

## Early Successional Habitat Development/Management (Acre) 647

### DEFINITION

Manage early plant succession to benefit desired wildlife or natural communities.

### PURPOSES

- Increase plant community diversity.
- Provide wildlife or aquatic habitat for early successional species.
- Provide habitat for declining species.

### CONDITIONS WHERE PRACTICE APPLIES

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

### CRITERIA

#### General Criteria

- Many species of wildlife prosper at some stage of plant succession less than the climax condition. To achieve this seral stage, an essential knowledge of the species' needs is required prior to management activities.
- Early successional management will be designed to achieve the desired plant community in density, vertical and horizontal structure, and plant species.
- Methods used will be designed to maintain soil erosion quality criteria.
- Vegetative manipulation to maximize plant and animal diversity can be accomplished by practices including: prescribed burning, light disking, chemical treatment, mowing, grazing, shearing, timber harvest, or a combination of the above.

- This practice should be applied periodically to maintain the desired early successional plant community.
- Native adapted plant materials will be used whenever possible.
- Management practices and activities are to disturb cover only during the periods identified in Practice Standard 645 - Upland Wildlife Habitat Management. Exceptions will be allowed for periodic burning or mowing when necessary to maintain the plant community. Mowing may be needed during the plant establishment period to control weeds.
- Measures must be provided to control severe outbreaks of noxious weeds and other invasive species in order to comply with state noxious weed laws. To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds will be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife.

#### Criteria For Grassland Management

Apply this component to develop and maintain shrub and grassland habitats. This practice improves habitat for certain target species such as vesper and grasshopper sparrow, bobolink, sharp-tailed grouse, woodcock, waterfowl, and other grassland nesting birds. Areas may be developed or maintained by one or a combination of the following methods:

#### 1. **Mechanical (haying, mowing, or light disking):**

Used alone or in combination with other techniques, mechanical methods can successfully manipulate successional stages of habitat.

Mechanical disturbance should be according to the dates identified in Practice Standard 645 - Upland Wildlife Habitat Management.

Annual mechanical disturbance or disturbance of entire stands is discouraged, since it greatly increases mortality and reduces residual cover available for the following nesting season.

#### A. Haying or Mowing:

- Where possible, manage no more than one-third of the stand in any given year in 4-5 year increments, or in strips to maintain cover.

Rotate mowed or hayed strips across the field. Mow cool-season grasses no shorter than 6 inches. Native warm-season grasses should be mowed no shorter than 10 inches.

- Haying or removing the vegetation is preferable to mowing or leaving the vegetation on the grass stand. Removing the vegetation allows the grass to vigorously grow and reproduce.
- Minimum standing strip width shall be 200 feet.

#### B. Disking and/or Inter-seeding:

Disking (2-4 inches deep until 50 percent residue remaining) of existing stands, typically greater than 4 years old, may be necessary to increase the amount of open ground and encourage a diverse plant community of annuals and perennials. Research has indicated that a light disking is better than mowing or haying in diversifying the plant community and improving wildlife usage.

- Alternate disked strips of less than or equal to 100 feet in width, with standing buffer strips a minimum 2 times the disked width, across the field on the contour or across slope.
- Rotate the disked strips across the field.

Inter-seeding of legumes or wildflowers into an existing grass stand can be done along with using no-till methods or a light disking. Inter-seed with wildlife-friendly mixes in accordance with Practice Standard 327 - Conservation Cover.

#### 2. Prescribed Grazing:

Domestic livestock may be used to manipulate plant succession. This manipulation may be beneficial to maintaining the quality of herbaceous cover, and controlling brush when done in accordance with a prescribed grazing plan with wildlife as the primary objective.

- This technique requires very careful management to assure the site is not over-grazed.
- Do not recommend this technique unless assured that the land user fully understands the grazing system, and is capable of managing the system. A grazing plan should be developed at a "light grazing intensity" with

an average minimum height of 6 inches for cool-season grasses and 10 inches for warm-season grasses. More intense grazing may be needed for brush management or invasive species control. In these cases, consult with the NRCS State Biologist. See Practice Standard 528 - Prescribed Grazing.

#### 3. Prescribed Burning:

If the area is not mowed or grazed, grass stands may need periodic renovation to remove excess litter which may reduce the quality of wildlife habitat.

Prescribed burning can allow germination of seed-bearing annuals, increase plant species diversity, control unwanted woody vegetation, and open up the stand for movement of small animals and birds.

- Frequency of burning should generally not exceed once every 4-5 years.
- Fall burns and early spring burns tend to favor forbs and cool-season grasses.
- Late spring burns provide maximum stimulus to warm-season plants and work well to control cool-season grasses and brush.
- Burning can only be done under an approved burn plan prepared by qualified personnel. See Practice Standard 338 - Prescribed Burning for more information including restrictions.

#### 4. Chemicals:

Selected herbicides can be used to effectively manipulate plant succession, control brush, reduce plant competition, control exotic weeds, and improve habitat diversity.

- Careful planning and care in application are required in the use of chemicals to improve existing habitat. Selection of a product shall be based on several factors, including: a) product effectiveness, b) non-target species impacts, c) toxicological risks, and d) off-site movements of chemicals.
- Chemicals are to be applied only for the uses listed on the container label. Follow all directions and precautions. See Practice Standard 595 - Pest Management for recommendations and precautions.

### Criteria For Forest Openings

Apply this component to construct new opening areas or maintain existing openings in forested areas to improve habitat for species which utilize and benefit from openings. Forest openings may also include log landings, skid trails, roadsides, and utility rights-of-way.

Forest openings furnish open space necessary for young birds to sun themselves, singing grounds, and provide a steady vegetative and insect food supply.

#### 1. General:

- The recommended size of openings varies by species requirements. Forest openings generally range from 0.5 acres to 5 acres. Forest openings of 1-3 acres are typically desirable. Woodland sites less than 40.0 acres in size generally will not benefit from openings.
- **Caution should be exercised when proposing forest openings in woodland sites larger than 250 contiguous acres in size.** Forest openings in this situation should not exceed 1.0 acre, since large openings may lead to habitat fragmentation for non-target interior nesting species resulting in increased predation and nest parasitism. Consult with the MDNR Area Wildlife Manager or Non-game Wildlife Specialist for recommendations.
- A number of scattered openings are more beneficial than a single large opening of comparable size. Forest openings scattered throughout a forested area create greater diversity and benefit a variety of wildlife other than game species.
- South facing slopes are preferred since these areas tend to remain free of snow for a longer time in the spring and fall.

#### 2. Forest openings may be developed by one or a combination of the following methods.

- Mechanical: including hand cutting, shearing, hydro-axe, disking, and other techniques.
- Chemical: including broadcast, spot, cut-stem treatments, or basal spraying. Refer to safety precautions listed under grassland management.

- Prescribed Burning.

#### 3. Establishment:

- Prepare a clean seedbed, double or triple disk. If brush or stumps have been removed, they should be burned or buried rather than piled.
- Broadcast and drag seed. Refer to Practice Standard 655 - Forest Harvest Trails and Landings for recommending seeding mixtures and rates.
- A nurse crop of oats may be used to provide cover and food the year of establishment.

#### 4. Maintenance:

Clover is relatively short-lived and will decrease within 3-5 years without maintenance. If woody vegetation encroachment comprises more than 10 percent of existing openings, woody vegetation should be controlled to help maintain grass and clover components. Maintain the site by: a) annual mowing, b) burning, or c) light disking every 2-3 years.

Once clover becomes scarce, a decision should be made whether to continue maintenance of the site or re-establish.

### Criteria For Shrub And Browse Management

Apply this component to provide browse in forest and transition habitats to benefit moose, deer, and other wildlife.

Manipulation of woody tree and shrub stands to achieve early successional plant composition, encourage re-growth and regeneration of palatable and nutritious vegetation beneficial to large mammals. Browse management also increases plant diversity that supports a variety of other species. Browse management also includes the openings of the forest canopy to encourage growth of browse species.

Browse management may be accomplished by one or a combination of the following methods:

1. Mechanical: including shearing, mowing, hand cutting, hydro-axe, or other approved techniques.
  - Shearing is best accomplished in winter when the ground is frozen or summer when the soil is dry.

- For mechanical treatment, maximum re-growth (suckering) is achieved when cut during the dormant season (October - March).
  - For best results, all trees greater than 2-inch diameter should be cut to maximize heating of the soil. Follow SAF prescribed clear cutting guidelines for proper guidelines for harvesting techniques.
2. Chemical: including broadcast, spot, cut-stem, or basal treatments. Refer to safety precautions listed under grassland management.
  3. Prescribed Burning: according to a burn plan.

### **Criteria For Timber Harvest**

Timber harvests can be planned to provide early successional habitat. The types of forest stands, their age classes, and how they are arranged determine which wildlife species will benefit.

Seed logging roads and landings in accordance with the criteria in Practice Standard 655 - Forest Harvest Trails Planting.

#### 1. Harvesting Methods:

- A. Clear Cutting: The removal of all trees on a site. This method is used to regenerate shade intolerant species such as Aspen, Birch, and Jack Pine. This method benefits game species such as deer, ruffed-grouse, snowshoe hare, and woodcock.
  - Make cuts an irregular shape with ragged edges for deer and woodcock.
  - Make cuts in small blocks to benefit ruffed grouse. Block size should be 1 to 10 acres in size. In northern Michigan with areas of high deer populations, block size should be 5 to 20 acres in size.
  - Leave clumps of conifers and snags standing to provide cover and shelter (not to exceed 20 percent of the cover). If maximum regeneration is the objective, then harvest every tree 2 inches in diameter or greater.
- B. Shelterwood Cutting: The removal of 40-60 percent of trees to open the forest canopy and allow more light to reach the forest floor. This method is used to regenerate species such as oak, hickory, and maple. The remaining trees are

usually harvested 5-10 years later. This method prompts the growth of grasses, shrubs, and seedlings in the understory.

- Select trees to save for food, shelter, or nesting and harvest others.

### **CONSIDERATIONS**

- All habitat manipulations will be planned and managed according to soil capabilities. Recommendations for management will avoid excessive soil loss.
- Early successional treatments should be rotated throughout the managed area.
- Treatment shall be accomplished whenever succession has gone past the desired stages.
- Managing for early successional plant communities is beneficial if not essential for less mobile animal species. The less mobile the species, the more important to provide all the habitat requirements in a small area.
- Design and install the treatment layout to best facilitate operation of all machinery used on the strips or to make easily controlled burning boundaries. Whenever possible, lay out strips to have some multiple or full width passes by all farm implements.
- Grazing may be used as a management tool, in grassland areas, to achieve the intended purpose of this practice. A wildlife-friendly grazing plan is required.
- This practice may be used to promote the conservation of declining species, including threatened and endangered (plant, wildlife, or aquatic) species.
- All federal, state, and local regulations need to be followed and permits obtained if required.
- Leave woody debris on the forest floor for reptiles, amphibians, and insects.

### **PLANS AND SPECIFICATIONS**

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation. Refer to *Managing*

*Michigan's Wildlife: A Landowners Guide* for further specifications.

NRCS staff is encouraged to work closely with the NRCS Biologist and Forester, US Fish and Wildlife Service Biologist, or MDNR personnel in developing site-specific plans and specifications. These documents are to specify the requirements for installing the practice, such as the kind, amount, or quality of materials to be used, or the timing or sequence of installation activities.

### **OPERATION AND MAINTENANCE**

An operation and maintenance plan shall be developed that is consistent with the purposes of this practice, its intended life, and the criteria for its design.

The following actions shall be carried out to ensure 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).

Any use of fertilizers, pesticides, and other chemicals to assure early successional management shall not compromise the intended purpose.

This practice will be inspected periodically and restored, as needed, to maintain the stated purpose. Additional operation and maintenance requirements will be developed on a site-specific basis to assure performance of the practice as intended.

### **REFERENCES**

1. Herkert, James R. et al. 1993. Habitat establishment, enhancement, and management for forest and grassland birds in Illinois. Division of Natural Heritage. Illinois Department of Conservation, 20 pp.
2. Kimmel, Richard O., Berner, A.H., Haroldson, K.J., Welsh, R.J. 1994. Cover Quality of CRP Grasslands. MDNR Wildlife Pops. And Res. Unit Report.
3. Johnson, Douglas H. 1997. Effects of fire on bird populations in mixed-grass prairie. Ecology and Conservation of Great Plains Vertebrates, Chapter 8. Springer, NY.
4. MDNR, 1999. Managing Michigan's Wildlife: A Landowners Guide.