Tribally Led Research: Round 2 Project Profiles

California's Fifth Climate Change Assessment

This work is funded through the Tribal Research Grant Program led by the California Energy Commission

Fernandeño Tataviam Band of Mission Indians (FTBMI): Tataviam Environmental & Cultural Data Mapping Portal

Award Amount
$199,948

Region
Northern Los Angeles County

Tribal Designation
Non-federally recognized

Focus Areas
Tool Development

Proposed Program Activities

1. Collect climate and other relevant datasets onto a tribal-wide Environmental Systems Research Institute (Esri) geographic information system (GIS).
2. Develop web-based map apps as decision support and tribal engagement tools
3. Build capacity of tribal staff to understand and manage the Esri GIS platform

The Tataviam Environmental & Cultural Data Mapping Portal aims to strengthen the Fernandeño Tataviam Band of Mission Indians' (FTBMI) capabilities leveraging climate hazard data with traditional ecological knowledge to jointly address extreme heat, drought, flooding, wildfires, energy and other environmental impacts such as air quality and other climate/environmental impacts across the tribal boundary.

The core objectives of this project include collecting climate and other relevant datasets onto a tribal-wide Esri GIS account, creating updated datasets using data from the State's Fifth Climate Change Assessment, developing web based map apps as decision support and tribal engagement tools, and building the capacity of Tribal staff to understand and manage the Esri GIS platform with the assistance of project partners.

This approach addresses a significant gap in FTBMI's resources and capacity to leverage climate data in its ongoing work across the various Tribal initiatives including but not limited to, the Environmental Protection Division, the Tataviam Land Conservancy, and the Tiüvac'a'ai Tribal Conservation Corps. This would particularly benefit FTBMI in responding to grant applications with data-supported proposals as well as during the implementation of projects and advocating the benefits of its programmatic work in building resilience across the tribal land boundary. The Tataviam Environmental & Cultural Data Mapping Portal will allow for strengthened collaboration and help build a shared understanding of the climate challenges and potential solutions between tribal partners.

Northern Chumash Tribal Council: Northern Chumash Council TEK-MAR Climate Change Curriculum

Award Amount
200,000

Region
San Luis Obispo/Northern Santa Barbara County

Tribal Designation
California tribal organization

Focus Areas
Topic-specific Research, Climate Assessment, Information Sharing, Tool Development create a climate change school located in Lompoc, with a curriculum that aims to benefit the environment, indigenous communities, and carbon sequestration capacity of the tribal rangelands.

Proposed Program Activities

1. Develop and document a methodology for collaborative information sharing and funding with tribal-and-non-tribal interested parties and partners.
2. Create a model and database for indigenous Traditional Ecological Knowledge (TEK) methodologies to be shared.
3. Encourage indigenous, veteran, ranching, and farmers' participation using TEK.
4. Develop outreach and feasibility to support underrepresented groups for successful and sustainable participation in collaborative funding that utilizes TEK for cultural objectives.
5. Strengthen TEK participation and interactions with state and federal agencies by online and in-person courses.
6. Continued guardianship of waters and lands that honors TEK, Chumash knowledge, and the voices of marginalized communities.

Throughout the past century, preventing natural ignitions and prohibiting Indigenous burning through state and federal laws have significantly impacted the habitats and species crucial to tribes' ways of life, leading to a decline in cultural sovereignty but an increase in catastrophic wildfires.

Cultural burning practices were widespread in the study area before colonization, and it is essential to recognize this. Indigenous fire stewards ignited an estimated 6972 fires annually, and these fires were deeply interconnected with the ecology of cultural resources, fuel availability, seasonal movement patterns, and spiritual traditions. It is essential to emphasize the significance of cultural burning in shaping and preserving the ecosystems before colonization and underscore the need for collaborative efforts with Indigenous communities to restore ecocultural processes in these systems.

The absence of fire has led to significant landscape changes, impacting the availability of traditional foods essential for sustainable living. Elderberries, a first food with potential health benefits, have been substantially affected by the lack of regular burns. For instance, regular burns significantly enhance elderberry productivity through vegetation clearing, increased sunlight penetration, soil nutrient enrichment, branch removal, and new shoot growth. Beyond the crucial nutritional and physical impacts, the management of first foods and fibers is vital for nurturing the spiritual and communal well-being

of the community. The absence of fire disrupts the spiritual connection to the landscape, resulting in a significant alteration in lifestyle and a detachment from the spiritual relationship with the earth and the Great Creator. This imbalance hinders harmony and diversity throughout the landscape and affects the mental well-being of the community.

It is urgent to implement significant changes in fire suppression and planning to reverse the catastrophic trend that began in 1850 when Indigenous people were prohibited from burning the land. This aversion to burning, combined with the effects of the climate crisis, has increased the risk of catastrophic wildfires, as demonstrated by the devastating Camp (Paradise) Fire of 2018. Prescribed burning involves the controlled application of fire to the land to reduce wildfire hazards, clear downed trees, control plant diseases, improve rangeland and wildlife habitats, and restore natural ecosystems. Cultural burns, on the other hand, are a form of land management passed down by Indigenous Tribes over thousands of years. They focus on cultivating biodiversity and sustainable growth to make landscapes more resilient.

TEK-MAR (Traditional Ecological Knowledge-Mitigation and Remediation) combines Traditional Ecological Knowledge with modern technologies and is a mitigation division of the Northern Chumash Tribal Council's vegetation management company. Our primary objectives are to reduce fire fuel loads, enhance native flora and fauna, promote soil health, mitigate invasive plant species, and educate community members about TEK and sustainable land management practices.

Shingle Springs Band of Miwok Indians: Building More Effective Government-to-Government Tribal Relationships with California State Agencies to Address the Challenges of Climate Change

Award Amount
$197,100

Region
Central Valley (El Dorado County)

Tribal Designation
Federally recognized

Focus Areas
Information sharing, Climate Assessment, Project Implementation, Tool Development

Proposed Program Activities

1. Conduct tribal-led workshops and meetings to promote conversation, questions, and solution on Government-to-Government communications issues with California state agencies
2. Create an inclusive, culturally-informed Guide for Government-to-Government consultation

Government-to-Government consultations are often fraught, as indigenous cultural and ecological heritage is so rich, perspectives are inclusive of spirituality, yet too often occur at locales and agency-set agendas that are not always Native-friendly. To address the challenges of climate change and state nature-based ecological goals, state agencies require better awareness of intercultural communications. Tribal-led workshops, supplemented by written guides, can provide the knowhow to create training intended for representatives of California state agencies, who want to improve Government-to-Government Tribal relationships and consultation outcomes.

We envision a highly participatory and interactive workshop model that promotes conversations, questions, and solutions. Shingle Springs Band of Miwok Indians (SSBMI) strongly believes that Tribal-led discussions will lead to more inclusive and culturally aware definitions and representations of indigenous heritage and perspective. Only from a Tribal-led perspective can Government-to-Government consultations improve, leading to better governmental relationships, and improved stewardship of the state that we all inhabit and care for, especially in heightened conditions caused by climate change.

SSBMI is committed to coordinating with the California Energy Commission on workshop outcomes and modeling, and to suggest ways to share this information and strategies with California Tribes and other state agencies.

Pala Band of Mission Indians: Report Feature Enhancement to the Exposures, Impacts and Strategies Inventory (EISI) Tool for Extreme Heat (EISI for Extreme Heat) Module

Award Amount
$182,882

Region
San Diego County/Southern California

Tribal Designation
Federally recognized

Focus Areas
Tool Development, Climate Assessment, Information Sharing

Proposed Program Activities

Enhance the Exposures, Impacts and Strategies Inventory (EISI) Tool for Extreme Heat (EISI for Extreme Heat) module, funded by Round 1 of the Tribal Research Grant Program.

1. Develop customizable report feature which will:
    a. Streamline the creation of tailored reports on extreme heat
    b. Enable tribes to efficiently develop climate assessments and adaptation plans
    c. Enable tribes to self-define reference areas, such as ancestral lands, for contextualized data analysis
    d. Include maps, summary tables, and interpretative text, determined through tribal engagement
2. Offer comprehensive, free training to Tribes on the report feature

Round 1 of the Tribal Research Grant Program funded the Interactive Exposures, Impacts, and Strategies Inventory (EISI) Tool for Extreme Heat (EISI for EH) Project, a collaborative pilot initiative led by the Pala Band of Mission Indians (Pala), Prosper Sustainably, and the Public Health Alliance of Southern California. The project centered around adaptation of the Exposures, Impacts, and Strategies Inventory (EISI) tool, a well-established mechanism for tribes assessing climate-related risks, into an interactive and easily accessible module on the existing, freely and publicly available California Healthy Places Index: Extreme Heat Edition (HPI: EHE) map platform. While the EISI for EH module provides easy access to valuable Western science datasets on tribal extreme heat exposures and impacts, it provides a limited export function. Information from the tool must still be compiled, organized, and interpreted in order to be used in climate plans and assessments, consuming valuable staff time and resources. Moreover, tribes need ways to securely integrate traditional ecological knowledge with data from the EISI for EH module, without concern that it may be accessed by external parties.

Building on the EISI for EH project, our current proposal will enhance the EISI for EH module by developing a robust, fully customizable report feature. This enhancement will allow tribes to create and export tailored reports based on their specific needs and contexts, improving their capacity to assess and respond to extreme heat events. The report feature has two main objectives: 1) Enable tribes to more efficiently develop climate assessments and adaptation plans by organizing, compil-

ing, and interpreting data and maps on extreme heat exposure and impacts; and 2) Provide tribes with a mechanism through which they can securely integrate traditional ecological knowledge and lived experiences on extreme heat with data from the EISI for EH module. The proposal will also include updates to data layers, in order to keep the information output by reports up-to-date with upcoming releases of climate data, including California's Fifth Climate Assessment data products.

The report feature will allow California Tribes to:

1. Select a reference area: This could include a Tribal reservation or other preferred boundaries such as a collection of cities or communities, a county or multiple counties comprising a region, or other self-defined boundaries. All exported information will be displayed relative to this reference area.
2. Select relevant data layers on extreme heat exposures, secondary exposures, and impacts from the EISI for EH module that they would like to be included in the report. Tribes will be able to prioritize certain exposures and impacts based on the data and their values.
3. Generate customizable reports. Users will be able to select which measures and outputs to include in the report. Exact outputs of the report feature will be determined based on tribal interested party outreach, but could include:
    a. Map exports of individual exposure and impact measures from the EISI for EH module
    b. Map exports of areas with the greatest combined heat exposure and projected impacts
    c. Summary tables displaying values of each selected measures
    d. Summary text interpreting each value (i.e. this tribe has a lower rate of emergency room visits than 90.5% of the other census tracts in the state)
    e. Text prompts to allow tribes to add their own qualitative and quantitative indigenous knowledge of human health, cultural, and environmental impacts. To protect data sovereignty, tribes will add this potentially sensitive cultural and ecological knowledge into the report document once it is saved onto their own trusted device, as opposed to external or cloud-based data repositories. Text prompts could solicit such information as:
        i. An inventory of historical heat waves (when they occurred, magnitude, areas impacted) and their impacts
        ii. Traditional ecological knowledge related to extreme heat and its impacts
        iii. Lived experience of tribal community members during heat waves
        iv. Cultural and environmental assets at risk from heat waves or prolonged heat
        v. Human health and environmental impacts
        vi. Best practices learned from each past heat events and future ideas on preparing for climate change

Santa Ynez Band of Chumash Indians: Coastal Chumash Village Areas at Risk from Sea Level Rise and Coastal Hazards: A Preliminary Review of Adaptation Measures Offered by Chumash Tribes

Award Amount
$200,000

Region
South-Central Coast

Tribal Designation
Federally recognized

Focus Areas
Topic-specific Research, Tool Development

Proposed Program Activities

1. Combine the use of scientific information and Chumash Ecological Knowledge (CEK) to provide a detailed characterization of the risks to coastal Chumash village areas
2. Organize the Tribe's existing ethnographic, historical, environmental, and archaeological data for consultation activities
3. Create a matrix of culturally appropriate and based on CEK adaptive measures

The combination of sea level rise, warming sea surface temperatures (SSTs), and increased storm intensity, are substantially increasing rates of coastal erosion. Faced with sea level rise and attendant coastal erosion and risks to coastal Chumash cultural heritage, coastal managers and Chumash communities will be forced to make hard choices about how best to adapt and respond to risks to cultural archaeological sites.

This proposed project will build on a preliminary study sponsored by the Santa Ynez Band of Chumash Mission Indians that includes an assessment of coastal hazard exposure of Chumash coastal village sites. This work serves a screening level of analysis to provide a characterization of the timing and severity of the full range of coastal hazard exposures to Chumash village sites that have been identified and described in public documents.

This project will provide a more detailed assessment of the vulnerabilities of coastal Chumash village sites and "cultural keystone places" or CKPs to sea level rise and coastal hazards. CKPs influence the development of Tribal cultural identity, language, stories, history, and ceremonial practices. The interdisciplinary research will include the use of CEK; incorporate an analysis of publicly available scientific and technical information on coastal Chumash archaeology; and will include a characterization of the severity of risks to coastal Chumash village sites based on data and information incorporated into a coastal hazard model. The research activities will include a focus on cases that describe coastal village areas of "high risk".

Tribal staff and technical consultants will create a "matrix of adaptation planning measures" that can be used in future vulnerability assessments and climate adaptation strategies and plans in California. This matrix will include an analytical review of diverse strategies and adaptive measures needed for the Tribe to respond to coastal vulnerabilities, threats and risks to coastal Chumash cultural heritage and identified archaeological sites. Chumash community

members will play an important role in identifying the CKPs that are at risk and the Tribal members' preferences and values associated with the types of adaptive strategies and response measures that are needed by the Tribe to respond to threats and risks to coastal Tribal cultural heritage. In addition, the proposed project will include a database framework with attribute tables and GIS data sets for internal use by the Tribe in consultation and engagement activities. This will contribute to Tribal development of a decision-making tool and a much-needed organization of the Tribe's archaeological, ethnographic, historical, and traditional data and information that can be used by the Tribe.

Tamien Nation: Tamien Nation's Continuing Climate Resilience Project

Award Amount
$128,662

Region
San Francisco Bay Area (Santa Clara Valley; Ohlone region)

Tribal Designation
Non-federally recognized. California tribal organization

Focus Areas
Project Implementation, Climate Assessment

Proposed Program Activities

1. Enhanced climate and wildfire resilience: hands-on training for tribal cultural fire and land stewardship crew, community outreach and engagement
2. Cultural revitalization and preservation: create opportunities for meaning engagement
3. Community empowerment: establish and strengthen collaborations with other tribes, government agencies, academic institutions, community organizations
4. Holistic approach to climate risks to community resilience planning: implement sustainable resource management practices

The Tamien Nation, a state-recognized Tribe and a 501(c)3 organization, is deeply rooted in the precontact villages of the Greater Santa Clara Valley. Although many of their members reside in the San Joaquin Valley, their unifying mission remains to protect their ancestors, tribal cultural resources, and environment.

Their tribe faces significant climate-related challenges that necessitate proactive and targeted adaptation strategies. These include the heightened threat of catastrophic wildfires due to increasing temperatures and changing precipitation patterns, posing substantial dangers to communities' housing, public safety, natural and cultural resource management, and public infrastructure.

Tribal cultural resources are particularly at risk from both wildfires. Modern wildfires, intensified by drought, historical vegetation mismanagement, over-suppression tactics, and climate change, burn hotter and deeper, often damaging or destroying buried cultural artifacts before their discovery. In addition, increased response activities often destroy resources, and fires can now pose a direct threat to urban centers where significant collections of curated cultural resources are housed. Runoff from fires threatens the health of our wetland, coastal, riverine, lacustrine, wildlife, and botanical resources as well as their drinking water. The associated infrastructure development poses yet another era of cultural resource destruction. These multifaceted climate risks underscore the urgency and importance of their project's efforts to integrate Indigenous stewardship practices to build resilience and foster collaborative solutions across various domains to mitigate these climate risks.

They prioritize the protection of tribal cultural resources by integrating their cultural practices into ecological restoration. This holistic approach nurtures both their cultural well-being and the health of their environment. The project represents a shift towards holistic resilience, embodying their vision for a harmonious future.

Torres Martinez Desert Cahuilla Indians: TMDCI Climate Change Adaptation & Mitigation: Invasive Species Management

Award Amount
$200,000

Region
Coachella Valley (Riverside and Imperial Counties)

Tribal Designation
Federally recognized

Focus Areas
Project Implementation, Tool Development

Proposed Program Activities

1. Drone-aided geographic data collection of invasive species (e.g., tamarisk) and culturally important species.
2. Create an interactive geographic information systems (GIS) map.
3. Create maintenance schedules for invasive species removals
4. Allow the manual and mechanical removal of invasive species.
5. Revegetate with native and culturally significant plant species

The proposed project will build on past projects that the TMDCI Natural Resources Department has worked on and expand reach to new sites and incorporating revegetation or re-establishment of native plant species in their habitat which had been encroached on. It would focus on the implementation of removal methods for the eradication of tamarisk, which is an invasive species that is also known as salt cedar. This plant once thought to be beneficial now thrives in the desert conditions out competing those more delicate native and culturally significant plant species.

Tamarisk has shown to be a problem because of its water consumption, ecosystem disruption, soil salinization, and fire risk. This plant has a unique structure that gives it an advantage to natives, it has the ability to quickly spread through its lateral roots, it has a large taproot which it uses to reach groundwater consuming large amounts and leaving little for key species like honey mesquite and screwbean mesquite who heavily rely on groundwater for survival and nutrients. Tamarisk disrupts the Tribe's desert ecosystems as it forms dense thickets and outcompetes native vegetation which leads to reduced biodiversity and altered habitats. Soil salinization is also increased since tamarisk excretes salt through its leaves and deposits it on the already saline soils, further reducing soil health and nutrient availability, creating inhospitable conditions for native vegetation.

Aside from the previously mentioned, fire risk is also increased due to the plant's high oil content. This contributes to more intense and frequent fires, further harming native ecosystems. Their oil content and the desert climate together create a hazard for nearby communities and the local ecosystem. This project not only aims to implement invasive species removal, but it also aims to implement the reintroduction and establishment of the declining native vegetation once the invasive have been eradicated. The TMDCI Natural Resources Department will aim to incorporate native vegetation like honey mesquite, other desert trees, shrubs, low lying flowering plants or groundcover.

The Picayune Rancheria of The Chukchansi Indians: The Picayune Rancheria of Chukchansi Indians Climate Change Assessment Plan (CAP)

Award Amount
$75,000

Region
Madera county (Yosemite Valley)

Tribal Designation
Federally recognized

Focus Areas
Climate Assessment,

Proposed Program Activities

1. Develop a Climate Change Assessment Plan (CAP) to:
    a. Reduce damage and loss of Tribal assets to changing climate
    b. Guide mitigation efforts
    c. Implement ecological knowledge to protect traditional food sources
    d. Develop project planning recommendations to help reduce climate change impacts
    e. Identify invasive species and develop eradication methodology
    f. Re-establish native foliage to enable the continuation of traditional ways

The Picayune Rancheria of the Chuckchansi Indians (PRCI) is located in Madera County California, in the foothills below the Yosemite Valley. PRCI has recently acquired approximately 600 acres of land, formally the homeland of the Rancheria's people. This property has been placed into Trust by the Bureau of Indian Affairs and now is considered property held in Trust by the United States of America on behalf of the American Indians who reside there. The Rancheria's total land base is approximately 800 acres with associated public domain allotments throughout the area.

There is a need to study PRCI's Trust natural resources on recently acquired Trust property to identify the effects of the changing weather patterns. The CAP will focus on how weather patterns impact the Rancheria's Tribal cultural resources, traditional gathering areas and ceremonial sites, as well as PRCI's traditional food sources, and food systems.

Tzicatl Community Development Corporation: The Masewaltlapixkayiotl Indigenous Youth Climate Resiliency Corps

Award Amount
$183,723

Region
Los Angeles

Tribal Designation
Tribal-serving Non-governmental Organization

Focus Areas
Information Sharing, Project Implementation

Proposed Project Activities

1. Establish the Masewaltlapixkayiotl Indigenous Youth Climate Resilience Corps on a tribal site in Los Angeles
2. Implement an experiential learning program teaching indigenous land stewardship practices
3. Provide no-cost vocational training to tribal youth
4. Share information on cultivation of native plant species, coppicing, and cultural burns with community partners

The Masewaltlapixkayiotl Indigenous Youth Climate Resilience Corps project will share information that maintains and advances practical and culturally relevant knowledge in Indigenous and Western scientific practices alike. The exchange of teaching and learning between tribal elders, tribal youth, tribal government workers, and non-tribal agency personnel and especially between generations is important between and among peer groups. At the conclusion of this project, outcomes will improve and support knowledge sharing within, among, and between tribes. This may include knowledge sharing with other government agencies as deemed appropriate by tribes. Information sharing grants should focus on communicating climate change research.

The Tzicatl Community Development Corporation (Tzicatl CDC), in collaboration with the Gabrielino Shoshone Nation of Southern California and Anahuacalmecac International University Preparatory of North America, proposes the Masewaltlapixkayiotl Indigenous Youth Climate Resilience Corps, to educate and train young leaders to mitigate future wildfires, water scarcity and climate crisis by means of regenerative Indigenous science.

The Tzicatl CDC proposes the Masewaltlapixkayiotl Indigenous Youth Climate Resilience Corps Program on 12 acres of land recently returned to the Gabrielino Shoshone Nation of Southern California. To demonstrate the effectiveness of Indigenous wildfire resiliency and mitigation practices, from February 2025 through January 2026, the project will:

» Engage native experts from the Gabrielino Shoshone Nation in the use of Indigenous wildfire mitigation practices

- Use a youth job corps-certificate model engaging 9–12 grade students, teachers, and partners at Anahuacalmecac International University Preparatory of North America employing a hands-on, experiential learning program ensuring these practices are passed to the next generation while providing no-cost education vocational training
- Leverage community partnerships and collaborations ensuring widespread adoption and city, local, state buy-in. These proven practices recognize fire as a natural aspect of a healthy ecosystem, and include cultivation of exclusively native plant species, coppicing (specialized plant trimming), and cultural burns

Yurok Tribe: Yurok Traditional Food Systems Climate Resiliency

Award Amount
$200,000

Region
North Coast

Tribal Designation
Federally Recognized Tribe

Focus Areas
Project Implementation

Proposed Project Activities

1. Create a traditional culturally informed land treatment protocol
2. Coordinate with the Yurok Tribal Council, Natural Resources Committee, Cultural Committee, and the Office of the Attorney for formalized permission to conduct cultural burns on the identified candidate parcel, ensuring stakeholder involvement
3. Create a data collection plan to evaluate traditional foods quality and quantity, forest health, and catastrophic wildfire fuel on the identified land parcel
4. Collect pre-burn data, conduct planned cultural burning, and collect post-burn data
5. Analyze collected data; report to project partners, other indigenous communities, and other stakeholders; and prepare short testimonial video

The Yurok Traditional Food Systems Climate Resiliency Project aims to utilize cultural burning as a nature-based solution for climate adaptation by establishing a traditional food forest. The project will enhance the quality and quantity of traditional foods, reduce catastrophic wildfire fuels, and improve forest health as part of the Yurok Tribe's ongoing traditional foods restoration initiative.

The project will begin with the restoration of a recently re-acquired ancestral food forest, incorporating native knowledge into forest treatment protocols. Indigenous science will be employed to collect data on traditional food quality and quantity, tree and plant health, and the reduction of wildfire fuel loading. This data will inform land stewardship practices, creating a bridge between Yurok Traditional Ecological Knowledge (YTEK) and Western scientific methodology.

The project, overseen by the Yurok Tribal Council, Natural Resources Committee, and Cultural Committee, will also be relevant to neighboring tribes, with culturally appropriate information being shared. The outcomes will guide Tribal land stewardship strategies, promoting a healthy environment, mitigating wildfire risks, and increasing climate change resiliency. The project serves as a framework for future research on the environmental impacts of cultural and prescribed fires and aims to build internal capacity for data collection on prescribed burns. By re-establishing Indigenous stewardship practices, the Yurok Tribe seeks to demonstrate the benefits of active land management on environmental and tribal member health, renewing their relationship with traditional fire as a contemporary landscape stewardship practice.

The Yurok Tribe, with over 6,400 members and a 56,000-acre reservation, has been a leader in environmental conservation and restoration. This project aligns with the Tribe's Climate Adaptation Plan, which emphasizes healthy ecosystems,

community well-being, and strong connections to the land. The Yurok people have a long history of stewardship along the lower Klamath River, and this project continues that tradition, using cultural burning to support ecological and cultural resilience in the face of climate change.