



# **MORE THAN TREES: THE IMPORTANCE OF MAKING OUR SCIENCE DELIVERY CULTURALLY AND SOCIALLY RELEVANT**

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Annual Meeting, Pablo, MT, September,  
2019





## ADDRESSING CULTURAL DIFFERENCES

### Monitoring

"Are cultural resources of our tribal communities being co-managed for all future generations?"

### Sharing

"Are we sharing science in a way that connects with local communities and youth?"

How can we do better?



Photo Credit: <http://www.flickr.com/groups/voices/discuss/72157605373024690/>

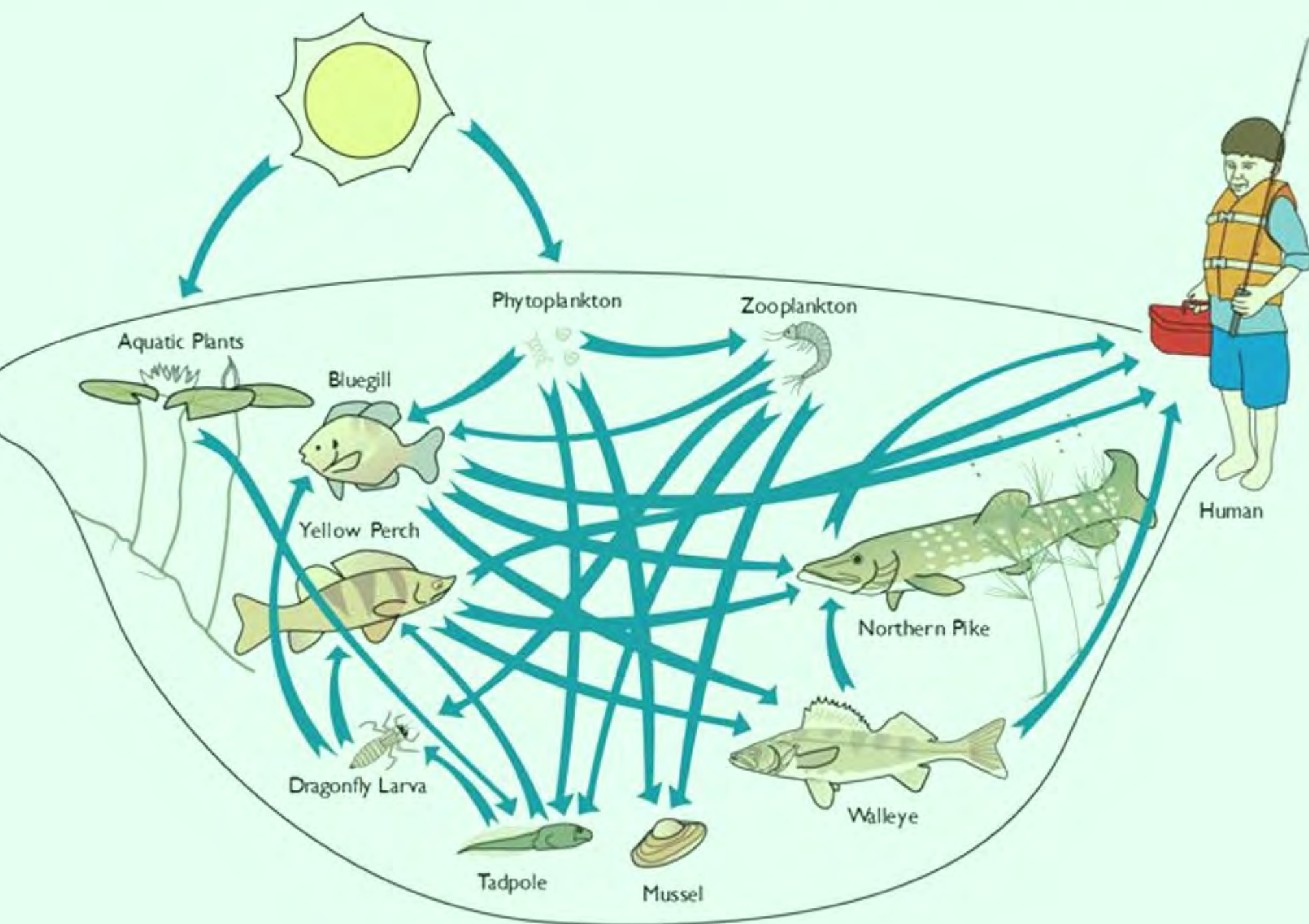
Photo Credit: Boyd's Fire, USFS, Colville National Forest







A food web is a diagram of a complex, interacting set of food chains within an ecosystem





# ADDRESSING CULTURAL DIFFERENCES

Research has shown that when underrepresented youth find what you're teaching is engaging and relevant to their lives, can enable them to achieve a higher level of learning  
(<http://thenode.biologists.com/kicking-notch-becoming-culturally-relevant-science-educator/education/>)

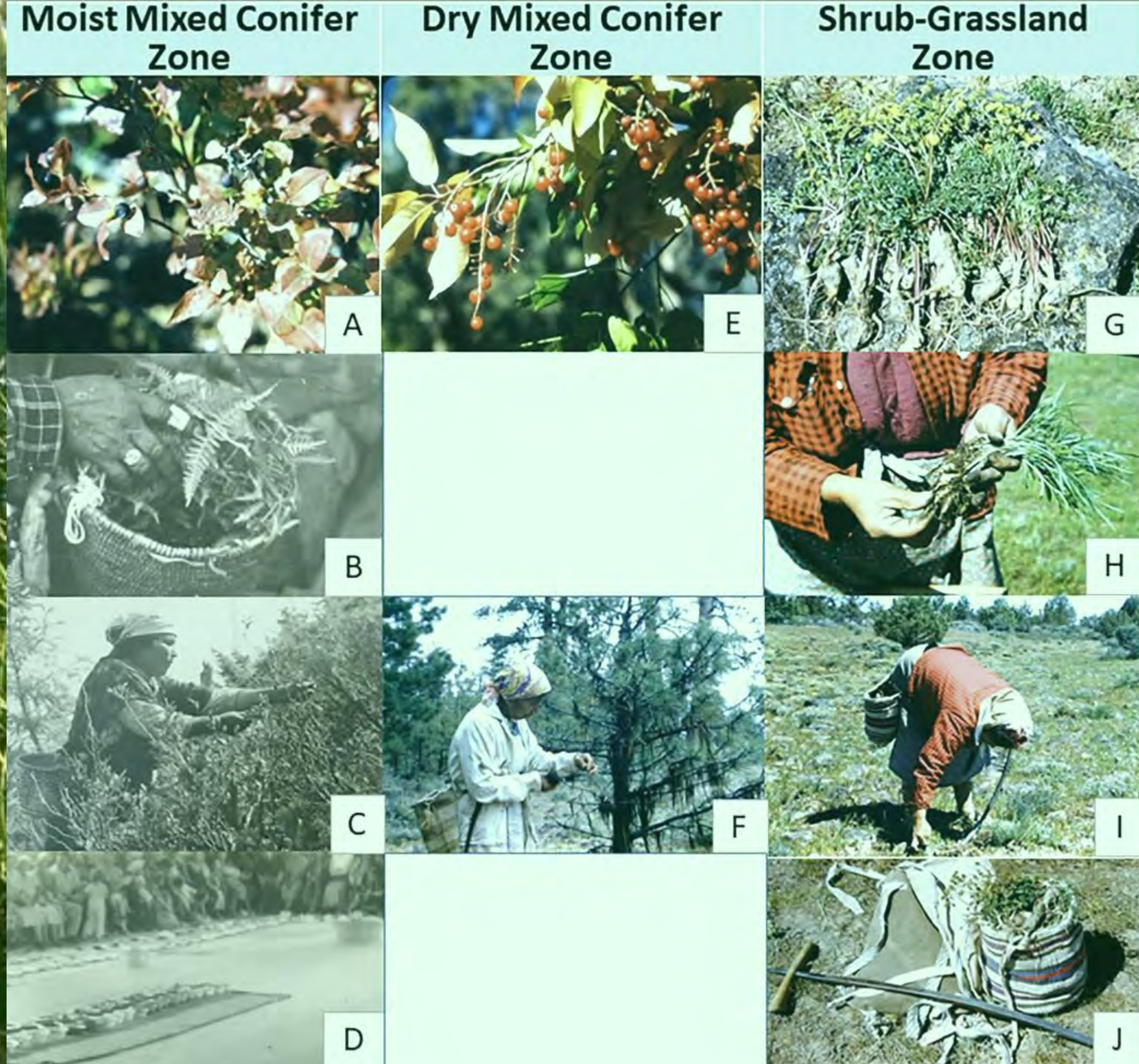


Photos: Monique Wynecoop, USFS, Colville National Forest



*"Traditional fire use by the Confederated Tribes of the Warm Springs Reservation focused on thinleaf huckleberry. Further analysis revealed that fire use was maintained by a **traditional knowledge system composed of four interconnected elements:** (i) resource tending practices; (ii) tribal ecological principles; (iii) the seasonal round; and (iv) culture"*  
(Steen-Adams et al. 2019)

Photos: Monique Wynecoop, USFS, Colville National Forest



Steen-Adams et al. (2019) Traditional knowledge of fire use by the Confederated Tribes of the Warm Springs in the eastside Cascades of Oregon.

<https://www.sciencedirect.com/science/article/pii/S0378112719301446#f0015>

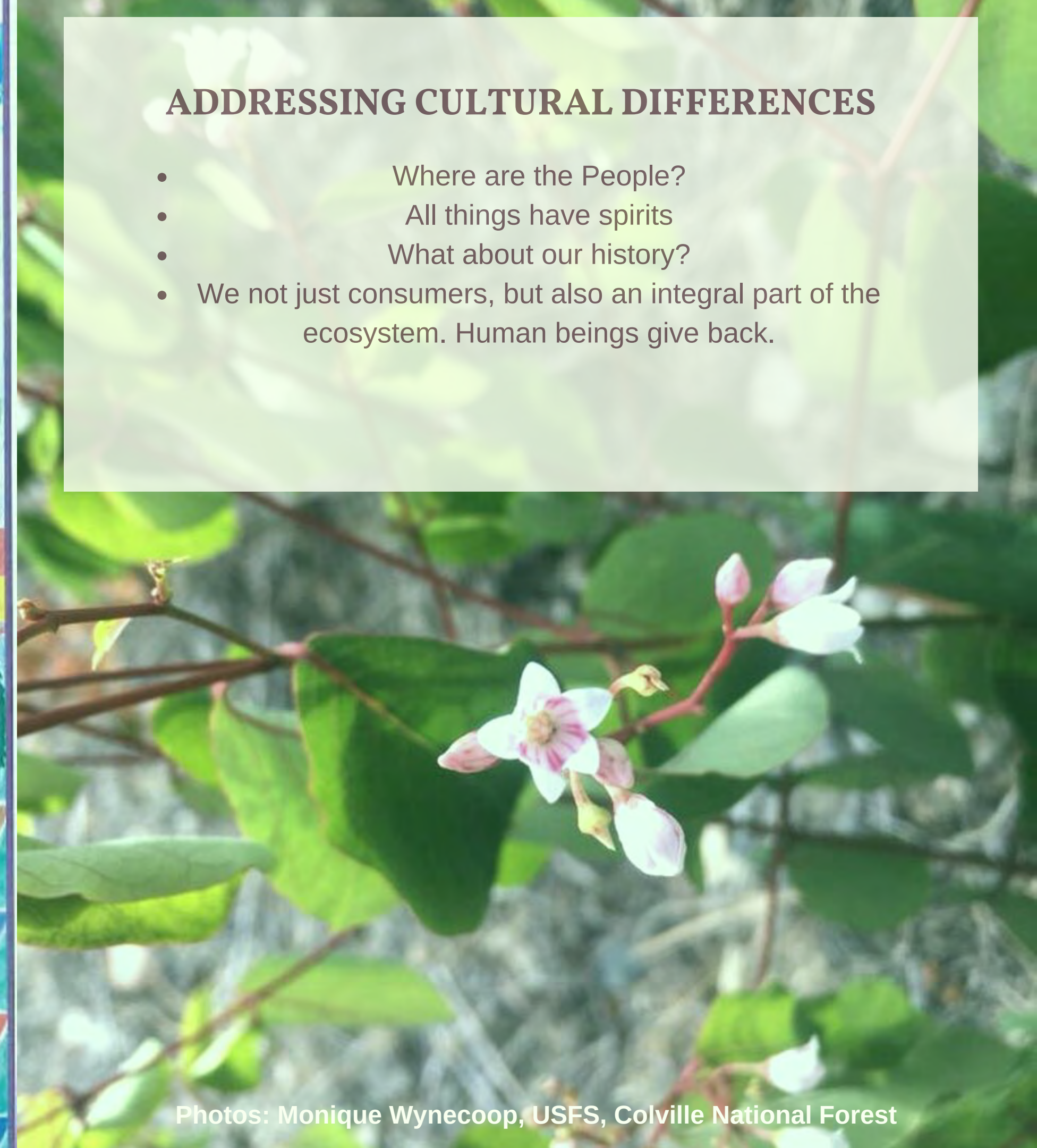




Photo Credit: Sammy Matsaw, Shoshone/Bannock & Oglala Lakota,  
First Foods Ecologist

## ADDRESSING CULTURAL DIFFERENCES

- Where are the People?
- All things have spirits
- What about our history?
- We not just consumers, but also an integral part of the ecosystem. Human beings give back.



Photos: Monique Wynecoop, USFS, Colville National Forest



# Getting to the bottom of pressing issues

Northwestern Scientific Association, Special Session on Native Foods

Panel Discussion: Tribal perspectives, recommendations, and research needs for promoting food sovereignty and responsible management of traditional foods and places ([www.northwestscience.org](http://www.northwestscience.org))

- We need more native leaders!
- Tribal people need to educate scientists and managers about our perspectives, worldview, and our history
- Traditional Knowledge *is* science
- Give proper credit to tribal people
- Tribal people are focused on benefitting future generations and other agencies need to be on the same track
- Our language means everything!



Photo by Bill Carlson



We need more native leaders!

# **How do we promote leadership development in natural resources? We start by developing Culturally Relevant Science Delivery:**

- **Get to know your audience on a meaningful level: interests, values, home, traditions, style of communication, how they relate to their community**
- **Demonstrate caring: Showing that you value and respect them, their culture, and ways of learning, build safe spaces for sharing and achievement.**
- **Respond to cultural diversity in scientific instruction and delivery: Actively seek out ways to incorporate students' lives and cultures into science lessons you're providing**



Traditional Knowledge IS Science

# How do we promote Traditional Knowledge in our Academic Communities:

- Let's help native communities TAKE THE LEAD
- Give appropriate authorship and recognition
- Remember that our spirituality and worldview are connected to our language and culture: you can't separate the them and say they are not science
- How do we get more native authors and scientists recognized when journals won't?



[www.nativesciences.com](http://www.nativesciences.com)



Photo: Pit Cooking. Photos by Barry Moses, Spokane Tribe,  
<http://sulustu.blogspot.com/2010/06/camas.html>



Photo Credit: Oregon State University, <http://www.museumsyndicate.com/item=60037&tag=62>



# Tribal people are focused on benefitting future generations



Photos by Monique Wynecoop, USFS



# **Our language means everything!**

**Our language tells the story of the land. Our native language describes places as verbs, whereas English describes places as nouns.**

**Teaching through Oral Tradition**



Photo Credit: Pit Cooking Photos by Barry Moses, Spokane Tribe,  
<http://sulustu.blogspot.com/2010/06/camas.html>



# il's Mission

*Mission near Kettle Falls as it looked in 1888.*



## ACKNOWLEDGING TRIBAL PERSPECTIVES, WORLDVIEWS, AND HISTORY

As early as 1838, two Catholic Missionaries, Father Blanchet and secured passage with the Hudson's Bay Company from Montreal Vancouver located on the lower Columbia River. Their goal was to Catholic mission in the Willamette area. News of their arrival pre Fort Colvile, the Hudson's Bay Trading post located near Kettle F Representatives from five Indian tribes were waiting there to greet Fathers ministered to the Indians they found there for three days people. That was the first recorded Catholic mass held in the land Rocky and Cascade Mountains. The Fathers promised that one of soon return and build a mission for the people of the Upper Colu

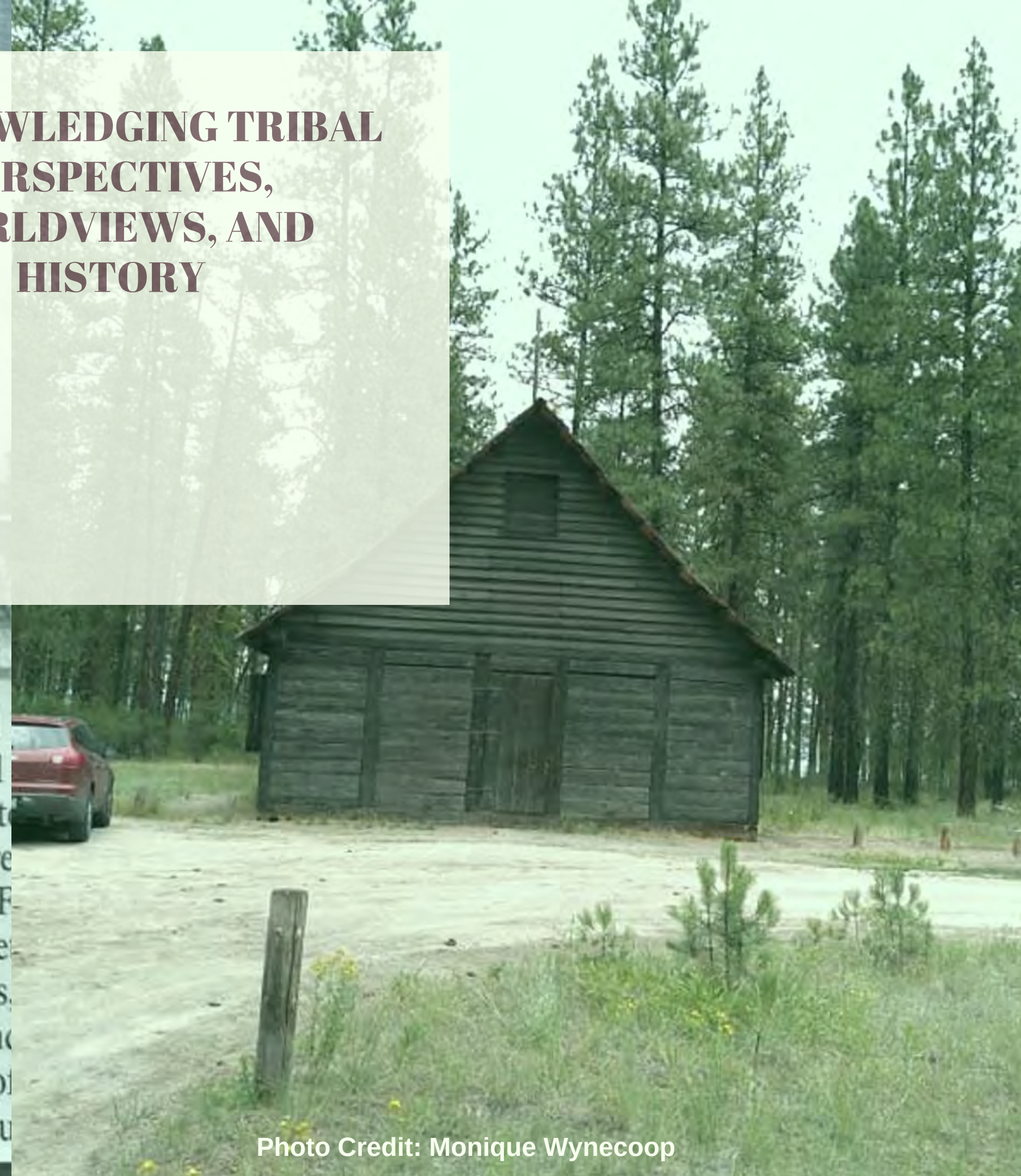
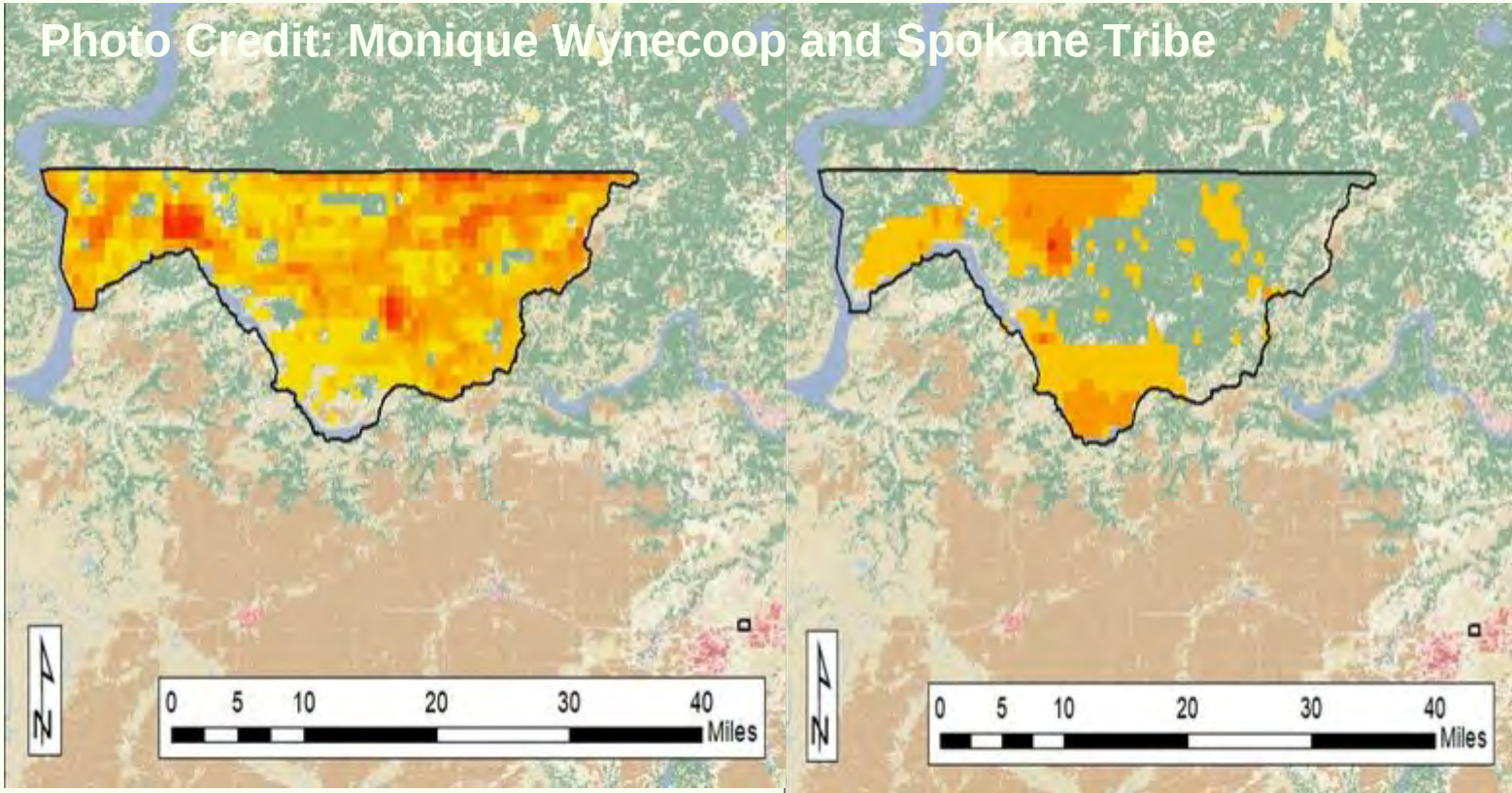
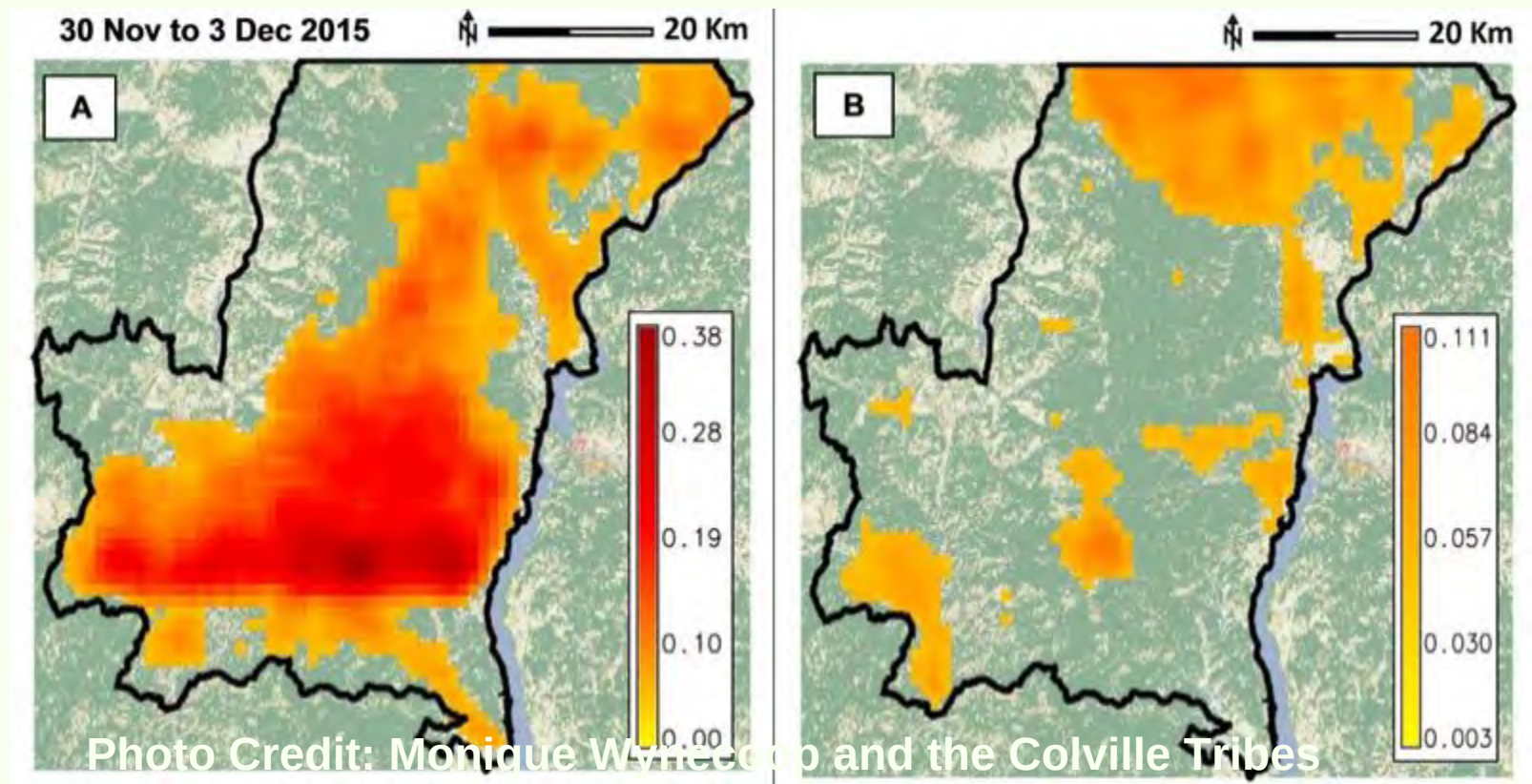


Photo Credit: Monique Wynecoop



# Tribal people need to educate scientists and managers about our perspectives and worldview...





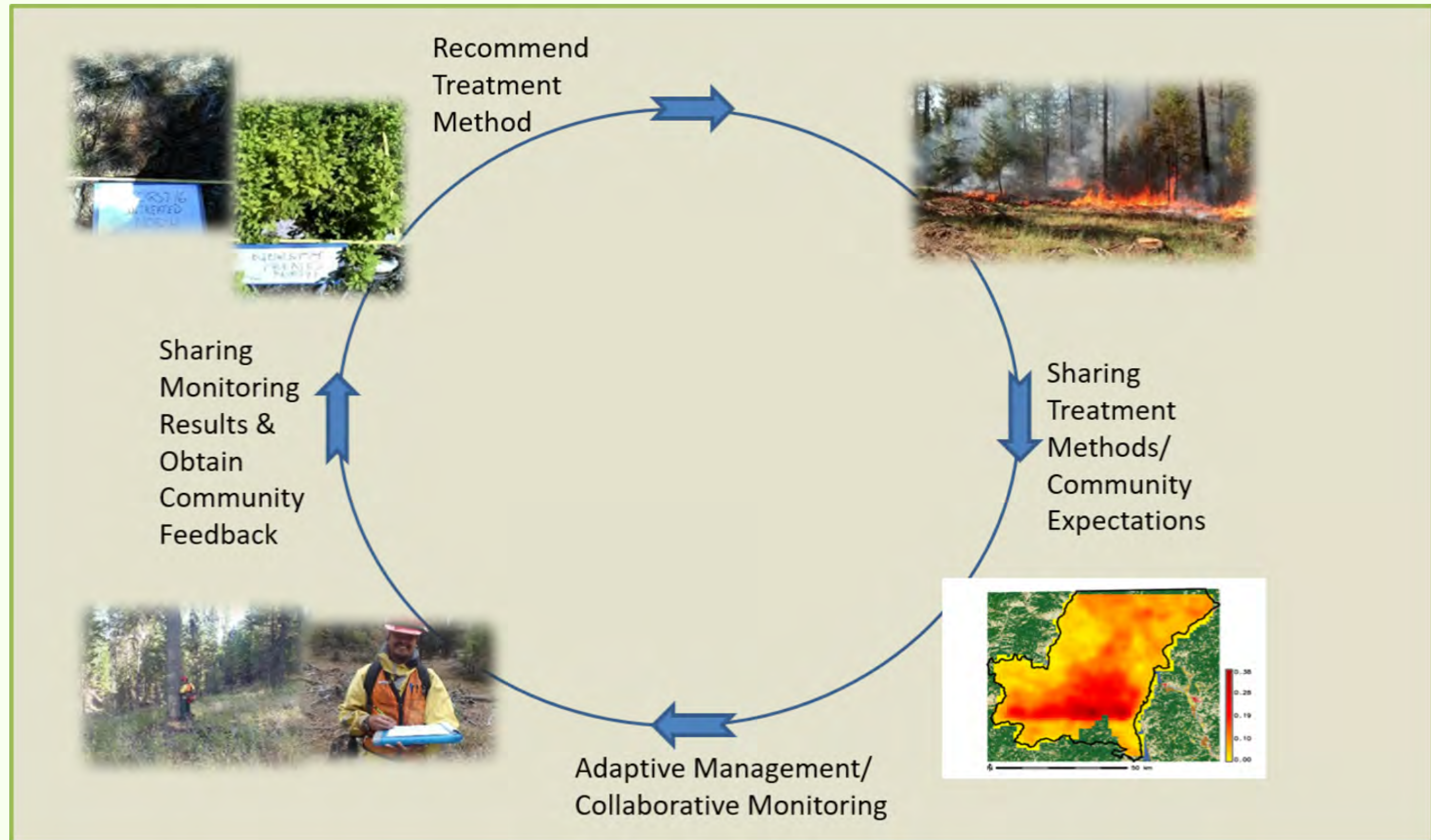


Photo Credit: Monique Wynecoop



Questions?

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Photo Credit: Felt Story Board from <https://www.firelab.org/project/fireworks-educational-program>

