

## Select Committee on the Climate Crisis

### Dr. Cristina Eisenberg Testimony

April 1, 2022 Hearing

#### America's Natural Solutions: The Climate Benefit of Investing in Healthy Ecosystems

My name is Cristina Eisenberg. I am Native American and Courtesy Faculty at Oregon State University (OSU) in the College of Forestry (CoF). The views expressed in this testimony are my own and should not be construed as representing any official position of the CoF or any of my research partners. I want to thank Chair Castor, Ranking Member Graves, and the other members of the Select Committee on the Climate Crisis for this opportunity to speak.

To create ecosystems more resilient to climate change, including drought and other stressors, it is essential to partner with Tribal Nations and braid Traditional Ecological Knowledge (TEK) with Western Science. Our *Fort Belknap Indian Community (FBIC) Grassland Restoration Project* in Montana exemplifies such work. Taking place on Bureau of Land Management (BLM) and *Aaniihnen* and *Nakoda* Tribal lands, funded by the BLM Seeds of Success (SOS) Program led by Peggy Olwell, this project is sponsored by OSU and the Society for Ecological Restoration. I am the Lead Principal Investigator (PI), and Thomas H. DeLuca, Dean of the OSU CoF, is the co-PI. The FBIC Tribal Council, Tribal Historical Preservation Office, and BLM Montana/Dakotas botanist Wendy Velman oversee our project.

TEK is knowledge and practices generated and passed down by Indigenous people across generations. We are applying TEK on the Northern Great Plains to improve ecological resiliency and restore degraded lands with native plants to increase wildlife habitat, productivity, and carbon sequestration potential. Incorporating TEK in ecocultural restoration empowers Tribal Nations. This matters, because Tribal Nations in America are underserved communities with unemployment, poverty, and suicide rates far higher than US rates. Ours is also a high priority project because this prairie is a critical carbon sink endangered by anthropogenic climate change.

We deploy a Tribal conservation corps of at-risk youth, who collect the seeds of ecologically and culturally significant plants, strictly protected by Tribal data-sovereignty. We are implementing the National Seed Strategy and Plant Conservation and Restoration Program by following SOS protocols, to ensure a stable, economical supply of native plant materials for public land restoration. We are collecting data per BLM Assessment, Inventory, and Monitoring (AIM) protocols, to assess public lands. Maintaining healthy, sustainable ecosystems supports diverse land uses and benefits the national public lands trust.

Over the first two years of the project (FY20-FY21), outcomes include: 45 jobs created, 94% of which were for Native Americans, 39 of which were for Tribal youth, totaling 15,000 hours of employment. We raised \$200,000 in external and in-kind funding and collected 25 pounds of seeds for ecocultural restoration. Youth on our project have stayed alive and in school, and some have begun college (<https://www.hcn.org/issues/53.10/north-prairies-collecting-seeds-to-restore-prairie-grasslands>).

Beyond these tangible outcomes, during a Category 4 drought in 2021, I received a major lesson. On BLM land I found ankle-height grasses. In the few places where plants bloomed, their seed pods were hollow, because the plant had suppressed growth to survive. On Tribal land, in the same ecological conditions, the grasses grew four feet tall, with an abundance of seeds. This stark difference was unattributable to cattle; both Tribal and BLM lands are multiple-use lands, subject to cattle grazing, documented by trail cameras. Co-PI Tom DeLuca, a soil scientist, and I will be looking at fire and other

land-management practices and their impacts on soil health. Charcoal in the soil, created by the low-severity fires set by Indigenous people, sustains soil carbon capital and increases nutrient availability and drought resiliency. When Tribal lands were stolen and settled throughout the US, fires were suppressed. Indigenous burning is a key TEK practice used globally to improve soil health.

The next step is to co-create an ecocultural restoration plan with FBIC that includes native seed collection, ethnobotany, and pollinator and soil health studies. The plan will contribute to the FBIC Climate Change Program. We have applied for US Fish and Wildlife Service Grassland Conservation Program funding for this work.

Ecocultural restoration partnerships can advance our national climate resiliency agenda. This requires building capacity with education and jobs in botany, soil science, entomology, forestry, and ecological restoration for Native Americans. OSU can deliver the necessary education, in partnership with Federal agencies, Tribal Nations, and non-Tribal landowners. Together we can empower Tribal Nations and help America meet the climate challenge.