



United States Department of Agriculture

# Tribes and Climate Change Research USDA Forest Service

Working with multiple partners to better leverage climate change resources.

## Research Objectives

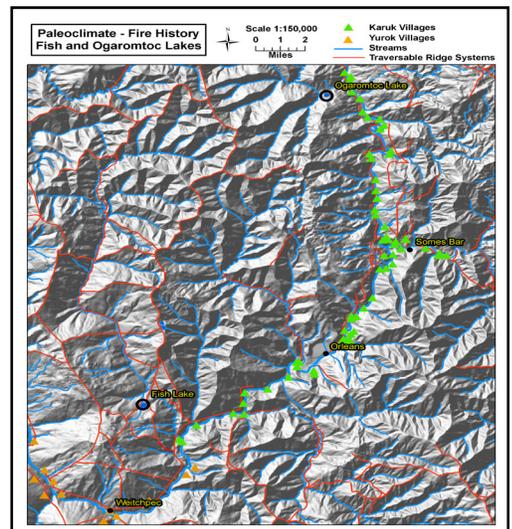
Bringing together state-of-the-art science and Native Californian culture and traditional ecological knowledge for strategic climate change planning, mitigation, and adaptive management.



Left: Six Rivers National Forest staff and Karuk Indigenous Basketweavers evaluating fire and drought effects on basketry material. Middle: Chinook salmon, acorns, and pack basket. Credit for left and middle images: Frank Lake, USDA Forest Service Right: Prescribed burn involving multiple stakeholders: private landowner, Karuk Indigenous basketweavers, Orleans Somes Bar Fire Safe Council, and Pacific Southwest Research Station. Credit: Luna Latimer, Mid Klamath Watershed Council

## Accomplishments

- Partnerships with Native California tribal governments and community-based organizations to address potential climate change effects on natural and cultural resources. Research emphasis on forestry, fire, fuels, fisheries, and water quality.
- Collaborative research efforts between academia, community organizations, tribes, and agencies that focuses on creating the best available science for tribal and local community needs.
- Collaborative research efforts in support of tribal participation with the North Pacific Landscape Conservation Cooperative and PNW Tribal Climate Change Network regarding native Californian tribal culture and ecosystems affected by changing climate.
- Scientific advisory and technical review provided in support of tribal programs and projects or for those working with tribes.
- Paleoclimate and Fire History research to examine past climate and tribal land use practices in culturally significant areas.



Above Right: Paleoclimate and Fire History Project. Historical Karuk (green) and Yurok villages (gold) connect with historical travel routes (red) where tribal land management was conducted. Historical tribal use areas help us understand how climate affects natural and cultural resources. Credit: Jeff Crawford, University of Nevada-Reno (Data); Jan Werren, USDA Forest Service (Map)



Forest Service

Research & Development

Pacific Southwest Research Station

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### Ongoing Research and Activities

- *Karuk Tribe and University of California-Berkeley Collaborative:* The Forest Service is developing research that responds to tribal community concerns, including food security, wildland fire, fuels, fisheries management, and enhancement of traditional foods such as acorns, nuts, and berries. Current UC Berkeley-led food security research efforts include the Karuk, Yurok, and Klamath Tribes. It is also supporting the Karuk Tribe's Eco-Cultural Resource Management Plan.
- *Traditional Ecological Knowledge (TEK), Climate Change, and Land Management:* The Forest Service is incorporating TEK in forestry, fire, fuels, and fisheries research and management issues together with the North Pacific Landscape Conservation Cooperative, University of Oregon's Pacific Northwest Tribal Climate Change Network, tribes, and tribal organizations.
- *Climate change on Native Californian tribal communities:* The Forest Service is working with tribes, agencies, and academia to understand potential wildland fire effects on cultural resources and tribal values. Fire and fuels research is also underway to improve tribal ethno-botanical resources.



All photos above by Frank Lake, USDA Forest Service

*Left:* Evergreen huckleberries and hazel shoot basket, examples of materials maintained by wildland fires.

*Middle:* "Good" Tanoak acorns, a traditional food, dropped after a prescribed burn to reduce acorn pests. The Forest Service is conducting research with California tribes regarding Sudden Oak Death impacts to forests.

*Right:* Experimental manipulation of California Hazel for basketry material. The timing of burns and collection of basket materials and traditional foods are potentially impacted by climate change effects on precipitation, seasonal weather patterns, and plant growth. The tribal valued food and basketry resources shown here are all expected to be affected by climate change.

### Selected Partners and Contact

- Karuk Tribe
- Yurok Tribe
- Karuk Indigenous Basketweavers
- Mid Klamath Watershed Council
- University of Nevada-Reno
- Stanford University
- USDA Forest Service, Office of Tribal Relations
- Humboldt State University

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