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History, Population Status, Ecology, and Management of the Northern Bobwhite: Part One

by *Dean W. Stewart*

Editor's note: This first article in a 3-part series covers the history of bobwhite quail, population decline, current status, land-use changes impacting habitat, and conservation recovery efforts. Articles 2 and 3 will cover life history/ecology and management, respectively.

Background and Early History

Quail are native across much of the continental U.S. The northern bobwhite, or bobwhite quail, is the most widespread of the 6 quail species in this country, and the range of its 5 subspecies covers the southeastern and mid-western U.S.

Native Americans utilized bobwhite quail for food, and as they changed from a hunter/gatherer to a more agrarian society, bobwhite numbers increased around cropped fields. In 1557, Hernando DeSoto's expedition reportedly received a gift of wild turkeys and partridges (probably bobwhite quail) at a Native American village in Georgia, comprising the earliest record of white man eating bobwhites. As European settlers carved small farms from vast forests, bobwhites became more common.



Quality land management can produce the wildlife habitat for quail conveys.

Initially, bobwhites provided a subsistence food for settlers. Markets developed, and hunting and trapping of quail were practiced from the early 1800s to the early 1900s. Market hunting eventually impacted numbers, and some northern states implemented quail game laws as early as the 1830s. Market hunting began later in the southern states. During the winter of 1905-06, over 500,000 bobwhites were shipped from Alabama to northern and eastern markets.

Over time, quail sport hunting became known as a gentleman's pastime, but most all

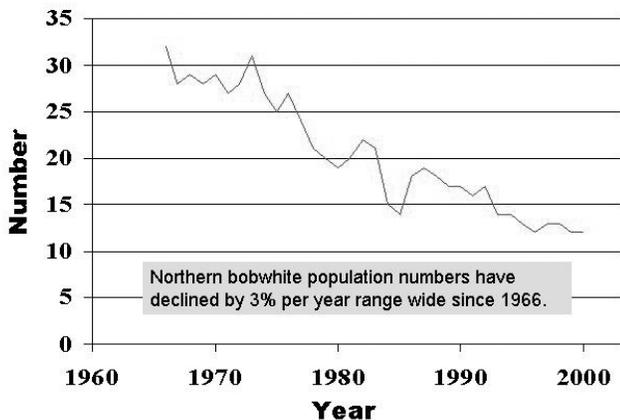
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National Breeding Bird Survey Indices for Northern Bobwhite (USFWS, 1966-2000).



hunters willing to follow a pointing dog across fields and forties easily succumbed to its princely appearance, familiar call, challenging sport hunting opportunities, and excellent table fare. Finding coveys was consistently possible but not always easy, birds held well for pointing dogs, and their rapid, unpredictable flight provided a strong shooting challenge. Bird hunting provided rich social opportunities among hunters and a common bond of mutual accomplishment and affection between hunters and their dogs.

Beginning in the late 1800s, large blocks of land across the Southeast were devoted to the love and sport of bobwhite quail hunting. Okeetee, a 50,000-acre tract of land near Ridgeland, South Carolina, was purchased and organized as a hunting club around 1894 and is bird hunted today. Photographs and stories of numerous hunts chronicle the plentiful supply of birds produced during the early 20th century on many southern plantations such as the Bailey Place in Yalobusha County, Mississippi, Groton Plantation near Estill, South Carolina, and Nilo and Pineland Plantations near Albany, Georgia.

Population Trends and Land Use Practices

Bobwhite numbers peaked during the mid-1800s in northern states and from around 1890 to the mid-

1940s in the Southeast, and then began a slow decline. The high population numbers occurring during the bobwhite's heyday were an accidental byproduct of diverse land use practices. As forests were cleared, small patch row crop farms, fallow areas, grass fields, and woodlots emerged. Annual burning of fields and forests, rotational cropping, and open grazing of livestock improved ground level habitat conditions and set back succession within this habitat mosaic, and bobwhites flourished.

Changes in land use practices beginning in the mid 20th century contributed to declining habitat quality. Over the last several decades and across their ranges, bobwhite quail and other game species associated with early-forest succession and grasslands have declined to historically low population levels. In fact, over the past 20 years, northern bobwhite population numbers have declined by over 65%. In some states, the rate of decline has escalated from 1-2% per year during the 1960s and 1970s to over 5% per year during the 1980s and 1990s. The population decline has been attributed to many factors, including predators, pathogens, and pesticides, but the primary cause is the cumulative effect of deteriorating bobwhite habitat due to land use changes. Advanced natural succession, intensive monoculture farming, intensive timber management, and declining use of prescribed burning have negatively impacted quail habitat.

Early Research and Conservation Efforts

Herbert Stoddard, Dean of bobwhite quail research and management, began studying the bobwhite in the late 1920s and in 1931 published his seminal work, *The Bobwhite Quail: Its Habits, Preservation, and Increase*. An explosion of quail research followed Stoddard's work, including important work by Walter Rosene resulting in his book *The Bobwhite Quail: Its Life and Management*. These professionals found that bobwhites require a complex, heterogeneous community of early-succession plants yielding a mix of bare ground, clump grasses, herbaceous vegetation, and

woody cover. These components provide nesting, brood rearing, and roosting habitat; a year-round food resource; and protection from predators.

Effects of Changing Land Use

Changing land use practices have simplified the landscape by promoting the abundance of one habitat component (grassland, agricultural crops, or woodlands) to the exclusion of others. Consequently, modern agricultural and forestry practices that emphasize optimal crop and fiber production have supplied world markets but eliminated the landscape complexity bobwhites require. Since World War II, individual farms have become larger, more mechanized, and “cleaner.” For example, average Mississippi farm size increased from 22 hectares in 1942 to 337 hectares in 1992, and farm numbers decreased from 291,092 to 12,800 over the same period. Similar examples exist in other states. Thousands of miles of weedy ditch banks and fencerows and millions of acres of intermingled field and woody habitat components have been lost. Marginally tillable farms have either been abandoned or converted to modern, intensively managed tree farms. Abandoned cropland provides suitable quail habitat for 2-3 years. However, advancing natural succession reduces bare soil, allows grasses and other vegetation to become too thick, and these areas “grow out” of quail habitat. Stoddard once noted, “The grass bound field is the greatest enemy of the bobwhite quail.” Similarly, croplands converted to tree farms provide quail habitat for a short time, but without frequent soil disturbance or full sunlight, understory habitat conditions rapidly decline.

Selective harvest of older, natural forests has changed to a management regimen favoring short term, dense pine plantations. Additionally, mechanical clearing and prescribed fire practices once used to prepare sites for reforestation have largely been replaced by more soil conserving practices, reducing bare soil and germination of several important seed producing plants.

Prescribed fire dramatically enhances bobwhite habitat. Native Americans patch-burned forests and



fields to manage game, increase hunting success, and improve access. Historically, controlled burning was employed annually or bi-annually to our agricultural and pinelands. Its use has all-but-disappeared due to alternative techniques, conflicts surrounding smaller landowner tract size, and health and liability risks associated with smoke and fire. In the absence of fire, a forest understory mosaic of bare ground, grasses, weeds, and woody vegetation is replaced by dense woody brush that shades and eliminates herbaceous vegetation essential for foraging, nesting, and brooding.

Grazing practices have also changed. Thirty years ago, sheep and cattle were rotationally grazed between native grasses and woodlots. Today, open range grazing practices that produced an irregular mosaic of grazed and un-grazed patches have been replaced with more uniform, intensive grazing practices. Most pastures are planted to large, clean, exotic grass fields of fescue, Bermuda, or Bahia, providing quality grazing but poor quail habitat. Higher stocking levels better utilize forage resources but do not produce the beneficial, diverse plant communities that resulted from the earlier grazing practices.

Though other factors cloud the bobwhite quail picture, changing land use practices and patterns have reduced bobwhite habitat quantity and quality, and unless active management is pursued at both the micro- and macro-habitat levels, we may never see the abun-

dant bobwhite populations of yesteryear.

Can Habitat Management Produce Results?

While the decline in bobwhite populations is discouraging, the bright side of the picture is that bobwhites are a prolific species and can respond rapidly to appropriate habitat management practices. Bobwhite quail populations can be restored, and this has been demonstrated on numerous individual properties! However, it is important to recognize that the magnitude of response is related to the scale and intensity of management. A little management will produce a small response, and an intensive, aggressive habitat management approach can elicit a very favorable population response.

Several years ago in northeast Mississippi, Mr. Lucian Minor realized that covey record trends on his 3,400-acre Rainey Farm revealed that his bobwhite population was at an all-time low of 16 coveys. He initiated important management practices, including strip disking old fields of broom sedge, and developed stands of quail foods that volunteered following soil disturbance. Other practices included burning and food plantings. Within 4 years, covey numbers had increased by 7.5 times to approximately 120 coveys! These numbers no doubt approach the "good old days!"

New Approaches to an Old Problem

Active habitat management can produce encouraging results. However, results do not always mirror those found on the Rainey Farm. Therefore, in 1995, due to concern among the professional community regarding the serious plight of the bobwhite, the Southeast Quail Study Group (SEQSG) was formed to provide an organized, professional approach to address the bobwhite issue. Comprised of wildlife professionals from agencies, universities, and private organizations, the SEQSG integrates bobwhite research, biology, and management to 1) identify factors responsible for

the population decline, 2) identify gaps in knowledge about ecology and population dynamics, 3) develop and implement solutions to habitat, population, and management problems, 4) provide sound, scientific-based information to stakeholders, and 5) perpetuate wild bobwhite quail hunting.

Recently, the SEQSG prepared a plan, the Northern Bobwhite Conservation Initiative (NBCI), to meet conservation and management needs of the northern bobwhite. The NBCI goal is to restore northern bobwhite numbers range-wide. If successful, the current bobwhite population will be increased by 2.7 million coveys, with the decline halted in five years and restoration complete in 20-25 years.

The 9th Annual SEQSG Meeting to present research findings and plan actions for its working committees will be August 25-28, 2003, in Potosi, Missouri. Bobwhite enthusiasts interested in associating with the SEQSG may be included on the mailing list by payment of annual dues of \$15 to SEQSG, 219 Summerside Avenue, Lockhart, TX 78644. More information can be obtained through the SEQSG website at <http://seqsg.qu.org/seqsg>. Items of interest are reported in the SEQSG newsletter *Covey Rise*, periodically printed in the *Quail Unlimited Magazine*.

Watch for the second part of this article in the next month's issue of *Wildlife Trends*.

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