



Native Trees and Shrubs - Technical Guide (for Wildlife Habitat)

Definition: Selection of native woody vegetation that can be planted to improve wildlife habitat. Tree and shrub plantings that provide quality wildlife habitat are composed of a diverse array of native woody and herbaceous plants planted in a linear or clump plantings.

Purpose

This practice may be applied to accomplish one or more of the following:

- Provide food, cover, habitat corridors for terrestrial wildlife
- Provide food and cover for aquatic organisms that live in watercourses with bank-full width less than 5 feet
- Living fences
- Boundary delineation
- Screens and barriers to noise, odor, and dust
- Reduce soil erosion and sedimentation



Highbush Blueberry (*Vaccinium corymbosum*)

Native woody trees and shrubs provide valuable cover and food for game and non-game wildlife species. When used in hedgerows within cropfields, hayfields, or pastures, native woody plants can facilitate travel and escape from predators for northern bobwhite (quail), songbirds, and small mammals; while also providing nest sites for shrubland birds. Typical woody plants used in hedgerows are small trees and shrubs that reach heights of up to 20 feet. Oaks and other larger trees can be added for species and structural diversity as well as for food (acorns and nuts). Larger species can be used for hardwood community restoration (wetlands or uplands). Countless wildlife species including wild turkey, quail, and white-tailed deer forage on the fruits and seeds of native woody plants like persimmon, blueberries, blackberries, sumacs, and hawthorns. The insects attracted by flowering woody plants are an important diet component of shrubland and grassland bird species like quail, field sparrow, eastern kingbird, eastern towhee, and eastern bluebird. Native fruit bearing plants also provide nectar when in bloom and act as larval hosts for a wide variety of pollinators including butterflies, moths, and bees and would therefore be beneficial to adjacent crops needing pollination. Crops that require these pollinators include apple, asparagus, broccoli, carrot, cauliflower, celery, cucumber, onion, legume seeds, pumpkin, squash, sunflower, citrus fruits, peanut, cotton, and soybean. Native grasses, legumes and forbs can be planted alongside woody plants or can be allowed to grow naturally. These plants will provide additional food and ground cover as well as nectar and host plant sources. Any management of planted areas should be delayed until late winter or early spring. Standing dead stems will provide needed winter cover and seeds for a variety of wintering and resident songbirds. **The requirements in this guide are set for the maximum wildlife benefit.**

General Criteria and Specifications

Planting

A minimum of 3 native woody plant species should be planted. To promote higher diversity, additional species of woody trees and shrubs, native grasses, forbs, and legumes can be planted. This greatly enhances habitat for songbirds, northern bobwhite (quail), wild turkey, and pollinators. The species selected shall be chosen from the approved lists in Tables 1 and 2.

Use the 2 Habitat Categories to guide species selection based on the site conditions

1. Upland fields and/or buffers and/or within or around cropfields, hayfields, or pastures (**Table 1**).
2. Riparian buffers, wetland edges, streambanks (**Table 2**).



REQUIREMENTS

- Minimum width for wildlife benefit is 30 feet. Generally, wider corridors accommodate more wildlife use and better songbird nest success.
- Native species must be used. Chose species suited and adapted to the soils, climate and conservation purpose on the site.
- Soil preparation: Soil should be prepared by conventional disking methods; or by herbicide treatments when a prevalence of exotic sod-forming grass competition like fescue, bahia, or bermuda grass exists on site. After planting,

pack soil firmly around roots and protect plants from damage by traffic, fire, livestock, and weed competition. Fertilizer may be used to increase productivity of fruit-bearing species.

- If planning in linear fashion, plantings should be made in multiple rows with spacing to accommodate growth for species used.
- Plant woody bare-root or potted shrubs and trees during the dormant season (November through March). **Spacing: Trees - 12 feet apart, Shrubs - 6 feet apart; or to simplify, all plants 10 to 12 feet apart.**
- Tree and shrub shelters must be used where deer and small mammal browse is problematic.
- If linear as with a hedgerow, the center row should consist of the tallest growing species and the average height of the vegetation should decrease toward the outer edges of the hedgerow. If native grasses and/or forbs are planting or allowed to grow naturally, they should be at the outer edges of the rows, between the cropfield and the woody shrubs and trees.



Yaupon Holly (*Ilex vomitoria*)

- If native grasses and/or forbs are to be planted, please refer to the **SC NRCS Tech Guide 327 (a)** for species selection, site preparation, planting and maintenance information.
- **No plant listed in Table 3; or by the State as a Noxious Weed; or listed by the SC Exotic Pest Plant Council shall be established in a tree and shrub planting.** See these websites for official exotic plants lists: <http://plants.usda.gov/java/noxious?rptType=State&statefips=45>, <http://www.se-eppc.org/southcarolina/scinvasives.pdf>
- On pastureland, protect plants from livestock grazing and trampling.

Considerations

- **Make sure all site prep or planting equipment is cleaned prior to use on site to prevent seeds, rhizomes or other material from invasive exotic plants from being brought to the site.**



Habitat quality and food supply can be improved by allowing wild blackberries to grow within hedgerow

- Linking fragmented habitats may increase wildlife use of an area.
- In plantings adjacent to small watercourses, the plantings shall be site-adapted, large enough at maturity and installed close enough to shade the watercourse.
- In grassland ecosystems, trees and shrubs may adversely affect area-sensitive nesting birds by fragmenting grassland habitat patches and increasing the risk of predation. Consult an NRCS Biologist when planning on larger grassland tracts.

Maintenance

- Competing vegetation shall be controlled until the trees and shrubs become established by mowing in between rows or spot herbicide treatment until plantings is fully established. Control shall continue beyond the establishment period, if necessary.
- Noxious weeds will be controlled by mowing, fire, tillage, or herbicides as appropriate. If using fire, slow burning winter fires are best for hardwoods. Herbicides are recommended as the best alternative because of long lasting effects. Spot treat as necessary.



Hawthorn (*Crataegus sp.*)

TABLE 1: Native Woody Plants for Upland Habitats, Hedgerows and Field Edges

Common Name	Scientific Name	Form	where to plant	Region best suited
Mockernut Hickory	<i>Carya tomentosa</i>	tree	dry woods	statewide
Pignut Hickory	<i>Cayra glabra</i>	tree	dry to moist woods	statewide
Persimmon	<i>Diospyros virginiana</i>	tree	uplands, old fields	statewide
Black Walnut	<i>Juglans nigra</i>	tree	moist woods	statewide
Eastern Red Cedar	<i>Juniperus virginiana</i>	tree	uplands	statewide
Black Gum	<i>Nyssa sylvatica</i>	tree	uplands and low woods	statewide
Shortleaf Pine	<i>Pinus echinata</i>	tree	old fields and uplands	statewide
Longleaf Pine	<i>Pinus palustris</i>	tree	sandy soil	coastal plain, piedmont
White Oak	<i>Quercus alba</i>	tree	uplands, slopes	statewide
Scarlett Oak	<i>Quercus coccinea</i>	tree	poor soil, dry uplands	piedmont, mtns
Southern Red Oak	<i>Quercus falcata</i>	tree	dry woods	coastal plain, piedmont
Northern Red Oak	<i>Quercus rubra</i>	tree	moist soil, slopes	piedmont, mtns
Post Oak	<i>Quercus stellata</i>	tree	dry, poor, or rich soil	statewide
Black Oak	<i>Quercus velutina</i>	tree	dry, well drained soil	statewide
Live Oak	<i>Quercus virginiana</i>	tree	sandy, dry soils	coastal plain, piedmont
Redbud	<i>Cercis canadensis</i>	medium tree	uplands, dry to moist	statewide
Flowering Dogwood	<i>Cornus florida</i>	medium tree	moist uplands, slopes	statewide
American Holly	<i>Ilex opaca</i>	medium tree	well drained, moist soil	statewide
Wild Black Cherry	<i>Prunus serotina</i>	medium tree	anywhere, dry to moist soil	statewide
Shadblow Serviceberry	<i>Amelanchier canadensis</i>	small tree	sandy uplands	coastal plain, piedmont
Coastal Plain Serviceberry	<i>Amelanchier obovalis</i>	small tree	moist soil	coastal plain, piedmont
Paw Paw	<i>Asimina triloba</i>	small tree	moist soil, slopes	piedmont, mtns
Silky Dogwood	<i>Cornus amomum</i>	small tree	moist soil	statewide
Swamp/Stiff Dogwood	<i>Cornus stricta, Cornus foemina</i>	small tree	moist soil	statewide
Deciduous Holly, Possumhaw	<i>Ilex decidua (keeps berries in winter)</i>	small tree	moist soil	coastal plain, piedmont
Winterberry	<i>Ilex verticillata</i>	small tree	moist soil	statewide
Southern Crabapple	<i>Malus angustifolia</i>	small tree	well-drained, moist soil	statewide
Red Mulberry	<i>Morus rubra</i>	small tree	moist soil	statewide
Sassafras	<i>Sassafras albidum</i>	small tree	moist, well-drained sandy loams	statewide
Chinquapin	<i>Castanea pumila</i>	large shrub	dry woods, old fields	statewide
Mayhaw	<i>Crataegus aestivalis</i>	large shrub	moist	coastal plain
Cockspur Hawthorn	<i>Crataegus crus-galli</i>	large shrub	dry to moist	statewide
One flower Hawthorn	<i>Crataegus uniflora</i>	large shrub	dry	statewide
Dahoon Holly	<i>Ilex cassine</i>	large shrub	anywhere	coastal plain

TABLE 1 (cont.): Native Woody Plants for Upland Habitats, Hedgerows and Field Edges

<u>Common Name</u>	<u>Scientific Name</u>	<u>Form</u>	<u>where to plant</u>	<u>Region best suited</u>
Lead Plant/False Indigobush	<i>Amorpha herbacea</i>	shrub	dry upland	statewide
Beautyberry	<i>Callicarpa americana</i>	shrub	dry to wet	statewide
New Jersey Tea	<i>Ceanothus americanus</i>	shrub	well drained, open, sandy soils	statewide
Strawberry Bush	<i>Euonymus americana</i>	shrub	moist, shady	statewide
Yaupon Holly	<i>Ilex vomitoria</i>	shrub	well drained to wet	coastal plain, piedmont
Wax Myrtle/Southern Bayberry	<i>Morella cerifera</i> or <i>Myrica cerifera</i>	shrub	wet to dry	coastal plain, piedmont
Ninebark	<i>Physocarpus opulifolius</i>	shrub	bogs, stream banks, moist bluffs	statewide
American Plum	<i>Prunus americana</i>	shrub	moist to dry	coastal plain, piedmont
Chickasaw Plum	<i>Prunus angustifolia</i>	shrub	moist to dry	statewide
Carolina Laurel Cherry (evergreen)	<i>Prunus caroliniana</i>	shrub	well-drained moist soil	coastal plain, piedmont
Hog Plum, Flatwoods Plum	<i>Prunus umbellata</i>	shrub	moist to dry	statewide
Carolina Rose	<i>Rosa carolina</i>	shrub	moist to dry	statewide
Sparkleberry	<i>Vaccinium arboreum</i>	shrub	dry to moist	statewide
Highbush Blueberry	<i>Vaccinium corymbosum</i>	shrub	moist soil	statewide
Black-berried Highbush Blueberry	<i>Vaccinium fuscatum (atrococcum)</i>	shrub	dry to wet	statewide
Squaw Huckleberry, Deerberry	<i>Vaccinium stamineum</i>	shrub	moist to dry	statewide
Small Black Blueberry	<i>Vaccinium tenellum</i>	shrub	dry upland	coastal plain, piedmont
Arrowwood	<i>Viburnum dentatum</i>	shrub	dry to wet	statewide
Blue Haw, Rusty Black Haw	<i>Viburnum rufidulum</i>	shrub	dry soils	statewide
Coral Honeysuckle	<i>Lonicera sempervirens</i>	vine	moist to dry	statewide
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	vine	moist uplands, shade tolerant	statewide

TABLE 2: Native Woody Plants for Riparian Areas and Wetlands

Common Name	Scientific Name	Form	area to plant	Region best suited
Box Elder	<i>Acer negundo</i>	tree	semi- wet/ edges, swamp forests, streams	statewide
Red Maple	<i>Acer rubrum</i>	tree	semi- wet/ edges, swamp forests, streams	statewide
Sweet or Black Birch	<i>Betula lenta</i>	tree	streambanks, rich woods, north facing slopes	Mtns (Greenville, Pickens)
River Birch	<i>Betula nigra</i>	tree	semi- wet/ edges, river and stream banks	statewide
Ironwood, Am. Hornbeam	<i>Carpinus caroliniana</i>	tree	streambanks, low or rich woods	statewide
Shagbark Hickory	<i>Carya ovata</i>	tree	low woods	piemont, mtns
Hackberry/Sugarberry	<i>Celtis laevigata</i>	tree	alluvial woods	statewide
Atlantic White Cedar	<i>Chamaecyparis thyoides</i>	tree	acid swamps, bogs, wet sands	Coastal Plain, piedmont
Persimmon	<i>Diospyros virginiana</i>	tree	surrounding uplands	statewide
Green Ash	<i>Fraxinus pennsylvanica</i>	tree	semi- wet/ edges, swamp forests, streams	statewide
Black Walnut	<i>Juglans nigra</i>	tree	rich woods, stream margins	statewide
Sweetgum	<i>Liquidambar styraciflua</i>	tree	low, rich woods	statewide
Tulip Poplar	<i>Liriodendron tulipifera</i>	tree	semi- wet/ edges, swamp forests, streams	statewide
Sycamore	<i>Platanus occidentalis</i>	tree	low woods	statewide
Eastern Cottonwood	<i>Populus deltoides</i>	tree	streambanks, swamp forests	Piedmont, inner coastal plain
Swamp Cottonwood	<i>Populus heterophylla</i>	tree	swamp forests, streambanks	Coastal Plain
Swamp Laurel Oak	<i>Quercus laurifolia</i>	tree	moist soils	Piedmont, Coastal Plain
Overcup Oak	<i>Quercus lyrata</i>	tree	swamp forests, poorly drained lowlands	Piedmont, Coastal Plain
Swamp Chestnut Oak	<i>Quercus michauxii</i>	tree	moist, well-drained alluvial floodplains	Piedmont, Coastal Plain
Water Oak	<i>Quercus nigra</i>	tree	wet lowlands to moist uplands	statewide
Cherrybark Oak	<i>Quercus pagoda</i>	tree	bottomland hardwood, well-drained lowlands	statewide
Willow Oak	<i>Quercus phellos</i>	tree	moist alluvial soils along streams and rivers	statewide
Shumard Oak	<i>Quercus shumardii</i>	tree	well drained soils along streams and rivers	Piedmont, Coastal Plain
Shawblow Serviceberry	<i>Alamanchier arborea</i>	small tree	bluffs, stream banks	statewide
Devil's Walking Stick	<i>Aralia spinosa</i>	small tree	upland and low woods	statewide
Paw Paw	<i>Asimina trioloba</i>	small tree	stream banks, low woods, floodplains	mtns, piedmont, inner CP
Silky/Swamp Dogwood	<i>Cornus amomum</i>	small tree	semi- wet/ edges, swamp forests, streams	statewide
Swamp/Stiff Dogwood	<i>Cornus stricta, Cornus foemina</i>	small tree	stream banks, alluvial woods, swamp forests	statewide
Deciduous Holly	<i>Ilex decidua</i>	small tree	upland and alluvial forests	Piedmont, Coastal Plain
Winterberry	<i>Ilex verticillata</i>	small tree	floodplains, bogs, along streams, low woods	statewide
Red Mulberry	<i>Morus rubra</i>	small tree	alluvial woods and adjacent lower slope	statewide
Red Chokeberry	<i>Photinia pyrifolia (Aronia arbutifolia)</i>	small tree	moist woods, swamps, bogs, bluffs	statewide

TABLE 2 (cont.): Native Woody Plants for Riparian Areas and Wetlands

Common Name	Scientific Name	Form	area to plant	Region best suited
Alternate Leaved Dogwood	<i>Cornus alternifolia</i>	large shrub	moist woodlands, stream and swamp borders	Piedmont, Mountains
Hawthorn	<i>Crataegus viridis</i> , <i>C. spathulata</i> , <i>C. marshallii</i>	large shrub	alluvial woods, swamp forests	Piedmont, Coastal Plain
Witch Hazel	<i>Hamamelis virginiana</i>	large shrub	rich or dry woods, surrounding slopes	statewide
Mockorange	<i>Philadelphus inodorus</i>	large shrub	rich woods, floodplains	Piedmont, Mountains
Common Ninebark	<i>Physocarpus opulifolius</i>	large shrub	bogs, streambanks, moist cliffs,	Piedmont, Mountains
Coastal Plain Willow	<i>Salix caroliniana</i>	large shrub	streambanks, low, moist areas	Coastal Plain, Piedmont
Black Willow	<i>Salix nigra</i>	large shrub	streambanks, low, moist areas	statewide
Silky Willow	<i>Salix sericea</i>	large shrub	marshes, ditches, low woods	statewide
Tag Alder	<i>Alnus serrulata</i>	shrub	streambanks, swamp edge, wet meadow	statewide
False Indigo/River Locust	<i>Amorpha fruticosa</i>	shrub	dry to moist	statewide
Dwarf Paw Paw	<i>Asimina parviflora</i>	shrub	drier edges, surrounding uplands	statewide
Groundsel	<i>Baccharis halimifolia</i>	shrub	open wet edges	Piedmont, Mountains
Buttonbush	<i>Cephalanthus occidentalis</i>	shrub	wet shorelines, swamps	statewide
Sweet Pepperbush	<i>Clethra alnifolia</i>	shrub	semi- wet/ edges, pocosins, bays	Coastal Plain, Piedmont
Hazel-nut	<i>Corylus americana</i>	shrub	rich woods	statewide
Titi	<i>Cyrilla racemeflora</i>	shrub	semi- wet/ edges, bays, pocosins	Piedmont, Coastal Plain
Virginia Willow	<i>Itea virginica</i>	shrub	semi-wet/ wet, low woods	statewide
Coastal Doghobble	<i>Leucothoe axillaris</i>	shrub	along streams, bays, pocosins, swamp forest	Coastal Plain, Piedmont
Highland Doghobble	<i>Leucothoe fontainissima</i>	shrub	along streams	mountains
Dog Hobble/Fetterbush	<i>Leucothoe racemosa</i>	shrub	swamps, bogs, streambanks, savannahs	Coastal Plain, Piedmont
Spicebush	<i>Lindera benzoin</i>	shrub	stream margins, alluvial woods	statewide
Fetterbush	<i>Lyonia lucida</i>	shrub	semi- wet/ edges, pocosins, low woods	Coastal Plain, Piedmont
Wax Myrtle	<i>Morella/Myrica cerifera</i>	shrub	low woods, marshes	Piedmont, Coastal Plain
Common Elderberry	<i>Sambucus canadensis</i>	shrub	rich soils along riverbanks and forest edges	statewide
Highbush Blueberry	<i>Vaccinium corymbosum</i>	shrub	moist bays, swamps, steamsides	Piedmont, Coastal Plain
Arrowwood Viburnum	<i>Viburnum dentatum</i>	shrub	alluvial woods, swamp forests	statewide

Table 3: Invasive exotic plants or noxious weeds that should NOT be planted or encouraged:

<u>Common Name</u>	<u>Scientific Name</u>	<u>form</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Form</u>
Autumn Olive	<i>Eleaagnus umbellata</i>	Shrub	White Mulberry	<i>Morus alba</i>	Tree
Russian Olive	<i>Eleaagnus angustifolia</i>	Shrub	Camphortree	<i>Cinnamomum camphora</i>	Tree
Thorny Olive/Silverthorn	<i>Eleaagnus pungens</i>	Shrub	White Poplar	<i>Populus alba</i>	Tree
Bush/Amur Honeysuckle	<i>Lonicera maackii</i>	Shrub	Japanese Climbing Fern	<i>Lygodium japonicum</i>	Vine
Sweet Breath of Spring	<i>Lonicera fragrantissima</i>	Shrub	Wintercreeper	<i>Euonymus fortunei</i>	Vine
Chinese Privet	<i>Ligustrum sinense</i>	Shrub	Common Periwinkle	<i>Vinca minor</i>	Vine
Japanese/Glossy Privet	<i>Ligustrum japonica</i>	Shrub	Bigleaf Periwinkle	<i>Vinca major</i>	Vine
Multiflora Rose	<i>Rosa multiflora</i>	Shrub	Japanese Honeysuckle	<i>Lonicera japonica</i>	Vine
Cherokee Rose	<i>Rosa laevigata</i>	Shrub	English Ivy	<i>Hedera helix</i>	Vine
Macartney Rose	<i>Rosa bacteata</i>	Shrub	Kudzu	<i>Pueraria montana</i>	Vine
Winged Burning Bush	<i>Euonymus alata</i>	Shrub	Chinese or Japanese Wisteria	<i>Wisteria sinensis</i> , <i>Wisteria floribunda</i>	Vine
Sacred Bamboo, Nandina	<i>Nandina domestica</i>	Shrub	Beach Vitex	<i>Vitex rotundifolia</i>	Vine
Tropical Soda Apple	<i>Solanum viarum</i>	Shrub	Cogongrass	<i>Imperata cylindrica</i>	Grass
Leatherleaf Mahonia	<i>Mahonia bealii</i>	Shrub	Crabgrass	<i>Digitaria sanguinalis</i>	Grass
Cascade Oregon Grape	<i>Mahonia nervosa</i>	Shrub	Johnson Grass	<i>Sorghum halapense</i>	Grass
Scotch Broom	<i>Cytisus scoparius</i>	Shrub	Bermuda Grass	<i>Cynodon dactylon</i>	Grass
Trifoliolate Orange	<i>Poncirus trifoliata</i>	Shrub	Tall Fescue	<i>Lolium arundinaceum</i> / <i>Festuca arundinacea</i>	Grass
Chinese Tallow Tree	<i>Triadica sebifera</i>	Tree	Bahiagrass	<i>Paspalum nototum</i>	Grass
Chinaberry	<i>Melia azedarach</i>	Tree	Giant Reed	<i>Arundo donax</i>	Grass
Mimosa	<i>Albizia julibrissin</i>	Tree	Nepalese Browntop	<i>Microstegium vimineum</i>	Grass
Sawtooth Oak	<i>Quercus acutissima</i>	Tree	Chinese Silvergrass	<i>Miscanthus sinensis</i>	Grass
Tree of Heaven	<i>Ailanthus altissima</i>	Tree	Golden Bamboo	<i>Phyllostachys aurea</i>	Grass
Callery Pear/Bradford Pear	<i>Pyrus calleryana</i>	Tree	Chinese Lespedeza or Sericea	<i>Lespedeza cuneata</i>	Forb
Princess Tree/Royal Paulownia	<i>Paulownia tomentosa</i>	Tree	Shrubby or Bicolor Lespedeza	<i>Lespedeza bicolor</i>	Forb

Site Specific Comments and Recommendations: USDA-NRCS

Tree and Shrub Planting – Guidance

Landowner _____ Field number _____

<i>Purpose (check all that apply)</i>	
<input type="checkbox"/> Provide wildlife food, cover, and habitat corridors in farm land	<input type="checkbox"/> Reduce soil erosion and sedimentation
<input type="checkbox"/> Provide food and cover for aquatic organisms in riparian habitat	<input type="checkbox"/> Create screens and barriers to noise, odor, and dust

<i>Layout</i>		<i>Planting 1</i>	<i>Planting 2</i>	<i>Planting 3</i>	<i>Planting 4</i>
Planting width (feet)					
Planting length (feet)					
Area (acres)					
Species # 1	# plants-				
Species # 2	# plants-				
Species # 3	# plants-				
Species # 4	# plants-				
Species # 5	# plants-				
Species # 6	# plants-				
Species # 7	# plants-				
P ₂ O ₅ (lbs/acre)					
K ₂ O (lbs/acre)					

Temporary Storage Instructions

Planting stock that is dormant may be stored temporarily in a cooler or protected area. For stock that is expected to begin growth before planting, dig a V-shaped trench (heeling-in bed) sufficiently deep and bury seedlings so that all roots are covered by soil. Pack the soil firmly and water thoroughly.

Site Preparation

Remove debris and control competing vegetation to allow enough spots or sites for planting and planting equipment. For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Additional requirements:

Planting Method

Trees and shrubs must be inspected periodically and protected from damage so proper function is maintained. Replace dead or dying tree and shrub stock and continue control of competing vegetation to allow proper establishment. Periodic harvesting of trees and shrubs may be necessary to maintain the health and vigor of mature stands. Additional requirements: Trees should be planted at 12 ft. by 12 ft. spacing, shrubs at 6 ft. by 6ft. spacing (or all plants at 10 ft. by 10 ft. or 12 ft. by 12 ft. spacing). Use tree and shrub shelters to protect against deer and small mammal browse.

<i>Operation and Maintenance</i>
Maintain original purpose of planting. Competing vegetation shall be controlled until the trees and shrubs becomes established by mowing in between rows or spot herbicide treatment until established. Shut off pesticide sprayers when turning near trees and shrubs. Noxious weeds in established plantings will be controlled by mowing, fire, tillage, or herbicides as appropriate. Additional requirements:

Additional Specifications and Notes:

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