

Science to Action: Working Together to Build Resiliency at Lake Tahoe

Landscape Restoration: Maꞑyála Wáta



Agenda



10:45 **Introduce Panel and Topic**

10:50 **Panel Presentations:** Past-Present-Future of Science + Management
Partnerships

11:30 **Questions for Clarification**

11:40 **Small Group Discussion:** Priority topics in Science and Management

12:05 **Reports:** Key themes from small groups

12:30 **Final observations** and adjourn

Panelists



- Jane Freeman, California Tahoe Conservancy
- Rhiana Jones, Washoe Tribe of Nevada and California
- Jonathan Long, USDA Forest Service, Pacific Southwest Research Station
- Facilitator: Victoria Ortiz, Tahoe Regional Planning Agency

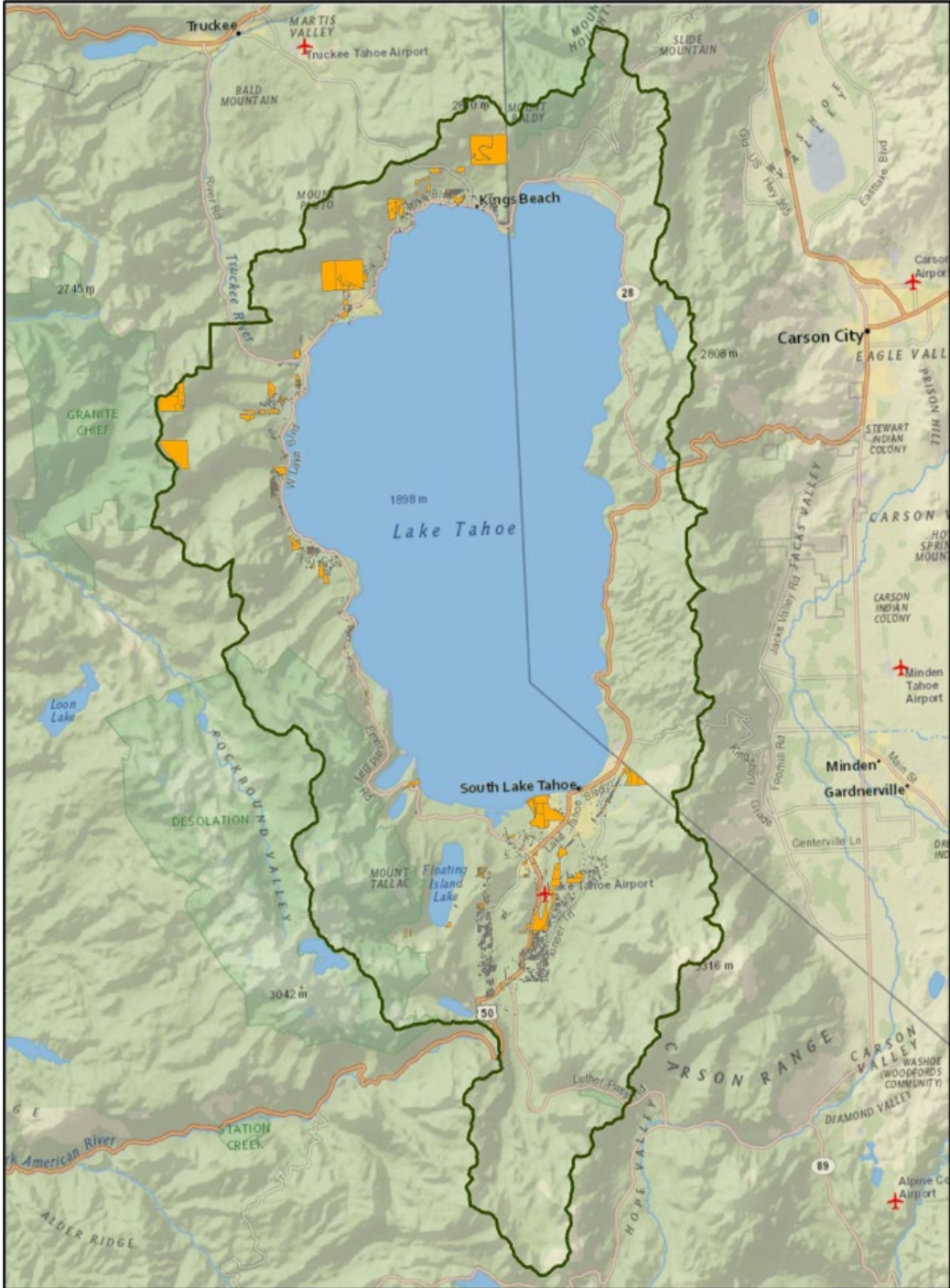
Presentation Overview

- Share Tribal, land management agency, and research community landscape restoration approaches, challenges, and future opportunities and science needs to achieve climate resilience.
- Center the conversation around an important place in the Tahoe Basin to the Washoe Tribe of Nevada and California and the Tribe's indigenous knowledge systems.



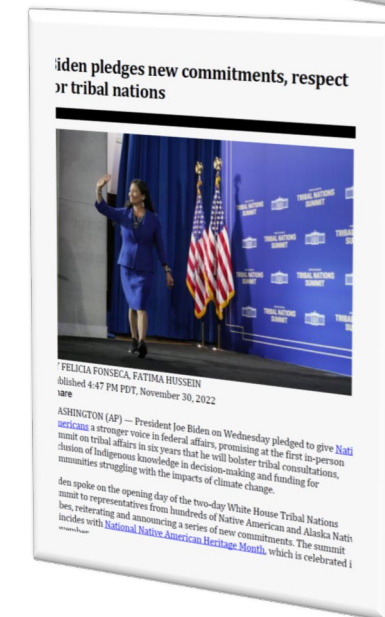
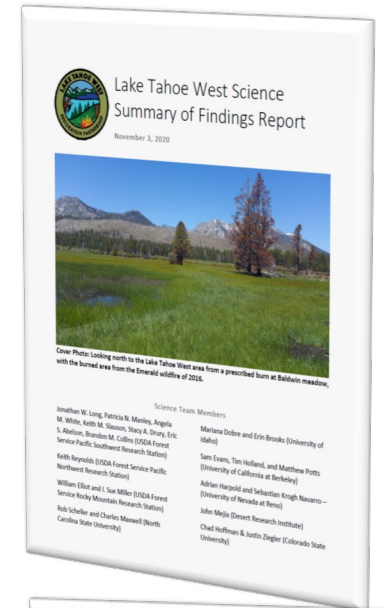
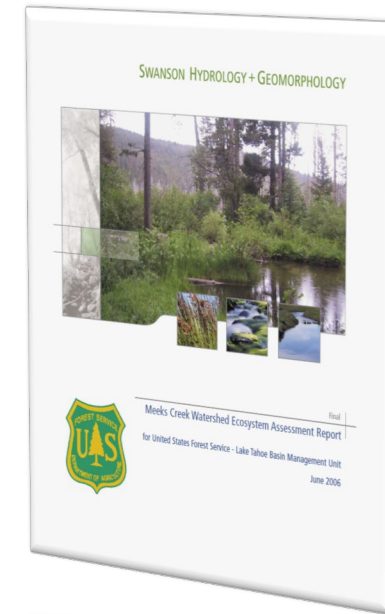
California Tahoe Conservancy

“Lead California’s efforts to restore and enhance the extraordinary natural and recreational resources of the Lake Tahoe Basin.”



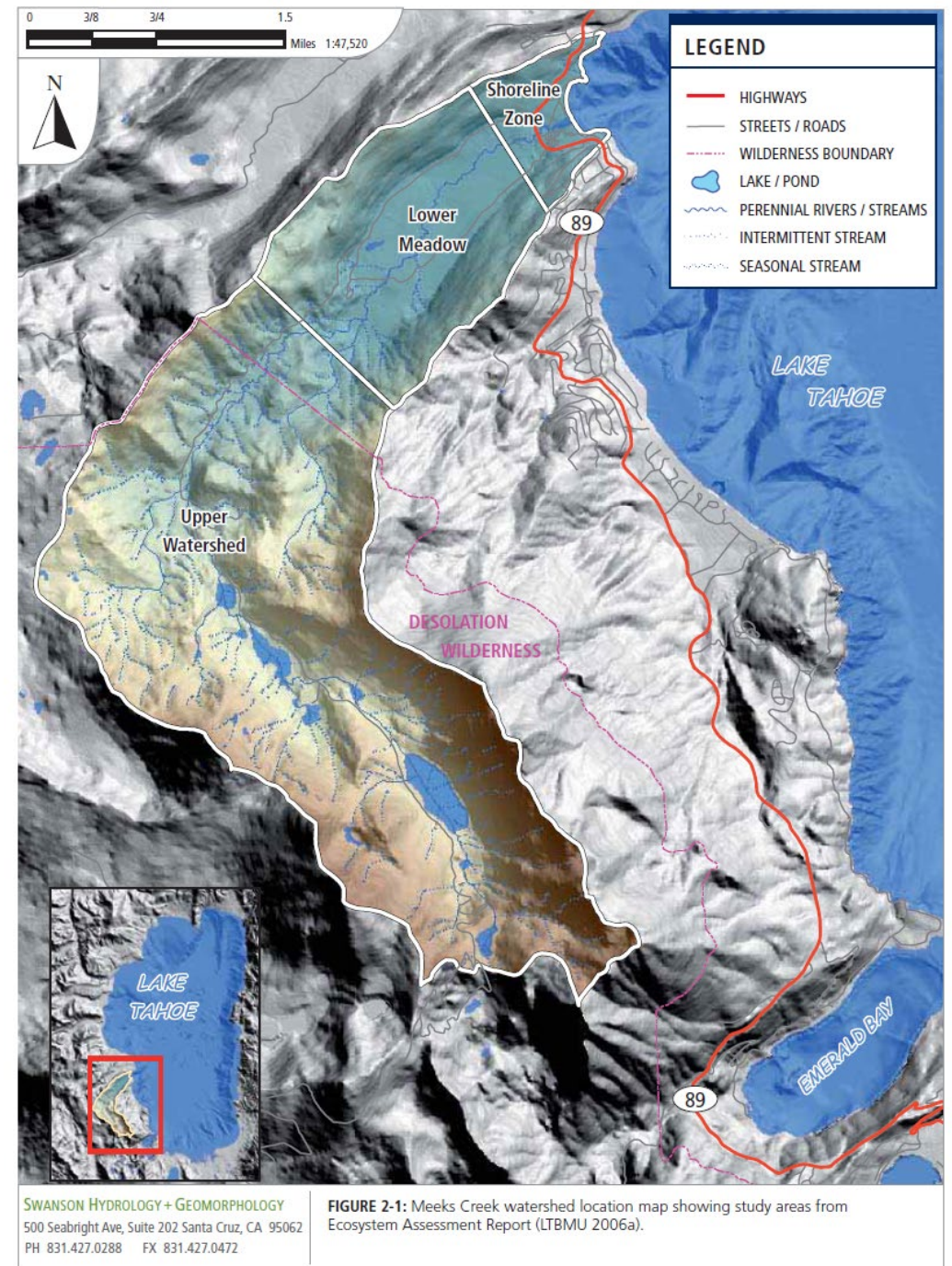
Tahoe Basin Landscape Restoration Framework

- Landscape restoration and stewardship in the Tahoe Basin: Past and Present
- Federal and State agency mandates and direction to achieve climate resilience and empower tribes
- Role of science in supporting agency and tribal stewardship and restoration over the years and going forward



Maꞑyála Wáta: Overview

- Background/History
- Landscape restoration goals
- Science focus and needs





Another Lake-Saving Project



Máyala Wata Restoration Planning Project for Meeks Meadow

Funding and Project Partners





GOVERNOR SHARON G. BEHRENS, JR.
WATER BOND 2014
REVENUE BONDS FOR WATER INFRASTRUCTURE

Another project to improve California's water quality, supply, and infrastructure. Funded by Proposition 1, The Water Bond Act of 2014. John Laird, Secretary for Natural Resources Agency. Edmund G. Brown, Jr. Governor.

conservationclearly.org



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MEMORANDUM OF UNDERSTANDING
BETWEEN
USDA - FOREST SERVICE
LAKE TAHOE BASIN MANAGEMENT UNIT
AND
THE WASHO TRIBE OF NEVADA AND CALIFORNIA

7/4/97

This Memorandum of Understanding between the Washo Tribe of Nevada and California ("Tribe"), and the USDA Forest Service, Lake Tahoe Basin Management Unit ("USFWS"), is effective as of the date of the last signature below.

Whereas, The Tribe and the USFWS mutually wish to establish and formalize a government to government relationship;

Whereas, The Tribe and the USFWS mutually recognize the need and benefit to formalize the process of communication for land and resource management decision making and for other governmental matters;

Whereas, The Tribe and the USFWS mutually recognize that improving our relationship is the best course in achieving our common goal of wisely managed, and sustainable resources;

Whereas, The Tribe and the USFWS mutually recognize the need for future actions in this Memorandum of Understanding, specific project agreements will be considered pending to both parties.

Washo Tribe of Nevada and California

Whereas, The Tribe is a sovereign entity, and its members have lived upon their aboriginal lands for centuries and were the first stewards of certain lands now managed by the Forest Service controlled within those aboriginal lands;

Whereas, The Tribe is a federally recognized Indian Tribe, in which the federal government owns a trust responsibility, and maintains a government to government relationship with, as acknowledged in the Bureau of Indian Affairs, Department of the Interior and published in the Federal Register listing of federally recognized Indian Tribes on October 21, 1983, and includes the Carson Indian Community, the Toiyabe Indian Community, the Woodfork Indian Community, the Oreasville Indian Community, members residing on allotments and off-reservation lands;

Whereas, Article V of the Tribal Constitution states that "The members of the Washo Tribe hereby delegates, to the Tribal Council, the authority to exercise by resolution or the enactment of Tribal laws at the highest sovereign powers vested in the Tribe as a sovereign aboriginal people";

Whereas, the Tribal Council is the formally constituted governing body of the Tribe, entrusted with the responsibility to protect, preserve and promote the ceremonial, religious, cultural, governmental and economic interests of the Washo people.

2019 Stewardship Agreement

STEWARDSHIP AGREEMENT
BETWEEN THE
WASHO TRIBE OF NEVADA AND CALIFORNIA
AND THE
USDA FOREST SERVICE, LAKE TAHOE BASIN MANAGEMENT UNIT

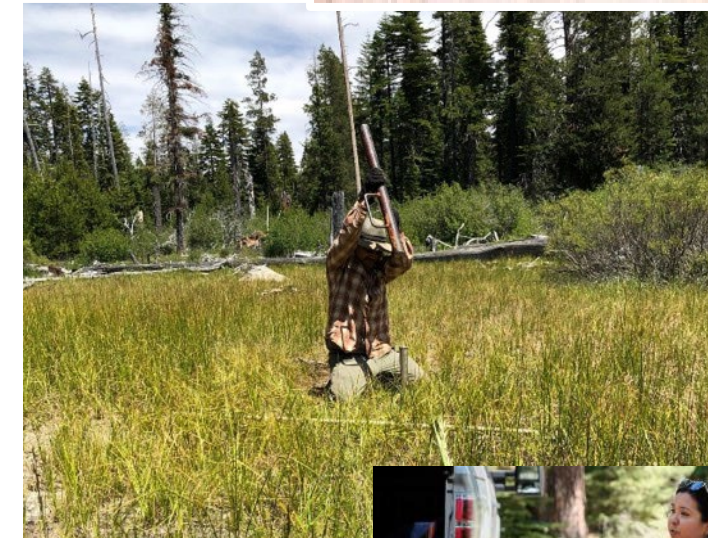
This Stewardship Agreement is hereby made and entered into by and between the Washo Tribe of Nevada and California, hereinafter referred to as "The Tribe," and the USDA Forest Service, hereinafter referred to as the "Forest Service," under the authority and powers of the Agricultural Act of 2014, Pub. L. 113-76, sec. 8201.

Background: In 2013 Congress authorized the Forest Service and the Bureau of Land Management to enter into administrative agreements and agreements, to achieve land management goals for the national forests that meet local and local community needs. The primary focus of this legislation is to achieve land management goals through stewardship programs entered into under contracts or agreements. Consistent with the legislation is the ability to exchange goods for services that meet the land management objectives.

The area addressed in this Stewardship Agreement is known as the Meeks Meadow - Mayala Wata Restoration Project and lies within the borders of the State of California. This area includes an estimated number of acres to be treated during the term of this Stewardship Agreement.

This Stewardship Agreement covers the area known as the Meeks Meadow - Mayala Wata restoration project and biological function of an estimated 300 acres of meadow habitat. The goal is to achieve conditions similar to pre-European contact. This will occur consistent with the Traditional Ecological Knowledge (TEK) within the Lake Tahoe Basin.

The Washo People's creation story tells of Lake Tahoe. The Washo People were the first human inhabitants of the Lake Tahoe region. Meeks Meadow formed as their tribe's summer camp. Their mythology and ceremonies evolved around the meadow. People were viewed as a part of the environment. Care of the environment provided for the meadow. People were viewed as the Meeks Meadow's caretakers. Meeks Meadow and Bay were utilized for drinking water, cooking and ceremonial purposes. Historically, the area's character of Meeks Meadow was maintained by the Washo people using natural processes, such as periodic intentional burning, timber harvesting, mowing, weeding, and digging. The meadow's function has declined over the years due to livestock grazing, logging, increased tourism, and nearby developments. This has been exacerbated by frequent droughts, fire suppression and natural disturbance processes.



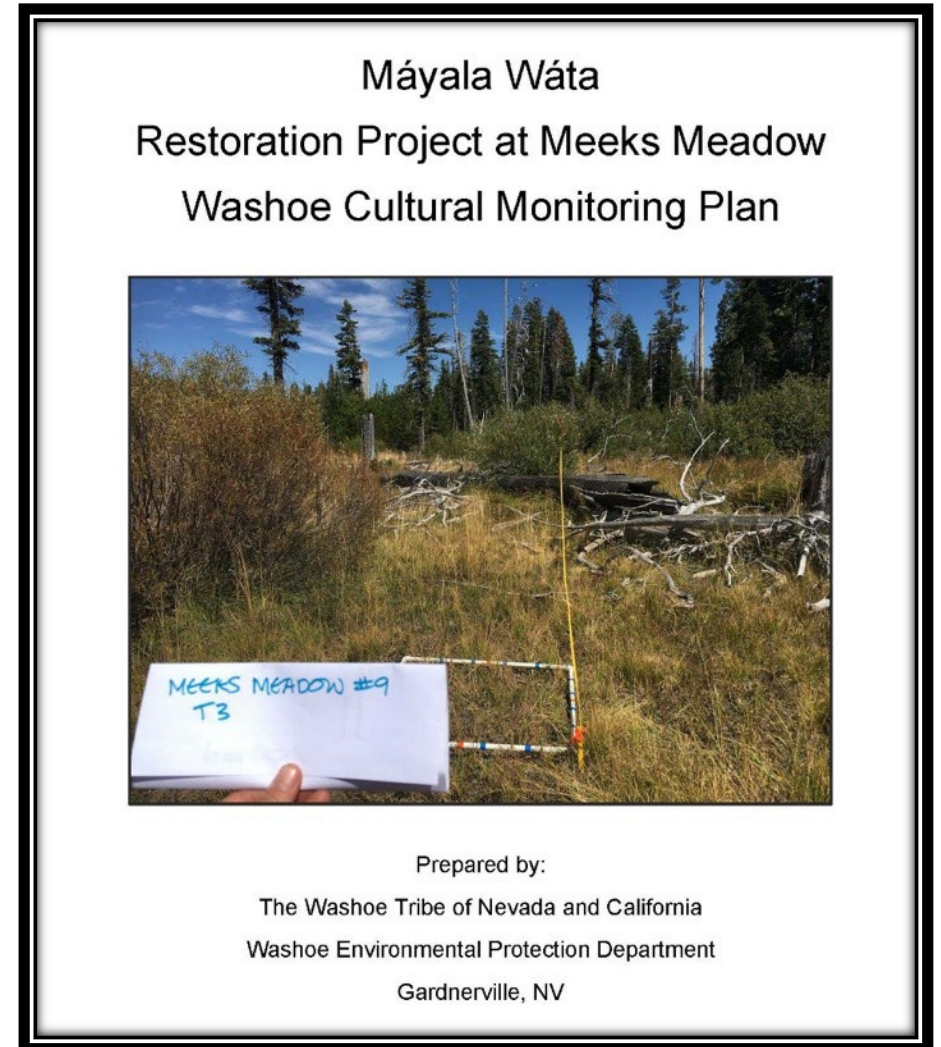
Vision Statement

The Maꞑyála Wàta Restoration Project empowers the Washoe Tribe of NV and CA to reintroduce cultural land management practices back into the Lake Tahoe Basin through a robust partnership with Federal, state, and non-profit agencies. The project will restore culturally significant flora and fauna that mimic beneficial historical indigenous conditions. This innovative project will serve as a model for large scale future conservation efforts using Traditional Ecological Knowledge (TEK).



Importance of including Indigenous Knowledge Systems in Land Management and in collaboration with Federal Agencies

- Allows for the Tribe to manage their traditional homelands in a historical and cultural manner
- Including the Washoe community in restoration work days instills a sense of responsibility, belonging, and stewardship of the traditional Washoe Homelands
- This project serves as template for increased Tribal involvement in the Lake Tahoe Basin, working collaboratively with federal, state, and local agencies



GOALS

1. Thin 300 acres of encroaching conifers out of a Washoe summer home site: Meeks Meadow
2. Conduct a cultural burn to restore and enhance Washoe cultural and medicinal plants, burn every couple years
3. Return to meadow seasonal to plant, harvest, and conduct vegetation monitoring until end of Stewardship Agreement in 2028.

SUCSESSES

All USFS work was halted during COVID, WEPD took this opportunity to begin collecting groundwater data in the meadow to be able to report pre and post groundwater changes with respect to conifer removal in a montane meadow.

1. Have had many outreach days for the Washoe Community and public to share our stewardship activities in the basin.
2. Have established many new environmental partners and funders supporting this project and Washoe stewardship goals.

CHALLENGES

1. Capacity, staff overturn, funding, timing with partners
2. Having meaningful consultations with environmental agencies
3. Gaining acknowledgement and Respect for Indigenous Knowledge Systems





*Science to Action:
Working Together to
Build Resiliency at Lake
Tahoe*

**Opportunities for
Washoe Stewardship
and Research to
Advance Restoration**

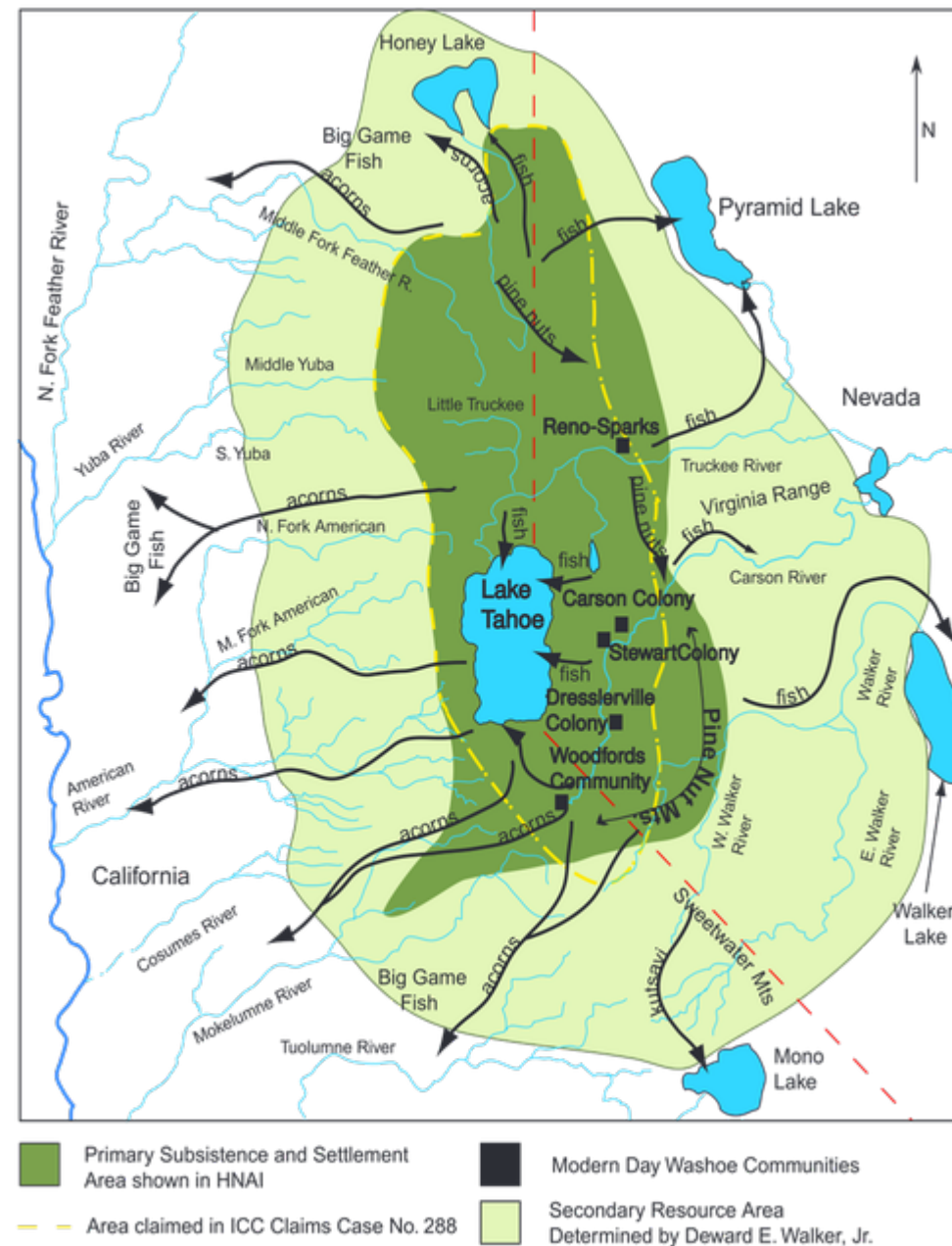
October 2023

Jonathan.W.Long@usda.gov

USDA Forest Service Pacific
Southwest Research Station



Washoe Stewardship in Greater Tahoe Region



Lake Tahoe West Restoration

Amount of
Active
Treatment

None

~1000 acres
annually

~4000 acres
annually

Management Scenarios

1) **Suppression-Only:** No land management actions except fire suppression in all management zones.

2) **Wildland Urban Interface (WUI):** Forest thinning in the WUI only (most like recent treatment).

3) **Thinning-Focused:** High levels of forest thinning in the WUI, General Forest, and Wilderness.



4) **Fire-Focused (moderate prescribed burning):** Modest forest thinning in the WUI, moderate levels of prescribed fire, and some wildfire managed for resource objectives outside of the WUI.

5) **Fire-Focused (high prescribed burning):** Modest forest thinning in the WUI, high levels of prescribed fire, and some wildfire managed for resource objectives outside of the WUI.



The scenario with the most prescribed burning best promoted across socio-ecological values



Historical Fire Ecology:

Kip Van de Water and Malcolm North
(2011)

Fire regimes, stand structure, fuel loads, and fire behavior in riparian and upland forests, sierra nevada mountains, USA

Mean composite fire return interval in area sampled

Site	Taylor Creek	Meeks Creek
Riparian	8.4 years over 10 ha	15.6 years over 2 ha
Upland	15.1 years over 10 ha	11.7 years over 2 ha



Sagehen Experimental Forest

- Fire history study by Valliant and Stephens (2009)
- Mean composite fire return interval: 2.2 years from 1700 to 2006 for entire 358 ha area
- Mean composite fire return intervals ranging from 4.1 to 13.2 for smaller clusters (0.6 -3.5 ha)

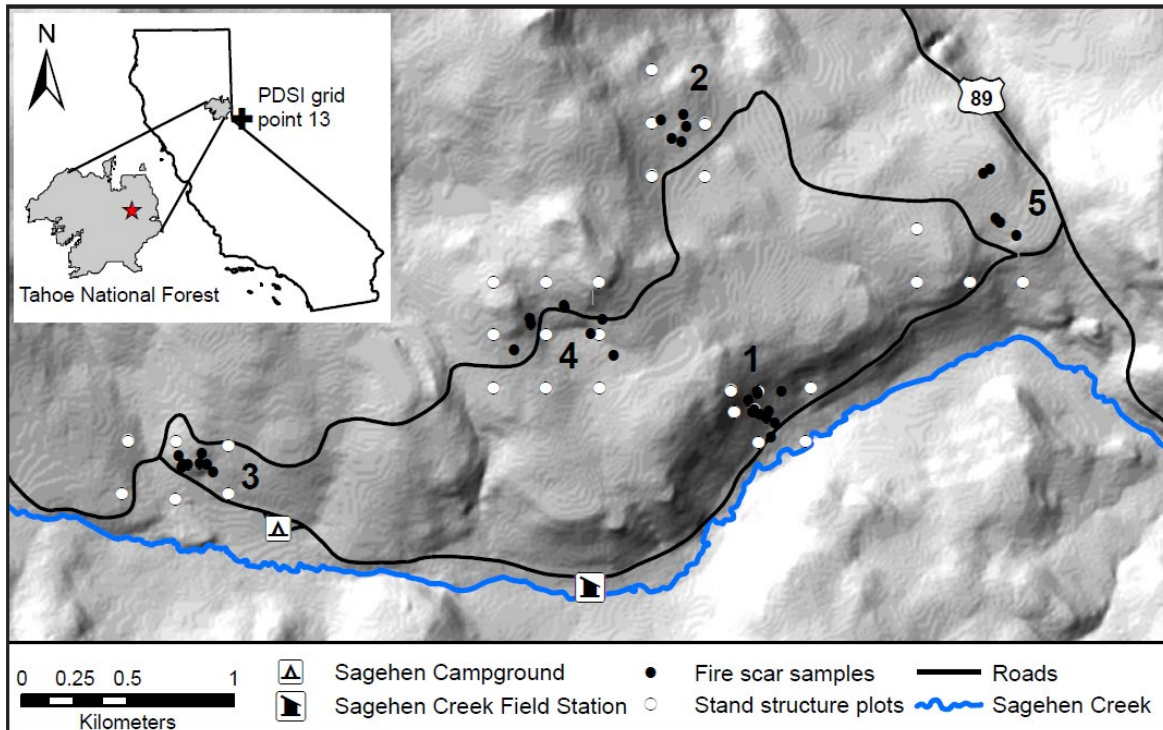


Figure 1. Fire scar samples (with cluster numbers) and vegetation plots for fire history study within Sagehen Experimental Forest, on the Tahoe National Forest in California.

- “Small frequent prescribed burns would best mimic the pre-settlement fire regime if fire is reintroduced into the ecosystem”
- “The loss of early earlywood fires during both the settlement and suppression periods is possibly due to a lack of Native American burning in Sagehen”



FIRE WATCH | U.S. FOREST SERVICE PRESCRIBED BURN NORTH OF TRUCKEE



Meadows at Sagehen Experimental Forest



Camas at Sagehen Meadow

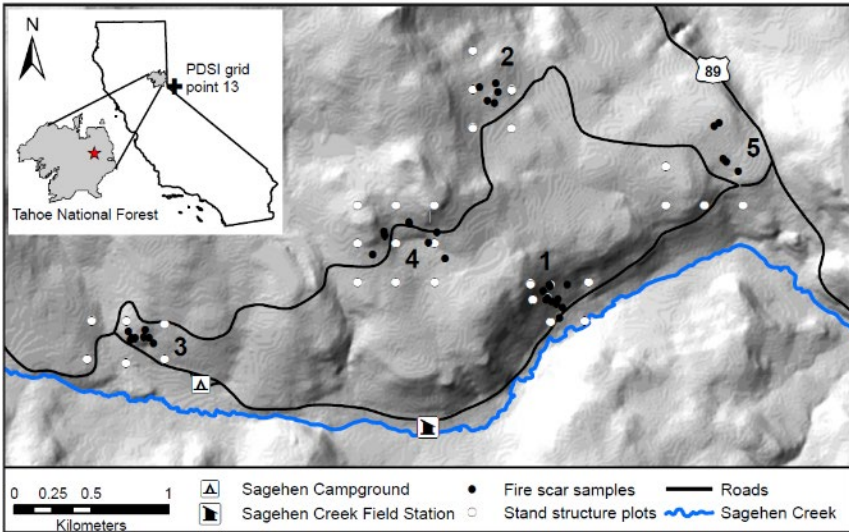
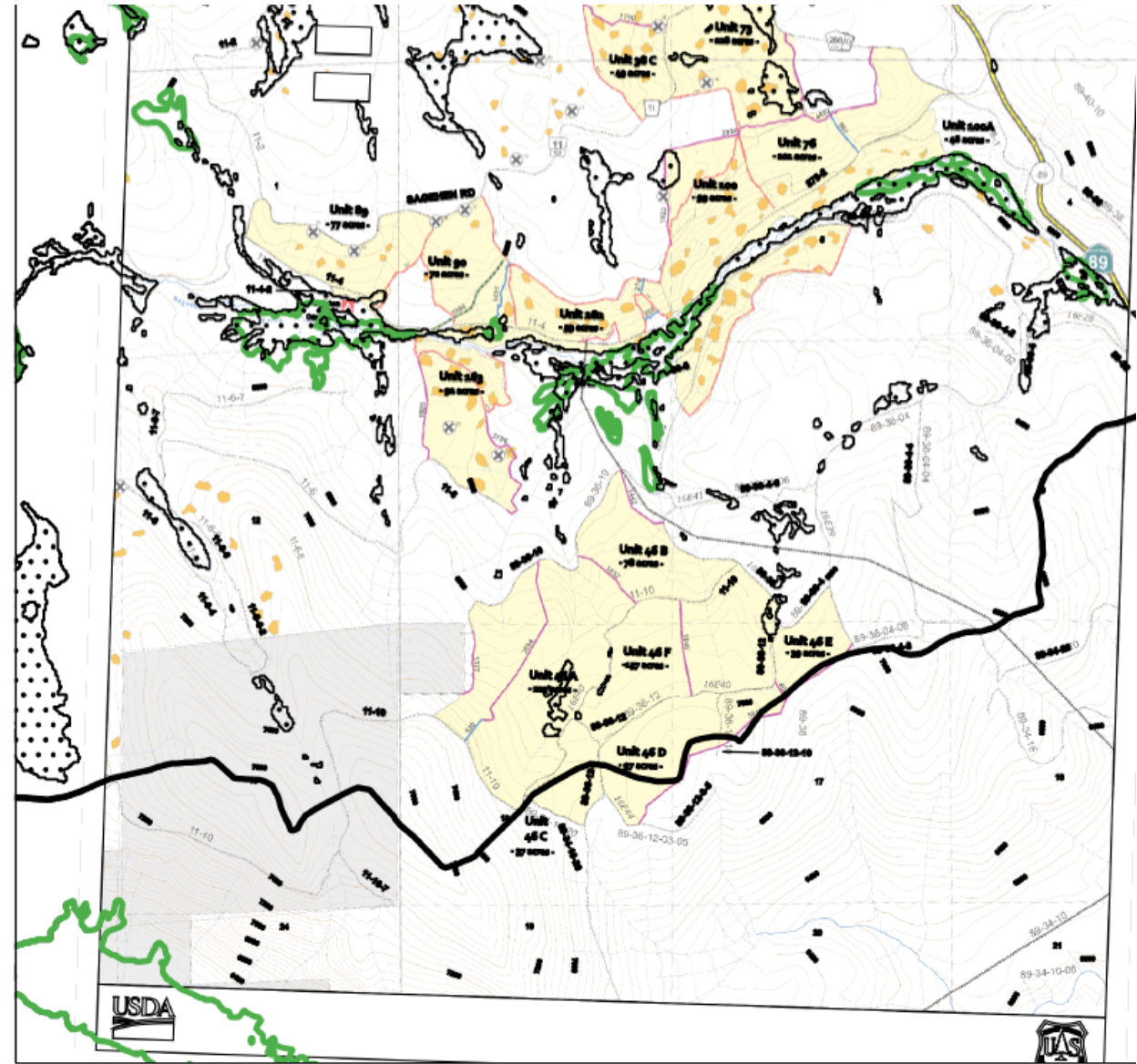


Figure 1. Fire scar samples (with cluster numbers) and vegetation plots for fire history study within Sagehen Experimental Forest, on the Tahoe National Forest in California.

→ “Lost Meadows” analysis by Pope and Cummings for Sagehen Ex. Forest



Restoring “Lost Meadows”



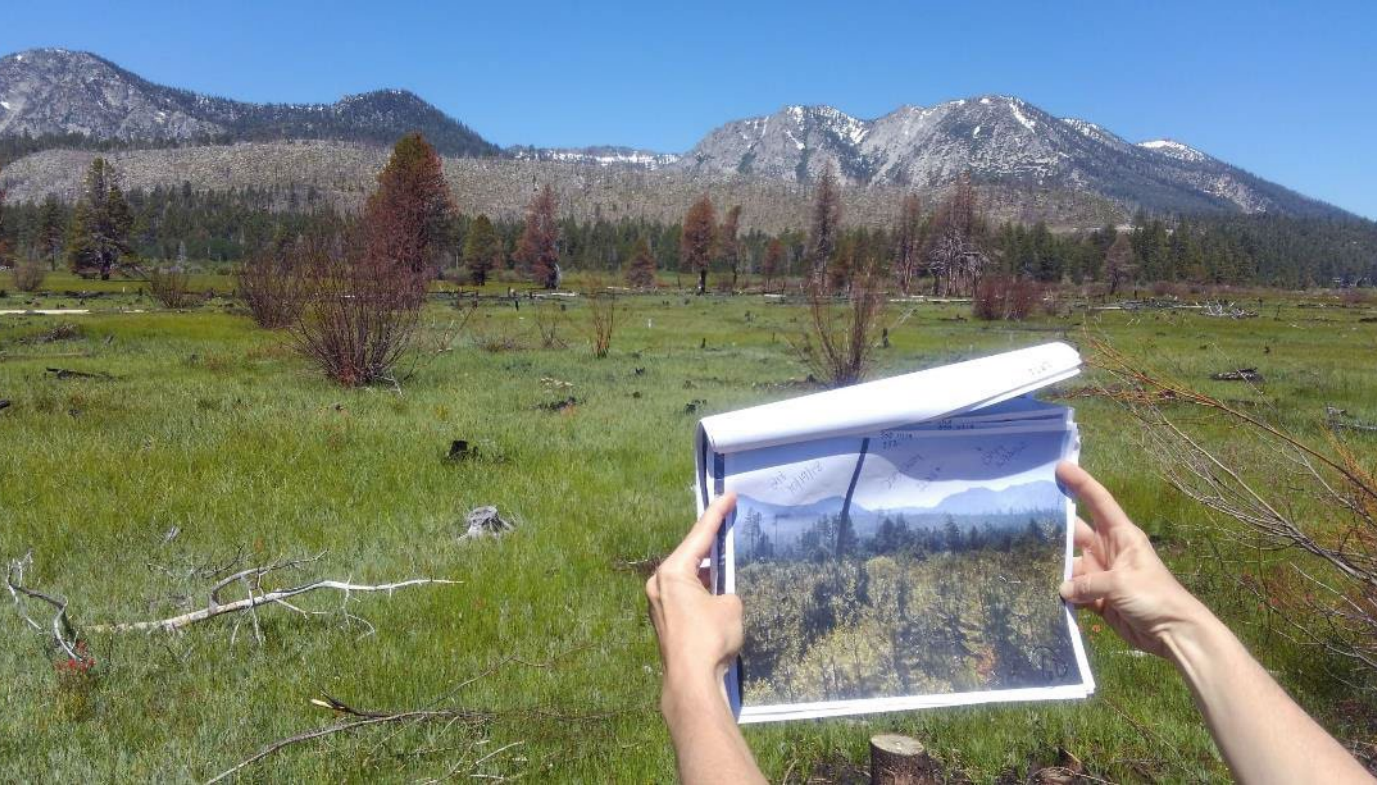
“Lost Meadows”
Projected past extent



Current

*Recovering the lost potential of meadows
to help mitigate challenges facing
California’s forests and water supply,*
Karen L. Pope* and Adam K. Cummings.
California Fish and Wildlife Journal 109:e3





Fire Regimes and Meadow Restoration

What are the effects of cutting trees and restoring frequent fire?
...on culturally important plant resources
...on nutrients
...on carbon



Berries



Camas



Bracken
fern



Metropolitan Museum of Art

Washoe basket bowl made about 1910 by Maggie Mayo James
from willow, redbud, and dyed bracken fern root



Willow

Examples of resources targeted for cultural burning
Untended plants are not generally usable

Ongoing efforts to support frequent fire, including cultural burning

- California A.B. 642 and Strategic plan calls for active engagement and partnering with California Native American tribes, tribal organizations, and cultural fire practitioners to expand the practice and understanding of cultural burnings

- Plans for Washoe-led TREN in Fall 2024

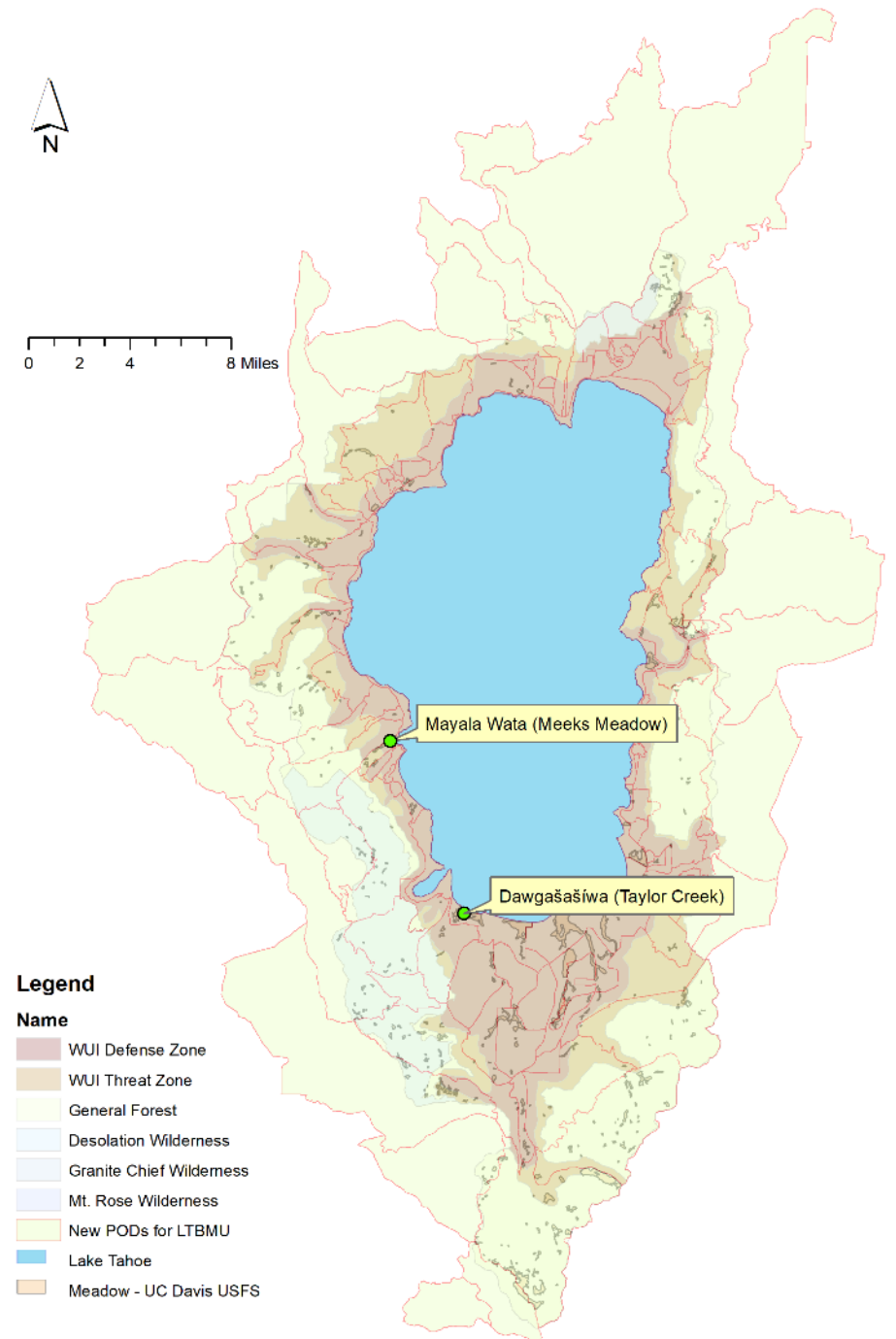


Indigenous Peoples Burning Network



Tribal engagement in wildfire planning (PODs)

- Recognizing areas of tribal importance in fire and forest management plans
- Coordinated response on managed wildfire and integration of Indigenous stewardship, including cultural burning
- Sustainable/respectful management of control line features/“fuel breaks”



Summary



Recent work:

Research on the need for restoring fire and Indigenous Stewardship practices
Lake Tahoe West landscape restoration



Opportunities:

Landscape fire planning
Meadow restoration using fire at Maʔyála Wàʔa and Sagehen
Washoe TRES



Questions:

How do we advance these efforts to restore fire and Indigenous stewardship?
What are the ecological and social effects of restoring fire?

For more information

Website:

<https://www.fs.usda.gov/research/about/people/jwlong>

Email: jonathan.w.long@usda.gov

[Evaluating pathways to social and ecological landscape resilience, part of a Special Issue in Ecology and Society: The Many Facets of Forest Resilience in the Lake Tahoe Basin, https://ecologyandsociety.org/feature/150/](#)

[Escaping social-ecological traps through tribal stewardship on national forest lands in the Pacific Northwest, United States of America. Ecology and Society 23\(2\).](#)

[Washoe Cultural Resources Vulnerability Assessment, Integrated Vulnerability Assessment of Climate Change in the Lake Tahoe Basin](#)



Small Group Questions



- Did anything stand out as new, surprising, or as an “a-ha moment?”
- What are the most pressing current issues for this topic?
- What are opportunities to advance science delivery?

Reports from Small Group Discussion



- Did anything stand out as new, surprising, or as an “a-ha moment?”
- What are the most pressing current issues for this topic?
- What are opportunities to advance science delivery?

THANK YOU! ṖuwaṖáṅawi



Please join us Friday to synthesize key themes and discuss how the Science Council can advance science delivery for healthy Tahoe systems!
