

Old Field Habitat Management for Wildlife



Old fields are a valuable habitat type for wildlife in Ohio. They typically comprise many kinds of plants, which furnish key habitat components for a variety of wildlife species. Wildlife use of an old field habitat is directly related to the kinds of plants in the field. As succession (a change in plant types as a field matures) advances from one plant stage to another, the animal community also changes. The primary management objective is to maintain the field in plant stages that will provide the basic daily and seasonal cover requirements for the desired wildlife.

Wildlife species that use old field habitat types for nesting, feeding, and shelter include mammals such as the cottontail rabbit, badger, meadow vole, and red fox, and birds such as the American woodcock, field sparrow, bobwhite quail, song sparrow, and American goldfinch. Butterflies such as the monarch and Eastern black swallowtail also frequent this habitat type. This is only a partial list of species that use old fields. Over 40% of Ohio's resident wildlife species use old field habitat.

WHAT IS OLD FIELD HABITAT?

Old field habitat is the stage of plant growth between bare ground and forest. In Ohio, old fields are commonly found on abandoned pastureland and retired cropfields. Old fields occur in both bottomlands (flat, low, seasonally flooded areas along rivers and streams) and uplands (better drained lands elevated above bottomlands).

The old field habitat type has two distinct plant stages: meadow and shrub. The meadow stage occurs first in one- to three-year-old fields and consists chiefly of various native and naturalized grasses and forbs (forbs are broad-leaved flowering plants). The meadow stage in an upland field may include any combination

of grasses such as timothy, brome grass, orchardgrass, bluegrass, foxtail, poverty grass, and panic grass. Forbs found during this stage include Queen Anne's lace, lamb's-quarters, goldenrods, pigweed, ironweed, chicory, milkweeds, teasel, daisy fleabane, yarrow, asters, daisies, plantain, cinquefoil, wild strawberry, and black-eyed Susan.

Meadows in bottomland old fields differ in plant composition from those in adjacent uplands. Herbaceous (without woody tissue) plants such as sedges, rushes, reed canary grass, smartweed, and barnyard grass are more likely to appear in bottomland meadows.

Old field meadows differ from grasslands because 50% or more of the area is comprised of forbs. Shrubs constitute less than 10% of the stand in the meadow stage of an old field.

The shrub stage of an old field develops as the meadow progresses to a stage dominated by at least 10% woody plants; primarily seedling and sapling size. Seedlings are woody plants less than three feet tall; saplings are at least three feet tall, but less than four inches in diameter. If woody plants larger than four inches in diameter constitute more than 50% of the canopy, the cover is classified as early woodland habitat, not old field. A quality shrub stage old field for wildlife consists of 10-30% shrubs and young trees, well distributed throughout the field, with a ground cover containing a mixture of grasses and forbs. The ground cover of a shrub stage old field has herbaceous plant species that are similar to those found in the meadow stage, except there are more perennial forbs such as asters, goldenrods, and grasses.

Shrubs and trees that naturally pioneer and dominate old fields include the following associations:

Upland Sites

- Hawthorn and wild crabapple
- Sassafras, sumac, and flowering dogwood
- Blackberry and raspberry
- Red cedar and successional hardwoods
- Successional hardwoods

Common successional hardwoods in these associations are ash, elm, black walnut, honey and black locust, wild black cherry, red maple, yellow poplar, aspen, persimmon, shingle oak, white oak, and black oak. Other woody plants include shrubs and vines such as wild plum, blackhaw, redbud, poison ivy, shrubby Saint Johnswort, and Japanese honeysuckle.

Bottomland Sites

- Speckled or common alder
- Silky dogwood and gray dogwood
- Buttonbush
- Successional hardwoods

Common successional hardwoods in these associations are box elder, cottonwood, sycamore, willows, hackberry, green ash, elm, black and honey locust, and silver maple. Other woody plants include shrubs and vines such as poison ivy, elderberry, highbush cranberry, black chokeberry, and prickly ash.

MANAGEMENT

This section discusses methods and practices for creating, restoring, and maintaining old fields to provide the best available habitat for the greatest diversity of wildlife.

Creating Old Fields

Most old fields are created when pastures or cultivated fields are abandoned and allowed to revert to natural vegetation. Certain management practices will help to create the desired stage of old field.

Meadow stage old fields can be established on idle pastureland by permitting the field to revert naturally. Occasionally disking strips 10-15 feet wide throughout the pasture will promote plant diversity, increase insect densities, and furnish additional edge.

If you want a shrub old field, simply allow the pasture to revert and let native woody species become established. Planting shrubs will speed up woody plant establishment in an area being left to revert through natural succession or a site being converted from cropland to a shrub old field. Planting will also allow better control of plant composition, location, and density. Site conditions such as soil type, topography, exposure, moisture, and geography dictate the types of plants occupying old fields. Refer to the previous sections on "Upland Sites" and "Bottomland Sites" for the appropriate species to plant. Shrubs should be distributed randomly throughout the pasture.

Mowing around the newly planted shrubs will reduce competition and ensure proper growth. This practice will most likely have to be applied to each shrub until it is taller than the surrounding vegetation. Refer to the *Planting Trees and Shrubs for Wildlife* publication for more specific instructions on planting techniques. A list of private nurseries where you can obtain trees and shrubs is also available from the Division of Wildlife; request Publication 308, *Wildlife Habitat Planting Stock Sources*. Remember, a shrubby old field that contains 10-30% woody plants is the most productive for wildlife.

To create a meadow old field on cultivated land, select a field or a part of a field that is approximately 2-10 acres. Marginal farmlands are excellent sites for creating an old field. Seed the area lightly with a grass/legume mixture in March or August. A mixture of two to three pounds of timothy and four pounds of red clover per acre is recommended; it will provide an adequate ground cover until natural vegetation becomes established. A cyclone seed broadcaster can be used for sowing the seed. Disking the field lightly

prior to seeding will provide a sufficient seed bed for germination.

When fescue is the dominant plant species in an old field consider reseeding the field to improve the quality of wildlife habitat. Use the grass and clover mixture recommended for planting cultivated land.

For old fields in the shrub stage leave some woody vegetation undisturbed during the reseeding process.

Restoring and Maintaining Old Fields

The key to restoring and maintaining an old field habitat type is periodic disturbance of the vegetation to alter plant succession. Disturbances causing vegetative changes can be triggered by natural causes such as fire, wind, and flooding, or artificially by activities such as cultivating, mowing, cutting, or using herbicides. Planned disturbances done at the proper time during succession can enhance an old field for wildlife. Restoring and maintaining an old field that is beginning to or has already advanced beyond the desired stage can be achieved by following some of the practices listed below.

Release Cutting

Release cutting will effectively maintain proper woody stem densities, provide additional space for the growth of beneficial plant species, and preserve plant diversity. When cutting, preserve woody plants that produce food and low brushy cover for wildlife. Remove undesirable woody plants such as elm, ash, osage orange, maple, hackberry, box elder, yellow poplar, and honey locust. Cutting is easier during the dormant season, when the weather is cooler and visibility is good. Stumps of cut trees should be treated with a herbicide to prevent sprouting.

Brushpiles should be constructed from the cut materials, to furnish supplemental protective cover for wildlife (See Figure 1). A basic brushpile design that will accommodate a variety of wildlife starts with a foundation formed by crisscrossing logs in a crude log cabin fashion. This structure will support limbs and branches placed over it to a height of 10-15 feet. If large natural materials are not available, artificial bases such as field tile and cement blocks can be used. Brushpiles on the average last three to five years. They

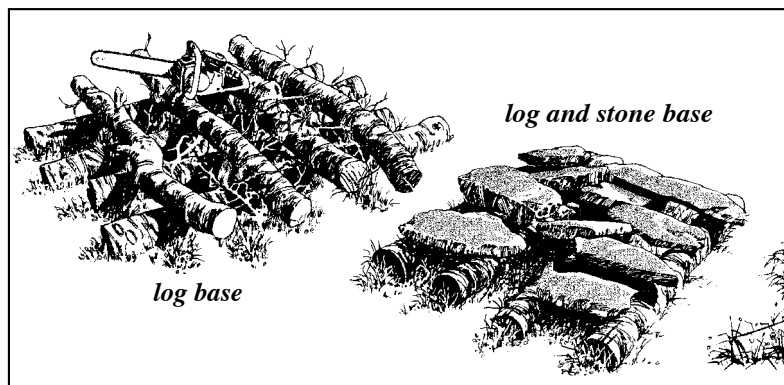


Figure 1. Brush pile construction starts with heavy branches and is t

should be spaced at least 200 feet apart and positioned along the edge of the field or adjacent to a food plot. A network of brushpiles can be linked together in the interior of the field to provide a safe travel lane for wildlife.

A meadow old field that is beginning to advance to the shrub stage can be renovated by removing all woody vegetation. Follow the same methods described above.

Cutting and Bending or Half-Cutting

An alternative to removing larger woody species by release cutting is to cut and bend the stem to induce horizontal brushy growth. Half-cut trees provide cover by functioning as living brushpiles. Preferred species for half-cutting include honey locust, black locust, red cedar, osage orange, and Washington hawthorn.

Cuts should be made in the spring after dormancy has broken and the sap is flowing. Cut approximately half or two-thirds of the way through the trunk one to two feet above ground level, being careful not to cut all the way through. Next, just push the tree to the ground. Group cuttings of three or four trees pushed and piled together are most effective, although single-tree half-cuts furnish immediate cover. See Figure 2.

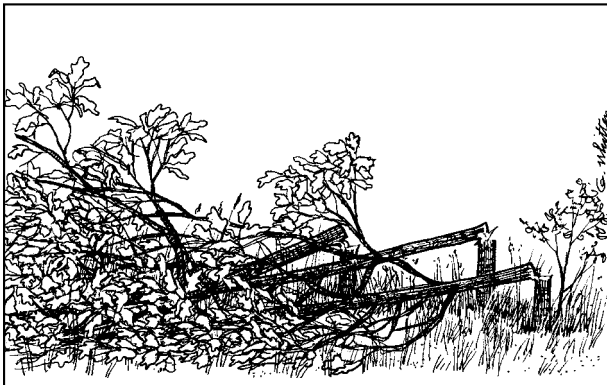


Figure 2. Cut and bend method.



opped off with small branches.

Disking

Disking old fields can control unwanted woody growth and improve herbaceous plant composition. A heavy duty offset disk or trash disk can be used to turn under small seedlings. Exposing root systems during the winter will help to kill small trees and shrubs. Disking should be done in the fall, but you should avoid disking erosion-prone areas of the field, especially at this time of year.

To stimulate the growth of herbaceous plants, lightly disk strips 10-15 feet wide in the open areas of the old field. Strips should meander throughout the field to create as much edge as possible close to protective shelter. Alternate strips every two years or until desirable vegetation is established. Disking increases insect populations and promotes plant diversity.

Mowing

Mowing is a more traditional method of controlling undesirable vegetation. Strip and spot mowing are two approaches to clipping old fields.

Strip mowing will control woody plants, develop edge, increase the availability of succulent plants, and improve plant composition. Mow strips 10-20 feet wide between August 1 and 15.

Mowing August 1-15 ensures against disturbing late nesters and second broods and allows time for the stand of vegetation to regrow and furnish cover during the fall. Mowing will also help maintain the stand's overall vigor. Mowed strips should be at least 80-100 feet apart. Rotate the mowing schedule so that the same strips will be mowed only once every five to seven years. Strips should wind and turn in a snakelike fashion throughout the field, to increase the amount of edge. Concentrate on areas that are being invaded by an excess of seedling size woody stems. Strip mowing is the most efficient means of maintaining an old field in the meadow stage. It should be used in shrub stage old fields to maintain the correct percentage of woody stems and to improve herbaceous plant composition.

Spot mowing is an effective way to keep noxious weeds in check. Spot mow to combat plants such as Johnsongrass and Canada thistle. Because mowing to control these two weeds is done in early or midsummer, use this mowing method only if the weed problem is limited to small portions of the field. Don't mow the entire field. If the problem is widespread, you may be better off applying an herbicide. Refer to the next section.

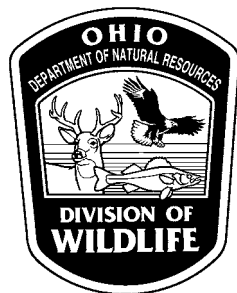
Applying Chemicals

The selective use of chemicals can be an effective way to regulate plant succession. Herbicides can be applied to undesirable woody plants and noxious weeds by the following techniques: (1) using a tractor or truck mounted spraying rig with a hand-held spraying gun, (2) scattering granular pellets around the base of the woody plants, (3) basal spraying with a pack sprayer,

and (4) frilling the woody stem with a hatchet, and bottle spraying herbicide on the exposed cambium layer. The most common brand name herbicides for controlling woody vegetation are Tordon, Weedone, Roundup, and Crossbow. For information on correct use and the type of herbicide best suited for woody plants, consult the manufacturers of the product or your OSU Extension Service Office.

Controlling Non-native Vegetation

Some non-native plants spread rapidly. They often form large monocultures and, if left unchecked, become hard to control. Bush honeysuckles, Japanese honeysuckles, multiflora rose, reed canary grass, and fescue are a few examples. Use the old field management techniques of cutting, mowing, and applying chemicals to control these invasive plants.



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