

Landscape Culture

a newsletter for cultural landscape stewards

Cultural Landscapes Program

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Replacing Tumacácori's Historic Apricot Tree

Vegetation, like all features of a cultural landscape, requires regular maintenance and care. But what do you do when a historic tree is damaged or dies and requires removal? At [Tumacácori National Historical Park](#), smart planning and the unexpected failure of a historic apricot tree made this question easy to answer: you replace it in kind with offspring propagated from the parent.

The courtyard garden at Tumacácori's visitor center was designed and planted as part of the 1930s New Deal Era of park design. Executed in a rustic style that sought to harmonize the architecture and planting design with the surrounding landscape, the NPS complex was constructed by the Civilian Conservation Corps and Works Progress Administration from 1938-1940. Competing visions for the courtyard's plant palette pitted the park's superintendent, who favored historically accurate plants that could be interpreted for educational demonstrations, against the NPS Branch of Plans and Design, who preferred a more ornamental design to provide year-round interest. In the end, the planting plan was informed by both historic mission records and aesthetics.

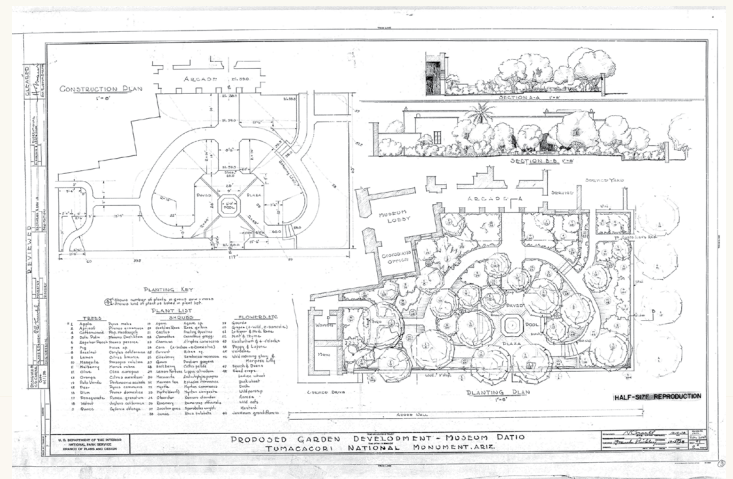
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About Us

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

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

For current news about NPS cultural landscapes, join us on social media:



1938 Construction and Planting Plan for TUMA's museum (now visitor center) courtyard.

Among the original plantings was an apricot tree (*Prunus armeniaca*) that grew to shade visitors as they strolled through the garden or paused by its fountain. Nearly 90 years old and 25 feet tall, the tree was in the running to be named the largest apricot in the state, and perhaps the United States, by the Arizona Champion Tree program.

On a calm morning in June of this year, one of the tree's two trunks unexpectedly split and came down in the courtyard. After consulting with arborists and cultural resources staff in the park and region, the tree was removed. Fortunately, a [Pima County master gardener](#) who helps maintain the courtyard garden in partnership with the park had propagated a seedling from the tree several years ago. This offspring will be planted to replace the parent tree. As it grows, it will perpetuate the character of the courtyard and its original planting plan.

This is an ideal case of preservation horticulture. The treatment guidelines for Preservation in the Secretary of the Interior's Standards with [Guidelines for the Treatment of Cultural Landscapes](#) recommend perpetuating vegetation through the propagation of existing plants, as well as replacing plants in kind when the vegetation cannot be saved. In-kind replacement means using the same material to replace irreparably damaged or missing material. In the case of vegetation,



The apricot tree presiding over Tumacácori's visitor center courtyard in 2017 (NPS Photo).

in-kind replacement requires replacing a plant with the same species and variety. Sometimes historic varieties are no longer available or new disease-resistant varieties may have been developed. In those cases, substitution is acceptable so long as the new plant material is non-destructive, identified, and documented for further research.

Upcoming Training Opportunities

TREE Fund Webinars

[Emerald Ash Borer: Strategies for Conserving Ash in the Urban Forest](#)

November 28, 2018

[Trees and Construction](#)

December 13, 2018

Morris Arboretum School of Arboriculture

[Perennial and Shrub Maintenance for Professionals](#)

Philadelphia, PA

December 4, 2018

Arthur Carhart National Wilderness Training Center

[Regional Wilderness Stewardship Course](#)

Various dates and locations

(AK, NC, ID, MT)

[Managing Cultural Resource in Wilderness](#)

Online

Eppley Institute for Parks and Public Lands

[Natural Resource Management in Wilderness: Vegetation](#)

Self-paced, prerequisites required

National Preservation Institute

[Section 106: An Introduction](#)

Seattle, WA

December 4-6, 2018

NCPTT

[Using Lime: A Technical Workshop on Lime and Mortars](#)

Natchitoches, LA

April 29- May 1, 2019

National Trust for Historic Preservation

[PastForward Conference](#)

San Francisco

November 13-16, 2018

Attend virtually by livestreaming event speakers, including "Historic Landscapes: The Culture-Nature Connection"

Employee Spotlight



Name: Lydia Woltje
Job Title: Gardener at GOGA

Years with NPS?

I've worked with the NPS for 6 years; 2 as a Biological Science Technician and 4 as a Gardener.

Favorite Maintenance Task?

I love leading and working with my weekly regular long term volunteers maintaining Sutro Heights Parks historic rose gardens, native plant gardens, and historic step beds gardens on the site of Adolph Sutro's old house called the "Parapet." This includes pruning, weeding, mulching, planting, fertilizing, and watering. It's such a great feeling when I take a step back after a morning program of work and see a

maintained and weed-free garden, especially during the flowering season.

Favorite/Most Inspiring Project?

I rehabilitated a turf area that was completely brown with patches of bare soil, broken irrigation, and in really bad shape all around. I leveled the soil using rakes, shovels, and small tractor; re-seeded using a cool-season turf mix and an extra 10 lbs of California native red fescue (*Festuca rubra*) seed, spread top soil, and repaired the entire section of irrigation at Sutro Heights Park. The results were very rewarding. Within two weeks the grass was uniformly growing in and tons of the native grass survived and is thriving still! I love the feeling of doing a rehab project from start to finish, especially turf grass and native plant gardens.

What inspired your interest in your cultural landscapes?

I was inspired by the work. Being able to work outside in a beautiful park sandwiched between the Pacific Ocean and the city of San Francisco, while maintaining, upgrading, and preserving a piece of historical landscape, a story of place and time that is told through the landscape. Even if the story is dark and represents colonization and war, I still believe it needs to be told and remembered. It's the most epic lawn mowing and weed whipping you'll ever do! Physical labor that's intentional and for a greater purpose than someone's private property.

DNA Fingerprinting

Have you ever wanted to know whether an old fruit tree in your park is an heirloom variety? Nowadays, this question is easier to answer than ever. All you need are leaf samples and less than \$400 to reveal the exact pedigree of a single fruit tree. No more waiting around for the tree to bear some characteristic fruit (which can be a long wait with old trees in poor condition). DNA-based variety identification is available for apple, apricot, cherry, olive, peach, pear, and plum, among other species. The technology can be accessed on a fee-for-service basis, either through a credit card purchase, or through a Purchase Order award.

Like animals, DNA is found in plants and is unique to each species and variety. All the trees of a single fruit variety have the same genetic code, or DNA



A mixture of historic olive varieties (UC Davis photo).

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DNA fingerprinting will soon reveal the cultivars of the historic Smuggler's Cove olive orchard at CHIS (NPS Photo).

fingerprint. By cutting a sample of DNA into fragments and comparing it with other samples, it's possible to determine whether the DNA has come from the same, or a different fruit variety. In the history of US orchards, the 19th-century was the period when most fruit varieties were originated. Far fewer varieties were planted in the 20th-century and hundreds of varieties became extinct. This is because fruit varieties or "cultivars" have been created by people, and are not naturally-occurring. Without vegetative propagation and cultivation by people, cultivars cease to exist.

Historic orchards throughout the national park system contain rare and unusual cultivars that can no

longer be found in contemporary orchards. One such orchard is the historic Smugglers Cove olive orchard at Channel Islands National Park. The orchard contains several hundred trees and dates to the 1880s. CHIS staff contracted with [Foundation Plant Services](#) at UC Davis to DNA test the varieties. The cost was \$265 per sample, due to the bulk quantity. Leaves were collected and express-mailed overnight to the testing lab. CHIS and PWRO staff will use the results to inform the orchard treatment plan in the new Cultural Landscape Report. We're excited to hear the results and will share them in the next edition!

Pests and Diseases: The Basics of Fire Blight

You may have noticed dead sprigs at the tips of tree branches in your park's fruit trees. This burnt-looking die-back is the namesake symptom of fire blight, a common disease that affects plants in the rose family including apples, pear, peach, quince, spirea, and pyracantha.

Fire blight is caused by the bacterium *Erwinia amylovora*. Native to North America, the disease was first documented in apples, pears, and quinces in the 1780s in the Hudson Valley. Before the introduction of apples and pears, it likely occurred in wild crab apples, hawthorn and service berry. Fire blight can be fatal, but many older trees are able to survive with the disease for years. Pears are more susceptible than apples, and young trees are more impacted than older, more established trees. Although extensive research has been done on treatments for the disease in commercial orchards, according to [The Organic Center](#), "There is no cure for fire blight, and there is no single 'silver bullet' that will prevent fire blight infection." That being

said, watching for the first signs of infection and acting early can help reduce the disease's impact.

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Early fire blight symptoms on pear ([Texas A&M AgriLife Extension Service, photo by Robert Burns, licensed under CC BY-NC-ND 2.0](#))



Systemic infection of fire blight in a pear tree in the Fort Ross Orchard. The entire tree was subsequently removed (NPS Photo).

During the spring and early summer, closely watch fruit trees for symptoms. Removing diseased material at the shoots will prevent its spread into the main trunk. Kari Peter, Assistant Professor of Tree Fruit Pathology at Penn State Fruit Research and Extension Center, recommends pruning to a stub between nodes, 8 -12 inches below the symptoms of fire blight. Leaving an “ugly stub” is generally discouraged, but in this case, the 4 – 6 inch stub can be removed to a node the following winter, after a canker has formed. This further isolates any diseased material (see diagram).

Fire blight should not be removed during periods of high humidity and diseased material should not be composted. During the winter, trees should be monitored several times, in case cankers were missed in previous removal efforts. Avoid over-fertilizing trees and limit winter pruning to prevent excessive shoot growth, as older wood is less susceptible to the disease.

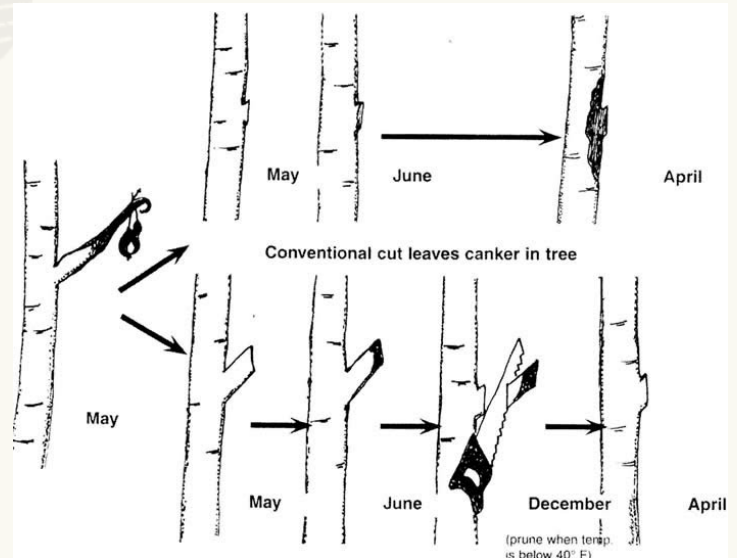
When pruning infected trees, sterilize tools between cuts and between work on different trees using a 10% bleach solution or a small torch (to prevent rusting). If the disease is systemic and cankers have recurred after several attempts at removal, consider removing the entire tree. When replacing fruit trees, explore the use of fire blight resistant rootstock and cultivars.

Symptoms

Dormant in cold weather, fire blight is transmitted in spring during blossoming periods and is most active between 75-95° F. Insects, wind and rain spread the bacteria from infected tissue into plant blossoms, where the infection multiplies. After petal fall, symptoms are first visible when the base of the flower (receptacle, ovary, and peduncle) becomes water-soaked and dull. As the fruiting body develops, it becomes brown/black and oozes bacterial ooze. When the infection spreads, leaves wilt and turn dark brown, and the tip of the shoot bends into a “shepherd’s crook.” The dead shoot clings to the plant long after it has died. Eventually, dark cankers develop on the plant where the infection overwinters. The disease can also enter the plant through damaged leaf surfaces (from hail or insects). See [Dr. Dave Rosenberger’s blog](#) for good photographs of early symptoms.

Treatment

Chemical and mechanical treatments can be used to prevent and treat fire blight. See below for mechanical treatments. For regionally specific chemical treatments, consult your local agricultural extension service.



Ugly Stub Method of Pruning (University of Maryland Extension)

Announcements & Publications

» [The Combustibility of Landscape Mulches, University of Nevada Cooperative Extension, 2011: An evaluation of mulch treatments with recommendations concerning the use of mulches in wildfire hazard areas.](#)

» [Mortar, Unsung Hero of History](#)

Video Corner



Preserving the Historic Orchards at Manzanar National Historic Site

The NPS is partnering with a local high school to propagate fruit trees for the Wilder Orchard, part of Manzanar's cultural landscape. The historic orchard helps us to better understand what life was like during the internment camp period at Manzanar National Historic Site. The Japanese Americans that were confined here, most of whom were American citizens, grew some of their own food, including fruit from orchard trees that were already growing on the land.



Landscape Rehabilitation at Gettysburg National Military Park

Planning documents, including the Cultural Landscape Report, helped guide the landscape rehabilitation at Gettysburg National Military Park by describing the history, conditions, and management objectives. Through this effort, aspects of the landscape have been thoughtfully altered to reflect the landscape character of the 1863 battle, returning it to a mosaic of smaller field patterns, rebuilding miles of wooden fencing, actively managing the woodlots to open views, and planting orchards.

Tool of the Moment: The Pruning Handsaw

A pruning hand saw is an essential and versatile part of the landscape steward's toolkit. A pruning saw can remove most smaller diameter limbs as quickly as a chainsaw, while being lighter, more precise, safer to use and leaving a cleaner wound. As a non-power tool, the pruning hand saw is suitable for volunteers, and for NPS staff without chainsaw safety training.

Blade

For most pruning needs, use a hand saw with a medium or large tooth size and a curved blade. Blades with larger teeth create a slightly rougher cut, but cut



Silky Zubat Hand Saw.

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.

You can choose between fixed or folding blades. Most fixed-blade saws come with a scabbard, which prevents injury and protects the blade. Folding saws serve the same function, but are more convenient to store and carry. If you're up in a tree or on a ladder and have only one free hand, a fixed-blade saw is easier to grab from the scabbard than a folding saw, which requires two hands to open. Fixed blade saws also come with longer blades for cutting large branches

Many professional gardeners use Japanese-style pull saws that only cut on the pull stroke (such as from ARS and Silky). The technology and sharpness of pull saw blades make them very efficient. Gardeners pull rather than push down on the blade as they saw and release pressure when moving the saw forward for quick and precise cuts.

Handle

Select a pruning saw with an ergonomically-designed handle to prevent your hand from sliding as you cut. A rubber-coated handle provides a firm grip, helping to maintain the natural back-and-forth motion with your hand and making cuts more precise and efficient.