

Lesson C4–2

Identifying Foods and Environmental Requirements

Unit C. Animal Wildlife Management

Problem Area 4. Game Birds Management

Lesson 2. Identifying Foods and Environmental Requirements

New Mexico Content Standard:

Pathway Strand: Natural Resources and Environmental Systems

Standard: I: Recognize importance of resource and human interrelations to conduct management activities in natural habitats.

Benchmark: I-D: Employ environmental and wildlife knowledge to demonstrate natural resource enhancement techniques.

Performance Standard: 4. Demonstrate range enhancement techniques.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Identify the food requirements of popular game birds.
2. Identify the environmental requirements of popular game birds.

List of Resources. The following resources may be useful in teaching this lesson:

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Stutzenbaker, Charles D. et al. *Wildlife Management Science and Technology*. 2nd ed. Upper Saddle River, New Jersey: Prentice Hall Interstate, 2003.

Other Resources. The following resources will be useful to students and teachers:

Clauer, Phillip J., George L. Greaser, R. Michael Hulet, and Jayson K. Harper. *Bobwhite Quail Production*. University Park, PA: The Pennsylvania State University, 2002.

Hanselka, C. W. & Fred S. Guthery. *Bobwhite Quail Management in South Texas*. Texas Agricultural Extension Service.

Smith, Jr., Tom W. *Feeding Quail*. Extension Service of Mississippi State University, Publication 2383. <http://msucares.com/pubs/publications/pub2383.htm>.

Stewart, Dean. *Forest Management Strategies for Bobwhite Quail*. Extension Service of Mississippi State University, Publication 2087. <http://msucares.com/pubs/publications/pub2087.htm>.

Stewart, Dean and Wes Burger. *Strip Disking and Other Valuable Bobwhite Quail Management Techniques*. Extension Service of Mississippi State University, Publication 2032. <http://msucares.com/pubs/publications/pub2032.htm>.

Walker, Walter S. and Tom W. Smith. *Raising Bobwhite Quail for Commercial Use*. Mississippi State University. <http://www.msstate.edu/dept.poultry/pubs/bwqprod.htm>.

Woodard, Allen E. *Raising Chukar Partridges*. Davis, CA: University of California, 1982.

Woodard, Allen E., Ralph A. Ernst, Pran Vohra, Lewis Nelson Jr., and Fred C. Price. *Raising Game Birds*. Leaflet 21046. Davis, CA: University of California, 1978.

List of Equipment, Tools, Supplies, and Facilities

Writing surface

Overhead projector

Transparencies from attached masters

Terms. The following terms are presented in this lesson (shown in bold italics):

Bound water

Metabolic water

Open water

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Just like plants need water, light, nutrients, and support, animals have requirements for growth. There are many things that a landowner can do in managing their land to be certain that the food and environmental requirements of popular game birds are met.

Summary of Content and Teaching Strategies

Objective I: Identify the food requirements of popular game birds.

Anticipated Problem: What are the food requirements of popular game birds?

- I. The diet of bobwhite quail in the wild varies over the course of the year. This is due to the availability of food sources and activity level of the bird. The majority of the quail's diet consists of seeds from various plants. These seeds can come from pasture or roadside grasses or from agricultural crops. A nonbreeding bobwhite quail requires about 60 calories of usable energy per day. The type of seed eaten determines the amount of seed needed to meet the daily caloric energy needs of the birds. Seeds from crops such as corn, soybeans, and wheat are higher in calories, thus the birds can eat fewer of these seeds. These larger seeds are crucial to bobwhites because they minimize the time required to obtain energy. This in turn minimizes the time that the bird is exposed to predators. A second important food source for birds is insects. For example a cricket equals about 25 to 30 grain sorghum seeds in energy value to the bird.
 - A. As with all living organisms, water is very important to game birds. Most game birds can obtain water from three sources.
 1. The water produced when foods are metabolized is called **metabolic water**. This source supplies 30 to 50 percent of the daily water needs.
 2. The second source is **bound water**, which is water available from foods. The primary source of this type of water is from plant greens (stems, leaves). This part of the plant normally is about 70 to 90 percent water. Water is also found in the insects that birds eat. Insects are normally about 60 percent water.
 3. A third source of water is open water. **Open water** is water from ponds, streams, and dew.

There are many techniques that can be used to assist students in mastering this material. Students need text material to aid in understanding the food requirements of popular game birds. Bobwhite Quail Management in South Texas is recommended. Use TM: C4–2A to aid in the discussion on this topic.

Objective 2: Identify the environmental requirements of popular game birds.

Anticipated Problem: What are the environmental requirements of popular game birds?

- II. Bobwhite quail need a diverse habitat which contains many plants species and cover types, small blocks of cover well mixed with small blocks of different types of cover, and brush and trees of several ages. During March, April, and June, males need whistling perches, usually 6 to 12 feet tall. These perches are used to establish territory and attract mates. These perches should occur at a density of one per one-twentieth of an acre. Perennial grasses provide excellent nesting cover. These clumps of dry grass should be about 8 inches tall and 12 inches in diameter.
- A. Ring-necked pheasants enjoy an environment made ups of gently rolling open country with roosting areas on the ground near wetlands, hayfields, and small grain areas. Pheasants prefer the open areas much more than quail. The general cover requirements are the same for pheasants as they are with quail; only the grasses need to be taller since it is a larger bird.

There are many techniques that can be used to assist students in mastering this material. Students need text material to aid in understanding the environmental requirements of popular game birds. Integrating Deer, Quail, and Turkey Habitat is recommended.

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at end of chapters in the textbook may also be used in the review/summary.

Application. Contact your local State Department of Natural Resources office to invite a guess speaker to your class to discuss this topic. A field trip to a local game reserve would also allow students to see good game bird habitat.

Evaluation.

Answers to Sample Test:

Part Three: Short Answer

1. Metabolic water, Bound water, and Open water
2. See Objective 2 for scoring this item.

3. Larger seeds provide more energy than smaller seeds. Also, eating larger seeds minimize the time required to obtain energy. This reduces the time the bird is exposed to predators.

GAME BIRDS HABITATS



Sharp-tailed grouse are found in grassland areas. (Courtesy, Dan Biggins, U.S. Fish and Wildlife Service)



A Gambrel's quail is looking out from a saguaro cactus in an Arizona Desert.



A small covey of quail venture out from a hedge row.