



## Lesson 2: Cultural Fire

### Examining Relationships with Fire

**Guiding Question:** How do Indigenous Californians, past and present, use fire?

#### Goals:

- Introduce students to cultural burning and the long-standing relationship between people and fire.
- Show some of the ways Indigenous Californians use fire to maintain safe and healthy ecosystems.

#### Objectives

Students will be able to:

- Describe Traditional Ecological Knowledge and its importance in their own words.
- Explain three or more uses of cultural fire in California.
- Reflect on and share their ideas about using fire today.

#### Materials and Preparation:

- Prepare PowerPoint slideshow for *Lesson 2: Cultural Fire*.
- Students will need their wildfire journals in class.

**Subjects:** Science, Writing, Speaking and Listening

**Duration:** 60 minutes

**Setting:** Classroom

#### Vocabulary:

Traditional Ecological Knowledge, Cultural Burn, Prescribed Burn, Fire Suppression

Standards:		
<b>NGSS</b>	Crosscutting Concepts	Cause and Effect Scale, Proportion, and Quantity Structure and Function Stability and Change
	Science and Engineering Practices	Obtaining, Evaluating, and Communicating Information
	Disciplinary Core Ideas	LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior
<b>Environmental Principles and Concepts</b>		Principle 1: People Depend on Natural Systems Principle 2: People Influence Natural Systems Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence

		Principle 5: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors
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### Lesson Overview:

This lesson is only an hour-long introduction to a complex topic, with much more to delve into. If you and your students are interested in learning more about cultural fire and want to extend the lesson, multiple resources are recommended at the end. You are also encouraged to participate in resources, talks, or events hosted by your local Indigenous groups. You may be able to make contact to learn more about cultural fire and Traditional Ecological Knowledge (TEK) through CSU Chico or the Chico Traditional Ecological Stewardship Program. “The Chico Traditional Ecological Stewardship Program introduces Native and non-Native local community members to Indigenous land management concepts and ecological stewardship practices. This forms a TEK-certified workforce who can perform much-needed ecosystem restoration, climate change adaptation, disaster recovery and wildfire mitigation work.”

An important topic that this lesson does not cover is the impacts of colonization on cultural burning practices. The ban on cultural burning, and negative impacts to Indigenous communities, has a substantial effect on the environmental challenges and rise in catastrophic wildfires we are experiencing today. To learn about this topic, and some of the events from the 1700s to today that has changed California’s fire regime, lesson *M.1.5 Fire History of the Oak Woodlands* (FireWorks: Northern California Oak Woodlands), is linked with the lesson extensions.

Around the world, Indigenous people have used fire since time immemorial to improve their environments and for cultural reasons. This lesson focuses on some of the uses of fire by Indigenous Californians, specifically those living in the oak woodland and the Sierra Nevada regions. Students will be introduced to cultural burns and the benefits of using frequent, low-intensity fire. The introduction of video one, *Living Traditions- Living Lands*, features TEK, or the Indigenous knowledge of local resources developed over thousands of years, by Indigenous educators and fire practitioners in the Chico area.

Tribes throughout California have unique relationships with fire, using it in different ways to produce desired outcomes for humans and ecosystem health. Some of the benefits of cultural burning discussed in the lesson include promoting desired habitats and species, increasing favored resources, altering plant structure for materials, and improving safety and travel. The second video, *Tending the Wild*, explores how cultural burning is being practiced today and what lessons it holds for the future of the forest. The video features two tribes, the North Fork

Mono Tribe, and the Cold Springs Rancheria of Mono Indians, who are working to bring fire back to the land.

At the end of the lesson, students reflect on viewpoints about fire and compare their views with what they learned about cultural fire. Students are encouraged to share with, “I used to think, now I think, I still have questions about”, prompts. Students then summarize their learning about cultural fire by making two presentation slides to submit in class.

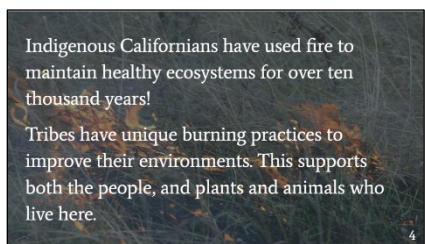
### Procedure:

Begin presentation slides for Lesson 2.



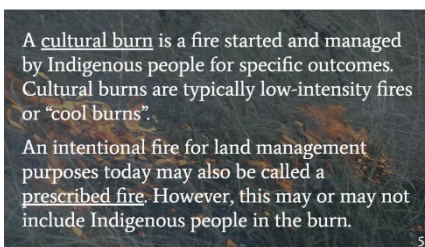
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The Northwestern Maidu were the earliest known residents of what is today, Butte County. Their descendants include the Tribes of: Berry Creek Rancheria of Maidu Indians, Enterprise Rancheria of Maidu Indians of California, KonKow Valley Band of Maidu, Mechoopda Indian Tribe of the Chico Rancheria, and Mooretown Rancheria of Maidu.



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How fire is applied and the desired outcomes, depend on factors like the area's topography, climate, season, species present, the area's fire history, and human needs. People and plant communities have co-evolved with fire in California.



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Cultural burns have less heat, less plant die-off, and the fire stays within people's control.



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What do you notice about this photo?  
What do you wonder about the scene?  
Does this picture reveal what might these people be thinking or feeling about fire?

(Photo: Alysha Beck/UC Davis)

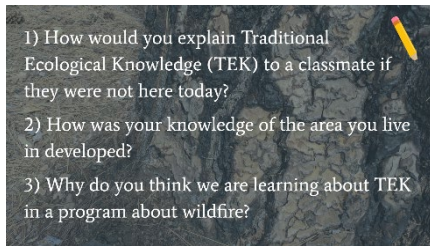
UC Davis professor of Native American studies Beth Rose Middleton Manning throws deergrass onto a burning pile as she and students in the "Keepers of the Flame" class take part in a cultural burn at the Tending and Gathering Garden at the Cache Creek Nature Preserve in Woodland.



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Traditional Ecological Knowledge (TEK) describes Indigenous knowledge of local resources developed over thousands of years. The first seven minutes (of this 27-minute video) introduces Traditional Ecological Knowledge within a Chico area context and peoples' personal connections with TEK. The video will automatically stop after seven minutes.

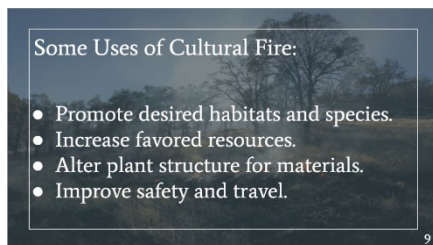
Link to video: [Traditional Ecological Knowledge](#)  
Living Traditions- Living Lands



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- 1) How would you explain Traditional Ecological Knowledge (TEK) to a classmate if they were not here today?
- 2) How was your knowledge of the area you live in developed?
- 3) Why do you think we are learning about TEK in a program about wildfire?

Journal reflection.



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#### Some Uses of Cultural Fire:

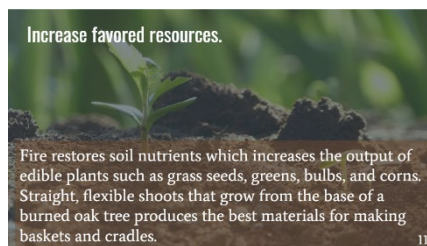
- Promote desired habitats and species.
- Increase favored resources.
- Alter plant structure for materials.
- Improve safety and travel.



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#### Promote desired habitats and species.

Frequent, low-intensity fire improves ecosystems by making patches of plants of different ages, sizes, and species. This creates a rich mixture of resources for food, clothing, tools, and medicine.



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#### Increase favored resources.

Fire restores soil nutrients which increases the output of edible plants such as grass seeds, greens, bulbs, and corns. Straight, flexible shoots that grow from the base of a burned oak tree produces the best materials for making baskets and cradles.



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#### Increase Acorn Harvest

The black oak's large, round acorns were a staple food source for the Maidu. Harvested acorns were dried, leached of tannins, ground into flour, and eaten as a mush or cooked into breads.

According to the Mechoopda Tribe, "an abundant annual crop of acorns might provide enough food for an entire year, and due to its hard shell, could often be stored for up to two years in time."

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Using fire to remove understory shrubs made collecting acorns easier once they fell to the ground. This also reduces the trees' competition for water. Burning helps oak trees by decreasing insect pests, disease, and undergrowth fuels that could carry damaging flames to the canopy. This gave trees the energy to produce a larger, and higher quality acorn batch.

Mechoopda Indian Tribe of the Chico Rancheria, Culture  
<https://www.mechoopda-nsn.gov/culture/>





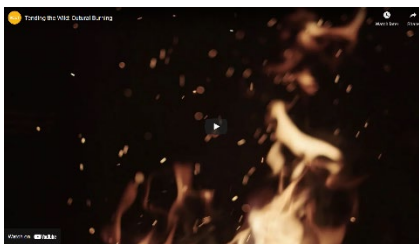
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Image: Finely coiled presentation bowl by Maidu weaver, Mary Kea'a'ala Azbill (1864-1932), made from sedge root, briar root, and willow shoots.



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Image: Miwok Woman Gathering  
A State of Change: Forgotten Landscapes of California  
Laura Cunningham

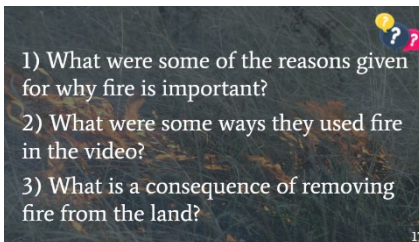


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Slide 15: Preview of video questions.

"In this video, we explore how cultural burning is being practiced today and what lessons it holds for the future of the forest. We visit the area just south of Yosemite National Park where two tribes are working to bring fire back to the land, the North Fork Mono Tribe and the Cold Springs Rancheria of Mono Indians."

Tending the Wild - 18-minute video from KCET-TV (2016)



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Cultural burns still happen locally in Butte County. This photo is of a cultural burn in the oak woodlands at the Big Chico Creek Ecological Reserve in 2015. Photo courtesy of Dr. Don Hankins.



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Environmental Principal and Concept #5: "Decisions affecting resources and natural systems are complex and involve many factors. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time."

The table on the next four slides show contrasting views of fire. Possible discussion of each point. What themes from today's lesson do students see represented in these views?


War on fire.	Work with the flow of natural processes.
Wildfire is destructive.	Wildfire is a necessary natural process.
Control wildfire on the landscape.	Learn to live with fire on fire-adapted landscapes.
Prevent and suppress fires.	Create fire-resilient human and natural communities.

20-23

Slide 23: Fire suppression is the act of putting out and stopping wildfire.

**WARNING:**

Intentional and accidental wildfires are extremely dangerous. Cultural and prescribed burns are practiced by experts with years of experience and training with fire. These fires are set under the right conditions, with permission, and with the proper training and equipment. **NEVER** intentionally start a wildfire or attempt a prescribed burn.



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Fire Safety Clarification: Do NOT start wildfires.

\*NEVER is referring to them as a young student. If they go on to be fire practitioners and go through the proper training, great!

Make sure this safety point is very clear with students before moving on. Some definitions to help with the distinctions:

A **wildfire** is an unplanned, unwanted, uncontrolled fire.

**Arson** is the criminal act of deliberately setting fire to property.


**Prescribed fire** is the controlled application of fire to the land for management purposes.

A **cultural burn** is fire set and managed by Indigenous People for ecological or cultural outcomes.

**Key Word Review** 🔑

- Cultural Burn
- Prescribed Fire
- Traditional Ecological Knowledge (TEK)
- Fire Suppression

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Final Discussion:

Do students have new thoughts about fire after the lesson? If not, do they recall any new thoughts after the first lesson about healthy forests?

### Assessment:

Students create two Google Slides to summarize their learning about cultural fire. Students can also use PowerPoint or another presentation program you are familiar with. Students can use photos, art, and information from the internet to support their ideas. They should include three or more ideas from the presentation slides, the videos, or the TEK sections of the Forest Health Guidebook (If you used it in lesson 1). Give 15-20 minutes for students to complete the activity and have them submit their slides.

**Evaluation:**

	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
<b>Presentation Slide(s) Summary</b>	Students create two slides that summarize their learning with three main ideas from the lesson's resources.	Students create one or two slides that summarize their learning with two main ideas from the lesson's resources.	Students create one slide that summarizes their learning with one main idea from the lesson's resources.

**Lesson Extension Recommendations and Supporting Resources**

FireWorks: Northern California Oak Woodlands  
Lesson: M.1.5 Fire History of the Oak Woodlands

Learn about some of the methods scientists use to build historic fire regimes, fire regimes of California's oak woodlands, and European settlers' impact on cultural burning practices.

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

Science Friday: How Indigenous Burning Practices Could Prevent Massive Wildfires  
09/25/2020 (17:26)

This segment is part of The State of Science, a series featuring science stories from public radio stations across the United States. This story, by Ezra David Romero, originally appeared on Capital Public Radio.

Listen here: <https://www.sciencefriday.com/segments/indigenous-fire-prevention/>

Explore: A History of California Wildfires  
Interactive fire map. Pre-1950-2019

<http://projects.caprario.org/california-fire-history/#5.56/38.529/-121.633>

Learn about the history and evolution of Smokey Bear.

How did the U.S. government influence the public's perception of fire?

How does this compare with cultural burning and Indigenous Peoples' views of fire?

Story of Smokey: <https://smokeybear.com/en/smokeys-history?decade=1940>

Learn more about the Chico Traditional Ecological Stewardship Program.

<https://tekchico.org/>

Read about the UC Davis students and faculty who partnered with regional tribes to take part in cultural burns in Northern California as part of a UC Davis Native American studies course. (Photo analysis is from this article. The article is above a 6<sup>th</sup>-grade reading level.)

#### RETHINKING WILDFIRE

Cultural Burning and the Art of Not Fighting Fire

<https://climatechange.ucdavis.edu/news/rethinking-wildfire/>

Learn about the Indigenous People's Burning Network and the Indigenous Tribes that are revitalizing their traditional fire practices today.

<http://www.conservationgateway.org/ConservationPractices/FireLandscapes/Pages/IPBN.aspx>