NATIVE FEWS ALLIANCE

NEWSLETTER

The University of California at Berkeley, the University of Arizona and the American Indian Higher Education Consortium work with over 20 partners to significantly broaden the opportunities for participation in the ecosystem of research, practice, and training by and for Native Americans and other underrepresented student groups.

The Native FEWS (Food, Energy, Water Systems) Alliance is focused on innovative research and community partnerships linking and addressing two interconnected challenges: a crisis in access to food, energy, and water in Indigenous communities; and limited educational and career pathways available to Indigenous populations to address these needs.

WHAT'S NEW IN THE FEWS ALLIANCE?

UA Hosts Tucson Teachers in Solar Summer Program

Native FEWS Alliance co-PI's Dr. Kelly Simmons-Potter and Dr. Greg Barron-Gafford, of the University of Arizona (UA), partnered with faculty at Arizona State University (ASU) to offer a new Research Experiences for Teachers (RET) program entitled Sonoran Photovoltaic Laboratory to Arizona 4th-12th grade STEM teachers with the goal of teaching

them about the fields of photovoltaics and agrivoltaics. This program is funded by the National Science Foundation, grant # 2055395 (https://www.nsf.gov/awardsearch/showAward?AWD_ID=2055395&HistoricalAwards=false).

Photovoltaics (PV) are devices which convert light from the sun into electricity. Agrivoltaics (AV) is a technique that combines solar energy production with agriculture. By planting crops that don't need too much sunlight beneath solar panels, the plants are protected from the brightest of the sun's rays and the shading provided can help to reduce water evaporation in the soil which reduces the watering demands of the plants. In turn, the plants have a cooling effect on the solar panels, which allows the panels to operate more efficiently.

These technologies have important potential in Arizona, where sunshine is an abundant resource and water is limited. By sharing knowledge with local teachers, the team hopes to generate excitement among children in classrooms, building the next generation of STEM researchers.

"We are building a regional network of teachers and students who will engage together in renewable energy and agriculture and who will gain critical scientific literacy and knowledge about systems, [including energy systems], with significant impact on their lives and communities," Simmons-Potter said.

During the first year of this three-year program, ten Arizona teachers participated in research and curricular activities between May 31-July 8, 2022. Participants

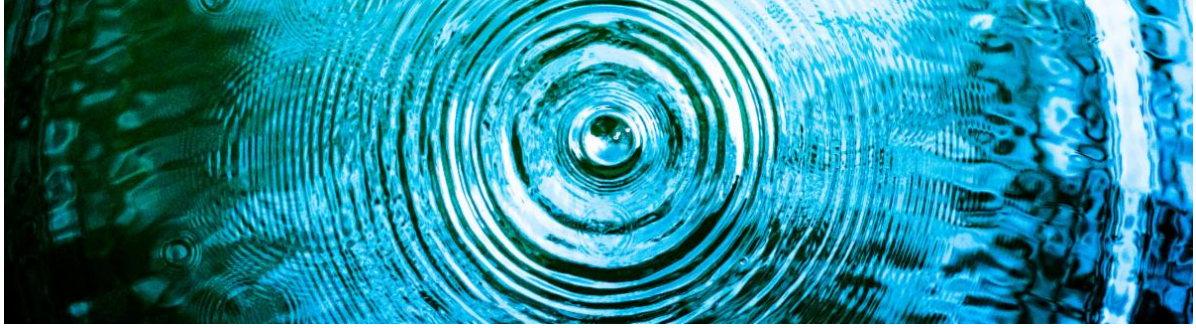
attended a four-day orientation and photovoltaic (PV) workshop at the Arizona State University (ASU) to learn about PV ad AV systems. The workshop was followed by an immersive, five-week program at ASU and at UA where participants completed hands-on laboratory exercises to better monitor, characterize, predict, or optimize the performance of PV and AV.

The UA teacher cohort spent their mornings working in Simmons-Potter's PV Resiliency Lab or the Arizona Research Initiative for Solar Energy/Tucson Electric Power Photovoltaic Test Yard, learning about photovoltaic devices and energy generation, or in Barron-Gafford's AV systems laboratories (https://www.barrongafford.org/agrivoltaics.html) where they studied crop production. In the afternoons, the teachers worked on curriculum development.

"Our teachers are highly motivated to learn about photovoltaic energy and are excited by the convergence of PV and agriculture in AV applications," Simmons-Potter said. "All of the teachers intend to install AV gardens in their schools and to use the energy generated by the PV to power projects ranging from watering and agricultural monitoring systems to kinetic water and art projects."

Faculty, students, and industry partners will continue to mentor teachers and students across the year, helping them contribute to research and develop related community energy engineering projects that demonstrate the social value of improving PV performance and developing AV systems for their local neighborhoods. During the next ten months, video conferencing tools to enable cross-site industry webinars and virtual lab tours, pedagogical workshops, and co-development of curriculum modules that transfer research to the classroom using a Citizen Science model will be shared broadly (open source) at an annual mid-year professional development workshop, at professional conferences, and on a project website. The UA and ASU team plans to offer the summer program, funded with a total of approximately $600,000 from the National Science Foundation, for three years, serving a total of 30 teachers.

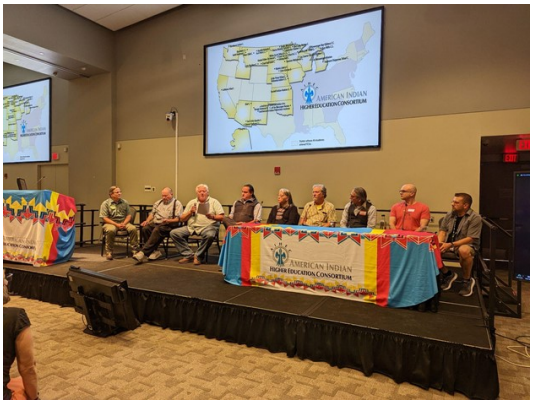
WISE PRACTICES



The Red Bus

By Patrick Freeland - College of the Muscogee Nation

"We have been here before..." speaks James "Jim" Sanovia, a Faculty Researcher at Oglala Lakota College, his face magnified via Zoom on multiple displays facing both an in-person and online gathering of Tribal College faculty and staff, agency representatives, scientists, and climate adaptation professionals, "What will be different this time?"



The Sensing the Earth Tribal Climate Science Summit was held in Boulder, CO with a palpable sense of change present. Held at the University Corporation for Atmospheric Research (UCAR) Center Green Campus, all around were signs of wildfire overtaking city medians, a city which had expanded over 10% in population, and with smoke hanging in the air from the new normal of forest fires in the West. The gathering saw a reconnection of sorts, of old friends and colleagues, TCU students now with freshly minted Ph.Ds., and a few notably empty chairs, but with leadership from the American Indian Higher Education Consortium, the Indigenous Peoples Climate Change Working Group, the National Ecological Observatory Network (NEON), National Center for Atmospheric Research and University Corporation for Atmospheric Research (NCAR/UCAR), and Colorado University – Boulder; the "usual suspects" as Dr. Dan Wildcat would describe, setting the table and welcoming many to it. For well over a

"I wish there were some sort of way to easily and quickly access a suite of climate information in one place, which couples local data and location..." I ask, however this time I hear in response, "we have that." Powerful, robust, and open access tools such as the Climate Futures Toolbox were on display along with free data science training such offered through the Carpentries program, with hopes of accelerating real-world use. With mature and intricate discussions exploring big data, data sovereignty, rapid convergences and meaningful collaborations, the resounding theme for this summit was that all of the pieces are in place. Now comes the challenge of fostering collaborations in earnest, building meaningful relationships and tending them, and making sure available resources are mapped out in a way which ensures that the People that need them are getting them.

"There is a saying where we come from... are you on the White Bus or the Red Bus?" Asks Jim Sanovia, "So many come to us on the White Bus, make

decade, many of the Peoples in this room have understood the need to quickly converge and have heeded to the call to address a rapidly changing climate, aligning their personal and professional vocations to climate science, education, activism, and with the sincerest hope of rising to meet what is arguably the greatest challenge of our generation. Yet, what then was different this time?

A decade before, when TCU faculty and students would come to a place such as this, and tell others that there is great change happening in their homelands, and that something must be done or ask for help, the responses would be met in earnest, yet with empty pockets and uncertainty. But today, there are an overwhelming amount of support and resources available to TCUs and tribal communities.

promises, ask questions, take our data, and then leave." Then our charge is clear, we must be on the Red Bus. Our first steps must then be to align ourselves, to reach out to the participants of the summit, and center the values of relationality, sovereignty, and responsibility in our work. Our makeup must be of many Peoples, of many Nations, Tribes, Institutions, and Identities, and this connection must be honored. We are not ones to stand atop a burning platform, but we know our charge is clear: survival, protection of our Peoples and Homelands, and ensuring that this time, that we're moving forward together... like building a fire, it starts slowly – little to big – but soon that fire will grow, others may join and take the fire back to their communities, and our path will be further lit.

AIHEC BACKBONE

AIHEC Backbone Works with NSF INCLUDES Design Elements

By Kathy Isaacson

NSF INCLUDES National Network
Broadening Participation, Expanding Opportunities in STEM

The Native FEWS Alliance Backbone organization is connected to and committed to the NSF INCLUDES National Network of Alliances. This Network strengthens STEM equity by

connecting individuals, alliances, pilot programs, federal agencies, educational institutions, and other entities across the nation working to shift inequitable systems and broaden participation in STEM education and careers. The Network intends to build the infrastructure necessary to foster collaboration and broaden participation in STEM by emphasizing five design elements of collaborative infrastructure:

1) shared vision, 2) partnerships, 3) goals and metrics, 4) leadership and communication, and 5) expansion, sustainability, and scale. The American Indian Higher Education Consortium, as the Backbone for the Native FEWS Alliance and has organized its Backbone strategic plan according to the 5 design elements. This article gives an overview of the 5 elements, and subsequent Newsletter articles will further address these activities.

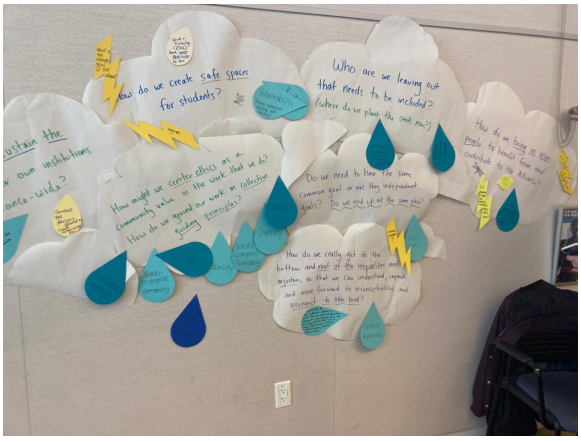
1. Facilitate Shared Vision: The Backbone will facilitate the development of a shared vision and strategy for broadening the participation of Native American students in FEWS.
2. Establish Partnerships: The Backbone will coordinate the team of partners and project personnel to accomplish the Alliance vision and adhere to the Alliance mission using collaborative change strategies. These multi-stakeholder partnerships will collaborate to achieve progress on common goals targeted by the Native FEWS Alliance that connects their wise practices toward a braided set of pathways.
3. Coordinate Goals and Metrics: The Backbone will support the shaping of a common agenda and shared measurement systems, using broadening participation and implementation research, sharing project evaluations, data, new scientific findings/discoveries, and promising practices.
4. Support Leadership and Organize Communication: The Backbone will promote the development of leadership for the Alliance and within each Alliance partner, using a credible communication strategy to share knowledge and promising practices both across the Alliance and with the NSF INCLUDES National Network and Coordination Hub.
5. Create Potential for Expansion, Sustainability and Scale: The Backbone will support the development of a promising plan to support the expansion of the Alliance, provide for long-term sustainability and impact, and manage Alliance scaling.

INDIGENOUS EVALUATION

Telling Our Stories

Updates From the Evaluation Team

Guwa'adzi Hauba (Greetings to Everyone in the Western Keres language). We hope you have all been enjoying the summer season. One of the activities of the Native FEWS evaluation team (Dr. Shelly Valdez, Jill Stein, Geanna Capitan, Rita Martinez, Dr. Cheryl Schwab, Thelma Antonio, and Sydney Moss) was to reflect on all the feedback and input shared at the March annual meeting at the UC Berkeley campus (March 31 and April 1, 2022).



One of the key core values in our work is reciprocity, and one way that we enact that value is through sharing back what we are learning with all of you who have gifted us with your thoughts and experiences. We will use this space to share a few highlights from what we learned, particularly through the closing reflection activity. In this activity, we invited meeting participants to reflect in writing around the following areas: 1) The "gifts" or new learning they gained from the gathering; 2) action steps they feel prepared to take; and 3) any support they may need from the Alliance.

Gifts from the Gathering

Forty-eight responses were received around the area of "gifts" (e.g. new learnings or outcomes) that participants felt they received from the Alliance Gathering. The most common area shared was around Building Relationships, which included expanding networks, developing new partnerships, and making space for healing.

> *"This event reminds me of the tireless work of my parents, grandparents, and ancestors in welcoming others and building peace and making, opening spaces where healing may perhaps happen."*

Other areas of impact included new learning and paradigm shifts, such as deepening perspectives around core values and guiding principles of Indigenous FEWS practices and existing efforts; followed by being together in person after two years of a pandemic, seeing Native scholar and Native student voices centered, and gaining more clarity around a shared vision of the Alliance.

Action Steps

Fifty responses were shared around action steps that the participants felt prepared to take. The most common area shared was related to uplifting Student Voices and Leadership. This included responses around elevating student voices,

creating a graduate student advisory committee, including more tribal youth voices, and specific activities such as a graduate student research showcase or an Alliance-wide student research poster sessions.

"In what ways is NFEWS ensuring that these research groups and convenings are not exclusive? (i.e. how are we bringing in non-affiliated/interested students? Where are we working to keep all doors open and inviting in this community?"

Other common action steps related to networking and collaboration. These ranged from expanding the Alliance, including new partners, making connections between specific people or programs, or building collaborative partnerships both within the Alliance (e.g. across the Stepping Stones) and with community / tribal partners. Additional action steps mentioned were related to communications within and beyond the Alliance, Indigenizing the Alliance, Nation Building, general planning, and professional development, such as reading a specific article.

Supports needed from the Alliance

Thirty-six responses were shared in this area around supports needed from the Alliance in order to do this work. The most common need shared by participants related to communication. This included internal communication, ways for sharing input about what works and what doesn't (e.g. evaluation), communicating findings with the broader field and community partners, follow-up and transparency. Another common area of need was around inclusion; these comments suggested that the Alliance needs to be mindful of opening its doors and inviting in community members, including non-federally recognized tribes and students, and making sure it does not exclude important voices.

"How will these projects directly build capacity of Indigenous communities? (i.e. getting info, findings, funding, jobs outside of pure academia)."

Who we are

Native Pathways (Laguna, NM), led by Dr. Shelly Valdez, and the Reimagine Research Group (Corvallis, OR), led by Jill Stein, bring together nearly two decades of collaborative evaluation experience that bridges Indigenous and western approaches to research and evaluation. The Native FEWS evaluation team is composed of six team members, including Indigenous and non-Indigenous evaluators. Each team member contributes their leadership, background, skills and ways of knowing to the collaborative process. The team's unique experiences and personal pathways play a critical part in how the evaluation processes unfold. For upcoming Native FEWS Alliance newsletters, we will feature an evaluation team member, as well the work that we are doing to support the Native FEWS evaluation process and key findings.

For the full March Gathering report:
Native FEWS Alliance March Gathering Evaluation Memo Report #2

STUDENT HIGHLIGHTS

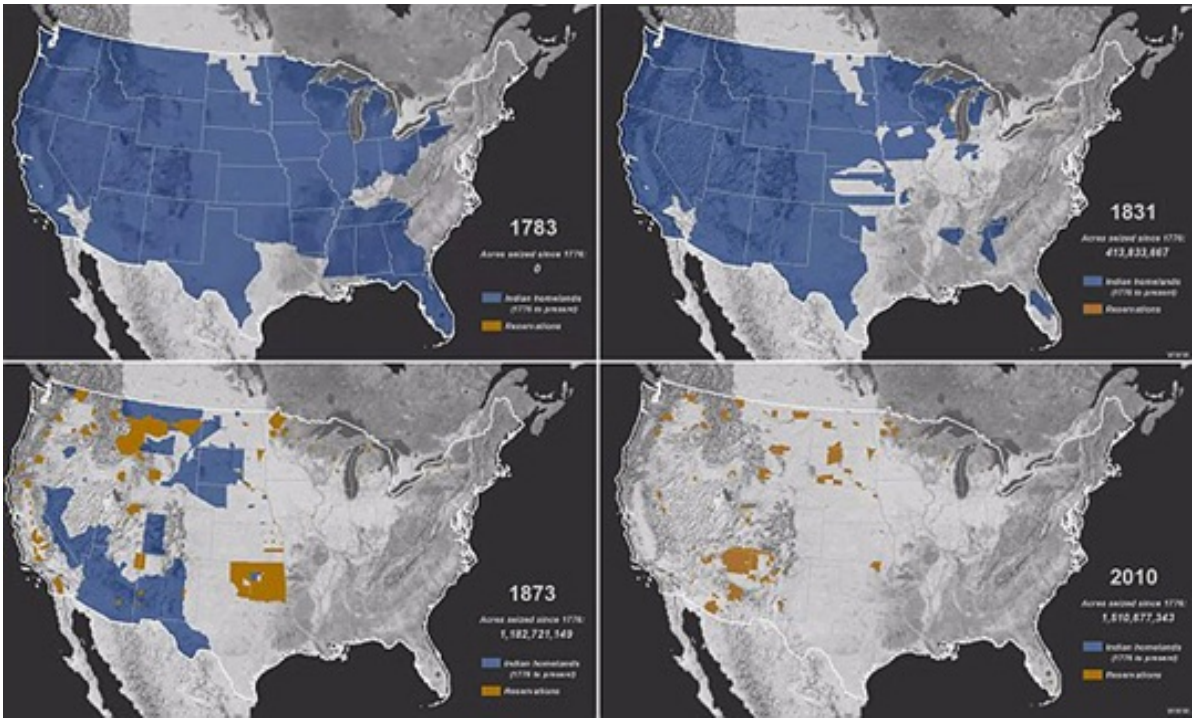
Native FEWS Storytellers Present at Geoscience Alliance Conference

The Native FEWS Alliance had a good representation at the recent Geoscience Alliance conference held in Minneapolis. The conference focus, “Data Science in Indian Country” elevated Native American voices in the geosciences, promoting participation, advancing research, and fostering collaboration. The conference focused on addressing the shift in science towards big data and how Native American perspectives can be incorporated in data collection and analysis of the Earth system.

The Native FEWS Storytellers offered a workshop where student voices told the story of their indigenous FEW research.

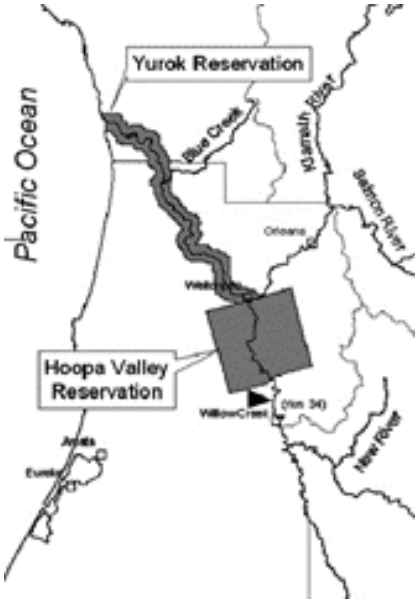
McKalee Steen, University of Arizona, shared her research telling stories using maps, such as this slide telling the story of dispossession of Native lands.

McKalee Steen



Genna Fudin, University of CA Berkeley, told her story about using podcasts to highlight the 'save the salmon' efforts of the Hoopa Valley Tribe.

Genna Fudin



When participants were asked to contribute to a discussion about the significance of Indigenous Storytelling, these were some of the responses:

- *Traditional academia, from Western Europe, (in my Geoscience experience) offers most pursuits based on economics, exploiting the earth for its resources.*

- *Our ancestors told us stories to pass down, always including a moral to the story. The children then hold the knowledge and keep the morals in mind as they are growing up. (Sample moral: whenever you are about to get into a bad situation, go the other way)*

- *As the Western US coast erodes, the food sources change. My grandfather always went to certain places to hunt and fish, but now those places have changed. We have to tell our stories so we have food provisions, but also to know how disastrous the land changes are.*

- *Look at clearcutting…. We did not listen for a long time, and now we are paying the price.*

- *In my area, the excavation of the beaver was a problem for us. California tried to bring back the beavers, after they listened to indigenous stories that told how important beaver restoration is. Think like a beaver! Indigenous stories give us an understanding and information about how we can fix the problem.*

- *Native languages, the traditional pre-colonial language does not have any made-up words. Our languages focus on real things, from now or from history. The words hold so much meaning!*

- *We have challenges because traditional academia does not understand government to government relationships, and does NOT picture us in the present and the future. Academia does not understand how TEK has potential for solving earth's problems.*

- *It is critical to get student voices involved (as this workshop does), centering*

indigenous knowledge and how connected we are and what happens when we are not in balance.

- *Why manage the earth? This question needs to be about reciprocity and interconnectedness. This is a hard sell to academia and school systems.*

- *Our introductions are also a part of our stories, our geoscience stories, our stories about data, we always introduce ourselves personally.*

JOBS

Chemistry Instructor

Southwestern Indian Polytechnic Institute

Tenure Track Faculty - Department of Geography, Environment and Spatial Analysis

Cal Poly Humboldt

Post Fire Forest Resilience SRA2

University of California

FT Pre-Engineering Faculty (full-time, exempt, salaried position)

Nebraska Indian Community College

Range or Natural Resource Management/ Agriculture Instructor

Sinte Gleska University

CONFERENCES & MEETINGS

2022 FALCON Annual Conference (Land-grant Programs w/ NIFA & FRTEP)

October 20-23, 2022

NATIVE FEWS ALLIANCE

We look forward to answering your questions, sharing stories and finding ways to inspire you.

https://nativefewsalliance.org/

STAY CONNECTED