Inventory, Condition Assessment, and Management Recommendations

for use in preparing an

Orchard Management Plan

for the

Fruita Rural Historic District, Capitol Reef National Park

By

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TABLE OF CONTENTS

Introduction

Acknowledgements

Historical Overview

Relationship to national/ regional history

Varieties previously known but lost

Fruit production practices lost

Contributing and non-contributing orchards/Extant historic character

Existing Conditions

Condition assessment of the orchards

Demographic summary of the trees of Fruita

Inventory, History, Condition Assessment, and Recommendations for Each Orchard in the Fruita Historic District

Condition Assessment of the orchards

Species composition of the orchards

Site-specific history/ Character of orchards in period of significance

Orchard-specific management recommendations:

Preservation: Retain current (historic) appearance through cyclic maintenance and replacement-in-kind

Restoration: Return appearance back to historic condition by removing later additions, and replacing missing features

Rehabilitation: Preserve historic characteristics and features; make compatible alterations and additions to orchard

Reconstruction: Re-plant a vanished orchard using excellent evidence

Calendar for Maintenance Monitoring

Time and frequency of activities

General maintenance Procedures

Pruning, irrigation, planting, and scion-wood collecting

Long-Term Management Objectives

Conclusions

References

Appendix

Registry of Heirloom Varieties at Capitol Reef/Southwest Regis-Tree

Figures

Figure 1: Fruit tree species in Capitol Reef National Park.

Figure 2: Fruit tree conditions in Capitol Reef National Park.

Figure 3: Ages of the fruit trees in Capitol Reef National Park.

Figure 4: Age groupings for the fruit tree species at Capitol Reef National Park.

Figure 5: Percentages of historical varieties in the three general age groupings of fruit trees in Capitol Reef National Park.

Figure 6: Condition report of the Abie Clarke Orchard.

Figure 7: Condition report of Adam's Orchard.

Figure 8: Condition report of the Amasa Pierce Orchard.

Figure 9: Condition report of the Behunin Orchard.

Figure 10: Condition report of the Carrell Orchard.

Figure 11: Condition report of the Cass Mulford Orchard.

Figure 12: Condition report of the Chesnut Orchard.

Figure 13: Condition report of the Cook Orchard.

Figure 14: Condition report of the Doc Inglesby Picnic Grove.

Figure 15: Condition report of the Gifford Farm.

Figure 16: Condition report of the group campground fruit trees.

Figure 17: Condition report of the Holt House fruit trees.

Figure 18: Condition report of the Holt Orchard.

Figure 19: Condition report of the Jackson Orchard.

Figure 20: Condition report of the Max Krueger Orchard.

Figure 21: Condition report of the Merin Smith Orchard.

Figure 22: Condition report of Mott's Orchard.

Figure 23: Condition report of the Nels Johnson Orchard.

Figure 24: Condition report of the Fremont River Trail Potawatomi plums.

Figure 25: Condition report of the Tine Oyler North Orchard.

Figure 26: Condition report of the Tine Oyler South Orchard.

Tables

Table 1: Sources for obtaining historic fruit varieties for reintroduction to Fruita.

Table 2: Fruit tree species and variety composition of the Abie Clarke Orchard.

Table 3: Fruit tree species and variety composition of Adam's Orchard.

Table 4: Fruit tree species and variety composition of the Amasa Pierce Orchard.

Table 5: Fruit tree species and variety composition of the Behunin Orchard.
Table 6 Fruit tree species and variety composition of the Campground.
Table 7: Fruit tree species and variety composition of the Carrell Orchard.
Table 8: Fruit tree species and variety composition of the Cass Mulford Orchard.
Table 9: Fruit tree species and variety composition of the Chesnut Orchard.
Table 10: Fruit tree species and variety composition of the Cook Orchard.
Table 11: Fruit tree species and variety composition of the Doc Inglesby Picnic Grove.
Table 12: Fruit tree species and variety composition of the Gifford Farm.
Table 13: Fruit tree species and variety composition of the Group Campground.
Table 14: Fruit tree species and variety composition of the Holt House.
Table 15: Fruit tree species and variety composition of the Holt Orchard.
Table 16: Fruit tree species and variety composition of the Jackson Orchard.
Table 17: Fruit tree species and variety composition of the Krueger Orchard.
Table 18: Fruit tree species and variety composition of the Merin Smith Place.
Table 19: Fruit tree species and variety composition of Mott's Orchard.
Table 20: Fruit tree species and variety composition of the Nels Johnson Orchard.
Table 21 Fruit tree species and variety composition along the Fremont River Trail.
Table 22: Fruit tree species and variety composition of the Tine Oyler North Orchard.
Table 23: Fruit tree species and variety composition of the Tine Oyler South Orchard.

INTRODUCTION:

This report details the condition of fruit trees in the historic orchards of Fruita and makes recommendations for restoration and management actions needed to maintain the Fruita cultural landscape in Capitol Reef National Park. By maintaining the historic landscape, we specifically mean 1) focusing on retention of heirloom fruit varieties known to have planted in and around Fruita between 1882 and 1939; 2) restoration of the historic tree spacing configuration, pruning styles, and traditional maintenance cycles characteristic of this era; and 3) living history interpretation consistent with this period of significance. On March 25, 1997, 200 acres, including these orchards which contain heirloom fruit trees originally planted by Mormon pioneers, were listed on the National Register of Historic Places as the Fruita Rural Historic District. The Capitol Reef orchards, by all accounts, are the largest extant orchard complex in the U.S. National Park System. The National Park Service (NPS) is the current steward of these

historic orchards, which include both biological and cultural resources that provide research opportunities as well as recreational and educational opportunities to the park's many visitors.

In planning future management actions and interpretation for the Fruita Rural Historic District, managers should consider the orchards as part of a broader cultural landscape, a complex system of landscape characteristics, archaeological, recreational, historic agricultural and ecological features. As such, this report should be seen as a follow up to Gilbert and McKoy's 1997 *Cultural Landscape Report, Number 8 in the Cultural Resources Selections* published by the Intermountain Region of the National Park Service. In that report, the following recommendations were made that establish the need for this current effort:

1. The existing draft *Orchard Management Plan* (1988) should be revised and updated to include current management philosophy, maintenance practices, condition assessments, disposition of crops, and procedures for record keeping. The revised document may also include information on integrated pest management, and the management and maintenance of pastures and fields associated with the agricultural landscape of Fruita as appropriate. Guidelines in the plan should be integrated into the general vegetation management plan for the district.
2. The location and number of primary orchards as defined in this study create a cultural footprint on the landscape and should be retained. All permanent structural elements associated with the orchard, including irrigation works (gates and ditches) and fences, should be included in a cyclic maintenance preservation program.
3. The rotation of orchards and orchard trees based on historic practices, undertaken to enhance soil fertility or conservation, is allowable within the existing agricultural footprint and percentage of land given to fruit production, as defined in this document.
4. Decisions regarding the configuration of individual trees within each orchard (grid orientation, lay-out, spacing) and replacement of diseased or unhealthy specimens should be based on sound orchard management practices. Criteria for making these decisions should be documented and included in the orchard management plan.
5. When new trees are needed to replace damaged or diseased trees, selection should be based on the following priorities: A. Replace in kind whenever possible; B. Select a variety that was grown historically; C) Select a type of fruit as original tree (e.g., peach for peach); D) Availability and adaptability.
6. Orchard names should be consistent through all management, maintenance, and interpretive documents.

These recommendations demonstrate how biological and cultural resource managers—as well as maintenance and interpretative specialists—have roles to play in the day-to-day operations, conservation and visitor enjoyment of these historic orchards. We recommend and outline appropriate roles for them to play in maintenance and interpretation at a) the landscape level of the entire Fruita Historic District; and 2) at the level of specific orchards. In general, managers should use this report in the context of the Secretary of Interior's Standards for the Treatment of Historic Properties, which provides a philosophical context and sets priorities for care strategies. These orchards are primary destinations for visitors in the park, and their

activities there are quite diverse: fruit-picking, bird-watching, wildlife photography, hiking, horticultural education, picnicking, and camping. The management of the orchards indirectly or directly interacts with water management, weed management, deer management, traffic management, archaeological site and historic building management, and pest management in the park. Given the multiplicity and complexity of the management objectives which are influenced by and influence orchard conservation and use, it is not surprising that this report will touch upon issues that do not affect most commercial or hobby-oriented orchardists. We will therefore attempt to integrate philosophical considerations, policy mandates and best practices into our recommendations. The specific goals of this project are to:

1. Assess the global, NPS system-wide and local significance of the orchards;
2. Undertake a conditions assessment of every tree, fruit tree variety and orchard as a whole, assessing their current status and potential longevity;
3. Review past orchard management objectives, and recommend new ones that help determine whether each orchard unit should emphasize preservation, restoration, rehabilitation or reconstruction efforts; and
4. Recommend the implementation of a "work calendar" that would accommodate monitoring and management actions required to maintain the historic integrity and fruit productivity of the orchards associated with the Fruita Rural Historic District.

ACKNOWLEDGEMENTS

We would like to recognize the vision of Anne Worthington, former Cultural Resources Program Manager at Capitol Reef[*], in initiating this effort and hosting us during our stays in Fruita. We are also grateful to Trinkle Jones, Cultural Resources coordinator for the CPCESU, and Dr. Ron Heibert, Director of the CPCESU, for their support of cross-cutting efforts that link cultural and natural resources stewardship on the Colorado Plateau. Similarly, Susan Dolan and Charles Pepper kindly shared their vast knowledge and experience regarding the care of historic and cultural landscapes. The following past and present staff of Capitol Reef National Park offered us guidance, indispensable information and good will: Anne Worthington, Dave Worthington, Cindy Micheli, Reed Robinson, Jeff Pace, Wayne Hanks, Jeff Ecker, Jill Jackson, Don Micheli and Lamont Chappell.

We are also grateful to advisors, consultants and friends outside the NPS, who assisted with this exploration. In particular, two of the nation's foremost heirloom fruit experts, Tom Burford and Dan Bussey, co-taught a week-long workshop with us in Fruita during March of 2006, sharing their knowledge and inspiration with forty of us lucky enough to be in their presence. In addition, we thank Andrew Millison, Kent Whealy, Estevan Arrellano, Patty West, Jesus Garcia, Kevin Dahl, Tim Crews, Suzanne Nelson and other advisors to our Southwest Regis-Tree project, which is website-accessible at www.environment.nau.edu.

HISTORIC CONTEXT

Relationship to National/ Regional History

The first orchards planted at the confluence of Sulfur Creek and the Fremont River—in the area to become Fruita—were planted in 1882, during "the era of fruit diversification." (Susan

[*] Currently the Superintendent at Hubbell Trading Post National Historical Site

Dolan, NPS Landscape Architect, pers. comm.) That era occurred just prior to the industrialization of the fruit industry. Dolan suggests that this era in American horticultural history occurred just as the U.S. Department of Agriculture was defining its mission in crop plant introduction, regional evaluation, and adaptation to specific conditions of particular localities. This was a time when the great American nurseries began to provide grafted fruits of promising selections made from chance seedlings or "sports" persisting from the so-called "Johnny Appleseed" era of American horticultural history. Mormon farming settlements in Utah, although geographically remote from most nurseries and plant introduction stations of their time, were nevertheless influenced by these trends from their colonization in 1848, onward. Many of the recent immigrants to Southern Utah came from Midwestern and Northeastern states where fruit tree varietal selection and adaptation was all the rage.

About the same time the USDA's fruit introduction programs were becoming widespread, there arrived in Fruita a Scandinavian convert to the Mormon faith, Nels Johnson, who claimed 160 acres of arable flood plain land along the river. Before he had even completed his house in 1882, he had already planted some fruit trees, beginning the orchard heritage of Fruita.

About that same time, a private nursery venture in the Midwest by James Hart Stark began to have an impact beyond its state of origin, Missouri. It would soon have an impact on Fruita, even though this village is hidden in a red-rock canyon more than a thousand miles away from the nurseries home base on the cliffs above the Mississippi River, in Louisiana, Missouri. Although the Stark Family legacy of fruit tree propagation began when James brought some scion wood with him from Kentucky to Missouri in 1816, the truly national impact of this horticultural legacy did not hit until 1880. In that year, James Hart Stark's son, William, died in the only orchard he had left to his family name after the pandemic of 1873 (Terry 1966). The orchardist's legacy of two generations was left to his progeny to make blossom, or let it die on the vine.

And so his three sons—Clarence, Edgar, and W.P.—picked up thee remaining fragments of their grand-father's and father's investments in apple trees and other fruits, and began active promotion of their best fruit varieties nationwide. The newly completed transcontinental railroad passed not far from their orchards, allowing speedy and convenient long-distance transport. By 1887, Clarence Stark was placing full page adds in the country's most popular newspapers and magazines. The company's first magazine came out in 1894, and offered fifty different apple varieties, in addition to peaches, apricots, plums, pears, and cherries. Two years later, the Stark Brothers Nursery and Orchard Company released one of the first color-illustrated catalogs of fruit trees in the U.S. (Terry 1966).

An interesting coincidence occurred in 1887, when Clarence was diagnosed with tuberculosis, and was advised by his doctor to recuperate in the dry, sunny climes of the Southwest (Terry 1966). Within a few years, Clarence Stark had not only begun his own orchards in the Denver, Colorado area, but personally came out to Fruita to advise the Mormon orchardists there. These visits cemented the allegiance of the "Dixie Mormons" to the Stark Brothers Nursery and their numerous selections, an allegiance which Mormon families in Torrey and Cainville still take pride in today. Although other sources of materials were also used for the

plantings at Fruita, most oral histories underscore the preeminence of Stark's materials in the Mormon orchards of the region. Among the varieties historically offered by Stark that have persisted in the Fruit orchards are: Grimes Golden, Jonathan, McIntosh, Rome Beauty, Red Delicious, Yellow Transparent, Winter Pearmain, and Yellow Bellflower apples; Moorpark apricots; Bing, Black Tartarian, Lambert, and Montmorency cherries; Elberta peaches; Bartlett, Flemish Beauty and Winter Bartlett pears; native pecans; German, Italian prune, and Yellow Egg plums; Van Deman quinces; and Black and Persian (Carpathian) walnuts (Terry 1966).

Varieties Previously Known But Lost

Over the last hundred years, a number of fruit-bearing species and varieties have been grown in Fruita orchards and vineyards that no longer occur there today. Our sources of documentation from these "lost" varieties are the following: 1) data compiled and presented in the *Cultural Landscape Report: Fruita Rural Historic District* (Gilbert and McCoy 1997); 2) oral histories, such as the transcript of the G. Dewey Gifford interview with Merriann Nelson (1983); and 3) more recent reports and maps from the Capitol Reef National Park orchard management staff.

The species and varieties that once grew in the Fruita orchards, but are no longer present, or are potentially present but have not been identified are: soft-shelled almonds, strawberries, gooseberries, Lodi apple, Yellow Bellflower apple, Baldwin apple, Golden Winter Banana apple, Winter Bartlett pear, German Prune plum, Early Crawford peach, Lambert cherry, Black Tartarian cherry, Stella cherry, Utah Giant cherry, Van cherry, and Royal Anne cherry (Gifford in Nelson 1983; Gilbert and McCoy 1997). In addition, there have been at least sixteen ornamentals, forages and edibles (such as rhubarb) that have been recorded as having been cultivated in or near the Fruita orchards. The named varieties that can still be found in nurseries are recommended for reintroduction, and are listed with potential sources of propagation material in Table 1.

In the Cass Mulfurd orchard up until 2002, a black walnut grew that was reputedly a gift from Mormon Church pioneer Brigham Young. It had been on its way to Dixie County to new Mormon settlements there when a wagon became bogged down and could not complete its journey with its desired load. The tree was planted in Mulford's orchard but died this decade from the same infestation that eliminated most other walnuts from Fruita. Its historic connection cannot be replicated, unless other Young-propagated walnuts can be found closer to Salt Lake City that can offer propagation material.

Fortunately, most of the varieties that have been lost from Fruita's orchards are still in the nursery trade, and can be accessed through the Seed Savers Exchange's *Fruit, Nut and Berry Inventory Third Edition*, which lists 6000 varieties still available from 280 mail-order and internet nursery catalogs. This inventory is periodically updated, but for now, Table 1 lists the current sources for selected varieties that the NPS may want to reintroduce to the Fruita orchards.

Table 1: Sources for obtaining historic fruit varieties for reintroduction to Fruita.

Species	Variety name	Nursery Source
Apple	Baldwin	Trees of Antiquity
Apple	(Golden) Winter Banana	Miller Nurseries
Apple	Lodi	Van Well Nursery
Apple	Yellow Bellflower	Trees of Antiquity
Cherry	Black Tartarian	Greenmantle Nursery
Cherry	Lambert	Greenmantle Nursery
Cherry	Royal Anne	Van Well Nursery
Cherry	Stella	Trees of Antiquity
Cherry	Utah Giant	Trees of Antiquity
Cherry	Van	Van Well Nursery
Peach	Early Crawford	Greenmantle Nursery
Pear	Winter Bartlett	Greenmantle Nursery
Plum	German Prune	unknown

The varieties in Table 1 are still offered by multiple nurseries, a list of which can be found in the Seed Saver's Exchange publication, *The Fruit Berry and Nut Inventory*, by Kent Whealy. The nurseries listed in the table all have websites with updated inventory and contact information, but their addresses are listed here as well:

Greenmantle Nursery; 3010 Ettersburg Road; Garberville, CA 95542

Miller Nurseries; 5060 West Lake Road; Canandaigua, NY 14424

Trees of Antiquity; 20 Wellsona Road; Paso Robles, CA 93446

Van Well Nursery; P.O. Box 1339; Wenatchee, WA 98807

Fruit Production Practices Lost

Because a Historic District is expected to maintain management and production practices, as well as historic structures and landscaping, the NPS should consider an investment in maintaining certain practices for living history interpretation of the Fruita orchards. First and foremost among these should be the production of cider, soft or hard, using technologies not unlike those used by historic Fruit residents. Many of the apple varieties cultivated in Fruita orchards are heirlooms that were primarily grown for cider making in the past (Watson 1999, and Davidson 1986) provides the documentation that "bootlegging" of hard cider or sorghum sugar-based hard alcohol did occur on the outskirts of Fruita, primarily at Whiskey Flats. Among the apple varieties currently or formerly grown at Fruita that are suitable for cider are: Grimes Golden, Jonathan, Rome Beauty, McIntosh, Red Delicious, Rhode Island Greening, Winesap, and Winter Banana (Watson 1999). According to Watson (1999), the production of most high quality ciders have required a mix of sweet or dessert varieties like Baldwin (30-40%); subacid or tart varieties like Jonathan or Rhode Island Greening (10-40%); bitter or astringent varieties like Red Astrachan (5-20%); and aromatic varieties such as McIntosh or Red Delicious (10-

20%). Should the National Park Service—perhaps in collaboration with the Capitol Reef Natural History Association—decide that cider-making and sales is an appropriate living history venture, it will be important for future plantings to maintain a mix of these four qualities of apples in the orchards, rather than focusing entirely on dessert apples favored in you-pick operations. A similar argument can be made for maintaining a mix of pears for the production of cider-like "perry."

Contributing and Non-Contributing Orchards/Extant Historic Character

Orchards of the Historic Fruita District currently serve two purposes: production of fruit for picking by visitors, and maintenance of the historic character of the district. The orchards that no longer reflect the Mormon horticultural heritage of the Historic Fruita District are considered by the NPS to be "non-contributing" to the character of the district. Those whose unique histories have been documented and maintained are considered by the NPS to be "contributing" to the legacy of the district. Based on these criteria, 12 of the 17 orchards in the Park are currently contributing orchards, and five are non-contributing orchards.

Ironically, the features that make Mormon homestead orchards more historically valuable than the modern commercial orchards also present issues for you-pick orchard management. The heirloom characteristics that were most beneficial to the Mormon homestead orchard production strategies were 1) gradients in ripening times; and 2) varieties suited for fresh eating, storage, cider making, and baking. In contrast, the ideal characteristics of the you-pick orchard are: 1) consistency in ripening times; 2) high yields; and 3) suitability for packing and long distance transport. As historic orchards are replanted, there is a balance between maintaining the historic character of the district, and fulfilling the requirements of a you-pick orchard. In the past, the emphasis has favored the more commercially desirable "you-pick" characteristics, at the expense of the historical character of the district. We propose replanting with historically significant, heirloom varieties on standard sized, seedling rootstocks, as a means of restoring some of the historical character of the district, while still trying to meet the needs of you-pick orchard enthusiasts.

In the Historic Fruita District, we recommend that five orchards be managed as noncontributing orchards for fruit production. This is because of their current varietal compositions, their locations, and the presence of deer fencing. These orchards include the Abie Clarke, Carrell, Jackson, Johnson, and Krueger Orchards. We recommend that the nine orchards with the most extant historic character be managed as contributing orchards to maintain the historic character of Fruita. These orchards include the Adam's orchard, Behunin Smith Orchards, Chesnut, Cook, Gifford, Holt, Mott's, Mulford, and Tine Olyer orchards. The Adam's, Cass Mulford Chesnut, and Jackson orchards are the only orchards that do not need considerable renovation, restoration, rehabilitation, or reconstruction over the next five to ten years. The Carrell and Abie Clarke orchards are the ones that we recommend undertaking complete replacement within the next five to ten years.

EXISTING CONDITIONS

Condition assessment of orchards:

Overall, the orchards of the Historic Fruita District have been well managed for some or most of their duration, and are in fair to good condition. However, the orchards have been largely managed for the production of fruit, and have drifted somewhat from the historic character of the district. The Adam's, Cass Mulford, Chesnut orchards, and the picnic area plantings are the orchards with the most extant historical character. The Abie Clarke, Carrell, and Jackson orchards are the only orchards where former heirlooms have been replaced with modern cultivars. The irrigation systems are in need of repair in the Cass Mulford Orchard, the Cook Orchard, and the Holt Orchard. In these orchards, the land was never properly leveled prior to establishing the orchards, and irrigation flow is erratic or uneven.

Demographic Summary of the Trees of Fruita

There are currently 2,654 fruit trees in the Capitol Reef orchards, consisting of 12 species and 65 varieties. 48 of the 65 varieties are heirloom varieties consistent with the management objectives of the park. Figures 1-5 summaries the current status of all orchard trees regardless of variety.

Figure 1: Fruit tree species in Capitol Reef National Park.

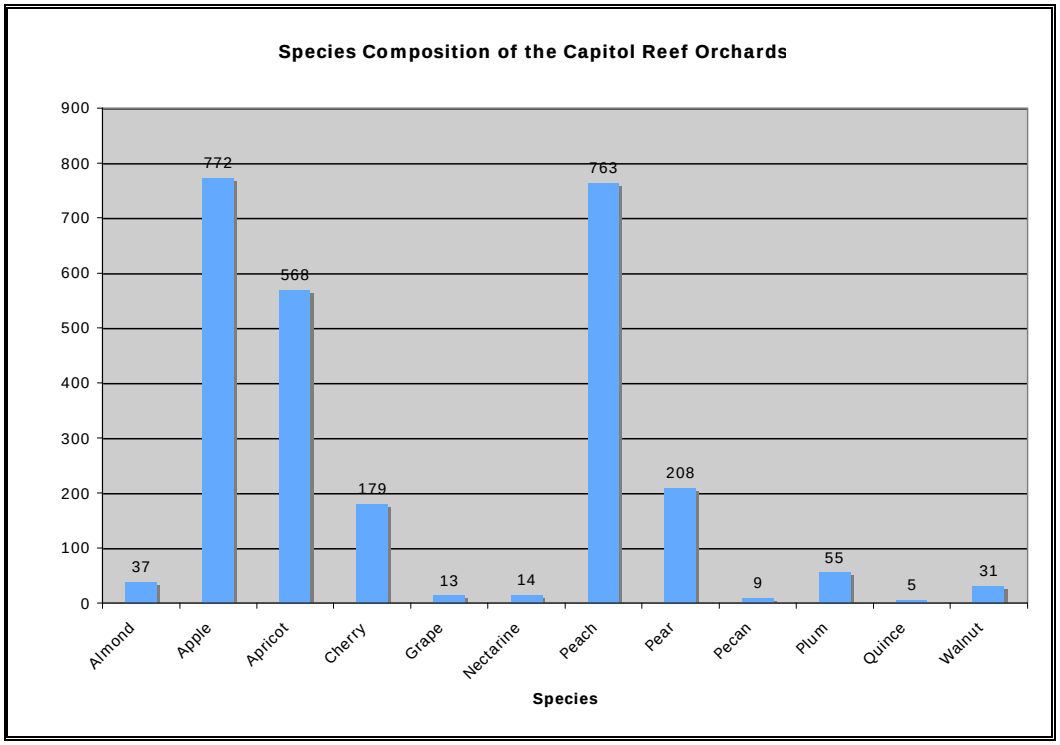


Figure 2: Fruit tree conditions in Capitol Reef National Park.

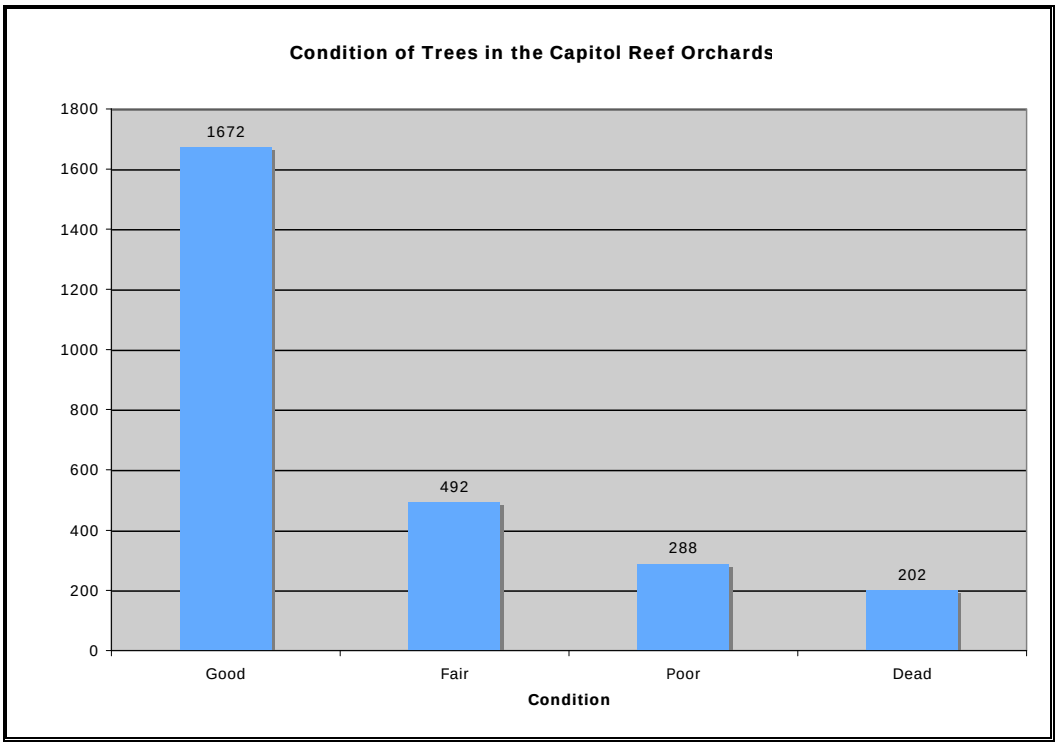


Figure 3: Ages of the fruit trees in Capitol Reef National Park.

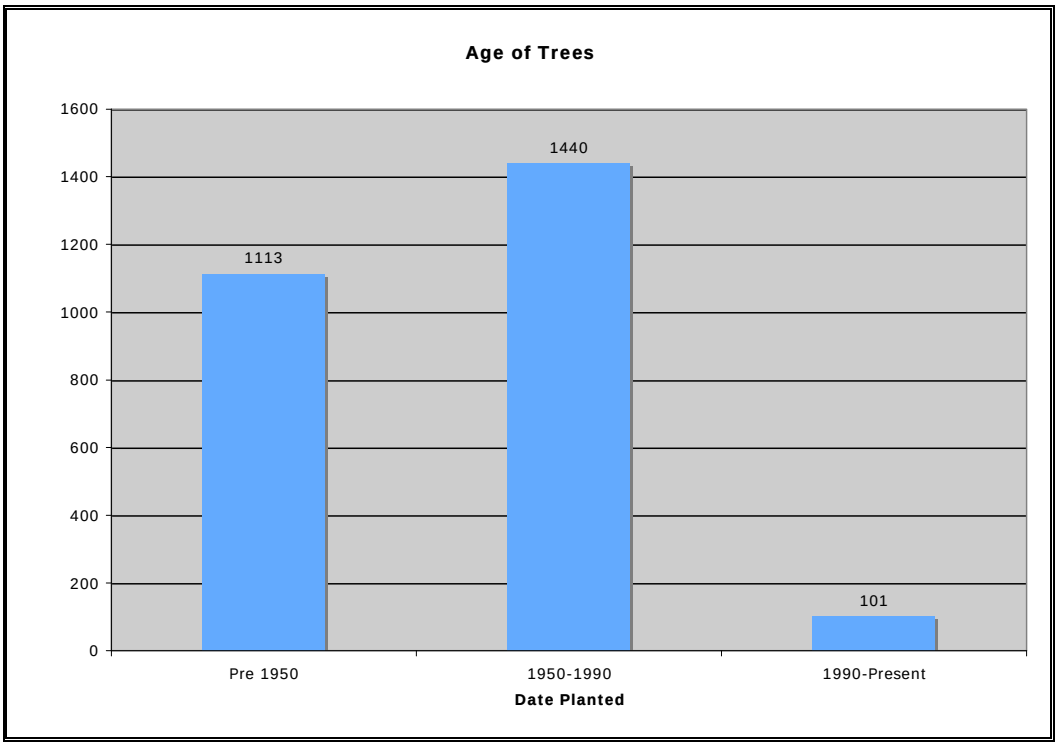


Figure 4: Age groupings for the fruit tree species at Capitol Reef National Park. Yellow indicates young trees planted after 1990; red indicates mid-aged trees planted between 1950 and 1990; and blue indicates historic trees planted prior to 1950.

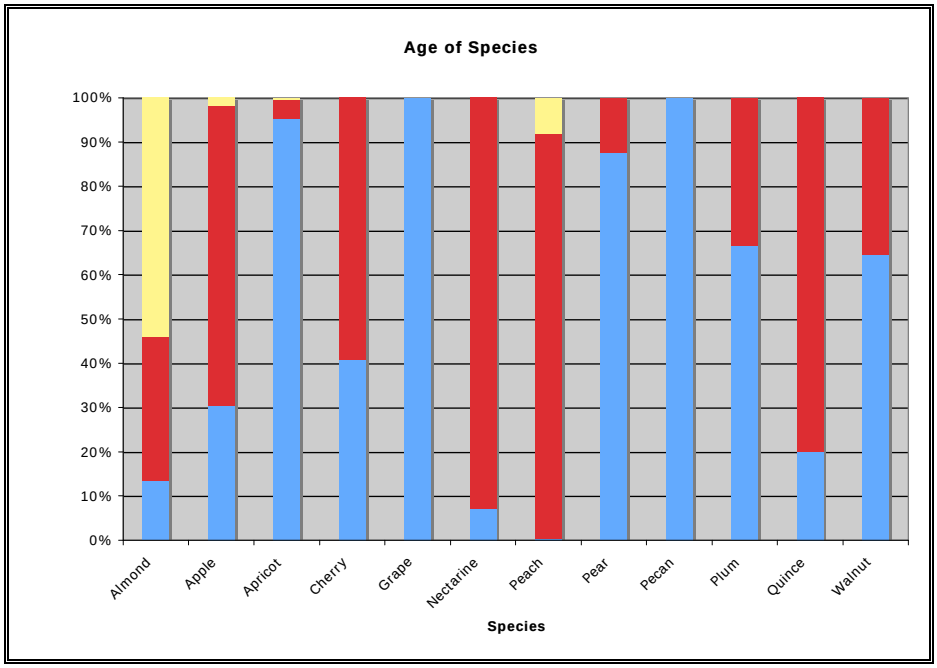
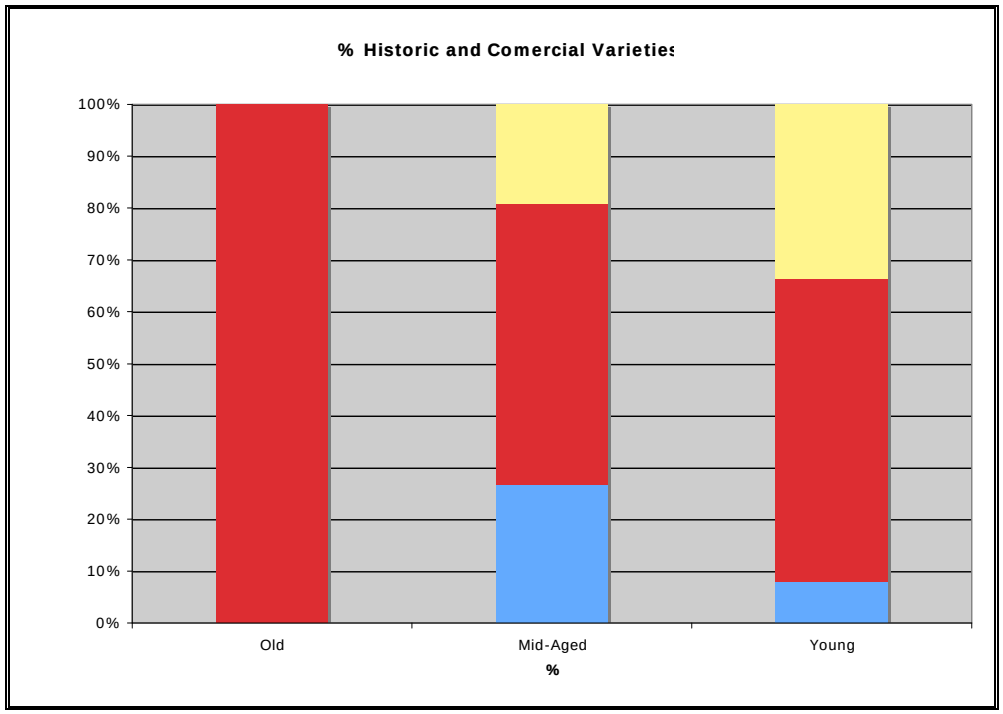


Figure 5: Percentages of historical varieties in the three general age groupings of fruit trees in Capitol Reef National Park. Red = heirloom varieties, yellow = commercial varieties, blue = unknown varieties. Genetic fingerprinting of the mid to young age groupings for identification is not economically practical, since they are not be rare varieties.



INVENTORY, HISTORY, CONDITION ASSESSMENT, AND RECOMMENDATIONS FOR EACH ORCHARD IN FRUITA

Orchard Name: **Abie Clarke Orchard**

Other Name(s): Lizard Farm

Location: The Abie Clarke Orchard is located approximately 0.6 miles from the visitor center, between the scenic drive and Sulfur Creek.

Size: The fenced-in enclosure encompasses approximately 2.8 acres.

Table 2: Fruit tree species and variety composition of the Abie Clarke Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	?	107	61
Tree ID Numbers	----	----	1623-1694
Species Composition	**Peach** **Pear** **Apricot** **Apple** **Plum**	**Cherry** (107) Lambert Utah Giant Van Bing	**Apricot** (5) **Cherry** (56) Lambert* Utah Giant* Van* Bing* *These varieties were here in 1993, but since no record of which trees are correspond to these varieties, we do not know if all of these varieties still grow in the Abie Clarke Orchard.

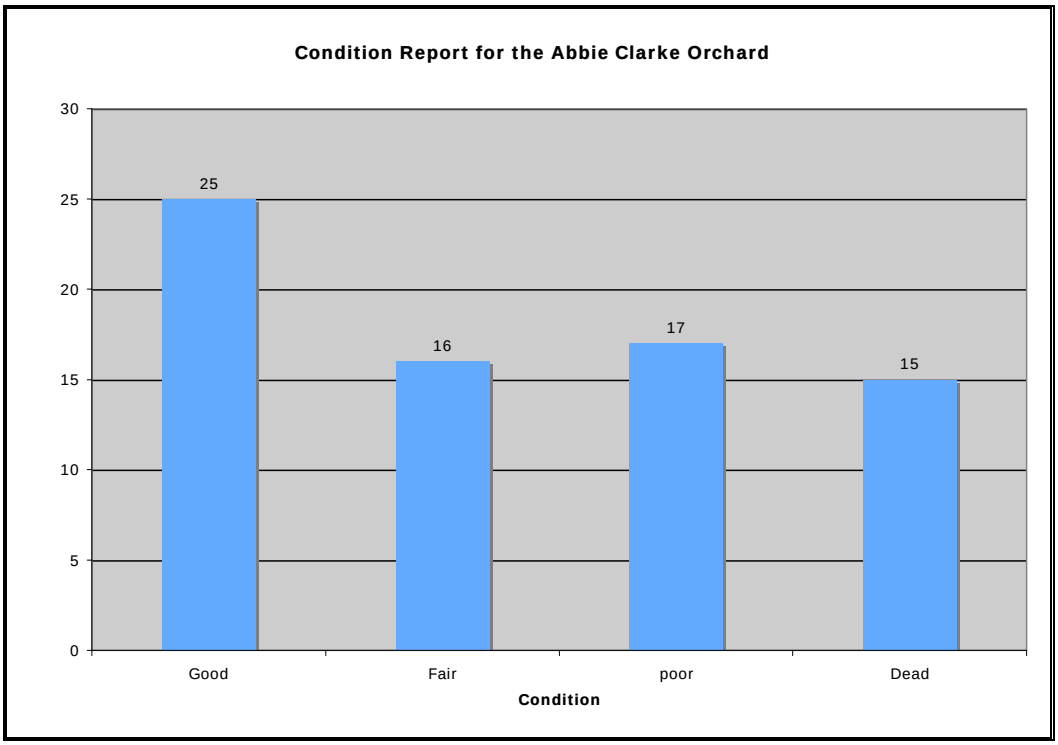
Abie Clarke 2006

Historical Context:

This property was originally part of the Elijah Behunin Homestead, but came under the ownership of Joseph Cook from (1902-1916). Andrew Adam's owned the land from 1916-1930, and Merin and Cora Smith held ownership from 1930-1945. There is no clear documentation indicating whether Abie Clarke actually had any association with this orchard or property. In 1940, there was approximately 3.4 acres under cultivation, but the orchard was replanted in 1988, whereupon the orchard size dropped to approximately 2.8 acres, with 0.6 acres being lost to development. The historical trees were replanted with commercial cherry cultivars. According to maintenance staff, the nursery that supplied the cherry trees recalled them because of faulty or diseased rootstocks, but the park never followed through, and the trees remain. Many of the cherry trees in the Abie Clarke orchard are in poor condition, even though they are not old trees.

Condition Assessment:

Figure 6: Condition report of the Abie Clarke Orchard.



Many of the cherry trees in the Abie Clarke orchard are in fair to poor condition, or have died.

Management Recommendations:

We recommend that all or most of the cherry trees be removed, and the orchard be replanted in historical varieties. This orchard is in a good location to serve as a possible nursery sight for reestablishing orchards in the park. The orchard was leveled prior to planting the cherry trees, however we recommend laser-leveling the orchard site before replanting a new orchard.

Orchard Name: **Adam's Orchard**

Other Name(s): Sprang Orchard

Location: The Adam's Orchard is located approximately 0.8 miles from the visitor center on the north side of the scenic drive.

Size: The Adam's Orchard is approximately 1.0 acre in size.

Table 3: Fruit tree species and variety composition of Adam's Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	----	----	40
Tree ID Numbers	----	----	1695-1737
Species Composition	**Apricot** **Apple** **Mulberry** **Nectarine** **Potawatomi Plum** **Walnut**	**Apricot** **Apple** **Mulberry** **Nectarine** **Potawatomi Plum** **Walnut**	**Apricot** (35) **Apple** (1) **Mulberry** **Nectarine** (1) **Potawatomi Plum** (3)

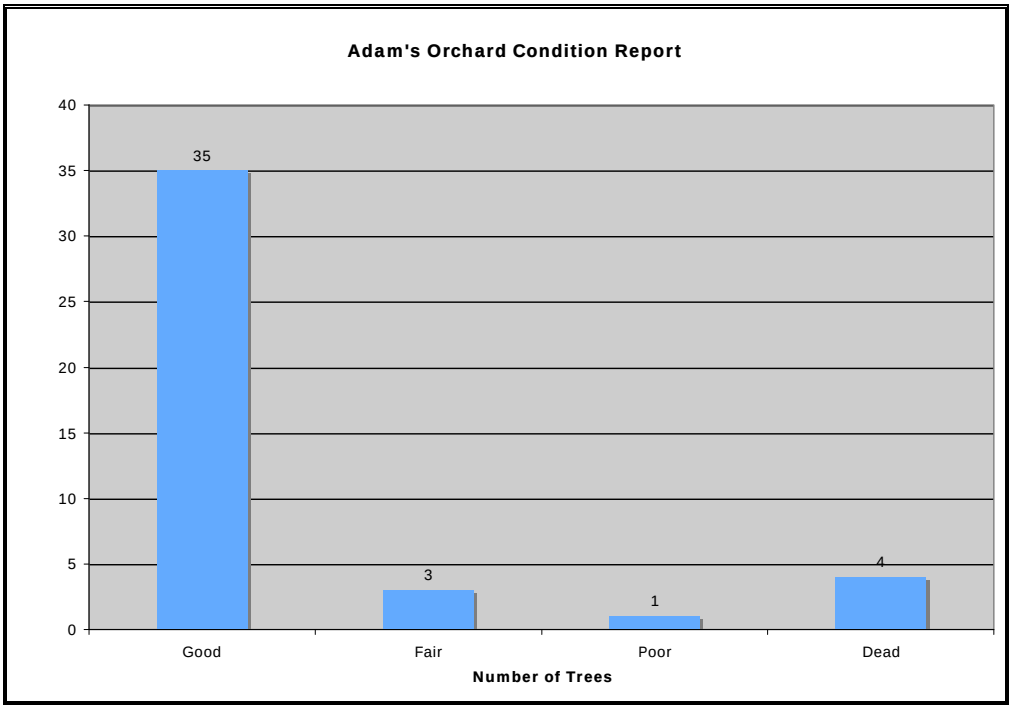
Adam's Orchard 2006

Historical Context:

The property was originally part of the Elijah Behunin Homestead, but then went under the ownership of Joseph Cook (1902-1916). Andrew Adam's owned the property from 1916-1930, and Merin and Cora Smith held ownership from 1930-1945. Owen Davis owned the property from 1945-1955, and Richard and Elizabeth Sprang owned the property until it became part of Capitol Reef National Park. Merin and Cora Smith reportedly planted most of the fruit trees remaining there.

Condition Assessment:

Figure 7: Condition report of Adam's Orchard.



Adams orchard consists mostly of historic apricot trees of heirloom varieties. The trees are generally in good health, and the irrigation system is in working condition.

Management Recommendations: (Preserve)

The Adams Orchard is in generally good condition with only minor pruning and maintenance required. Missing trees should be replaced as necessary.

Orchard Name: **Amasa Pierce Orchard**

Other Name(s): North Schoolhouse Orchard

Location: The Amasa Pierce Orchard is located approximately 0.8 miles from the visitor center on the north side of Highway 24, west of the Fruita Schoolhouse.

Size: The Amasa Pierce Orchard encompasses approximately 1.2 acres.

Table 4: Fruit tree species and variety composition of the Amasa Pierce Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	38	47	15
Tree ID Numbers	----	----	613-631

Species Composition	**Apple** (38)	**Apple** (14) **Apricot** (33)	**Apple** (9) **Apricot** (6)

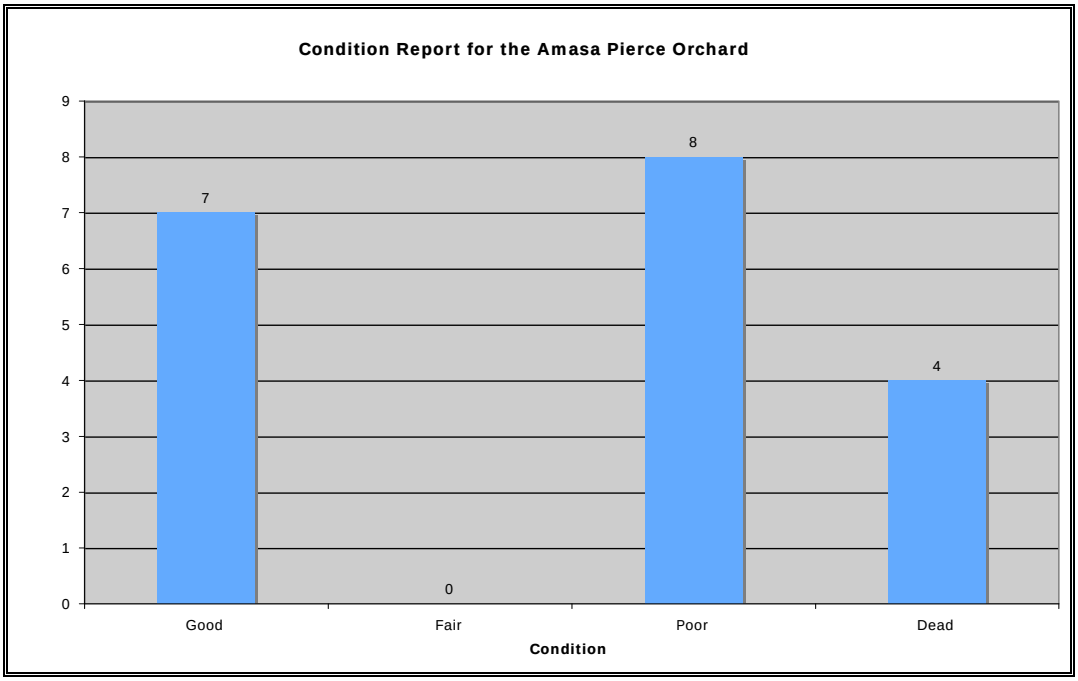
Amasa Pierce 2005

Historical Context:

The property was originally part of the Elijah Behunin Homestead, but was sold to Joseph Cook, who farmed the land from 1902-1916. Andrew Adams owned the property from 1916-1930, and later Merin and Cora Smith owned the property from 1930-1945. Amasa Pierce had no known association with the property. The apricot cultivars presently there were newly planted in 1993.

Condition Assessment:

Figure 8: Condition report of the Amasa Pierce Orchard.



The Amasa Pierce Orchard is in fair to poor condition. The historic trees are either dying of old age and disease, or they have already died.

Management Recommendations: (Restore/Rehabilitate)

We recommend that the Amasa Pierce orchard be maintained as a historic orchard, and that the fair to poor apple trees be eventually replaced with heirloom varieties. We further recommend site leveling prior to replanting.

Orchard Name: **Behunin Orchard**

Other Name(s): North Smith Place

Location: The Behunin Orchard is located approximately 0.8 miles east of the visitor center, east of the schoolhouse on the north side of Highway 24.

Size: The Behunin Orchard encompasses approximately 0.7 acres.

Table 5: Fruit tree species and variety composition of the Behunin Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	----	----	23
Tree ID Numbers	----	----	589-612

Species Composition	**Apple** **Apricot** **Cherry** **Pear** **Plum**	**Pear** Bartlett **Potawatomi Plum**	**Apple** (1) **Apricot** (1) **Pear** (15) Bartlett **Potawatomi Plum** (6)

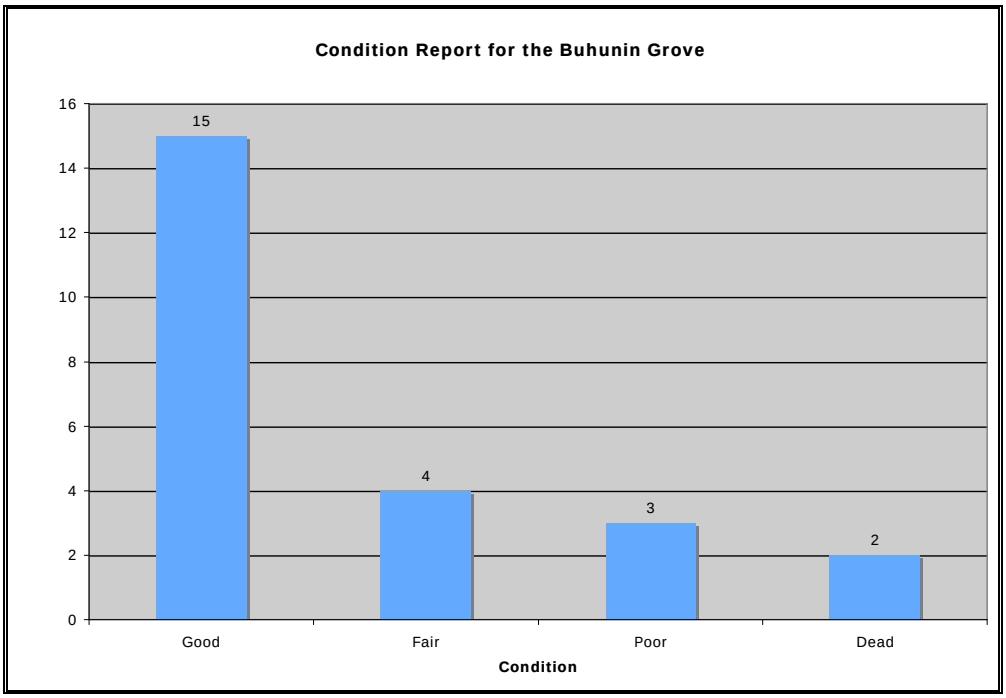
Behunin Grove 2005

Historical Context:

The Behunin Orchard was originally part of the Nels Johnson Homestead, but the land was sold to Merin and Cora Smith in 1928. They owned the land until it became part of Capitol Reef National Park in 1961. Cora Smith planted the heirloom trees as part of a larger orchard, but construction of Highway 24 in 1962 isolated this small orchard patch from the others.

Condition Assessment:

Figure 9: Condition report of the Behunin Orchard.



The Behunin orchard is an heirloom planting of Bartlett pear trees. The trees are mostly in good condition, though there are gaps where trees have died over the years.

Management Recommendations: **(Restore and Rehabilitate)**

While many of the trees are in good condition, the overall condition of the Behunin Orchard is fair to poor. Many fruit trees have died, leaving open spaces. In addition to minor pruning we recommend the orchard be restored to its former historical context. Prior to restoration we recommend site leveling and irrigation repair to the extent possible without harming existing trees.

Orchard Name: **Brimhall Orchard (See Mott's Orchard)**

Site Name: **Campground**

Other Name(s): N/A

Location: The Campground is located approximately 1.5 miles from the visitor center on the Scenic Loop Road.

Size: 3.6 acres (?)

Table 6 Fruit tree species and variety composition of the Campground.

Dates Recorded	Historically	1993	2005
Number of Trees	?	?	1
Tree ID Numbers	----	----	1621
Species Composition	**?**	**?**	**Apricot** (1) Blenheim?

Campground 2006

Historical Context:

We speculate that the Campground was originally part of the Chesnut Orchard, which was first owned by property Nels Johnson, but was sold to William Chesnut in 1925. Mr. Chesnut owned the land until it became part of Capitol Reef National Park in 1962. In 1940 the orchard encompassed 6.4 acres, 3.6 of which was destroyed in 1987 during the construction of the Campground.

Condition Assessment:

The Campground has only one heirloom apricot tree remaining, but it is in good condition.

Management Recommendations:

We recommend that the heirloom apricot tree be propagated and planted in other orchards to ensure the survival of the variety. This apricot has a very rich flavor, and dark orange flesh, characteristic of Blenheim apricots. It may be the only surviving apricot of this variety in the park, and thus should be preserved as a historic tree *in situ*, as well as planting it in other orchards throughout the park.

Orchard Name: **Carrell Orchard**

Other Name(s): Mulford Pasture

Location: The Carrell Orchard is located approximately 1.5 miles from the visitor center, west of the Scenic Drive, and just to the east of the Group Campsite.

Size: The Carrell Orchard encompasses approximately 2.1 acres under fence.

Table 7: Fruit tree species and variety composition of the Carrell Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	----	266	238
Tree ID Numbers	----	----	2403-2659
Species Composition	**?**	**Peach** Elberta J H Hale	**Peach** Elberta J H Hale

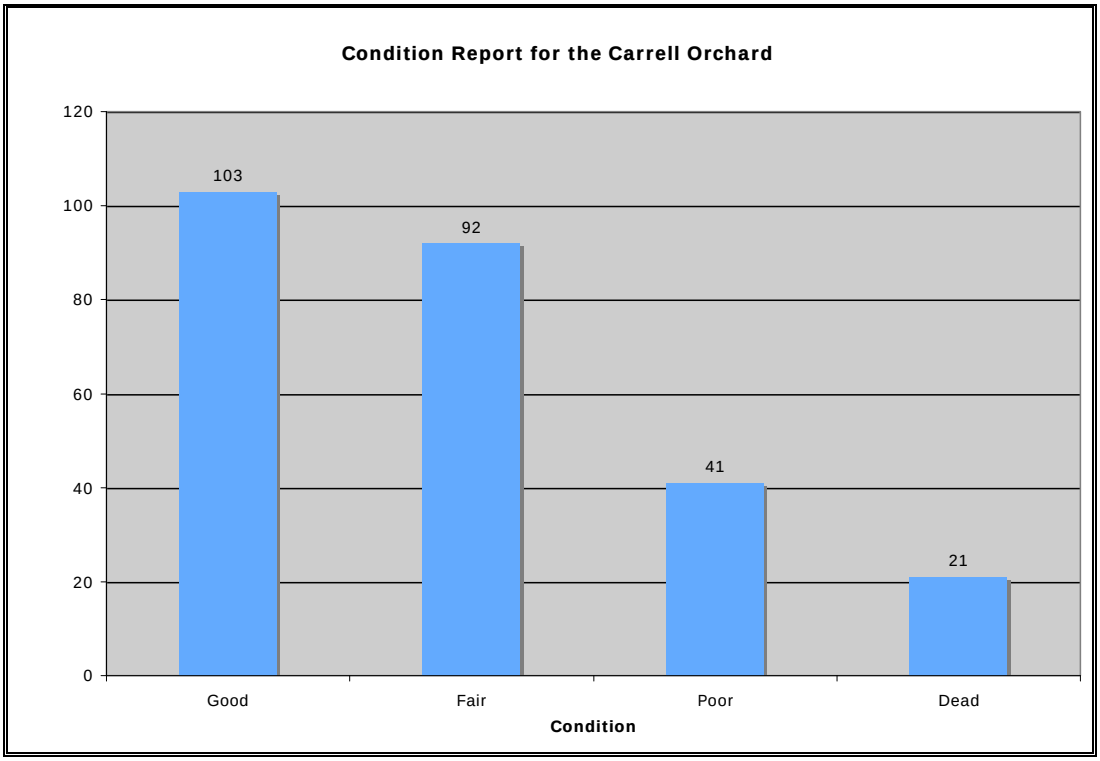
Carrell Orchard 2005

Historical Context:

This orchard was originally homesteaded by Hyrum Behunin, and was owned by the Pendleton family from 1915-1922. Cass Mulford acquired the property in 1922 and retained ownership until it became part of Capitol Reef National Park in 1962. The orchard was planted in 1987 and 1988 on what was formerly the Mulford pasture. Some of this land was lost to development of the group campsite in 1987.

Condition Assessment:

Figure 10: Condition report of the Carrell Orchard.



The Carrell Orchard is planted in peach trees that are currently in fair to good health. The orchard was leveled prior to planting, so the irrigation system is in working condition. However, the peach trees are nearing the end of their productive years.

Management Recommendations: (Replace)

The Carrel Orchard is in good condition, but many of the peach trees are reaching the end of their productive years. We recommend annual pruning and maintenance with replacement with young trees of heirloom varieties in the next five to ten years.

Orchard Name: **Cass Mulford Orchard**

Other Name(s): Lower Mulford Orchard; Diamond Ranch

Location: The Mulford Apricot Orchard is located approximately 1.5 miles from the visitor center between the Scenic Drive and the Fremont River, south of the Campground.

Size: The Mulford Orchard encompasses approximately 6.1 acres.

Table 8: Fruit tree species and variety composition of the Cass Mulford Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	743(?)	387	357
Tree ID Numbers	----	----	2028-2392
Species Composition	**Apricot** (742) **Black Walnut** (1)	**Apricot** (386) **Black Walnut** (1)	**Apricot** (356) **Almond** (1)

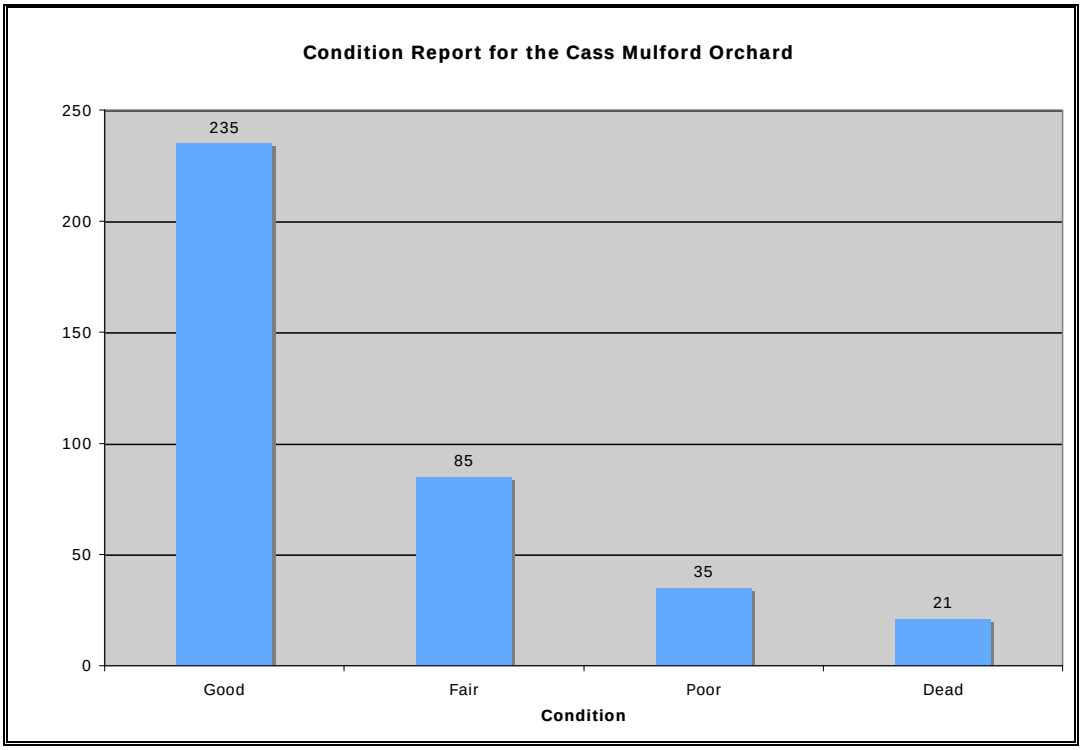
Cass Mulford Orchard 2006

Historical Context:

This orchard was originally part of the Hyrum Behunin Orchard, but was sold to the Pendleton family who owned the property from 1915-1922. Cass Mulford owned the property from 1922 until it became part of the Capitol Reef National Park in 1962. Cass Mulford planted the orchard in 1939 for commercial apricot production intended primarily for the canning industry.

Condition Assessment:

Figure 11: Condition report of the Cass Mulford Orchard.



The apricot trees are mostly in good condition, but the ground is uneven between them and irrigation flows are irregular. The row of trees along the fence to the north of Hattie's Field needs better access to irrigation water, or the trees may die.

Management Recommendations: (Preserve)

The Mulford Apricot Orchard is in good condition, and only moderate pruning is necessary. We recommend work to improve the evenness of the irrigation system to bring water to the dry areas of the orchard and replacement of trees as they die. We also recommend filling in the open spaces with young trees of heirloom varieties.

Orchard Name: **Chesnut Orchard**

Other Name(s): Upper Chesnut Orchard

Location: The Chesnut Orchard is located approximately 1.5 miles from the visitor center between the Fremont River and the Loop C Campground.

Size: The Chesnut Orchard is approximately 2.8 acres in size.

Table 9: Fruit tree species and variety composition of the Chesnut Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	?	129	115
Tree ID Numbers	----	----	1907-2027
Species Composition	**Apple** (434) **Peach** (84) **Pear** (30)	**Almond** (25) **Apple** (75) Red Delicious Yellow Delicious Grimes Golden **Pear** (29) Bartlett	**Almond** (19) **Apple** (68) Red Delicious Yellow Delicious Grimes Golden **Pear** (28) Bartlett

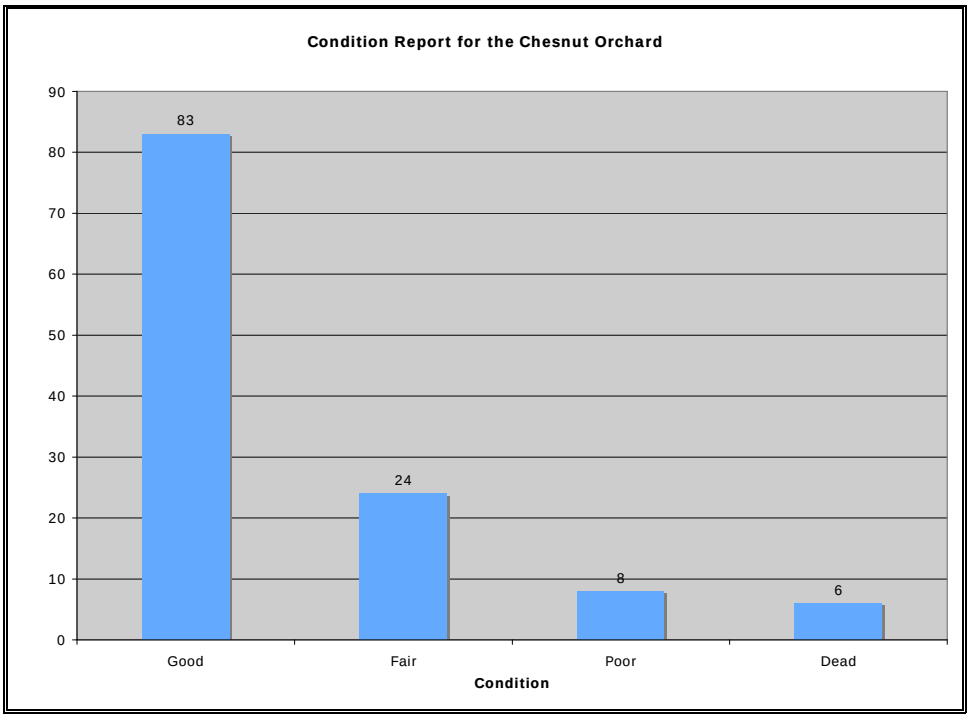
Chesnut Orchard 2006

Historical Context:

This orchard was originally part of the Nels Johnson Homestead, but was sold to William Chesnut in 1925. Mr. Chesnut owned the land until it became part of Capitol Reef National Park in 1962. In 1940 the orchard encompassed 6.4 acres, but 3.6 acres of plantings were destroyed in 1987 during the construction of the Loop C Campground.

Condition Assessment:

Figure 12: Condition report of the Chesnut Orchard.



The Chesnut Orchard is a historic planting of Red and Yellow Delicious apple trees and Bartlett pear trees. The trees are in good health, and the irrigation system in fair to good working condition.

Management Recommendations: (Preserve)

The Chesnut Orchard is in fair to good condition, and we recommend it be managed as a historic orchard of heirloom fruits. Only minor pruning and modest work to maintain irrigation flows are necessary in the next few years.

Orchard Name: **Cook Orchard**

Other Name(s): South Schoolhouse Orchard

Location: The Cook Orchard is located 0.6 miles from the visitor center, between the Highway 24 on the north, and Sulfur Creek on the south.

Size: The Cook Orchard encompasses approximately 3.1 acres.

Table 10: Fruit tree species and variety composition of the Cook Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	?	106	113
Tree ID Numbers	----	----	632-760
Species Composition	**Apple** (45) **Apricot** (22) **Cherry** (81) **Peach** (42) **Pear** (45)	**Apple** **Apricot** **Cherry** **Peach** **Pear**	**Apple** (13) Red Delicious Golden Delicious **Apricot** (19) **Cherry** (33) **Peach** (24) **Pear** (24) Bartlett Unknown varieties

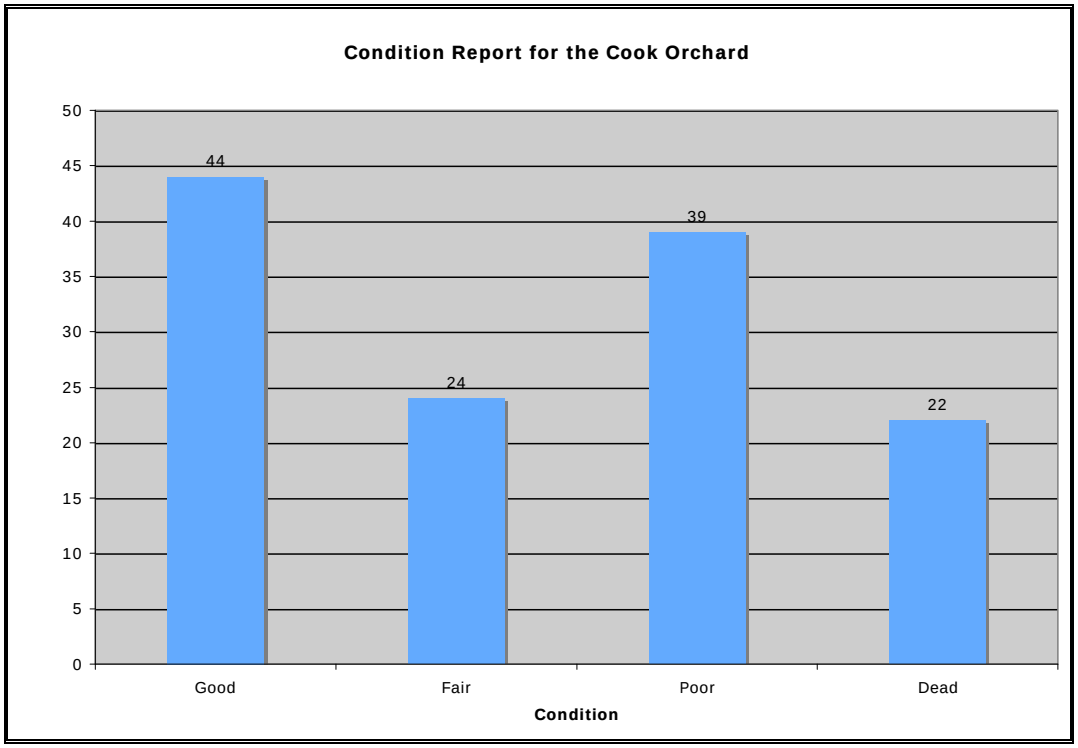
Cook Orchard 2006

Historical Context:

This orchard was originally part of the Elijah Behunin Homestead, but was sold to Joseph Cook, who farmed the land from 1902-1916. Andrew Adams owned the property from 1916-1930, and Merin and Cora Smith purchased it and managed it from 1930-1945. The Cook family planted the present orchard. In 1940, 4.2 acres where planted in annual crops, 3.4 acres in orchards, and 0.8 acres in fields. In 1962, approximately 1.1 acres were lost in the construction of Highway 24.

Condition Assessment:

Figure 13: Condition report of the Cook Orchard.



The Cook Orchard is a sizeable planting of heirloom cherry trees and a handful of heirloom apple, pear and apricot trees. On the west there is a younger planting of modern peach cultivars.
The cherry trees are in fair to poor condition and are near the end of their productive life spans. The ground is uneven and the irrigation system is in need of repair.

Management Recommendations: (Restore/Rehabilitate)

We recommend that the Cook Orchard be maintained as an heirloom orchard, and that the cherry trees already in poor condition be grafted and replaced with grafted rootstocks of the same heirloom varieties. We also recommend site leveling prior to replanting.

Site Name: Doc Inglesby Picnic Grove

Other Name(s): N/A

Location: The Doc Inglesby Picnic Grove is located approximately 1.0 mile east of the visitor center on both sides of the Scenic Drive.

Size: ?

Table 11: Fruit tree species and variety composition of the Doc Inglesby Picnic Grove.

Dates Recorded	Historically	1993	2005
Number of Trees	?	?	26
Tree ID Numbers	----	----	1562-1588
Species Composition	**?**	**?**	**Apricot** (4) **Carpathian Walnut** (2) **Cherry** (8) **Grape** (3) **Osage Orange** (1) **Pear** (7) **Plum** (1)

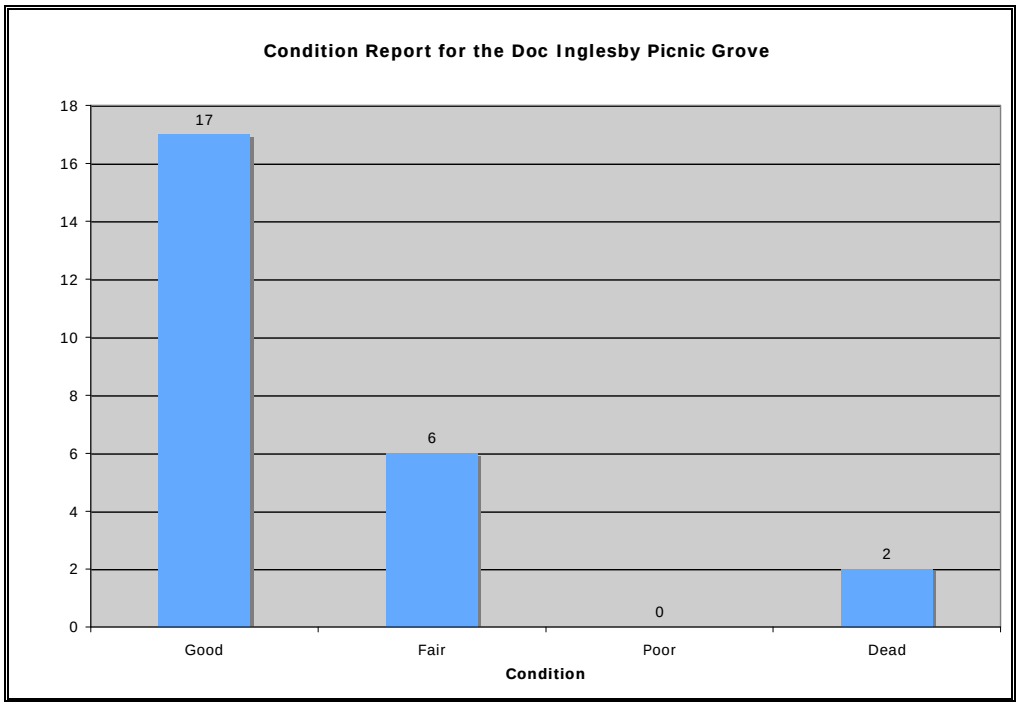
Doc Inglesby Picnic Grove 2006

Historical Context:

We speculate that the property was originally part of the Nels Johnson Homestead. The fruit trees may very well date from this time period, and may be some of the oldest trees in the park.

Condition Assessment:

Figure 14: Condition report of the Doc Inglesby Picnic Grove.



The historic fruit trees in the Picnic area are in good to fair condition.

Management Recommendations: (Preserve)

We recommend annual maintenance to the trees and the irrigation system. Young trees should be grafted from the old trees; unknown varieties should be identified, and then planted to replace the old trees as they die.

Orchard Name: **Diamond Ranch (See Cass Mulford Orchard)**

Orchard Name: **Gifford Farm** (includes the Gifford House)

Other Name(s): N/A

Location: The Gifford Farm Orchard is located approximately 1.2 miles east of the visitor center, on the south side of the scenic drive.

Size: The Gifford farm encompasses approximately 3.8 acres.

Table 12: Fruit tree species and variety composition of the Gifford Farm.

Dates Recorded	Historically	1993	2005
Number of Trees	141	41	38
Tree ID Numbers	----	----	1870-1906
Species Composition	**Alfalfa** **Corn** **Apple** (15) **Apricot** (92) **Cherry** (1) **English Walnut** (1) **Peach** (15) **Pear** (15) **Plum** (1) **Quince** (1)	**Pasture Grass** **Apple** (9) Red Delicious Yellow Delicious Rome Beauty **Apricot** (24) **English Walnut** (1) **Peach** (1) **Pear** (5) **Quince** (1)	**Pasture Grass** **Apple** (6) Crabapple Red Delicious Yellow Delicious Rome Beauty **Apricot** (24) **English Walnut** (1) **Peach** (1) **Pear** (5) **Quince** (1)

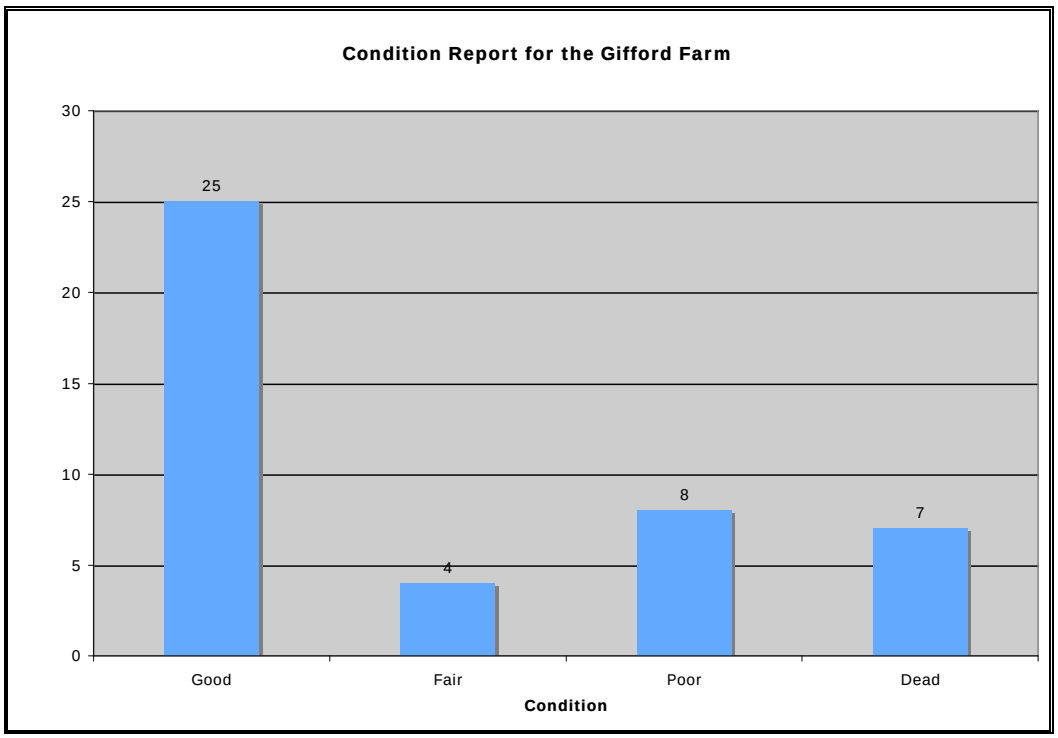
Gifford Farm 2006

Historical Context:

This orchard was originally part of the Nels Johnson Homestead, which was split up among several owners. Cal Pendleton pieced several properties together between 1892 and 1915. Jorgen Jorgensen bought the property in 1919, but split off and sold what is now the Gifford farm to his son in law Dewey Gifford in 1929. In the 1930s, Gifford planted corn and alfalfa in the pasture adjacent to the barn. He planted fruit trees across much the property. In 1940, approximately 3.8 acres were cultivated in annual crops and in perennial alfalfa. Around three acres were planted in fruit trees.

Condition Assessment:

Figure 15: Condition report of the Gifford Farm.



The Gifford Orchard is a historic orchard, but most of its heirloom fruits have perished. Only a few Red Delicious, Yellow Delicious and Rome Beauty apple trees, and unnamed apricot trees persist.

Management Recommendations: (Restore and Rehabilitate)

We recommend that the Gifford orchard be restored and rehabilitated to a historic orchard. Prior to restoration of the orchard, we recommend that the ground be leveled for proper functioning of the irrigation system. We recommend planting heirloom varieties in the area that now serves as a horse pasture, in as close to the original context as possible. The quince, Rome Beauty, and Yellow Delicious heirloom varieties should be grafted onto young, standard-sized stock and then replanted in the orchard.

Orchard Name: **Gifford House (See Gifford Farm)**

Orchard Name: **Grape Vine Vineyard (See 'Tine Oyler North Orchard)**

Orchard Name: **Group Campground**

Other Name(s): N/A

Location: The group campground is located approximately 1.5 miles from the visitor center, west of the Scenic Drive and the Carrell Orchard.

Size: ?

Table 13: Fruit tree species and variety composition of the Group Campground.

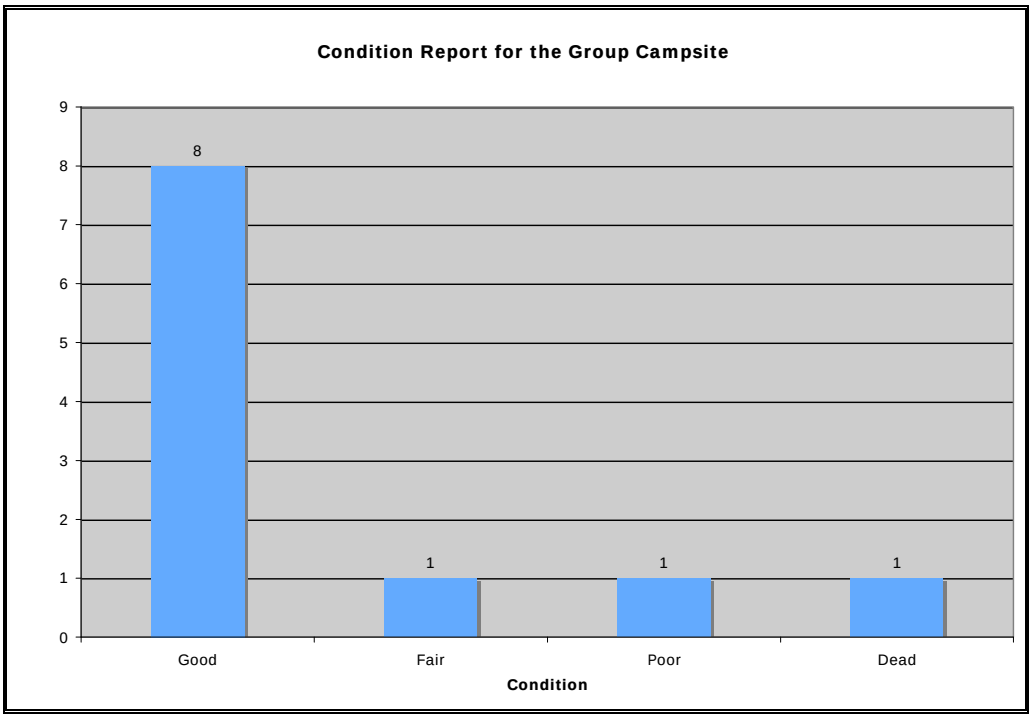
Dates Recorded	Historically	1993	2005
Number of Trees	?	?	10
Tree ID Numbers	----	----	1611-1620
Species Composition	**?**	**?**	**Apple** (2) Yellow Transparent **Apricot** (2) **Pear** (6) Bartlett

Historical Context:

The site of this orchard was originally homesteaded by Hyrum Behunin, and was later owned by the Pendleton family from 1915-1922. Cass Mulford acquired the property in 1922 and managed it until it became part of Capitol Reef National Park in 1962. The Carrell Orchard was planted on what was formerly the Mulford pasture. Some of this land was lost to development of the group campsite in 1987.

Condition Assessment:

Figure 16: Condition report of the group campground fruit trees.



The heirloom fruit trees in the group campground are mostly in good condition, with the exception of the two Yellow Transparent apple trees, one of which has died, and the other is in poor condition.

Management Recommendations: (preserve)

We recommend annual maintenance of the heirloom fruit trees and the irrigation system there, with replacement of the trees in poor condition with the same varieties.

Orchard Name: **Guy Smith Place (See Jackson Orchard)**

Site Name: **Holt House**

Other Name(s): N/A

Location: The Holt House is located 1.2 miles east of the visitor center, on the north side of Highway 24, west of the Tine Oyler North Orchard.

Size: na

Table 14: Fruit tree species and variety composition of the Holt House.

Dates Recorded	Historically	1993	2005
Number of Trees	?	?	5
Tree ID Numbers	----	----	1547-1551
Species Composition	**?**	**?**	**Apples** (3) Crabapple **Apricot** (1) **Plum** (1) Stanley

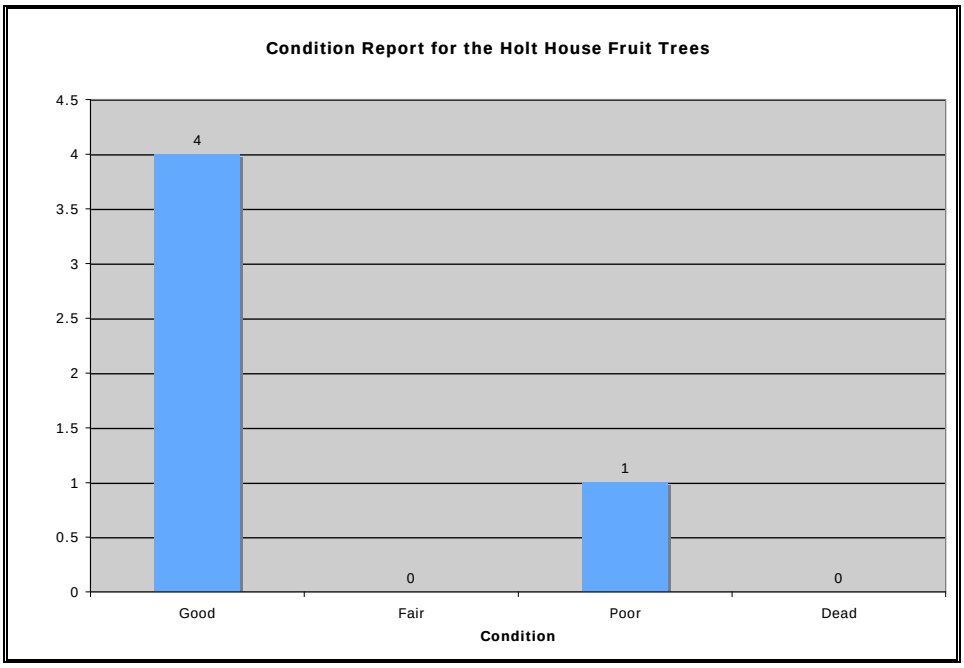
Holt House 2006

Historical Context:

This orchard was originally part of the Leo Holt Homestead, but was owned by Tine Olyer from 1916 to 1941. Max Krueger bought the property in 1941.

Condition Assessment:

Figure 17: Condition report of the Holt House fruit trees.



The heirloom fruit trees planted around the Holt House are mostly in good condition, though irrigation is absent.

Management Recommendations: (Preserve)

We recommend annual maintenance for the heirloom fruit trees around the Holt House, and the installation of an irrigation system suited to the site (a sprinkler system may be appropriate here).

Orchard Name: **Holt Orchard**

Other Name(s): Middle Krueger Orchard

Location: The Holt Orchard is located 1.2 miles east of the visitor center, on the south side of Highway 24.

Size: The Holt Orchard encompasses approximately 2.4 acres.

Table 15: Fruit tree species and variety composition of the Holt Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	177+	132+	86
Tree ID Numbers	----	----	394-484
Species Composition	**Apples** (74) **Apricot** (10) **Cherry** (27) **Pear** (66) **Potawatomi Plum**	**Apples** (29) Red Delicious Yellow Delicious **Apricot** (1) **Cherry** (42) **Pear** (60) **Potawatomi Plum**	**Apples** (20) Red Delicious Yellow Delicious **Apricot** (1) **Cherry** (18) **Pear** (43) Bartlett Flemish Beauty Unknown var. **Potawatomi Plum** (4)

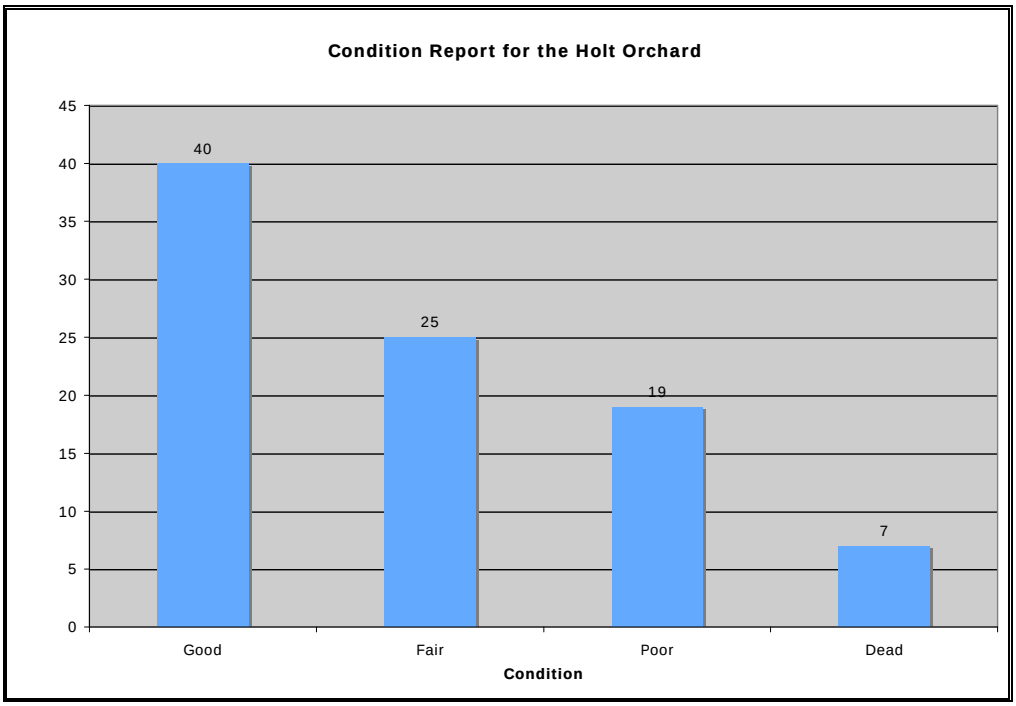
Holt Orchard 2006

Historical Context:

This orchard was originally part of the Leo Holt Homestead, but was owned by Tine Olyer from 1916-1941. Max Krueger bought the property in 1941. Most of the orchards were planted by Tine Oyler. In 1940 there were 3.4 acres of orchards and 0.2 acres in alfalfa. An acre of cultivated land was lost in 1962 to the construction of Highway 24.

Condition Assessment:

Figure 18: Condition report of the Holt Orchard.



The Holt Orchard is currently planted with many heirloom fruit trees, mostly Bartlett pears and Red Delicious apple trees. Several heirloom Flemish Beauty pear trees are also growing in the orchard. The topography of the orchard is rough, and because of that, the irrigation system is currently inefficient.

Management Recommendations: (Restore)

The Holt Orchard needs restoration and rehabilitation of its irrigation system to be maintained as a historic orchard. We recommend site leveling to the extent possible, prior to planting heirloom fruit trees in the open spaces, and replacement of the dying trees.

Orchard Name: **Jackson Orchard**

Other Name(s): Guy Smith Place

Location: The Jackson Orchard is located approximately 0.4 miles from the visitor center, between Sulfur Creek on the South and Highway 24 on the North.

Size: The Jackson orchard encompasses approximately 4.7 acres.

Table 16: Fruit tree species and variety composition of the Jackson Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	404	443	402
Tree ID Numbers	----	----	761-1185
Species Composition	**Apple** (22) **Peach** (382)	**Apple** (228) **Nectarine** (17) **Peach** (198)	**Apple** (221) Braeburn Capitol Reef Red Empire Gibson Golden Ginger Gold Oregon Spur II Primestar Red Delicious Yellow Delicious **Apricot** (9) **Grape** (10) **Nectarine** (11) **Peach** (141) Elberta J H hale **Pear** (10) Flemish Beauty

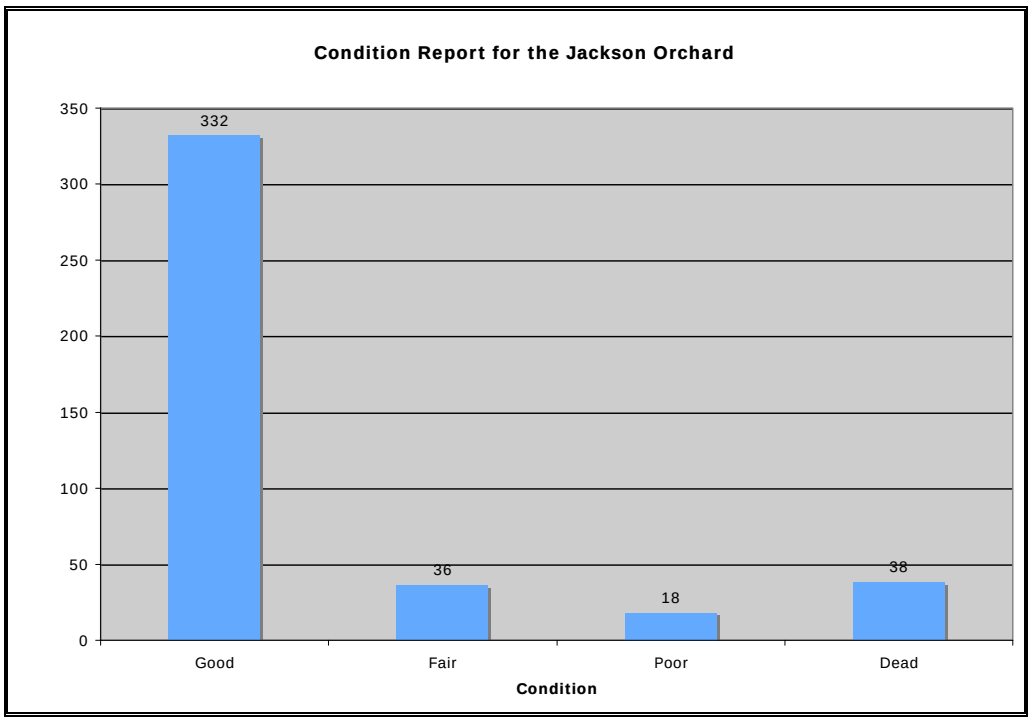
Jackson Orchard 2006

Historical Context:

This orchard was originally part of the Elijah Buhinin Homestead, but became part of a 105-acre parcel owned by Merin and Cora Smith, who managed the property from 1930-1945. Guy Smith, the brother of Merin Smith, planted the orchards. He reportedly farmed the parcel for only a few years before moving to California. In 1940, there were approximately 5 acres planted in fruit trees, 0.6 of which was lost in 1962 by the construction of Highway 24. In 1996, the west half of the orchard was renamed in memory of Worthen and Kent Jackson. The young apple trees there were planted by Kent Jackson.

Condition Assessment:

Figure 19: Condition report of the Jackson Orchard.



The Jackson Orchard is an assemblage of old heirloom Red Delicious apple trees, young, semi-dwarf modern commercial varieties, peach trees, including a planting of peach trees on dwarfing rootstock, and the Capitol Reef Red apple, also on semi-dwarfing rootstock. With the exception of the dwarf peach trees and the nectarines, the orchard is in good condition.

Management Recommendations: (Rehabilitate)

For the Jackson Orchard we propose general maintenance of existing heirloom trees, removal of the dwarf peaches, and replacement of all of the peach cultivars within ten years with heirlooms on standard rootstocks. We also recommend site leveling prior to replanting. Because the orchard is fenced, we recommend that the orchard be managed for fruit picking, but replanted with standard sized, heirloom varieties in the long-term. Replacement of the commercial apple

varieties in the next 20 years with standard, heirloom varieties is also recommended. Nevertheless, because the Ginger Gold apple is among the most popular picking apples in the park, this species should be maintained as an heirloom. The Breaburns, Oregon Spurs and Primestars can be replaced with heirloom varieties.

Orchard Name: **Johnson Orchard (See Nels Johnson Orchard)**

Orchard Name: **Krueger Orchard (See Max Krueger Orchard)**

Orchard Name: **Lodge Area (See Nels Johnson Orchard)**

Orchard Name: **Lower Mulford Orchard (See Cass Mulford Orchard)**

Orchard Name: **Max Krueger Orchard**

Other Name(s): North Lower Krueger Orchard

Location: The Krueger orchard is located approximately 1.3 miles east of the visitor center on the north side of Highway 24.

Size: The Krueger Orchard encompasses approximately 4.1 acres in size.

Table 17: Fruit tree species and variety composition of the Krueger Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	184+	384	379
Tree ID Numbers	----	----	1-393
Species Composition	**Apple** (128) **Apricot** (49) **Cherry** (5) **Black Walnut** (2)	**Apple** (65) Red Delicious Yellow Delicious Jonathan **Apricot** (14) **Peach** (303) Elberta J H Hale Garnett Rosa Red Haven **Plum** (2) Italian prune **Black Walnut** (2)	**Apple** (66) Red Delicious Yellow Delicious Jonathan Granny Smith **Apricot** (19) **Peach** (291) Elberta J H Hale Garnett Rosa Red Haven **Plum** (2) Italian prune

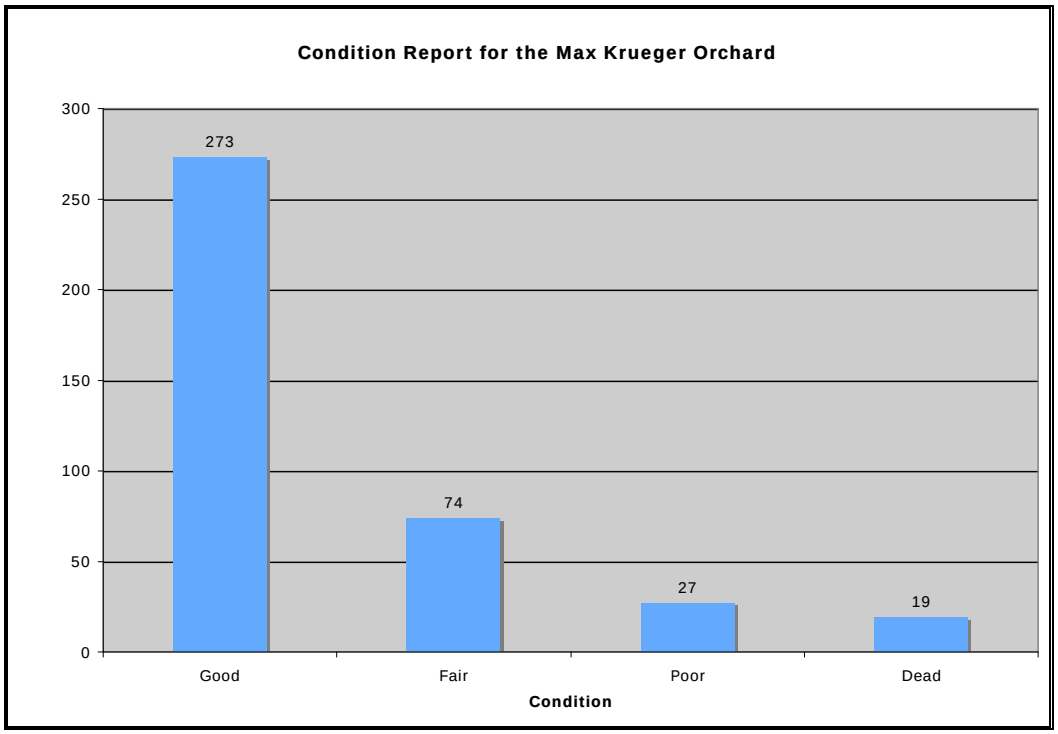
Max Krueger Orchard 2006

Historical Context:

This orchard was originally part of the Leo Holt Homestead, but the land was sold to Tine Oyler who, remained in possession of it from 1916 until 1941. Max Krueger purchased the property in 1941. The orchards were originally planted in 1935 by Tine Oyler. About an acre was lost in the construction of Highway 24 in 1962. Twelve new apple trees were planted in 1964, and 130 peach trees where planted on standard rootstock in 1979.

Condition Assessment:

Figure 20: Condition report of the Max Krueger Orchard.



The Krueger orchard is an assemblage of heirloom fruit trees inter-planted with younger, commercial cultivars of peach trees. In general the orchard is in good health, though many of the peach trees are reaching the end of their fruit producing years. The irrigation system is in good working condition.

Management Recommendations: (Rehabilitate)

While the Krueger orchard is generally in good condition, we recommend replacement of trees as they die and filling of open spaces. The peach trees may need replacement in the next five to ten years. Because of its location and the availability of sound fencing, we recommend that the orchard be largely maintained for fruit picking by visitors.

Orchard Name: **Merin Smith Place**

Other Name(s): South Smith Place

Location: The Smith Orchard is located approximately 0.9 miles east of the visitor center on the south side of Highway 24, east of the Cook Orchard.

Size: The Smith Orchard encompasses approximately 3.5 acres.

Table 18: Fruit tree species and variety composition of the Merin Smith Place.

Dates Recorded	Historically	1993	2005
Number of Trees	124	----	63
Tree ID Numbers	----	----	524-588
Species Composition	**Apple** (26) **Apricot** (29) **Cherry** (16) **Peach** (14) **Pear** (39)	**Apple** **Apricot** **Cherry** Montmorency **Pear** Bartlett	**Apple** (11) **Apricot** (16) **Cherry** (2) Montmorency **Pear** (31) Bartlett **Plum** (3)

Merin Smith 2006

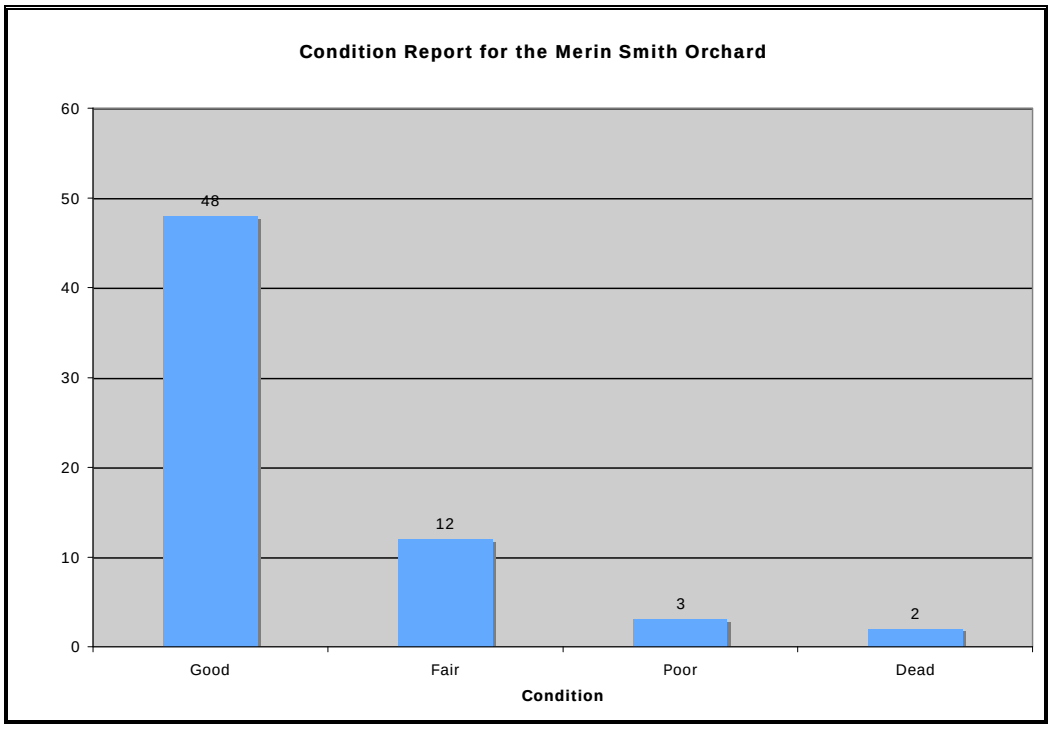
Historical Context:

This orchard was originally part of the Nels Johnson Homestead, but was sold to Amasa Pierce, and later to Tine Oyler, who sold it to M.E. and Jehu Blackburn. Merin and Cora Smith owned the property from 1928 to 1961. In 1940, 3.2 acres were planted in orchards, and 2.0 acres

were planted in field crops. Approximately 1.1 acres where lost in 1961 during the construction of highway 24.

Condition Assessment:

Figure 21: Condition report of the Merin Smith Orchard.



The Merin Smith Orchard is in good condition, though there are many gaps in the rows where trees have died.

Management Recommendations: (Restore and Rehabilitate)

In addition to routine maintenance, we recommend the orchard be restored to its former historical context. Prior to restoration we recommend site leveling and irrigation repair to the extent that it is possible without harming existing trees.

Orchard Name: **Middle Krueger Orchard (See Holt Orchard)**

Orchard Name: **Mott's Orchard**

Other Name(s): Brimhall Orchard

Location: Mott's Orchard is located approximately 0.2 miles east of the visitor center on the north side of the Scenic Drive, east of the housing area.

Size: Mott's Orchard encompasses approximately 9.7 acres.

Table 19: Fruit tree species and variety composition of Mott's Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	352	430	350
Tree ID Numbers	----	----	1186-1546
Species Composition	**Almond** (9) **Apple** (75) **Apricot** (52) **Cherry** (35) **Mulberry** (1) **Peach** (161) **Pear** (12) **Plum** (5) **Quince** (2)	**Almond** (9) **Apple** (263) **Apricot** (39) **Cherry** (35) **Mulberry** (1) **Peach** (66) **Pear** (8) **Plum** (7) **Quince** (2)	**Almond** (6) **Apple** (281) Fuji Ginger Gold Red Delicious Yellow Delicious Yellow Transparent **Apricot** (33) **Carpathian Walnut** (5) **Cherry** (9) **Peach** (4) **Pear** (7) Bartlett **Plum** (4)

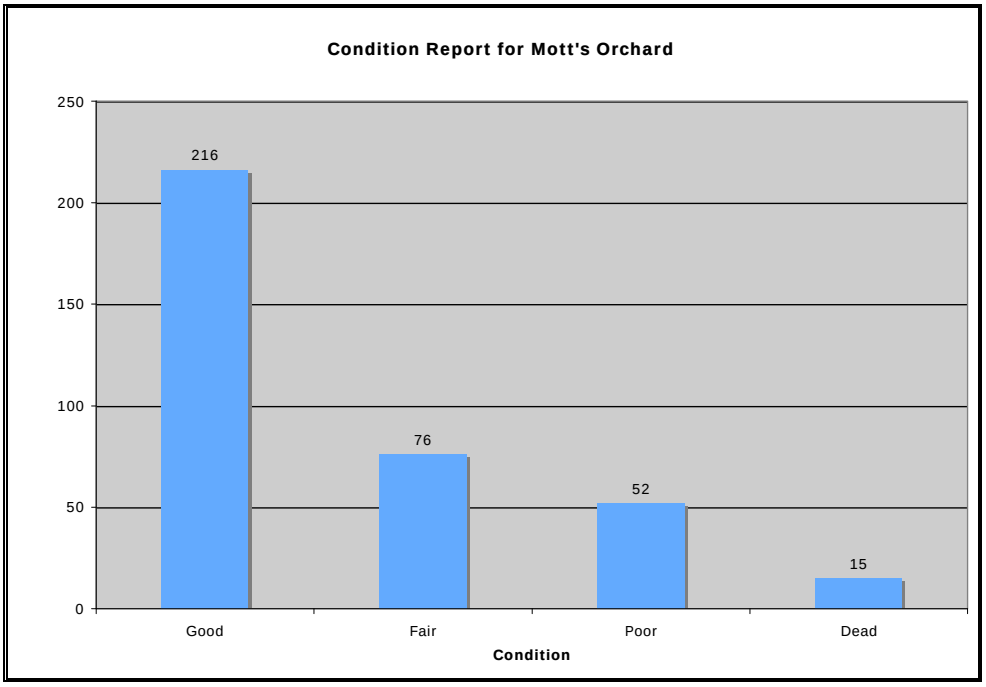
Mott's Orchard 2006

Historical Context:

The land was originally part of the Elijah Behunin Homestead, but was farmed by Aaron Holt from 1913-1939. Orval Mott owned the property from 1940-1943, when he sold the property to Dean Brimhall. Twenty acres were under cultivation in 1940, 13 of which where field crops and 8 acres where planted in fruit trees. The staff housing development destroyed approximately 9.6 acres between 1964 and 1965.

Condition Assessment:

Figure 22: Condition report of Mott's Orchard.



Mott's Orchard is an historic site that has largely been replanted with younger Red and Yellow Delicious apple trees. The irrigation system is generally adequate, although some sctions need attention. The trees are mostly in good condition, though some of the older heirloom trees are dying.

Management Recommendations: (Rehabilitate)

Mott's Orchard is in fairly good condition. We recommend site leveling and eventual replacement of many of the Red and Yellow Delicious apple trees with heirloom varieties.

Orchard Name: Mulford Apricot Orchard (See Cass Mulford Orchard)

Orchard Name: Mulford Pasture (See Carrell Orchard)

Orchard Name: **Nels Johnson Orchard**

Other Name(s): Lodge Area

Location: The Johnson Orchard is located approximately 0.9 miles east of the visitor center on the north side of the Scenic Drive, to the west of the picnic area.

Size: The Johnson Orchard encompasses approximately 1.9 acres.

Table 20: Fruit tree species and variety composition of the Nels Johnson Orchard.

Dates Recorded	Historically	1993	2005
Number of Trees	?	108	131
Tree ID Numbers	----	----	1738-1869
Species Composition	**?**	**Almond** (12) **Apple** (30) Ben Davis Jonathan McIntosh Red Astrachan Rome Beauty Winesap Winter Banana Yellow Transparent **Apricot** (11) Morepark Sweetpit **Cherry** (9) Montmorency **English Walnut** (4) **Peach** (14) Elberta J H Hale **Pear** (15) Bartlett Flemish Beauty Summer **Plum** (9) Italian Prune Yellow Egg **Quince** (4)	**Almond** (12) **Apple** (40) Ben Davis Jonathan McIntosh Red Astrachan Rome Beauty Winesap Winter Banana Yellow Transparent **Apricot** (14) Morepark Sweetpit **Cherry** (8) Montmorency **Carpathian Walnut** (3) **Peach** (14) Elberta J H Hale **Pear** (16) Bartlett Flemish Beauty Summer **Plum** (7) Italian Prune Yellow Egg **Quince** (4)

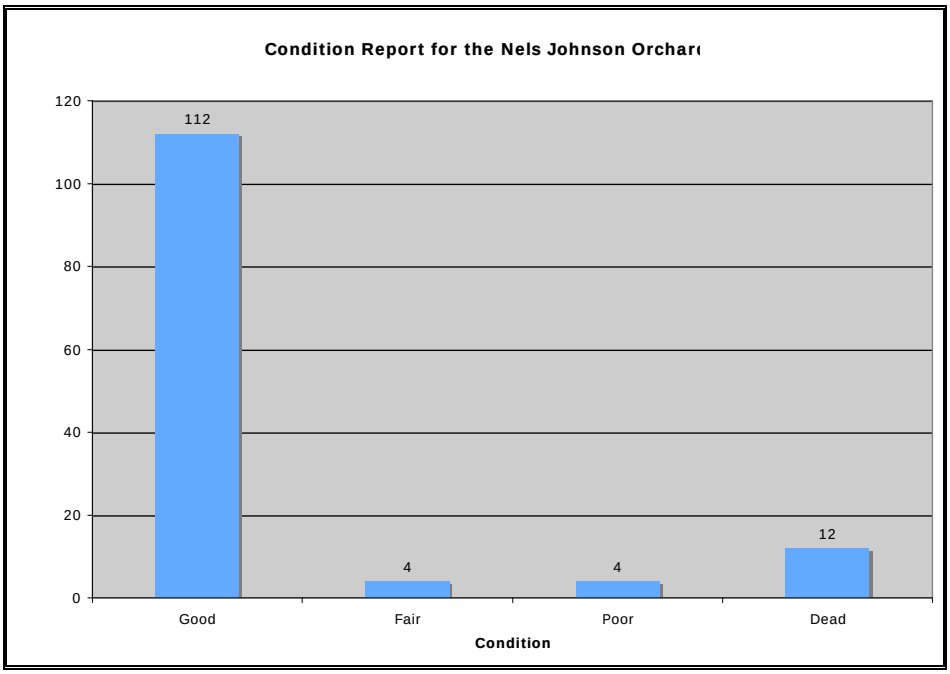
Nels Johnson Orchard 2006

Historical Context:

This orchard was originally planted in 1882 as part of the Nels Johnson Homestead. This site is the supposed location of the original Nels Johnson orchard, which was one of the oldest in the valley. However, that orchard was destroyed in the construction of Capitol Reef Lodge, which has since been removed. Heirloom fruit trees were replanted on the site in the 1980s.

Condition Assessment:

Figure 23: Condition report of the Nels Johnson Orchard.



The Nels Johnson Orchard was replanted with a number of different varieties of heirloom fruit trees. The trees are currently in good health and the irrigation system is working. The orchard was leveled prior to planting and the flood irrigation system is currently in working order.

Management Recommendations: (Preserve)

The Johnson Orchard is in good condition. We recommend continuation of annual maintenance for the trees and the irrigation system. The Yellow Egg plums are in poor condition, so we recommend that they be replanted with young, healthy trees of the same variety.

Orchard Name: **North Lower Krueger Orchard (See Max Krueger Orchard)**

Orchard Name: **North Schoolhouse Orchard (See Amasa Pierce Orchard)**

Orchard Name: **North Smith Place (See Behunin Orchard)**

Orchard Name: **Petroglyph Orchard (See Tine Oyler North Orchard)**

Orchard Name: **Picnic Grove (See Doc Inglesby Picnic Grove)**

Site Name: **Fremont River Trail**

Other Name(s): N/A

Location: The plums along the Fremont River Trail are located approximately 1.5 miles from the visitor center, west of Hattie's Field.

Size: N/A

Table 21 Fruit tree species and variety composition along the Fremont River Trail.

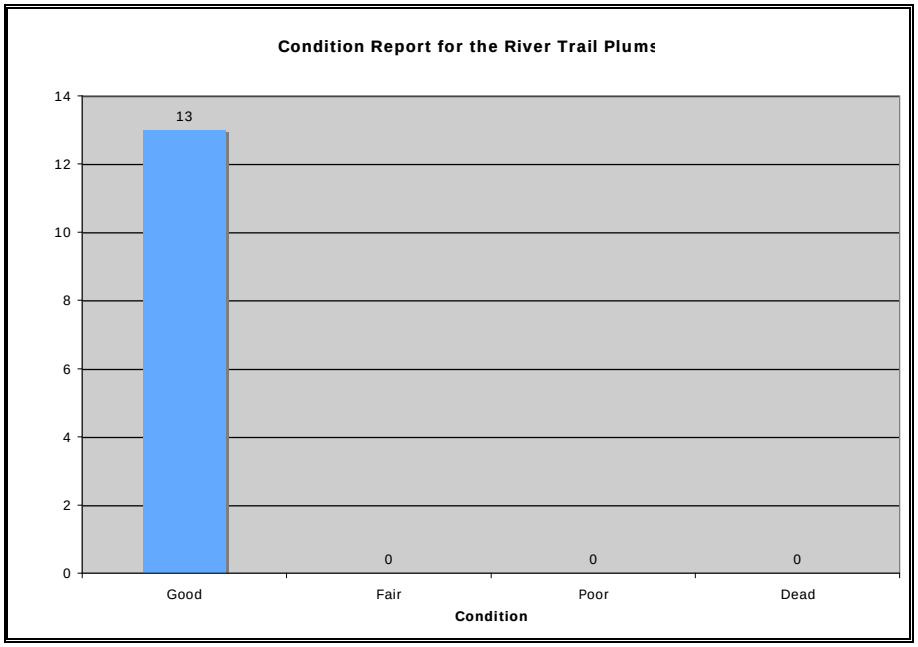
Dates Recorded	Historically	1993	2005
Number of Trees	?	?	13
Tree ID Numbers	----	----	1597-1610
Species Composition	**?**	**?**	**Potawatomi Plum** (13)

Historical Context:

We do not know who planted the Potawatomi plums along the Fremont River Trail, but we suspect that the land has a similar history to the adjacent properties, Hattie's Field and the Cass Mulford orchard. All of these properties where originally homesteaded by Hyrum Behunin.

Condition Assessment:

Figure 24: Condition report of the Fremont River Trail Potawatomi plums.



The Potawatomi plums along the Fremont River Trail are in good to fair condition. They do not receive irrigation.

Management Recommendations: (preserve)

We recommend annual maintenance of these plums and the installation of an irrigation system if possible.

Orchard Name: **Sprang Orchard (See Adam's Orchard)**

Orchard Name: **South Schoolhouse Orchard (See Cook Orchard)**

Orchard Name: **South Smith Place (See Merin Smith Place)**

Orchard Name: **Tine Oyler North Orchard**

Other Name(s): Grapevine Vineyard; Petroglyph Orchard

Location: The Tine Oyler North Orchard is located 1.1 miles east of the visitor center on the north side of Highway 24.

Size: The Tine Oyler North Orchard encompasses approximately 1.9 acres.

Table 22: Fruit tree species and variety composition of the Tine Oyler North Orchard.

Dates Recorded	Historically (North and south orchards combined)	1993	2005
Number of Trees	44+		10
Tree ID Numbers	----	----	1552-1561
Species Composition	**Apple** (7) **Apricot** (8) **Black Walnut** (1) **Cherry** (12) **Grapes** **Mulberry** (3) **Peach** (4) **Pear** **Pecan** (9)	**Apple** **Apricot** **Black Walnut** **Cherry** **Grapes** **Peach** **Pecan**	**Apple** (1) Crabapple **Pecan** (9)

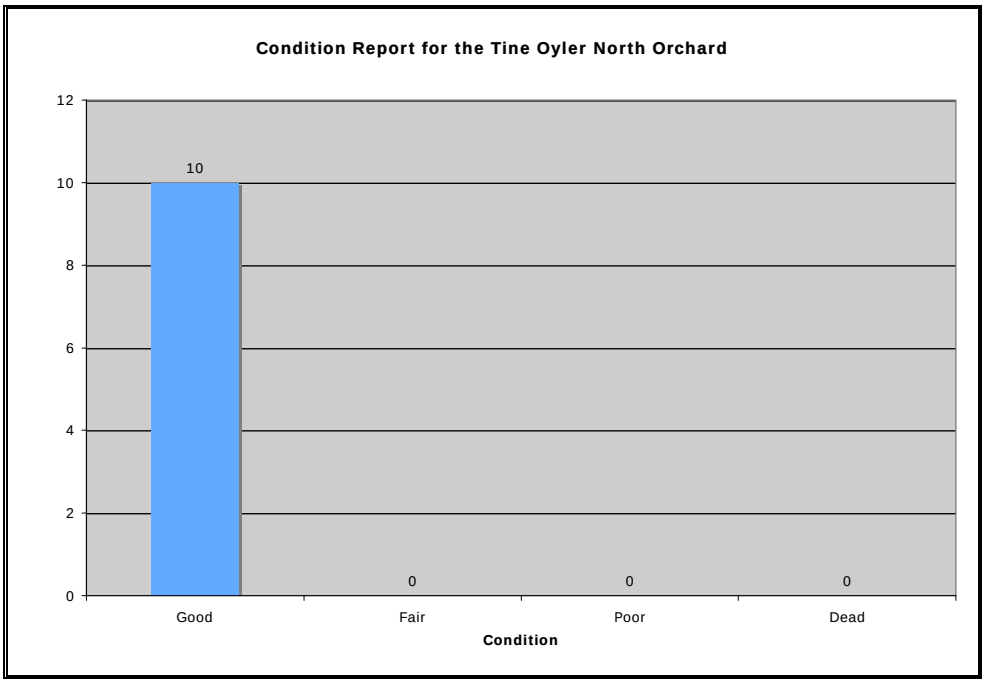
Tine Oyler North Orchard 2006

Historical Context:

This orchard was originally part of the Leo Holt Homestead, but Tine Oyler retained ownership from 1916 to1941, when it was sold to Max Krueger. Approximately 6.5 acres were under cultivation in 1940, 4.5 acres were in agricultural crops, and 2 acres were planted in fruit trees. The construction of Highway 24 in 1962 destroyed approximately two acres and split the property into the north and south orchards. The grapevines received regular maintenance through the 1980s, when the deer destroyed most of the vines.

Condition Assessment:

Figure 25: Condition report of the Tine Oyler North Orchard.



The northern section of the Tine Olyer Orchard has no trees left except for a row of pecan trees and an old crabapple.

Management Recommendations: (Reconstruct)

We recommend reconstruction of the Tine Olyer North Orchard. Site leveling and deer fencing are necessary prior to replanting with heirloom varieties. Reconstructing the irrigation systems and stabilizing the grape arbor is also recommended prior to replanting.

Orchard Name: **Tine Oyler South Orchard**

Other Name(s): N/A

Location: The Tine Oyler South Orchard is located 1.1 miles east of the visitor center, on the south side of Highway 24.

Size: The Tine Oyler South Orchard encompasses approximately 1.2 acres.

Table 23: Fruit tree species and variety composition of the Tine Oyler South Orchard.

Dates Recorded	Historically (North and south orchards combined)	1993	2005
Number of Trees	44+		38

Tree ID Numbers	----	----	485-523
Species Composition	**Apple** (7) **Apricot** (8) **Black Walnut** (1) **Cherry** (12) **Grapes** **Mulberry** (3) **Peach** (4) **Pear** **Pecan** (9)	**Apple** **Cherry** **Nectarine** **Peach** **Pear** **Plum**	**Apple** (2) Red Delicous **Cherry** (14) **Peach** (4) **Pear** (8) Bartlett **Plum** (7)

Tine Oyler South Orchard 2006

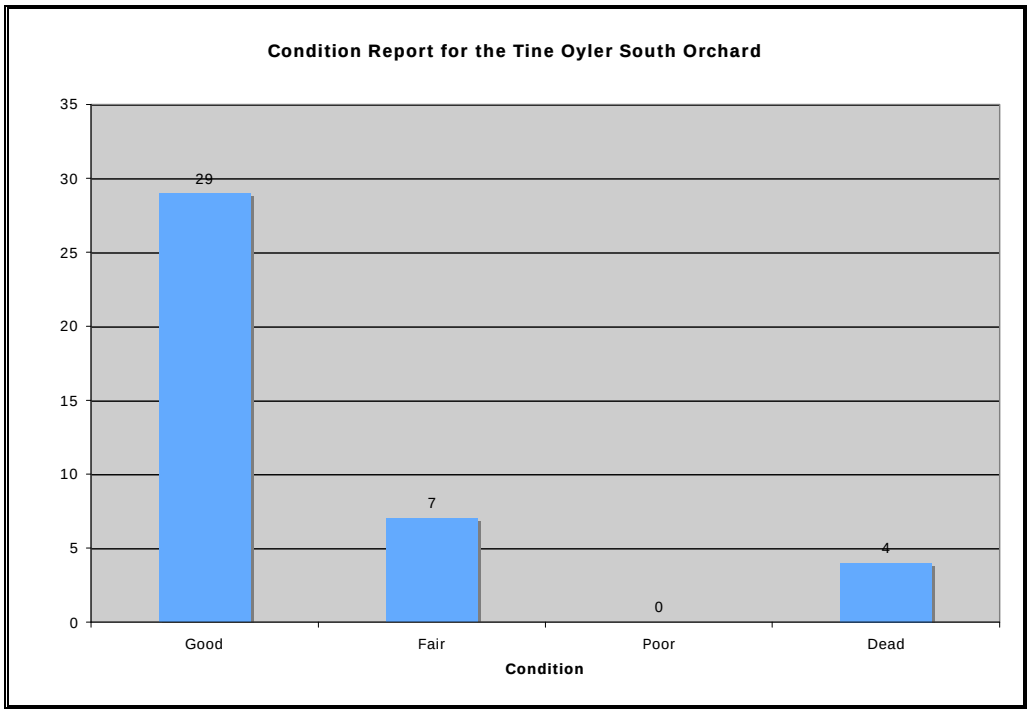
Historical Context:

This orchard was originally part of the Leo Holt Homestead. The property was sold to Tine Oyler, who retained ownership from 1916 to 1941. The property was owned by Max Krueger until it was transferred to the NPS. Approximately 6.5 acres where under cultivation in 1940, 4.5 acres where in agricultural crops, and 2 acres where planted in fruit trees. The

construction of Highway 24 in 1962 destroyed approximately 2 acres and split the property into the north and south orchards.

Condition Assessment:

Figure 26: Condition report of the Tine Oyler South Orchard.



The south orchard of the Tine Olyer Place is in better condition than the north orchard, though there are many gaps in the rows where trees have died.

Management Recommendations: (Rehabilitation)

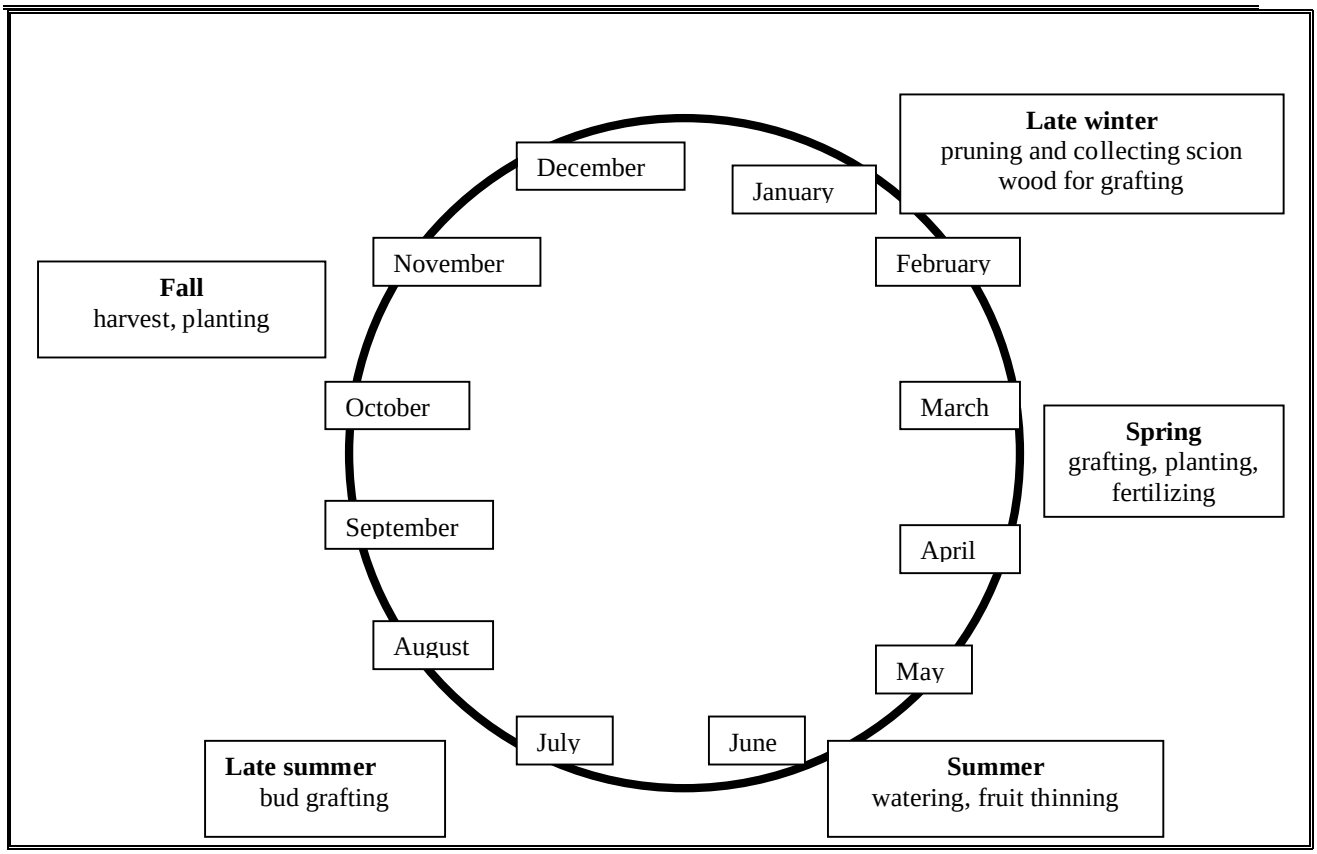
We recommend rehabilitation of the Tine Olyer South Orchard. Moderate work is necessary for proper functioning of the irrigation system prior to planting young trees of heirloom varieties in the open spaces.

Orchard Name: Upper Chesnut Orchard (See Chesnut Orchard)

Orchard Name: Lizard Farm (See Abie Clarke Orchard)

CALENDAR FOR MAINTENANCE AND MONITORING

Annual maintenance of the irrigation systems and caring for the trees is essential for restoring and maintaining healthy orchards. Managers should repair and maintain the irrigation system, prune and fertilize trees, monitor pests, and replace dead and dying trees on an annual basis.



General Maintenance Procedures

General Pruning of Mature Trees

The best time for pruning is late winter, after the risk of severe frost has past, but before the trees begin to break bud in the spring. On the Colorado Plateau, this translates into a window from late January through early March. We recommend light annual pruning over heavier pruning every few years because it is less stressful to the trees. The four underlying goals of pruning are to build a strong structure of limbs; remove dead and dying wood; open up the canopy of the tree to allow light to reach the fruit; and direct more energy to the production of fruit. When pruning, always cut back to a side lateral branch, otherwise the tree will sprout numerous branches where the limb was removed, forming what is known as a crow's foot. Suckers and water-sprouts, the fast growing shoots that grow from the base of the tree and trunk, should also be removed.

Apples, pears, and quinces produce fruit on the second years' growth. Generally, once the scaffolding system has been established (see Pruning and Training Young Trees), only very light pruning is necessary to remove dead wood, to keep the canopy open, and to maintain the general structure of the trees. With old and neglected trees, heavier pruning is often necessary to reestablish a scaffold system of branches. Complete pruning may take a few years if the tree has not been pruned in many years. If a large number of limbs need to be removed, you should plan on removing them over a three-year period, allowing the tree to recover over a longer period of time. This is the rule of thirds.

Apricots, Cherries, Plums

Apricots, cherries and plums can be treated in much the same way as apples and pears. Most of the fruit production occurs on two-year old growth, therefore pruning should be light once the general structure has been established.

Peaches, Nectarines

Peaches and nectarines produce fruit on one-and two-year old wood. They should be pruned much more severely on an annual basis than other species of fruit. A general guideline for these species is to remove 70% of the previous years' growth when pruning.

Walnuts, Pecans

Walnut and pecan trees generally do not need annual pruning, except to remove dead and diseased wood, and to establish the tree's structure at a young age.

Pruning and Training Young trees

The structure of a fruit tree is developed during the first few years of its life. Pruning is very essential at this time to ensure that crooked or weak limbs are removed. The first four to six years of a tree's life should be devoted to growing wood, and not producing fruit. Generally the modified central leader is the most accepted shape for apple, pear, plum and apricot, while an open bowl is most commonly used for peaches. Branches should be evenly-spaced, and should be weighted or staked to avoid narrow crotch angles, which are prone to breaking during heavy fruit years.

Collecting Scion Wood

Late winter, before the trees begin to break bud, is the best time to collect scion wood for grafting. Collect dormant one-year old shoots from the outside of the canopy, or slender water sprouts from inside the canopy above the graft union. Water sprouts are not as ideal for grafting, but are often the only suitable grafting wood available. Label the cuttings, and store them in a refrigerator, wrapped in damp paper towels, in a plastic bag.

Planting

Spring planting is done in early spring, or late winter, when the ground has thawed sufficiently to dig, and after danger of severe freezing has past. Planting can typically be done from mid-February through March in this climate. Fall planting is typically done in late September and early October, after the growing season, but before winter sets in.

Grafting

Field grafting is done in spring, when the rootstock begins to break bud. In northern Arizona, this is typically the first week in April. Bench grafting can be done earlier than this, but the grafted trees should be kept from freezing in a humid environment for two to three weeks until the graft union has formed, and should not be planted until late spring.

Irrigation

The specific water requirements for fruit trees vary, depending upon the species, climate, soil type, and annual precipitation. However, the general water requirement for a tree is roughly equal to its evapotranspiration rate, since more than 99% of the water absorbed by plants is lost by transpiration. Evapotranspiration rates are heavily influenced by climatic factors and can be estimated with reasonable accuracy using meteorological data, but the actual amount of irrigation water to be applied will have to be adjusted for effective rainfall, leaching requirement, application losses and other factors (Pescod 1992). Historically, before the factors effecting irrigation requirements for fruit trees were understood, Mormon settlers watched for wilting of the tree leaves, and soil dryness to determine when to water. Late spring and summer are the two most critical times for watering. Keeping newly grafted trees from drying out is essential for successful grafts. Early to mid summer is usually the driest and hottest time of year. Watering trees will help to avoid fruit loss and tree mortality during the time when evapotranspiration is at its height. Planting trees in seeps and locations where soil moisture remains high for longer periods, mulching, and using drip systems are ways to cut back on water usage.

Fruit Thinning

Fruit thinning is typically done in early summer to late spring, after fruit-set, and after the danger of freezing has past, the number of young fruits per branch are thinned to three or four inches apart to increase the size of the fruit. This is not a necessary procedure, but does improve the quality of the fruit.

Bud Grafting

Summer bud grafting is primarily done in late summer (August), after the winter buds form, but before the leaves begin to turn. Bud grafting is best suited for almonds, cherries, peaches, and walnuts.

LONG-TERM MANAGEMENT OBJECTIVES

Capitol Reef is the largest historic orchard complex in the National Park system. Given this distinction, we feel that Capitol Reef should also be the leading innovator in historic orchard management and heirloom fruit tree conservation, while demonstrating clear adherence to the Secretary of Interior's Standards for Treatment for Historic Properties. These standards emphasize thast it is better to maintain than repair; better to repair than replace; better to replace in-kind than to substitute; and best to most accurately replace lost or irreparable features. To accomplish these goals, the long-term management objectives of the Fruita historic orchards in Capitol Reef National Park should focus on four specific criteria: a) to produce fruit for picking by local residents and park visitors; b) to preserve locally adapted heirloom varieties; c) to maintain the historic character of the valley and cultural orchard landscape integrity; and d) to provide an educational opportunity for visitors to the park about the importance of preserving and maintaining historical features and heirloom varieties.

The orchards are currently being managed largely for the first of these four management objectives, that is, for the production of fruit to benefit local residents and park visitors through U-Pick systems. Nevertheless, the orchards at Capitol Reef are also an ideal location for preserving heirloom varieties, and this goal is consistent with Fruita's designation as an historic district. Fruita's orchards are not only accessible to the public, but they also receive annual maintenance and irrigation, are relatively secure from changes in land use, and have attracted the attention and expertise of National Park Service professionals in cultural resources, natural resources, interpretation and operations maintenance. Few parks have such broad-based support for their historic orchards.

In addition to managing the orchards for the production of fruit for picking by park visitors and preserving heirloom varieties of fruit trees, the orchards also serve to maintain the historical character of the Fruita District. To ensure the integrity of the historical character of the district, we recommend the replacement of dead and dying trees with historically significant varieties, and maintain them in historical spacing, i.e. traditional Mormon horticultural designs for the period of significance from 1882 to 1939. Replanting with varieties known to have been grown in the region, and grafting them onto standard sized, seedling rootstock, will be key in restoring the historical character of the district. Orchard densities or tree planting distances for the 1882-1939 period of significance differ among species and varieties, but was generally considered to be 25-30 feet for apple and pear, 25 feet for cherry, 20-22 feet for apricot, and 15-18 for peach and plum. In addition to adhering to historical tree spacing, maintaining historical pruning styles is of equal importance in maintaining the historical character of the district. "Low-headed" fruit trees with short trunks were standard in the period of significance. Trees were grafted approximately 1-2 inches above ground and pruned to form an open bowl shape at about two years after planting, when the tree had reached about three feet in height.

Being a public space, the orchards offer a unique opportunity to educate the public about the importance of preserving historic orchards and heirloom varieties. We recommend that the park hold annual workshops for local residents and park visitors on grafting, pruning, orchard management, and cider pressing. Fruit festivals are a fun and effective means of bringing attention to heirloom fruit tree preservation. Interpretive signs and visitor-friendly tree identification tags will also inspire public interest in the project. Finally, some heirloom varieties like the Potawatomi Plum and chance seedlings like the Capitol Reef Apple may be worthy of germplasm conservation efforts involving the USDA National Plant Germplasm Repositories, the Southwest Regis-Tree or North American Fruit Explorers.

CONCLUSIONS

This report documents the unique values associated with the Mormon heritage orchards of the Fruita Historic District, assesses their current conditions, and proposes monitoring and documentation activities, horticultural and interpretative initiatives, and greater operations investment in long-term maintenance of irrigation systems and heirloom nursery stock. It acknowledges that the conditions in the orchards as well as the integrity and diversity of heirloom fruit varieties have deteriorated over the last two decades, not due to unprofessional care as much as to limited staffing and senescence of historically planted trees. Our recommendations call for immediate actions and investments that will enable orchard maintenance to return to a routine maintenance cycle within a matter of roughly four years. Our surveys in 2005 and 2006 indicate that at that time, 2,654 fruit trees persist in the Fruita Historic District. These comprise 12 species represented by 65 varieties, 48 of which are heirlooms of historic value. Several other varieties have been lost over the last few decades, but most of them can be found in nurseries, and reintroduced.

Management recommendations for restoring the Fruita historic orchards in Capitol Reef National Park:

1. We recommend that the superintendent of Capitol Reef form a permanent task group with the facilities manager, orchard maintenance crew leader, cultural resource manager, natural resource manager, and an interpreter to further guide the orchards' recovery, management and use.
2. We also recommend that Capitol Reef take the lead for the region in coordinating a SWAT team of professionals from several parks and from the CPCESU to assist all parks and monuments on the Colorado Plateau with their orchard issues, and to plan additional training workshops.
3. We recommend that Capitol Reef staff, NAU and CPCESU work together to genetically identify unnamed varieties to reintroduce lost varieties still available, and to maintain unique stocks of historic value with assistance from the USDA National Plant Germplasm Repositories and the Southwest Regis-Tree.
4. We affirm that historic orchard maintenance and interpretation is more than just maintenance of trees, but includes the retention and restoration of traditional orchard design and overall cultural landscape integrity at the level of the entire Fruita Historic District. Finally, we encourage more interpretation not merely of the Mormon agricultural history of Fruita but of the heirloom fruit trees and their history, linking such efforts to living history festivals and demonstrations of grafting, pruning, cider making, jam and sauce making, and other rural traditions. The Capitol Reef Natural History Association should not only focus on publications about the orchards, but should consider working with volunteers to produce jams, jellies and ciders for non-profit sales through the Park to support such activities.

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Capitol Reef National Park
List of Fruit and Nut Varieties, Including Heirlooms

Prepared for the National Park Service through the Colorado Plateau Cooperative Ecosystems Studies Unit by Kanin Routson and Gary Paul Nabhan, Center for Sustainable Environments, Northern Arizona University, Flagstaff, Arizona

ALMONDS (*Prunus dulcis)*

(Texas) Mission. Almonds first came into the Southwest in a delivery to Juan de Oñate at San Gabriel (near Taos) New Mexico in 1698. But it was not until 1891 that someone spotted a chance seedling in Texas with unique characteristics. It was first called Texas or Texas Prolific, but later became known as Mission, Texa or Texas Mission due to its association with old Spanish era churches. It was soon introduced to other parts of the Southwest, and its production took off on a large scale when it was introduced to Acampo, California.

This heirloom has hard-shelled nuts with relatively small kernels inside—roughly 25 to 28 per ounce. The trees are prolific bearers and extremely vigorous when young, but growth and yield decline markedly with age. The tree has an upright growth habitat, and is easy to train to facilitate production, which occurs mostly on the spur branches rather than the shoots. Because it is susceptible to mallet wound canker, it is short-lived wherever this *Ceratocystis* infection occurs. It is also sensitive to alkaline soils and saline irrigation. Its tendency to bloom well after frost in the spring keeps it popular among dwellers in river valleys where temperature inversions nix other varieties.

Mission almonds are planted in Mott's Orchard of Capitol Reef National Park.

APPLES (*Malus X domestica)*

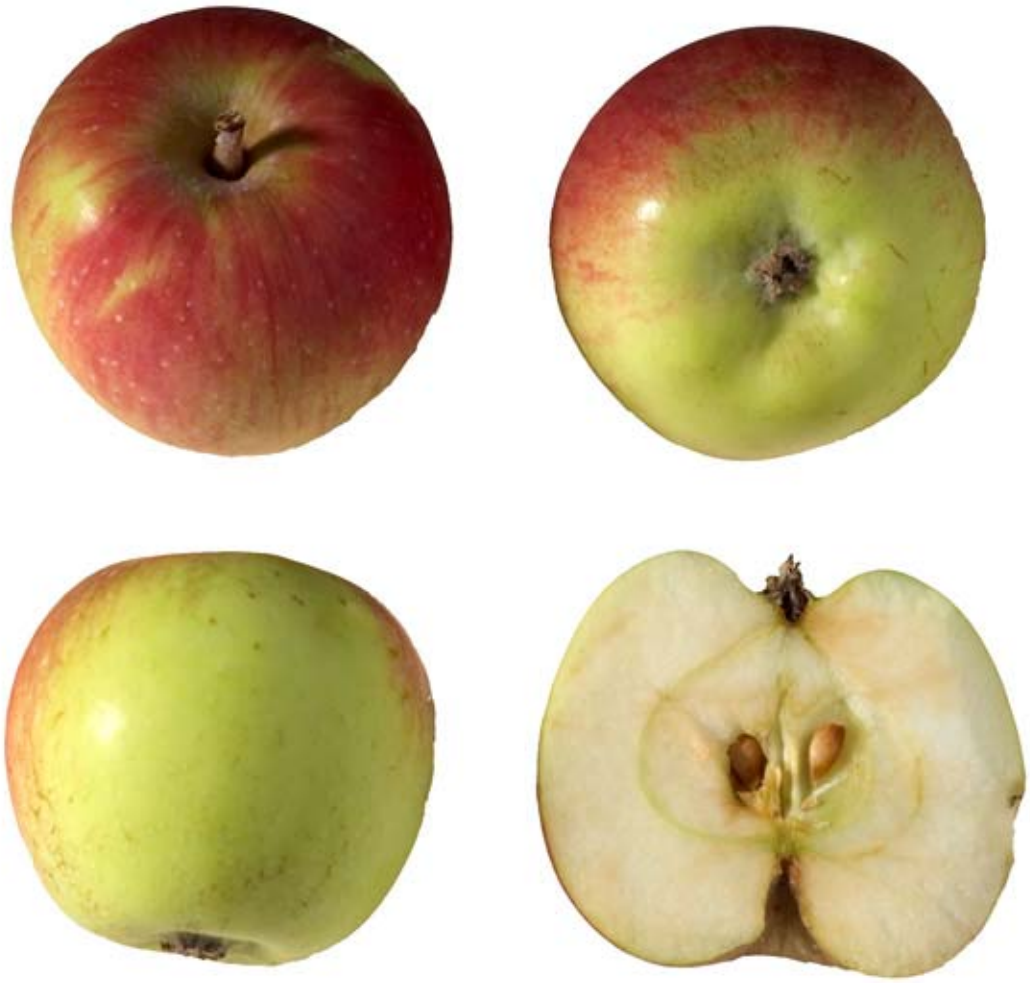
Ben Davis. The origin of the Ben Davis Apple dates back to 1799 when William Davis and John Hills brought a young seedling from either Virginia or North Carolina to where they settled at Berry's Lick in Butler County, Kentucky. Others have placed its origin in Washington County, Arkansas, about 1880. Captain Ben Davis, kin to the other two men, planted the tree on his land where it began to attract attention. They took root cuttings and planted them out as a full orchard, which provided root suckers to many others passing though Kentucky. By the end of the Civil War, millions of Ben Davis suckers had spread throughout the South and Midwest.
Apple historian Tom Burford reminds us that this tree was called Mortgage Lifter by growers who got out of debt by shipping this apple down the Mississippi and out on ships from New Orleans. As it spread south, north and west, many of its growers forgot the Ben Davis epithet for this apple, and offered it a different folk name in each locale where it took root. Many local synonyms for this variety include Baltimore Pippin, Baltimore Red, Baltimore Red Streak, Ben Davis, Carolina Red Cheek, Carolina Red Streak, Funkhauser, Hutchinson's Pippin, Joe Allen, Kentucky Pippin, Kentucky, Kentucky Red Streak, Kentucky Streak, New York Pippin, Red Pippin, Robinson's Streak, Tenant Red, Victoria Pippin, Victoria Red, and Virginia Pippin. It is grown in northern Arizona as well as southern Utah, where the fruiting season is long enough to mature the variety properly.

The fruit of Ben Davis is typically uniform in shape and size, which is medium to large. Its shape is usually round, especially at the base, though infrequently it is elliptical, conic or oblong. While maturing, its clear yellow or greenish skin is tough, and thick enough that it seldom bruises. Its skin is quite waxy, glossy or bright, and smooth. The green or yellow basal color is overwhelmed by a wash of splashes and stripes of bright carmine, often with subtle dots of white or brown. At maturity, it is a deep carmine or red striped apple. The flesh is whitish, tinged slightly yellow. It

is somewhat coarse, dry and wooly, not very crisp, but firm, slightly aromatic, juicy, mildly sub-acidic, and keeps for over a year. However, its rather unspectacular taste and texture has long been the butt of jokes among apple enthusiasts. Madonna Hunt of Boulder Utah quipped, “Those Ben Davis apples? Yes, they were good keepers, because no one wanted to eat them!” Tom Vorbeck put it bluntly, “It keeps like a rock, but it’s not a very good rock.” Keith Durfey apprenticed to an apple expert who claimed he could be blindfolded and still tell any variety by flavor. He was given a piece of cork by his students at the end of a long sampling. He sat blindfolded for a long while, then quipped, “You may have stumped me for once, but I believe that’s the flavor of one of those old Ben Davis apples!”

Although never rating high in flavor, nurserymen like Ben Davis because of its free-growing habit and the rapidity with which trees produce fruit of marketable size. The tree is hardy when exposed to a range of climatic extremes, remaining healthy and vigorous. Although not particularly long-lived, it bears annually and abundantly from an early age. Its top growth can be rather dense, so when pruning young trees, special care should be taken to keep its shape open and spreading. This offers its fruit an opportunity to color well.

At Capitol Reef National Park, Ben Davis apple trees are located in the Nel’s Johnson Orchard.



Ben Davis

Braeburn. The Braeburn heirloom originated in New Zealand and was introduced into North America in 1952. Though the parentage is unknown, it is speculated to be a chance seedling or triploid sport of Lady Hamilton.

The high quality fruit is medium to large in size. The skin is yellow, overlain by an orange-red blush. The flesh is crisp with a tangy flavor. The triploid tree is fast growing, matures and bears fruit very early, but has low vigor, and is susceptible to scab, mildew, and fire blight.

Braeburn apple trees are located in the Jackson Orchard of Capitol Reef National Park.

Capitol Reef Red. An apparent sport or chance seedling from Red Delicious or related heirlooms, this is a newly-recognized variety known only from Capitol Reef National Park's historic Fruita orchards near Torrey, Utah. Scion wood has been propagated by the Van Well nursery in Wenatchee, Washington, and by Dan Lehrer of Flatwood Flower Farm, of Sebastopol California for future distribution. It was discovered in the Fruita orchards around 1994, and propagated to produce some 80 trees.
Capitol Reef Red is distinct from Red Delicious in its prolificalloy clustered spur-type fruiting on downward curving side branches, and its characteristic patterns of splashy russetting on the upper half of the fruit, and dotting on the lower half. Otherwise much like Red Delicious, it is a pleasantly sweet, juicy, crisp fresh apple, well-suited to pies as well, but not tart enough for cider. The trees is similar to Red Delicious but its dense branches are prolific bearers that become so heavily laden with nearly stem-less fruit that they bend toward the ground, but do not break. This "new" heirloom" is uniquely adapted to the canyon microclimates of Utah's slickrock country. It is honored on the Slow Food Ark of Taste.

The Capitol Reef apple trees are growing in the Jackson Orchard at Capitol Reef National Park.

Capitol Reef Red

Empire. This apple is a cross between McIntosh and Red Delicious, developed in 1945 by Dr. Roger Way at the New York Experiment Station in Geneva. Dr. Way introduced it in 1966. This apple is easy to grow and produces annual crops of attractive fruit that keep fairly well. Empire is best suited for fresh eating and dessert, but it is also a good apple for cider.

The Empire apple is medium in size, but small if not thinned. Its shape is round to roundish conical. The typically dark red fruit may turn yellow on the under-side, and has creamy white, sweet, crisp, juicy flesh. It ripens in mid September.

The trees of Empire are vigorous, upright, and come into bearing at an early age. Their branches form wide angles and strong crotches between branches that help to reduce limb loss during heavy fruit set. The tree has the tendency towards a spur-type habit, producing fruit close to the branch.

Empire apple trees can be found in the Jackson Orchard of Capitol Reef National Park.

Fuji. Modern apple geneticist H. Niitsi of the Horticultural Research Institute of Morioka, Japan developed the Fuji cultivar from two reputable and deeply rooted American parents, Ralls Janet and Red Delicious. Ralls originated, according to Beach in *The Apples of New York*, 1905, in the nursery of Caleb Ralls, an acquaintance of Thomas Jefferson, in Amherst County, Virginia, before 1805. Fuji quickly became an international success, first in Japan and China, then in warmer regions of the United States that have sufficiently long growing seasons.

Not much to look at compared to some varieties, its sweet taste and crisp texture are sufficiently appealing in the modern market. Its cream-colored flesh is firm, fine-grained and altogether distinctive, filling the mouth with sweetness and juiciness. Fuji comes out on top in many flavor competitions among late-maturing varieties. However, Fuji requires a long, relatively warm frost-free season for it to be ready for harvest, and is therefore considered a “desert” not a “dessert” apple. Fuji is regarded as the best keeper of any sweet variety, and the apples retain their toothsome firmness for up to a year if refrigerated.

Fugi apple trees are located in the Jackson Orchard of Capitol Reef National Park.

Ginger Gold. Ginger Gold is a patented cultivar that appeared as a chance seedling in the orchards of Clyde and Ginger Harvey of Lovingston, Virginia. The story is told by the Harveys that it appeared in a young Winesap orchard after the devastating hurricane Camille that killed more than 100 in the Lovingston area in 1969.

Its large, somewhat oblong but uniform fruit has a thin skin that can bruise. Upon ripening, its skin turns an attractive yellow tinged with beige-pink, with a blush on the exposed cheek. Ripening six weeks before its kin, the Gibson Golden, its flavor has a distinctive spice-like aftertaste. A fair keeper, Ginger Gold keeps in storage for up to six months.

Ginger Gold apple trees can be found in the Jackson Orchard, and in Mott's orchard of Capitol Reef National Park.

Ginger Gold

Golden Delicious. Unrelated to Red Delicious, the Golden Delicious also began as a volunteer seedling, perhaps of Grimes Golden, on the hillside farm of A.H. Mullins near Bomont in Clay County, West Virginia. It was originally called Mullin's Yellow Seedling. In 1914, William P. Stark bought rights to the tree's legacy for five thousand dollars, renamed it, and began to offer Golden Delicious through the Stark Brothers Nursery out of Missouri. Sure that it would be commercially in demand, Stark protected his investment in a rather formidable, locked cage that was equipped with a burglar alarm to discourage would-be bio-pirates. Some nurseries that offer the apple under the name Yellow Delicious breached the Stark patent.

Tall and almost conical in shape, this apple tends to be large. The skin of a ripened Golden Delicious is pale yellow and thin. It will, however, have a chartreuse hue if picked prematurely or a darkened yellow hue if picked when over ripe. Its flesh is firm, crisp and juicy, but may be stained with red. Once you've been introduced to it, its flavor and fragrance remain unmistakable. The Golden Delicious strikes some cooks as somewhat bland for use in cooking, but it can be used for pies and sauce with little or no sugar. Its distinctive aroma imbues sweet ciders, both hard and soft.

It ripens relatively late in many places, from mid-September through late October. Its skin is quick to shrivel if the harvest is left at room temperature, but Golden Delicious often keep well if refrigerated in a crisper or in a plastic bag.

Golden Delicious trees are located in the Amasa Pierce Orchard, the Chesnut Orchard, Gifford Farm, Jackson Orchard, Krueger Orchard, and Mott's Orchard at Capitol Reef National Park.

Gibson Golden. This is a smooth-skinned selection of Golden Delicious apple that shows less russeting than the standard Golden Delicious. The tree is vigorous, productive and easy to handle. The fruit ripens in October. For further details, see Golden Delicious (above).

At Capitol Reef, the Gibson Golden is planted in the Jackson Orchard.

Granny Smith. The first green apple to become well-known among American consumers, Granny Smith was discovered by Mrs. Anne "Granny" Smith growing on a creek in Ryde, New South Wales, Australia in the early 1860s. It appears to have been a chance seedling from some discarded French crab apples that Granny and her husband Thomas Smith brought back from either Sydney, or the island of Tasmania, depending on who told the tale. When it fruited in 1868, Granny used its fruit for cooking, but her grandson claimed it was better eaten fresh. The Smith family began to propagate it in their orchard and market its fruit in Sydney, where it rapidly gained popularity. It began to be exported to England in the 1930s, and soon afterward was introduced to France, Spain, Italy and the United States.

Granny Smith fruit are medium to large sized, with a somewhat rectangular or truncate conical shape. Its bottom is convex, and ribbed at the eye. Its skin ranges from a grassy green to yellow green, with a fine netted russet appearing at the time of ripeness. Its flesh is greenish to yellowish white in color, and its texture is crisp, and so firm that it is bruise-resistant. Its mild flavor is subacid, and moderately sweet. The harvest season for Granny Smith is relatively late in the fall. Considered to be excellent both for eating fresh and for cooking, Granny Smith keeps its texture during baking and does not get mushy. Regarding its firmness, apple historian Roger Yepsen goes further, by claiming that it is "resilient as a tennis ball…holds up well in shipping [and] will tolerate a half year of cold storage." Not suited for cider, it is fine for pies.

At Capitol Reef, a Granny Smith apple tree can be found in the Krueger Orchard.

Grimes Golden. This notable cider variety was brought to the nursery trade by New Orleans traders, who obtained the variety from Thomas Grimes of West Virginia in 1804. The medium to large-sized golden-yellow fruit is crisp, juicy and sugary. Grimes Golden is a highly esteemed

dessert apple, as well as a highly prized cider variety. It is noted for its high alcohol content (12% in unblended ciders), and excellent flavor. The apple does not keep well, making it undesirable for commercial orchards.

The medium-vigor tree is self-fruitful, and produces abundant crops biennially, or semi-annually beginning at a young age.

At Capitol Reef, there is a single Grimes Golden apple tree growing in the Chesnut Orchard.

Grimes Golden

Jonathan. This classic American apple, kin to Esopus Spitzenburgs, originated in 1826 as a sport on the farm of Mr. Philip Rick of Woodstock, Ulster County, New York, where the original tree stayed alive at least until 1845. The first published account which we find of the Jonathan is that given by Judge J. Buel of Albany, New York, who then listed it as the (New) Esopus

Spitzenburg, with the synonym Ulster Seedling. A bit later, Buel simply called it the New Spitzenburg, but the next name he gave it superseded all others: Jonathan, in honor of Jonathan Hasbrouck, who had first called the judge's attention to the unique traits of this sport, which he had noticed growing on a scrubby hillside on the old Rick farm. It spread quickly after that, soon ranking in the top six of American apples in terms of sales. It is now grown not only in North America, but in Italy, Austria and Poland as well.

This popular heirloom and commercially-renowned apple can be exceedingly beautiful at maturity, though it is not as large or as good of a keeper as its Esopus Spitzenburg parent. The shape of this apple may be round, slightly conic or ovate, and medium to small in size, or somewhat truncate with a deep furrowed bottom basin or cavity. Its tough but thin, smooth skin may be pale yellow in undertones that are completely covered with deep carmine hues. These hues deepen into lively reddish-purples on the side exposed to the sun, and clear pale yellows on its shaded side and in its basin. If it does not get full exposure to the sun, the skin may be red-striped in appearance, exposing minute dots. Its flesh may be whitish or pale yellow, tinged with a bit of red. The flesh is usually firm, stained with red, moderately fine, crisp, tender and juicy. Its flavor varies from tart to mild, often aromatic, sprightly subacidic. It is usually of excellent quality whether eaten fresh as a dessert, cooked into sauces, or used for tart ciders.

Jonathan exceeds many of its Spitzenburg kin in hardiness, productivity, health and vigor. It is widely-adaptable for growth in a wide range of climates, where the trees can be either moderately vigorous or slow in their growth and maturation. The trees may have a round or spreading shape, sometimes with drooping, dense branches.

The Jonathan can be found in the Jackson Orchard, the Krueger Orchard, Mott's Orchard, and Nel's Johnson Orchard of Capitol Reef National Park.

Jonathan

Lodi. Also known as Yellow Transparent or Improved Transparent, this selection was made in 1911 by R. Wellington of the New York Testing Association, which later became the New York State Agricultural Experiment Station of Geneva. It appears to have been a cross between Montgomery and White Transparent. It remains extremely popular in some regions, and is available from more than three dozen nurseries.

Lodi is a large green cooking apple whose skin is actually clear yellow when examined closely. It has firm white flesh that is mildly subacidic, so that it is simultaneously sweet ant tart; it is crisp and juicy. When it reaches full size, the fruit is irresistible for pies, for fine, frothy white applesauce, and fresh eating.

It ripens early on large, dependably productive trees that require cross-pollination. They are resistant to apple scab. The fruit are less vulnerable to bruising than are other Transparents.

The Lodi can be found in the Mulford Horse Pasture Orchard of the Capitol Reef National Park.

McIntosh. This heirloom is originally from Dundela, Dundas County, Ontario, Canada. It was discovered by immigrant John McIntosh near Dundela in 1811. Its local nursery propagation began around 1835, but it was not introduced into trade until 1870 by John's son, Allan McIntosh. The McIntosh is derived either from a Saint Lawrence seedling, or a cross between a Fameuse and a Detroit Red. McIntosh has in turn fathered many well-known varieties, such as Cortland, Empire, Macoun, and Spartan. The fruit is good for fresh eating, pies, and makes an aromatic cider. It was the replacement variety for the great Baldwin orchards of New England that were destroyed by the 40 degrees below zero temperatures during the winter of 1933-1934.

McIntosh fruit are medium to large, and quite uniform in shape and size. It is typically round or oblate, somewhat angular, and strongly or weakly ribbed. Its skin is thin and readily separates from the flesh. The skin is noticeably tender, smooth and therefore easily bruised. Its underlying skin color is clear whitish-yellow or greenish, but it is deeply blushed with bright red, and striped with carmine. Fruit exposed to the sun is richly colored, dark, almost purplish-red, so much so that the carmine stripes may be completely obscured. The flesh of a McIntosh is white or slightly tinged with yellow, sometimes veined with red. This apple is firm, fine-textured, crisp, tender, very juicy, agreeably aromatic, perfumed, sprightly, and subacidic. It becomes mild and a bit sweet when very ripe, but then lacks firmness suitable for packing and long distance transport. It is among the best apples.

Maturing from October to December in late-frosting zones, the McIntosh produces a reliable crop that begins to bear early, before offering an extended season of fruit. It may yield good crops biennially or even annually. However, the crop ripens unevenly, making it suited for two or three periodic pickings two to three weeks apart.

At Capitol Reef, McIntosh trees can be found in the Nel's Johnson Orchard.

Prime Gold. This patented cultivar appears to have fallen out of favor with nurserymen, and was last available from Van Well Nursery in Wenatchee, Washington, which has recently dropped it from its catalog. The fruit are elongated, golden yellow, and russet free. The tree tends to be well structured with wide branch angles.

Prime Gold can be found in the Jackson Orchard at Capitol Reef National Park.

Red Astrachan. This widely-distributed heirloom originated on the Volga River in Russia several centuries ago. It was first noted by Swedish botanist P.J. Bergius in 1780, having been grown in Sweden for some time. It was introduced to Western Europe and England by 1816, and then crossed the ocean to the US in 1835. Since its arrival in the United States, this heirloom has picked up some 75 additional folk names as synonyms: Abe Lincoln, American Red, American Rouge, Anglesea Pippin, Anglese Pippin, Astracan, Astracan Rosso, Astracan Rouge, Astrachan,

Astrakhan, Beauty of Whales, Carmin de Juin, Castle Leno Pippin, Cerven Astrahan, Deterding's Early Deterling's Early, Duke of Devon, Hamper's American, Rother Astrachan, Transparent Rouge, and Waterloo. The name Abe Lincoln came from its long association with the Lincoln home in Springfield, Illinois, where this apple became available during Lincoln's own lifetime, and two trees have continued to be grown in the backyard at the Lincoln Home National Historic Site near the Visitors Center at South Seventh Street in Springfield and at a nearby nursery.
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Red Astrachan is a medium size, very beautiful early summer apple. Valued for home use as a culinary apple before it is fully ripe, and as it ripens and mellows as a dessert apple. Tree comes into bearing at a young age and is a reliable, often biennial cropper. The fruit lacks uniformity, perishes quickly, and the crop matures unevenly, making it ill adapted for commercial planting. The fruit is medium, sometimes large, but not very uniform in size or shape. Roundish to oblate, inclined to conical, somewhat ribbed, and a little unequal. Thin skin, moderately tender, smooth, pale yellow or greenish, overspread with light and dark red splashes, and irregularly striped with deep crimson or carmine, and covered with a distinct bluish bloom. Flesh is white, and often tinged with red. Rather fine, tender, crisp, juicy, brisk subacid, aromatic, sometimes astringent, good to very good. Its season is from late July to September.

Red Astrachan apple trees are located in the Nel's Johnson Orchard of Capitol Reef National Park.

Red Delicious. One variety that needs no introduction is Red Delicious, the most widely-grown apple in the world. It possibly originated from a seedling rootstock after the scion had broken off a graft on the farm of Jesse Hiatt of Peru, Iowa. It was first called Hawkeye for the Hawkeye State of Iowa, and other lesser known selections of Hawkeye still persist. This particular selection, championed by the Stark Brothers of Missouri after 1895, has been called "a triumph of style over substance, good looks over taste." More than thirty-five variants of the Red Delicious are now marketed, from Ace Spur and Bisbee, to Roan and Ultra Red, but most of them have the same fatal flaw of exuding more glamour than flavor.

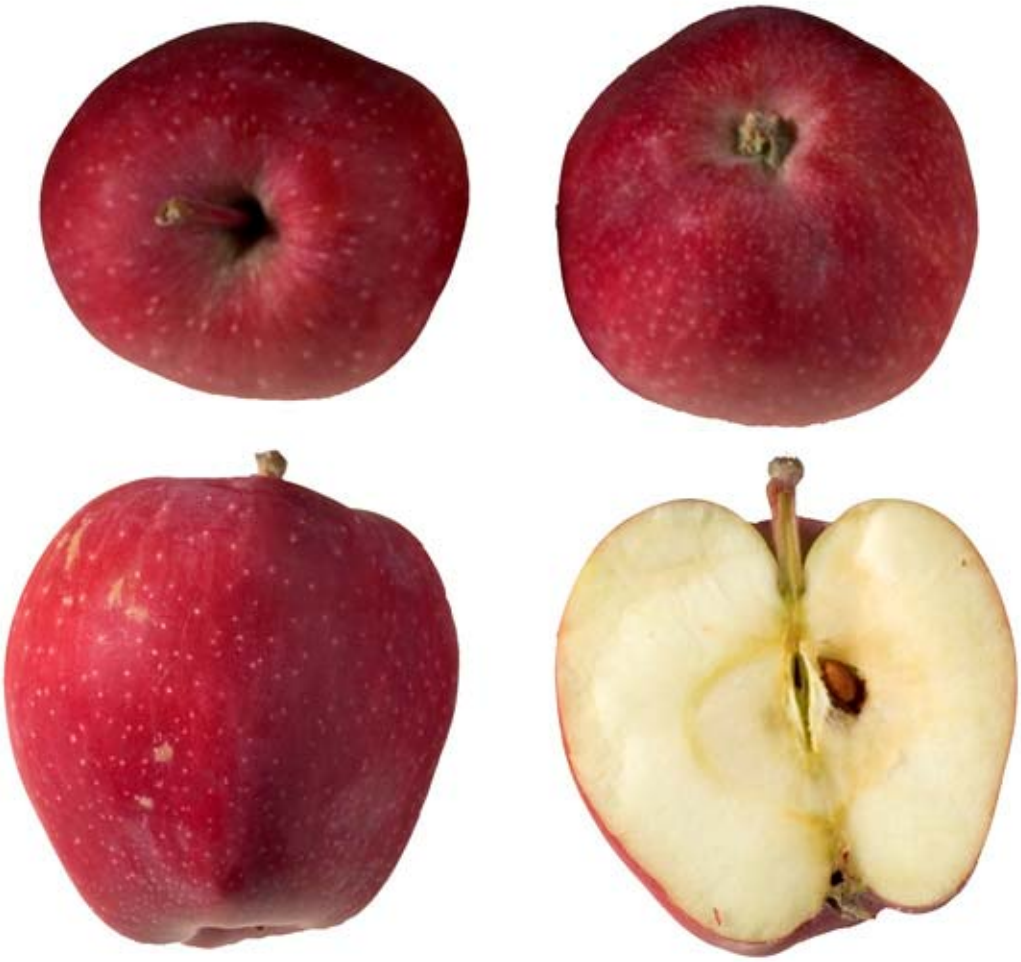
This is a big apple, with thick, bitter skin that remains intensely red even when it has turned to mush inside. As it matures, its round shape becomes elongated, so that at maturity it is tall and tapered. It has fine-grained, crisp, slightly tart, juicy, yellow flesh that becomes tender, then tastelessly pulpy as it undergoes the extended storage that commercial markets put it through. This apple ranks at the bottom of the barrel when cooked, but remains popular as a dessert apple among those who have never ventured to taste anything else. Because these trees are prolific and fast growing, it plagues the continent and displaces many worthier apples. Like an over-the-hill Hollywood actor, Delicious retains its cheerful good looks long after all real taste has departed from the mealy pulp beneath its thick skin.

The Red Delicious has been planted in the following orchards of Capitol Reef National Park: Amasa Pierce, Behunin Grove, Chesnut Orchard, Gifford Farm, Holt Orchard, the Jackson Orchard, the Krueger Orchard, the Merin Smith Place, Mott's Orchard, and the Tine Oyler Place.

Red Delicious Oregon Spur II. This cultivar is a patented selection of Red Delicious.

The fruit are large and of excellent shape. The skin is bright red with dark striping. The pure white flesh is of better quality than its parent. Trees are vigorous and early bearing. Tend to be of the spur type. For further detail, see Red Delicious (above).

Oregon Spur apple trees are planted in the Jackson Orchard of Capitol Reef National Park.



Oregon Spur II

Rhode Island Greening. The origin of Rhode Island Greening is not known with any certainty. However, it probably originated in the state of Rhode Island as its name suggests, most likely in the vicinity of Newport. Here there is a place now known as Green's End, where a tavern was kept by Mr. Green, an orchardist who loved to raise apple trees from seed. Among the trees that came up in Green's orchard was one which bore a large green apple, hence the double meaning of this heirloom's name. Scions from this tree were in such demand in the early 1700s by Green's tavern's guests that his prized tree died eventually from excessive cutting. As its scions

were dispersed far and wide, they were called by the following folk names: Burlington Greening, Greening, Green Newton Pippin, Jersey Greening, and just plain Rhode Island. Cuttings were sent to London and, from there, to many parts of Western Europe in the early 1800s, and it was widely grown throughout the United States in the nineteenth century.

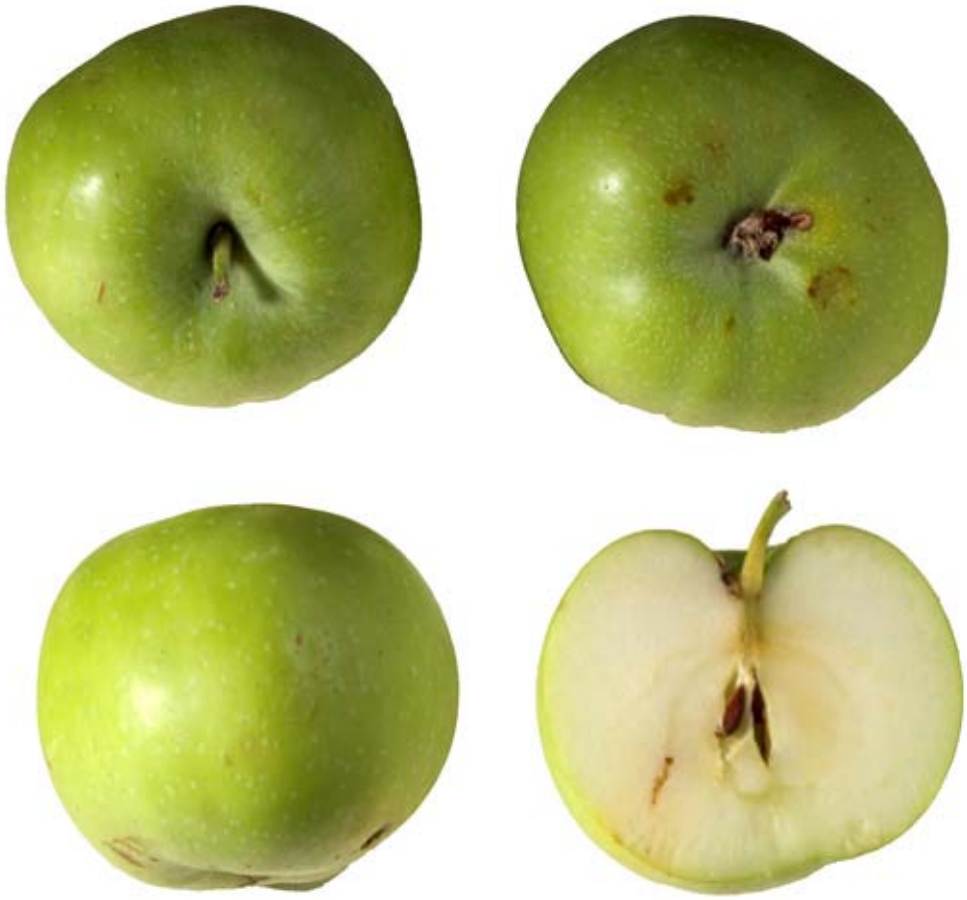
This medium to large-sized apple begins autumn as a waxy, deep grass-green, but later, as it ripens, it develops yellow hues with brownish-red blushes and greenish-white dots. It may take on a dull blush and occasionally develops a rather bright red cheek but never stripes. Its shaped varies from round to oblate to conical and elliptical. It is slightly ribbed. Its skin is moderately thick, tough, and smooth. The firm yellow flesh is moderately fine-grained, crisp, tender, juicy, rich, and sprightly subacidic, with its own peculiar flavor suitable for tart ciders.

The Rhode Island Greening produces reliable, abundant crops in many localities. It is generally regarded because of its acidity as one of the very best cooking apples grown in the U.S., nearly on par with Esopus Spitzenburg and its more recent kin, Jonathan. It is used for many culinary purposes and for fresh desserts. Hovey claimed that:

> *As a cooking apple, the Greening is unsurpassed; and as a dessert fruit of its season, has few equals. To some tastes it is rather acid; but the tenderness of its very juicy flesh, the sprightliness of its abundant juice, and the delicacy of its rich fine flavor is not excelled by any of the numerous varieties that we at present possess. It ripens up of a fine mellow shade of yellow, and its entire flesh, when well matured, is of the same rich tint.*

A triploid, it is a poor pollen producer that should be grown with two different pollen-producing varieties. The tree does not come into bearing when it is young, but is vigorous and long-lived. Its form is wide spreading, somewhat drooping, and rather dense. The fruit hangs well on the tree until it begins to ripen. The tree has the tendency to form a rather dense canopy in fertile soils, so special care should be taken while pruning in order to keep the head sufficiently open so that the light may reach the foliage in all parts of the tree. However, the orchard keeper should avoid cutting out large branches from the center of the tree thereby exposing the remaining limbs to injury by sunscald. It is better to thin the top every year, by removing many of the smaller branches to make it uniformly open. This keeps the longest fruit-laden branches from ending up so close to the ground that they interfere with the free circulation of the air beneath the tree.

At Capitol Reef, Rhode Island Greening apple trees can be found in Mott’s Orchard.



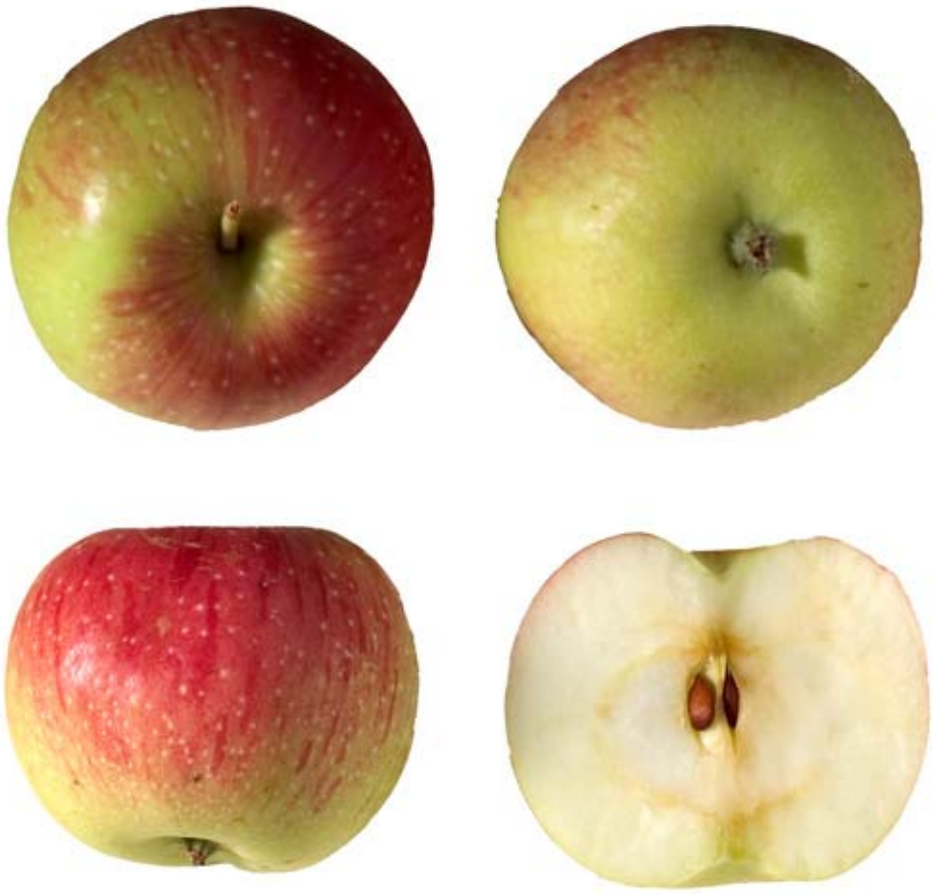
Rhode Island Greening

Rome Beauty. Originating with Zebulon, Joel and H.N. Gillett in Rome Township, Lawrence County, Ohio, this apple was from a tree bought in 1827 from Israel Putnam, a nurseryman in nearby Marietta. It was first brought to the attention of fruit growers at an Ohio Fruit Convention in 1848, and later distributed across the United States, Europe and Australia. Its synonyms include Rome, Starbuck, and Gilette's Seedling. There are at least nine commercially available variants of Rome Beauty, with Red Rome being the most popular one in nursery trade. It was popular with orchardists because it is late blooming and thus a dependable producer in areas with late frosts.

Rome Beauty fruit are medium to very large, round to slightly conical to oblong, and often faintly ribbed. They can be symmetrical or slightly unequal but almost always have a large deep, furrowed cavity. Their thick skin changes from solid yellow-green to carmine red, without ever

becoming russeted. Rome Beauty skin is thick, tough, smooth, and highly colored, with numerous small dots. Its flesh may be almost pure white, or have a hint of yellow- green; it is firm-fleshed, fine-grained or a little coarse, always crisp and juicy. However aromatic Rome Beauty flesh becomes, it is mildly subacid, passing in flavor but never really excellent in quality. Rome Beauty stands handling and is a good keeper, maintaining its qualities in cold storage as late as May. Beauty trees are strong growers and attain good size in the orchard. At first, their tree form is upright but later it rounds out, becoming spreading and drooping, with many slender, bending lateral branches.

The Rome Beauty has been planted in the following orchards located in the Capitol Reef National Park: Gifford Farm and the Nel's Johnson Orchard.



Rome Beauty

Rubinette. This hybrid was raised by Walter Hauenstein of Rafz, Switzerland near the German border**.** Also known as the Rafzubin cultivar, this is a patented cross between Golden Delicious

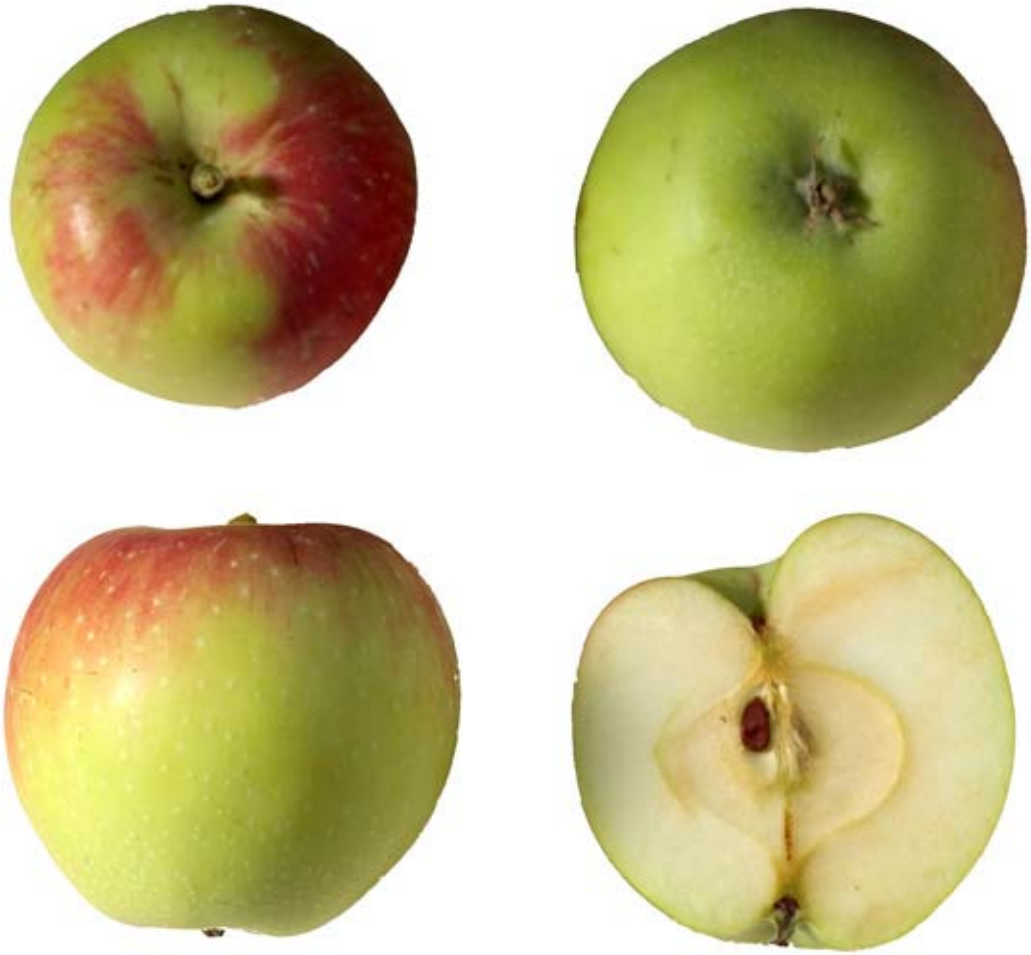
and Cox's Orange Pippin. These medium-sized handsome fruit has a thin skin of a golden color that is overlain with bright red striping and subtle russeting. Handsome when sliced, with a rich blend of sugars and acids, its yellow flesh has an intense honeyed flavor. Its growth characteristics are similar to Golden Delicious, and like its parent, it is a good pollinator. Only two nurseries currently carry this variety, one Canada, the other, in Washington State.

Rubinette apple trees have been planted in the Jackson orchard at Capitol Reef National Park.

Twenty Ounce. This heirloom is locally-known as Sixteen Ounce Cooking**.** Originating in New York or adjacent Connecticut, the Twenty Ounce was first brought to notice around 1844 in Cayuga County, New York. Its synonyms include Aurora, Cayuga Red Steak, Coleman, de Dix-huit Onces, de Vin du Connecticut, Eighteen Ounce, Governor Seward's Lima, Limbertwig, Morgan's Favorite, Pomme de Vingt-onces, and Wine of Connecticut. In the early 1900s, it was grown for processing in western portions of Upstate New York. In many parts of the East, it has been considered the most-heralded cooking apple for culinary uses in the home for well over a century.

As its name suggests, this flat to truncate ribbed fruit is hefty, reaching enormous proportions under good growing conditions. Its skin is at first an attractive green, with a peculiar "peened" surface like that of Granny Smith. As it matures, its tough, thick skin flushes to a yellow-green, with broad stripes and splashes of red with russeted dots. Its whitish flesh may be tinged with lemon yellow, is coarse, and moderately tender, while maintaining a high quality, sweet, sub-acid, savory flavor. This apple holds it shape when cooked remarkably well, but is not a long keeper, lasting only until mid winter in storage.

The Twenty Ounce heirloom lives on the Smith Orchard in Capitol Reef National Park.



Twenty Ounce Cooking

Winesap. Although it is one of the oldest and most popular apples in America, the origin of the Old Fashion Winesap has been obscured. It was first recorded by Dr. James Mease of Moore's Town, New Jersey in 1804, who noted that it had already been grown there for some time by Samuel Coles. It had appeared in trade by 1817, when Coxe spoke of it as being "the most favored cider fruit in West Jersey." Also, it was known in colonial times in Virginia. Other folk names suggest different origins: Holland's Red Winter, Royal Red of Kentucky, and Texan Red. Like various other older heirlooms, the Winesap has produced many seedlings which have been selected for characters slightly different from those of their parental stock. The best known of these are Arkansas or Arkansaw, Arkansas Black, Paragon, also known as Black Twig and Stayman.

This is a round, medium-sized apple. Its skin is moderately thick, tough, smooth, glossy, and deeply red. It may have purplish-red stripes and blotches that are even darker, and rather small, scattered, whitish dots, especially toward the cavity, but the prevailing effect remains a bright deep red. Its flesh is crisp and juicy, tinged with yellow, with reddish veins; it remains very firm, rather coarse, and sprightly subacid. It is a good shipper and keeper early on after harvest, but tends to scald later in the winter. The tree can be vigorous and is a remarkably regular cropper. It grows best on light but rich, deep soils and does not fare well on heavy clays or in low, damp locations. It is a good shipper and stands heat well before going into storage. Winesaps are great for cooking applesauce, dessert, and cider. It is one of the few apple varieties that grow well throughout all apple-growing regions.

Winesap apple trees can be found in the Nel's Johnson Orchard, Capitol Reef National Park.

Winesap

Winter (Yellow) Banana. The Winter Banana originated on the farm of David Flory near Adamsboro, Cass County, Indiana, where it was first selected as an heirloom around 1876. It was introduced into commercial trade by the Greening Brothers of Monroe, Michigan in 1890. Its most common synonym is simply Banana.

Winter Banana was one of the most popular varieties for pollination, especially for the pollen-sterile Winesap and its kin. At one time Winter Banana was a variety selected for dehydrating because the slices would stay bright and white after processing.

Its fruit are large and variable in shape, often elliptical and ribbed, with a distinct suture line. Its smooth, tough, waxy skin is colored a clear pale yellow, with beautiful contrasting pinkish-red blush. Its whitish flesh is tinged with yellow, with a characteristic aroma of bananas, and is moderately firm, coarse, crisp, tangy to mildly sub-acid and juicy, of good dessert quality, but is too mild in flavor to excel for culinary uses. The medium-sized tree grows well, has a rather flat, open form with branches that tend to droop. It comes into bearing while young, and then continues to bear modest crops almost annually. In ordinary storage, it keeps until March, but its color is so pale that any bruises show easily.

The Winter Banana has been planted in the Nel's Johnson Orchard of Capitol Reef National Park.

Winter Banana

Winter Pearmain. This may be the oldest known apple in the English-speaking world, dating back to at least 1200 A.D. in the British Isles. In 1822, Thatcher gave the following account of the Winter Pearmain of the old Plymouth Colony in Massachusetts:

> *The Winter Pearmain is among the first cultivated apples by the fathers of the old Plymouth colony, and is, undoubtedly, of English descent. Many trees of this kind are now supposed to be more than one hundred years old, and grafted trees from them produce the genuine fruit in great perfection.*

Its synonyms include Autumn Pearmain, Campbell, Ducks Bill, Great Pearmain, Green Winter Pearmain, Hertfordshire Pearmain, Old English Pearmain, Old Pearmain (Lindley), Parmain D'Angleterre of Knoop, Parmain d'Hiver, Paramain-Pepping, Pearmain, Pearmain

Herefordshire, Pepin Parmain d'Angleterre, Pepin Parmain d'Hiver, Permenes, Permaine, Permein, Platarchium, Sussex Scarlet Parmain, White Winter Pearmain. Unfortunately, several other, distinctive varieties have gone under the name Winter Pearmain both in Europe and in the United States. There is a Red Winter Pearmain that originated in North Carolina and described by the pomologist Warder in 1867.

Its fruit are medium in size, uniform, and tapering to the crown. The skin is smooth, with a grass-green base color that can be a little red on the sunny side, maturing to a pale yellow or a red apple with numerous dots. Its flesh is a rich yellow, fine-grained, crisp, tender and juicy; its flavor is slightly aromatic, pleasantly rich, and always agreeable. It has been the favorite dessert apple in the Midwest for nearly two hundred years, and remains one of the best all-purpose heirlooms. The tree is tall and upright, forming a handsome regular top. It is hardy, widely adaptable and vigorous, and will flourish in a light soil.

At Capitol Reef, Winter Pearmain apple trees grow in Mott's Orchard.

Yellow Transparent. Imported from Russia by the United States Department of Agriculture in 1870, its value was first brought to the attention of Americans by Dr. T. H. Hoskins of Newport, Vermont. It has been disseminated throughout the more northerly apple-growing regions of this country, from New England and the Northern Plains clear to the Pacific Northwest, and is now commonly listed by nurserymen in those regions. Its synonyms include White Transparent and Sultan.

Its fruit is medium to large in size, roundish ovate to roundish conic, and slightly ribbed, with unequal sides and a narrow cavity. Its skin is thin, tender, smooth, waxy, dotted and is always transparent but changes color from pale greenish-yellow to an attractive yellowish-white. Its flesh is a crisp, juicy white, moderately firm, fine-grained, tender, sprightly subacid with a light, pleasant flavor. Sliced, it can easily be solar-dried, and is excellent for culinary use and acceptable for dessert.

Maturing early in northern climes, it is a more reliable cropper than many other apples where growing seasons are short. It yields good crops nearly every year, ripening continuously over a period of three or four weeks, so that two or more pickings are required. However, it bruises easily so fruit must be secured while in prime condition and carefully stored. The tree is somewhat vigorous, hardy, healthy, and comes into bearing very young. At first, its form is rather vertical, but with age, it becomes spreading or roundish, and rather dense.

Yellow Transparent apple trees can be found at the Group Campsite, and in Mott's Orchard, Capitol Reef National Park.

APRICOTS (*Prunus armenica)*

(Chinese) Sweet Pit. Also called Chinese Golden, Sweet Pit, Mormon Chinese, Large Early Montagemet or Chinese Mormon, this apricot may have been brought into Utah from Chinese immigrants that carried it into the Great Basin from California, while working on railroads and in mines. It spread northern from there, well into British Columbia, at the limits of where apricots

can survive. It is called a "sweet pit" because you can eat the oil-rich kernel like you would an almond, as well as enjoying the flavorful fruit. It is available from ten nurseries.

This clingstone is medium in size—up to two and a half inches in diameter-- and has yellow to deep orange skin that is nearly free of fuzz. Its sweet, firm fruit are juicy, and their flavor, texture and quality are good, but the fruit ripen on the tree over an extended period, making a single harvest difficult. The fruit are good for home-use, drying, and roadside markets. They are susceptible to moth and insect damage, but well-suited to both northern climes and high elevations. The trees are early-bearing, heavy producers except where frosts persist very late in the spring. The spreading tree grows fifteen to eighteen feet tall, is self-fruitful, and blooms somewhat later than most varieties.

Chinese apricot trees can be found in the Nel's Johnson Orchard, Capitol Reef National Park.

Moorpark. Originating as a chance seedling of a Nancy apricot, this heirloom was selected by Admiral Anson at his estate in Hartford, England around 1860. It remains widely available from nurseries, but is also ancestor to the popular Wenatchee Moorpark selected by the C & O Nursery in 1908.

This is a very large, round freestone apricot with fuzz-free, deep yellow skin that blushes orange. Its deep orange flesh is juicy and delectable. Good for shipping, canning, or drying, it is a good shipper. Its trees have showy pinkish white blossoms and are self-fertile. The dwarf version of Moorpark grows up to ten feet tall and is an early, dependable producer.

Moorpark apricot trees can be found in the Nel's Johnson Orchard of Capitol Reef National Park.

CHERRIES (*Prunus avium* and hybrids)

Bing. The selection of the most-widely loved cherry in the United States from a Black Republican planting in 1875 was the crowning achievement of Seth Lewelling of Milwaukee, Oregon. He also originated several other fine cherries in the Salem Oregon area. Mr. Lewelling named the variety after Mr. Bing, his Chinese-American assistant who faithfully helped him develop this prize. When Bing cherries were first exhibited at the 1876 Centennial Exposition in Philadelphia, people at first thought they were crab apples, judging from their enormous size!

Bing fruit are one inch in diameter, broadly cordate, somewhat compressed, and slightly angular with deep cavities. Their color is very dark red, nearly black, with small russet dots. Their stems vary in thickness. Their tough skin is of medium thickness, and adheres to the pulp. Their flesh is purplish-red, rather coarse, firm, very meaty, brittle, and sweet. Their large stones are semi-free, ovate or oval, blunt, with smooth surfaces. Bing cherry trees tend to be large, vigorous, and erect, but the branches spread with age, the canopy becoming rather open. The cherries hang well on the trees, and the crop ripens simultaneously so they can be harvested in one picking.

Bing cherry trees have been planted in the Holt Orchard and the Tine Oyler Orchard of Capitol Reef National Park.

Lambert. This cultivar was also developed in Salem, Oregon after the Lewelling property was sold to Joseph Hamilton Lambert in 1857. Its namesake, Mr. Lambert, found and introduced this cultivar in 1870. Lambert is second only to Bing in commercial trade in the United States. It has dark red, heart-shaped fruit that are smaller than Bings. They grow on strong, upright trees that are hardy and heavy-bearers. They require cross-pollination from another variety and appear to be resistant to spring frosts. However, they are not necessarily more productive than Bings.

Montmorency (*Prunus avium X P. tomentosa*). Montmorency originated in France in the 17th century, and came to the United States as early as 1760. Montmorency is known as the standard for pie cherries, because of its rich, tart and tangy flavor, and because it does not get mushy during processing. This cherry is renowned for pies, juice, preserves and jellies.

The fruit are medium to large, and bright red. The yellow flesh produces a fine clear juice. This heirloom ripens in late June. The trees are large and spreading, attaining a height of fifteen feet. This heirloom is self-pollinating.

At Capitol Reef, Montmorency cherry trees are planted in the Nel's Johnson Orchard.

Royal Anne. This sweet cherry is an old French heirloom that has also been called Queen Ann, Napoleon, Napoleon Royal Ann, and Napoleon Bigarreau. As with Lambert and Bing, Royal Anne was made famous by Seth Lewelling, who brought it from Iowa as a Napoleon Bigarreau, but renamed "Royal Anne" for reasons now long forgotten. From this single misnamed tree, the most profitable cherry variety grown in the Pacific Northwest had its origin. It is still available from nearly two dozen nurseries.

The Royal Anne has large, firm tallow-skinned fruit that gain a rose blush when ripened. Their light flesh is firm, juicy and sweet, and holds its shape well. These cherries are excellent fresh, dried or brined and canned as maraschinos. These upright trees reach twenty-five feet in height and bear heavily in years when spring frosts do not persist too late.

Van. Introduced in 1944 by the Summerland Research Station of British Columbia, this sweet cherry is available from two dozen nurseries in the U.S. and Canada. It has shiny, almost mahogany, reddish black fruit that are not quite as large as Bing, but firmer. They tend to have a blocky shape, but stay firm, without cracking. Although they have a good flavor, they do not ship well for long distances. However, the strong, upright trees are excellent annual producers if another variety is available for cross-pollination.

GRAPES (*Vitis labrusca*)

Concord. This classic American grape was developed in 1849 by Ephraim Wales Bull in Concord, Massachusetts, just across the Lexington Road from the home of the distinguished American writer, Nathaniel Hawthorne. Bull, who is now acclaimed as the Father of the Concord, began his search for the perfect grape at an early age, growing more than 20,000 seedlings of wild *Vitis labrusca* for evaluation in his seventeen-acre garden. In 1843, he found

one wild grape that interested him, planted its seeds, pulp and skins in sandy soil on a southern exposure, and tended the plants for six years before deciding that it was the winner. The parent vine still grows next to his home in Concord, in a landscape now considered a National Historic Landmark. Four years later, in 1853, Bull took his seedling's grapes to the Boston Horticultural Society Exhibition, where they won first place in the exhibition. Bull introduced them into trade the following year, and they soon won the Greeley Prize, with Horace Greeley calling them "the grape for the millions." Today, Concord is considered to be the standard of quality for bluish-black table and juice grapes, and its production constitutes about 8% of the total grape production in the United States.

Concord is typically dark blue-black or purple, and large-seeded; however, a mutant white form has appeared in some vineyards. It is a slip skin grape that is highly aromatic. Its unique flavor is an identifiable characteristic of bottled grape juice and grape jelly, as well as many artificially flavored candies and sodas. While its primary commercial use is for grape juice, Concord is cherished as a table grape for desserts.

A Concord grape grows in the Picnic Area at Capitol Reef National Park.

Niagara. Introduced into trade in 1882, Niagara is white grape that appeared as a chance seedling among blue-black Concords that were selected from wild grapes just four decades earlier. It not only has the white color mutation, but ripens a few days earlier than its Concord kin. It remains the most popular white *labrusca* grape, especially in the North, and is still offered by more than forty nurseries across the continent. In places such as Fruita, Utah, it has been called White Concord instead of Niagara, and in this way, its genealogy can be more widely celebrated.

The fruit of this heirloom are enormous, and come in large compact clusters. Their slipskins are thick, and range from pearly white to anemic green. Their flavor, as one would expect from recent origins, remains somewhat foxy, but can be tangy and delicate at the same time. Niagara is fine to eat as a table grape, but makes a distinctive white wine as well. Its vines are incredibly hardy and resilient in cold weather, and can be trellised to climb arbors in attractive patterns. This New England original has been cultivated in New Mexico for no less than seventy years.

At Capitol Reef, Niagara grapes grow along the fence between the Picnic area and the Nel's Johnson Orchard.

PEACHES (*Prunus persica)*

Elberta. Now the most popular of all peaches in the markets, Elberta emerged as a selection grown by Samuel H. Rumph, Marshallville, Georgia, from a seed of Chinese Cling planted in the fall of 1870. The most appealing feature of Elberta is wide adaptability, or as one author has said, "freedom from local prejudices of either soil or climate," creating the most cosmopolitan of its species.

Its fruit are two and three-fourths inches long, two and one-half inches wide, are round, slightly oblong or cordate, usually with a slight bulge at one side. Its cavity is deep, flaring, and often

mottled with red, while its suture is shallower. The fruit skin is thick and tough and easily separates from the pulp. Its immature color is greenish-yellow, ripening to orange-yellow, with half of the skin overspread with red. Its hairs are densely fuzzy and coarse. The flesh of Elberta is deep yellow, but it is stained with red near the pit. The sweet pulp is juicy, somewhat stringy, firm but tender, mildly subacidic, and separates free from the stone. Some fully ripened Elberta peaches leave a bitter, tangy aftertaste in the mouth, which some peach connoisseurs find disagreeable. They claim that because Elberta is now picked green and allowed to ripen not on the tree but in refrigerated market bins, it is deemed scarcely edible by those who know good peaches.

What Elberta lacks in flavor it makes up for in fruitfulness. If frosts or freezing winds do not force it to drop its blossoms, the trees are laden with fruit year after year. Elberta trees routinely withstand insects and fungi, and grow to be large, vigorous, upright-spreading, densely-topped specimens.

The Elberta peach has been planted in the Carrell and the Krueger orchards.

Garnet Beauty. A bud mutation of Red Haven, this cultivar was selected in the Garnet Bruner Orchard, of Ontario, Canada. Introduced to the United States in 1958, where it is sometimes simply called Garnet. A dozen nurseries continue to offer it.

The fruit has red, almost fuzz-free skin, is medium to large sized, and slightly elongated. Garnet is similar to its parent except that it ripens somewhat earlier. The semi-freestone flesh is yellow, with red streaks near the pit. The texture is smooth, fine grained, and firm, making it a good candidate for most culinary uses: pies, preserves, canning, and freezing.

The Garnet Beauty peach has been planted in the Krueger Orchard.

J.H. Hale. This variety began its career as a chance seedling found by its namesake J.H. Hale of South Glastonbury, Connecticut. Judging from its characters, it is clearly either an offspring or a close kin to Elberta; in fact, to the untrained eye, they are identical. Nevertheless, after J.H. Hale evaluated its performance in Connecticut and Georgia, he deemed it worthy of introduction, selling his rights to the William P. Stark Nurseries in Stark City, Missouri. The Stark nursery began to distribute the Hale variety in 1912.

In fruit size and shape, J.H. Hale is on the average larger and more perfectly spherical than Elberta. They are lemon-yellow washed with a dark red blush and splashes of carmine. The skin of J.H. Hale is lightly fuzzy, but firmer and tighter, and although it is a free-stone, its skin does not separate as easy from the pulp. Its trees are as productive as Elberta, being vigorous, upright spreading, and open-topped. Like Elberta, it is widely adapted to a variety of climes and soils.

J. H. Hale peaches have been planted in the Carrell and the Krueger orchards.

Redhaven. This cultivar is a cross between Hale Haven and Kalhaven that was introduced by Michigan State Agricultural Experiment Station in 1940. Redhaven is now considered the

standard for early red peaches, and is available from dozens of nurseries. Its name is also spelled Red Haven.

This is a medium sized fruit that lacks any fuzz. Its skin is bright crimson red all over. The firm yellow flesh becomes free-stone as it ripens. Redhaven is well suited for desserts, canning and freezing. The fruit handle well and resist browning or bruising.

The trees set fruit abundantly, if they are not exposed to leaf curl, brown rot, Oriental fruit moth or twig borer. In other words, they are not very tolerant to many pests, diseases or to cold winters.

Redhaven peaches grow in the Krueger Orchard.

Rosa. Also spelled Roza, this cultivar was developed at the Washington State Agricultural Experiment Station in Prosser, Washington. Its availability has been in decline, and it is available only from three U.S. nurseries.

A large, round freestone peach, its skin is faintly streaked over a medium red blush across three-quarters of its surface. It has firm yellow flesh that is coarse textured but highly flavored. It typically ripens somewhat later than Redhaven. It is best for home use but moderately tolerates shipping for market trade. Its vigorous trees are productive and self-fertile.

Rosa peaches grow in the Krueger Orchard.

PEARS (*Pyrus communis)*

Anjou. First known as Beurré d'Anjou, then simply d'Anjou, this historic heirloom originated near Angers, France prior to 1800. English pomologist Thomas Rivers introduced it to Great Britain in the nineteenth century, and then Colonel Marshall P. Wilder brought it to Boston in 1842. It became the favorite European winter eating pear of all time. It remains available from more than two dozen nurseries in the United States.

A large, short-necked, rather conical pear, the Anjou remains light green even when ripe, but gains some light brown russeting. As its name *beurré* , meaning "buttery", implies its mild, fine-textured white flesh virtually melts in your mouth, and has the most delicate of aromas. It is most exquisite when stored in cold cellars for two months after picking.

These early-bearing trees are large, hardy and productive, but require other varieties' for cross-pollination. They are moderately resistant to fire blight and to cold.

The Anjou has been planted in the following orchards: Brimhall Orchard.

Bartlett. This pear was brought to North America from England in the 1790's. In parts of the British Isles, this classic heirloom was, and is still known as the William pear. Once in the US, this name was gradually forgotten, and by 1817, the variety had become better known as the Bartlett pear. It did not take long for the Bartlett to become the most widely planted pear in

America. Its fruits remain more common in American grocery stores and roadside markets than any other pear.

The Bartlett attains a rather large size for a pear, 3 and 3/8"by 2 and 3/8" wide. Its shape is oblong-obtuse-pyriform, tapering toward the apex. The skin is thin, tender and easy to bruise, but smooth. The surface of the skin is subtly pitted and somewhat uneven. As it ripens from a pale green, the color of the skin turns toward clear yellow, and gains a faint rosy blush on the exposed cheek. The skin is often thinly russetted around the basin, with scattered dots that are small and green or russet. The mature flesh can be fine-grained, but is often slightly granular near the center of the fruit. Fully ripened, a Bartlett can be buttery, juicy, vinous, and mildly aromatic, but today it is often picked, shipped, sold and eaten before these qualities accumulate.

Bartlett trees are adapted to a wide range of soil types, climates and growing conditions. They bear many large fruit from a rather early age, and can be long-lived. The disadvantages of the Bartlett are that the trees are very vulnerable to blight, extreme winter cold and summer heat. They are simply not as cold-hardy or as heat-resistant as some newer varieties. Furthermore, other pears are better-flavored more richly perfumed than the reliable but commonplace Bartlett. There is, however, no other pear that is so easily grown in North America, and so readily available for canning.

The Bartlett pear has been planted in the following orchards: Behunin Grove, Chesnut Orchard, the Group Campsite, Holt orchard, Merin Smith, Mott's Orchard, Nel's Johnson Orchard, and the Tine Oyler Place.

Flemish Beauty. The parent to Flemish beauty is said to have been a seedling found growing in the woods near Alost, Eastern Flanders, Belgium. It was first brought into trade under the name of Bosc peer, or "pear of the woods." Flemish Beauty was introduced in 1810 under another name, Fondante des bois, under which it was grown in England for many years. Lindley, writing in 1831, was the first to describe this heirloom variety under the name of Flemish Beauty.

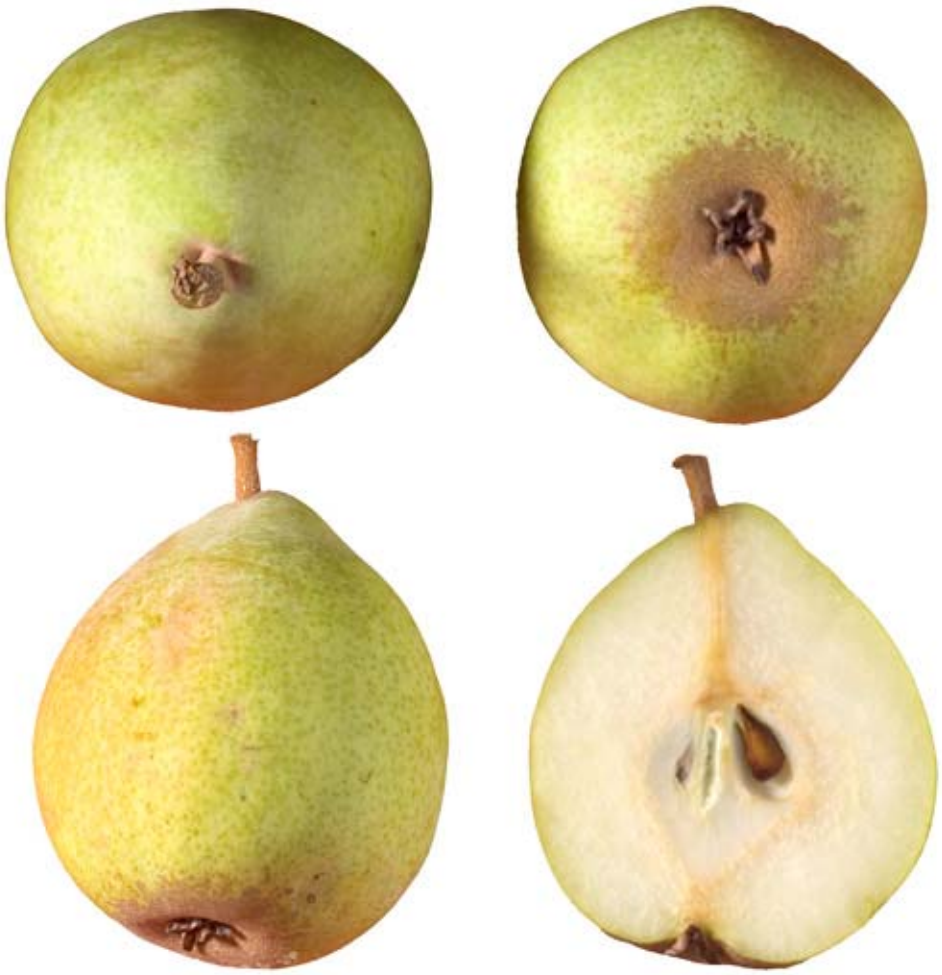
The fruit of Flemish Beauty is large, 2 ¾" long and 2 ½" wide and rather uniform in shape, which is as round as it is ovate pyriform. Its skin is thick, tough, and dull rather than glossy. Skin color is a clear yellow, overspread on the exposed cheek with a dotted and marbled reddish blush. These underlying colors are overlain with numerous russet dots. Its flesh is creamy yellow, firm and smooth. As it fully ripens, it becomes melting and tender, rather granular but juicy. The Flemish Beauty has a sweet, aromatic musky flavor of the finest quality.

To attain its most exquisite flavor and fragrance, these pears must be picked just as they reach their fullest size, and then they must after-ripen, wrapped in paper, in a cold cellar. It is said that a slowly after-ripened Flemish Beauty is incomparable in the pleasure it offers, for its rich flavor is delicately balanced between sweetness and sourness, with a musky aftertaste not unlike certain dessert wines.

Flemish Beauty trees are late bearing, but remain vigorous and fruitful for many years. This heirloom was at one time the leading commercial fruit variety in certain regions of the eastern US renowned for their pears. However, because of its susceptibility to pear blight and scab

fungus, the Flemish Beauty has been replaced by other, disease-resistant varieties in all but the most remote locales that are isolated from the spread of these diseases.

The Flemish Beauty has been planted in the following orchards: Gifford house, The Holt Orchard, The Jackson Orchard, and The Nel's Johnson Orchard.



Flemish Beauty

Winter Bartlett. Sometimes known simply as Winter Pear, this heirloom appears to have originated around 1880 in or near Eugene Oregon. It was then introduced into trade by D.W. Coolidge, a Pasadena California nurseryman. Its superficial resemblance to other Bartletts is the basis of the assumption that it was a chance seedling derived from that variety.

Larger in size but showing the characteristic pyriform shape of Bartletts, this winter pear has yellow uneven skin that blushes red on the sun-exposed cheek, while being splashed with russets

on the other sides. The firm flesh is creamy yellow white, fine-grained and tender. Sweet and pleasant in flavor, the pulp is juicy and of good to very good keeping quality. The fruit are typically harvested later than classic Bartletts, and fully ripen in storage between December and January. The trees are unusually large, with loose spreading canopies that mature to fruiting size quite rapidly. The Greenmantle Nursery in Garberville, California is the only mail-order outlet still known to carry this heirloom.

The Winter Bartlett has been planted in the Cook Orchard.

Winter Bartlett

PECANS *(Carya illinoisensis)*

Native. Native or seedling pecans are those that have not been grafted and do not have a varietal name. Native pecans have been widely used by indigenous peoples within its native range, from northeastern Mexico through most of the southeastern US, and their shells occur in many archaeological sites in the Mississippi watershed. Their formal cultivation began around 1700s, but then declined with the development of named cultivars and improved grafting techniques in the mid- nineteenth century.

Native pecans are small, difficult to shell, and have a low percentage of edible kernels relative to their thick shells. The nuts have high oil content, an excellent flavor, and are preferred by many rural folks because of these characteristics. They are excellent for pastries and candies because of this rich flavor, but their small size and thick shells preclude their widespread use.

A row of Native Pecan trees is planted in the Tine Oyler North Orchard, to the east of the Holt house.

Stuart (Paper Shell). The Stuart heirloom was discovered in Mississippi around 1880, making it one of the oldest named pecan varieties. It is sometimes grafted onto local native pecan saplings. It is still the most dependable and most widely cultivated pecan variety and is offered by more than a dozen nurseries. Stuart is widely used in both the shelled and unshelled pecan trades, but is most popular between Virginia and Oklahoma.

The large “type two” nuts are cylindrical, being slightly longer in length than in width. They are considered to be medium in both size and shell thickness. While the thin shells have fair to medium hard cracking characteristics, it is relatively easy to separate the kernels from the cracked shells. The nuts are almost half edible kernel by weight.

The scab-resistant trees come into bearing late, taking as much as ten to twelve years before they offer significant production. Stuart is a mid season, dependable producer with average yields of one hundred fifty pounds per tree. The trees can easily live a century or more if properly cared for.

PLUMS (*Prunus* species)

Duarte (*Prunus salicina*). A Japanese plum now offered by just two nurseries in the United States, the Duarte has also been the raw materials for an improved cultivar of the same name. It has very large, heart-shaped fruit with blood-red skin and flesh. Among the best-tasting plums found in western fruit markets, they are both sweet and tart, dry well and have long storage lives. The semi-dwarf trees seldom grow beyond a height of twelve feet, begin bearing in as little as three years, but are short-lived. They require the presence of another Japanese plum variety as a cross-pollinator to bear well.

The Duarte tree has been planted in the Brimhall Orchard of the Capitol Reef National Park.

Italian Prune (*Prunus domestica*). The Italian Prune is one of the most widely grown of all plums. As its name implies, it originated in northern Italy at least a century ago, where it was historically popular in the hills surrounding Milano. According to the London Horticulture Society, it had arrived in England by 1831. The following year, it was described by Prince as an excellent prune recently introduced to North America from Europe. Within decades, it was among the top four most popular plums along the Atlantic seaboard of America and the leading plum for drying into prunes in the Pacific Northwest.

The fruit are nearly 2” x 1½” in size, long-oval, enlarged on the suture side, and slightly compressed, with the halves unequal. Their color is purplish-black, overspread with very thick bloom. The skin of Italian plums is thin, but somewhat tough, and separates readily from the flesh. The tart flesh is at first greenish-yellow, changing to bright yellow, and is juicy, firm, subacidic, and slightly aromatic. It is free stone.

The Italian plum has a fine flavor whether eaten fresh, stewed or cured as a prune. With cooking its color changes from yellow to a dark, wine color, but keeps a most pleasant, sprightly flavor. When cured as a prune, the flesh is firm and meaty, yet elastic.

The low-topped trees can be large, spreading or upright, and are usually productive. They are well-formed and bear regularly, but seem to be susceptible to many diseases, insects, and hot, dry weather.

Italian Prune Plums are planted in the Krueger and the Nel’s Johnson Orchards.

Italian Prune

Potawatomi (*Prunus munsoniana).*This plum is native to the middle Mississippi and lower Missouri watersheds, but was apparently translocated to the Colorado Plateau and Great Basin either by Mormons or miners. In southern Utah, it is restricted to hedgerows and vacant lots in small Mormon villages, rarely reaching beyond these anthropomorphic landscapes into truly wild habitats. Sometimes spelled Pottawattamie, or simply called the wild or hog plum, its horticultural potential first came under the notice of J.B. Rice of Council Bluffs, Iowa in 1875, who named it after one of the countries of his home state, thereafter making it available to nurserymen in many other states.

The fruit are variable in both color and size, ranging from 7/8 of an inch to 1 1/8 inches in diameter. In shape, they are round to oval, and slightly compressed. There is a very shallow cavity on one side of them. Their skin color runs from a clear currant-red with thin bloom, to pale yellow and white. Over this basal color are a few whitish dots clustered about the apex. The skin of this plum is tough, cracking under conditions of high heat, separating readily from the flesh of the fruit. The stem of each fruit is slender, three-quarters inch long, and weakly adheres to the fruit itself. The flesh of this plum is deep yellow, juicy, tender and melting. It is described by most Mormons familiar with it as sweet next to the skin but sour at the center and of memorable flavor. The plum pit or stone clings closely to the flesh, is 5/8 x 3/8 inch in size. The pit is flattened, smooth, somewhat oval and turgid. Its dorsal suture is faintly grooved.

The trees are really dwarfish, multi-stemmed shrubs at maturity, seldom more than seven feet tall, and often forming hedges that average less than five feet in height. They are vigorous in their branching, and especially productive when receiving irrigation tailwaters, or growing alongside a ditch or a road. They are considered to be among the hardiest of the native plums, growing without danger of winter injury to tree or bud far into cold winter climes.

The Potawatomi is lauded in *The Plums of New York* as "possibly of greater cultural value" than any other wild American plum, for the flavor of its flesh is "of high quality…, the texture of the fruit being especially pleasing in eating, and though melting and juicy, it keeps and ships very well because of a tough skin. It escapes both the curculio and the brown-rot to a higher degree than most of its kind…" Elderly Mormons claimed that as children during the Depression, they survived on this fruit more than any other grown in their villages of Mt. Carmel, Caneville, Henrieville and Torrey at that time. As Lulu More of Henrieville Utah told us,

> *"We didn't have much food in those days when I was growing up…There Were no big orchards around here then, so when us kids could find them Potawatomi plums, it was a real treat."*

Potawatomi Plums grow in Adams Orchard, Behunin Grove, Holt Orchard, and along the River Trail near Hattie's Field.

Potawatomi Plum

Santa Rosa (*Prunus salicina*). The Santa Rosa was developed in 1906 by Luther Burbank from his trials of Japanese plums. Its place of origin, the Luther Burbank Home and Gardens in Santa Rosa, Sonoma County, California, is now a National Historic Landmark. This cultivar is widely available, and still distributed by more than forty nurseries in North America.

The Santa Rosa is very large for a plum, round, heart-shaped or slightly oval in shape, with purplish red skin carrying a thin bloom and light dots. Its clingstone flesh is purplish near the skin, but pink with yellow streaks near the pit. The flesh is fragrant and fine-textured with a flavor that remains memorable whether it has been eaten fresh or canned. The fruit ships well.

The trees are partially fertile, and bear best with cross-pollination in the presence of other Japanese plums. The trees grow vigorously and become quite large, but are susceptible to bacterial spot.

The Santa Rosa tree has been planted in the Brimhall Orchard of the Capitol Reef National Park.

Stanley. This is a European-type plum developed from a hybrid of Agen and Grand Duke cultivars that was introduced into trade by the New York State Agricultural Experiment Station in Geneva around 1926. It remains so popular that it is available from at least three dozen nurseries across the United States. It may still be the most widely planted plum of its kind in the East, Midwest and South.

The dark blue Stanley plum carries a thick whitish bloom on its skin. It is medium to large in size, and oval in shape. Its freestone flesh is firm and fine-grained, and a yellowish-green that turns purplish red when canned. It has a sweet rich flavor excellent for eating fresh, for canning, drying or preserves.

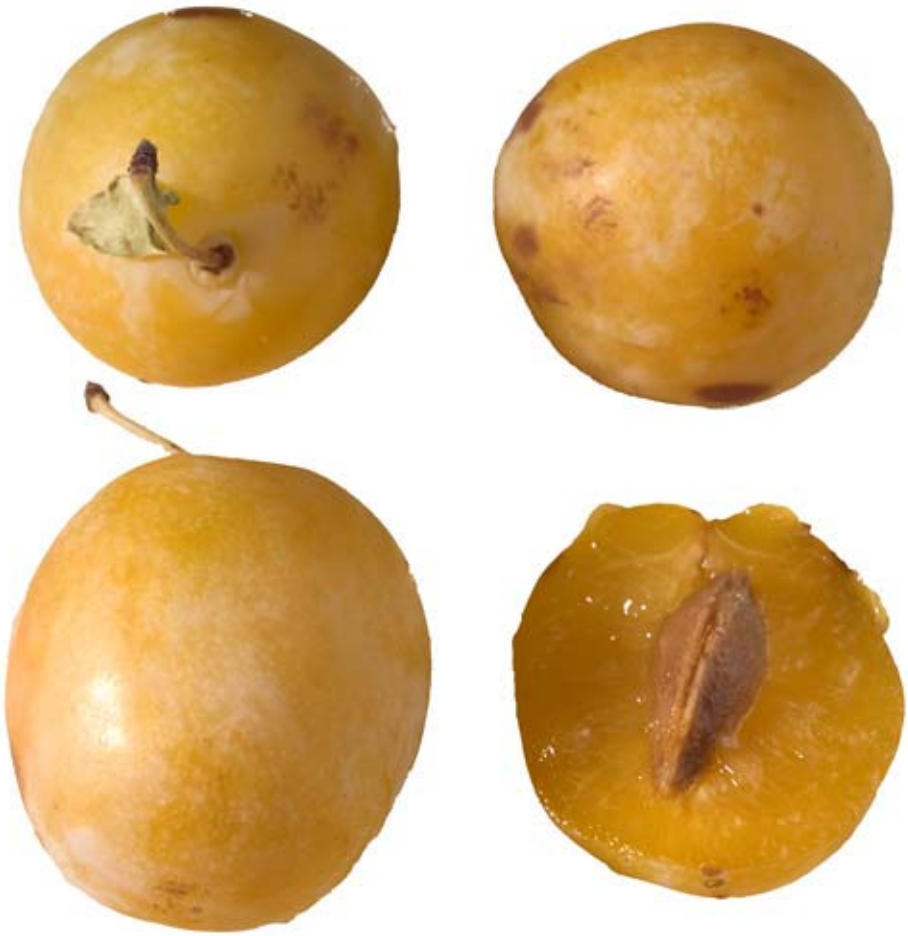
Late bloomers but early bearers, Stanley trees are large and spreading. They are self-fertile but benefit from the presence of other varieties for cross-pollination, and either way, can be heavy bearers.

A Stanley Plum grows next to the Holt House in Capitol Reef National Park.

Yellow Egg. This cultivar sprang up as a chance seedling in the Tiddesly Woods near Pershore, Worcestershire, England. It became a very popular plum, but has since been largely replaced by other varieties. The fruit is good for both canning and fresh use. This plum is sometimes simply referred to as Pershore.

As the name implies, the Yellow Egg Plum is a large, oval plum that looks somewhat like an egg. The golden-yellow flesh is firm and juicy, with a semi- free stone pit. The flavor is rich and sweet when the fruit is fully ripe, but it is tart if eaten before maturity. The fruit ripens from mid August to September, depending on location. The trees are vigorous, fast growing, and develop a tall and spreading habit. They are very productive and self-fruitful.

The yellow Egg plum is planted in the Nel’s Johnson Orchard at Capitol Reef national Park.



Yellow Egg Plum

QUINCES (C*ydonia oblonga)*.

Champion. Although this species is native to central and western Asia, it was introduced into the English-speaking world by 1275 A.D., and became a major raw material for marmalades in England by the sixteenth century. Because all quince cultivation declined as soft fruit became more storable in the nineteenth century, little is known of the origins of particular varieties. The fruit of this heirloom is bright yellow, and strongly russeted near the stem. The shape is described as obscure pyriform, that is, between the shape of an apple and pear. The calyx is set in a deep and strongly corrugated basin. The fruit is larger than the common quince, and ripens later and more tenderly than that any other quince. The flesh is yellow, only slightly astringent, sweet, and has a delicate flavor.

It fruits at a young age on vigorous, very productive trees that tend to produce ripe fruit by mid-season. The tree grows twelve to fifteen feet tall, is very vigorous and hardy. Its shoots have a very dark color, which is a feature that can be used to distinguish it from other varieties. The flowers are big, white and showy. This variety is known to be somewhat difficult to propagate from cuttings.

Champion Quince trees are planted in the Nel's Johnson Orchard of Capitol Reef National Park.

Champion Quince

Van Damen. This variety, developed by Luther Burbank, was a popular quince variety offered by Stark Brother's Nursery of St. Louis, Missouri. Burbank developed the variety by crossing Orange and Portugal quinces, over 700 crosses were required to produce the desired characteristics of the variety. It was introduced into the nursery trade in 1881. The fruits are large, oblong, and bright yellow. They are highly valued for cooking and making jellies.

When mature, this heavy bearing quince grows ten to twenty feet in height, forming a large shrub or small tree.

An old Van Damen quince grows at the Gifford Place of Capitol Reef National Park.

WALNUTS (*Juglans* species)

Black Walnut (*Juglans niger*). A native of eastern North America, the Black Walnut can be found growing wild along rivers and streams from central Texas northwards to Ontario, Canada.

The fruit is deeply furrowed and has a semi-fleshy husk that typically drops off the nut in October. The nuts are round, two inches or so in diameter, and the unimproved varieties may be difficult to crack. While the meaty nuts are highly flavorful, difficulties in shelling them preclude their widespread use as food. However, the Black Walnut is also highly valued for its beautiful dark brown wood, which is easily worked into furniture.

The Black Walnut is a large deciduous tree growing to heights of one hundred feet or more. The bark is dark grey-black and deeply furrowed. The twigs have pithy centers filled with air spaces. The pinnate leaves are alternate, with 15 to 23 leaflets per frond-like leaf. They are widely available from nurseries.

A lone Black Walnut persists along the road near the Nel's Johnson Orchard at Capitol Reef national Park.

Carpathian Walnuts (*Juglans regia*). Introduced into the US and Canada in 1939 by Reverend Paul C. Crath, who obtained seed from the Carpathian Mountains of Poland. Crath first distributed his Persian Walnut-like seed nuts through the University of Guelph in Canada, and through the Wisconsin Horticultural Society, and they have continued to be dispersed by more than two dozen nurseries in North America.

Plump but thin shelled, this heirloom is slightly smaller version of the English walnut. The nuts have a rich, full-bodied flavor and keep their excellent quality in storage. In late fall, the nuts fall free of their husks.

Carpathian walnuts are much hardier and more pest and disease resistant than their pampered English cousins. Their canopies are quite symmetrical and as much as forty feet wide, while growing up to fifty feet in height. The sturdy limbs are dark grey, with lacey dark green foliage. The self-fertile trees prefer sunny spots, with well-drained, deep and fertile soils.

Carpathian walnuts have been planted in the Gifford Farm, Mott's Orchard, Nel's Johnson Orchard, and in the Picnic Area at Capitol Reef National Park.

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