

Northern Bobwhite
Colinus virginianus

Listing status: USFWS = None
FWC = None – a game species

Trend: The Northern Bobwhite Conservation Initiative (NBCI) estimates that bobwhite populations have declined approximately 70% since 1980. Declining as much as 3% per year throughout its range and 3.6% per year in Florida based on North American Breeding Bird Survey data.

Threats: Loss and degradation of habitat is the primary threat. Intensive high basal area silviculture and lack of prescribed fire have created unsuitable conditions on most of the forested lands formerly inhabited by bobwhite. Changes in agricultural production practices including larger fields, clean farming techniques that are heavily dependent on herbicides and insecticides, lack of weedy fencerows and conversion of native range to non-native sod-forming grasses has deprived bobwhite of one of its most productive habitats.

Notes: The FWC approved a strategic plan for bobwhite conservation in December 2007 and several initiatives for bobwhite conservation are being actively implemented in Florida and throughout the bobwhites range. In Florida these include the Upland Ecosystem Restoration Program (UERP) and the Central Ranchlands Bobwhite Conservation Initiative.

Prioritization information:

PLCP PVA proportion of pops modeled to persist on public lands = 1.00

PLCP PVA probability of a 50% decline on public lands = 0.00

Millsap biological score = 11.0

Millsap supplemental score = 14

Legacy population trend = **declining**

Legacy population status = **low**

Summary: Two of the parameters are triggered for this species, making this species a low to moderate statewide priority. However, management for bobwhite is well studied and beneficial to a suite of PLCP and other species. Currently the bobwhite is the focus of several state and regional conservation initiatives and is a sought after game species, which may influence the prioritization of this species.

Life History: The bobwhite is a management dependent species that can be an umbrella species as many other species benefit from bobwhite management. Management practices such as prescribed fire, mechanical disturbance (roller-chopping, disking) and heavy thinnings create an open canopied forest with a native warm season grass and legume dominated ground cover preferred by bobwhite, grassland nesting birds and many other species dependent on fire maintained upland pine forests.

Bobwhite coveys break up in spring as courtship begins with males whistling in the early morning hours to attract potential mates. Nesting typically occurs April – May, with a typical nest having 12-14 eggs. Incubation takes 23 days and begins when the clutch is complete. Both parents participate in incubation and if one mate dies the other will finish. Re-nesting will occur as many as two or three times and can result in nests as late as September.

Chicks leave the nest within hours of hatching and begin feeding on arthropods. The diet gradually shifts to grass seeds and soft mast after 8-10 weeks. Adult diets consist of a wide range of seeds, soft mast, acorns, insects and green leafy material depending on availability throughout the year.

Fledging generally occurs in 14 days, but chicks remain with the parents into the fall when two or three family groups join to form coveys that remain together through the winter months.

Bobwhite density can be quite variable depending on habitat quality. Average habitat will support one covey per 40 acres (16.2 hectares) or 0.5 birds/acres (1.2 birds/ha), but this can be increased to one covey per 10 acres (4 ha) or 2 birds/acre (4.8 birds/ha) more with intensive management.

Prescribed fire and silvicultural practices that open the canopy are important when managing forested lands for bobwhite. Bobwhite depend on multiple habitats that are well interspersed to meet their annual life requirements. Nesting occurs in areas with moderately dense bunch grasses with 30-40% bare soil. Broods require weedy areas with patches of bare soil and good overhead cover for bugging. Hedgerows or shrubby cover needs to be nearby for roosting or escape cover.

Preferred Habitat Parameters:

- Basal area 40- 60 ft²/ac optimum
- 10-20% Shrub cover patchily distributed for roosting/escape cover
- 30-50% bare soil in herbaceous vegetation dominated feeding areas

Minimum Habitat Requirement:

From PVA: considered all quail as one metapopulation.

From Literature: Good interspersion of different cover types is important to maximize productivity and number of coveys supported. On average good quality habitat supports one covey per forty acres, but this can be increased significantly with active management.

PVA Summary: Root and Barnes (2007) developed the PVA analysis for northern bobwhite quail under two statewide scenarios; one considerate of all potential habitat and one that only considered managed (i.e., public) lands. Total potential habitat in Florida was estimated at 11.9 million acres (4.8 million ha) and 22% of potential habitat was on managed lands. The model assumed a neighborhood distance of 25 miles (40 km) between discrete, independent populations which resulted in a single population in both the all potential habitat and the managed lands habitat models. The initial abundance was estimated as 6 females/ac (2.45 females/ha) with a carrying capacity of 8 females/ac (3.3 females/ha). A two-

stage model was developed with survival estimated at 0.37 for juveniles and 0.43 for adults. Survival estimates reflected natural mortality only and excluded hunting mortality. The model assumed all females attempt to breed annually. Adult fecundity was estimated at 0.76 which included a 30% probability of a second nest attempt while juvenile fecundity was estimated at 0.585. This demographic information produced a population growth rate of 1.0434. Both scenarios indicated no risk of extinction and little chance of major population decline (1% probability of a 30% decline) in the next 100 years. Juvenile survival rates and fecundity were the most influential parameters. A 10% reduction in survival led to an 18% chance of a 30% population decline in the next 100 years. A 10% reduction in fecundity increased the risk of a 30% decline to 31%.

The addition of 10% hunting mortality increased the risk of 30% decline to 73% and additional hunting mortality rapidly led to a high likelihood of even greater declines. Even with the increased risk of decline the probability of extinction remained zero.

Best management Practices:

The Bobwhite Quail, Its Habits, Preservation and Increase. By Herbert L. Stoddard, Bureau of Biological Survey, United States Department of Agriculture. New York, Charles Scribners' Sons. 1931.

The Bobwhite Quail: Its Life and Management. by Rosene, Walter. New Brunswick, NJ 1969

Monitoring Protocol:

<http://www.talltimbers.org/gb-autumnest.html>

2003 Landcover used for model:

Xeric Oak Scrub	Shrub and Brushland
Sand Pine Scrub	Grassland
Sandhill	Improved Pasture
Dry Prairie	Unimproved Pasture
Mixed Pine-Hardwood Forest	Row/Field Crops
Pinelands	

FNAI Natural Communities used:

Sandhill	Dry prairie
Scrub	Mesic flatwoods
Xeric hammock	Scrubby flatwoods
Upland mixed forest	Wet flatwoods
Upland pine forest	

FNAI field guide description of habitat: N/A

Important Links:

FWC Strategic Plan:

<http://myfwc.com/commission/2007/Dec07/Documents/BobwhiteQuailStratPlan4C5.pdf>

Northern Bobwhite Conservation Initiative:

<http://www.cfr.msstate.edu/nbci/index.asp>

Southeastern Quail Study Group:

<http://www.qu.org/seqsg/index.cfm>

Tall Timbers/Upland Ecosystem Restoration Project (UERP):

<http://www.talltimbers.org/research/gamebird.htm>

Pertinent Documents/Literature:

This species is the subject of extensive research. See plans above and the following books:

Stoddard, H.L., 1932. The Bobwhite Quail, Its Habits, Preservation and Increase. Bureau of Biological Survey, United States Department of Agriculture. New York, Charles Scribners' Sons.

Rosene, W. 1969. The Bobwhite Quail: Its Life and Management. New Brunswick, NJ