes, et cetera.

Jessica ([17:09](#)):

Right, exactly.

Paris ([17:15](#)):

Vulnerability assessments can and are being used to inform future management of national forest lands. Managers are playing an active role in informing vulnerability assessments and developing the very

adaptation strategies they may use in response. What's more, thanks to efforts to draw out key concepts and translate them across forests, forest units that don't have formal assessments can benefit from borrowing from scenarios that are relevant to them.

I want to thank my guest and remind listeners that several links with more information about today's speaker, and details about where you can find vulnerability studies and related information, are available on our website. From our makeshift sound room that doubles as a blanket fort, the Northwest Climate Hub sends thanks for tuning in. Join us next time for the next episode in our series on climate change vulnerability assessments. This podcast is sponsored by the US Department of Agriculture Forest Service, and the USDA is an equal opportunity provider, employer, and lender.