# Green Action Project Proposal: Spring 2017

## Educating the Campus Community about Tree Care by Completing the Campus Ash Tree Inventory

**Project Leader**: Dr. Cathie Lavis—Associate Professor Landscape Management, Department of Horticulture and Natural Resources

**Student Project Chairs:** Caitlynn Carlson, Junior—Horticulture and Paxton Boore, Junior—Agriculture Education

**Students Assisting with the Coordination of Project:** Connor Bolte, Junior—Landscape Horticulture; Tyler Clements, Junior—Park Management and Conservation; Dalton Dunn, Sophomore—Landscape Horticulture; McKynzie Mann, Senior— Landscape Horticulture; Bruce Moore, Sophomore—Landscape Horticulture; Benjamin Williams, Senior—Park Management and Conservation

**K-State Facilities Cohort**: Joe Myers—Physical Plant Supervisor, Facilities Grounds Maintenance; Mark Taussig—Associate Director/Planning, Campus Planning and Project Management; Jackie Toburen—Physical Plant Supervisor Senior, Facilities Grounds Maintenance

**Student Mentoring Team:** Kim Bomberger—Associate Community Forester, Kansas Forest Service; Randy James—Owner and Consulting Arborist, Growing Concerns, Manhattan; Chad Miller—Assistant Professor—Department of Horticulture and Natural Resources; Judy O'Mara—Instructor & Diagnostician, Department of Plant Pathology; Professor Chip Winslow—Department of Landscape Architecture/ Regional & Community Planning

**Collaborating Student Groups**: Spring 2017 students in: HORT 585: Arboriculture; PLPTH 590: Landscape Diseases and Horticulture Club Members

## Introduction and Background:

Kansas State University was established in 1858, as Bluemont College; it was the first land-grant college in the country by the provisions of the Morrill Act. The main campus was originally three farmsteads, housing only a few trees, (*above photo*). Some of the original trees are still standing; for example, one is an Eastern red cedar with concrete cavity fill, located just to the north of Anderson Hall. At the western boundary of the campus, now known as the, "Quad," stood two large thornless, honeylocust trees. These two honeylocust marked the fence line on Reverend Gales' property. Reverend Gale operated a tree nursery, selling thousands of trees to Kansas residents. Today, one honeylocust still stands in that location surrounded by Farrell Library, Waters, Leasure and Willard Halls. Gale was the first superintendent of the Department of Horticulture, 1870-1879. During his tenure, approximately 100 species of trees and shrubs were sent from Harvard Botanical Gardens

and planted in order to determine how they might withstand Eastern Kansas conditions. Students helped plant, prune and graft the plant materials. With Gale's foresight, shelterbelts and evergreens were also planted. The large, old Austrian pine located just to the north of the clock triangle on the main campus corridor was one of these transplants in the early 1990's. The extraordinary green ash in the Quad was part of the shelterbelt. Sadly, many of our historical, specimen trees are declining due to age, construction damage, or lack of maintenance funding.

Today it is hard to image that our beautiful treed campus had only a few trees except for the occasional cottonwood, red cedar, boxelder and honeylocust when the college began in 1863. In 1879, Dr. David Fairchild in his book, "The World Was My Garden," he compared our campus to a "cheerless, treeless wasteland," a telling remark from the famous worldwide plant collector. This rich history of our campus landscape expresses how our campus grew from a treeless site to the arboretum it is today. The treed future of our campus depends upon continual planting, care and ultimately, *respect for our trees.* In 2013, enthusiastic arboriculture students and key facility individuals worked diligently to achieve the title of a recognized, *Tree Campus USA,* awarded by the Arbor Day Foundation. Maintaining this title requires a yearly renewal and pledge of continual projects that supports the care and replenishment of our trees; educating the campus community as to the benefit of trees is *essential* to this cause, and a central requirement to maintain this title. Students drive this cause and project.

Our key objective as a recognized Tree Campus USA is the continual campus-wide education about our trees and their environmental impact, aside from their beauty and the shade they provide; resplendent are their many benefits and contributions to a sustainable environment. Their care is critical to future generations. We believe if people understand trees, they will respect, appreciate and value them more. Last spring because of a Green Action Grant, we were able to install permanent, educational signs now located near 18 spectacular campus trees. We must continue to expand this educational mission so that our treed campus is well maintained and this legacy is continued for future generations. Our initiative *must* continue with a new project that continues to "speak for our campus trees." As we begin a new year, there is a common question we often pose to ourselves . . . "what am I going to do this year to make myself and the world around me better?" This year, let us make an impact with this project that will help insure the legacy of our campus trees; they hold the keys to the University's past while influencing its future.

*The Foundation for this Proposal:* Walking around our campus brings a sense of pride, the unique limestone buildings and the attractiveness of the landscape, balanced by the numerous magnificent, historical trees. Have you ever wondered about the care of our trees?

For example, who decides where new trees are to be located; how many are planted each year; how many trees do we currently have on our main campus; what numbers comprise the various species and varieties; which ones are the oldest, and, how are they maintained for health and safety? Are there strategic plans in place for controlling insect or disease infestations or for maintaining tree structural safety? What about a tree-care budget; what is the yearly cost of tree maintenance, not to mention all of our campus landscaping? Most students may never question the care of our campus trees, although they may appreciate them, what would they think *if they were gone*? Past generations did a remarkable job planting and maintaining trees for our benefit and pleasure; a noble deed, often forgotten, we too must do similar noble and honorable deeds for future generations.

**Spring 2017 Proposed Project Description:** ***Completion of the Ash Tree Inventory and Educating the Campus Community about the Eminent Invasion of the Emerald Ash Borer (EAB)***

A tree inventory is a management tool that provides valuable information, such as; where each tree is located, its condition, size, and species, as well as, where new trees should be located. A tree inventory should also contain such records as, tree removals, additions, recent maintenance, inspections, tree growth, and any changing site conditions. Based on this information, sustainable management plans and reasonable budgets can be projected.

Professor Winslow, Department of Landscape Architecture/Regional & Community, began an *Updated Campus Tree Inventory Project* several years ago. Although this is a relatively simple project, it is time-consuming and

requires assistance gathering and recording the information, making this an ideal project for student involvement and learning.

## Project and Implementation

This spring, we would target the inventory of all ash trees on the main campus. The reason for focusing on ash trees is the eventual and inevitable introduction of Emerald Ash Borer (EAB). We need information regarding all of the ash trees in order to make critical management decisions.

EAB is a pest to ash trees native to Asia. Although we must protect and care for all of our trees, at this time, EAB is prompting our immediate attention. EAB is a destructive, metallic, green beetle native to China, introduced into North America in wood packing materials in southeastern Michigan. The scientific community speculates that EAB went undetected for approximately twelve years. It was officially identified in the summer of 2002. EAB has killed millions of trees and caused the removal of thousands more to slow the spread. So far, 29 states have confirmed EAB existence. EAB was detected in Kansas in 2012 and has moved into the following Kansas counties: Atchison, Douglas, Jefferson, Johnson, Leavenworth, Wyandotte. All Kansas native ash trees are susceptible to infestation by the emerald ash borer. Trees become infested when adult beetles lay eggs on the bark. The eggs hatch into larvae that bore into the tree. They tunnel between the bark and wood and disrupt water and nutrient movement, eventually killing the tree. EAB appears to prefer trees under stress, but is capable of killing perfectly healthy trees. The concern is that eventually, it will move to other species when their favorite food source is devastated.
http://agriculture.ks.gov/divisions-programs/plant-protect-weed-control/emerald-ash-borer/

*Student Learning:* More than just producing critical data and a tree inventory plan, this project brings students and the campus community together to learn about trees and their care, and specifically about EAB, a pest that has already done major damage nationwide. Participating in the tree inventory project is a fantastic way for students to interact and connect with others who value the sustainability of our campus trees, and, many will learn value skills useful to their future careers.

We propose training student groups to conduct a multi-tree inventory with this spring being the completion the ash tree inventory. This includes collecting information on tree species, size, health, site conditions, and available planting spaces. Once completed the data will be analyzed and used to set achievable strategies for ash tree care based on the status and health of each tree and provide recommendations for specific actions to improve canopy cover. The inventory will also be valuable for securing future tree care funding because it is a quantifiable plan. Once results are completed, summaries will be presented to specific campus committees: Campus Landscape Advisory, Tree Campus USA, and Campus Development and Planning, and the Forestry Grounds staff. Specific groups must be aware of this project.

Caitlynn Carlson and Paxton Boore, student project leaders will work with Dr. Lavis, Chip Winslow, Judy O'Mara, Kim Bomberger, Chad Miller and Randy James to organize and guide the required student training needed to complete the ash tree inventory. Workshop dates and times will be posted on social media to capture student interest and attention. Campus educational opportunities will occur on Wednesday, April 26 through Friday April 28, Arbor Day. In addition, two trees will be planted and student project leaders will work with local grade school classes to bring this group of young learners to our campus to participate in the workshops.

## Benefits to Kansas State Student Body

The far-reaching goal is education and awareness of our campus trees. Aside from their grace and beauty to our homes and communities, trees are critical to sustaining our environment. Trees help reduce climate change by removing carbon dioxide from the air, storing carbon in the trees and soil, and releasing oxygen into the atmosphere. They offer cooling shade, block cold winter winds, reduce the energy needed to cool our homes, they attract and provide homes for birds and wildlife, purify our air, prevent soil erosion, and clean our water. Urban areas without trees can become "heat islands," with significantly higher temperatures than other commercial and residential areas with trees.

## Project Administration and Budget

Dr. Lavis, as the project administrator, will ensure the success of this project. Volunteer student coordinators will work closely with the student project leaders, Caitlynn Carlson and Paxton Boore to help develop the educational workshops and the other planned activities that will also receive additional help from students enrolled in HORT 585: Arboriculture and PLPTH 590: Landscape Diseases this spring.

## Timeline of Activities:

| Funding Description for Spring 2017 | Clarification of Funding Use | Total Funding |
|---|---|---|
| Caitlynn Carlson and Paxton Boore: Project leader | $12.00/hrs.; 10hrs/ week each for 16 weeks | $2400.00 |
| Five inventory teams with 2 students/team=10 students total | $10.00/hr. each; 40 hours total for 10 students | $4000.00 |
| Various supplies to support inventory project | Flagging tape, shovels, hand saws, tree diameter tapes, data recording devices | $2500.00 |
| Educational materials | Tree ID booklets, Emerald Ash Borer brochures and other training products | $750.00 |
| Two-- 2-inch caliper trees to be planted on Arbor Day with grade school students | | $300.00 |
| **Total Funding Requested** | | **$9950.00** |

## YEAR ONE: Spring 2017

**January/February**:
• Project introduced to HORT 585: Arboriculture class by student project leaders.
• Arboriculture students will begin planning the educational workshops and brochures.
• Paxton Boore begins coordinating activities with local grade schools for their participation during Arbor Day.

**March**:
• Arboriculture students and other interested campus students will participate in inventory training workshops led by Kim Bomberger, Cathie Lavis, Randy James, Judy O'Mara and Chip Winslow. Dr. Chad Miller will also be involved with the tree identification portion.
• Student project leaders will develop the impact surveys to determine educational impact of the project.
• Student project leaders will work with arboriculture students to develop educational brochures.

**April:**
• Caitlynn will work with Loleta Sump to comply with all necessary paperwork for the campus activities and respective locations of the tree-educational workshops.
• Beau Fick, undergraduate teaching assistant, will locate two campus trees for climbing activities and secure all the property safety and climbing equipment.
• Arboricultural students will work with student project leaders to develop a working schedule of volunteer sign-up times during the days of April 26-28 so events are run smoothly.

**May:**

• Project leaders will review survey results and make recommendation for Arbor Day 2018 and assist with Tree Campus USA summaries for Standards 4 and 5 requirements.

## YEAR TWO:

- Finish tree inventory

KANSAS STATE UNIVERSITY
College of Agriculture
Department of Horticulture and Natural Resources

TO: Green Action Fund Committee

FROM: Candice Shoemaker
Professor and Head

Linda Oppy
Department Budget Officer

RE: Green Action Fund Proposal

DATE: January 21, 2017

As Department Head, Dr. Shoemaker fully supports the proposal put forth by Dr. Cathie Lavis titled, "Educating the Campus Community about Tree Care by Completing the Campus Ash Tree Inventory." As the Department Budget Officer, Linda Oppy will oversee distribution of funds to Dr. Lavis as she works with her students to complete this project during the spring 2017 semester.