



Woodland Edge Enhancement



Woodland edge is defined as the transition zone between a maturing forest and adjacent habitats, such as grassland, crop land, or wetland. A well developed woodland edge typically consists of plant communities that are intermediate in height when compared to adjoining habitat types. A gradual transition is created, both in height and plant communities, between the forest canopy and the adjacent land use. All too frequently, this “feathered” edge has been eliminated as a result of past efforts to maximize open space for other purposes. This elimination creates an abrupt and quite noticeable change in vegetation and results in the loss of a very important habitat component for a wide array of wildlife species.

Vegetation in a woodland edge zone is frequently comprised of early successional plants. Succession is the predictable, gradual, and sequential change in plant communities over a given period of time. Throughout most of Indiana, an area of bare soil, if left undisturbed, will naturally advance from: (1) annual grasses and forbs (broadleaf plants); to (2) perennial grasses and forbs; then to (3) shrubs, vines and briars; followed by (4) young forest tree species; and finally (5) a mature/climax forest. A typical woodland edge community is composed primarily of plants in the third and fourth stages of succession. These plant communities are found in brushy fence rows and cover thickets and are representative of the type of vegetation one might expect to find in a well developed woodland edge.

An enhanced woodland edge provides many important habitat functions for a diversity of wildlife. Pioneering tree species, such as dogwood, sassafras, sumac, redbud, cherry, and cedar are often the first tree species to become established in these areas. Besides fruit and seed production benefits, saplings of these species tend to form dense stands that provide green browse, winter cover, nesting sites, and protection from avian

predators. Shrubs, vines and briars also provide similar benefits at levels closer to the ground. Due to the dense, overhead canopy that both plant groups provide, vegetation at ground level tends to be sparse, allowing wildlife to freely move about to forage, nest, travel or rest in secure cover. The amount, quality and diversity of the edge directly affects the quantity and diversity of wildlife populations.

When enhancing or designing a woodland edge; remember that straighter is not better. An irregular shaped edge, or one with undulations, will increase the lineal “surface area” along the edge’s boundary. It will also create more of a challenge to predators who will not have a clear, straight view along their hunting ground. A good woodland edge transition zone should extend a minimum of 10 to 25 feet beyond the forest edge, although wider transition zones will provide greater benefits.

Basically, there are three methods to restore or enhance woodland edges: (1) natural regeneration, (2) planting/establishment, and (3) manipulation.

The ***natural regeneration*** (passive) method is the easiest and cheapest method for developing a woodland edge zone. This technique relies upon the natural establishment of plants growing from three primary sources: 1) those already present on the site, 2) plants lying dormant in the soil as seeds or roots, and 3) seeds from nearby plants, carried by the wind or deposited by wildlife. To use this method, simply leave the area to be developed alone and allow natural succession to occur at its own pace. If the area to be developed contains a thick stand of sod-forming grasses, which might impede the natural establishment of plants, then removal or disturbance of the existing sod by plowing, disking, burning, herbicide application or a combination, thereof, may be necessary. One way to accelerate the establishment of vegetation by this method is to erect an artificial bird perch (fence wire) along the length of the intended transition zone. The droppings, deposited by birds perching on the wire, contain a rich source of seeds. Many of these seeds will germinate and the resulting plants will eventually produce the various fruits and berries that they prefer.

The planting/establishment method is more labor intensive and more expensive to implement. Those investments, however, maybe offset by the accelerated pace at which edge development occurs in comparison to simply allowing natural succession to achieve the desired effect. The planting of early successional trees and shrubs also allows the landowner to influence the composition of plant species that will ultimately exist within the transition zone. When choosing plants suitable to a site’s conditions, plan for diversity. Planting a wide variety of trees and shrubs will increase the area’s benefits to a greater diversity of wildlife and fulfill a greater array of habitat needs. At a minimum, planting areas should be 20 to 25 feet in width. Early successional tree species (dogwood, hawthorn, cherry, plum, etc.), that tend to be taller than shrubs at maturity, should be planted in rows immediately adjacent to the existing woodland edge, followed by shrubs species as the planting extends farther out. For most purposes, trees should be planted in rows 10' apart with 10' between each tree within the row. Shrubs should be planted in rows 6' apart with 6' between each shrub within the row. Avoid planting each row of trees or shrubs to a single species. Instead, utilize multiple species within each row and alternate species in a random fashion to enhance the diversity of the planting. A minimum of five species is recommended. Again, plan for an irregular shaped edge when designing the project.

Although all trees and shrubs can be established by planting seedlings, some shrubs can be established successfully by simply planting the seeds (***direct seeding***). The advantages to direct seeding include reduced cost/acre, reduced labor, and an increase in seedling density that can be important in fulfilling unique habitat needs of some wildlife species. Prior to conducting direct seeding, competing vegetation should be eliminated by conventional tillage or systemic herbicides. The soil should be evaluated, and amended with lime and fertilizer if necessary. Generally, most seeds should be sown between September 15th and December 1st (along with a nurse crop of wheat to

prevent frost heaving and for weed suppression). Seed can either be broadcast or no-till drilled. Broadcast seeding requires a properly prepared seedbed. The planting area should be tilled and cultipacked, then broadcast with the seed mixture, and followed with a final cultipacking. Or, seed can be planted using a no-till drill, suitable for the species selected and set at the proper depth. Again, mix and plant a variety of species.

To complete your tree and shrub planting, consider establishing the outer most portion of the transition area to some type of grass-legume mixture. This can be accomplished through ***natural revegetation***, ***cool season grass establishment***, or ***warm season grass establishment***.

The third method is by manipulation of the outer portion of an existing woodland. This method can be employed when sacrificing open area to enhance the woodland edge is not an option. Instead of allowing natural regeneration to advance into the open area, the maturing woodland's perimeter is reverted back to early successional stages. This can be accomplished by cutting and/or girdling all trees greater than 4" diameter within the first 10 to 25 feet of the woodland perimeter. The increased amount of sunlight penetrating the woodland canopy stimulates the growth of grasses, forbs, briars and shrubs. This activity, however, should not be conducted during the months of April through July to avoid the accidental taking of the endangered Indiana Bat (*Myotis sodalis*) which may be using trees in this zone to raise their young. The standing, girdled trees provide important nesting habitat for a wide variety of cavity-nesting wildlife as the trees begin to decay. The decomposing trees also attract insects and other invertebrates, which in turn provide food for other wildlife. Trees that are cut can remain in place, or can be utilized for ***brush pile construction*** within the edge community to provide additional escape and nesting cover. Cut trees can also be used as firewood.

Related *Habitat Management Fact Sheets*:

Natural Revegetation
Warm Season Grass Establishment
Cool Season Grass Establishment
Tree and Shrub Coverts
Direct Seeding
Fescue Eradication

Forest Habitat Improvement
Forest Openings
Forest Regeneration
Brush Pile Construction
Legume Interseeding

Prepared by the Indiana Department of Natural Resources, Division of Fish and Wildlife. For up-to-date information concerning the Indiana Division of Fish and Wildlife, or for information on the location of your District Wildlife Biologist, visit our website at www.state.in.us/dnr/fishwild/index2.htm

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