

## QUAIL

### INTRODUCTION

Quail hunting is a sport enjoyed by a great many people. You may have thrilled to the sight of a good bird dog gracefully “pointing” quail, or to the whirring sound of sudden flight when these birds are flushed. Besides being fun to hunt, quail make delicious eating as well. The purpose of this activity is to teach you something of the bird’s life history, its food and cover needs, and some ways to improve the land for increased quail production.

### LIFE HISTORY OF THE BOBWHITE QUAIL

The bobwhite is a small reddish-brown bird that weighs six ounces when grown. Males have a white line over their eye and down their neck. They also have a white bib on their throat. These markings are brownish-yellow on females. A quail’s coloration makes them hard to see in their natural surroundings.

Quail are native to the midwestern and eastern United States. They have also been introduced elsewhere. Quail are well adapted to agricultural

regions and are beneficial to man since they eat many harmful insects and weed seeds.

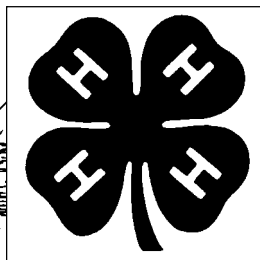
When flushed from cover, a covey of quail will fly in many directions. However, they prefer to stay on the ground when undisturbed. They feed, take cover, and even roost on the ground.

Quail get their name from the “bobwhite” whistle made by the male. It may be heard in the early morning or late evening. This is the way that one bird calls for another to join him. “Bobwhite” whistles are also used by males to attract a mate.

Quail don’t like to be alone. During late fall and winter they gather together to form a “covey.” Quail coveys break up as days become warmer in the spring—all quail are adults at this time of year. Males and females pair off and courtship begins. You know that mating season is beginning when you hear bobwhite whistles.

An adult hen and cock quail pair off for the entire nesting season. Both birds work at building the nest. Nests are made of dried vegetation and are located in areas such as fallow fields, fence rows, road rights-of-way, and hay fields. The nesting period extends from April through September, with most nesting occurring in May, June, and July. Quail reneest only when earlier attempts are unsuccessful. From eight to 25 eggs may be laid by one hen but the average is 14. Incubation requires 23 days. If the female is killed, the male will take over incubation and brooding.

The number of chicks hatched ranges from eight to 25 and averages 12. All chicks hatch within a 24-hour period and leave the nest together a few hours after they are dry. Chicks can fly when two to three weeks old. They weigh as much as adults in eight to nine weeks and resemble adults in



15 weeks. The adults and brood normally remain together as a covey until fall. Much mixing of individual quail between coveys takes place in the fall. The winter covey size averages 14 birds. Most quail live about four months; some may live a year or longer. Quail coveys have a home range of 15 to 100 acres. All their needs such as food and various types of cover must be within their home range. They feed mainly in early morning and mid-afternoon.

Quail populations depend primarily upon land use and weather. However, the number of quail in an area will change from month to month, from year to year, and from decade to decade. Monthly changes occur because of the large increase of young quail during the summer nesting season, and later decrease in number during the fall and winter because of harsh weather, hunting, accidents, disease, and other factors. Many quail may starve when their food is covered by snow and ice during the winter. The birds which survive until the following spring will be the hardest of the group. These birds will be breeders that will replenish the population during the nesting season.

Year-to-year changes in population are determined by the degree of success of reproduction. Excessive rainfall or drought during summer may destroy many quail eggs and chicks. Nesting success is surprisingly poor even during the best years. Many times nests are abandoned due to some disturbance—often caused by man. Predation is important only during the nesting

*In this illustration, factors that hold down wildlife populations are shown as hurdles over which the birds hatched in one spring must fly if they are to survive to the next spring. Only a few of these limiting factors can be controlled by man. The effects of predators may be modified, but with uncertain results. Little can be done about diseases and parasites. Some of man's activities, such as time of plowing, could be changed; others, such as time of mowing meadows, cannot very much. The greatest changes, fortunately, can be made in the most important factors. Success in managing land to produce useful wildlife lies in improving the amount, quality, and distribution of food, cover, and water.*

period. Many nests are destroyed by dogs, cats, foxes, rats, snakes, raccoons, skunks, and other predators.

Longtime changes in numbers of quail, over several decades, are caused by changes in land use. These include changing farming practices, urban expansion, and road construction. Clean farming practices, the use of some pesticides, and increase in pasture acreage have caused a large decline in quail numbers.

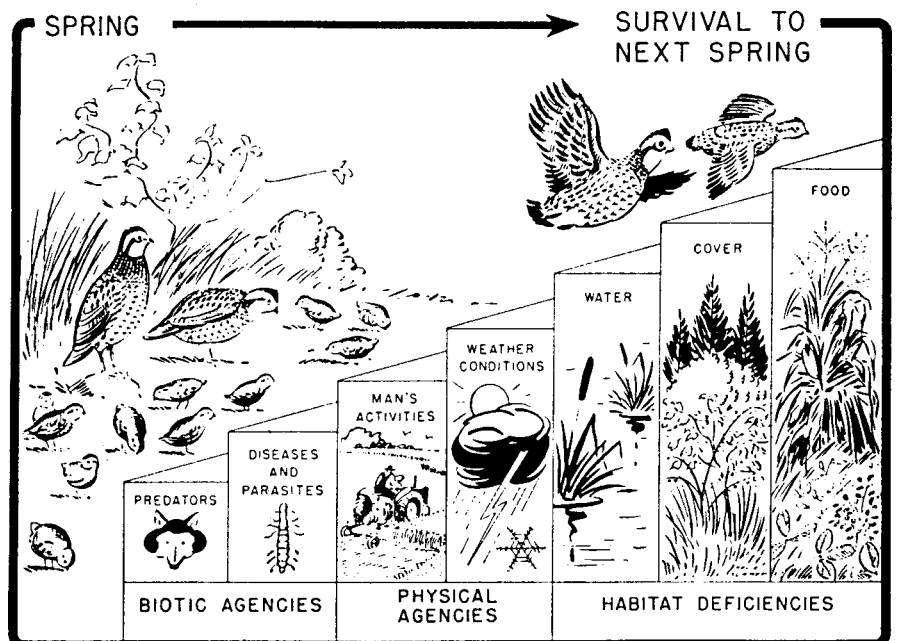
The maximum number of quail that a given area will support is seldom more than one quail per acre. Approximately 80% of the fall quail population consists of birds three to seven months old. Each year about 80% of the quail present in the fall will die by the following fall, whether they are hunted or not.

### FOOD AND COVER NEEDS

Quail need all of their requirements close by because they live primarily on the ground and travel mostly by walking. They do not fly long distances. Quail food and cover requirements are described below and good quail habitat will have representatives of each category:

**Spring and Summer foods:** Various kinds of wild fruits, herbs, green Vegetation, weed seeds, and insects; e.g., plum, blackberry, black cherry, poke weed, clover, early maturing weed seeds, and a large variety of insects.

**Fall and winter foods:** A large variety of seed pro-



duced by agricultural crops, grasses, weeds, shrubs, and succulent green plants; e.g. paspalum grass, panic grass, ragweed, jewel weed, smartweed, beggar weed, wild bean, dogwood, sassafras, clover, acorns, Korean lespedeza, millet, corn, soybeans, and grain sorghum.

**Nesting cover:** Thin stands of grasses, straw, and weed stubble; e.g. broom sedge, barnyard grass, wheat straw, and old stands of asters, fleabane, cheat, or other dried weeds.

**Loafing and resting cover:** Thin stand of weeds, grasses, and shrubs; e.g. aster, ragweed, horse weeds, broom sedge, plumb bushes, and sumac bushes.

**Escape cover:** Dense woody plants; e.g. blackberry, grapevine, vine honeysuckle; dense, low growing thickets; brush piles and felled tree tops.

**Water:** Standing water is not normally necessary for quail in the southeastern United States, although they will frequently drink it when it is available. Frost, snow, dew, and moisture from succulent Vegetation and insects normally provide enough water.

## MANAGING THE LAND FOR BOBWHITE QUAIL

The bobwhite quail will live only where conditions fulfill their needs. Quail management consists primarily of providing food and cover plants to satisfy these. Dense or thin vegetation is not suitable for quail.

Properly managed habitat will produce an abundance of quail. Severe weather conditions such as extreme drought or extremely cold winters and disease may cause temporary population declines. The population will normally replenish itself within one or two years on properly managed areas. Controlling wild predators, stocking quail, and closing or shortening hunting seasons have very little, if any, effect on quail production. Domestic dogs and cats which are allowed to roam free are probably more harmful than any wild predator. Properly managed habitat is the best protection and predator control available.

The most important practice in quail management is to mix enough food and cover over large areas.

When the land is divided into food-producing areas located near good cover, it is better suited for quail. Quail management practices on most areas will not be costly or require much land or work. On many farms the cost will be nothing because the practices simply involve leaving an area idle. Most recommended practices will not require much land, but they may alter land use.

Specific quail management practices listed below are possible on most farms:

1. Fence rows should be developed and maintained. They provide the foundation for quail management on many farms. Minimum width should be 12 feet. Fence rows next to crops should not be over seven feet high in order to prevent shading of the crop. Encourage woody plants such as wild plum, sumac, greenbriar, wild grape, honeysuckle, blackberries, dogwood, sassafras, osage orange, and other low growing shrubs. Trees that grow tall should not be allowed to dominate (not more than one tall tree per 150 feet of fence row should be allowed to stand). Large trees shade out valuable undergrowth. Cut tall trees and allow them to fall in fence rows. Let tops and limbs lay where they fall. Permit a narrow strip of grass or weeds to grow next to the fence row. Leaving a strip fallow to grow into a suitable fence row may require three to 15 years depending on the soil and what has previously been growing there. A well-developed fence row around a 20-acre grain field may support one or two coveys.

2. Brush piles are one of the quickest methods of improving quail cover. They may be constructed with materials readily available. Brush piles should be loosely built and grass and weeds allowed to grow in them. Three or four average-size tree tops are needed to build a brush pile (15 feet wide by 5 feet high by 40 feet long). Place piles adjacent to a grass-weed fence row and a grain field.

3. "Odd areas" are places such as gullies, steep hill-sides, field corners, rock outcrops, and other areas that are impractical or too small to farm profitably. The average farm has several "odd areas," "odd areas" can be valuable to quail. Let "odd areas" grow into thickets, if cover is needed. It maybe useful to establish a food plot in large "odd areas." If trees become

too large, top them and build brush piles. If gullies are eroding, establish Korean lespedeza in them. Other measures may also be necessary to stop erosion.

4. Wooded areas are occasionally valuable to quail as food producers and escape cover. Small woodlots on farms are especially beneficial. They can be improved for quail by cutting trees at the wood edge where it joins a field. This will create brushy cover and make the edge more valuable. Do not permit cows or hogs to use the woodlots. Normally this decreases the value of the timber and makes it less desirable for quail since the ground vegetation is destroyed. Controlled burning in suitable habitats is beneficial. However, wildfire can be dangerous. Use fire only under the supervision of a professional.

5. Food plots may be necessary if wild food and wasted grain is not plentiful. An easy way to provide food is to leave part of your grain crops standing near a cover area. One quarter-acre food plot next to a fence row will provide ample food for a covey. The outside three or four rows of corn or grain sorghum next to good cover will provide a good food plot. Cultivate the outside rows only once to give the grain a head start on weeds. This will increase the amount of food available and will furnish better cover by permitting annual weeds to grow between rows.

Always locate food plots near cover. Small grains such as grain sorghum, buckwheat, millets, cowpeas, and Korean lespedeza make good food plots. You may plant them separately or in a mixture. Bicolor lespedeza is an excellent perennial plant for food plots. Plot sizes should be  $\frac{1}{8}$  to  $\frac{1}{4}$  acre. Fertilize food plots according to soil test recommendations.

Annual weeds such as ragweed, smartweed, foxtail millet, and wild legumes are preferred quail foods. These can be grown by simply disking in fallow fields or "odd areas." Disking strips every year or two will maintain annual weed growth. Fertilization of the disk strips will be useful on poor soils.

The following two types of food plots may be used or your county Extension agent may suggest better planting materials for your area or soil type. The

annual food plot can be top-seeded with bicolor seeds during the same operation. This will provide a continuous source of food.

#### Annual Food Plot Mixture (for $\frac{1}{8}$ -acre plot)

Korean lespedeza	1 lb
Whippoorwill cowpeas	1 lb
German or Browntop millet	1 lb
Soybeans	$\frac{1}{2}$ lb

Or 4 lb of any one or combination of the above.

#### Perennial Food Plot (for $\frac{1}{8}$ -acre plot)

Bicolor lespedeza—plant 3 lb of scarified seeds per plot. Broadcast and cultipack. Fertilize. For seedlings plant 1,000 per plot. Plant 18" apart in 30" rows.

6. Farming practices beneficial to quail include crop rotation, contour strip cropping, proper grazing of pastures, delayed mowing until after July and delayed plowing until spring. Your county Extension agent may be able to help you get some assistance in managing your land for quail. Many states provide valuable information and sometimes seeds for food plots.

### THINGS TO DO

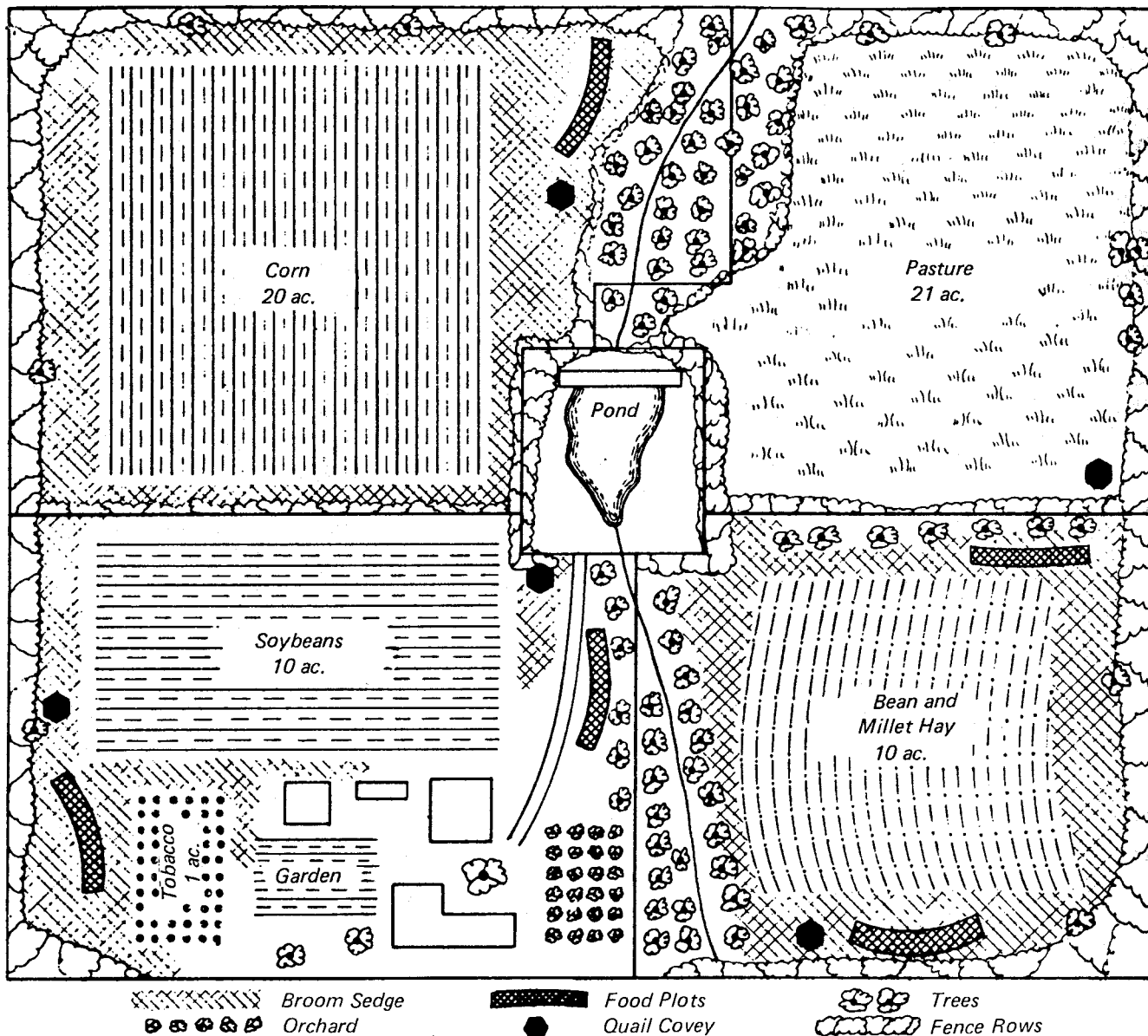
1. Read at least one book on bobwhite quail. Report on it to your group or write a review of the book. From the information in the book, draw the life cycle of a quail, including the appropriate seasons when it is born, mates, and feeds. Also mention where it does these things.



2. Make a brush pile to improve quail cover. Be sure that it is placed close to a grassy fence row and a food supply. Tell Why this is important.

3. Help to plant at least one 1/8-acre food plot for quail. Include seeds that will provide a year-round source of food. Tell why it is important that food plots be near good cover.

4. Make a lean-to feeding shelter to be used by quail in the winter. Place it close to good cover. Design it so that it protects the birds and food from wind, snow, and rain. An H-frame made of poles with dense pine or cedar trees leaned against it makes a good shelter. Corn or other grains may be scattered under the shelter for winter feed. Observe the shelter for use by quail. Keep a record of the other animals which feed there. Report to your 4-H group on this activity.



This 100-acre farm has all requirements necessary to support four or five coveys of quail. It contains 41% cropland, 21% pasture, 14% woods and brush, 8% fence rows, 10% fallow-broom sedge, and 6% yard, pond, and buildings. Nesting cover is available in the broom sedge-fallow areas, fence rows, and woods edge. Loafing cover is available in the fence rows, broom sedge-fallow areas, woods and crop areas (in crop areas only during summer and early fall). Escape cover is available in the fence rows and woods. Fence rows average 12 feet wide. Food could be furnished by crop waste and weeds most of the time. Food plots may not be necessary, but they do make the farm more attractive to quail. Standing sources of water are not normally necessary for quail, but water is available on this farm in the pond and stream.

5. Examine the contents inside the crops of five quail. Identify food materials found and make a list of them. Hunters may provide you with quail crops. The crop is a food storage pouch located just in front of the bird's breast. It is under the base of the neck and forward of the wishbone. Report to your 4-H group on this activity. Display the dried contents of the crop.

6. Prepare a report on why stocking additional quail in an area seldom increases the overall quail population. Keep in mind the importance of food and cover needs. Present this report to your 4-H group.

7. Orally or in a paper discuss why having quail food and cover close together is important. Do you think it would be best to have one large area providing both food and cover or several separated areas which provide both food and cover? Tell why. What effect does seasonal change have on food and cover for quail? Tell how this affects the quail population. Present this report to your 4-H group.

8. Draw a map of an area with quail showing the food and cover available in the summer or early fall. Draw another map showing food and cover in the winter. Tell how it differs. Present your maps on poster board and mark on the maps locations of quail coveys that you find. Make a list of suggestions that could improve the land for quail. Report on this activity to your 4-H group.

9. Improve an area for quail by using at least two of the methods outlined in this leaflet. Report on this management activity to your 4-H group. Your report will be improved by the use of maps or posters that demonstrate the work that you have done.

10. Use management practices discussed in this leaflet to provide additional food and cover for quail. Draw maps of the area showing what food and cover is available before and after you improve the land. What season of the year is the most difficult for quail? Do your improvements make it possible for the land to support more quail during this season? Mark the location of quail coveys on your maps. Note the number of birds in each covey. Draw the maps to scale. Report on your management activity to your 4-H group.

11. Use a camera to photograph those elements most important in a quail's life. Take pictures of where they live, what they eat, and how their environment changes with the seasons. Be careful not to interfere with their habitat.

## WORDS TO KNOW

Annual plants—Plants that live only one year or season

Cover—Any material that provides protection for animals (generally refers to vegetation)

Covey—A small flock of birds; especially partridges or quail

Habitat—The area where a plant or animal naturally grows or lives

Herbicides—Substances used to kill plants

Insecticides—Substances used to kill insects

Perennial plants—Plants that live for more than two years

Predator—An animal that kills and feeds on other animal life

## OTHER SOURCES OF INFORMATION

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