Early Successional Habitat Development/Management

Grassland Management for Wildlife

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Ginsburg-Markham Prairie – Photo by Gene Barickman

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Grassland ecosystems are maintained by frequent disturbance. Disturbances that have historically kept grasslands in good condition where fire, grazing by native herbivores and drought. Agriculture has replaced most of Illinois' grasslands with cropland and pastures of introduced species. Wildlife that depended on native grasslands such as grassland birds, are now dependent on land managers for the habitat creation, maintenance and health of grasslands. Prescribed burning, grazing, haying, mowing, disking, interseeding and herbicide treatment are grassland management techniques used to manage grasslands and provide the necessary disturbance to maintain grasslands in good condition for wildlife habitat.

Grassland birds require a wide range of heights and densities of grassland. Some species prefer short, sparse vegetation and others need taller, denser vegetation (Table 1). The response of individual wildlife species to specific management techniques depends on the species' habitat needs, regional and site differences. Therefore, grasslands are best managed to suit a variety of wildlife by creating a mosaic of grassland habitat types maintained through a rotational management system. A rotational system of management provides a variety of habitat types every year in the same area for a variety of wildlife species with different habitat needs.

On larger grassland fields, or group of adjacent smaller fields more than 100 acres in size, treat 20-30% of the total grassland acres every year, rotating treatment units on a 3 to 5 year rotation. For smaller isolated grassland areas less than 100 acres, treat up to 50% of the area per year but never treat all of the grassland in the general area (within ¼ mile) at one time.

Table 1. Habitat preferences of common grassland nesting birds. (From NRCS *Fish and Wildlife Habitat Management Leaflet Number 8*, October 1999)

Species	Preferred grassland growth form			Avoids woody vegetation[1]
	Short	Med.	Tall	
Upland Sandpiper	X	X		X
Long-billed Curlew	X			
Mountain Plover	X			
Greater Prairie-chicken	X	X		X
Sharp-tailed Grouse	X			
Ring-necked Pheasant		X	X	
Northern Harrier			X	X
Ferruginous Hawk	X	X		
Common Barn Owl	X	X	X	X
Short-eared Owl		X		X
Horned Lark	X			X
Sedge Wren			X	
Sprague's Pipit		X		
Bobolink		X		X
Eastern Meadowlark		X		
Western Meadowlark	X			X
Chestnut-collared Longspur	X	X		
McCown's Longspur	X			
Vesper Sparrow	X			
Savannah Sparrow	X	X		X
Baird's Sparrow		X	X	
Grasshopper Sparrow	X			X
Henslow's Sparrow		X	X	X
Le Conte's sparrow			X	X
Dickcissel		X	X	
Lark Bunting	X	X		

1 While species marked tend to avoid areas with woody vegetation, most can tolerate some woody vegetation within areas dominated by grassland.

When does a grass stand need disturbance?

After the establishment period of two to four years, most grasslands in Illinois' humid climate and fertile soils benefit from some type of disturbance on a 3 to 5 year rotation. Regular disturbance will help maintain the stands

structure and diversity desired by most wildlife. However, on some soils, especially soils that are less productive and/or droughty, the period between disturbances can be longer and may be needed more for control of woody invasion than reduction of rank grass cover.

Even for typical prairie restorations and conservation cover landowners often ask when to use disturbance practices to improve wildlife habitat. As every field is different, each grass stand must be individually evaluated in the field. Evaluate the structure of the grassland (height, density, continuity and duff layer) and identify the species of both grasses and forbs that are dominant in the stand. In general, the following guidelines will help to determine if no treatment or immediate treatment is needed. Otherwise, for those cases in between the extremes below, treat 20 to 50% of the area on a 3 to 5 year rotation for continued maintenance.

When treatment may be unnecessary (when all apply):

- 25-75% bare ground underneath a canopy of grasses and forbs.
- 25-50% cover of broadleaf plants.
- ≥ 3 grass species each with at least 10% cover.
- ≥ 20 species of forbs in prairie restorations or ≥ 10 species of forbs in other grass stands. Each species with at least 2% cover.
- When neither annuals nor perennials make up more than 70% cover.

When treatment is needed (when one or more apply):

- Little bare ground with build up of several inches of thatch.
- > 40% non-wildlife friendly species (invasive exotics and species that do not provide desirable habitat such as tall fescue and reed canarygrass).
- < 10 forb species in prairie restorations or less than the planned number of established species of grasses and forbs in other grass stands.
- When woody vegetation exceeds normal grass height (except for occasional shrub thickets < 12 feet tall).

Management Practices to Maintain Grasslands

The following management practices can be used to maintain desired plant density, vertical and horizontal grassland structure and plant species diversity. For specifications, see NRCS Conservation Practices Standards Early Successional Habitat Development/Management (Practice Code 647), Conservation Cover (Practice Code 327) and Prescribed Grazing (Practice Code 528).

Herbicide Treatment – Selected herbicides can be used to effectively manipulate plant succession, control brush, reduce plant competition, control exotic weeds and improve habitat diversity. For example, the use of selective herbicides can reduce grass competition allowing for the increase of forbs. See NRCS Job Sheet for Herbicide Application for Plant Succession Management (647B).

Interseeding – Additional seed can be applied to existing stands where a shift in species composition is desired while retaining components of the original stand. For example forb seed can be seeded into a grass stand that has lost the forb component. For specifications and seeding rates see NRCS Conservation Practice Standard Conservation Cover (Practice Code 327).

Mowing – Rotational mowing can be used to maintain grassland in various stages of growth and vegetation diversity and control woody vegetation. However, mowing is generally the least effective method for changing the grassland's characteristics for more than a season. Therefore, mowing is recommended only where other methods are not permitted or practical, or to facilitate disking, herbicide treatment, interseeding or burning.

Prescribed Burning – Burning can remove an excess duff layer, stimulate germination of seed bearing annuals, increase plant species diversity, control unwanted woody and herbaceous vegetation, and open up the stand for movement of small animals and birds. There are restrictions on when and where prescribed burning can take place. A prescribed burn plan (NRCS Job Sheet for Prescribed Burning – 338js) must be prepared in advance and followed. See NRCS Conservation Practice Standard Prescribed Burning (Practice Code 338)

Prescribed Grazing – Domestic livestock may be used to manipulate plant succession and structure of the grass stand. Careful management is required so that overgrazing does not degrade wildlife habitat. A grazing plan that meets NRCS Conservation Practice Standard Prescribed Grazing (Practice Code 528) specifications and includes wildlife habitat considerations should be developed for grazing management.

Strip Disking – Disking increases the percent of open ground, reduces the dominant plant species and increases the amount of seed bearing annual plants. Strips are disked so that only one third of the field is treated in any one year leaving 50% of the disked ground as mineral soil. For additional specifications, see NRCS Job Sheet for Strip Disking (647A).

Table 2. Grassland Habitat Inventory

Habitat Component	# Species	% Cover	Habitat Component	% Cover	Comments
Grass Species			Annual Species		
Forb Species			Perennial Species		
Invasive & Non-Friendly Sp.			Bare ground under grass canopy		
Woody Species					