**Standard 2: Campus Tree Care Plan**

**1. Purpose**

The purpose of the Triton College Tree Care Plan is to provide guidance for the care and maintenance of Triton's campus arboretum. The plan will identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and removing trees on Triton's campus.

The overall goal of the plan is to ensure a beautiful, safe, and sustainable campus arboretum. Important elements of this goal include campus beautification and enhancement, pollution reduction, and increased carbon sequestration and resilience in the face of climate challenges and severe weather events. Creating and implementing this plan, and qualifying as a Tree Campus USA, is in accordance with the Triton College Sustainability Planning Guide.

The specific objectives of the plan are:
- Ensure proper species selection, high-quality nursery stock acquisition, and industry-consensus planting procedures
- Promote species diversity and proper age structure in the tree population
- Protect high-value campus trees during construction and renovation projects
- Promote tree health and safety by utilizing best management practices when maintaining campus trees
- Ensure that trees are reasonably replaced when there is mortality due to weather, pest infestations, injury, or construction displacement
- Encourage campus community members to respect and value the campus urban forest

**2. Responsible Authority/Department**

The overall responsibility of implementing the tree care plan lies with the college's Facilities Department. The Greening the Campus Committee, the Triton Horticulture Department and the Tree Advisory Committee will serve in a consulting role.

**3. Tree Advisory Committee**

The Tree Advisory committee is comprised of members of the Greening the Campus Committee, the sustainability coordinator, facilities personnel, horticulture faculty, Morton Arboretum representatives and students.

Committee members are as follows:

| Name | Title and Affiliation |
|------|----------------------|
| Joe Beuchel | Biology Instructor; Co-chair, Greening the Campus Committee, Triton |
| Beth Cliffel | Biology Instructor; Co-chair, Greening the Campus Committee, Triton |
| Aurora Correa | Student Representative, Triton (Academic Year 2016-2017) |

| Dave Coulter | Horticulture Adjunct Instructor, Triton; Owner, Osage, Inc. |
|---|---|
| Melissa Custic | Chicago Region Trees Initiative Coordinator, Morton Arboretum |
| Alfonso Godinez-Garcia | Head of Grounds Crew, Triton |
| Adrian Fisher | Sustainability Coordinator, Triton |
| John Lambrecht | Associate Vice President, Facilities, Triton |
| Kevin Li | Dean, School of Arts and Sciences, Triton |

The committee will meet each fall and spring semester and communicate by email as necessary. The committee will provide important input to the ongoing care and improvement of the campus landscape in line with the Triton Sustainability Planning Guide Goal 3: Campus, which states:

> "By managing the physical aspects of the campus, including built and natural elements and anticipating necessary climate change mitigation and adaptation, with a goal of continually improving sustainable practices, Triton will systematically reduce its greenhouse gas emissions and ecological footprint while working to improve local, and by extension, regional ecosystems."

### 3.1 Roles of Representatives

The committee members will accept invitation to serve for a period of one calendar year with a renewal option. Members shall appoint officials who will conduct the day-to-day business of the committee. Committee members are expected to actively participate and contribute in policy/guideline issues as well as research/information gathering that would aid in the campus tree care plan.

## 4. Tree Care Policies, Practices and Guidelines

By carrying out appropriate tree care practices commensurate with good urban forestry, the Facilities Department will work to ensure the health of campus trees. Members of the campus community, including Horticulture and Environmental Biology faculty, the Sustainability Coordinator and students will work together to learn about and promote growth of strong, healthy trees.

### 4.1 Landscaping

Triton's suburban campus includes many shade and ornamental trees; beauty and usefulness are both important in landscaping decisions. The campus is adjacent to a forest preserve and is used as a learning lab for horticulture, sustainable agriculture and environmental biology students. Landscaping goals for tree selection include using native species that most benefit the local ecosystem wherever possible, and planting a wide diversity of species, with consideration for shape, size and aesthetic factors such as leaf color and bloom. Trees selected should be appropriate for proposed locations in terms of their mature sizes and cultural requirements.

### 4.2 Tree Selection

In order to increase species diversity and improve resilience, tree species used on the Triton campus will, when possible, come from the lists of recommended trees provided by the Morton Arboretum and Triton's Horticulture Department. The lists contain both native and exotic species that have been screened for adaptability to physical conditions and serviceability and to meeting planting needs based on site orientation, drainage, soil condition, use, etc. Where appropriate, the best tree shall be selected for a given site, preference to be given to native species. Tree species known to be invasive or potentially invasive will be avoided, as will trees that could hybridize with native forest preserve species.

Trees will be selected and planted by the Facilities Department, with input from the advisory committee. With approval from the Facilities department, selected trees may be planted by students as part of living lab activities. Trees to be used on campus must be preselected at the farm or nursery for good quality and tagged. Only trees of 2" -2 ½" minimum caliper and maximum of 4" -4 ½" caliper will be planted.

Large construction projects, such as recent parking lot reconstruction and campus capital improvements, will include appropriate trees specified and selected during the planning process and planted by the construction company following ISA recommendations.
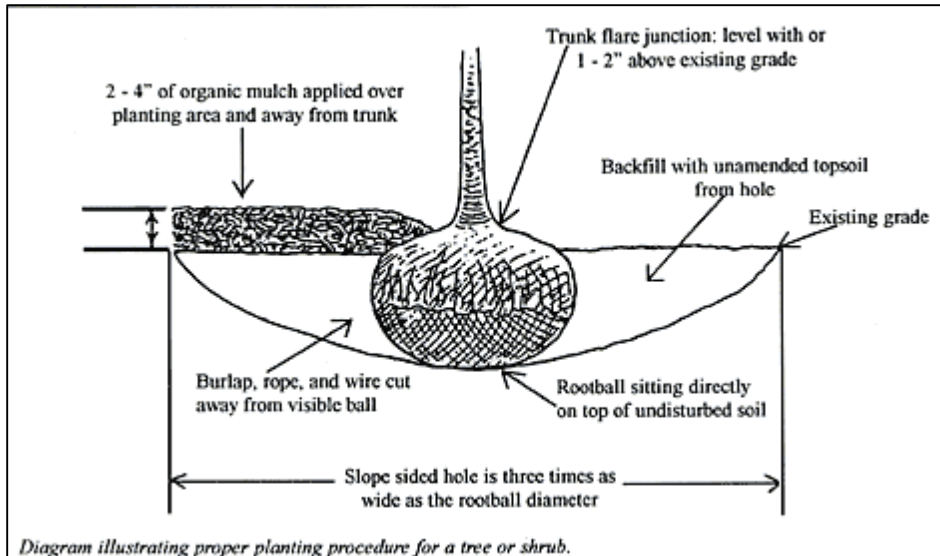
## 4.3 Planting

### Site Preparation

The planting hole should be dug no deeper than the rootball when measured from the bottom of the rootball to the trunk flare. If the hole is deeper than the rootball, it often results in the settling of the plant above the trunk flare and structure roots which can result in the rootball being planted too deep. But the width of the hole should be at least 2 to 3 times the diameter of the rootball with sloping sides.

### Preventive Setting the Plant and Back Filling the Hole

Plants must be set with trunk flare 1"-2" above the existing grade. Once the plant is properly placed, all visible ropes and burlaps at the top one-third should be cut away. The top 8"-16" of the wire basket should be removed once the rootball is stable in the planting hole; backfill the planting hole with the existing soil. If the existing soil is of a poor quality, addition of soil amendment as recommended by the soil analysis should be used. The backfill soil should be tamped firm enough to remove large air pockets, but not too firm as to remove all fine air spaces needed for a well aerated soil for root development. Complete the backfill by making sure that the trunk flare is completely exposed, spread mulch at 2-4" depth but not touching the trunk, water the rootball and the planting area deeply. Newly planted trees must receive adequate water weekly during the entire first growing season right up until dormancy in the fall, by irrigation or placement of ooze bag or hand watering.

*Diagram illustrating proper planting procedure for a tree or shrub.*

### Transplanting

Desirable trees in a development area or other construction sites shall be transplanted by staff if the tree caliper is between 2"-4" where there is an acceptable location and during the planting season (October to March). Trees of larger caliper shall be contracted out using comparable tree spades.

### Fertilizing

Newly planted trees should not receive fertilization during the first growing season except in a situation where a soil test recommends its use. A slow release type of fertilizer should be used around the tree basin. Trees in poor condition should receive deep root fertilization of 5-35-10 plus micro nutrients, with repeat application if necessary. Also, when necessary, we shall use 10-20-10 for evergreen trees and 25-10-10 for general application.

Routine tree fertilization is not recommended; campus trees receive adequate nutrients from turf, shrubs and groundcover routine application of fertilizers.

### Staking

Staking of trees at planting is not required if the root ball is stable. If staking must be done, it will be done in accordance with ANSI most recent edition.

### Pruning

After planting, only broken or damaged branches should be pruned. Tree wrapping is generally not recommended.

## 4.4 Maintenance and Cultural Practices

### Inspection

The Facilities Department regularly inspects campus trees to make sure they are do not present safety hazards, are in good health, if pruning is required, and to assess for the presence of other issues that need attention such as disease or insect infestation.

**Pruning Priorities**

Trees are assessed and prioritized yearly. Pruning is done when and as feasible within the parameters of budgetary constraints. To help with prioritization, a pruning schedule ~~should~~ can be developed that allows trees to be pruned on a regular cycle. Structural or preventive maintenance pruning is ~~then~~ performed as needed, as is removing dead branches and thinning crowns when necessary. Typical issues to be aware of and manage through pruning are branch stubs, rubbing branches, water sprouts, sucker growth, closely spaced branches and weak, narrow crotches. Attentive pruning keeps trees healthy and resilient. Trees are also trimmed or pruned as necessary for safety and clearance around roadways, walkways, signs and street lights. Scheduled, preventive pruning will help avoid future problems such as safety issues, the need for unscheduled, reactive pruning, and possibly higher maintenance costs.
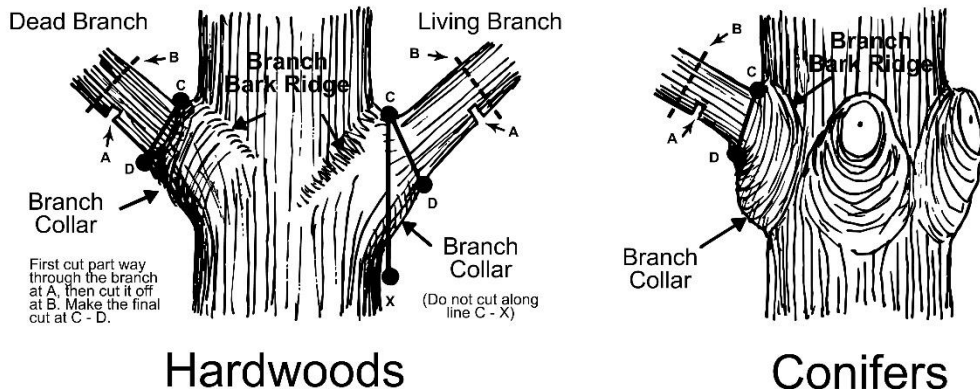
Trees should be pruned according to their age and size, according to these guidelines:

1. Young trees. The goals for young tree pruning include promoting a strong central leader and proper branch spacing. Pruning young trees frequently will help prevent structural problems in the future.
2. Semi-mature trees should be pruned to promote proper structure and to alleviate safety and aesthetic concerns. Trees may need to be raised or reduced to provide proper clearance to infrastructure or neighboring plants.
3. Mature trees should be pruned to remove large dead limbs and alleviate other safety issues. Structural pruning may be needed to correct problems that have developed over the tree's lifetime, or to provide proper clearance to infrastructure or neighboring plants.
4. Over-mature trees should only be pruned to mitigate a hazardous situation. This might involve the removal of large dead or cracked limbs, limbs overhanging a parking lot, etc.

**Pruning Practices**

Good pruning practice helps trees maintain good health. Cuts should be made so that only branch tissue is cut, with no damage to stem tissue. If a portion of a branch is removed, the branch should be cut back to a point where the remainder of the branch can assume dominance. Branches should be removed before they reach half the diameter of the branch in which they are attached. No more that 25% of live branches should be removed from a healthy tree in one growing season. A live crown ratio (the ratio of the size of a tree's live crown to its total height) should be least 66% for all trees.

## Proper Pruning Principles

**Hardwoods** — Dead Branch, Living Branch, Branch Bark Ridge, Branch Collar, Branch Collar. First cut part way through the branch at A, then cut it off at B. Make the final cut at C - D. (Do not cut along line C - X)

**Conifers** — Branch Bark Ridge, Branch Collar, Branch Collar

Arbor Day Foundation®

**Cabling and Bracing**

Sometimes, when feasible and cost effective, cabling and bracing of very large trees can prevent the removal of trees or large branches. Cabling and bracing can often prevent tree failure at a cost that is comparable to tree pruning and removal.

**Lightning Protection**

In certain cases, and when feasible and cost-effective, installation of lightning protection systems might be considered in order to protect high value trees or large trees next to campus buildings. Because installing such systems is costly, a cost-benefit analysis should be performed if and when considering installation.

**Mulching**

Correct mulching is necessary for trees to maintain good health. Thick "volcano" mulch piled up yearly around their trunks kills trees by softening bark, preventing good air flow and encouraging girdling roots to grow. Instead, mulch should be applied 2"-4" thick, and should be kept away from the trunk. Mulch should protect the critical root zone by extending at least one foot in all directions for each inch of DBH, or, in other words, out to the drip line.

Mulch properly applied          Mulch too deep
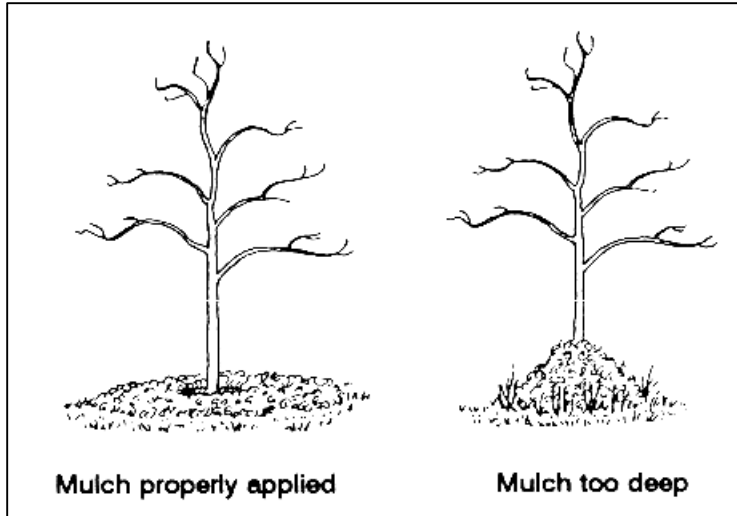
**Deer Protection**

Young, flexible trees on campus are frequently damaged by deer. Bucks use them as places to rub their antlers to remove the "velvet" covering and to mark territory. Deer protection tubes should be used on newly planted young trees until old and large enough to lose their attractiveness.

**Damage Assessment and Remediation**

The Facilities department makes the initial observation. If the damage is merely broken branches, then the staff will remove them. If the tree is dead or considered hazardous, it is then scheduled for removal. Hazardous trees have both significant defects such as incurable disease or serious damage and a potential for falling on a building, car or pedestrian. Most tree removals are done by staff or contractor. Very large trees needing a crane are contracted out.

## 4.5 List of Recommended and Prohibited Trees

Recommended Trees are trees that are either native or are non-native and ornamental species and cultivars that are non-invasive. Consideration of site, cultural requirements and climate change resilience should be taken into account when selecting trees.

Please see Appendix 2 for list of recommended trees provided by the Morton Arboretum based on existing campus tree inventory.

Prohibited trees are those that are considered invasive or that could hybridize negatively with native trees in the adjacent forest preserves. Examples of the former are all species of buckthorn (*Rhamnus spp.*) and certain varieties of Norway maple. Examples of the latter would be Bradford/Callery pear (*Pyrus calleryana*) and certain European oak (*Quercus*) species.
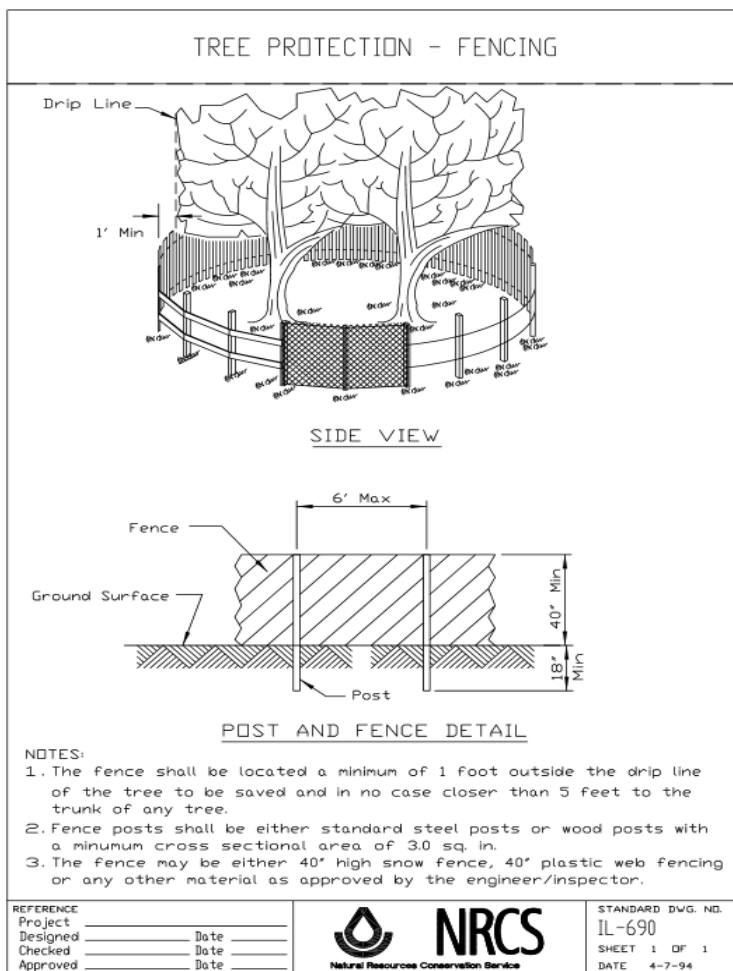
## 4.6 Management for Catastrophic Events

In the event of damaging storms, trees posing a hazard to students, staff and the community will be removed first. Clean-up will be initiated by the Facilities Department. If at all possible, lost trees will be replaced.

## 5. Protection and Preservation Practices

### Fencing

When construction is planned, trees should be protected. Trees impacted by activities should be marked on the site survey. Trees to be saved should be indicated during the design phase and tree preservation practices incorporated into plans. During construction activities, the Critical Root Zone (CRZ) of trees should be protected with appropriate barriers/fences. The CRZ is one foot outside the perimeter of the canopy of the tree to be protected. Digging in the CRZ should be avoided. In addition, the work area and limits to access should be clearly defined and protections in place prior to the beginning of construction.

If at all possible, construction activities, including the placement of topsoil, should not be permitted within the CRZ. Suitable, ground-secured fencing with a minimum height of 40 inches should be installed around the CRZ of all trees to be protected. If possible, CRZ signs should be posted. Roadways, storage areas, parking pads etc. should be located, if possible, at least 25 feet away from the CRZ.



TREE PROTECTION - FENCING

SIDE VIEW

POST AND FENCE DETAIL

NOTES:
1. The fence shall be located a minimum of 1 foot outside the drip line of the tree to be saved and in no case closer than 5 feet to the trunk of any tree.
2. Fence posts shall be either standard steel posts or wood posts with a minumum cross sectional area of 3.0 sq. in.
3. The fence may be either 40" high snow fence, 40" plastic web fencing or any other material as approved by the engineer/inspector.

REFERENCE
Project _____
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

NRCS
Natural Resources Conservation Service

STANDARD DWG. NO.
IL-690
SHEET 1 OF 1
DATE 4-7-94

**Auguring**

When underground utility work is necessary and cannot avoid a tree's CRZ, auguring (tunneling), instead of open trenching, is the best management practice. If necessary, it should be planned for as part of construction and utility work. Auguring reduces damage or loss of a tree by preventing unnecessary disturbance or destruction of tree roots. Auguring should only take place on one side of the tree.

**Post Construction**

Protective fences and signs should be removed when construction work is done and the site has been inspected. Trees should be inspected for possible damage, and should be carefully monitored for continued health. Extra care should be given as necessary.

## 6. Goals and Targets

- During 2016, the Horticulture department will complete a campus tree inventory and will submit it to the Morton Arboretum's CRTI initiative for inclusion into the regional tree map the Arboretum is developing. In return, the Arboretum will provide Triton with a list of recommended tree species for use on campus, as well as tree species to avoid, as discussed in Section 4. The Horticulture Department will also contribute to this list. The list will be posted on the Sustainability Center website.
- Appropriate Facilities personnel will receive training in best practices for tree care and will implement these practices when planting, mulching, pruning and otherwise caring for campus trees.
- The college is enrolled in the STARS sustainability benchmarking program of the Association for the Advancement of Sustainability in Higher Education. The Tree Campus USA program and implementation of the Campus Tree Care Plan will be used to help qualify for Landscape Management and Biodiversity Credits.

## 7. Tree Damage Assessment

Please see "Damage Assessment and Remediation" in section 4.4 of this document.

## 8. Prohibited Practices

The college has security on staff 24 hours a day, 7 days a week. Surveillance cameras are located all around the campus and are monitored by campus security.

Causing damage to any campus tree constitutes damage to the college. Anyone caught damaging a tree may be subject to arrest.

## 9. Definitions of Terminology Related to Campus Trees

Please see Appendix 1: Definitions of terminology used in this tree care plan.

## 10. Communication Strategy

Appropriate college departments and members of the advisory committee will receive copies of the tree care plan. The plan will also be available on the Sustainability Center website, accessible at the Triton College website.

Notification of the availability of the tree care plan will be made through the *TritonToday* e-newsletter, through an e-mail blast to all students and staff, and through a press release to neighborhood newspapers.

**Appendices**

**Appendix 1: Definitions of terminology used in this tree care plan**

- arboretum – a collection of trees, shrubs and herbaceous plants
- backfill – to refill a hole with the soil dug out of it
- critical root zone -- an imaginary circle on the ground that corresponds with the "dripline" of the tree. This equals 12" radius for every inch of DBH. The area most in need of protection.
- cultivar - a cultivated variety of a plant that has been deliberately selected for specific desirable characteristics
- DBH – tree diameter at breast height (4.5 feet, officially 1.4 meters)
- dripline - the drip line is the area directly located under the outer most leaves of the tree branches (this is where the tiny rootlets are located that take up water for the tree). See critical root zone.
- exotic – not native to the place where the specimen is found
- girdling roots – roots that grow around the trunk in a circular manner, constricting other roots or restricting trunk growth
- herbarium – a collection of dried plant specimens usually mounted and systematically arranged for reference and study
- native – originating in a particular region or environment (in this case, northern Illinois)
- invasive - any species that has been introduced to an environment where it is not native, and that has since become a nuisance through rapid spread and increase in numbers, often to the detriment of native species
- ornamental – a plant cultivated for its beauty rather than for use
- pruning - a selective removal of tree parts such as branches, buds, or roots in order to maintain healthy plants, increasing the yield, or flower quality
- root ball – the network of roots and the soil clinging to them when the tree is lifted from the soil or removed from a container
- sustainable – a method of harvesting or using a resource so that the resource is not depleted or permanently damaged
- trunk flare - where the roots spread at the base of the tree; this point should be partially visible after the tree has been planted and when mulched

**Appendix 2: List of Preferred Tree Species**

Triton's campus is over-represented in certain tree species such as maple (*Acer spp.*) and honey-locust (*Gleditsia spp.*). Consequently, the Morton Arboretum has recommended that future tree

planting be done with species selected from the following list to ensure a wide variety of species in our campus tree canopy. Trees should be selected with regard for light, soil and space requirements.

| Botanical Name | Common name |
| --- | --- |
| *Juniperus virginiana* | red-cedar, eastern |
| *Metasequoia glyptostroboides* | redwood, dawn |
| *Thuja occidentalis* | arborvitae, eastern |
| *Pinus strobus* | pine, eastern white |
| *Abies concolor* | fir, white |
| *Aesculus hippocastanum* | horse-chestnut |
| *Betula paperifera* 'Renci' | birch, RENAISSANCE REFLECTION® |
| *Carya illinoinensis* | pecan |
| *Carya ovata* | hickory, shagbark |
| *Catalpa speciosa* | catalpa, northern |
| *Celtis occidentalis* | hackberry |
| *Fagus grandifolia* | beech, American |
| *Ginkgo biloba* | ginkgo, males |
| *Gymnocladus dioicus* | coffeetree, Kentucky |
| *Larix laricina* | tamarack |
| *Liquidambar styraciflua* | sweet-gum |
| *Liriodendron tulipifera* | tulip-tree |
| *Ostrya virginiana* | ironwood |
| *Platanus* x *acerifolia* | planetree, London |
| *Quercus bicolor* | oak, swamp white |
| *Quercus imbricaria* | oak, shingle |
| *Quercus macrocarpa* | oak, bur |
| *Quercus michauxii* | oak, swamp chestnut |
| *Quercus muehlenbergii* | oak, chinkapin |
| *Quercus rubra* | oak, northern red |
| *Salix nigra* | willow, black |

| | |
|---|---|
| *Taxodium distichum* | cypress, bald- |
| *Tilia americana* | basswood, American |
| *Tsuga canadensis* | hemlock, eastern |
| *Ulmus parvifolia* | elm, lacebark |
| *Zelkova serrata* | zelkova, Japanese |
| *Betula nigra* | birch, river |
| *Cornus florida* | dogwood, flowering |
| *Crataegus crus-galli* var. *inermis* | hawthorn, cockspur (thornless) |
| *Diospyros virginiana* | persimmon |
| *Nyssa sylvatica* | tupelo (black gum) |
| *Ulmus* 'Frontier' | elm, Frontier |
| *Aesculus pavia* | buckeye, red |
| *Amelanchier laevis* | serviceberry, Alleghany |
| *Asimina triloba* | pawpaw |
| *Cercis canadensis* | redbud |
| *Cornus kousa* | dogwood, kousa |