

KEEPING IT NATURAL!

A Local Guide to the Use of Native Plants For Natural Land Restorations and Post-disturbance Project Plantings Within Natural Woodland Sites, Riparian Buffers and Forest-edges in Arlington County and the City of Alexandria in Virginia

January 12, 2010

Prepared by:

Rod Simmons, Natural Resource Specialist – City of Alexandria

Greg Zell, Natural Resource Specialist – Arlington County

INTRODUCTION

The demand for use of native species in urban plantings has increased in recent years as a result of strong encouragement from environmental groups, non-profits, state and federal agencies, and the general public. While a number of native plant guides or lists are readily available, they all appear to share a common weakness. Generally, they are too broad in scope to be useful for local ecological restorations or for projects where preservation of vegetative communities is the primary objective. Many of the native planting guides currently used by local government agencies are statewide or regional in scope and may not accurately reflect nativity at the local level, particularly in view of vegetative changes brought about by development over the past century. For example, a suggested plant species may be native to Virginia, but have a natural range restricted to the southeastern corner of Virginia, or may only occur at higher elevations in the western portion of the state. Similarly, regional guides developed for the mid-Atlantic region may contain a number of species that do not occur naturally either in Virginia or more specifically, in northern Virginia or Arlington County. In contrast, the “Keeping It Natural” list of native species was derived directly from recently completed comprehensive flora surveys of both the City of Alexandria and Arlington County.

This local Planting Guide is intended to represent a Best Management Practice (BMP) and was primarily developed for use by local planning and park management agencies in the restoration or recovery of natural lands that have undergone disturbances such as trail construction, sewer line replacement or repair, stream stabilization projects, major

invasive plant removals or other types of intrusive development. Park planners, urban foresters, landscape architects, park managers, and others responsible for the development of project planting lists are encouraged to utilize this guide. *While not intended to provide guidance for the cultural landscape setting, such as streetscapes, horticultural plantings, demonstration gardens or entryways, the list of suggested native plants may offer alternatives to the use of non-native species for these types of projects as well as homeowner use.* More specialized restorations, such as natural meadows or tidal marshes, are highly technical projects and beyond the scope of this general document.

USEFUL DEFINITIONS

In the context of this document, the following definitions apply:

“LOCAL NATIVE SPECIES”

- Defined as those plant species (trees, shrubs, forbs, ferns, grasses, and sedges) documented to be growing naturally within the boundaries of the City of Alexandria or Arlington County, reasonably assumed to have had an historical presence since the early-mid 1800s or earlier, and lack a known history of introduction or escape from cultivation.

“RESTORATION AND RECOVERY OF NATURAL LANDS”

- Refers to projects where preservation and protection of documented natural lands or defined vegetative communities is the primary objective. Some riparian plantings may be included in this category if historic disturbance to soils and topography has been minimal.

“CULTURAL LANDSCAPE”

- Infers a less-natural setting where both native and non-native species are often selected for use. These projects normally occur on historically disturbed soils. Plantings along roadways, in multi-use parks, and landscape plantings installed as a component of facility construction are examples. Within the cultural landscape, planting objectives are often variable, but may include criteria such as color, structure (shape / maximum size), aesthetics, value to wildlife, and developed resistance to drought or disease. Cultivars are frequently used.

“INVASIVE PLANTS”

- Defined as established and reproducing non-native plants, that through a combination of traits (aggressive growth, propensity to spread, immunity to native diseases, insects and herbivores), threaten the elimination of desired native species through competition and replacement.

WHY USE NATIVES?

Native plants provide multiple environmental benefits:

- Regional and local native plants are **common** - providing a consistent and reliable gene pool source within established natural forest communities.
- Locally native plants are **tough and adaptive** – continuing to thrive in undisturbed parcels after seventy-five years of development and environmental stresses, such as drought.
- They are **ecologically rooted in the local environment** and have long established interactions with other organisms in the systems they share. Whether fungal relationships, vegetative communities, plant-pollinator interactions or plant-herbivore connection, these plants are part of a larger complex system that forms the foundation of a healthy ecological balance.

PLANTING GUIDE USE

The planting guide provides a master list of species by habitat type considered native to the local environment. The master list should be thought of as a “menu” of possibly appropriate species, depending on precise site conditions - soils, hydrological setting, slope, aspect, and other physical variables. This determination is often referred to as “proper plant – proper place.” The most important element to consider in the plant selection process for any project is directly related to the defined objective. In most cases of disturbance within a natural area, a target objective would either be (1) to select a profile of plants that will “blend back into the existing plant community surrounding the area of disturbance” or (2) create a functional successional or seral stage community based on an analysis of the surrounding vegetative or forest community.

GENERAL PROJECT PLANNING CONSIDERATIONS

Plant or not to plant? Deciding whether to plant or not represents the first important decision. Prior to planting, consider whether the time, funding and resources are in place to support proper pre-project planning, site preparation, and required follow-up site maintenance. In some cases with limited disturbance to natural soils in more shady environments, the best decision may be to not plant and allow the site to heal naturally through re-emergence of the native seedbank. This would represent an environmentally desirable choice, if the opportunity is presented and the area of disturbance is small.

Project Planning and Site Analysis: The success of any replanting project will be directly related to the degree of advance planning and detailed site analysis conducted. The documentation of existing site conditions and attributes through pre-project analysis will provide project planners with the information necessary to establish meaningful project goals and objectives.

Determining answers to the following questions will help to guide the planning process:

- What are the vegetative goals of the project?
- What is the long-term vision – what do you want the site to look like in 20 years?
- What is the macro-habitat at the site – forest type, bottomland, uplands, floodplain or riparian zone?
- Are there important micro-habitats at the site that would influence plant selection?
- What is the existing vegetation within and surrounding the project area? Is it a natural or cultural setting?
- Do you want to fix succession at a particular stage (meadow, old field, mid-successional forest, etc.)?
- Does the site contain intact and /or well developed soils, or has the soil been disturbed by human activity or erosion?

Selection of Plants From the List: While this guide offers a master list of common native plants to select from, it can not provide the detailed analysis required to know precisely which plants to select for a particular project. It is recommended that prior to the selection of a final planting list, a rapid flora inventory be performed around the perimeter of the project site to determine the existing vegetative or forest community. In the case of a narrow riparian or stream restoration project, an inventory of plants found both upstream and downstream from the project site would be advisable. Experienced staff can normally conduct this type of rapid review in 1-2 hours of field work. In most cases, 95% of the native plants documented around the site will be found on the “Keeping It Natural” planting list. Replanting natives already found at the site will achieve the objective of replication or “blending into” the original vegetative community. While over 800 locally native plant species have been documented as growing within the boundaries of the City of Alexandria and Arlington County, only the most common and well established species are included on the planting list. A number of locally-rare species and those with highly specialized habitats were purposely excluded from the list. The use of these unlisted species should be reserved for targeted in-house restoration projects of ecologically significant and sensitive natural plant communities.

Wildlife Value Considerations: Plant species are often selected from published plant lists for their stated wildlife value as food. In most cases this is unnecessary and may lead to the selection of inappropriate plants. The selection of plants on the basis of perceived wildlife value is over-rated since (1) most common native plants already provide food value to wildlife in the form of seeds, nuts or fruit, (2) many also provide nectar or serve as host plants for butterflies, moths and other beneficial insects, and (3) the selection and placement of a few token “wildlife attracting” plants within the urban environment will most likely not function as designed or expected.

Invasive Plant Analysis and Removal: The existence of non-native invasive plants within or on the perimeter of the project site creates an additional challenge and possible barrier

to success. A variety of approaches or strategies may be necessary. Without the proper treatment and removal of invasive species prior to planting, all labor, expense, and efforts in replanting may be lost. In the case of highly intrusive projects, where bare soils are exposed, soil profiles disturbed or foreign soils imported to the site, the consideration of an invasive plant management program as a project component is imperative. Recently disturbed soils, particularly in a sunlit environment, greatly increases the risk of invasive plant establishment. Imported soils most likely contain some level of invasive plant seed. In addition, the application of leaf mulch should be minimal to avoid unnecessary invasive plant seed importation. The immediate development of a thick ground cover of native grasses and forbs on bare soil will help to deny new invasive plants an opportunity to sprout and grow.

Timeline for Planting: In some cases, it would be judicious to delay immediate replanting of the site, with the exception of stabilizing ground cover. In project areas that have been heavily infested with invasive plants for a number of years, a single treatment for invasive plants will not be successful. Pre-treatment of the project site to control non-native plants prior to any planned disturbance, with scheduled follow-up spot treatments, may be warranted due to the level of both native and non-native seeds held within the seedbank. In cases where planning for a project begins several years before anticipated disturbance, it may be feasible to pre-treat sites for several growing seasons in advance to maximize success.

General Selection of Plant Stock or Material: From a strict environmental viewpoint, the use of local ecotype plant stock is preferable to imported stock under the assumption that locally propagated material would exhibit a higher survivability rate and be better adapted to northern Virginia's climate, native soils, and growing conditions. Cultivars, bred to favor limited characteristics, normally express less genetic variation than local native stock. However, the availability of locally propagated stock is very limited at the present time. In reality, almost all currently planted material is obtained through a number of private vendors authorized to conduct business with the two jurisdictions. Given the fact that most plant stock will be purchased, the following suggestions apply:

- Favor in-house design of planting projects - utilizing this guide as a reference and county or City staff for analysis and selection advice. Use vendors who are capable and willing to provide staff selected material, including the preparation of customized grass and forb mixes. If planting design and selection of planting material is attached to an established project contract, the contractor planting list should be carefully reviewed by county staff before approval. Alternatively, this guide and planting list can be provided to contractors for use.
- Woody Plant Material - it would be advisable to plant a larger number of small-sized trees and shrubs than fewer larger plants. Smaller stock will require less watering, are easier to transport by hand (less heavy equipment), require smaller holes (less disturbance), and will lower project costs. The only downside may be perceptual – the public may “think” that recovery is taking place more rapidly if

they are able to see larger specimens in place. Perceptual issues can best be addressed at pre-project neighborhood meetings through appropriate education.

- Avoid the use of cultivars - the use of cultivars is well established within the nursery industry and has long been considered acceptable for plantings on private property or in cultural landscape settings, but is not appropriate in natural settings. The long-term affects of cross-pollination between cultivars and natural trees and shrubs is unknown, not worth the risk of unintended consequences, and is contradictory to the objectives of preservation. The use of non-native invasive species should be strictly avoided regardless of planting location or project site.
- Plant freshly exposed soils rapidly and heavily - in order to protect disturbed bare soils from immediate erosion and prevent the establishment of new invasive plants, it is recommended that an application of appropriate seed mix, combining native grasses and forbs, be applied as soon as possible. Standard recommended application rates should most likely be exceeded to insure success. Many standard seed mixes (pre-mixed) will either contain undesirable species, non-native species, or species not appropriate for the specific site. It is important to utilize vendors who are willing and able to provide custom seed mixes designed by the customer at a higher material cost. A series of selective “native seeding specifications” could be developed through utilizing the native plants list included in this guide.

Native Planting Guide Keys

City of Alexandria and Arlington County, Virginia

Optimum Forest Habitat	Moisture Preference
UP (Uplands)	dry
MS (Mid-slope)	moist
B (Bottom of Slope)	wet
S (Stream Bank)	dry - moist
F (Flood Plain)	dry - wet
BL (Bottomlands)	moist - wet
FE (Forest Edge)	

Trees

Common Name	Latin Name	Optimum Habitat	Moisture Preference	Comment
Ash, Green	<i>Fraxinus pennsylvanica</i>	F, BL	moist - wet	pathogen free stock
Ash, White	<i>Fraxinus americana</i>	B, F, BL	dry - moist	pathogen free stock
Beech, American	<i>Fagus grandifolia</i>	B, S	dry - moist	
Birch, River	<i>Betula nigra</i>	F	dry - wet	
Box Elder	<i>Acer negundo</i>	F, BL	dry - moist	
Cherry, black	<i>Prunus serotina</i>	B	dry - moist	
Elm, American	<i>Ulmus americana</i>	S, F, BL	moist	
Gum, Black	<i>Nyssa sylvatica</i>	UP, MS, B	dry - moist	
Gum, Sweet	<i>Liquidambar styraciflua</i>	F, BL	moist - wet	coastal plain wetlands
Hickory, Bitternut	<i>Carya cordiformis</i>	F, BL	moist	
Hickory, Mockernut	<i>Carya tomentosa</i>	UP, MS	dry - moist	
Hickory, Pignut	<i>Carya glabra</i>	UP, MS	dry - moist	
Holly, American	<i>Ilex opaca</i>	MS	moist	
Maple, Red	<i>Acer rubrum</i>	F, BL	dry - moist	
Mulberry, Red	<i>Morus rubra</i>	MS, B	dry - moist	rich soils, shaded woods
Oak, Black	<i>Quercus velutina</i>	UP, MS	dry - moist	
Oak, Blackjack	<i>Quercus marilandica</i>	UP, FE	dry - moist	
Oak, Chestnut	<i>Quercus montana</i>	UP	dry - moist	
Oak, Northern Red	<i>Quercus rubra</i>	MS, B, S, F	dry - moist	
Oak, Pin	<i>Quercus palustris</i>	F, BL	dry - moist	
Oak, Post	<i>Quercus stellata</i>	UP	dry - moist	
Oak, Scarlet	<i>Quercus coccinea</i>	UP, MS	dry - moist	
Oak, Southern Red	<i>Quercus falcata</i>	UP, MS	dry - moist	
Oak, White	<i>Quercus alba</i>	UP, MS, B	dry - moist	
Oak, Willow	<i>Quercus phellos</i>	F, BL	dry - moist	

Persimmon	Diospyros virginiana	B, S, F, BL	dry - moist	
Pine, Shortleaf	Pinus echinata	UP, FE	dry - moist	
Pine, Virginia	Pinus virginiana	UP, FE	dry - moist	
Redcedar, Eastern	Juniperus virginiana	UP, FE	dry - moist	
Sassafras	Sassafras albidum	UP, MS, FE	dry - moist	
Sycamore, American	Platanus occidentalis	S, F	dry - moist	
Tulip Poplar	Liriodendron tulipifera	B, S, F, BL	moist	
Walnut, Black	Juglans nigra	B, F	dry - moist	

Small Trees, Shrubs and Vines

Common Name	Latin Name	Optimum Habitat	Moisture Preference	Comment
Alder, Common	Alnus serrulata	S	dry - wet	
Arrowwood, Southern	Viburnum dentatum	B, S, F, BL	moist - wet	
Blackhaw	Viburnum prunifolium	B, S, F, BL	moist - wet	
Blueberry, Black Highbush	Vaccinium fuscatum	B, S	dry - moist	
Blueberry, Lowbush	Vaccinium pallidum	B, S	dry - moist	
Deerberry	Vaccinium stamineum	B, S	dry - moist	
Dogwood, Flowering	Cornus florida	UP, MS	dry - moist	
Dogwood, Silky	Cornus amomum	S, F, BL	moist - wet	
Elderberry	Sambucus canadensis	S, F, BL	moist - wet	
Fringe Tree	Chionanthus virginicus	MS, B, S	dry - moist	
Hazelnut, American	Corylus americana	B, S, BL	dry - moist	
Huckleberry, Black	Gaylussacia baccata	UP	dry - moist	
Hydrangea, Wild	Hydrangea arborescens	S	dry - moist	north-facing slopes
Ironwood	Carpinus caroliniana	S	moist	
Pinxterbloom	Rhododendron periclymenoides	UP, MS, B, S	dry - moist	
Serviceberry, Downy	Amelanchier arborea	UP, M	dry - moist	
Spicebush, American	Lindera benzoin	S, F, BL	moist	
Strawberry Bush, American	Euonymus americanus	MS, B, S, F, BL	moist - wet	
Sumac, Smooth	Rhus glabra	FE	dry - moist	
Sumac, Staghorn	Rhus typhina	FE	dry - moist	
Sumac, Winged	Rhus copallina	FE	dry - moist	
Virginia Creeper	Parthenocissus quinquefolia	M, B, S, F, BL	dry - moist	woody vine
Viburnum, Maple-leaved	Viburnum acerifolium	UP, MS	dry - moist	
Witch Hazel	Hamamelis virginiana	MS, B, S	moist	north-facing slopes
Winterberry (Holly)	Ilex verticillata	B	moist - wet	

Grasses

Common Name	Latin Name	Optimum Habitat	Moisture Preference	Comment
Broomsedge	Andropogon virginicus	FE	dry - moist	sunny meadows
Deertongue Grass	Dichanthelium clandestinum	FE	dry - moist	forest edges and sunny openings
Eastern Gamagrass	Tripsacum dactyloides	FE	dry - moist	forest edges and sunny openings

Fowl Manna Grass	Glyceria striata	F, S, BL	moist - wet	
Indian Grass	Sorghastrum nutans	FE	dry - moist	forest edges and sunny openings
Little Bluestem	Schizachyrium scoparium	FE	dry - moist	forest edges and sunny openings
Poverty Oatgrass	Danthonia spicata	FE	dry - moist	forest edges and sunny openings
Purple Lovegrass	Eragrostis spectabilis	FE	dry - moist	forest edges and sunny openings
Purpletop	Tridens flavus	FE	dry - moist	forest edges and sunny openings
Virginia Wild Rye	Elymus virginicus	FE, BL	moist - wet	
White Grass	Leersia virginica	S, F, BL	moist - wet	may be weedy

Sedges, Ferns, and Forbs

Common Name	Latin Name	Optimum Habitat	Moisture Preference	Comment
Black Edge Sedge	Carex nigromarginata	M, B	dry - moist	
Black-eyed Susan	Rudbeckia hirta	FE	dry - moist	sunny
Blue-stemmed Goldenrod	Solidago caesia	M, B	dry - moist	
Blunt Broom Sedge	Carex tribuloides	F, BL	moist	
Boneset	Eupatorium perfoliatum	S, F, BL	wet	sunny
Bracken Fern	Pteridium aquilinum	UP, M	dry - moist	
Calico Aster	Aster lateriflorus	S, F, BL	moist - wet	
Cardinal Flower	Lobelia cardinalis	S, F, BL	wet	some sun
Charming Sedge	Carex blanda	S, F, BL	moist	
Christmas Fern	Polystichum acrostichoides	M, B, S	moist	
Common Milkweed	Asclepias syriaca	FE	dry	forest edges and open meadows
Creeping Bush Clover	Lespedeza repens	FE	dry	forest edges and upland forest openings
Early Goldenrod	Solidago juncea	FE	dry	forest edges and upland forest openings
Erect Goldenrod	Solidago erecta	FE	dry	forest edges and upland forest openings
Grass-leaved Goldenrod	Euthamia graminifolia	FE	dry - moist	forest edges and open meadows
Green Coneflower	Rudbeckia laciniata	S, F, BL	moist - wet	
Groundnut	Apios americana	S, F, BL	moist - wet	some sun
Hollow Joe-pye-weed	Eupatorium fistulosum	S, F, BL	wet	sunny
Hay-scented Fern	Dennstaedtia punctilobula	UP, M	dry - moist	
Hyssop-leaved Thoroughwort	Eupatorium hyssopifolium	FE	dry - moist	sunny edges and meadows
Jack-in-the-pulpit	Arisaema triphyllum	B, S, F, BL	moist	
Lady Fern	Athyrium filix-femina	B, S, F	moist - wet	
Mistflower	Eupatorium coelestinum	S, F, BL	wet	sunny
Narrow-leaved Mountain Mint	Pycnanthemum tenuifolium	FE	dry - moist	forest edges and open meadows

Narrow-leaved Sedge	<i>Carex amphibola</i>	S, F, BL	moist	
New York Fern	<i>Thelypteris noveboracensis</i>	B, MS, S	moist	
Path Rush	<i>Juncus tenuis</i>	FE	dry - moist	forest edges and upland forest openings
Rough Goldenrod	<i>Solidago rugosa</i>	S, F, BL	moist - wet	some sun
Sensitive Fern	<i>Onoclea sensibilis</i>	S, F, BL	moist - wet	
Silverrod	<i>Solidago bicolor</i>	FE	dry	forest edges and upland forest openings
Slendar Woodland Sedge	<i>Carex digitalis</i>	M, B	dry - moist	
Small White Aster	<i>Aster vimineus</i>	S, F, BL	moist - wet	
Soft Rush	<i>Juncus effusus</i>	S, F, BL	moist - wet	sunny
Solomon's Plume	<i>Maianthemum racemosum</i>	MS, B	dry - moist	
Solomon's Seal	<i>Polygonatum biflorum</i>	MS, B	dry - moist	
St. Andrew's Cross	<i>Hypericum hypericoides</i>	FE	dry - moist	forest edges and upland forest openings
Swamp Milkweed	<i>Asclepias incarnata</i>	F, BL	wet	sunny
Tall White Aster	<i>Aster lanceolatus</i>	S, F, BL	moist - wet	
Thin-leaved Sunflower	<i>Helianthus decapetalus</i>	S	moist	
Trailing Bush Clover	<i>Lespedeza procumbens</i>	FE	dry	forest edges and upland forest openings
Virginia Bush Clover	<i>Lespedeza virginica</i>	FE	dry - moist	sunny
White-tinged Sedge	<i>Carex albicans</i> v. <i>albicans</i>	MS	dry - moist	
White Wood Aster	<i>Aster divaricatus</i>	S	moist - wet	
Yellow Trout Lily	<i>Erythronium americanum</i>	F, BL	moist	