

WILDLIFE

management guide



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Bobwhite Quail

Quail need a good interspersion of woodlands, brush, grass and cultivated lands. Slash, loblolly and longleaf pine forests generally have hardwood stringers that produce quail foods.

Grasses, legumes and shrubs occur in sparse pine stands and openings. The amount of food produced depends on density of the forest canopy, amount of litter covering the ground, soil fertility and past land use.

An open overstory is the most important component of quail habitat. Carrying capacity of forested areas are increased primarily through timber harvesting and prescribed burning. Pine forests managed for quail can usually support one covey to each 25-100 acres. Quail numbers are highest on regeneration areas but decline as overstories develop. Habitat improves toward the end of the pine rotation or following thinning when the canopy is opened. Burning and logging reduce ground litter and permit growth of quail foods.

HABITAT REQUIREMENTS

▲ Food

Quail are primarily seed eaters and legumes are preferred. Animal matter (mainly insects) is seasonally important and fleshy fruits are eaten when available.

Important food species and type common to Piedmont and Coastal Plains forests:

Herbaceous Plants		Trees, Shrubs and Vines	
Ragweed	Seed	Maple	Seed
Beggarweed	Seed	Hackberry	Fruit
Partridge Pea	Seed	Flowering Dogwood	Fruit
Goatweed	Seed	Persimmon	Fruit
Chufa (<i>nut grass</i>)	Tuber	Bayberry	Seed
Tick Trefoil	Seed	Blackgum	Fruit
Wild Millet	Seed	Pines (<i>longleaf preferred</i>)	Seed
Lespedeza	Seed	Cherry	Fruit
Grasses	Seed	Oaks (<i>especially small acorns</i>)	Seed
Pokeweed	Berry	Sumacs	Seed
Smartweed	Seed	Blackberry	Berry
Vetch	Seed	Grape	Berry
Panicum	Seed	Magnolia (bays)	Seed
Milk Peas	Seed	Sweetgum	Seed
Butterfly Peas	Seed		



▲ *Cover*

Best cover types include interspersed woodlands, brush, grass and cultivated fields. In open-canopy pine forest, shrubs, brush, and native grass furnish this cover. Both nesting and winter cover are necessary in woodlands.

Choice nesting cover consists of 1-3 year old clumpy grasses. In woodlands, quail nest at edges of openings. Nesting cover should be well distributed to keep predators from easily locating nests.

Bushy thickets provide winter and year-round escape cover. Clumps of about 1/2 to 1 acre, scattered over the area, are necessary for quail survival. Strips of shrub lespedeza, Osage-orange, plum thickets, wildrose, honeysuckle, and blackberry patches provide excellent brushy cover. This cover is the hub of stable covey range and key to quail reproduction. Provisions must be made to protect some cover from destruction during prescribed burning activities.

▲ *Water*

Quail obtain moisture from dew drops on ground vegetation, rain, snow, succulent leaves, wild juicy fruits and insects so surface water is not essential. Well drained soils generally provide better quail habitat.

▲ *Home Range*

In good habitat, the range of quail coveys is about 40 acres. This can vary from 25 to over 100 acres per covey depending on habitat quality. Covey ranges will overlap to some degree.

▲ *Population*

Quail numbers vary from about 1 quail per 1-3 acres in intensively managed longleaf pine stands to 1 bird per 40 acres and lower as habitat quality and management intensity decreases.



STANDARD MANAGEMENT PRACTICES

Newly regenerated areas with related openings can substitute for grasslands and cultivated fields normally used by quail. Very open plantations from pulpwood size to mature sawtimber can supply brushland and woodland. The greater the interspersion and distribution of age classes, the better the quail habitat.

Use a sawtimber rotation. A newly regenerated stand can provide good to excellent quail hunting for 3 to 4 years or until the trees and brush get too thick or high. The area is then poor quail habitat until the stand is thinned and burned. Longleaf pine stands are better suited to quail management because of compact growth form of individual trees, and the ability to utilize prescribed burning early in the rotation.

▲ *Regeneration*

Irregularly-shaped regeneration cutting will help meet the requirements for food, cover, nesting and rearing young. Favor longleaf pine over other pines. Retain 1/2 to 1 acre hardwood clumps as key areas for cover and food species within the pine stand at a maximum of 1/4 mile intervals. Oak species that produce small acorns are particularly favored by quail (e.g. *water oak*, *willow oak*).

▲ *Intermediate Treatments*

Quail prefer open pine stands with a basal area of 30-70 square feet per acre depending on site index. Berry and seed-producing understory plants are desirable.

Thin dense stands of small oaks in stream bottoms, inclusions and other key areas to enhance mast production. Retain and favor best mast producers, preferably post, red, white, water, willow and live oaks. Retain small components of other mast species such as dogwood, blackgum and maple.

▲ *Prescribed Burning*

Prescribed burning is essential to providing good quail habitat in forested areas. Prescribed burning creates open timber stands, maintains natural openings, and renews herbaceous vegetation. Fire favors plants such as partridge pea, beggarweed, other legumes and runner oak. Legumes often make up to 20 percent or more of the ground cover on burned plots. When these areas are interspersed with numerous small streams or branch bottoms, ravines, and scrub oak ridges, opportunities for management are unlimited.

Small areas of open fields can be control burned, and annual burning of pine stands is also beneficial. Generally, do not burn stream bottoms, slopes that exceed 20 percent, woody or bushy thickets, scrub oak ridges and other key areas supporting mast-producing hardwoods and associated species. Generally young longleaf stands can be burned, but loblolly and slash, less than about 15 feet tall, will be damaged by fire.

▲ *Direct Improvement to Habitat*

Quail need nesting and brushy cover distributed within their 40-acre home range. Construct large, loose brush piles, plant shrubs and protect areas from fire where cover is scarce.

Strive for a variety of woody and herbaceous seed producers in the forest. Where drainages are more than 1/4 mile apart, release or plant low woody vegetation in the timber stand. Where possible, plant woody coverts within transition zones and protect these from fire.

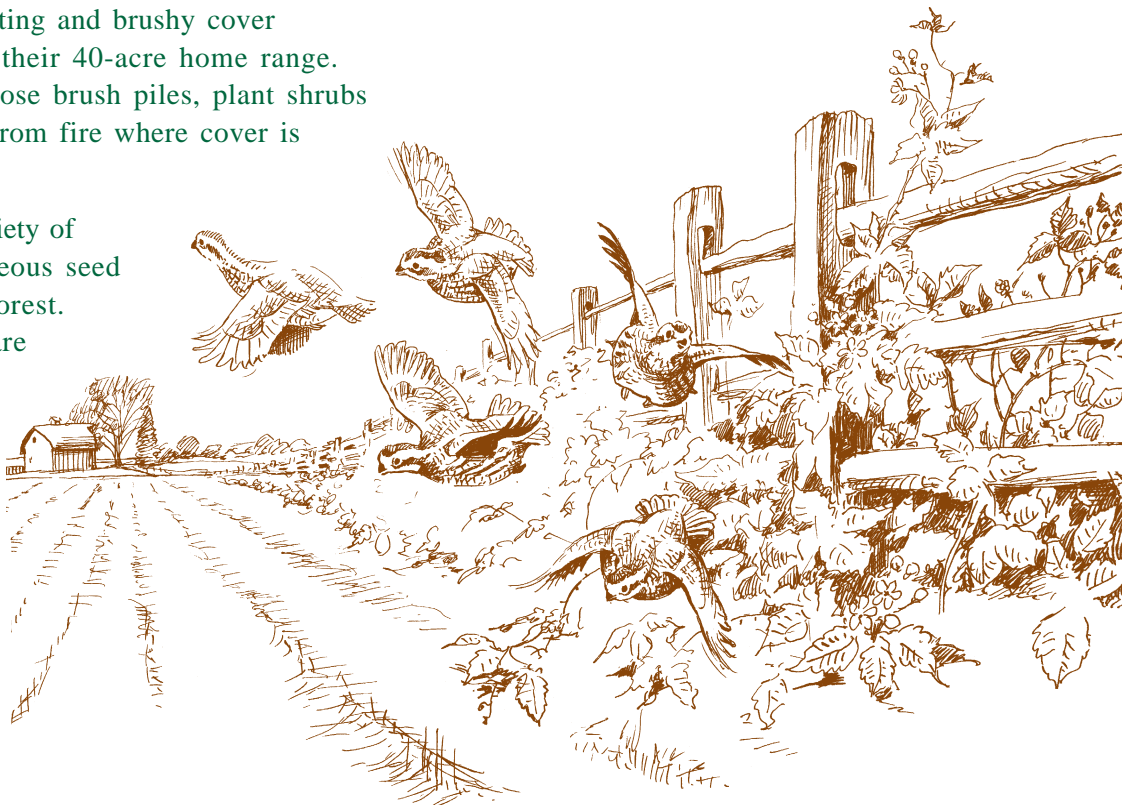
Protect old home site openings and establish permanent clearings in large solid blocks of pine. Consider power line right-of-ways, field and forest roads, natural breaks, special use areas and cultivated land as clearings for quail.

Plant 1/8 to 1/4 acre wildlife strips (*annual and perennial species*) adjacent to brushy cover in areas with too little cropland and permanent food and cover. Leave some grains unharvested on croplands.

Strip disc areas in large expanses of open fallow fields. Disc small areas near brushy cover and encourage annual forbs and grasses used by quail.

Firebreaks 12 to 30 feet wide should be created around and within timbered areas. These should be plowed, or disced, fertilized and planted to quail foods in 100 foot sections along every 500 feet of firebreak.

NOTE: Heavy grazing of pastures and fields by cattle will reduce seed yields and may be detrimental to quail.



OTHER SPECIES THAT BENEFIT FROM BOBWHITE QUAIL MANAGEMENT

Numerous other species with habitat requirements similar to quail benefit from quail management. Rather than focusing solely on quail, management plans should emphasize the communities of which quail are a part. The following species are common quail associates in the early successional habitats that can be managed for quail:

Open Fields

yellow-rumped warbler
goldfinch
indigo bunting
meadowlark
red fox
mourning dove

Early Regeneration

rabbit
gray fox
yellow-breasted chat
chestnut-sided warbler
towhee
white-throated sparrow
song sparrow
white-tailed deer

Open Pine Stands

red-cockaded woodpecker
Bachman's sparrow
wild turkey

