

Landscape Culture

a newsletter for cultural landscape stewards

Cultural Landscapes Program

Winter 2021

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Local Native American Crews Prune Historic Yosemite Valley Orchards in November During COVID-19 Pandemic

In November of 2020 a group of regional Native Americans employed by the Calaveras Healthy Impact Products Solutions (CHIPS) and led by NPS horticulturist Keith Park pruned historic apple trees in Curry and Lamon Orchard in Yosemite National Park. The crew faced the additional challenges of working during the COVID-19 pandemic as well as through the first snowstorm of the season which brought several inches of snow mid-way through the project. The CHIPS crew in general is composed of groups of Native Americans from different regional tribes throughout the Sierra Nevada range and beyond, including the Paiute, Ahwahnee, Maidu, Miwok, Shoshone, Washoe, and Yaqui tribes.



CHIPS crew follow social distancing protocols in morning work briefing (NPS).

Lamon and Curry Orchards are located in the heart of Yosemite Valley. James Lamon, the first year-round European American settler in the valley, planted the orchards in 1859 and 1860. In 1899, David and Jennie Curry leased the Curry Orchard and adjacent land

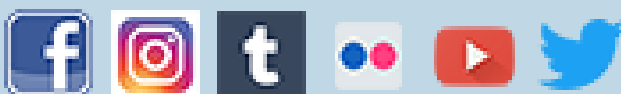
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About Us

Learn more about [cultural landscapes in the National Park System.](#)

Learn more about the [organizational management of NPS cultural landscapes.](#)

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to establish a tent camp which became Camp Curry. In the late 1920s the Curry Orchard was transformed into a parking lot, but the majority of fruit trees were retained. Lamon Orchard remains undeveloped. The orchard trees have achieved exceptional longevity due to protection from development, seedling rootstock, and beneficial hydrology. The historically important orchards are the largest post-Gold Rush era (1850s-1870s) orchards in the state of California and the largest orchards from the 1850s-1860s within the National Park System. The Lamon Orchard contains 18 heirloom cultivars including six rare cultivars only found in Yosemite. While the Curry Orchard contains 21 heirloom cultivars including five rare cultivars only found in Yosemite.



CHIPS crew gathers debris after pruning historic apple tree in Curry Orchard (NPS).

Prior to this work, the majority of historic trees in both orchards were in poor condition due to a lack of maintenance, bear damage, soil compaction, and old age. In November the CHIPS crew used orchard ladders and pole saws to remove deadwood from over 70 apple trees. The deadwood removal will enhance tree health by reducing branch breakage and preventing rot. In addition, 45 trees within the Curry Orchard were mulched in order to reduce drought stress and soil compaction and add organic material and nutrients to the soil. Encroaching vegetation up to 12 inches in diameter was removed adjacent to the historic trees to reduce competition and prevent overshadowing.

All of this work was completed during the COVID-19 pandemic and thus the team implemented extra precautions during fieldwork. Members of each tribal affiliation generally congregated within their own groups to minimize unnecessary interactions, and work was sufficiently organized to allow for groups of people

to maintain as much social distancing as possible. NPS staff followed county travel restrictions. In addition staff wore masks, hand sanitizer was available, and tools were not shared.



CHIPS crew prunes historic apple tree in Curry Orchard (NPS).

Park housing within the valley was non-existent due to park requirements for social distancing within buildings, which meant some CHIPS crew members that didn't live within a reasonable driving distance had to camp at the Yellow Pines volunteer campground located near the western portion of the valley. Though this provided an easy daily commute to and from the orchard work site, it became challenging when the first storm of the season dropped night time temperatures to 19 degrees F and brought several inches of snow! Despite these challenges, or perhaps because of them, it made for a memorable work experience and the crew made great progress to improve the condition of the historic orchards.

Employee Spotlight



Name: Brian Spang

Role: Maintenance Worker

How long have you worked for the NPS?

I began working at Fort Vancouver NHS in mid-February 2019. Prior to my current position, I worked for 11 years with the trails program at Olympic National Park.

What is your background?

I have a B.S. in Environmental Geology and Anthropology and a M.S. in Environmental Studies.

Growing up...I often spent time around the house helping my parents with the landscaping. The plants I remember most...include: lilacs because they smelled good, forsythia because it provided a fresh change from the winter grey, marigold because I would gather the seeds, a crimson maple because it was easy to climb, and a crabapple which supported the tire swing.

During college, I had an internship with Phipps Botanical Gardens in Pittsburgh. That summer I spent a lot of time learning about trees and shrubs, botanical diseases, and proper plant care.

I became involved with historic preservation while performing maintenance on backcountry structures at Olympic National Park. It was fun to work on the old cabins and shelters using the same tools and techniques that had been used during original construction. There are places in the park where you can find apple orchards that were planted by homesteaders and open fields that were cleared for agriculture.

What project are you working on?

We recently finished a much-needed pruning and thinning project at the Columbia River waterfront area of the park. We put in many hours at this location removing weeds, cleaning up trash and opening up views of the river corridor. Another enjoyable project for me is keeping up with maintenance of the orchard. Prior to working at FOVA I had little experience with fruit trees, so it's been a good experience as I've learned of the various nuances in caring for a healthy orchard.

What is your favorite job?

I am pretty good with chainsaw work. I like to think of cutting as a puzzle. It is a fun challenge to figure out how to dismantle a tree while balancing safety and efficiency. I recently finished a training program for chainsaw instruction and certification. So now, I will be able to help share my knowledge with other NPS workers.

What was your favorite experience in the park?

One afternoon, early summer, I was mowing a field. This one in preparation for Independence Day. The heavy field grass was a fire hazard for the annual fireworks display. As I was mowing, I noticed a kestrel perched atop one of the lone trees in the field. Shortly thereafter, I saw it hovering in the air before diving on a vole and carrying it away. For the next couple hours I watched three kestrels take turns hunting voles in the field. It was pretty neat.



Formal military landscape at East Barracks. One of the areas that Brian helps to maintain (NPS).

How To Conduct A Tree Condition Assessment

One month into my internship with the Park Historic Structures and Cultural Landscapes Program, I assisted Historical Landscape Architect Corinna Welzenbach with a historic tree condition assessment project at Yosemite National Park. I didn't feel particularly qualified for the task, considering that my background is in library studies and I know very little about trees. Luckily, the [Tree & Shrub Condition Assessment Form](#) systematizes that process, making it so that anyone with some field training—even me—can perform an assessment.

Assessment Methods

Trees need to be assessed in order to determine their health, vigor, structural integrity, to document existing conditions and potential hazards, and to identify work needed. In Yosemite, we used a digital version of the form in the Survey123 app to record our data, which sped up the process. We were working from an existing dataset, which already had rough geolocation data from earlier surveys. After identifying that we were assessing the correct tree, the first step was to get the D.B.H. (diameter at breast height) of the tree. We used diameter tape to get this information by wrapping the tape around the trunk of the tree at the surveyor's breast height, or in the case of fruit trees, at the widest part of the trunk. The diameter can provide information related to the relative age when compared to trees of the same species growing in the same environment.

The Tree Condition Assessment Form works by dividing the tree into five zones, each of which is then assessed for common signs of deterioration or damage.

Zone 1

Starting at the bottom of the tree is zone #1, the root system, which begins at the base of the trunk and extends out to the dripline. Primarily, we're looking for disturbances in the soil, such as compaction, exposed roots, animal burrows, paving, or erosion.



Exposed tree roots, an issue in Zone #1 (<https://hort.ifas.ufl.edu/woody/remove-circling.shtml>).

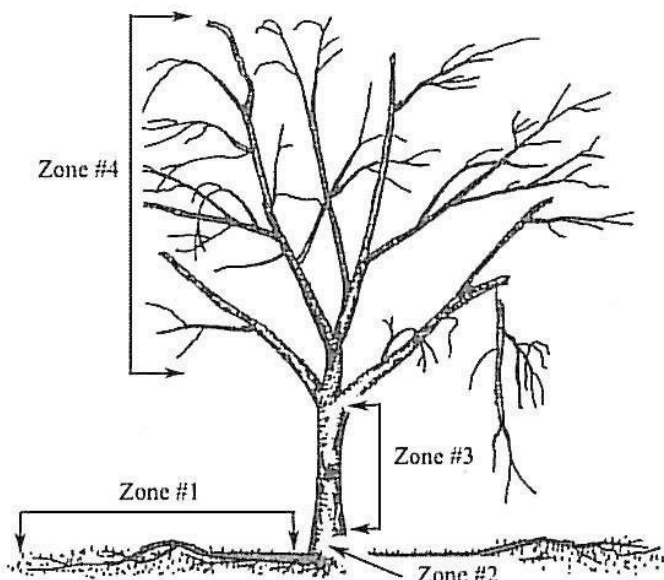
Zone 2

Zone #2 is the trunk flare, which is where the main roots attach to the trunk of the tree. Common problems include roots girdling the trunk flare, a lack of trunk flare due to fill soil, or damage from insects, disease, and fungal fruiting bodies.



Tree with no trunk flare due to fill soil (https://www.canr.msu.edu/news/planting_a_tree_successfully_requires_the_correct_planting_depth).

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Graphic from the Tree Condition Assessment Zone, showing the four zones of the tree to be assessed. Zone #5 is space above the canopy (NPS).



Root girdling the trunk flare of tree (<https://hort.ifas.ufl.edu/woody/remove-circling.shtml>).

Zone 3

Zone #3 is the main trunk. As in zone #2, we're looking for signs of insects, disease, and fungal fruiting bodies. Here we start to consider the larger structural concerns of the tree, such as a prominent lean, cracks, splits or a cavity. These issues can impact the integrity of the tree and, if unaddressed, lead to tree death.

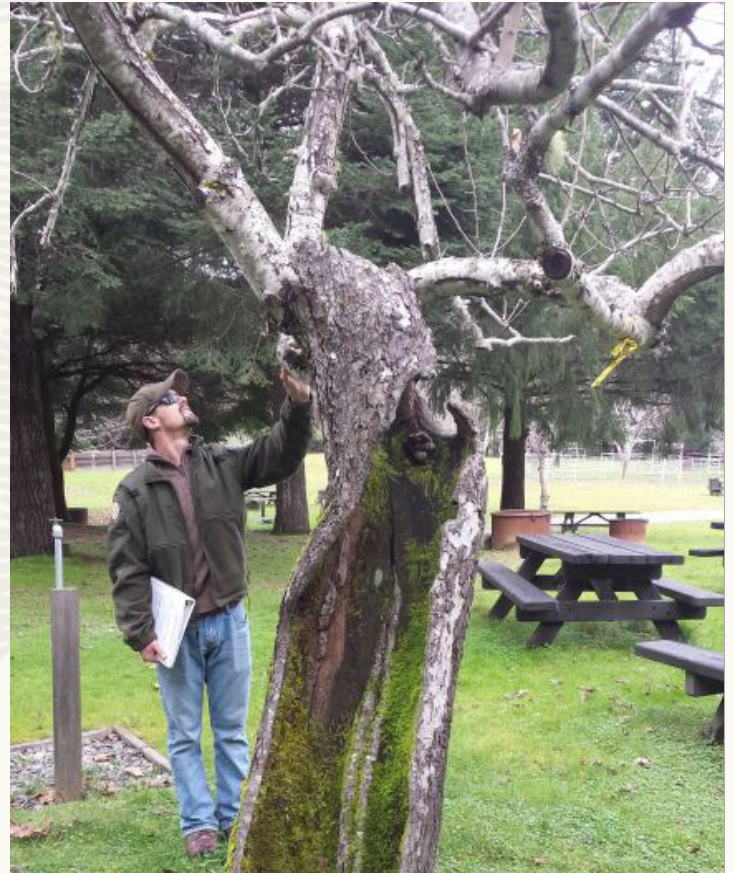


Tree with massive cavity in the main trunk, causing structural instability ([https://commons.wikimedia.org/wiki/File:Holey_Tree_\(77211164\).jpg](https://commons.wikimedia.org/wiki/File:Holey_Tree_(77211164).jpg)).

Zone 4

Zone #4 is the canopy of the tree, including the scaffold branches, and foliage. Here, we're looking for all the usual signs of deterioration with some additional concerns, unbalanced branches, deadwood, discolored or misshapen foliage or poor branch structure. Identifying deadwood is easily done during the growing season, as deadwood will not have any foliage growing from it. However, it can be easier to get a picture of the

branch structure during the dormant season, as foliage won't obscure the branches (scratch a dormant branch to test whether it is alive - if so, green tissue is exposed). The trick to assessing branch structure is to look up at the crown from the base of the tree, imagine the spokes of a wheel as the ideal branch structure, and identify deficits in the existing branch structure. The percent live canopy is also assessed in this zone by comparing the amount of live branches in the tree being assessed to what would be present on a healthy tree.



Visual inspection of historic tree (NPS).

Zone 5

Zone #5 is above the canopy, which includes other vegetation, adjacent buildings, or infrastructure. Basically, we're looking for overshadowing, overcrowding, and potential issues as the tree continues to grow. Overshading can be a large problem in trees (such as orchard trees) that thrive in full sun.

Once all the zones have been assessed individually, a general condition rating needs to be given, from excellent to dead or at-risk. The general condition can be compared across trees and over time. Finally, photographs of the whole tree and condition defects are taken to provide a full visual of tree character.

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Full tree condition assessments should be performed every 3 to 5 years. The condition assessments can be used to prioritize maintenance projects or develop a treatment plan to address common tree deficiencies.

After spending a week in Yosemite assessing trees in this systematic process, I came away with a new appreciation for and perspective on trees. I understand now that they're not just passive decorative objects, but living things that need to be maintained with care. The Tree Condition Assessment Form—with field training and guidance from experts—allows relative novices to participate in the preservation process, at once enriching their appreciation of the field and providing a contribution to the practice.



Jef Wilson is an Information Specialist Intern with the Park Historic Structures and Cultural Landscapes Program. He holds a Master of Library and Information Studies degree from the University of Oklahoma.



Overshaded tree, receiving insufficient sunlight due to tall neighboring growth (NPS).

Announcements & Publications

Seven Cultural Landscape Reports completed in 2020 are available on IRMA:

- » [Castillo de San Marcos and Fort Matanzas: Cultural Landscape Report, Castillo de San Marcos and Fort Matanzas National Monuments](#)
- » [Fort Frederica National Monument Cultural Landscape Report](#)
- » [Hensley Settlement Cultural Landscape Report, Cumberland Gap National Historical Park](#)
- » [Kalaupapa and Kalawao Settlements Cultural Landscape Report, Kalaupapa National Historical Park, Volume I and Volume II](#)
- » [Martin Luther King, Jr. National Historical Park Cultural Landscape Report](#)
- » [Plains High School Cultural Landscape Report, Jimmy Carter National Historic Site](#)
- » [Prairie Creek Fish Hatchery Historic District Cultural Landscape Report, Redwood National Park](#)

Recently published:

- » In [Requiem for the 1820s Fort Vancouver Apple Tree, and a New Dawn](#) park managers report on the oldest cultivated apple tree on the west coast that died in June of 2020.
- » [Preservation Profiles](#), a podcast from National Preservation Institute, highlights interviews with a diverse group of inspiring preservation professionals.
- » The USDA Rocky Mountain Research Station published a Science You Can Use Bulletin entitled, [Is Mastication Right for Your Site? Science-Based Decision Trees for Forest Managers](#).

Tool of the Moment: Tripod Ladder

Tripod ladders are essential equipment for working on tall vegetation. This ladder, which features a three-leg design, is specifically suited for working within a tree's canopy on uneven and sloping terrain. A tripod ladder lets you make eye contact with the wood you're pruning, to achieve the best quality cut.



Typical tripod ladder design with flared legs and pole (OSHA).

Design, Function, and Benefits

The ladder's three points of ground contact and flared leg design maintain excellent stability on soft and sloping surfaces. The single third leg can be threaded through a plant's branches to access the interior canopy. Tripod ladders range in height from 6' to 18' in height, and are relatively lightweight. They can be rented from equipment rental companies or purchased from landscape equipment suppliers.

How to Use a Tripod Ladder

Be sure to plant each support firmly into the ground, especially when working on uneven terrain. Never use a tripod ladder on paved surfaces, their feet are designed for soft ground. When working on sloped terrain, always position the single pole uphill and check that the ladder rungs are level. Tripod ladders are not designed for leaning and should only be used freestanding. Though tripod ladders can be used on sloped terrain, steep slopes may be hazardous. Always maintain a safe angle of 60-75 degrees between the ladder rails and

the pole. Non-slip soles and heeled boots are essential to reduce the risk of slipping off the rungs.

Tripod Ladder Safety

Every year, field workers suffer from preventable ladder-related injuries including falls, sprains, fractures, strains, and concussions. For complete information on the safe use of tripod orchard ladders consult this [OSHA Agricultural Safety Fact Sheet](#).

- » Always face the ladder when working;
- » Do not step above the red rung or exceed the ladder's labeled load capacity;
- » Keep both feet on the ladder when pruning to maintain your balance and don't overreach;
- » Regularly inspect the ladder for damage or wear; do not use a broken ladder;
- » Wear appropriate PPE—hard hat, safety eye-wear, gloves, heeled boots, non-loose fitting clothing;
- » Do not use tripod ladders on hard or slippery surfaces or during inclement weather;
- » Be aware of the presence of utility lines when working.



For historic orchard maintenance at Fort Vancouver NHS, tripod ladders are used to safely perform pruning work (NPS).

Video Corner

Park Cultural Landscapes Program (PCLP) – Introduction to Preservation Horticulture

In this newly released video series created by the PCLP, NPS arborist Keith Park demonstrates best-practices for NPS grounds staff involved in the maintenance of historic vegetation in national parks. These videos introduce the goals of historic preservation and the tools and skills needed to perform a type of pruning called cleaning. Check back to the [PCLP YouTube](#) channel and the [Common Learning Portal: Trades Alive](#) page for future additions.



Science of Agriculture – Cation Exchange

Check out the [Science of Agriculture](#) for many videos related to the study of agriculture. This video about Cation Exchange explains the science behind soil—how soil type and the charge of certain chemicals can affect the growth and nutrients available to vegetation in parks.



Upcoming Training Opportunities

International Society of Arboriculture (Pacific Northwest)

[Assisted Tree Migration: An Adaptive Management Strategy for a Rapidly Changing Climate](#)

Virtual

January 29, 2021, 8am PT

[COVID-19 & Arboriculture](#)

Virtual

February 12, 2021, 12pm PT

The Morton Arboretum

[Chicago Wilderness Prescription Burn Crew Training](#)

February 25, 2021, 12pm CT, self-paced online

March 4-5, 2021, 9am-3pm CT, live virtual sessions

Wageningen University & Research

[Soil4Life: Sustainable Soil Management](#)

Virtual

January to June 2021

8-10 hours per week for 7 weeks

National Preservation Institute

NPI launches [online training courses](#) in historic preservation and cultural resource management.

Virtual

Self-paced