

Woody Cover for Wildlife



A guide to planting for wildlife

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Wisconsin Department of Natural Resources
Division of Forestry
Bureau of Wildlife Management

PUBL-FR-066-16REV

Planting a mixture of trees and shrubs on your property will attract a variety of different wildlife species. Shrubs, especially dogwoods and hazelnut, provide browse and cover for whitetail deer. The fruit from prairie crab, American plum, highbush cranberry, Juneberry and cockspur hawthorn are an excellent food source for birds and small mammals. Conifers, such as white spruce or white pine, can be nesting and roosting areas, concealment for small mammals, and a windbreak for cold protection in winter. Large hardwoods such as oaks, black cherry, hickory and aspen provide a food source consumed by many wildlife species.

Planting a mixture of shrubs, conifers and hardwoods provides the diverse habitat, from food to shelter, that will attract and hold wildlife. Establishing different types of woody vegetation can be a rewarding and challenging undertaking; successfully establishing wildlife habitat on your land will create a legacy for the future.

Getting Started

LOCATION

Relationship to the Landscape

A planting will attract some form of wildlife during its lifetime, however, a greater benefit is realized if recognition is given to existing travel lanes, undisturbed nesting cover, proximity to wetlands, or food and watering areas. Ideally, winter food such as a food plot should be located close to a cover planting and preferably downwind. This provides easy access to food with a minimum of exposure to predators and winter weather. Adjacent, undisturbed grassy or herbaceous cover will provide insect food and secure nesting. Consider providing habitat that is under-represented in the surrounding areas, such as conifer cover in a hardwood forest, or nut producing trees in open areas.

Also consider the proximity to power lines, roads or utility corridors not just during establishment but as the planting develops and matures.

Exposure

A well-located cover planting offers relief from mid-winter winds. East, south and moderately sloping west facing sites are preferred: avoid severe north and west facing slopes. Also, more sunlight stimulates flowering and fruit development.

Soils

Most tree and shrub species require well-drained, sandy loam to loamy soils for best development and growth. Extreme sites, such as those with very shallow soils (6 inches or less to bedrock), very dry soils, low fertility soils or excessively wet or poorly drained soils, are a challenge to establish. Properly matching tree species to these sites is important; working with a forester to determine which species prior to planting will be helpful.

Existing Cover

There may be opportunities to use your wildlife packet to enhance existing cover such as old farm groves, fence lines, shrub wetlands or other woody cover areas. However, some open grassland areas are better left unplanted. Consult with your local wildlife manager for recommendations.

When enhancing woody cover, some existing trees and shrubs may, if left unchecked, limit the development of the planting. Small trees such as elm and box elder will



grow faster and eventually shade out your planting, lowering the growth and vigor of your new trees. Unwanted trees and shrubs should be removed prior to planting. Most Wisconsin deciduous trees and shrubs are prolific sprouters and in one year can grow 3-5 feet from cut stumps. To prevent sprouting, it's best to treat the stump with a recommended herbicide.

A PLANTING PLAN

Once the location has been evaluated, species selection and arrangement can impact its attractiveness to wildlife.

Design

Planting in clumps is preferable over planting in narrow strips. A blocky shape will catch the snow on the north and west sides of the planting, with inner rows (usually conifers) providing shelter from weather and predators. Consider planting one or two rows of shrubs on the windward side of the planting to trap snow, and at least two rows on the downwind or protected side to provide resting or sunning areas.

Spacing

Adequate light is needed to encourage conifers to flower and produce fruit. Wider spacing will promote these branches and fruit. The initial planting could use tighter spacing, but the final spacing recommendations are for the best fruit and branching production. (Refer to the table at right for spacing recommendations.)

Species Selection

Different species fill different needs for wildlife, including food and cover. The species descriptions in this publication provide more details on each species recommended for wildlife planting. Refer to these recommendations to enhance the wildlife needs on your property.

Shrubs	
Space plants 4 feet apart in rows and 6 feet apart between rows	
• Dogwoods: (red-osier & silky)	• American Hazelnut
• American Highbush Cranberry	• Ninebark
Small Trees	
Space plants 8 feet apart in rows and 10 feet apart between rows	
• Prairie Crabapple	• Hawthorn
• Juneberry	• Wild Plum
Conifers/Hardwoods	
Space plants 12 feet apart in rows and 15 feet apart between rows	
• Spruce (black & white)	• White Cedar
• Shagbark Hickory	• Red Oak
	• White Pine
	• Aspen
	• White Oak

Recommended species and spacing for woody cover wildlife plantings.

SITE PREPARATION

The single most important part of establishing a successful wildlife planting is protecting the small bare-root seedlings from existing, competitive vegetation. This factor cannot be overemphasized. Not only do these plants compete for light and water, many grasses produce natural chemicals which suppress tree and shrub growth. If you don't plan to do any site preparation, it will have a significant impact on the success of establishing your wildlife planting. Heavy competition from weeds, grasses and existing woody cover will choke out your planting in short order.

Mechanical Site Preparation

You can set back grass competition in a planting site with a heavy sod by rototilling, fall-plowing and/or discing in 6-foot-wide strips leaving undisturbed sod between rows. By minimizing the amount of soil you disturb, you reduce the threat of soil erosion and weed seed invasion by plants such as Canada thistle. Spring plowing is discouraged, as it will introduce air into the soil which can lead to desiccation (drying) of the roots of newly planted stock.

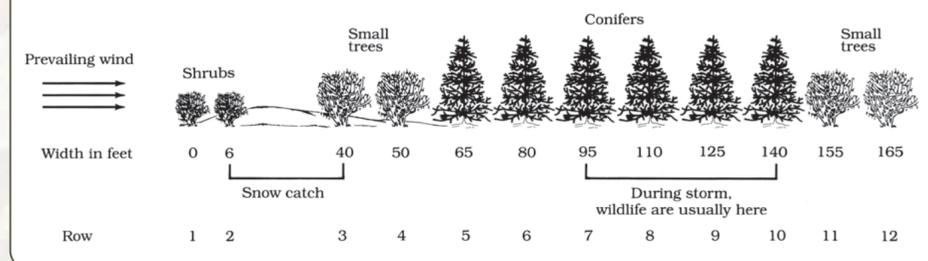
Chemical Site Preparation

Weed and grass competition can be controlled with selective herbicide use. Effective control depends on four factors:

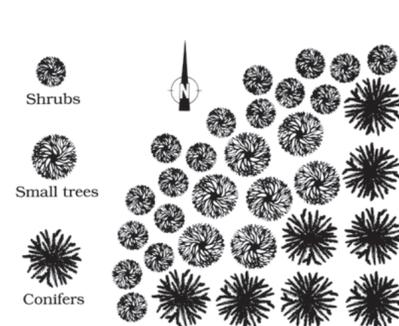
- timing of application
- herbicide selected
- weather conditions
- application rate

Heavy sod can be controlled by a fall application of a post-emergent herbicide in the year prior to planting or after "green up" occurs in the spring prior to planting. Alternatively, a pre-emergent herbicide can be applied in the spring just after the trees are planted and before the existing grass cover has "greened up." Herbicides should not be allowed to come in contact with the tree roots. Prior to applying any chemicals to your planting, make sure to read the product label and follow the manufacturer's recommendations.

Side view of a 12-row woody cover planting



An example of clump planting



Illustrations by Alan Crossley, WI DNR

Good Planting Procedures

CARE OF NURSERY STOCK PRIOR TO PLANTING

Once removed from the ground and packaged at the nursery, bare-root seedlings are a very perishable product. Care is needed to avoid drying out the root system and the buildup of high temperatures that can damage seedlings. Wildlife packets are shipped in bags or wax boxes. No root wrapping material is added. Therefore, air entering the

bag or box will dry out the roots quickly. Ideally, the bags of shrubs should be kept in a cooler at 34-38 degrees F until planting. Otherwise, short-term storage in a cool cellar is acceptable.

It is not recommended that the seedlings be taken out of the bag and heeled in. The more you handle these bare-root seedlings, the more

damage is done to the hair-like root structures. The bags can be opened to inspect the seedlings for temperature buildup or dryness. If a temperature buildup of 60 degrees F or more is observed, the seedlings should be taken out of the bags, cooled with cold water, and placed back in the bags.

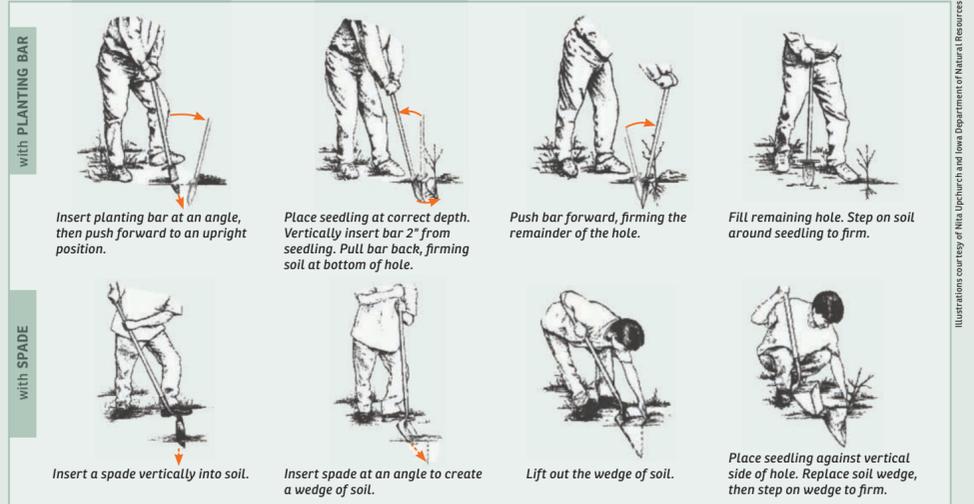
PLANTING TIME AND TECHNIQUE

Tree planting time in Wisconsin is April and May. Plant after the frost has left the ground, but before bud break and shoot elongation (late May). Prior to planting, it is best to mark the rows as a reminder of where the trees are planted for

future weed control.

During planting, keep the roots moist. However, do not soak them in a bucket of water. A wet gunny sack laid over the roots in a tub or bucket is sufficient. In Wisconsin, tree planting machines are available

(at a nominal fee) in most counties from the County Land Conservation Department or the WI DNR. These planters have a large plow-like shoe that penetrates the soil and forms a narrow trench. The roots are placed in the trench and as the trench closes,



the tree is held firm by packing wheels. It usually takes a 40-50 h.p. tractor to pull these planters, plus a three-person crew. The great advantage is that this system can

plant 500-800 trees per hour.

Hand planting can be accomplished using a spade, #2 round shovel or planting bar. The planting hole should be deep enough to keep

the roots from curling and the tree should be planted at the same depth as it was growing in the nursery. Pack the soil firmly so that there is no air space around the roots.

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Post-Planting Maintenance

Woody cover plantings require nurturing and maintenance, especially in the early years. Protect your planting from livestock and fire. These young plants are especially attractive to cattle. Your investment of time and money is worth protecting with a fence.

Weed control in the first three years after establishment is very

important. Within the first year, invading grasses and weeds can threaten a young planting. This weed control is best accomplished with herbicides, but cultivation, mowing, mulches and hand weeding are all effective alternatives.

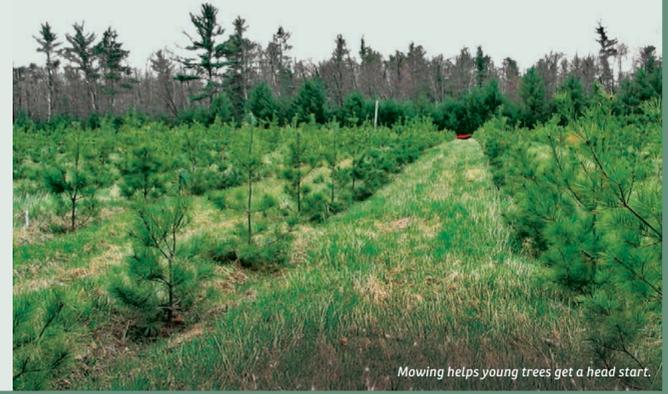
Although the purpose is wildlife habitat, some protection of the newly planted trees is needed for

survival. The reduction of heavy grass buildup around the plants also reduces habitat for mice and voles. Perch poles can be used to encourage raptors that will feed on voles and mice. Deer damage may also be a concern in the early years; repellents, bud caps, fencing, tree shelters and hunting are options for limiting this damage.

Replace dead trees and shrubs every spring until you have 100 percent

survival (especially when using the recommended spacing). Normally, replacement is made the following season and requires hand planting.

Newly planted wildlife plantings are subject to invasion by many undesirable species such as willow, box elder, elm, honeysuckle, and buckthorn. Hand removal in the seedling stage with a sharp grub hoe is the most efficient way to remove them.



Mowing helps young trees get a head start.

SPECIES DESCRIPTIONS

Shrubs

AMERICAN HAZELNUT

Completely winter-hardy throughout Wisconsin; prefers full sun. Grows in clumps, to 8 feet tall, at medium growth rate. Individual clones gradually become very dense with closely packed stems. Nuts are readily eaten by deer, squirrels, jays, hairy woodpeckers and pheasants. Catkins are an important food of ruffed grouse.

Site Preference: grows well on a variety of loams; grows unfavorably on poorly drained or extremely dry sites.

AMERICAN Highbush CRANBERRY

A large medium-paced growing shrub, 10-13 feet tall at maturity, with attractive white flower clusters in May producing bright orange-red fruits in September. Prefers full sun to partial shade. The persistence of the fruit throughout the winter suggests it is not very palatable to most birds. However, the fact that it is persistent makes it a valuable emergency food source in severe winters.

Site Preference: requires well-drained to moist sites for best development.

DOGWOOD (RED-OSIER & SILKY)

These shrubs are winter-hardy throughout Wisconsin. They are multiple-stemmed, upright, fast-growing shrubs reaching 8-10 feet. May flowers produce small white berries on the red-osier, and blue berries on the silky in August. In mid-summer, blossoms and mature fruits can occur on the same shrub. Heavily browsed by deer. A preferred food of turkey, grouse, quail and a host of songbirds.

Site Preference: prefers wet to well-drained soils; avoid droughty sites.

NINEBARK

Ninebark develops into a multi-stemmed, arching shrub about 10 feet tall at maturity. This medium-paced growing shrub exists statewide, and can grow in full sun to shade. The bark peels into papery strips resembling "9s." Numerous clusters of small white flowers in late May develop into brownish capsules in September. Ruffed grouse eat the buds and songbirds eat the small seeds. Ninebark makes excellent wildlife cover.

Site Preference: one of the few shrubs that will grow on very droughty sites; is found on dry prairies to sedge meadows.

Small Trees

PRAIRIE CRABAPPLE

A hardy southern Wisconsin tree that prefers full sun. It grows to 10-20 feet in height. The tree is likely to have thorns with pink flowers. Its fruit is utilized by many species of birds and animals.

Site Preference: prefers well-drained loam soils, but it can tolerate a variety of soils.

HAWTHORN

Hawthorns are small trees, growing 20-24 feet tall. They prefer full sun. The white flowers appear in May, and orange/red fruits appear in September. They are attractive to ruffed grouse and numerous songbird species.

Site Preference: need full sun and should not be planted on moist, wet or extremely dry soils. Silt loam soils are best.

WILD PLUM

Wild plum is a large shrub or small tree that frequently attains a height of 15 feet or more. It forms dense thickets, making it very valuable for bird nesting. Produces dense clusters of white flowers in May. One-inch globe-shaped red-orange to blue plums mature in August. American plum has spine-tipped twigs.

Site Preference: grows best in full sunlight on a well-drained silt loam.

JUNE BERRY/SERVICE BERRY

Juneberry occurs throughout the state. It is a multi-stemmed small tree, growing 20-30 feet in height. The flowers have bright white petals opening in May or early June, and producing numerous red or purple fleshy fruits. High quality plant for wildlife cover and food. Stems, twigs and leaves are browsed by deer, and fruits are eaten by a variety of birds.

Site Preference: best development is along banks of streams, shores of lakes, or open upland woods.

Conifers

WHITE PINE

White pine grows statewide, and requires full sun to partial shade. The medium-paced growth reaches 70-100 feet in height. Songbirds and small mammals eat eastern white pine seeds. Snowshoe hares, white-tailed deer, and cottontail rabbits browse the foliage; the bark is eaten by various mammals. Turkeys use these trees as roost sites.

Site Preference: It grows on sandy soils and rock ridges, but prefers fertile, well-drained soils.

WHITE CEDAR

Cedar grows throughout the state, and can be planted in full sun to partial shade. This medium-paced growing tree can reach 50-60 feet in height. Northern white cedar provides food and shelter for wildlife. White-tailed deer, snowshoe hares and porcupines heavily browse the foliage.

Site Preference: usually grows in moist places where it is often found in dense pure stands; sometimes found on rather stony ground, singly or in small clumps.

SPRUCE (BLACK & WHITE)

Found in northern Wisconsin, the black spruce produces short blue-green needles with sharp points. Cones are 2" long and fall soon after they ripen in autumn. Except in dense forests, the crown extends well down the trunk forming excellent escape cover for birds and mammals. White spruce occurs throughout the state, and is slightly faster growing than black. White spruce provides good nesting sites, and the seeds are eaten by some songbirds.

Site Preference: prefers cool moist sites, especially around streams and lakes; do not plant on shallow, hot, south-facing slopes.

Hardwood Trees

ASPEN

Found in all parts of Wisconsin; one of the first species to appear after cutting or fire. A fast-growing, short-lived, small to medium sized tree; may reach height of 60 to 70 feet. Bark, buds and new sprouts all are wildlife foods. Thick aspen stands are excellent cover, and best achieved by frequent cutting that stimulates thick re-sprouting. Aspen is highly intolerant of shade.

Site Preference: commonly on cut-over land; grows well on sandy, gravelly soils, but thrives better on good soil.

SHAGBARK HICKORY

Found in the southern part of the state. The bark is shaggy, light grey and separates into thick, vertical strips that are only slightly attached to tree. The nut is oval in shape and has an outer husk that splits into four sections when ripe, revealing the single, white, thin-shelled nut whose sweet kernel is edible. This is an important wildlife food source. The tree is shade-tolerant when young, moderately shade-intolerant when mature, and is slow-growing.

Site Preference: moist, rich soils and well-drained hillsides.

RED OAK

Grows throughout Wisconsin on the better sites. Large, bitter acorns mature in the second year, are 1 to 1½ inches long with a blunt top and flat base. Acorns are an important winter food source for squirrels, deer, wild turkeys and several songbirds. Deer are very attracted to new plantings of red oak, so care will be needed to minimize browse damage. It is moderately shade-tolerant, and fast-growing. Red oaks are very susceptible to oak wilt fungus.

Site Preference: best growth is in well-drained, slightly acidic sandy loam.

WHITE OAK

Common on the better soils in the southern half of the state. When grown in the forest it is tall and straight, but when grown in the open it is short, with a wide-spreading, rounded crown. The acorn matures the first year, is ¾ to 1 inch long, and is about ¼ enclosed in its cap. Acorns are a valuable fall food source for deer and many other wildlife, and the white oak is a preferred acorn species.

Site Preference: best growth on loamy, well-drained soil.

Good luck with your woody cover planting and enjoy the wildlife that you will surely see using it in the years to come.

For additional information on the importance of woody cover plantings for wildlife, contact your local WI DNR forester or wildlife manager.

To find out how to get in touch with your local WI DNR forester or wildlife manager, contact:

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Photo at left (juvenile tree swallow), Jeffrey J. Strobel. Cover panel photos: cardinal, ©Can Stock Photo, Inc./stevebyland; cottontail rabbit and white-tailed deer, Jeffrey J. Strobel; ruffed grouse, ©Bugsy/Dreamstime.com; Eastern wild turkey, ©Can Stock Photo, Inc./brm1949

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PUBL-FR-066 16REV

Graphic design by Jeffrey J. Strobel, UW-Extension Environmental Resources Center

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