

Capitol Reef National Park Pilot Orchard Rehabilitation in Fruita Historic Orchards

Introduction

The orchards of the Fruita Rural Historic District (Figure 1) are one of the largest continually cultivated orchards in the national park system and remain an important part of the region's rich history and cultural heritage. Unfortunately, these orchards have been declining for many years (Figures 2-5), which will continue without a focused effort to replant and rejuvenate them. Several orchards have lost significant numbers of trees in past years, and with continued losses expected due to age, nutrient deficiencies, and disease replanting with young trees is needed to maintain their integrity.

To address this situation and restore the orchards, Capitol Reef National Park is planning a long-term rehabilitation project to protect this valuable resource. The work being planned will begin in the fall of 2021 and includes regrading and amending soil in the Guy Smith and Cook orchards in preparation for tree planting in 2022. Efforts will include rehabilitation of the orchard floor to improve soil conditions and irrigation for the newly planted trees. This work will require removal of existing trees in areas targeted for ground leveling.

The purpose of this project is to both establish new plantings, and test various aspects of soil amendment and irrigation improvements. These tests will inform future planting efforts over the next decade. This project will also inform development of an overall replanting plan and facilitate public dialog on future replanting efforts, which will undergo separate environmental analysis and public input. Ultimately, the overall health of the orchards will be restored for the benefit of all visitors.

Background

Between 2015 and 2020 an average of 134 trees were lost each year in the Fruita orchards. Fruit trees have limited lifespans and they become weaker, produce less fruit, and are more susceptible to disease and environmental conditions as they age. To ensure that healthy trees and strong fruit crops exist for visitors into the future, old and diseased trees must sometimes be removed to make space for new plantings. Any tree removal must be done with care to achieve a balance between preserving historic trees or rare varieties with the need to maintain healthy orchards over the long term.

Many factors contribute to the decline of orchard trees. In the Fruita Rural Historic District, the primary reasons for tree decline and death are age, poor soil conditions and disease.

Age

In ideal conditions, fruit trees lifespans are often much shorter than landscape trees such as cottonwoods. Peach trees generally live for less than 50 years, and apricots and cherries rarely exceed 100. The most recent data has shown that 86 percent of the trees in Fruita were planted prior to 1990, and 40 percent were planted prior to 1950. Only 14 percent of the park's trees have been planted since 1990, and many of these trees have failed to establish themselves in the harsh environment and soils of the park.

Soil Conditions

Good soil conditions are critical to maintaining healthy trees, and much of the soil in the Fruita Rural Historic District is lacking in nutrients and organic matter. Early residents of Fruita benefited from regular floods and livestock that continually added nutrients to the soils. With these inputs missing today, the orchards have slowly lost much of their nutrients. These nutrients must be restored if existing trees are to survive, and new plantings are to thrive. This project will therefore include adding organic matter in the form of cured manure to the orchards being replanted.

Another concern is soil compaction. Over time, equipment, foot travel and natural settling also compact the soil, making it harder for roots, water, and oxygen to move through it. Young trees have an especially hard time establishing roots in hard packed soils. Tilling the orchard floor and adding in loose cured manure helps to break and loosen up the soil and allow new trees to grow strong root systems.

Disease

While Fruita is isolated from many of the most damaging diseases found in other orchards, it is inevitable that some trees will be affected by pests or disease. This is especially harmful to older trees with less robust immune systems and further adds to their decline.

Park staff must periodically replace old, nutrient starved and diseased trees with new specimens. In the case of many of the park's historic varieties, there are only a handful of surviving trees. If these trees are destroyed or lost, that rare genetic stock may be lost for good. To ensure against this, new trees must be grafted from these varieties and planted back into the orchards.

Orchard staff are actively working to preserve these varieties in collaboration with the TreeUtah nonprofit located in Salt Lake City. Scions taken from the most vulnerable and at-risk varieties will be sent away for off-site propagation and return as rooted saplings to be planted back into the prepared orchard spaces. In many ways this will sustain a direct line from the fruit varieties planted by early pioneers of the Church of Jesus Christ of Latter-day Saints in the late 1800s to those trees being planted in coming years.

To maintain the availability of popular fruit crops for harvest by visitors, the initial focus of replanting efforts will be on replacing peach and cherry trees, most of which are at the end of their lifespans. These crops are highly valued by visitors, and are a high priority for preservation by Capitol Reef National Park management.

Work Description

A total of 53 trees in the Guy Smith and Cook orchards will be removed through this project. 4.6 acres of orchard surface will be turned to a depth of 2 feet before being regraded. Maximum cut depth while grading will not exceed 3 feet in depth. One inch of cured manure will be spread on all graded areas and tilled into the soil. Orchardgrass seed will be spread to establish a cover crop on the newly prepared soil. A total of 4,100 feet of irrigation ditch will then be reinstalled following grading operations.

Work will begin with park personnel removing existing trees in the fall of 2021. Contractors will then turn the orchard soils with machinery to decompact and prepare for grading. Following soil turning, the orchards will be graded according to the finalized survey plans (see separate plan maps). Once graded, the soil will again be turned, and cured compost will be spread over all areas via broadcast spreader. Orchard floors will be tilled and ready for cover crop planting. Park staff will plant orchardgrass seed mix over both orchards in the fall of 2021 to begin establishing a cover crop.

Irrigation feed and drainage ditches will then be installed according to the finalized survey plans. Approximately 1,800' of main ditch and 700' of bout ditches will be installed in the Cook orchard, and approximately 1,200' of main ditch and 400' of bout ditches will be installed in the Guy Smith orchard.

200 sapling peach trees will be planted in the Guy Smith orchard in April of 2022. Subsequent plantings will see 100 new trees planted annually through 2023 in the Guy Smith orchard and through 2025 in the Cook orchard. Work will also include annual pruning, top-dressing with additional cured manure and natural fertilizer, and pest management.

Impacts to park visitors will include restricted access to the Cook and Guy Smith orchards during all leveling, tilling and planting, which is expected to last 1-2 months each year.

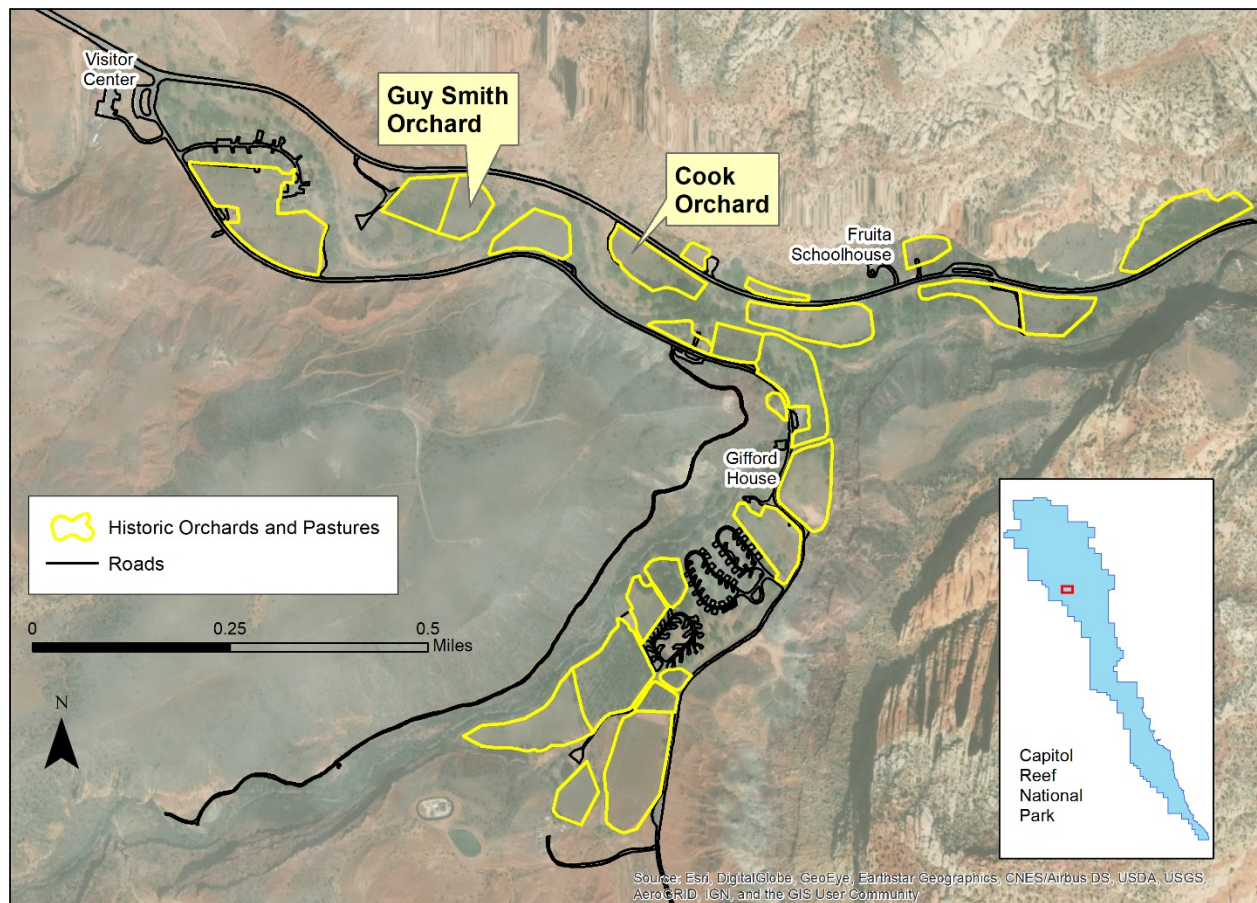


Figure 1. Fruita Rural Historic District and project areas for the Guy Smith and Cook Orchards.



Figure 2. Aerial photo of the Cook orchard in 1988.



Figure 3. Cook orchard in 2020.



Figure 4. Guy Smith orchard in 1988 (right side of photo).



Figure 5. Guy Smith orchard in 2020.