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Melrose
Orchard Rehabilitation Plan



Aerial Photograph of Melrose, c. 1956

July 2014



Landscape Architecture • Historic Preservation
Planning • Environmental Assessment

Melrose Orchard Rehabilitation Plan

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National Park Service

119 Washington Street, Gainesville, Georgia 30501 • 770.534.0506
675 Pulaski Street, Suite 1000, Athens, Georgia 30601 • 706.543.5459
www.jaegerco.com

History

The orchard at Melrose was likely established by the McMurrin family in the mid-1850s around the same time the buildings and gardens were built. Little is known about this orchard other than some of the fruits that were produced there – peaches, cherries, apples, and pears (CLR 1996:74).

At the time the Melrose orchard was established, Thomas Affleck was publishing the Southern Rural Almanac and running a nursery specializing in fruit trees based in the Natchez area. His almanacs and plant catalogs indicate hundreds of varieties of fruit trees grown at and available through his nursery. Affleck's guidance for design and cultivation of orchards indicates an intensive maintenance regime and use of a wide array of fruit species, varieties, and tree forms.

The McMurrin era orchard at Melrose is undocumented and it is unclear if Affleck's guidance was followed or if the family purchased plant material from Affleck. However, given Affleck's extensive catalog of available selections, recognized authority on orchards, and proximity to Melrose, it is very likely that Affleck would have at least influenced the McMurrin's orchard.

In the early twentieth century the Kelly family purportedly preserved the layout and surviving trees from the McMurrins orchard (CLR 1996:98). Kelly family employee, Fred Page, remembers peaches, pears, wild plums, and figs growing in the orchard in the 1950s. Marian Ferry, daughter of George and Ethel Kelly, said her mother who was from the northeast wanted apples like the ones she knew from her childhood, but those varieties were a failure, while pears and figs did well. During the Kelly period, the orchard was not intensively managed – cattle grazed the grass and a tall, seldom clipped cherry laurel hedge enclosed the area (CLR 1996:116).

By the 1970s, few healthy fruit trees remained. The Callon family added cherry, Japanese persimmon, flowering pears, and blueberries to the orchard, but left the area relatively empty (CLR 1996: 131). At the time the Melrose Cultural Landscape Report (CLR) was written peaches, pears, cherries, apples, and figs were still growing in the orchard and recommendations were provided for the maintenance of those trees while adding appropriate species to help interpret the form and structure of the orchard (CLR 1996:226). Today the only remaining trees in the orchard are naturalized or are ornamental trees from the Callon era, which do not reflect trees from the McMurrin or Kelly periods.

Project Goals

(Project goals are adapted from the treatment recommendations for the orchard found in the CLR)

- Reestablish early-twentieth century landscape character (this is the earliest documented period of orchard, this is character is also reflective of the McMurrans era orchard containing trees from that orchard) using historically accurate tree types, species, varieties, forms, and spacing
- Reestablish surrounding fencelines and cherry laurel hedges (since accomplished)
- Add enough trees to the orchard to give the appearance of an orchard (1996 CLR recommended the addition of 30 new trees and preservation of appropriate existing trees – all appropriate trees for preservation in 1996 have been lost)
- The orchard should be managed for interpretation value less than maximum fruit production
- Fruit tree varieties that were available to the McMurrans and Kellys should be selected (these varieties should be cross referenced with current availability and suitability for cultivation in Natchez, MS)
- The resulting rehabilitated orchard should be manageable for the NPS and managed according to the documented condition of the McMurrans / Kelly era orchard of the early to mid-twentieth century

Rehabilitation Methodology

(The approach for rehabilitating the orchard at Melrose is adapted from the recommendations for treatment outlined in the Melrose CLR and a consultation with Susan Dolan, an orchard expert, author of 'Fruitful Legacy,' and NPS Cultural Landscapes Program Manager.)

Summary of Orchard Recommendations from the Melrose CLR

It seems probably that there were [fruit tree] survivors and that the Kelly's replaced lost trees rather than establish a new orchard. In that case, the orchard would have had the same layout in terms of orientation and spacing of the rows of trees in the nineteenth century as the one which can be seen in photographs taken later in the twentieth century. The composition should be based on what can be learned from the McMurrans correspondence (apples, cherries, peaches, and pears) as well as the Kelly's orchard (peaches, pears, plums and figs), with regard to the varieties of that time and place. Thomas Affleck's Southern Rural Almanac and Plantation and Garden Calendar provide good guidance (1851). The plan should address rootstocks, sizes, forms of trees, management techniques, pruning, and pest management. Recommendation to add 30+ trees. Grass should be maintained at two to four inches in height throughout the year.

Evolved Recommendations Based on Consultation with Susan Dolan

Tree Type – Named variety - grafted onto seedling rootstock consistent with orchard material from the McMurren period

Tree Size – Standard form – large, long-lived trees produced from vole-resistant seedling rootstock

Tree Form – Tall trunk (above graze line – six to eight feet from grade)

Layout – The form should be that of a wide, gridded, traditional, orchard layout on a square layout module. This was typical in the McMurren period when the layout was established. Rows of a single species/variety should be plant as is consistent with 19th century orchard plantings.

Tree Spacing – The 1956 aerial photograph on the report cover indicates orchard rows following a northwest to southeast orientation. Current landforms indicate depressions and berms following this same orientation. These berm landforms should be used as the basis for laying out the orchard rows. Existing row spacing varies between 15 to 20 feet. Recommended rehabilitation planting spacing is 30 feet to allow for use of large, standard trees produced from seedling rootstock. The original orchard, which dated to the McMurray Occupancy period (1841-1865), was replaced in the Kelly Rehabilitation Period (1901-1975), likely sometime in the late 1930s or early 1940s. As the 15'-20' layout is not necessarily the spacing of the original orchard, use the existing berms if/where possible, with 30' spacing taking precedence.

Tree Selection – Fruit trees were selected using the following primary resources for guidance:

- *Southern Rural Almanac* by Thomas Affleck, 1851 – lists hundreds of fruit tree varieties that were commercially available in the nursery trade and from Affleck's nursery at the time the McMurren orchard was established (Note that Affleck sold trees nationally, not just in the Deep South. No regional recommendations were made.)
- *Fruitful Legacy: A Historic Context of Orchards in the United States...* by Susan Dolan, 2009 – lists the most popular fruit tree varieties in the early twentieth century along with variety introduction dates
- *Fruit and Nut Recommendations for Mississippi* (Publication 966) by Mississippi State University Extension Service, msucare.com/pubs/publications/p0966.pdf – provides contemporary advice for the best performing fruit trees for Mississippi orchards

Species Selection – The proposed planting plan recommends the use of cherry, pear, and fig varieties listed in both Affleck and Dolan. These varieties are also currently recommended for use in Mississippi by the Mississippi State University Extension Service (MSU) Extension Service. Selected apples and peaches are listed in Affleck and Dolan, but are not recommended for use by the MSU Extension Service, as heirloom varieties of apples and pears were not included in MSU’s publication. All selected varieties were researched for availability and suitability for cultivation in Natchez, Mississippi.

At time the CLR was written, 30 trees were proposed for addition to the existing orchard. Since that time all fruit trees identified as appropriate for preservation have been lost. Accordingly, this planting plan proposes establishment of 35 fruit trees to compensate for lost trees.

Enclosure – Restoration of the surrounding cherry laurel hedge was recommended in 1997 and has since been accomplished. The CLR recommends a tall, seldom sheared hedge to provide the enclosure that was documented in the early and mid-twentieth century orchard. Allowing hedge to reach the roofline of the privy, in keeping with early and mid-twentieth century character, will further define the orchard and restore landscape integrity. Additionally, staked, wire cages are recommended for each tree to prevent browse damage while allowing access for maintenance.

Planting Considerations:

- Remove existing trees in orchard, including stumps
- Plant in fall (November, if possible)
- Follow the MSU Extension Service directions for completing a soil test for the orchard
- Stake out the proposed orchard grid making sure to follow the existing furrowed and bermed rows as possible
- Mow lawn at 2”-4” height and after planting
- Locate all proposed trees on top of berms
- Amend the soil in the vicinity of each tree according to soil test recommendations
- Plant according to the Fruit Tree Planting Detail with the grafts located two inches above grade
- Whitewash trunks from the soil line to the first branches using a lime wash or diluted white latex paint
- Install welded wire mesh tubes around tree trunks to prevent damage to trunks
- Install welded wire fencing cages following Fruit Tree Cage Details to protect trees from browsing damage
- Stake each tree using four foot tall two inch by two inch hardwood stakes driven two feet into existing undisturbed soil
- Tree stakes should be oriented in a southwestern alignment to accommodate prevailing winds

- Adjust guying wires on a regular basis to provide tree stability while preventing damage to tree bark and trunks
- Create a four foot diameter mulch ring six inches deep around each tree using a nutritional mulch (compost and fine shredded bark)
- Water each tree immediately after planting
- Introduce chickens to assist with lawn maintenance

Management Goals

- Focus on tree health and survival, not fruit production
- Create an orchard that contains enough plant material to convey the gridded structure of an orchard

Maintenance Tasks during Establishment Period (first two to three growing seasons)

- Water regularly – consider the use of a temporary drip irrigation system at the tree's drip line
 - One inch of water should be delivered to the tree's root zone on a weekly basis throughout the year
 - Lines should be buried in a shallow fashion to ensure archeological resource protection
- Remove weeds within the mulch zone on a regular basis
- Prune and Shape Trees
 - Remove dead and diseased material regularly
 - Rub off ancillary buds on trunk to produce a six to eight foot tall trunk (grade to lowest branches)
 - Remove crossing branches
 - Create evenly spaced and well spread branching (should look like a bicycle tire spoke from above or below)
- Prune Enclosing Cherry Laurel Hedge – twice annually to the height of the privy roof line
- Fertilize annually with an application of nutritional mulch (compost and fine shredded bark) – select / cultivate compost based on soil test recommendations
- Address identified pests as needed using organic insecticides as possible with the goal of sustaining the life of the tree (not fruit production)
 - Spray copper sulfate onto emerging foliage
 - Spray insecticidal soap for treatment of many types of pests
- Protect bark from sun scald using a limewash or diluted white latex paint application from the finished grade to the first tree branches
- Maintain welded wire mesh tubes around tree trunks
- Maintain tree cages to protect trees from browsing wildlife

- Mow lawn throughout the growing season maintaining a two to four inch height
- Introduce chickens to the orchard to assist with lawn maintenance, pest control, and provide fertilization
 - Consider use of movable chicken coop to protect chickens from predators and to rotate pest control and fertilization

On-going Maintenance Tasks (beyond first two to three years)

- Water during drought conditions – if buried drip irrigation system remain, make use of that system – if irrigation system is no longer useful, consider the use of slow release irrigation bags
 - One inch of water should be delivered to the tree's root zone throughout drought conditions
- Prune and Shape Trees
 - Remove dead and diseased material regularly
 - Rub off ancillary buds on trunk to produce a six to eight foot tall trunk (grade to lowest branches) as required
 - Remove crossing branches
 - Create evenly spaced and well spread branching (should look like a bicycle tire spoke from above or below)
- Prune Enclosing Cherry Laurel Hedge – twice annually to the height of the privy roof line
- Fertilize annually with an application of nutritional mulch (compost and fine shredded bark) – select / cultivate compost based on soil test recommendations
- Address identified pests as needed using organic insecticides as possible with the goal of sustaining the life of the tree (not fruit production)
- Maintain welded wire mesh tubes around tree trunks for first 20 years of life – adjust as needed to ensure the tree is not girdled by the material
- Maintain tree cages for three to five years or until the tree canopy is above wildlife browse height (six to eight feet from grade)
- Once fruit production begins (10 to 12 years after planted), rake orchard on a monthly basis between June and November to remove fruit from the ground and prevent animal and rodent infestations – the fruit may be composted in another area of the property to produce nutritional mulch for the orchard.
- Mow lawn throughout the growing season maintaining a two to four inch height
- Rotate chickens within the orchard to assist with lawn maintenance, pest control, and provide fertilization

Fruit Harvest:

- Fruit will be produced approximately 10 to 12 years after establishment
- Staff and/or volunteers to pick fruit from ground or using ladders
- Do not allow fallen fruit to accumulate on the ground

Potential Fruit Tree Sources:

Heirloom species grown on seedling rootstock will likely require contract growing the material with a specialty nursery. The following list may be helpful in identifying the appropriate contract grower(s) and/or repositories for obtaining heirloom material for propagation.

Bracy's Nursery

Amite, LA

Bob Wells Nursery

Lindale, TX

Century Farm Orchards

Reidsville, NC

Contact: David Vernon

Greenmantle Nursery

Gaberville, CA

Contact: Ram Fishman

Johnson Nursery

Elijah, GA

Raintree Nursery

Morton, WA

Contact: Sam Benowitz

Mississippi State University Agriculture & Forestry Experiment Station

Central Mississippi Research & Education Center

Truck Crops Experiment Station

Crystal Springs, MS

Contact: Dr. Shery Bell

Vintage Virginia Apples

North Gaden, Virginia

Contact: Charlotte Shelton

USDA Agricultural Research Service, National Clonal Germplasm Repositories

Corvallis, OR

Contact: Joseph Postman

Bibliography:

Affleck, Thomas. Southern Rural Almanac. Washington, Adams County, Mississippi: Office of the Picayune, New Orleans, 1851.

Dolan, Susan. Fruitful Legacy: A Historic Context of Orchards in the United States, With Technical Information for Registering Orchards in the National Register of Historic Places. National Park Service, 2009.

National Park Service, US Department of the Interior, Melrose Cultural Landscape Inventory, prepared for Natchez National Historical Park and Cultural Resources Southeast Region by The Jaeger Company, 2013.

National Park Service, US Department of the Interior, Melrose Estate Cultural Landscape Report, prepared for Natchez National Historical Park by Ann Beha Associates, 1997.

Mississippi State University Extension Service. Fruit and Nut Recommendations for Mississippi (Publication 966) msucares.com/pubs/publications/p0966.pdf



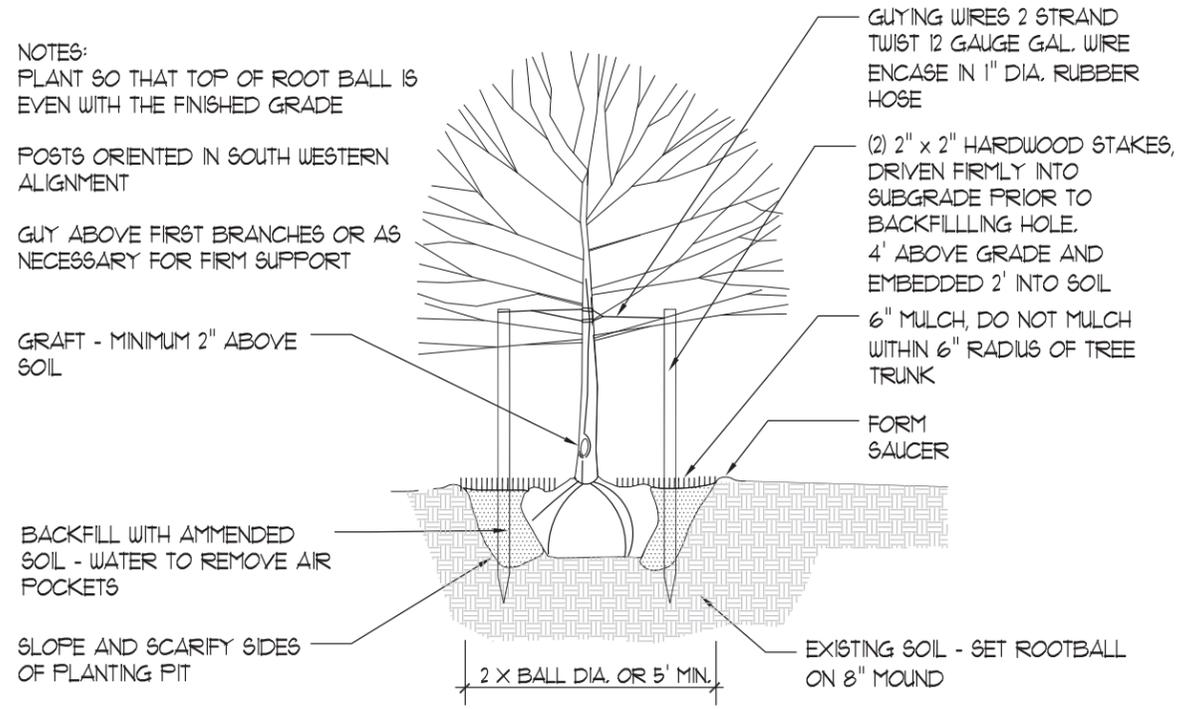
Planting Plan



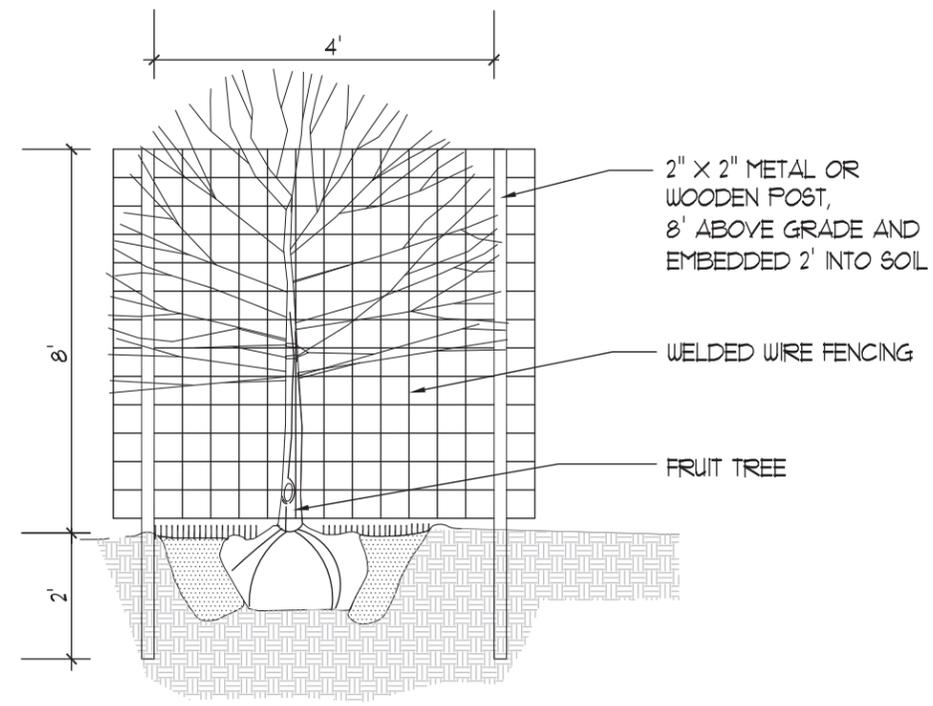
Location Map

Plant Key

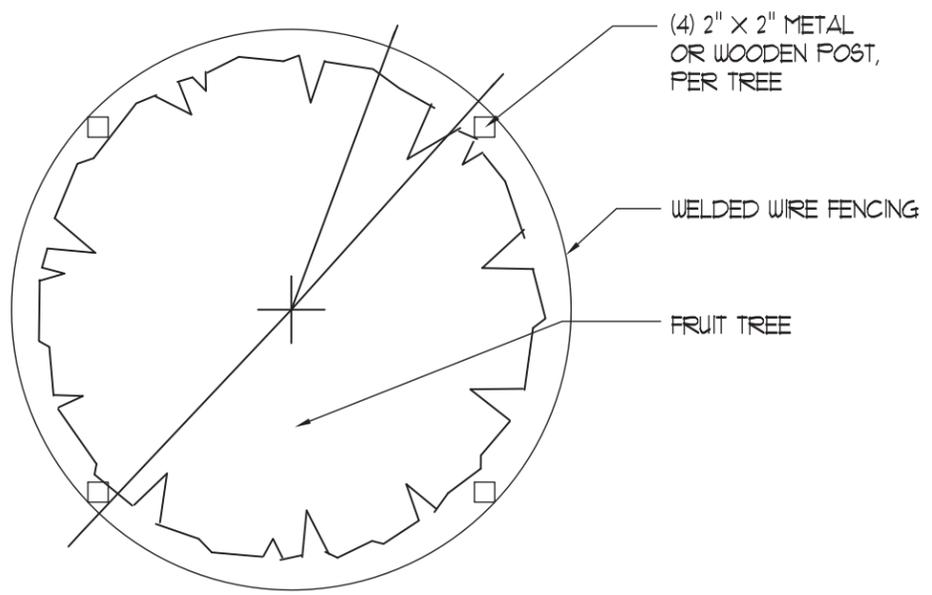
APPLES:		
AW	Winesap	(5)
AR	Roxybury Russet	(5)
PEARS:		
YS	Seckel (Sugar)	(5)
YL	LeConte	(5)
CHERRIES:		
CM	Montmorency	(5)
FIGS:		
FB	Brown Turkey	(5)
PEACHES:		
PE	Early Crawford	(5)



Fruit Tree Planting Detail



Fruit Tree Cage Section Detail



Fruit Tree Cage Plan Detail