

Whitebark pine restoration and conservation through a cultural lens: Incorporating tribal values into spatial ecological assessments of whitebark pine forests across the Crown of the Continent

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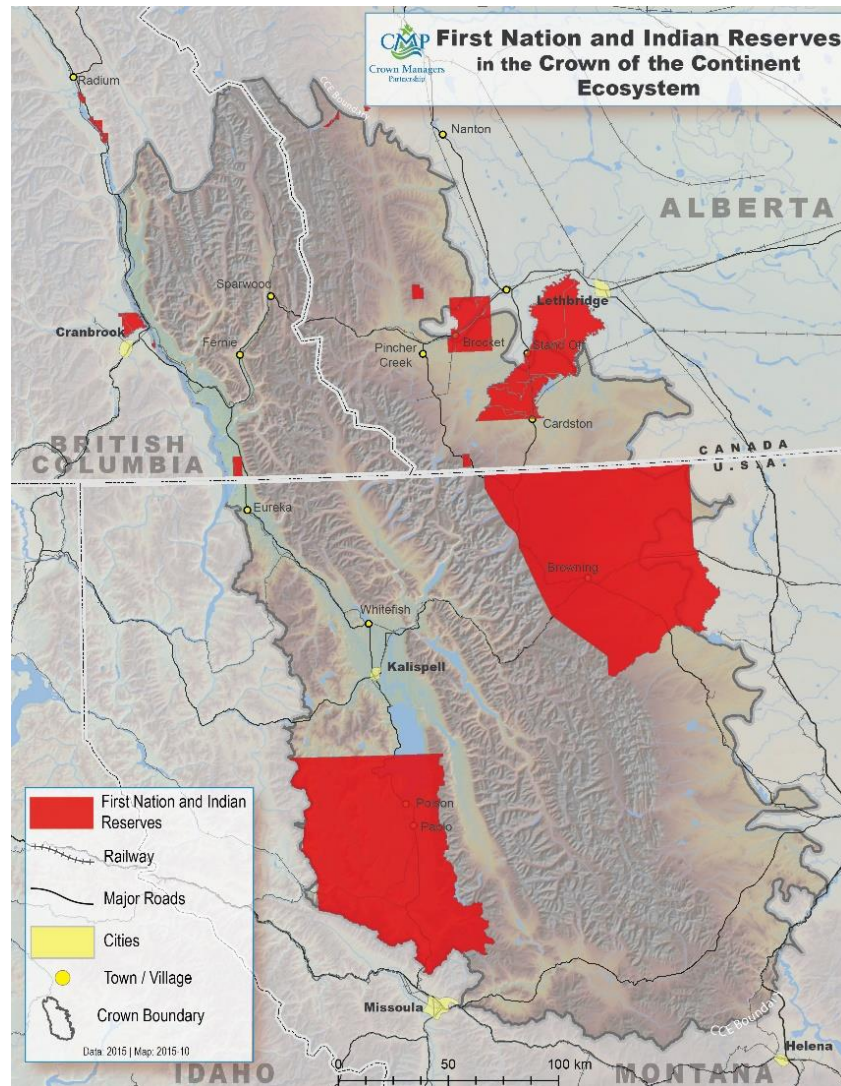


Figure 1. First Nations and Indian Reserves in the Crown of the Continent Ecosystem, including member nations of the Blackfoot Confederacy (upper right) and the Confederated Salish and Kootenai Tribes (lower right). Map provided courtesy of the Crown Managers Partnership.

Whitebark pine, a keystone tree species in many high-elevation forests across the United States and Canada, is currently facing an unprecedented suite of threats in the form of invasive pests, plants, and pathogens; with climate change acting to both exacerbate these stressors and as a stressor itself. Due to the scale and impact of these stressors over the course of the last 30 years, whitebark pine has been listed as an endangered species under Canada's Species At Risk Act (SARA) and is currently a candidate species for listing under the United States' Endangered Species Act.

In the Crown of the Continent, an 18-million acre, US-Canadian landscape of high ecological integrity that spans northwestern Montana, southeastern British Columbia, and Southwestern Alberta, five needle pines – and whitebark pine in particular – are highly valued. In March of 2016, 87 representatives from 43 different federal, provincial, state, municipal, tribal and First Nations Governments, conservation organizations, universities, industry, and communities came together to identify ways in which all partners could more effectively coordinate and collaborate on restoration and conservation of this imperiled species across the Crown.

Co-sponsored by the Crown Managers Partnership, the Whitebark Pine Ecosystem Foundation (U.S.), and the Whitebark Pine Ecosystem Foundation of Canada, participants endeavored to:

- apply the best available science required to maintain 5-needle pine forests in an era of rapid climatic shifts;
- discuss existing challenges currently impeding five needle pine restoration;
- catalyze a Crown-wide working group dedicated to the long-term viability of whitebark pine forests in the long-term; and
- initiate a process to develop a Crown-wide restoration strategy that identifies the type, amount, and location of restoration activities, protection measures, and monitoring necessary to restore these prized forests in the Crown.

Throughout this process, the deep cultural connections by tribes and First Nations across the Crown to whitebark pine forests (Figure 1) have provided a critically important foundation for discussions and planning sessions. Beginning with an opening tribal panel that focused on the cultural values of these ancient forests (Figure 2), all of the partners in this work have benefited from intentional efforts to incorporate Traditional Ecological Knowledge into the solutions-oriented discussions.



Figure 2. *Traditional Ecological Knowledge and Five Needle Pine Forests Panel at the March 2016 Crown Managers Partnership in Fernie, British Columbia: “We Need the Needles: Coordinating Action to Conserve 5-Needle Pine Forests in the Crown of the Continent”.* Above, from left to right: Mike Durglo, Jr. (Confederated Salish and Kootenai Tribes), Wayne Louie (Ktunaxa Nation), Tony Incashola Sr. (Confederated Salish and Kootenai Tribes), Terry Tatsey (Blackfeet Nation), and Mike Bruised Head (Kainai Nation). Photograph courtesy of Regan Nelson.

The cultural importance of whitebark pine has been well documented, for example, by elders of the Séliš (Salish or “Flathead”) and Qlispé (Kalispel or Pend d’Oreille) tribes of the Flathead Reservation. As noted by the Séliš-Qlispé Culture Committee, a department of the Confederated Salish and Kootenai Tribes:

“We know whitebark pine as *sčítpalq*.” It is important for its rich pine nuts or seeds, called *sčeytp*. Elders have told about them being roasted by the fire until they would finally open up. Children were told not to eat too many nuts or they would get a belly ache. The elders knew of places where they were abundant and were good places for gathering the cones, such as *Čpaaqn*, a mountain on what is now known as the “Reservation Divide.” Like many of our foods, *sčítpalq* was not a staple, but an important element of the diversity of our traditional diet.

Our elders also told us about the importance of *sčítpalq* to the animals. A bird called *snátq*, known in English as Clark’s nutcracker, has a special beak perfectly designed for opening the cones. *Snátq* carries the seeds around and caches them here and there, and then always forgets where it left some of the seeds. The seeds then grow, and in this way *snátq* serves as the only way by which whitebark pines get spread across the mountains. Grizzly bears are the only animals whose jaws are strong enough to crush open the dense cones. They like to feast on the oily nuts when they are fattening up for hibernation.

The threats to whitebark pine are therefore direct threats to our cultural ways. *Sčítpalq* is an important part of our subsistence, and therefore part of our connection to the mountains themselves. And like its cousin *k^wx^wtne* (limber pine, *Pinus flexilis*), it is important to the animals that themselves stand at the heart of our spiritual and ceremonial practices.

For the well-being of the generations to come, we have an obligation to do all that we can to ensure the survival of this beautiful and ancient tree.”

At the workshop, participants on the “Traditional Ecological Knowledge and Five Needle Pine Forests” Panel shared stories of their nations’ cultural ties to five needle pine forests, and discussed the extensive interconnections between whitebark pine forests and their cultural identity, heritage, spirituality, and language over millenia:

- **Mike Durglo** of the Confederated Salish and Kootenai Tribes talked about CSKT’s development of a strategic climate change adaptation plan for the Flathead Reservation in which whitebark pine forest restoration figures prominently; before referring to Chief Siel saying that it is our responsibility to care for – and speak for – all those plants and animals that cannot speak for themselves.
- **Terry Tatsey** of the Blackfeet Nation said that when he was invited to give a presentation on whitebark pine, he had to think hard about it, but he remembered the after the starvation period of the 1870’s and 1880’s that the elders said the people had to move back to the mountains, telling them, “the mountains will take care of you.” Terry’s ancestors carried the back fat of the animal and dried protein, crackers and bread in the mountains. If they ran out of back fat, they would eat whitebark pine nuts, which provided them with a balanced nutrition. Terry also remembered the caves up in the mountains that have pictographs; the people who made these had to have food resources available to them, which may have been the nuts. In 2000, Terry helped Glacier National park replant 6,000-10,000 whitebark pine seedlings. He asked why it was so important, and they

talked about blister rust. Terry said that we all have a responsibility for speaking for those who can't speak for themselves, and doing for those who can't do for themselves.

- Mike Bruised Head** of the Kainai Nation began by speaking the native Blackfeet word for “whitebark pine seed.” He said he remembers hearing his great grandparents, who were born in the 1880's, use this word, but that it had been many years since he had heard it, so it took him a long time to remember what this word was in his native language. Mike said he remembers his great grandmother boiling whitebark pine seeds, but noted that you can't boil the seeds for too long because they are so strong. The tea was used as a medicine for healthy bones and for hair. Mike said his grandfather told him that when you meet people in the Indian world, it's not coincidence: it's meant to be. There's a meaning and a reason why you met those people. Mike said, "It's why we have these crazy conversations." Mike said the Kainai Environmental Protection Agency staff have two tribal sessions, and want to protect their lands next to Glacier and Waterton National Parks. They are going to map out the whitebark pine forests to see if they have any left.

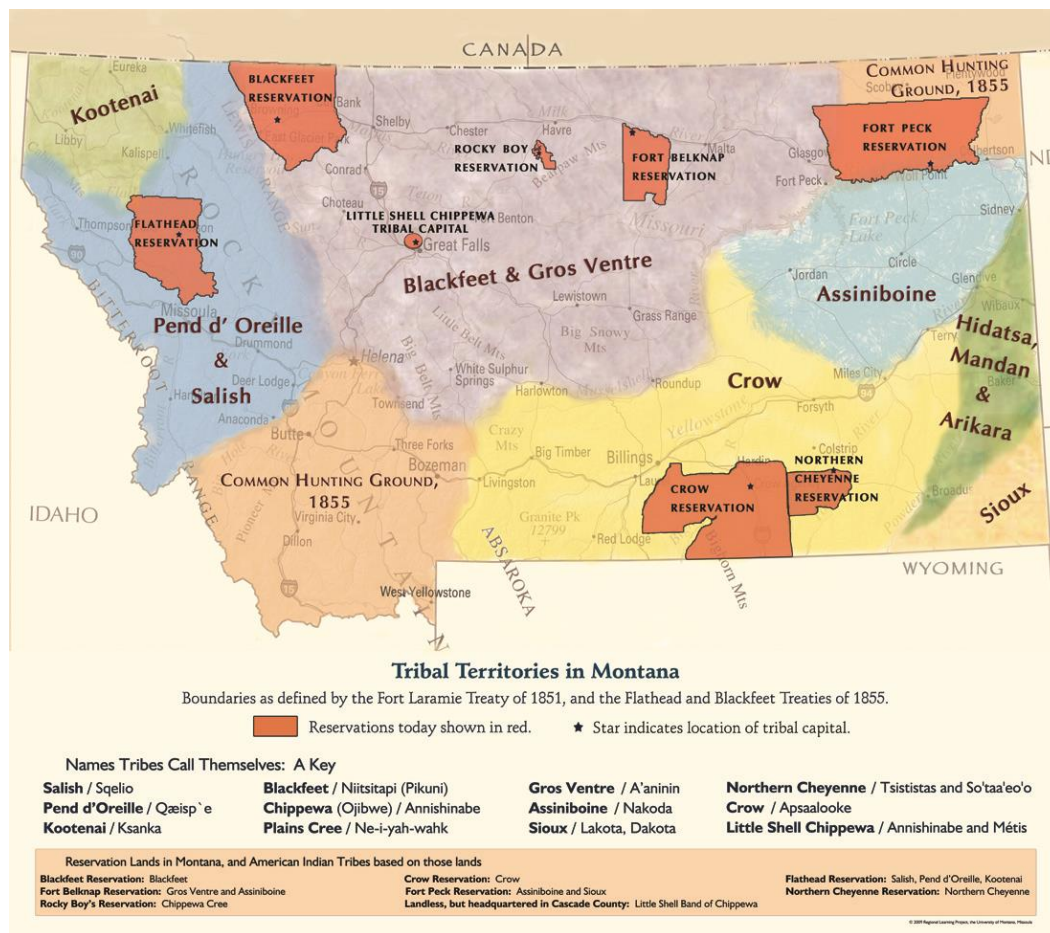


Figure 3. Map of tribal territories across Montana during the 1800's.

- Tony Incashola, Sr.** of the CSKT began by saying, "Before we were here, the animals were here, and they took care of everything for us. They prepared this place and the land for us. And when we got here, we were told that the animal could not speak with one another, we were told that we needed to speak for the animals. And we learned how to take care of one another from the animals." Tony remembered when he was a child he was given whitebark pine nut seeds to eat. They were

considered to be a treat, but the children weren't allowed to eat many at a time because they are so rich. This is why the grizzly bears love them. Tony shared that when he was younger, he thought the elders would always be around to take care of things, but now they are gone and he is the elder. He urged the audience to figure out what needs to be done to ensure that whitebark pine and limber pine can survive hundreds of more years. Tony said he was glad to see everyone coming together to find solutions, which is how we will succeed.



Figure 4. Mike Durglo, Tribal Preservation Department Head for the Confederated Salish and Kootenai Tribes, standing with a whitebark tree – which has been given the name “llawye”, meaning “great great grandparent” – in a forest on the Flathead Reservation in northwest Montana. Although no longer alive, llawye was clearly an exceptionally ancient tree – even for such a long-lived species – that survived over the course of many centuries while the Confederated Salish Tribes lived throughout the valleys below this forest.

Tribes and First Nations across the Crown continue to steward large, ecologically significant swaths of whitebark pine forests throughout the Crown of the Continent today; including 110,000 acres of whitebark pine forests identified in a recent survey by the Confederated Salish and Kootenai Tribes on the Flathead Reservation. Through the establishment of partnership agreements with key agency partners like the U.S. Geological Survey, the U.S. Forest Service, the Bureau of Land Management, and the Salish Kootenai College, for example, tribal managers have dedicated themselves to advancing and implementing management strategies intended to sustain whitebark pine forests in the long-term.



Figure 5. Field trip into whitebark pine forests managed by the Confederated Salish and Kootenai Tribes in July of 2017, as part of the Tribes' youth programs and curriculum on issues relating to climate change and forest health.

Just as critical as ongoing restoration programs are the Confederated Salish and Kootenai Tribes' youth educational programs that are intended to pass on Traditional Knowledge about whitebark pine forests - and the wildlife species that inhabit them - and to include youth in restoration projects that aim to sustain these culturally important forests. Through these programs and conversations with CSKT's Tribal Elders and Culture Committees, cultural connections across the generations remains strong.