

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS**

UPLAND WILDLIFE HABITAT MANAGEMENT

1. Scope

Procedures, technical details, and other information listed below provide additional guidance for carrying out selected components of the practice. This material is referenced from the conservation practice standard and supplements the requirements and considerations listed therein.

Habitat diversity. The interspersing or the intermixing of the various wildlife habitat components is habitat diversity. Numerous habitat types in small units provide a maximum amount of diversity or edge and benefit certain species such as pheasants. However, this could result in habitat fragmentation and adversely affect some wildlife species such as neotropical migrants. In Kansas, conversion from native plant communities to other types of vegetation should be considered for potential negative wildlife population effects in the planning process. Smaller blocks of cover and increased edge has the potential to lead to increased predation and parasitism. (See the Comparison Sites section below for assistance with this issue.)

Habitat linkages. Linking fragmented habitats or cover types with corridors may greatly increase the use of an area by wildlife. Corridors can provide food, cover, water, and travel access for wildlife. Priority habitats for linking with wildlife corridors are riparian areas, wetlands, native prairies, and native woodlands. Fence rows, windbreaks, waterways, and contour and crosswind grass strips can link habitats. There is no minimum or maximum width as long as the width is adequate to meet the species needs. Examples of types of vegetation for corridors are perennial grass, trees, shrubs, or a combination of vegetation types. Wildlife planners will identify vegetative components, configuration, and shape of corridors by use of the Kansas Wildlife Habitat Assessment Guide (KWHAG) and the Private Lands Wildlife Management (PLWM) publication.

Daily and season ranges. Wildlife species occur in a home range or a geographic area. Food must be present, in sufficient quantity and quality, and have the structure and composition to be usable for the daily and seasonal needs of the species.

Limiting factor. Some conditions will limit population growth within the home range of each animal. If that condition is removed or improved, numbers will increase to the point where another condition sets the limit. These conditions can be grouped into two categories: (1) those which can be influenced or changed, such as the vegetative elements of habitat which impose limits through food supply, protection, and reproduction, and (2) those which are difficult or cannot be influenced such as climate or topography.

Plant communities. Many wildlife species prosper at some early plant successional stage. Others are dependent on climax communities. Knowledge of the local plant communities, the plant species in the successional stages, and the associated animals is essential for providing accurate wildlife management assistance.

Where wildlife management is an objective, the food and cover value of the planting can be enhanced by using an approved habitat evaluation procedure to aid in selecting plant species and providing for other habitat requirements necessary to achieve the objective.

Comparison sites. This is another tool available to assist in habitat development. A planner can use resource information such as soils, plant species, and wildlife species from a comparison site(s) to optimize a wildlife development plan. Areas that provide all of the necessary components (i.e., food, cover, and water) for stable wildlife populations provide a wealth of information such as preferred foods, distance to water, disturbance, plant species, interspersed trees, and other habitat information. Plantings, seedings, water development and management should be used to meet the intended objective. Where program or regulatory issues apply, comparison sites will be sampled according to agency policy.

2. Habitat Development

Native or introduced grasses, forbs, and woody plants can be established and managed to meet landowner objectives or program objectives for wildlife upland habitat management. For herbaceous seedings, use Table 1, which is a seeding matrix entitled "Herbaceous Wildlife Planting Guide." Use the approved Form KS-ECS-4 in planning a herbaceous seeding mix. For woody plantings, Field Office Technical Guide (FOTG) Section II for plant species selection and the approved Form KS-ECS-5 for the planting field sheet.

Native plants should be used in seeding and plantings to imitate native plant communities. Introduced species can be used for wildlife seeding and planting where introduced plants are needed to meet wildlife or landowner objectives. Introduced species are listed at the bottom of the Table 1.

Refer to species requirements in the Fish and Wildlife Habitat Management (FWHM) leaflets and the PLWM publication for the size, configuration, location, and management of the planting or seeding area. These elements will vary widely due to the target species requirements.

Configuration. Where possible, establish habitat in blocks or linear plantings as required to benefit target species or groups.

Location. For optimum wildlife benefit, locate habitat development sites near existing food, cover, or water where the lack of the critical habitat component is a limiting factor in the environment.

Management. Protect the new plantings and seedings from mowing, burning, and grazing unless these management tools are needed to benefit the habitat and the target wildlife species.

3. Food Plots

Food plots can be established to benefit target wildlife species and to meet landowner objectives in wildlife management. Food plots are designed to provide a food source for wildlife during severe winters or in areas where food may be limited such as big Conservation Reserve Program (CRP) fields that are isolated from cropland. Typically, food plots are planted to grain sorghum or, ideally, a mixture of grain and forage sorghum to provide food and cover due to selective lodging. Food plots may be planted to any grain or a green crop such as clover or alfalfa. Ideally, a crop rotation is recommended such as wheat/sorghum/fallow or a sorghum and legume rotation. Having paired food plots allows rotation while providing a sorghum food source each year. Livestock and traffic control will be provided if necessary.

4. Food Plot Planting and Management

Site preparation, planting schedule, planting method, and seeding rate shall be in accordance with accepted agronomic practices for the selected food crop and soil type as listed on the field sheets. Seedbed preparation should be carried out to minimize negative environmental impacts. Seed must be of a quality that provides the desired food plot yield. Legumes should be correctly inoculated. Fertilizers should be applied according to a nutrient management plan for moderate yield. Pesticides should be used sparingly since it may not be necessary to maximize yield. Often a moderate yielding field with some additional weedy cover provides the best food and cover combination. If necessary, irrigation may be applied during the development of the food crop according to the conservation plan.

5. Chemicals (For Food Plot Establishment and Growth/Noxious Weed Control)

All pesticides used in performing this practice shall be registered by federal, state, and local government and shall be applied strictly in accordance with authorized and registered uses, directions on the label, and other federal or state policies and requirements. Annual plant communities and associated insect life should be recognized as valuable for certain wildlife. Wildlife will be considered before applying pesticides. Follow label directions.

6. Location (For Food Plots)

Food plots can be located where soil conditions are suitable to grow the desired wildlife food plants and where erosion is controlled to the "T" or tolerable level. The primary considerations for locating food plots are the need of the target species and the objectives of the landowner. Location options include, but are not limited to, the desire for a viewable area by a home owner in farmsteads or suburban developments, the attraction of upland game for hunting purposes, and the providing of food for wildlife to stabilize or enhance target wildlife species. Consider the effects of predation and human impacts.

7. Timing (For Food Plots)

The crop from seed-producing food plots can be timed to be available for wildlife use at the critical time when food supplies may limit wildlife survival.

8. Size (Of Food Plots)

Some of the seed in food plots will be consumed before the winter months. Wildlife food plots should be large enough or numerous enough to supply food through the critical period. Local knowledge, landowner objectives, size and number of animals in the wildlife population that use the food plot, and the geographic home range of the target wildlife species are considerations in planning the food plot size. Refer to FWHM leaflets and Section IV of the PLWM for the specific needs of a species.

Programs that provide assistance, incentives, and cost sharing for establishment of food plots may dictate the size of food plots. Special consideration will be taken to meet the program requirements for maximum and minimum allowable size of food plots for wildlife.

9. Environmental Disturbance for Wildlife Benefit

Disturbance in natural ecosystems can produce valuable vegetative habitat components by creating vegetative diversity, by changing the vegetative seral stages, and by increasing biological production. Use KWHAG and the input of the area biologist when planning these practices. Additional FOTG practices that can be valuable to wildlife are the Kansas Conservation Practice Standards 338, Prescribed Burning; 528A, Prescribed Grazing; 666, Woodland Improvement, and various mechanical activities that are not described in the FOTG.

Disked strips for wildlife. Disking can be used to create diversity on established grass fields where the objective is to promote forbs and other plants that benefit ring-necked pheasants, bobwhite quail, and other species that need early successional vegetation. Annual broadleaf plants such as sunflower and kochia stimulate insect growth for wildlife food and provide food, cover, and water for some species.

Disking at a depth of up to 3 inches is recommended. The objective is to leave an average of 25 percent of the grass stand alive. The total disked area will be no more than 15 percent of the field. Where a landowner is using conservation program incentives, follow program guidelines for the total recommended disked area.

Light disking should be avoided in areas where erosion is a problem and in areas with historic or existing noxious weed problems. Placing strips on field contours or perpendicular to the prevailing wind may reduce potential erosion problems. Erosion will be controlled according to FOTG recommendations. Size and width of strips should be chosen to benefit target species. Disking must be done between February 1 and April 15. It should be avoided during the primary nesting season. A single disking may

provide beneficial effects for more than one year. Additional areas can be disked in future years as needed.

10. Controlled Burning

Burning is the preferred method of maintaining native grass for wildlife management. Burning should be done every 3 to 4 years to reduce litter and improve plant health. Burning for wildlife purposes should be done as early as possible (March 15 through April 15) to encourage broadleaf plant growth and to avoid negative wildlife impacts during the primary nesting season. When possible, burning should be done on a rotational basis to preserve critical nesting cover for target species each year. Food plots can be used on field perimeters to serve a dual purpose of wildlife food and fire control. Strip disking can also be used for a firebreak.

Den trees. Den trees in an ecosystem will be assessed, if applicable, according to the KWHAG. For cavity nesting species, den trees may need to be protected from fire, wood cutting, and human clean-up activities in order to provide needed food and nesting habitat.

11. Fencing

Vegetation can be managed and improved through fencing to exclude livestock. Riparian areas, wetlands, and ponds are priority habitats for this practice.

Odd areas. Many small areas not normally used for agriculture production may provide excellent wildlife habitat. Fence rows, homesteads, field corners, and roadsides are examples of areas where undisturbed vegetation can be excellent habitat.

Center-pivot irrigation corners. In intensively cropped areas where center pivot irrigation is common, there may be little undisturbed upland cover available during critical times of the year. Planting permanent cover on the corners of fields greatly enhances the habitat for upland species. Even leaving tall wheat stubble on the corners is an improvement (see below).

Wheat stubble management. Winter wheat stubble that remains 12 inches tall and is left standing undisturbed through winter provides excellent wildlife habitat. Moisture lost to weed growth in the summer and fall period is usually exceeded by moisture gained from having the additional cover present during winter.

Woody cover. Some special requirements are necessary to get maximum wildlife benefits from woody cover. A minimum of 5 rows is needed for snow protection. At least 2 rows of shrubs should be planted on the south or east sides to provide overhead protection, wind protection, and shade. A windbreak should be designed with a trip row of shrubs on the north and west to break the snow 50 to 100 feet before getting to the main tree row. Tree species should be selected according to landowner objectives and requirements of the target wildlife species. A weed and moisture barrier is recommended for all tree and shrub wildlife plantings.

Shrub plots are particularly valuable for upland birds. They provide overhead cover, protection from wind and sun, and food. Shrub plots of 1/4 acre (100 feet by 100 feet) are recommended, but any size and configuration of plantings are valuable.

12. Plans and Specifications

Plans and specifications shall be prepared in accordance with the criteria of the standard and shall describe the requirements for applying the practice to achieve its intended use. Plans and specifications shall be developed for the specific field site. For plant species, varieties, and adaptation information, refer to Kansas Plant Materials Technical Note No. 1 (Rev. 6). Plans and specifications may include engineering plans, job sheets, technical guides, or narrative statements in conservation plans. Other applicable practice standards should be used when appropriate—i.e. Conservation Cover, Brush Management, Tree Planting, etc.—to meet identified habitat deficiencies.

13. Operation and Maintenance

Actions will 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) such as prescribed burning or mowing and repair and upkeep of the practice (maintenance)—i.e., replacement of dead trees or shrubs.

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 ensure performance of the practice as intended.

Table 1 - Herbaceous Wildlife Planting Guide

X = Plant species are recommended for this site

O = Not recommended

Planting mix must contain 4 species including 2 grasses, at least 1 forb or legume, and no more than 50 percent of any 1 species. Native species should be used where possible to meet wildlife objectives although introduced species can be beneficial for wildlife populations and are listed separately. All mixes will comprise 100 percent of the seeding mix. All seed must comply with state law requirements.

Adapted plants are listed by the Kansas Range Site name. Sites like Blue Shale and Chalk Flats are not listed but add diversity and are usually not considered adapted sites for revegetation. Handle these on a case-by-case basis with biology input from the area or state biologists.

Sandy, Sands, Choppy Sands, and Sandy Lowland Sites

Native Grass Species				
	lbs./PLS/ Acre ^{1/}	West	Central	East
Big Bluestem	6	X	X	X
Sand Bluestem	6	X	X	X
Little Bluestem	4	X	X	X
Indiangrass	6	X	X	X
Switchgrass	3	X	X	X
Sideoats Grama	6	X	X	X
Blue Grama	2	X	X	O
Sand Lovegrass	2	X	X	X
Prairie Sandreed	4	X	X	O
Giant Sandreed	4	X	X	O

Native legumes - Include 0.1 to 1.0 lbs./PLS/ac. ^{1/} in addition to native grass (optional)				
	West	Central	East	
Purple Prairie Clover	X	X	X	
Showy Partridgepea	X	X	X	
Roundhead Lespedeza	O	X	X	

Forbs - Adapted forbs may be used to replace or can be planted in addition to native legumes. Include 0.1 to 1.0 lbs./PLS/ac. ^{1/} in addition to the desired mixture (optional)				
	West	Central	East	
Maximilian Sunflower	X	X	X	
False Sunflower	O	X	X	
Prairie Coneflower	X	X	X	

^{1/} lbs./PLS/ac. is based on a full seeding rate for the species involved.

A variation of 10 percent above or below the planned rate for each species is allowable.

For planning purposes, the rates shown will be used.

**Loamy, Limy, Clay Upland and Lowland, Claypan, Clay Terrace, Clay Upland
and Eroded Red Clay Prairie Sites**

Native Grass Species				
	lbs./PLS/ Acre ^{1/}	West	Central	East
Big Bluestem	6	X	X	X
Sand Bluestem	6	X	X	X
Little Bluestem	4	X	X	X
Indiangrass	6	X	X	X
Switchgrass	3	X	X	X
Sideoats Grama	6	X	X	X
Blue Grama	2	X	X	X
Buffalo Grass	5	X	X	X
Western Wheatgrass	10	X	X	O

Native legumes - Include 0.1 to 1.0 lbs/PLS/ac. ^{1/} In addition to the desired mixture (optional)				
	West	Central	East	
Purple Prairie Clover	X	X	X	
Showy Partridgepea	X	X	X	
Illinois Bundleflower	X	X	X	
Roundhead Lespedeza	O	X	X	
Leadplant	X	X	X	

Forbs - Adapted forbs may be used to meet wildlife objectives. Include 0.01 to 1.0 lbs./PLS/ac. ^{1/} in addition to the desired mixture (optional)				
	West	Central	East	
Maximillian Sunflower	X	X	X	
Pitchers Sage	X	X	X	
Thickspike Gayfeather	O	O	X	
False Sunflower	O	X	X	
Prairie Coneflower	X	X	X	
Grayhead Pr. Cone.	O	O	X	
Engelman's Daisy	X	X	X	

^{1/} lbs./PLS/ac. is based on a full seeding rate for the species involved.
A variation of 10 percent above or below the planned rate for each species is allowable.
For planning purposes, the rates shown will be used.

Saline Lowland and Saline Subirrigated Sites

Native Grass Species				
	lbs./PLS/ Acre ^{1/}	West	Central	East
Indiangrass	6	X	X	X
Switchgrass	3	X	X	X
Sideoats Grama	6	X	X	X
Blue Grama	2	X	X	X
Buffalo Grass	5	X	X	X
Western Wheatgrass	10	X	X	X
Tall Wheatgrass	12	X	X	O
Alkali Sacaton	1	X	X	O

Native legumes - Include 0.1 to 1.0 lbs./PLS/ac. ^{1/} in addition to mixture (optional)				
	West	Central	East	
Showy Partridgepea	X	X	X	

Forbs - Adapted forbs may be used to replace or can be planted in addition to native legumes. Include 0.1 to 1.0 lbs./PLS/ac. ^{1/} in addition to the desired mixture (optional)				
	West	Central	East	
Maximilian Sunflower	X	X	X	
False Sunflower	O	X	X	
Purpose Prairie Clover	O	X	X	
Thickspike Gayfeather	O	X	X	

^{1/} lbs./PLS/ac. is based on a full seeding rate for the species involved.
A variation of 10 percent above or below the planned rate for each species is allowable.
For planning purposes, the rates shown will be used.

Introduced Plants (Check Adaptability on a Site Basis).

Plant the following recommended rates ^{1/} where native plant seed is not available or where the cost of native seed limits the development of habitats that meet the planned wildlife objective. Introduced plant seed will not be planted where programs require native plantings or where native habitat restoration is the primary and/or secondary resource conservation objective.

Cool Season	
	lbs./PLS/ac. ^{1/}
Creeping Foxtail	4
Meadow Bromegrass	16
Orchardgrass	4

Legumes	
	lbs./PLS/ac. ^{1/}
Alfalfa	8
Birdsfoot Trefoil	6
Crownvetch	10
Ladino Clover	3
Red Clover	7
Yellow Sweetclover	8

^{1/} lbs./PLS/ac. is based on a full seeding rate for the species involved.
 A variation of 10 percent above or below the planned rate for each species is allowable.
 For planning purposes, the rates shown will be used.