



Southwest Adaptation Forum 2022 Report
Albuquerque, NM | October 10-12, 2022



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1. SWAF 2022 Overview

The Southwest Adaptation Forum (SWAF) is the milestone gathering of climate adaptation leaders, practitioners and researchers across the Southwest U.S., convened biennially to exchange best practices on efforts that are advancing climate adaptation and resilience in the region. SWAF serves as the Southwest regional forum of the [National Adaptation Forum](#).

SWAF 2022 was the third since the inaugural forum held in 2018 (see [SWAF 2018](#) and [SWAF 2021](#)), and was co-convened by the [Southwest Climate Adaptation Science Center](#) (CASC), the [South Central CASC](#), [USDA Southwest Climate Hub](#), the [Southwest Practitioners Adaptation Network \(SPAN\)](#), and [Southwest Decision Resources](#). The fourth SWAF will be held in February 2024 in Tucson, Arizona.

The forum was held at the [Indian Pueblo Cultural Center](#) in Albuquerque, New Mexico, from October 10-12, 2022. To honor the extensive and deep-rooted contributions of Indigenous peoples to the culture,

prosperity, and governance of the Southwest, and in keeping with President Biden's 2021 Proclamation of Indigenous Peoples' Day to "honor America's first inhabitants and the Tribal Nations that continue to thrive today," the hosts of the Southwest Adaptation Forum chose to begin the 2022 meeting on this important day and to incorporate speakers, activities, and principles that celebrate those contributions.

Building on outcomes of previous SWAF forums, a diverse **planning committee** of partners helped design and implement SWAF 2022. A total of 114 **participants** attended, including natural resource managers, adaptation practitioners, researchers, emerging leaders, and others working on adaptation in the Southwest. Participants came from New Mexico, Arizona, California, Nevada, Utah, Colorado, and Mexico, and at least 12 Native Nations were represented. Funding was secured to be able to offer the 2022 Forum at no cost, and additionally, 20 participants received travel stipends to enable their participation. A full list of participants and planning committee members, including bios, can be found [here](#).

The planning committee worked to develop a forum grounded in the **key principles** of:

- Inclusivity
- Peer-to-peer exchange
- Integration
- Tribal Sovereignty
- Community-building

The **goals** of SWAF 2022 were to:

- Strengthen adaptation practitioners' knowledge and skills
- Build resilience through effective collaboration among partners
- Catalyze connections, collaboration, and cultivate a dynamic and impactful adaptation community of practice in the region
- Advance transformative adaptation to accelerate and expand resilient outcomes across communities and landscapes in the Southwest and beyond

SWAF 2022 explored **topics** relevant to adaptation practitioners in the Southwest, including:

- Integrating all voices and knowledges into climate-related work
- Addressing critical adaptation issues, in particular drought and aridification, and fire and floods
- Developing climate adaptation recommendations to advance key strategies, including co-management, community engagement, adaptation finance, working landscapes, cultural burning, monitoring and adaptive management, and resilient landscapes.

2. The Big Picture - Key Themes from Presentations and Workshop Discussions

a. Climate Adaptation in the Southwest

Gregg Garfin (Southwest CASC/University of Arizona) and Carolyn Enquist (Southwest CASC/USGS) presented on climate adaptation in the Southwest ([Video](#), [Enquist presentation](#), [Garfin presentation](#))

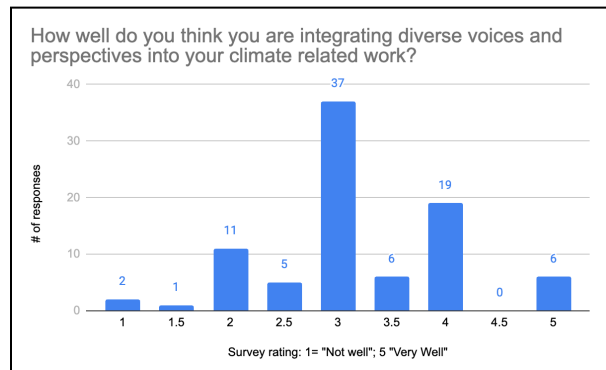
b. Integrating All Voices into Climate Adaptation

A panel on integrating all voices and knowledges offered insights from their own experience, and responded to participant questions. The panel included Beth Rose Middleton (UC Davis), April Taylor (South Central CASC Tribal Liaison), and Cynthia Naha (New Mexico Tribal Resilience Action Network and Picuris Pueblo). ([Video](#))

Following the panel, participants engaged in small group discussions. Each participant responded individually in writing to discussion prompts and then discussed as a small group. The sections below synthesize participant answers.

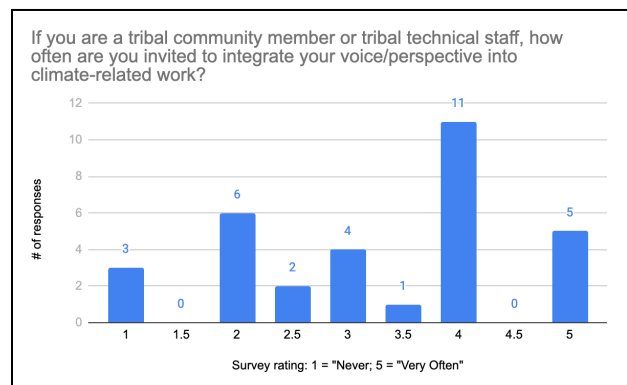
Self-rating: Integrating diverse voices into climate work

All participants were asked to rate themselves on the following question, *“How well do you think you are integrating diverse voices and perspectives into your climate-related work?”* Ratings ranged from 1 (not well) to 5 (very well). On average, participants rated themselves in the middle as neither “not well” nor “well” (mean rating was 3.17).



Inclusion of Tribal participants

Participants that identified as “Tribal community member or Tribal technical staff” were asked *“How often are you invited to integrate your voice/perspective into climate-related work?”* Ratings ranged from 1 (never) to 5 (very often). On average, Tribal community members/technical staff reported a rating of 3.75.



Overcoming Challenges to Integrating All Voices and Knowledges

Below are ideas that emerged from participants' answers to the questions, "How are you working to overcome barriers/challenges to better integrate all voices/perspectives?" and "What needs improvement?"

Communication and dialogue

- Make communication more accessible, clear, consistent and culturally appropriate
- Invite dialogue and input from diverse groups, including youth and Tribal elders
- Facilitate relational and Tribal-only spaces
- Listen to learn

Relationship building

- Build connections, relationships, and trust based on shared values and objectives
- Create safe environments for participation of diverse groups
- Participate in in-person events
- Take time to build long-term relationships and trust
- Increase opportunities for co-learning and finding common ground, such as visiting Tribal lands or projects together
- Learn histories of community partners

Broaden inclusion

- Center the needs of Tribal and underrepresented communities in research design, implementation, and communication
- Include BIPOC voices and other diverse backgrounds in climate planning.
- Broaden and strengthen public outreach
- Target recruitment of employees, students, and speakers from marginalized backgrounds
- Hire Indigenous and other minority groups in leadership positions and in federal government
- Center Indigenous values
- Highlight and share place-based and experience-based knowledge

Institutionalize inclusion

- Include diverse voices in decision-making roles
- Work on tribal engagement and inclusion in regional plans
- Support capacity building - Justice, Equity, Diversity and Inclusion (JEDI); Traditional Ecological Knowledge (TEK); cross-cultural communication; trauma-informed practices
- Utilize shared leadership structures
- Increase funding opportunities for marginalized communities with streamlined and simplified grant applications
- Establish more inclusive funding structures
- Diversify knowledges respected in academia

- Create communities of practice around Indigenous Traditional Ecological Knowledge (ITEK)
- Apply specific equity frameworks to programs (e.g. equity in action)
- Adjust project/program timelines to allow for more integration of diverse voices
- Compensate community members for participation
- Hire more staff devoted to climate justice, and staff of diverse backgrounds with Tribal relations expertise
- Measure, evaluate, and adapt the ways we integrate all voices based on evidence

3. Issues and Efforts - Key Themes from Presentations and Workshop Discussions

a. Critical Issue: Drought and Aridification

Status and Trends Overview

Molly McCormick (USGS Restoration Assessment & Monitoring Program for the Southwest) explained the status of, and trends in, drought and aridification in the American Southwest. ([Video](#))

Current Initiatives

Current initiatives included two presentations:

- [Drought Learning Network](#) - Emile Elias (SW Climate Hub and Drought Learning Network)
- [Cody Family Ranch in Leupp, Arizona](#) - Mel Cody (rancher in Leupp, Arizona)

Participant Discussion

In small groups, participants discussed what changes they are seeing as a result of drought and aridification, approaches that they think show promise, and remaining challenges to address. See [here](#) for a full list of all suggestions. A summary of key takeaways includes:

Promising approaches

- "Nature-based" approaches - e.g. beaver dam analogs, water for the environment (environmental flows), green infrastructure, etc.
- Traditional/Indigenous farming practices
- Regenerative agriculture

Critical needs

- Increased collaboration, communication and cross-jurisdictional coordination
- Address the equity aspects of drought impacts
- Include more Native perspectives and voices
- A supported shift away from highly water-intensive agriculture

b. Critical Issue: Fire and Flood

Status and Trends Overview

Rachel Loehman (U.S. Geological Survey) and Jeannie Barlow (U.S. Geological Survey, New Mexico Water Science Center) provided an overview of status and trends related to fire and flood. ([Video](#), [Presentation](#))

Current Initiatives

Current initiatives included two presentations:

- [Southwest Fire and Climate Adaptation Partnership](#) - Carolyn Enquist and Sarah LeRoy (Southwest Climate Adaptation Science Center/USGS). [SWFireCAP](#) website.
- [Post-fire flooding](#) - Collin Haffey (New Mexico State Forestry Division)
- [Video](#) of both presentations

Participant Discussion

In small groups participants discussed what changes they are seeing as a result of fire and flood, approaches that they think show promise, and remaining big challenges to address. See [here](#) for a full list of all suggestions. A summary of key takeaways follows.

Promising approaches

- Landscape-scale prioritization of adaptation activities
- Fuels reduction
- A return to historic fire regimes (cultural burning, prescribed fire)
- Tribal co-management

Critical needs

- Center place-based knowledge, TEK, and Indigenous perspectives
- Increase cross-cultural capacity of land management agencies
- Increase resources and education for local communities
- Improved post-fire response
- More native plants and seeds
- Coordination between agencies and across landscapes

Emerging Indigenous Leaders Panel on Cultural Fire

Five panelists took part in the Emerging Indigenous Leaders Panel which was moderated by Carolyn Enquist (USGS, SW CASC). Panelists included: Melinda Adams (UC Davis, PhD Student, Native American Studies, Institute of the Environment), Carlie Domingues (SW CASC, PhD Candidate, UC Davis), Nina Fontana (SW CASC, Postdoctoral Researcher, UC Davis), Deniss Martinez (UC Davis, PhD Student, Ecology), and Will Madrigal, Jr. (Tribal Capacities and Partnerships Program Manager, Climate Science Alliance). ([Video](#), [Presentation](#))

4. Adaptation Tools and Decision Approaches

a. Overview

Emile Elias (USDA Southwest Climate Hub) gave an overview of the Adaptation Tools & Decision Support Approaches session. Four other speakers presented on resource collections, libraries and stories. ([Video](#))

b. Resource Collections, libraries, stories

- [Collaborative Conservation and Adaptation Strategy Toolbox](#) – Ariel Léger (University of Arizona)
- [Forest Resource Inventory](#) - Lauren Kramer (USDA Southwest Climate Hub)
- [Water Adaptation Techniques Atlas](#) - Noah Silber-Coats (USDA Southwest Climate Hub)
- [AfterFire Toolkit for the Southwest](#) - Megan Friggens (USFS Rocky Mountain Research Station)

c. Data projections, analyses

Three speakers presented on data, projections, and analyses during the Adaptation Tools & Decision Support Approaches session([Video](#) of the presentations)

- [Grass-Cast](#), a grassland productivity forecast tool from the USDA – Skye Aney (NM State University/USDA Southwest Climate Hub)
- [Landscape scale vulnerability assessment for the Southwest](#) - Megan Friggens (USFS Rocky Mountain Research Station)
- [Climate Engine Research App](#) – Justin Huntington (Desert Research Institute)

d. Decision processes

Three presenters discussed adaptation decision support processes. Carolyn Enquist (SW CASC/USGS) spoke about the Sierra Nevada Climate Refugia and Structured Decision-Making. Lauren Kramer (USDA Southwest Climate Hub) shared an overview of adaptation decision processes and menus. Lindsey Quam (New Mexico Forestry Division) offered examples of the adaptation menus in use. ([Video](#))

- [Sierra Nevada Climate Refugia and structured decision-making](#) - Carolyn Enquist (USGS/SWCASC) & Claudia Mengelt (USGS)
- [Adaptation decision processes and menus](#)
- [The Adaptation Workbook Process](#) - Lauren Kramer (USDA Southwest Climate Hub)
- Adaptation example (no slides) - Lindsey Quam (New Mexico Forestry Division)

e. Integrating Science, Data, and Knowledges

This panel presentation was followed by small group discussions. The panel was moderated by Cynthia Naha (NM Tribal Resilience Action Network and Picuris Pueblo). See [Video](#) of the presentations and each presentation below.

- [Indigenous Data Sovereignty \(CARE and FAIR\)](#) - Sharon Hausam (South Central CASC)
- [A Sovereign Digital Network System for Environmental Monitoring on Tribal Lands](#) - Dennis Dye (SW Polytechnic Institute)
- [SW Tribal Adaptation Menu](#) - Atherton Phleger (Rootstock Consulting)
- [Centering Community Voices and Choices in Research](#) - Nina Fontana (Southwest Climate Adaptation Science Center/UC Davis)

5. Toward Effective Adaptation Implementation

a. Transformative Adaptation: Scaling and Accelerating Solutions

Carolyn Enquist (SW CASC/USGS) and Mike Langston (South Central CASC/USGS) reflected on what had been discussed and developed at SWAF 2022, and next steps for climate adaptation in the Southwest. ([Video](#), [Presentation](#))

b. Recommendations

Participants worked in small groups to collaboratively develop recommendations to address pressing adaptation challenges. Key takeaways from each group are:

Co-management

- Build a shared understanding of what co-management means, including legal considerations and Tribal sovereignty
- Strengthen laws around consultation
- Focus on relationship building and understanding local issues

Adaptation finance

- Encourage federal and non-federal partnership and increase federal outreach
- Prioritize investments in plans over emergency response
- Develop a common clearinghouse for funding opportunities
- Build capacity within state, local, and Tribal agencies
- Work toward Tribal eligibility for international adaptation funding

Building resilience

- Build resilience through redundancy, flexibility, modularity, and creativity
- Streamline processes, coordinate funding, and increase cross-agency collaboration for extreme event preparedness and response

- Conduct vulnerability assessments and update and/or create emergency management plans
- Conduct community-based planning for extreme events

Communities engaged in climate adaptation

- Build relationships based on empathy, honesty, respect and humility
- Strive for inclusive community engagement and shared learning.
- Share and scale solutions.
- Prioritize communities' needs; understand their unique issues, values and perspectives
- Engage youth
- Fund relationship building

Cultural burning

- Develop a community of practice to share knowledge and information across communities
- Communicate the value of cultural burning and develop metrics of success
- Support learning and exchange between Tribal cultural burning practitioners and state fire managers, and integrate cultural objectives into forest management
- Connect Tribes to resources

Monitoring and adaptive management

- Encourage experimentation
- Gather and share lessons learned
- Evaluate how well co-production and community engagement are currently functioning
- Identify long-term funding for practitioners, facilitators, and translators
- Find ways to measure more holistic approaches to achieve resilience

Working landscapes

- Include under-represented voices
- Integrate TEK (Traditional Ecological Knowledge)
- Convene workshops with local producers as part of developing an adaptation workbook
- Increase cross-boundary outreach, education and communication
- Focus on stewardship-based, creative approaches
- Define success and share successful stories

6. Next SWAF

Suggestions for the 2024 SWAF include:

- Focus on lessons learned and case studies; learn from people's stories about specific adaptation actions
- Indigenous engagement: Be more mindful about stakeholders vs. rightsholders
- Incorporate a field visit; find opportunities to do small group work outside

- Foster more conversation on broader issues, with a lens on adaptive capacity
- Increase diversity of participants
- Consider offering childcare
- Build on outcomes of SWAF 2022

7. Resources

- a. [Agenda](#)
- b. [Participants](#)
- c. [Presentations and Resources](#)