LANDSCAPE CHARACTER ZONES

These zones represent the most important organizing principle for any landscape design project. Each character zone defines an expected level of design, supported by an approved plant palette and maintenance level.

THREE LANDSCAPE CHARACTER ZONES

The campus landscape is organized into three character zones with general guidelines and specific plant palettes for each:

- Garden Character
- Park Character
- Natural Character

These zones support the idea that the character of the campus landscape should vary according to topography, use, and "importance" within the campus at large. The three zones are differentiated by their approved plant palettes, which are tailored to the degree of finish and maintenance expected in each of the zones. Note that the baseline character of the campus is the Park Character, which consists of a simple design language of large canopy trees, lawns, and low ground covers. The Garden Character, which has a higher level of finish, is reserved for the heart of campus and other well-defined spaces, while the Natural Character includes areas where natural, low-maintenance planting is important to prevent erosiion, create habitat for native species, manage rainwater collection, and filter pollutants.

CAMPUS-WIDE GUIDELINES

PLANTING DESIGN GUIDELINES

- Use restrained plant palettes and large swaths of species to provide a background for campus life rather than "showy" displays.
- Use the approved plant lists for each of the character zones. The intent of the lists is to create a consitent campus plant palette that celebrates signature areas, while also increasing biodiversity, ecological health, and reducing maintenance requirements.
- Bloom palettes should generally be white, yellow, or pink and should be chosen to work with adjacent building materials. Red or purple flowering species should not be used.
- Ensure that much of the specified plant palette blooms or provides other color during the academic year when students are on campus. In particular, consider special events like Commencement, Orientation, etc.
- Perennials may be used in limited quantities near the edges or borders of planted spaces. Individual species should be grouped to create blocks of color and texture.
- Preserve and protect large massings of native trees, shrubs, and herbaceous plants to ensure existing ecosystem services remain intact. No wholesale reductions or clearings are acceptable unless they entail the removal of invasive species.
- Specify and enforce best-practices for protecting established tree canopy, significant trees, and vegetation zones during construction, such as fencing properly-sized root protection areas.


CLEVELAND STREET
MAPLE STREET
ARKANSAS AVENUE
STADIUM DRIVE
RAZORBACK ROAD
MLK JR BOULEVARD
LANDSCAPE CHARACTER
GARDEN CHARACTER
PARK CHARACTER
NATURAL CHARACTER

- Consult the university's Tree Management Plan to maintain canopy cover and a diverse tree palette, coordinate removal and pruning for optimum tree health, and prevent safety hazards along streets and pathways.
- Landscape designs should be responsive to the natural hydrologic conditions and features that exist within any area of proposed improvements or new development. A primary driver for landscape planning and rainwater management design should be conservation of drainage patterns, water budget, soils, and vegetation wherever possible.
- Select and maintain plants with deep root systems and large amounts of surface or root biomass, to increase organic matter, improve soil structure, and moisture through better infiltration.
- When possible, specify plant material with local provenance. Purchase plants from providers who have documented a reduction in resource consumption and waste (sustainable runoff management, soil amendments, and integrated pest management).
- The use of species that are currently listed on any of the following lists as invasive is expressly prohibited: State Noxious Weeds laws, USDA Federal Noxious Weeds laws, or regional invasive lists.
- Trees should be located to avoid conflict with building overhangs and underground utility lines. The landscape plan and utilities plan should be coordinated as early as possible during project design to avoid (if possible) locating new trees within 8 feet of main utility lines including water, stormwater, sanitary sewer, high-pressure gas, etc.
- Trees or shrubs that produce fruit should be located far enough from pathways so the fruit does not fall on the walking surface.
- Small scale trees and large shrubs should not block sight lines across campus spaces.
- Trees planted in purposeful rows or allées should be single species. The designer should ensure that the trees are spaced precisely per the plans during construction, and should verify all construction staking before the trees are planted.
- Streetscape tree pits should be a minimum of 225 cubic feet and provide proper growing media and spacing to allow for mature trees.

SOIL GUIDELINES

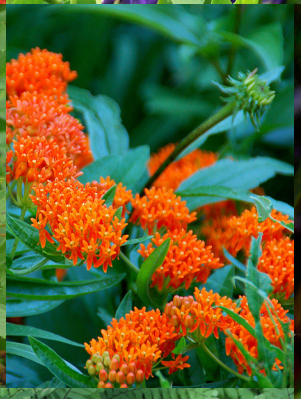
- Engage a soil scientist to create a comprehensive soil assessment report for each major project. Use soil tests to determine the soil's characteristics (physical, chemical, and/or biological). At a minimum, the soils should be tested for texture or particle size analysis, organic matter, soil pH, soluble salts, nutrients (e.g. estimated nitrogen release, available phosphorus, exchangeable potassium, magnesium, and calcium), and cation exchange capacity.
- Minimize soil compaction to pathways and other hardscape areas. During construction, all other areas should remain compaction free, or should be decompacted after heavy equipment is no longer on site.
- Specify acceptable levels of compaction in contract documents and suitable methods of decompaction. Compaction can result in negative effects including poor establishment and growth of vegetation (roots cannot penetrate soil), poor water infiltration, increased erosion and runoff, reduced root growth, less-active microbial communities, and reduced aeration.
- Mulch new plantings to retain moisture in the root zone while reducing soil and water run-off. Mulch should be maintained at a depth of 2 to 3 inches to retain moisture and inhibit weeds and 3 to 4 inches to minimize compaction from foot traffic. All mulch should be made from recycled hardwood or another recommended sustainable material. Ensure that mulch is kept clear of the base of tree trunks.
- Mitigate all soil disturbances with appropriate amendments, especially in areas affected by construction activities.











Rice University

GARDEN CHARACTER ZONE

DESCRIPTION

The Garden Character Zone represents the highest standard of design, finish, and maintenance within the campus landscape. This zone celebrates the importance of the historic center of the campus as well as the major academic and residential courtyards which are home to the various schools and colleges. Maple Street and Arkansas Avenue are also included because they create a public face for the university for first-time campus visitors and other regional visitors who may only see the campus from the car. The Garden Character Zone is intended to create a series of well-detailed garden spaces with high-quality hardscape materials, varied plant materials, and year-round diversity of color and texture.

HARDSCAPE QUALITY

- Hardscape materials, finishes, and details should be of the highest quality. Appropriate use of articulation and detail should create a sense of craft and permanence worthy of the historic center of campus.
- Approved materials include:
    - Pavement: stone pavers, stone curbs, asphalt pavers, granite cobbles, stone fines (in low pedestrian use areas), and—where necessary—concrete. *{Note: Concrete should only be used for Senior Walks in the Garden Character Zone.}*
    - Walls: stone, stone veneer
    - see Appendix B for more information

PLANTING DESIGN GUIDELINES

- Use the approved Garden Character Zone Plant List. Discuss requests for special species with FM Planning and Design.
- Use ornamental species to enclose spaces, line corridors, and celebrate important landmarks.
- Create seasonal changes in color and texture across the entire zone to ensure consistency of landscape design. Flowering understory trees, shrubs, and bulbs should be orchestrated together to ensure bloom periods align with the academic calendar and university-wide events.
- Main building entries should be highlighted by shrubs and ornamental plantings that are compatible with adjacent architecture and landscape.
- Along corridors, robust ground covers and low shrubs should be introduced to frame major pedestrian areas. Careful consideration should be given to species selection to ensure clear sight lines are maintained.

MAINTENANCE / APPA LEVEL 2

This level of maintenance will provide a very high level of quality of visual character and appearance for the Historic Core, courtyards and gardens, and other important areas of the campus. Facilities staff should be allocated to allow for daily visual inspection and spot maintenance of the Garden Zone Areas. It is recommended that storage for small, frequently-used landscape maintenance tools be provided in close proximity to the Garden Zone spaces.

{size – 27 acres}

GARDEN CHARACTER ZONE PLANT LIST / 1

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
LARGE TREES						
Acer rubrum	Red Maple	X	X	X	FAC	
Acer saccharum	Sugar Maple	X	X	X	FACU	
Fagus grandifolia	American Beech	X	X	X	FACU	
Gleditsia triacanthos	Thornless Honey Locust	X	X		FAC	
Liriodendron tulipifera	Tulip Poplar	X	X	X	FACU	
Nyssa sylvatica	Black Gum	X	X	X	FAC	
Quercus phellos	Willow Oak	X	X	X	FAC	
Quercus rubra	Northern Red Oak	X	X	X	FACU	
Quercus shumardii	Shumard Oak	X	X	X	FACW-	
Ulmus americana 'Princeton'	Princeton Elm	X	X	X	FACW	
Carpinus betulus	European Hornbeam	X	X			Adapted NonNative
Ginkgo biloba (male)	Ginkgo	X	X			Male Only; Adapted NonNative
Quercus robur	English Oak	X	X			Adapted NonNative
Quercus robur 'Fastigiata'	Sky Rocket Oak	X	X			plant as edge only, not in open spaces Adapted NonNative
Platanus x acerfolia	London Plane tree	X	X			Adapted NonNative
Ulmus parvifolia	Lacebark Elm	X	X		UPL	Adapted NonNative
Zelkova serrata	Zelkova	X	X			Adapted NonNative
SMALL / MEDIUM TREES						
Amelanchier arborea	Serviceberry	X	X	X	FAC	
Carpinus caroliniana	Blue Beech, American Hornbeam	X	X	X	FAC	
Cercis canadensis	Eastern Redbud	X	X	X	FACU	
Chionanthus virginicus	Fringe Tree	X	X	X	FAC	
Cladrastis kentukea	Kentucky Yellowwood	X	X	X		
Cornus florida	Flowering Dogwood	X	X	X	FACU	
Cornus kousa	Dogwood	X	X	X		
Crataegus crus-galli var.inermis	Cockspur Hawthorn	X	X	X	FAC	
Ilex opaca	American Holly	X	X		FACU	
Magnolia stellata	Star Magnolia	X	X			Adapted NonNative
Magnolia x soulangiana	Saucer Magnolia	X	X			Adapted NonNative
Prunus serrulata	Japanese Flowering Cherry	X	X			Adapted NonNative
Aesculus glabra	Ohio Buckeye	X	X	X	FACU	
Styrax japonicus	Japanese Snowbell	X				
SHRUBS						
Ceanothus americanus	New Jersey Tea	X	X	X		
Clethra alnifolia	Summersweet	X	X	X	FAC	
Cornus sericea	Red Twig Dogwood	X	X	X		
Hamamelis vernalis	Ozark Witchhazel	X	X	X	FACU	
Hamamelis virginiana	American Witchhazel	X	X	X		
Hydrangea arborescens	Smooth Hydrangea	X	X	X		

GARDEN CHARACTER ZONE PLANT LIST / 2

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Hydrangea macrophylla	Bigleaf Hydrangea	X				
Hydrangea quercifolia	Oakleaf Hydrangea	X	X	X		
Hypericum prolificum	Shrubby St. Johnswort			X		
Ilex decidua	Deciduous Holly	X	X	X	FACW-	
Ilex glabra	Inkberry	X	X	X	FAC	
Fothergilla gardenii	Dwarf Fothergilla	X	X			
Fothergilla major	Witch-adler	X	X			
Itea virginica	Sweetspire	X	X	X	OBL	
Rhododendron prinophyllum	Mountain Azalea	X	X	X	FAC	
Rhododendron viscosum	Texas Azalea	X	X	X	FACW	
Calluna vulgaris	Scotch Heather	X	X		FAC	
Hydrangea paniculata	Panicle Hydrangea	X	X			
Lavandula sp.	Lavendar	X				
Prunus laurocerasus	Otto Luyken Laurel	X	X			
Viburnum x burkwoodii	Burkwood Viburnum	X	X			
Viburnum carlesii	Korean Spice Viburnum	X	X			
Viburnum dentatum	Southern Arrowwood	X	X		FAC	
Viburnum dilatatum 'Erie'	Linden Viburnum	X	X			
Viburnum macrocephalum	Chinese Snowball Viburnum	X	X			
Viburnum nudum 'Bulk' BRANDYWINE	Possumhaw Viburnum	X	X			
Viburnum 'Pragense'	Prague Viburnum	X	X			
Viburnum rhytidophyllum	Leatherleaf Viburnum	X	X			
Amorpha canescens	Leadplant			X		
Amorpha fruticosa	False Indigo	X		X	FACW	
Buxus sempervirens	Boxwood	X				Adapted NonNative
GROUNDCOVER						
Cyperaceae	Sedge	X	X	X	FACW	
Pachysandra procumbens	Allegheny Spurge	X	X	X		
Phlox paniculata 'David'	Garden Phlox	X	X	X		
Phlox subulata	Creeping Phlox	X	X			
Dianthus caryophyllus	Dianthus	X	X			Adapted NonNative
Dryopteris erythrosora	Autumn Brilliance Fern	X	X		FACW+	Adapted NonNative
Dryopteris marginalis	Marginal wood fern	X	X			
Epimedium latisepalum	Bishop's Hat	X	X			Adapted NonNative
Euonymus fortunei	Wintercreeper	X	X			Adapted NonNative Adapted NonNative
Festuca glauca	Blue Fescue	X	X			Adapted NonNative Adapted NonNative
Iberis sempervirens	Candytuft	X	X			Adapted NonNative
Ophiopogon planiscapus	Mondo Grass	X	X			Adapted NonNative
Pachysandra terminalis 'Green Sheen'	Japanese Pachysandra	X	X			Adapted NonNative
Vinca minor	Vinca	X	X			Adapted NonNative
Hedera helix	English Ivy	X	X			Adapted NonNative

GARDEN CHARACTER ZONE PLANT LIST / 3

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Tiarella cordifolia	Foamflower	X	X			Adapted NonNative
PERENNIALS						
Echinacea purpurea	Coneflower	X	X	X		
Gaillardia x grandiflora	Blanketflower	X	X	X		
Hosta sp.	Hosta	X	X	X		
Liatris spicata	Blazing Star	X	X	X	FAC	
Monarda fistulosa	Wild Bergamot		X	X	UPL	
Nasella tenuissima	Ponytail Grass	X	X	X		
Rudbeckia spp.	Black-Eyed Susan	X	X	X	FACU	
Sporobolus heterolepis	Prairie Dropseed	X	X	X	UPL	
Symphyotrichum dumosum	Bushy Aster	X	X	X	FAC	
Symphyotrichum ericoides	Heath Aster	X	X	X	FACU	
Symphyotrichum novae-anglia	New England Aster	X	X	X	FACW	
Ratibida columnifera	Mexican Hat	X	X	X		
Helleborus sp.	Lenten Rose	X	X			Adapted NonNative
Hyssopus officinalis	Hyssop	X	X			Adapted NonNative
Iris germanica	Iris	X	X			Adapted NonNative
Leucanthemum x superbum	Shasta Daisy	X	X			Adapted NonNative
Nepeta cataria	Catmint	X	X		FACU	Adapted NonNative
Perovskia atriplicifolia	Russian Sage	X	X			Adapted NonNative
Adiantum pedatum	Northern Maidenhair Fern	X		X	FAC	
Agastache nepetoides	Yellow Giant Hyssop	X				
Agastache foeniculum	Hyssop	X		X		
Agastache scrophularieafolia	Purple Giant Hyssop	X				
Amsonia hubrichtii	Bluestar	X		X		
Iris versicolor	Blue Flag Iris	X		X	OBL	
Penstemon digitalis	Beardtongue	X		X	FAC	
Polystichum acrostichoides	Christmas Fern	X		X	FACU	
Solidago ohioensis	Ohio Goldenrod	X		X		
Solidago nemoralis	Gray or Prarie Goldenrod	X		X		
Solidago rugosa	Rough Goldenrod	X		X	FAC	
Solidago speciosa	Goldenrod	X		X		
VINES						
Bignonia capreolata	Crossvine	X				
Clematis terniflora	Sweet Autumn Clematis	X				
Lonicera sempervirens	Coral Honesuckle	X				
Parthenocissus quinquefolia	Virginia Creeper	X	X	X	FAC	
Rosa setigera	Climbing Rose	X			FAC	
Wisteria frutescens	American Wisteria	X				

***Hydrologic Indicator** *{Source: US Army Corps of Engineers, National Wetland Plant List}*

OBL *Obligate wetland* Almost always occurs in wetlands (estimated probability > 99%) under natural conditions.

FACW *Facultative wetland* Usually occurs in wetlands (estimated probability 67% – 99%), but occasionally found in non-wetlands.

FAC *Facultative* Equally likely to occur in wetlands (estimated probability 34% – 66%) or non-wetlands.

FACU *Facultative upland* Usually occur in non-wetlands (estimated probability 67% – 99%), but occasionally found in wetlands (estimated probability 1% – 33%).

UPL *Obligate upland* Occur almost always (estimated probability > 99%) in non-wetlands under natural conditions.

A positive (+) or negative (–) sign is used for the facultative categories. The (+) sign indicates a frequency towards the wetter end of the category (more frequently found in wetlands) and the (–) sign indicates a frequency towards the drier end of the category (less frequently found in wetlands).

Harvard University

Duke University

PARK CHARACTER ZONE

DESCRIPTION

The Park Character Zone represents a park-like quality that is the hallmark of American campus design. This area should have fewer species and a simpler plant palette than the Garden Character Zone. The emphasis should be to create long views and larger spaces with a restrained design language of large canopy trees, lawns, and blocks of low ground covers. Plantings should frame outdoor spaces, and generally leave the ground plane open for student activities. Native species should be used throughout the zone to tie the campus into the larger regional landscape and reduce irrigation and maintenance costs.

HARDSCAPE QUALITY

- Hardscape materials, finishes, and details should be simple and durable, and create a hierarchy of main paths vs. building entrances, etc. No complex articulation or detail.
    - Pavement: asphalt pavers, granite cobbles, concrete.
    - Walls: stone, stone veneer
    - see Appendix B for more information

PLANTING DESIGN GUIDELINES

- Use the approved Park Character Zone Plant List. Discuss requests for special species with FM Planning and Design.
- Minimize the need for mowing on steep slopes and difficult to access areas through the introduction of a native groundcover and woody plant palette.
- Replace traditional lawn species, where appropriate, by using low native grasses that do not need regular mowing.
- Planting beds should be limited to areas that directly relate to main building entrances, screen service areas, or that help enclose lawns.
- Limit the use of ornamental plants and prioritize native and adapted species as shown in the Park Character Zone plant list. The design intent is to enhance biodiversity, reduce pesticide use, increase wildlife habitat (depending on the space and programmatic use), and maximize water conservation. Prioritize specification of native trees that are drought tolerant.
- Use native flowering understory trees and shrubs to add seasonal interest.
- Where possible incorporate sustainable infrastructure systems to infiltrate rainwater from small rain events.

MAINTENANCE / APPA LEVEL 3

This moderate level of maintenance will provide a high quality and consistent visual character to the landscapes throughout the campus. The Park Character Zone makes up the majority of the campus landscape and has areas of significantly varying use. Landscapes used for large events, steep slopes, and interstitial spaces such as courtyards may require more care to maintain than large open lawn areas. Facilities staff should be allocated to allow for visual inspection of these landscapes two to three times per week and after events or periods of heavy use.

{size – 126 acres}

PARK CHARACTER ZONE PLANT LIST / 1

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
LARGE TREES						
Acer rubrum	Red Maple	X	X	X	FAC	
Acer saccharum	Sugar Maple	X	X	X	FACU	
Carya ovata	Shagbark Hickory		X	X	FACU	
Fagus grandifolia	American Beech	X	X	X	FACU	
Gleditsia triacanthos	Thornless Honey Locust	X	X		FAC	
Liriodendron tulipifera	Tulip Poplar	X	X	X	FACU	
Nyssa sylvatica	Black Gum	X	X	X	FAC	
Platanus occidentalis	Sycamore		X	X	FACW-	
Quercus alba	White Oak		X	X	FACU	
Quercus falcata	Southern Red Oak		X	X	FACU-	
Quercus macrocarpa	Bur oak		X	X	FAC	
Quercus phellos	Willow Oak	X	X	X	FAC	
Quercus rubra	Northern Red Oak	X	X	X	FACU	
Quercus shumardii	Shumard Oak	X	X	X	FACW-	
Quercus velutina	Black Oak		X	X	UPL	
Robinia pseudoacacia	Black Locust		X	X	FACU	
Taxodium distichum	Bald Cypress		X	X	OBL	do not plant in open lawns
Ulmus americana 'Princeton'	Princeton Elm	X	X	X	FACW	
Carpinus betulus	European Hornbeam	X	X			Adapted NonNative
Ginkgo biloba (male)	Ginkgo	X	X			Male Only; Adapted NonNative
Quercus robur	English Oak	X	X			Adapted NonNative
Quercus robur 'Fastigiata'	Sky Rocket Oaks	X	X			plant as edge only, not in open spaces Adapted NonNative
Platanus x acerfolia	London Plane tree	X	X			Adapted NonNative
Ulmus parvifolia	Lacebark Elm	X	X		UPL	Adapted NonNative
Zelkova serrata	Zelkova	X	X			Adapted NonNative
Carya texana	Black Hickory		X	X		
Catalpa speciosa	Northern Catalpa		X	X	FAC	
Juglans nigra	Black Walnut		X	X	FACU	
SMALL / MEDIUM TREES						
Amelanchier arborea	Serviceberry	X	X	X	FAC	
Carpinus caroliniana	Blue Beech, American Hornbeam	X	X	X	FAC	
Cercis canadensis	Eastern Redbud	X	X	X	FACU	
Chionanthus virginicus	Fringe Tree	X	X	X	FAC	
Cladrastis kentukea	Kentucky Yellowwood	X	X	X		
Cornus florida	Flowering Dogwood	X	X	X	FACU	
Cornus kousa	Dogwood	X	X	X		
Crataegus crus-galli var.inermis	Cockspur Hawthorn	X	X	X	FAC	
Gymnocladus dioicus (male)	Kentucky Coffeetree		X	X		
Prunus mexicana	Mexican Plum		X	X		

PARK CHARACTER ZONE PLANT LIST / 2

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Ilex opaca	American Holly	X	X		FACU	
Magnolia stellata	Star Magnolia	X	X			Adapted NonNative
Magnolia x soulangiana	Saucer Magnolia	X	X			Adapted NonNative
Prunus serrulata	Japanese Flowering Cherry	X	X			Adapted NonNative
Ostrya virginiana	Hophornbeam		X	X	FACU	
Aesculus glabra	Ohio Buckeye	X	X	X	FACU	
SHRUBS						
Ceanothus americanus	New Jersey Tea	X	X	X		
Clethra alnifolia	Summersweet	X	X	X	FAC	
Cornus sericea	Red Twig Dogwood	X	X	X		
Hamamelis vernalis	Ozark Witchhazel	X	X	X	FACU	
Hamamelis virginiana	American Witchhazel	X	X	X		
Hydrangea arborescens	Smooth hydrangea	X	X	X		
Hydrangea quercifolia	Oakleaf hydrangea	X	X	X		
Ilex decidua	Deciduous holly possum haw	X	X	X	FACW-	
Ilex glabra	Inkberry	X	X	X	FAC	
Fothergilla gardenii	Dwarf fothergilla	X	X			
Fothergilla major	Witch-adler	X	X			
Itea virginica	Sweetspire	X	X	X	OBL	
Rhododendron prinophyllum	Mountain Azalea	X	X	X	FAC	
Rhododendron viscosum	Texas Azalea	X	X	X	FACW	
Calluna vulgaris	Scotch Heather	X	X		FAC	
Hydrangea paniculata	Panicle hydrangea	X	X			
Prunus laurocerasus	Otto Luyken Laurel	X	X			
Viburnum x burkwoodii	Burkwood Viburnum	X	X			
Viburnum carlesii	Korean Spice Viburnum	X	X			
Viburnum dentatum	Southern Arrowwood	X	X		FAC	
Viburnum dilatatum 'Erie'	Linden viburnum	X	X			
Viburnum macrocephalum	Chinese snowball viburnum	X	X			
Viburnum nudum 'Bulk' BRANDYWINE	Possumhaw viburnum	X	X			
Viburnum 'Pragense'	Prague viburnum	X	X			
Viburnum rhytidophyllum	Leatherleaf viburnum	X	X			
GROUNDCOVER						
Cyperaceae	Sedge	X	X	X	FACW	
Pachysandra procumbens	Allegheny spurge	X	X	X		
Phlox paniculata 'David'	Garden Phlox	X	X	X		
Phlox subulata	Creeping Phlox	X	X			
Dianthus caryophyllus	Dianthus	X	X			Adapted NonNative
Dryopteris erythrosora	Autumn Brilliance Fern	X	X		FACW+	Adapted NonNative
Dryopteris marginalis	Marginal wood fern	X	X			
Epimedium latisepalum	Bishop's Hat	X	X			Adapted NonNative
Euonymus fortunei	Wintercreeper	X	X			Adapted NonNative Adapted NonNative

PARK CHARACTER ZONE PLANT LIST / 3

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Festuca glauca	Blue Fescue	X	X			Adapted NonNative Adapted NonNative
Iberis sempervirens	Candytuft	X	X			Adapted NonNative
Ophiopogon planiscapus	Mondo Grass	X	X			Adapted NonNative
Pachysandra terminalis 'Green Sheen'	Japanese Pachysandra	X	X			Adapted NonNative
Vinca minor	Vinca	X	X			Adapted NonNative
Hedera helix	English Ivy	X	X			Adapted NonNative
Tiarella cordifolia	Foam flower	X	X			Adapted NonNative
Antennaria dioica	Pussytoes		X	X		
PERENNIALS						
Echinacea purpurea	Coneflower	X	X	X		
Gaillardia x grandiflora	Blanketflower	X	X	X		
Hosta sp.	Hosta	X	X	X		
Liatris spicata	Blazing Star	X	X	X	FAC	
Monarda fistulosa	Wild Bergamot		X	X	UPL	
Nasella tenuissima	Ponytail Grass	X	X	X		
Rudbeckia spp.	Black-Eyed Susan	X	X	X	FACU	
Sporobolus heterolepis	Prairie Dropseed	X	X	X	UPL	
Symphyotrichum dumosum	Bushy Aster	X	X	X	FAC	
Symphyotrichum ericoides	Heath Aster	X	X	X	FACU	
Symphyotrichum novae-anglia	New England Aster	X	X	X	FACW	
Ratibida columnifera	Mexican Hat	X	X	X		
Helleborus sp.	Lenten Rose	X	X			Adapted NonNative
Hyssopus officinalis	Hyssop	X	X			Adapted NonNative
Iris germanica	Iris	X	X			Adapted NonNative
Leucanthemum x superbum	Shasta Daisy	X	X			Adapted NonNative
Nepeta cataria	Catmint	X	X		FACU	Adapted NonNative
Perovskia atriplicifolia	Russian Sage	X	X			Adapted NonNative
Parthenocissus quinquefolia	Virginia Creeper	X	X	X	FAC	

***Hydrologic Indicator** *{Source: US Army Corps of Engineers, National Wetland Plant List}*

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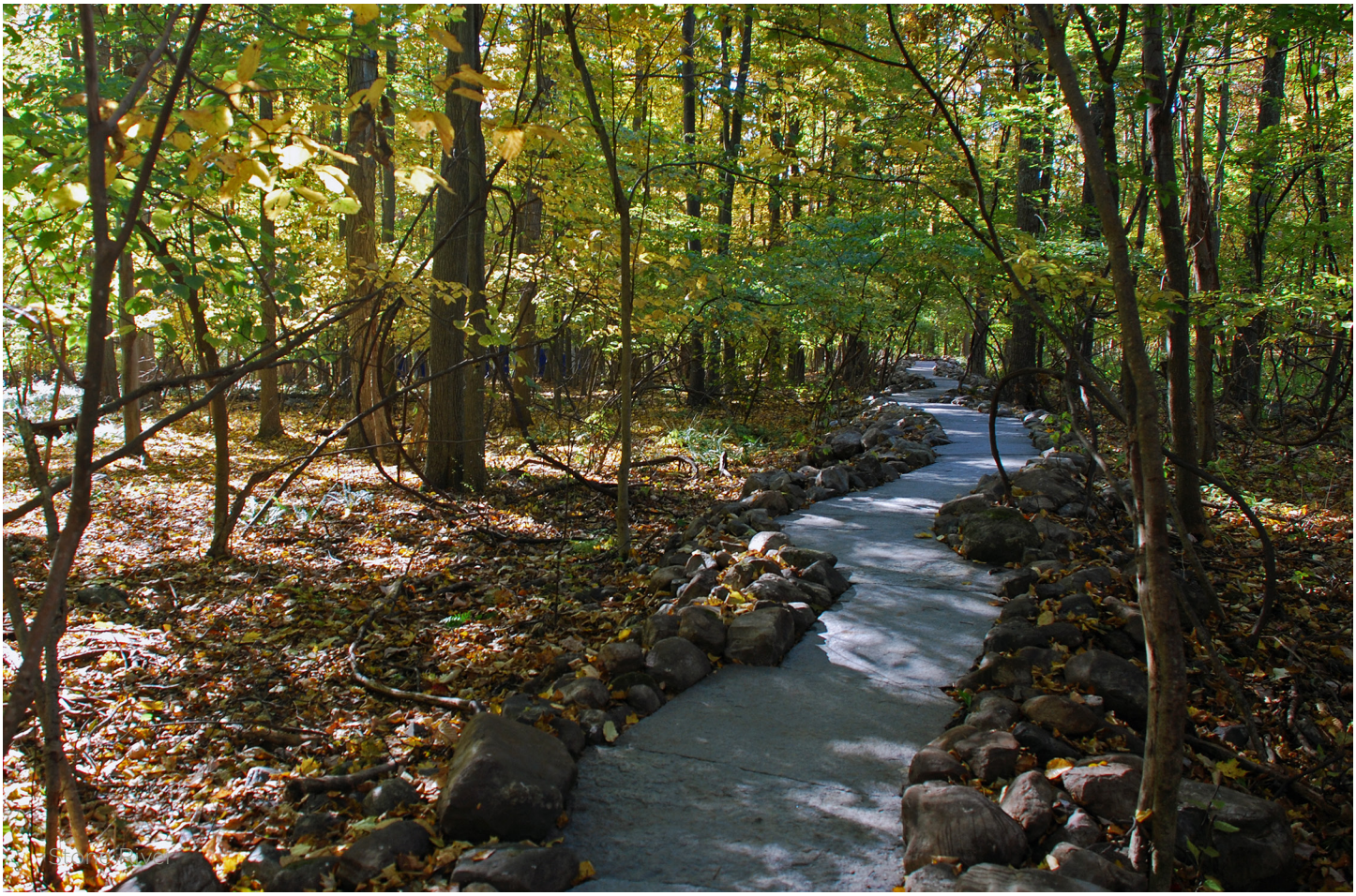
University of Notre Dame

Wellesley College



NATURAL CHARACTER ZONE

DESCRIPTION

The Natural Character Zone re-establishes the Oak Ridge, Mullins Creek, and other similar areas on campus as native conservation landscapes. The Oak Ridge weaves through the university along the steep slopes that separate the upper and lower parts of campus. It is made up of woodlands and significant stands of oak canopy trees. This character zone organizes currently-marginal spaces, historic landmarks, and existing woodland remnants into a purposeful landscape system that increases biodiversity and ecological services on campus, creates educational opportunities, and reduces maintenance requirements. Alternative maintenance regimens that promote riparian buffer function, as well as soil and plant health and rainwater management practices should be designed as landscape amenities.

HARDSCAPE QUALITY

- Hardscape materials, finishes, and details should be simple and durable. Necessary hardscape interventions should be easily removable, and impervious surfaces should be limited as much as practical. All elements should blend into the color palette of the native vegetation and geology.
    - Pavement: asphalt pavers, granite cobbles, asphalt, stone fines, native flagstone
    - Walls: drystack sandstone
    - see Appendix B for more information

PLANTING DESIGN GUIDELINES

- Use the approved Natural Character Zone Plant List. Discuss requests for special species with FM Planning and Design.
- All projects within this zone should replace existing lawn areas with a native meadow or woody plant ecosystem.
- Prioritize specification of native trees that are drought tolerant.
- Design native plantings to create habitat for pollinators and bird species.
- Each major project in this zone should include an invasive species management plan that includes removing invasive species and creating an action plan for subsequent control and maintenance efforts.
- Retain tree stumps and snags (where not a safety hazard) to provide wildlife habitat and a carbon source for the soil.
- Preserve or enhance plant biomass at a score of 5 or higher throughout the entire zone. *{See Sustainable Sites Initiative for further detail.}*
    - 6 = trees with understory
    - 4 = trees without understory
    - 3 = shrubs
    - 2 = grasslands / turf grass
    - 1.5 = annual plantings
- Use vegetated rainwater management rather than hard infrastructure, integrating hydrologic features purposefully into the landscape design.
- Promote watershed health and the ecological function of riparian buffers through a diverse plant palette including native canopy trees, successional trees, shrubs, meadows, and groundcovers.

MAINTENANCE / APPA LEVEL 4

APPA Level 4 – This low to moderate level of maintenance will support the establishment and heath of the natural resources within the Natural Character Zone. Facilities staff should be allocated to allow for visual inspection of these landscapes one time per week and/or as notified of maintenance or safety issues.

All major projects in this zone should include a landscape management plan that addresses landscape areas and rainwater facilities. As part of the management plan, explicity identify low-maintenance planting areas to prevent inadvertent mowing and brush removal by facilities staff (i.e., identify successional forest areas which would be designed to self-maintain, especially on steep slopes).

{size – 43 acres}

NATURAL CHARACTER ZONE NATIVE PLANT LIST / 1

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
LARGE TREES						
Acer rubrum	Red Maple	X	X	X	FAC	
Acer saccharum	Sugar Maple	X	X	X	FACU	
Carya cordiformis	Bitternut Hickory		X	X	FAC	
Carya illinoinensis	Pecan		X	X	FAC+	
Carya ovata	Shagbark Hickory		X	X	FACU	
Celtis laevigata	Sugarberry			X	FACW	
Fagus grandifolia	American Beech	X	X	X	FACU	
Liriodendron tulipifera	Tulip Poplar	X	X	X	FACU	
Nyssa sylvatica	Black Gum	X	X	X	FAC	
Platanus occidentalis	Sycamore		X	X	FACW-	
Quercus alba	White Oak		X	X	FACU	
Quercus falcata	Southern Red Oak		X	X	FACU-	
Quercus macrocarpa	Bur oak		X	X	FAC	
Quercus phellos	Willow Oak	X	X	X	FAC	
Quercus rubra	Northern Red Oak	X	X	X	FACU	
Quercus shumardii	Shumard Oak	X	X	X	FACW-	
Quercus velutina	Black Oak		X	X	UPL	
Robinia pseudoacacia	Black Locust		X	X	FACU	
Taxodium distichum	Bald Cypress		X	X	OBL	do not plant in open lawns
Ulmus americana 'Princeton'	Princeton Elm	X	X	X	FACW	
Acer negundo	Box Elder			X	FACW	
Betula nigra	River Birch			X	FACW	must be planted in a bed
Carya texana	Black Hickory		X	X		
Catalpa speciosa	Northern Catalpa		X	X	FAC	
Celtis occidentalis	Common Hackberry			X	FACU	
Juglans nigra	Black Walnut		X	X	FACU	
Maclura pomifera	Osage Orange			X	FACU	
Populus deltoides	Eastern Cottonwood			X	FAC+	
Quercus marilandica	Blackjack Oak			X	UPL	
Quercus muehlenbergii	Chinkapin Oak			X	FAC	
Quercus stellata	Post Oak			X	FACU	
Ulmus americana 'Valley Forge'	American Elm			X	FACW	
SMALL / MEDIUM TREES						
Amelanchier arborea	Serviceberry	X	X	X	FAC	
Carpinus caroliniana	Blue Beech, American Hornbeam	X	X	X	FAC	
Cercis canadensis	Eastern Redbud	X	X	X	FACU	
Chionanthus virginicus	Fringe Tree	X	X	X	FAC	
Cladrastis kentukea	Kentucky Yellowwood	X	X	X		
Cornus florida	Flowering Dogwood	X	X	X	FACU	
Cornus kousa	Dogwood	X	X	X		
Crataegus crus-galli var.inermis	Cockspur Hawthorn	X	X	X	FAC	

NATURAL CHARACTER ZONE NATIVE PLANT LIST / 2

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Gymnocladus dioicus (male)	Kentucky Coffeetree		X	X		
Prunus mexicana	Mexican Plum		X	X		
Ostrya virginiana	Hophornbeam		X	X	FACU	
Aesculus glabra	Ohio Buckeye	X	X	X	FACU	
Alnus serrulata	Hazel Alder			X	FACW+	
Asimina triloba	Pawpaw			X	FAC	
Cornus drummondii	Roughleaved Dogwood			X	FAC	
Corylus americana	American Hazelnut			X	FACU	
Diospyros virginiana	Common Persimmon			X	FAC	
Morus rubra	Red Mulberry			X	FAC	
Prunus americana	American Plum			X	FACU-	
Ptelea trifoliata	Water Ash			X	FAC	
Salix nigra	Black Willow			X	OBL	
Sassafras albidum	Sassafras			X	FACU	
Ulmus alata	Winged elm			X	FACU+	
SHRUBS						
Ceanothus americanus	New Jersey Tea	X	X	X		
Clethra alnifolia	Summersweet	X	X	X	FAC	
Cornus sericea	Red Twig Dogwood	X	X	X		
Euonymus americanus	Bursting Heart, Strawberry Bush			X	FAC	
Hamamelis vernalis	Ozark hazel	X	X	X	FACU	
Hamamelis virginiana	American Witchhazel	X	X	X		
Hydrangea arborescens	Smooth hydrangea	X	X	X		
Hydrangea quercifolia	Oakleaf hydrangea	X	X	X		
Hypericum prolificum	Shrubby St. Johnswort			X		
Ilex decidua	Deciduous holly possum haw	X	X	X	FACW-	
Ilex glabra	Inkberry	X	X	X	FAC	
Itea virginica	Sweetspire	X	X	X	OBL	
Rhododendron prinophyllum	Mountain Azalea	X	X	X	FAC	
Rhododendron viscosum	Texas Azalea	X	X	X	FACW	
Amorpha canescens	Leadplant			X		
Amorpha fruticosa	False Indigo	X		X	FACW	
Amorpha nitens	Shining Indigo Bush			X	FAC	
Caryopteris x Clandonensis	Blue Beard Spirea			X		
Cephalanthus occidentalis	Buttonbush, Globe Flower			X	OBL	
Dirca palustris	Eastern Leatherwood			X	FACU-	
Euonymus atropurpureus	Burning Bush Wahoo			X	FAC	
Lindera benzoin	Northern Spicebush			X	FACW	
Prunus angustifolia	Chickasaw Plum			X		
Prunus munsoniana	Wild Goose Plum			X		
Ptelea trifoliata	Water Ash, Hoptree			X	FAC	
Rhus aromatica	Fragrant Sumac			X	UPL	

NATURAL CHARACTER ZONE NATIVE PLANT LIST / 3

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Rhus copallinum	Winged Sumac			X	FACU	
Rhus glabra	Smooth Sumac			X		
Ribes missouriense	Missouri Gooseberry			X		
Ribes odoratum var. villosum	Golden Currant			X	FAC-	
Rosa	Carolina Rose			X	FACU	
Rubus argutus	Highbush Blackberry			X	FACU+	
Rubus occidentalis	Black Raspberry			X		
Salix caroliniana	Coastal Plain Willow			X	OBL	
Salix eriocephala	Rigid Willow			X	FACW	
Salix humilis	Prairie Willow			X	FACU	
Salix interior	Sandbar Willow			X	OBL	
Staphylea trifolia	American Bladdernut			X	FAC	
Symphoricarpos orbiculatus	Coralberry			X	FAC-	
GROUNDCOVER						
Cyperaceae	Sedge	X	X	X	FACW	
Pachysandra procumbens	Allegheny spurge	X	X	X		
Phlox paniculata 'David'	Garden Phlox	X	X	X		
Dryopteris marginalis	Marginal wood fern	X	X	X		
Antennaria dioica	Pussytoes		X	X		
PERENNIALS						
Coreopsis lanceolata	Tickseed			X	FACU	
Echinacea purpurea	Coneflower	X	X	X		
Gaillardia x grandiflora	Blanketflower	X	X	X		
Hosta sp.	Hosta	X	X	X		
Liatris spicata	Blazing Star	X	X	X	FAC	
Monarda fistulosa	Wild Bergamot		X	X	UPL	
Nasella tenuissima	Ponytail Grass	X	X	X		
Rudbeckia spp.	Black-Eyed Susan	X	X	X	FACU	
Sporobolus heterolepis	Prairie Dropseed	X	X	X	UPL	
Symphyotrichum dumosum	Bushy Aster	X	X	X	FAC	
Symphyotrichum ericoides	Heath Aster	X	X	X	FACU	
Symphyotrichum novae-anglia	New England Aster	X	X	X	FACW	
Ratibida columnifera	Mexican Hat	X	X	X		
Helleborus sp.	Lenten Rose	X	X			Adapted NonNative
Adiantum pedatum	Northern Maidenhair Fern	X		X	FAC	
Agastache foeniculum	Hyssop	X		X		
Agastache scrophularieafolia	Purple giant hyssop	X		X		
Amsonia hubrichtii	Bluestar	X		X		
Aquilegia canadensis	Wild Columbine			X	FAC	
Asclepias incarnata	Swamp Milkweed			X	OBL	
Asclepias tuberosa	Butterflyweed			X		
Coreopsis tinctoria	Golden Tickseed			X	FAC	

NATURAL CHARACTER ZONE NATIVE PLANT LIST / 4

Botanical Name	Common Name	Garden	Park	Natural	Hydrologic Indicator*	Notes
Eutrochium purpureum	Sweet Joe-Pye Weed			X	FAC	
Geranium maculatum	Wild Geranium			X	FACU	
Heliopsis helianthoides	Ox-Eye Sunflower			X	FACU	
Hypericum profificum	Hypericum			X	FACU	
Iris versicolor	Blue Flag Iris	X		X	OBL	
Lobelia speciosa	Cardinal Flower			X	FACW	
Onoclea sensibilis	Sensitive Fern			X	FACW	
Penstemon digitalis	Beardtongue	X		X	FAC	
Physostegia virginiana	Obedient Plant			X	FAC	
Polystichum acrostichoides	Christmas Fern	X		X	FACU	
Scutellaria galericulata	Skullcap			X	OBL	
Solidago ohioensis	Ohio Goldenrod	X		X		
Solidago nemoralis	Gray or Prarie Goldenrod	X		X		
Solidago rugosa	Rough Goldenrod	X		X	FAC	
Solidago speciosa	Goldenrod	X		X		
Verbena canadensis	Verbena			X		
VINES						
Parthenocissus quinquefolia	Virginia Creeper	X	X	X	FAC	

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