

LANDSCAPE *culture*

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Orchard Rehabilitation Planting at Whiskeytown National Recreation Area

In November 2021 staff from Whiskeytown National Recreation Area (WHIS), John Muir National Historic Site (JOMU), and SMART Workforce Center in Redding, California met at the Tower House Historic District to re-establish an apple orchard. The rehabilitated orchard was planted in an area called the Back Field that was once home to an expansive fruit orchard. An [Interim Orchard Management Plan](#) was completed for the Tower House Historic District in 2016. In preparation for future orchard treatments, the park also completed genetic testing and phenotypic identification on the fruit trees. However, the over-200,000 acre Carr Fire burned vast portions of the park in 2018, including all of the four historic orchard areas within the Tower House Historic District. The historic Camden House itself was saved, but many of the old fruit trees dating to the late 19th century were lost.



Glendee Ane Osborne, WHIS Cultural Resource Program Manager, holds a tree to be planted (NPS).

About Us

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

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

Park Cultural Landscapes Program [sharepoint](#).

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After the Carr Fire, in an effort to conserve the remaining old fruit trees and their genetics, cultural resource staff at WHIS enlisted the help of the Humboldt Cider Company and Friends of Redwood Acres to take cuttings and propagate these trees through grafting. Grafting preserves the exact genetics of the parent tree by combining rootstock with cuttings from the parent tree. Cuttings from about 30 remaining apple trees from the Camden House site were grafted to historically appropriate rootstock and planted in a nursery in Eureka.



Keith Park from JOMU prepares a new orchard tree for planting (NPS).



NPS staff completes the planting of a new orchard tree at WHIS (NPS).

Many of these old trees represent varieties of apples that are either rare or difficult to find commercially. Therefore, cloning them by grafting is the best (and sometimes only) means of ensuring that the future orchards within the Tower House Historic District at WHIS are as historically accurate as possible. In November 2021, 50 of the grafted trees were carefully dug up and transported back to WHIS to be replanted in the Back Field orchard, conserving valuable heirloom varieties of apples in a location that is also historically accurate.

To ensure that the new orchard would survive the pressures of wildlife browsing, the WHIS Trails Crew installed a rectangular 8-foot tall fence around the orchard to protect the trees and exclude deer and bears. In November, the tree locations were flagged at regular intervals, similar to historic spacing. Then, the crew laid out irrigation lines and emitters. To irrigate the new trees, the irrigation system will be connected to an existing historic water tank and spring system. A new water tank and pump system will also be installed to provide additional water storage during drought conditions and reduce or eliminate the need for hand watering. After the trees were planted, wooden stakes were also installed at each tree to stabilize them and prevent wind from pushing them over. WHIS staff supplied approximately 100 cubic yards of mulch to the site and the park Equipment Operator moved the mulch to each tree using a skid-steer. The mulch will conserve soil moisture for the young trees and reduce weed competition within the root zones during their establishment phase. Lastly, each new tree received a coat of white latex paint to prevent sunscald.

“The successful grafting and transplanting of the apple trees represent another great leap forward for both the national recreation area and the local community,” notes Park Superintendent Josh Hoines.

As devastating as the Carr Fire was to the park, having the existing documentation of the orchards as well as the support and interest of local groups was invaluable for this project. Knowing important details, such as the exact types of fruit grown historically, in what locations, and how far apart, enabled the park to recreate as accurately as possible the historic character of the orchard. Once the historic fruit trees are well-established, the orchard will be open to the public.

Some fun facts about the orchard restoration project include the following:

- » Mulch for the trees was locally sourced – it came from the removal of hazard trees within the Oak Bottom area of the park.
- » Water for the trees is also locally sourced – it will come from an on-site spring, the same spring that has been a reliable and steady water source for Tower House orchard since the 1850s.
- » The historic apple trees are not your normal Fujis and Granny Smiths. Rather, the varieties include Snow Apple, York Imperial, Carolina Red June, Rosebrook Gravenstein, and Sheepnose.
- » The Tower House Historic District is named after early Shasta County businessman Levi Tower, who grew a robust and prize-winning fruit orchard on the tract of land beginning in the 1850s. After Tower died in 1865, his best friend and business partner, Charles Camden, took over orchard management. It is likely that day-to-day orchard labor during this era involved combinations of Chinese immigrants, Native Americans, and new arrivals from the eastern United States.

To learn more about the history of the orchard: <https://tinyurl.com/4xZR8SRU>.



NPS staff install posts for a fence at the WHIS Back Field orchard (NPS).



Fencing was installed to prevent wildlife from damaging new orchard trees (NPS).

Mulching Leaves into the Lawn

As a landscape worker, you may dread fall because of the arduous task of blowing or raking leaves and removing them from the landscape. This process can go on for a few months as leaves continue to drop. You may be happy to know that there is an alternative! In many cases, leaves on the top of turf can be incorporated into the landscape using a mulching mower.

How it works

When you drive a mower over leaves that have fallen on turf, a mulching mower chops leaves into tiny pieces. The pieces of leaves incorporate into the turf as mulch, eventually decomposing.

Benefits

In addition to saving time, this process will improve the environment for soil microbes and decrease future weed germination by covering bare patches. The additional organic matter will also improve soil water retention and over time less fertilizer will be required.

Steps

1. Early in the fall, before the leaves drop, work to improve turf density by mowing turf slightly shorter and more frequently.
2. After leaves have fallen, remove sticks and other debris besides leaves.
3. Mow before leaves become too wet or compacted with rain. Begin by raising your mower deck. Mow with a mulching mower one or two passes. You can mulch a maximum of six inches of leaves at a time, but mowing a smaller amount under four inches will be more manageable and require fewer passes. In areas under trees with more leaf potential, mow more frequently. By mowing weekly, you can limit the accumulation of leaf build up. Note: Leaf pieces will still be visible after mowing but will soon integrate into the turf. This may not be appropriate for the highest aesthetic and functioning categories of turf (S1 Lawn Turf and S2 Sports Turf).
4. Areas of turf with leaves over 6" deep can also be mowed with multiple passes. The shredded leaves can be bagged in the mower attachment and spread on landscape beds as mulch.

Watch these videos for demonstrations of leaf mulching:

- » [Oregon Gator Blades Mulching Fall Leaves](#)
- » [Leave Leaves Alone Demonstration Vide](#)



Leaf mulching before and after ([Mulching Fall Leaves](#)).

Equipment

Use [Gator Mulching Blades](#) or [Dual Blades](#) on your mower. Gator blades keep the leaves in the deck of the mower longer to chop them into finer pieces. Dual blades make multiple cuts with a similar result. Ensure that mowing blades are sharp. Blades are not that expensive and getting new ones will help with mulching.



Teeth on the Gator blade direct air flow under the deck so leaf pieces are chopped up more than once ([Green Dealer](#)).

Try It Out

Although this may be a new practice for your park, mulching leaves into turf is tried and tested by [university research](#). Try it out and see how it improves turf health and reduces leaf collection labor needs in your maintained landscapes.

Employee Spotlight



Anna de Cordova holding a tray of seedlings (NPS).

Name: Anna de Cordova

Position: Horticulturist

Park: Roosevelt Vanderbilt National Historic Site (ROVA)

How long have you worked for the NPS?

10 years

What is your background?

I have worked in horticulture for over 30 years. My background includes public garden and arboretum horticulture, Extension Education for Commercial Horticulturists (Cornell Extension) and historic and estate horticulture. Roosevelt Vanderbilt NHS is my first National Park.

What is your favorite part of your job?

I don't have a single favorite aspect of my work, but some of the things I most enjoy are considering nature in my daily work: acknowledging it, respecting it and negotiating with it. I love the people in my field and the inspiration I get from others' work and interests. Plant people are the best! In our park, it is also a gift to work with incredible volunteers. We are rich in talent in all of our garden volunteer groups. Their dedication and investment in our park put us in a

completely different level of horticulture than what could be accomplished with staff alone. We also do a lot of education in our horticulture program and, while the pandemic has limited us recently, I love to see high school and college students becoming interested in this field through our hands on educational programs.

What project are you working on?

I have a lot of simultaneous projects because our park has significant horticulture in each interpreted property. Right now, we are focused on an upcoming restoration of the Rose Garden and Gravesite at the Home of Franklin Roosevelt which will address the typical ravages of time on a manicured landscape – garden grading, edging, turf and paths need major attention. Next door to this project, at the Beatrix Farrand Garden at Bellefield we are planning for the establishment of a Wild Garden “shroud” to surround Farrand’s walled garden. We also continue to advance the work on the Roosevelt Home vegetable garden which was reinstated in 2016 as an NPS Centennial Project. The Roosevelt’s original garden was converted to the site’s main visitor parking lot in 1948. After 5 years of soil improvement, we are now able to reintroduce perennial crops like grapes and berries. The structures and space they require will restore a lot of character to the garden. At Val Kill, we are working collaboratively with all departments in our park to envision new and expanded interpretation of Eleanor Roosevelt, and we are setting up a historic tree propagation program for all of the park properties at the Roosevelt Greenhouse and nursery area.

What was your favorite experience in the park?

I love it when horticulture is the reason that science, history and art combine to provide the public with a meaningful experience in our park. Most of the time, I don't even see it happen, but, when I do catch the moments in person, it is so gratifying. Landscapes can give such a strong sense of the people and stories we are charged with preserving and interpreting.

Tool of the Moment: Pruning Pole Saw



NPS staff practice pole saw pruning on a tree during a preservation horticulture workshop at John Muir NHS (NPS).

Take your landscape skills to new heights with a pole saw. Pole saws are essentially extended hand saws with the added advantage of increasing the target work area up to 16' overhead while working safely from the ground, a ladder, or a stable lift. Like hand saws, pole saws can easily remove limbs up to 3" in diameter and can make precise, targeted cuts that leave clean wounds. A non-motorized pole saw is suitable for NPS staff and volunteers without chainsaw training.

Anatomy

A pole saw is composed of a high-quality steel blade attached to an elongated shaft. Just like a pruning handsaw, the blade can be either curved or straight and designed with different sizes and number of teeth. Blade selection depends on the size and angle of the cut. For most pruning needs, use a blade with a medium or large tooth size and a curved blade. Blades with larger teeth create a slightly rougher cut but cut more efficiently than a fine-toothed blade. A curved blade is more aggressive and faster than a straight blade. For greater accuracy or fine detail, select a straight blade. A pole saw comes with a scabbard—a durable cover—to protect the sharp teeth and prevent them from causing accidental damage when not in use.

Pruning blades are affixed to a light-weight aluminum pole. A lighter pole reduces arm fatigue and promotes dexterity when targeting a cut at distance. For added function, poles may also be designed to telescope. Professional-grade pole saws use a removable blade attachment. This allows for repair or easy exchange of components (like swapping in a lopper head attachment or other accessories). The lower portion of the pole should include an ergonomic, non-slip material for a firm and comfortable grip.

Note: When pruning with a pole saw it can be difficult to make an undercut due to the angle of the blade. On branches over 1 inch, first make an undercut by flipping the saw and sawing upwards, before making the top cut from above.

Pole Saw Benefits

- » Increases the reachable tree area
- » Produces precise, sharp cuts on wood up to 3" in diameter
- » Minimal training required

Safety Precautions

Overhead work requires awareness for the possibility of falling material and the presence of utility lines or signs of wildlife. Always wear the appropriate PPE.



A curved saw blade attached to an aluminum telescoping pole. This blade design includes a back cutter at the base of the saw. A back cutter helps prevent bark from tearing during sawing ([ARS](#)).

Announcements & Publications

» [Plant Stories in Cultural Landscapes](#). The recently launched Plant Stories series highlights exceptional plants within NPS Cultural Landscapes. From an individual specimen tree to plant groupings, the stories exemplify how plants contribute to the historic significance of sites.

» [2022 Preservation Technology and Training Grants](#). Sponsored by NCPTT; application deadline: Feb. 2.

» [Paths through History: Accessible Trails at Voyageurs National Park](#). NCPTT Preservation Technology Podcast #88

» [Park Science](#). *Park Science* is the flagship science magazine of the National Park Service. It covers research and stewardship related to our national parks. Discover the advances in science and technology that help us preserve, understand, and enjoy our public lands; available online.



Saguaro cacti are the subject of a Plant Story at Saguaro National Park (NPS).

Upcoming Training Opportunities

[2021-22 Heritage Orchard Conference](#)

University of Idaho

Webinar series, one Wednesday a month through March, 1.5 hrs

[Tree Biomechanics](#)

Florida Chapter International Society of Arboriculture

Live online or in-person (Orlando, FL), Jan. 21, 8a-4p ET

[Pruning for Performance and Prevention](#)

Western Chapter International Society of Arboriculture

Live webinar, Feb. 2, 11a-12:30p PT

[Tree Disorder Diagnosis & Why Trees Fail](#)

Pacific Northwest International Society of Arboriculture

Online workshop, Feb. 16, 9a-4p PT

[Bees and Trees, Working with Pollinators](#)

Learn Trees

Live webinar, Feb. 25, 10a-1:30p MT

[Olmsteds: Landscapes and Legacies](#)

Frederick Law Olmsted National Historic Site, NCPTT

Three-day symposium, Mar. 30-Apr 2

[Looking at Roots](#)

Western Chapter International Society of Arboriculture

Live webinar, Apr. 6, 8-9:30a PT

[Natchitoches: Confluence of Cultures in the Red River Valley](#)

Alliance for Historic Landscape Preservation, NCPTT

Annual Meeting, May 18-21

[Cemetery Preservation Intensive Online Course for Puerto Rico \(3 parts\)](#)

NCPTT

On-demand

[Connected Conservation webinar series](#)

NPS and Network for Landscape Conservation
Webinar series, live or on-demand, monthly, 1 hr

[Integrated Pest Management Virtual Training Series](#)

NPS IPM Program

Webinar series, live or on-demand