# Cooperative Restoration at Pinnacles National Park

Project partners meet at deergrass site to discuss goals

## Incorporating Traditional Ecological Knowledge into Resource Management

For thousands of years, the first peoples of California managed the landscape. Practices such as setting fires and tending desirable plants promoted a patchwork-mosaic of habitats and resources, providing the basis for California Indian material culture. When European settlers arrived in the late 18th century indigenous management practices were disrupted and California's native plants and people were changed forever. Today the descendants of California's first peoples are working to restore traditional knowledge, and Pinnacles National Park is a venue for this process. Pinnacles National Park is partnering with the Amah Mutsun Tribal Band and the UC Santa Cruz Arboretum on a cooperative restoration project to learn more about indigenous stewardship techniques, and to explore how traditional ecological knowledge might be used in resource management today.

## Restoring Plants, Restoring Process

An important cultural and ecological process was reignited in December, 2011, when tribal members gathered alongside fire crews and resource management staff to burn a two-acre stand of deergrass (*Muhlenbergia rigens*). California Indian people traditionally burned deergrass to clear away dead material and increase the production of flower stalks, which were highly valued in basket weaving. This was the first burn for cultural purposes conducted at Pinnacles National Park, and it marked a milestone achievement in the Amah Mutsun Tribal Band's ongoing work to revitalize their culture and restore traditional practices.

Prescribed burn in the deergrass, December 2011

Tribal members gather in spring to tend the white root sedge

## Tending the Land

Another groundbreaking accomplishment resulting from the cooperative restoration project is the reintroduction of traditional sedge tending at Pinnacles National Park. California Indian people manage white root sedge (*Carex barbarae*) by thinning and digging around plants to aerate and loosen soil, allowing the sedge rhizomes, which are also used in basket weaving, to grow long and straight. Every spring tribal members convene in a shady canyon under towering valley oaks to tend the sedge beds as their ancestors did. This activity improves the cultural resource condition of the white root sedge and allows tribal members to learn, practice, and pass on their traditional stewardship techniques.

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## Testing Traditional Management

In addition to supporting cultural practices, a primary goal of the cooperative restoration project is to restore the condition of culturally significant vegetation communities to a state inclusive of cultural management. To cope with the uncertainty of reintroducing traditional management to a very changed California landscape, and to take advantage of a valuable learning opportunity, project partners set up an experiment to test the effects of traditional management on the deergrass and white root sedge. Information on how the deergrass responded to burning and clipping, and how the white root sedge responded to traditional tending, was collected over multiple years. Vegetation community data and small mammal activity was also recorded pre- and post-treatment to measure the impact of burning, clipping, and tending on surrounding flora and fauna.

Experimental block in deergrass with burn, clip and control treatments visible

## A Unique Collaboration

Tribal members, park staff and UC Santa Cruz Arboretum volunteers collect data

This experimental project is unique in that it incorporates two distinct knowledge systems and welcomes an indigenous perspective in park research. From the beginning, tribal partners participated in establishing the research questions and goals of the project. California Indian basket weaving practitioners were consulted to evaluate the quality of the white root sedge and the deergrass as basket weaving materials. Traditional ecological knowledge helped define the desired future conditions for the two species. Tribal members, and especially tribal youth, regularly participated in collecting data and implementing treatments.

In recognition of the many hours tribal members contributed to this and other projects at Pinnacles National Park, the Amah Mutsun Tribal Band was awarded the National Park Service Hartzog Award for Outstanding Group Volunteer Service in 2012.

## Re-learning Through Partnership

The cooperative restoration project at Pinnacles National Park is part of larger efforts by the Amah Mutsun Tribal Band and the Chalón Tribe to restore traditional knowledge and regain their role as environmental stewards of their ancestral lands. Knowledge gained at Pinnacles will contribute to conservation activities of the newly formed Amah Mutsun Land Trust. This project also supports development of ethnobotanical collections and educational opportunities at the Amah Mutsun Relearning Program at the UC Santa Cruz Arboretum.

Collaboration with tribal partners has opened the door for learning valuable information about how California's first peoples shaped the landscape. Some additional outcomes of the park-tribe partnership include:

- Tribal member participation in communicating California Indian culture and history to park visitors and staff.
- A multi-disciplinary Interagency Joint Fire Science funded project to study the role of indigenous burning at Pinnacles and other locations in 'Ohlone' territory.
- Archaeological surveys conducted by the UC Berkeley archaeology field school around the areas where the deergrass and white root sedge occur.
- A memorandum of understanding between Pinnacles National Park and the Amah Mutsun Tribal Band, marking the first formal relationship between Pinnacles and a tribal entity.

Amah Mutsun Tribal Band Chairman Valentin Lopez and Pinnacles Superintendent Karen Beppler-Dorn sign MOU

**For more information, contact:** Brent Johnson, Ecologist, Pinnacles National Park. ph: 831-389-4486 ext. 259 email: brent_johnson@nps.gov