NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

EARLY SUCCESSIONAL HABITAT DEVELOPMENT/MANAGEMENT
(Ac.)

CODE 647

DEFINITION
Manage plant succession to develop and maintain early successional habitat to benefit desired wildlife and/or natural communities.

PURPOSE
To provide habitat for species requiring early successional habitat for all or part of their life cycle.

CONDITIONS WHERE PRACTICE APPLIES
On all lands that are suitable for the kinds of desired wildlife and plant species.

CRITERIA
Management will be designed to achieve the desired plant community structure (e.g., density, vertical and horizontal cover) and plant species diversity. Identification of the need for the desired plant community will be based on an appropriate habitat appraisal methodology or knowledge of the life history requirements of the desired species.

Where planting is needed, regionally adapted plant materials will be used.

Site preparation, planting dates, and planting methods shall optimize survival.

Planting of noxious weeds and invasive species is prohibited.

Measures must be provided to control noxious weeds and invasive species.

If using chemical methods of control, Pesticide Screening Tool (WinPST) shall be used to assess risks, and appropriate mitigation to reduce known risks shall be employed.

To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds will be in a targeted manner through the use of spot spraying, mechanical or hand wick applicators, or other approved methods to protect grasses, forbs and legumes that benefit native pollinators and other wildlife.

Management will be timed to minimize negative impacts to wildlife. Disturbance to habitat shall be restricted during critical periods (e.g. wildlife mating, nesting, brood rearing, or fawning seasons).

Minimize soil disturbance in natural communities where soil integrity is essential, on steep slopes, on highly erodible soil, and where establishment of invasive species is likely.

When grazing is used as a management tool, a prescribed grazing plan developed to specifically meet the intent and objective(s) of this practice standard is required. Refer to Prescribed Grazing (practice 528) for information on planning and documentation.
Criteria for Early Successional Areas in Grass-Forb Communities

These criteria apply to areas managed for a plant community primarily composed of grasses and forbs and that are not managed for the production of forages. If an area is to be utilized for hay production and/or pasture and wildlife habitat is a consideration, refer to Forage Harvest Management (511) or Prescribed Grazing (528) for development of haying or grazing plans that may benefit wildlife.

Management activities shall not disturb the cover during the primary nesting season for grassland birds (March 1 to July 15). Exceptions can be allowed for periodic burning, strip disking, herbicide treatment, mechanical removal or mowing necessary to maintain the desired plant community.

Management of the plant community shall be accomplished by the application of one or more following activities; it may be necessary for more than one activity be carried out in a single year to accomplish the objective.

Typically management will take place on stands 4 years or older where the plant community is advancing beyond the early successional stage.

Strip Disking

Use to increase amount of bare ground, encourage growth of annual plants and increase structural diversity of stand.

Strip disking is the preferred option; small fields (<1 acre) may have the entire area disked if it does not create an erosion hazard.

Disk areas to expose 40-60% bare ground; tillage will normally need to be 2-4 inches deep; depending on amount of cover and tillage tool, it may require multiple passes.

Disked strips shall be at least 20 feet wide will be no wider than 50 feet and alternated with undisked strips 2 – 4 times as wide as disked strips.

Rotate the disked strips across the field over a 2 – 4 year cycle.

Strips should be done on the contour or across slopes.

If streams, wetlands or other water bodies are present, disking shall not be done any closer than 35 feet from the edge of the water body; this is to protect the quality of the water body.

Disking late in the growing season (August to October) may give the best results. Dormant season (November to March) disking is allowed if soil conditions are appropriate and erosion is not a problem.

Mowing

Mowing alone is not a preferred alternative as it rarely provides the desired cover condition. It may be used in conjunction with other activities, particularly if it increases the effectiveness of other activities.

Mowing shall not be done during the primary nesting season unless absolutely necessary to address a particular concern and done in conjunction with another early successional management activity.

Mowing shall be done no later than September 1 to allow regrowth for winter cover.

Mow no more than 1/3 of the field in any given year. Rotate the areas mowed on a 3-4 year rotation.

Mow in strips to improve overall stand diversity. Strips shall be 30 – 100 feet wide and alternated with unmowed strips.

To control woody vegetation, mow cool season grasses no shorter than 6 inches. Native warm season grasses should be mowed no shorter than 8 inches. However mowing warm season grasses shorter than 6 inches may be used to stress the plants if the objective is to allow more forb growth.

Mowing residues shall be shredded and evenly distributed to prevent excess litter accumulation. If there is significant litter left behind some or all of it may be removed from the area.
**Herbicide Application**

Selected herbicides can be used to effectively manipulate plant succession, control brush, reduce plant completion, control invasive species and improve habitat diversity.

Careful planning and care in application are required in the use of herbicides to improve existing habitat. Selection of products shall be based on several factors, including: product effectiveness, non-target species impacts, toxicological risks and off-site movement of chemicals.

Herbicides are only to be applied for the uses on the product label. Follow all directions and precautions. See practice standard Pest Management (595) for recommendations and precautions.

If strip spraying, treated strips shall be no wider than 50 feet. Alternate these with unsprayed areas 3-4 times as wide as the treated area.

Rotate treated areas across the field.

If streams, wetlands or other water bodies are present, spraying shall not be done any closer than 35 feet from the edge of the water body; this is to protect the quality of the water body.

**Prescribed Burning**

 Burning may be used to reduce litter and increase the amount of bare soil. Burning can stimulate germination, control unwanted woody or herbaceous species, increase plant diversity and open up the stand for the movement of small animals and birds.

Prescribed burning can only be carried out under an approved burn plan prepared by qualified personnel. See practiced standard Prescribed Burning (338) for guidance and restrictions.

 Burning should be used on a 3-5 year rotation, as needed.

If burning during the primary nesting season, no more than 50% of the field should be burned in one season.

To favor forbs, fall to early spring burns are the best. Late spring burns provide maximum stimulation to warm season grasses and best control for cool season grasses and brush.

**Interseeding**

If natural regeneration is not expected to provide the desired plant species, interplanting may be necessary. Identify the species that are needed for seeding and seed only these species.

Seeding rates may be reduced as this is not the same as a full seeding for a new stand.

Generally, interseeding into established stands is difficult and should be undertaken only if one of the above disturbance methods is used as well to provide an appropriate seeding site. Seeding techniques and species selection will be in accordance with practice standard Conservation Cover (327) and FOTG Appendix A.

**Brush Removal**

In some cases, woody plant growth has advanced beyond the stage where mowing, burning or herbicide treatment will effectively control it. Removal of woody brush or trees may be necessary when the amount of cover exceeds the desired amount for the targeted species or it is creating too much shade for a desired early successional plant community.

Only the amount of woody cover needed to create the desired habitat shall be removed. Leave any remaining woody cover in blocks or scatter stems as preferred by the desired species.
See practice standard Brush Management (314) for guidance on techniques and planning considerations.

**Criteria for Early Successional Areas in Forested Communities**

Woodlands communities will be managed to achieve the proper mix of herbaceous, shrub and tree cover for the targeted wildlife species or community. Some woodland wildlife species prefer areas of relatively short or sparse woody growth while others may prefer the dense cover provided by thickets. Early successional habitat in woodlands may be created either on the edge of the woodland or within its interior.

Early successional habitats may be developed as a result of certain silvicultural practices which reduce the amount of overstory; these may remain in an early successional state for up to 10 years without further management. If wildlife habitat is an objective and it does not negatively affect the timber production, these areas may be utilized for improved management for early successional habitat by application of activities under this standard. Other areas such as log landings, skid trails roadsides and utility rights-of-way may also provide appropriate habitat.

**Woodland Edge Feathering**

Transitional edges along woodlands may be developed by manipulating early successional species in the edge of existing woods or in the fields adjacent to existing woods. This may also be applied along the perimeter of permanent forest openings. Fire trails, logging roads or similar areas within the woodland. These edges benefit a variety of species by providing more sun, lower plant heights, singing grounds and abundant plant and animal food sources.

Woodland edges shall be 30 to 100 feet wide. The width may be obtained from the woodland, the open area next to it or a combination of these.

Edges within the woodlands shall be created by removing or killing all woody vegetation greater than 2 inches diameter breast height and/or woody vegetation greater than 12 feet tall.

Woody vegetation shall be controlled by using one or more of the following methods: handcutting, shearing, hydro-axe, disk, broadcast spraying, spot spraying, basal spraying, cut-stem treatments or other approved techniques.

The removal of woody vegetation that may serve as endangered Indiana Bat (*Myotis sodalis*) or Northern Long-eared Bat (*Myotis septentrionalis*) roosting or nursery sites shall not occur between April 1 and September 30.

Desirable fruit bearing shrubs and small trees shall be maintained.

Invasive plants species and noxious weeds shall be controlled within the edges. It may be necessary to control dense, sod-forming grasses to allow regeneration and growth of desirable species in the edge.

Edges established within open areas adjacent to woods shall be managed to allow natural revegetation of desirable small trees, shrubs, brambles, grasses and forbs. If needed, desirable tree or shrub species may be planted in this area. See practice standard Tree/Shrub Establishment (612) and Ohio FOTG Section IV Appendix B for guidance and methods.

The area may be retreated every 5-10 years or as needed to maintain the desired cover.

**NRCS, Ohio**

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Woodland Openings

Openings may be developed within woodlands to increase the amount of edge or early successional habitat within woodlands. These openings benefit a variety of species by providing more sun, lower plant heights, singing grounds and abundant plant and animal food sources.

The removal of woody vegetation that may serve as endangered Indiana Bat (*Myotis sodalis*) or Northern Long-eared Bat (*Myotis septentrionalis*) roosting or nursery sites shall not occur between April 1 and September 30.

Opening sizes will be based on the needs of the desired wildlife species. Generally opening should be 0.5 to 10 acres in size; 1 to 3 acres in size is typically desired.

Isolated woodlands smaller than 40 acres generally will not benefit from the creation of openings.

Avoid negative impacts to area sensitive interior nesting bird species due to fragmenting large woodlands with openings. In woodland sites larger than 250 acres, openings shall be no larger than 1 acre; if possible they should be near the outer edge to minimize impacts.

A number of scattered openings are more beneficial than a single large opening of comparable size.

Openings within the woodlands shall be created by removing or killing all woody vegetation greater than 2 inches diameter breast height and/or woody vegetation greater than 12 feet tall.

Woody vegetation shall be controlled by using one or more of the following methods: handcutting, shearing, hydro-axe, disking, broadcast spraying, spot spraying, basal spraying, cut-stem treatments or other approved techniques.

Desirable fruit bearing shrubs and small trees shall be maintained.

Invasive plants species and noxious weeds shall be controlled within the edges. It may be necessary to control dense, sod-forming grasses to allow regeneration and growth of desirable species in the edge.

The area shall be retreated every 5-10 years or as needed to maintain the desired cover.

As an alternative to natural revegetation of the site, the area may be planted using an appropriate mix of herbaceous and/or woody species. Use practice standards Conservation Cover (327) and Tree/Shrub Establishment (612) as well as Appendices A and B from the Ohio FOTG.

CONSIDERATIONS

Vegetative manipulation to maximize plant and animal diversity can be accomplished by disturbance practices that include, but are not limited to: selected herbicide techniques, brush management prescribed burning, light disking, mowing, prescribed grazing, or a combination of these.

This practice should be applied periodically to maintain the desired early successional plant community and rotated throughout the managed area.

Design and install the treatment layout to facilitate:

- operation of machinery
- use of natural firebreaks or development and maintenance of bare soil firebreaks when prescribed burning.
When prescribed grazing, consider setting aside a paddock near the center of the pasture and defer grazing until after the critical nest and brood rearing period. Many grassland birds require more than 40 days to fledge their young.

When selecting plants and designing management for this practice, consider the needs of pollinators and incorporate to the maximum extent practicable.

**PLANS AND SPECIFICATIONS**

Written specifications, application schedules and maps shall be prepared for each site. Specifications shall identify the amounts and kinds of habitat elements, locations and management actions necessary to achieve management objectives.

Specifications shall be transmitted to clients using approved specification sheets, job sheets, and customized practice narratives or by other written documentation approved by NRCS.

**OPERATION AND MAINTENANCE**

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance).

Occasional disturbance may be incorporated into the management plan to ensure the intended purpose of this practice.

Any use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose.

**REFERENCES**


