

<b>Course</b>	Agricultural Science II
<b>Unit</b>	Introduction to Grassland Management
<b>Subunit</b>	Grassland Management Practices
<b>Lesson</b>	Wildlife Management
<b>Estimated Time</b>	Three 50-minute blocks
<b>Student Outcome</b>	

Develop a better understanding of the management practices needed to manage both livestock and wildlife on grasslands.

### Learning Objectives



1. Identify what wildlife species depend on Missouri grasslands.
2. Identify what the basic habitat needs of wildlife are.
3. Identify what factors affect the value of grasslands for wildlife.
4. Describe how management practices can be adapted for wildlife.
5. Determine how existing wildlife habitat is evaluated.
6. Describe why grassland management plans are written for quail and rabbits.

### Grade Level Expectations

SC/EC/1/A/09-11/a	SC/EC/1/A/09-11/b	SC/EC/1/B/09-11/a
SC/EC/1/B/09-11/b	SC/EC/1/C/09-11/b	SC/EC/1/D/09-11/a
SC/EC/1/D/09-11/b	SC/EC/3/B/09-11/a	SC/EC/3/C/09-11/e
SC/ES/3/A/09-11/c	SC/ST/1/C/09-11/a	SC/ST/3/B/09-11/a

### Resources, Supplies & Equipment, and Supplemental Information

#### Resources

1. Activity Sheets
  -  AS 1 – Habitat Evaluation
  -  AS 2 – Grassland Evaluation for Wildlife Habitat
3. *Introduction to Grassland Management* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1997.
4. *Introduction to Grassland Management Curriculum Enhancement, "Unit III – Grassland Management Practices."* University of Missouri-Columbia: Instructional Materials Laboratory, 2003.

#### Supplies & Equipment

- An aerial photograph of a specific grassland unit may be helpful for AS 2.

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## Supplemental Information

### 1. Internet Sites

- ❑ Grassland Management. Missouri Department of Conservation. Accessed February 18, 2008, from <http://mdc.mo.gov/landown/wild/landmgmt/grassland.htm>.
- ❑ Habitat Information. Quail Unlimited, Inc. Accessed February 18, 2008, from <http://www.qu.org/content/habitat/habitainformation.cfm>.

## Interest Approach

Take students on a field trip to different grassland sites and compare poorly managed grassland to well-managed grassland. What problems could reduce livestock production? What are some corrective actions that could be taken? How do these problems and solutions affect wildlife?



## Communicate the Learning Objectives



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Instructor Directions	Content Outline
<p><b>Objective 1</b></p> <p><i>Ask students to name wildlife species that use grasslands.</i></p> <p><i>Note: Other examples of wildlife species found on grasslands could include the prairie king snake, cowbird, field mice, bobcat, coyote, box turtle, and hawks.</i></p>	<p><b>Identify what wildlife species depend on Missouri grasslands.</b></p> <ol style="list-style-type: none"><li>1. Greater prairie chicken</li><li>2. Upland sandpiper</li><li>3. Meadowlark</li><li>4. Rabbit</li><li>5. Quail</li><li>6. Pheasant</li><li>7. Deer</li><li>8. Turkey</li></ol>
<p><b>Objective 2</b></p> <p><i>Ask students what things they would need to survive if they were lost in the wilderness. Compare the needs of wildlife to those of humans. Discuss how the needs of livestock and wildlife are similar. Both must obtain what they need from the environment.</i></p>	<p><b>Identify what the basic habitat needs of wildlife are.</b></p> <ol style="list-style-type: none"><li>1. Water<ol style="list-style-type: none"><li>a. Water comes from rainfall, rivers and streams, plants, and farm ponds.</li><li>b. Wildlife can use water supplies for livestock, with some modifications.</li><li>c. Control livestock to keep them from damaging water supplies.</li></ol></li><li>2. Food<ol style="list-style-type: none"><li>a. Land next to a pasture can be critical to the carrying capacity for wildlife.</li><li>b. Producers should supply food for wildlife during winter by avoiding fall plowing and leaving standing seed heads of grasses and grains.</li></ol></li><li>3. Cover<ol style="list-style-type: none"><li>a. Cover is important for protection, nesting, and roosting.</li></ol></li></ol>

Instructor Directions	Content Outline
	<ul style="list-style-type: none"> <li>b. Wildlife species use four types of cover.               <ul style="list-style-type: none"> <li>- Soft: nonwoody growth of grasses, legumes, and forbs</li> <li>- Shrubby: woody brush and shrubs with multiple stems growing from a common base that are generally less than 20 feet tall</li> <li>- Hard: trees and shrubs 20 or more feet tall</li> <li>- Escape: especially dense shrubby or hard cover where wildlife can escape predators</li> </ul> </li> </ul>
<p><b>Objective 3</b></p> <p><i>Discuss the characteristics of a grassland that affect how wildlife can use it.</i></p>	<p><b>Identify what factors affect the value of grasslands for wildlife.</b></p> <ol style="list-style-type: none"> <li>1. Type of grassland       <ol style="list-style-type: none"> <li>a. Cool-season pasture: normally at its peak quality and ready for harvest at the height of the nesting season, which creates problems for ground-nesting birds</li> <li>b. Native warm-season pasture           <ul style="list-style-type: none"> <li>- Provides better food and cover when properly managed than cool-season pasture</li> <li>- Not ready for harvest until midsummer, when most ground-nesting wildlife have produced their broods</li> </ul> </li> <li>c. Native grassland           <ul style="list-style-type: none"> <li>- Dominated by a mixture of native warm-season grasses with a good complement of native legumes and forbs</li> <li>- May have hundreds of plant species, attracting many species of wildlife</li> </ul> </li> </ol> </li> <li>2. Plant composition: A variety of plants generally makes the grassland more productive and enhances wildlife habitat by improving the quality of cover and the available food supply.</li> <li>3. Size of the grassland: Different species require grasslands of different sizes.</li> <li>4. Use of the grassland: This is probably the most critical factor affecting the value of the grassland for both wildlife and livestock.       <ol style="list-style-type: none"> <li>a. Haying</li> <li>b. Grazing</li> </ol> </li> </ol>

Instructor Directions	Content Outline
<p><b>Objective 4</b></p> <p><i>Ask students how the different grassland management practices might affect a particular species (e.g., rabbits). Discuss how they can be adapted to benefit wildlife.</i></p>	<p><b>Describe how management practices can be adapted for wildlife.</b></p> <ol style="list-style-type: none"> <li>1. Grazing           <ol style="list-style-type: none"> <li>a. Continuous grazing is less beneficial for wildlife than rotational grazing.</li> <li>b. Rotational grazing allows managers to move livestock when necessary to give the valuable palatable plants a resting period in which to grow and multiply.</li> <li>c. Rotational grazing allows grazing to be timed to benefit both livestock and wildlife.               <ul style="list-style-type: none"> <li>- Schedule prime nesting areas for rest periods when wildlife need them.</li> <li>- Arrange to have livestock graze next to nesting areas so chicks will have access to open ground with a different mix of foods next to good soft cover.</li> <li>- Schedule paddocks next to woody cover or other wintering grounds for grazing early in the season so they can regrow cover and seed.</li> </ul> </li> <li>d. A moderate grazing intensity is most beneficial because it provides adequate food and cover while opening travel lanes between plants and creating some bare ground for seed-gathering and dusting areas.</li> </ol> </li> <li>2. Haying: Grassland managers can adjust location, timing, and mowing height to leave enough food and cover as needed.           <ol style="list-style-type: none"> <li>a. Leave the outer 30 feet of hay fields standing or cut it later.</li> <li>b. Have a balance of warm- and cool-season pastures with different harvest dates so food and cover are always available.</li> <li>c. Stagger haying schedules so harvest takes place over a longer period.</li> </ol> </li> <li>3. Fertilizing           <ol style="list-style-type: none"> <li>a. It can increase grassland production and improve the nutritional quality of food, but other management practices must leave enough food and cover.</li> </ol> </li> </ol>

Instructor Directions	Content Outline
	<ul style="list-style-type: none"> <li>b. Native grasslands do not usually benefit from fertilizing, which can change plant composition and allow weeds to take over.</li> <li>4. Overseeding with legumes               <ul style="list-style-type: none"> <li>a. Seeding pastures with legumes helps wildlife by adding diversity to the types of food and cover available.</li> <li>b. They should not be added to native grasslands because these areas already contain legumes and forbs more suitable to the site.</li> </ul> </li> <li>5. Irrigation: Irrigation could benefit wildlife as an additional source of water, but it could be harmful if it occurred during critical times.</li> <li>6. Reestablishing native warm-season grasses: Converting much cool-season pasture to native warm-season grasses can benefit wildlife since they have adapted to these grasses.</li> <li>7. Prescribed burning: Prescribed burning helps in maintaining a vigorous grassland community (e.g., maintaining or increasing the native legumes used by wildlife).</li> </ul>
<p><b>Objective 5</b></p> <p><i>Wildlife managers use standard guides to help landowners assess wildlife habitat. Ask students what factors might be used in evaluating a grassland for its capacity to support wildlife. Have students complete AS 1 or 2. AS 2 is tied directly to this study question, while AS 1 provides a more general evaluation.</i></p> <ul style="list-style-type: none"> <li> AS 1 – Habitat Evaluation</li> <li> AS 2 – Grassland Evaluation for Wildlife Habitat</li> </ul>	<p><b>Determine how existing wildlife habitat is evaluated.</b></p> <p>Wildlife habitat can be evaluated by looking at eight factors.</p> <ul style="list-style-type: none"> <li>1. Extent of the border surrounding the grassland</li> <li>2. Percent of the field covered by winter or escape cover</li> <li>3. Percent of canopy coverage from shrubs and herbaceous vegetation 6 to 18 inches tall</li> <li>4. Grazing pressure</li> <li>5. Percent of the ground covered or shaded by legumes</li> <li>6. Plant composition</li> <li>7. Distance from the center of the field to the edge of the nearest crop field</li> <li>8. Percent of the grazing unit that is within 250 feet of dense woody cover or ungrazed woodland</li> </ul>

Instructor Directions	Content Outline
<p><b>Objective 6</b></p> <p><i>Most wildlife management plans for grasslands are written for quail and rabbits. Exceptions include where species of extra importance or need occur (such as the prairie chicken) or where special habitats may be involved (like remnant prairies). Ask students to explain why good habitat for rabbits and quail is often considered ideal for other types of wildlife.</i></p>	<p><b>Describe why grassland management plans are written for quail and rabbits.</b></p> <ol style="list-style-type: none"> <li>1. Rabbits and quail are popular game animals.</li> <li>2. They require a relatively small acreage, so good wildlife management plans can be written for both large and small farms.</li> <li>3. They are indicator species; if a habitat benefits them, many others will prosper since their needs are similar to those of a variety of other species.</li> </ol>
<p><b>Application</b></p> <p> AS 1 – Habitat Evaluation</p> <p> AS 2 – Grassland Evaluation for Wildlife Habitat</p>	<p>Answers to AS 1 Answers will vary.</p> <p>Answers to AS 2 Answers will vary.</p>
<p><b>Closure/Summary</b></p>	<p>Wildlife that lives within the grassland community must have their needs for water, food, and cover met by the grassland. Producers can adopt management practices to accommodate wildlife without sacrificing forage production for livestock.</p>
<p><b>Evaluation: Quiz</b></p>	<p>Answers:</p> <ol style="list-style-type: none"> <li>1. d</li> <li>2. b</li> <li>3. d</li> <li>4. c</li> <li>5. d</li> <li>6. b</li> <li>7. Students may list any three of the following species: greater prairie chicken, upland sandpiper, meadowlark, rabbit, quail, pheasant, deer, or turkey.</li> <li>8. Escape cover is especially dense shrubby or hard cover where wildlife can escape predators.</li> <li>9. Native warm-season pasture provides better food and cover when properly managed than cool-season</li> </ol>

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pasture. It is also not ready for harvest until midsummer, when most ground-nesting wildlife have produced their broods.

10. Students may list any two of the following factors: extent of the border surrounding the grassland, percent of the field covered by winter or escape cover, percent of canopy coverage from shrubs and herbaceous vegetation 6 to 18 inches tall, grazing pressure, percent of the ground covered or shaded by legumes, plant composition, distance from the center of the field to the edge of the nearest crop field, and percent of the grazing unit that is within 250 feet of dense woody cover or ungrazed woodland.
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