

# University of Kansas

## Marvin Grove Management Plan

July 2016

### PURPOSE AND BACKGROUND

The purpose of the Marvin Grove Management Plan is to develop a set of guidelines for the maintenance, protection, and preservation of Marvin Grove. The plan will outline the means to maintain a healthy Grove for the foreseeable future, to protect the dynamic ecosystem and high-value trees in the grove, and to establish a tree replacement program

Marvin Grove, planted during the first Period of Development, is an important icon for the University of Kansas. In 1878, Chancellor Marvin proposed projects for the University's first Arbor Day, during which students, faculty, the Douglas County Horticultural Society and Marvin himself planted Marvin Grove and Lilac Lane. The Grove was planted in an era when the availability of cultivated trees and general interest in horticulture gave communities an opportunity to act on a vision of cool shaded parklands--although these would be many years in maturing. Marvin Grove provided a place of respite and quiet alongside the spaces for organized sports and spectators, symbolizing the Victorian ideas of the salutary benefits of fresh air, walking and passive recreation.

The establishment of Marvin Grove was one of the most notable campus landscape features, and was one of the earliest intentional woodlands on a Midwestern campus. Through the evolution of KU, Marvin Grove remained a consistent element around which the campus grew, and it is one of the more important contributions from the earliest days of the institution. A unique feature in its day, Marvin Grove remains one of the most unifying and historic landscape features on campus. (Hare & Hare Plan in 1926-1927)

Records show a variety of trees have been planted in Marvin Grove beginning with walnuts.

- Walnuts & Black Oaks (1878)
- Kentucky Coffee Trees (1900)
- Red Oaks (1935)
- Pin Oaks (1940-1950)

Over time, the grove has expanded to cover approximately 10 acres and include additional species. An inventory completed in 2015 recorded American Basswood, Northern Catalpa, Redbud, Scotch Pine, and Black Oak, among others. See Tree Inventory for additional details.

As an historic element of the campus landscape, Marvin Grove has been afforded degrees of protection. In 1906, the KU Board of Regents renamed Marvin Grove, previously known as North Hollow, to recognize the contributions of Chancellor Marvin. The Hare & Hare master plan of 1928 later identified Marvin Grove as an area that should be protected from construction. Eight decades later, the Campus Heritage Plan called for more formal protections. The plan noted that Marvin Grove was eligible for listing on the National Register of Historic Places and recommended development of a forestry management plan. That document led to the listing of the University of Kansas Historic District in 2013. Marvin Grove is included in the registry as an element of the Core Landscape.

### GOALS AND STRATEGIES

1. Manage Marvin Grove as a campus forest.
2. Preserve the relative scale and density of the current character of the overstory of the Grove, which has existed for over a century. (See page E-61, Campus Heritage Plan)
3. Preserve the open understory of the Grove maintaining and diversifying the plant palette using improved and disease resistant cultivars. (See page E-63, Campus Heritage Plan)

## MANAGEMENT

1. Facilities Services is the primary department responsible for carrying out the University of Kansas Tree Care Plan, and undertaking the management plan for Marvin Grove.
2. The Campus Tree Advisory Committee has been established to assist with the preservation and revitalization of historic green spaces, including Marvin Grove

## TREE INVENTORY

Due to the age of many of the trees planted in Marvin Grove, pests, and disease problems, damage by storms, and other contributing factors, a tree inventory is the needed first step in developing a management plan. The inventory was conducted in 2015 by students enrolled in the summer and fall semester Field Ecology courses taught by Dr. Robert Hagen (KU Environmental Studies Program).

The tree inventory obtained and organized information about the number, condition, and distribution of trees within Marvin Grove. This inventory has established the current make up and condition of the grove. It will be the basis for in making planning and management decisions for the maintenance, protection, and preservation of the Grove.

Information gathered as part of the tree inventory included:

- Date visited
- Unique tree identification number, GPS coordinates, map location
- Tree species (genus and species, and by common name)
- Tree condition (good, fair, poor, dying)
- Tree diameter at breast height (in inches, to the nearest half inch)
- Height
- Comments included notes about condition, maintenance needs or other distinguishing factors
- Photos of tree including location, bark, leaves and fruit may be a future addition to the inventory

This inventory mapped a total 201 trees representing 28 species within an approximately 10-acre area bound by Memorial Drive to the south and west, Parking Lot 61 to the north, and Mississippi Street and the parking access road to the east.

Working from standard condition classification criteria, teams assessed each tree and reported 24% in “good” condition; 52% “fair”; and 24% were “poor.” One tree was noted as “dying”. It should be noted that students were conservative when rating condition, using an approach designed more for assessing quality for lumber than aesthetics, so results may reflect more trees in poor condition than actually exist. There were also 32 trees for which the condition rating was flagged as “uncertain.” Trees flagged as “uncertain”, along with the trees rated as “poor,” should be reassessed by experienced Landscape staff to update the status.

The most common tree species in the grove was Black Walnut, but only 2 of the 46 were classified as in good condition. For the most part, they are large trees, averaging 25 inches in diameter and 57 feet in height. Redbuds were the second most common tree, mostly planted on the slope below the Spencer Art Museum. These were followed by Northern Red Oak, Northern Catalpa, Kentucky Coffeetree, Scotch Pine, and Black Oak.

Although there is not a particularly formal approach to the plantings in Marvin Grove, the inventory indicates that many of the existing trees are placed in individual groves of the same species. For example, there is a grouping of Catalpa trees on the southwest slope, and the original Walnut trees appear to be planted in rows.

A complete listing of tree species and their condition is included in Figure 1. Figure 2 shows locations of each of the trees included in the inventory. A complete report on the 2015 Marvin Grove Tree Inventory can be found at [www.sustain.ku.edu/trees](http://www.sustain.ku.edu/trees).

Figure 1: Condition Ratings by Tree Species

Tree species	Condition				Total
	Good	Fair	Poor	Dying	
Black Walnut	2	29	15		46
Redbud	9	13	3		25
Northern Red Oak	3	11	3		17
Northern Catalpa	1	11	2		14
Kentucky Coffeetree	5	8	1		14
Scotch Pine	4	4	6		14
Black Oak	3	5	2		10
Common Hackberry	5	1	3		9
American Basswood	2	5			7
Pin Oak	2	4	1		7
Honey Locust	2	4	1		7
Hackberry		4	2		6
Green Ash			3		3
White Mulberry			3		3
Limber Pine	3				3
Bur Oak	2				2
Horse Chestnut		1	1		2
Honey Locust	1	1			2
Eastern Redcedar		1			1
Swamp White Oak	1				1
Ponderosa Pine			1		1
Juniper		1			1
Juniper	1				1
Siberian Elm			1		1
Austrian Pine	1				1
Eastern Cottonwood		1			1
"Elm"				1	1
Hophornbeam	1				1
<b>Totals</b>	<b>48</b>	<b>104</b>	<b>48</b>	<b>1</b>	<b>201</b>
Percentages	24%	52%	24%	0%	100%

Figure 2: Marvin Grove 2015 Tree Inventory



0 70 140 280 Feet

## APPROACH

The inventory of the Marvin Grove gives us the existing mix of tree canopy. From this list we will be able to determine the desired mix of species for the future. This projection should balance the historic mix of trees with the current environmental conditions.

## PLANTING

On-going inter-planting of new trees, paired with the removal of damaged trees, should be used to improve and maintain health of the Grove.

- Plants should be selected to provide a healthy and diverse selection of trees that are climate adapted to the area; to require minimal care once established; to be both native and exotic species; to provide aesthetic qualities; to be the appropriate size and structure for the site; to encourage an increased palette of canopy trees to ensure longevity; to resist disease; to provide species diversity, and to maintain historic context of the grove.
- The Campus Heritage Plan provides instruction for historic interpretation of the Grove in accordance with the National Park Service guidelines:
  - Do not plant ground level shrubs or understory trees
  - Do not plant flowering trees (with the exception of redbuds on the perimeter of the Grove).
- Since the planting will be done within the dense canopy special planting techniques may be needed. New trees will be placed in open areas where there is sufficient space and sunlight. Existing trees may need branches thinned to provide light for new trees. As with any new planting, consistent watering and extra care will be needed the first few years to help the healthy establishment of the trees. Mowing and weed trimming will also need to be done carefully around the new trees to prevent any damage to the bark or trunk.
- Turf grass should be maintained as the ground plane planting for the grove to remain consistent with the historical parklike context of the site. Selectively thin branches to provide sufficient light for the grass.
- Recommended Species
  - Species historically planted in Marvin Grove, as identified through the inventory.
  - Large canopy trees rather than small ornamental trees
  - Walnut trees should continue to be planted even though they are susceptible to Thousand Cankers, a disease fatal to walnuts. It is caused by a fungus carried by the tiny walnut twig beetle. The disease is spread when wood containing the beetles is moved to new locations. While not found in Kansas to date, the Kansas Department of Agriculture issued a quarantine in 2010. The quarantine prohibits the movement of walnut plants or wood into or through the state from states where the disease is found unless certified pest free. The disease is prevalent in eastern Colorado.
  - Other species introduced to the grove that are recommended include:
    - Catalpas
    - Basswood/American Linden
    - Redbuds on the perimeter

## MAINTENANCE

An ongoing scheduled maintenance plan will include annual, routine, and preventative care to include the following:

- Fertilizing and pest management
  - Inspect for pests semi-annually, or when the presence of pest or disease is suspected. Use Industry Best Management Practices to address the problem. Use organic products or natural practices to the extent feasible to get the results required.
  - Pest protection should be tailored to the type of pest and treated accordingly
- Inspect for Thousand Cankers Disease in walnut trees on an ongoing basis.
- Pruning
  - Pruning should include removing damaged or diseased branches only.
  - Pruning should occur to maintain important historic views as identified in the Campus Heritage Plan.
  - Preservation measures for older trees that may be deemed appropriate.

## REMOVAL

Tree removal is a last resort and must be approved by the Campus Tree Committee, unless the tree poses an immediate safety concern. In that case it should be removed as soon as possible. Trees, including the stump, will be removed completely. Wood and mulch should be used within the campus community whenever possible to benefit teaching, research, or maintenance.

When trees are removed, surrounding trees shall be protected. Removal of trees that extend into the branches or roots of protected trees shall not be attempted by grading or heavy equipment. The tree shall be removed carefully in a manner that causes no damage above or below ground to remaining trees. (TCP)

Approximately 50 trees were identified as being in poor condition in the tree inventory, 104 are in fair condition, and 48 are in good condition.

- Over a 5-year period remove the trees in poor condition, removing 10 trees per year.
- Over a 20-year period monitor the trees in fair condition, removing up to 10 a year as needed.

## REPLACEMENT

In order to mitigate the loss of established trees to age, disease, or weather and to maintain a consistent canopy reminiscent of the Campus Heritage Plan, trees shall be planted each year.

- Over the first 5-year period plant at least 15 trees per year to replace those removed.
- Over 20 years replace trees lost at a ratio of at least 1 ½ to 1.

Replacement trees shall be of a minimum 3-inch caliper to provide larger trees to blend in with the established Grove. Walnuts are the exception to the size requirement. Since they have a taproot they will be smaller when planted. Select the largest size practical to plant. (CHP)

All trees shall be healthy, disease resistant varieties that meet the current edition of American Standard for Nursery Stock. While historic varieties are recommended, improved cultivars should be selected when appropriate and available.

Replacement trees should be planted in proximity to where trees are removed, or as determined appropriate by the Campus Landscape Architect, FS Landscape, and/or the Campus Tree Advisory Board.

## PROTECTION OF MARVIN GROVE

The Grove shall remain intact. No future buildings shall intrude into the established portion of the Grove. Tree protection zones shall be established and maintained for all trees in a construction site. While there should be no buildings constructed in the Grove, utility work or sidewalk repair may affect the trees. (TCP) The following guidelines will apply:

- A simple barrier for each tree or grouping must be in place to protect the critical root zone which includes the trunk and root systems. This distance should be at least one foot of distance from the tree trunk for each inch of tree caliper (National Forest Service Critical Root Zone.)
- No equipment or vehicles shall be parked or construction material stored, or substances poured or disposed of or placed within any tree protection zone at any time during clearing or construction of a project.
- To the extent possible, all site work shall be planned and conducted in a manner that will minimize damage to protected trees from environmental changes such as altered site drainage or any other land disturbance within or immediately adjacent to the critical root zone of the tree. (TCP)

The removal of trees on campus is a last resort and requires permission from the Campus Tree Committee.

## OUTREACH & EDUCATION

Marvin Grove provides a unique opportunity for outreach and education related to local natural and cultural heritage, both for the campus community and visitors to the University of Kansas:

- Connections to the community: Consider Marvin Grove a location for passive recreation, where one enjoys the values and benefits of nature, walks, and natural beauty.
- Living classroom: Encourage faculty and staff to use the Grove as a resource for study and integrate it into their classes.
- Learning laboratory: Encourage faculty to collect valuable information about the Grove.
- Interpretive Signage: Signage should explain why trees are being removed and how removal is accompanied by replacement plantings to maintain the Grove's historic character.

## COST

An annual budget and funding stream should be established to ensure the sustainability of Marvin Grove. The Campus Tree Care Plan recommends establishing a dedicated "tree bank" for new trees and tree replacement, that can be used to replace trees that are damaged by weather, or die due to old age or disease.

Funding for the first three years of the project will focus on removing those trees that are in poor condition and replacing them on a 2:1 basis. As progress is made, the condition of remaining trees should be assessed and costs projected for ongoing replacement and maintenance.

## PROPOSED BUDGET (YEARS 1-3)

Activity	Details	Cost per tree	Total Cost
Removal	Remove 10 trees per year	\$750	\$7,500
Replacement	Plant 20 trees per year	\$500	\$10,000
Maintenance	Water, prune, and assess condition of trees	\$5,000	\$5,000
<b>Annual Budget</b>			<b>\$22,500</b>