United States Department of Agriculture

NRCS Natural Resources Conservation Service

Feathering Wooded Edges

Indiana - December 2005

Conservation Practice Job Sheet (647)

OVERVIEW

Edge, the transitional zone between habitat types, provides an important but increasingly rare habitat for wildlife. The area, for example, between a mature forest and adjacent grassland or cropland is considered edge. In this document, we will also include wooded fencerows as edge.

The purpose of feathering wooded edges is to provide habitat in agricultural landscapes for rabbits, quail, pheasants, and certain songbirds. This practice will create shrubby and weedy areas, an essential habitat component for many wildlife species. In areas with a higher forest component, feathering can be valuable for grouse, turkey, and numerous woodland songbirds. In addition to woodlands and tree-dominated fencerows, this practice can also be applied along the edges of ditch banks, sinkholes, and draws that are located adjacent to cropland, hayland, and pasture.

There are two methods to feather the edge of woodland:

1. Thinning of overstory trees where edge feathering is completed by conducting thinning in and along the woodland edge.
2. Planting field borders where edge feathering is completed by planting trees, shrubs, and grasses along the woodland edge.

THE IMPORTANCE OF EDGE

The amount, quality, and diversity of edge directly affect its quantity and diversity of wildlife populations. In a high-quality wooded edge, a transition in both height and plant composition is created between the wooded component and the adjacent land use. This edge includes a wide band of plants that *gradually* change from one type of vegetation to another. All too frequently, however, this "feathered" edge has been eliminated because of past efforts to maximize the area for other purposes such as agricultural land. This results in an abrupt and quite noticeable change in vegetation with a corresponding loss in important habitat components.

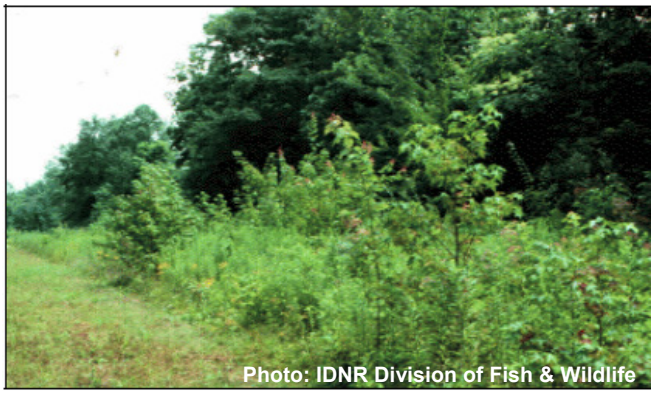
Photo: IDNR Division of Fish & Wildlife

All wildlife species need food, cover, and water within their normal home range to survive. A gradual transition zone (one that moves from grasses to shrubs and vines, to small trees, and then to large trees) provides many benefits for wildlife. These benefits may include providing nesting and brood cover, protection from weather and predators, and food such as berries, seeds, browse, and insects.

Wooded fencerows can also provide habitat similar to that of feathered woodland edges if managed correctly. In addition, feathering may also provide escape cover and serve as travel corridors for wildlife.

Edges are also important because they form an environment for many soft-mast (fruits and berries) producing plants that cannot thrive in mature forests or cultivated fields. Most of these plants are early successional species that

cannot tolerate the shade and competition of a forest or the constant disturbance associated with cultivation and grazing. Soft-mast is an important source of food for many wildlife species, especially during the summer. Tables 1 and 2 list desirable soft-mast producing plants.

Table 1 – Soft-mast producing trees

Common Name	Scientific Name
American Plum	*Prunus americana*
Black Cherry	*Prunus serotina*
Chokecherry	*Prunus virginiana*
Crabapple, Flowering	*Malus sargentii*
Devil's Walking Stick	*Aralia spinosa*
Dogwoods	*Cornus spp.*
Hawthorns	*Crataegus spp.*
Hazelnut	*Corylus americana*
Mulberry	*Morus rubra*
Persimmon	*Diospyros virginiana*
Redbud	*Cercis canadensis*

Table 2 – Soft-mast producing shrubs/vines

Common Name	Scientific Name
Arrowwood	*Viburnum dentatum*
Elderberry	*Sambucus canadensis*
Greenbrier	*Smilax rotundifolia*
Nannyberry	*Viburnum lentago*
Serviceberry	*Amelanchier arborea*
Sumacs	*Rhus spp.*
Virginia Creeper	*Parthenocissus quinquefolia*
Wild Blackberry	*Rubus allegheniensis*
Wild Grape	*Vitis spp.*
Wild Raspberry	*Rubus occidentalis*

Shrubs, vines and briars also provide benefits at ground level. Due to the dense, overhead canopy that these 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.

SPECIFICATIONS

The following apply to edge feathering developed by the thinning of overstory trees.

- Feathering should be applied to the entire width of a fencerow if it is less than 50 feet wide.
- Feathering will extend 30 to 50 feet inward from the woodland edge.
- Removal of woody vegetation will not occur from April 15 through September 15, to avoid the potential for accidental take of the endangered Indiana Bat (*Myotis sodalis*), which may be using trees within this zone to raise their young. This will also minimize disturbance to any other nesting wildlife that may be utilizing the area being feathered.
- For the purpose of this document, a wooded fencerow is considered any portion of a fencerow that:
  a) is not harvested or grazed,
  b) is located between working fields such as cropland, grassland, hayland or pasture,
  c) is at least 10 feet wide, and
  d) has a continuous overhead canopy of tree species whose average drip line extends to, or exceeds, the edges of the fencerow width.
- Apply edge feathering to sections 50 to 100 feet in length along the woodland edge or fencerow.
- Treat any tall fescue or other sod-forming grass growing beneath the tree canopy where the edge feathering is going to occur with an approved herbicide. This is best performed in the fall after the leaves have fallen from any existing desirable shrubs, and while the grasses are still green and actively growing. The removal of sod-forming grasses will hasten the establishment of beneficial, naturally occurring plants, forbs, and shrubs that will respond to the increased exposure to sunlight once edge feathering has been completed.
- Control all woody vegetation greater than four (4) inches in diameter at breast height (DBH) and/or woody vegetation greater than 12 feet tall within the specified boundaries of the feathered area. This is best conducted during fall and winter months after leaf fall has occurred and while the trees are not as heavy with sap.

- Allow desirable fruit-bearing shrubs and trees to grow (see Tables 1 and 2).
- In fencerows, only one-quarter (¼) to one-third (⅓) of the fence line in a particular field will be treated during a one-year period.
- The width of a fencerow will not be decreased because of this practice.
- Alternate the treated areas with undisturbed areas of 200 to 300 feet in length. The resulting staggered pattern of treated and untreated lengths will provide a diversity of habitat types. Additional sites may be treated along the undisturbed sections at no less than 3-year intervals.
- Desirable species that are capable of re-sprouting should be cut at ground level, or no higher than 10 inches from the ground. See Table 3 for desirable species capable of coppice regeneration.

Table 3 - Species capable of re-sprouting

Common Name	Scientific Name
Ash, Green	*Fraxinus pennsylvanica*
Ash, White	*Fraxinus americana*
Basswood	*Tilia americana*
Black Cherry	*Prunus serotina*
Dogwood, Red-Osier	*Cornus stolonifera*
Dogwood, Roughleaf	*Cornus drummondii*
Dogwood, Silky	*Cornus amomum*
Hackberry[1]	*Celtis occidentalis*
Mulberry	*Morus rubra*
Oak, Black	*Quercus velutina*
Oak, Bur	*Quercus macrocarpa*
Oak, Chinkapin	*Quercus muehlenbergii*
Oak, Pin	*Quercus palustris*
Oak, Red	*Quercus rubra*
Oak, Scarlet	*Quercus coccinea*
Oak, White	*Quercus alba*
Persimmon	*Diospyros virginiana*
Sassafras	*Sassafras albidum*
Yellow-Poplar	*Liriodendron tulipifera*

- Chemical control of woody vegetation will be accomplished by using one or more of the following methods: broadcast, spot, cut-stem treatments, or basal spraying.

[1] Poor sprouting from trees greater than 14 in DBH

- Treat the cut stumps of undesirable tree species and vines with an approved herbicide to prevent re-sprouting. The stumps of invasive shrubs such as autumn olive and shrub honeysuckles should also be treated.
- Treetops must remain in the fencerow or wooded edge, and laid shingle-like within the treatment area. See Figure 1. By laying the treetops in this fashion, native grasses, forbs, and weeds will grow up through the tree branches. The resulting complex will provide excellent escape and winter cover.

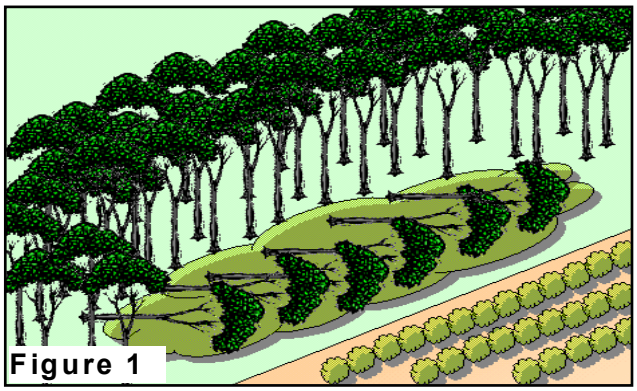

Figure 1

- Edge feathering will not be conducted by use of a bulldozer. See appropriate equipment under "Considerations."

The following applies to planting shrubs and field borders.

- The width of the area to be planted along the woodland edge will be at least 30 feet.
- Divide the area to be planted into at least two (2) zones:

  a) In the zone closest to the woodland, plant at least two (2) rows of shrubs on 6'x 6' spacing. See Indiana Field Office Technical Guide (FOTG) Standard 645 Upland Wildlife Habitat Management for more information and a list of shrub species.

  b) The outside zone nearest the cropland should be planted to a mixture of grasses, legumes and forbs beneficial to wildlife. See FOTG Standard 645 for more information and a list of appropriate species.

- Where the planting area can be wider than the minimum, an addition zone of small fruit, seed, and nut bearing trees should be planted closest to the woods on 10' x 10' spacing.

The following applies to both methods of edge feathering.

- Livestock will be excluded from the edge being feathered.
- All federal, state and local guidelines and manufacturers' label rates will be followed when applying herbicides.

CONSIDERATIONS

- During the planning process, it is important to determine the targeted wildlife species, and any unintended consequences of edge feathering. In some cases, for example, increasing the feathered edge may enhance the ability of invasive plant species to move into the forest and decrease its value to wildlife. Edge may also have a negative impact on some wildlife species such as cerulean warbler that need large, intact forests.
- The best time of year to perform edge feathering is after leaf fall (October through March).
- Landowners may opt to retain one living Shagbark Hickory or other tree having exfoliating (loose) bark per practice site to provide roosting and rearing sites for the Indiana bat. Standing, girdled trees also provide important nesting habitat for a wide variety of cavity-nesting wildlife as the trees begin to decay. The decomposing trees attract insects and other invertebrates, which in turn provide food for other wildlife. For safety reasons, all standing dead and/or girdled trees should be located away from lanes, roads, paths, or other frequently traveled areas.
- Edge feathering may be conducted by hand cutting, shearing, or use of a hydraulic tree clipper, hydro-axe, chainsaw or other approved method.
- Logs from this practice may be used for posts, lumber or firewood.

MAINTENANCE

As tree species within the treated areas grow in height and diameter and shading increases, the structural characteristics and types of vegetation within the site that once provided food and cover close to ground level will decline. To regain the beneficial habitat components, the edge feathering practice must be reapplied to those same sites, or additional edge-feathered sites should be created nearby to replace those that are maturing. It is best to set up a maintenance regime whereby no more than one-third of the existing sites are treated in any given year. Adjacent or nearby sites should not be treated within a 3-year interval.

Use herbicides or other appropriate measures, on a spot basis, to control invasive vegetation and noxious weeds.

REFERENCES

Indiana Department of Natural Resources, Division of Fish & Wildlife, Habitat Management Fact Sheet: *Woodland Edge Enhancement.* (http://www.in.gov/dnr/fishwild/hunt/woodland.pdf)

Kentucky Cooperative Extension Service, *Private Lands Wildlife Management: A Technical Guidance Manual and Correspondence Course*, February 1, 1992.

Missouri Department of Conservation, *Wildlife Management for Missouri Landowners: Edge Feathering,* Forest keepers, Bulletin #27. (http://216.119.79.248/pdfs/27.pdf)

USDA Natural Resources Conservation Service, Indiana Field Office Technical Guide Standard 647 - *Early Successional Habitat Development/Management,* August 2004. (http://www.nrcs.usda.gov/technical/efotg/)

USDA Natural Resources Conservation Service, Illinois Conservation Practices Job Sheet 645D – *Woodland Edge Feathering,* Draft September 2005.

FEATHERING WOODED EDGES
SPECIFICATIONS SHEET

Landowner:	**Farm #:**
Field(s) #:	**Tract #:**
Planned By:	**Date:**
Concurrence of IDNR District Biologist (recommended):	

Specific Recommendations

Purpose of edge feathering:

Target wildlife species:

Method of edge feathering:

Acres of wooded edge to be feathered:

Additional operation and maintenance:

Site/Sketch Map