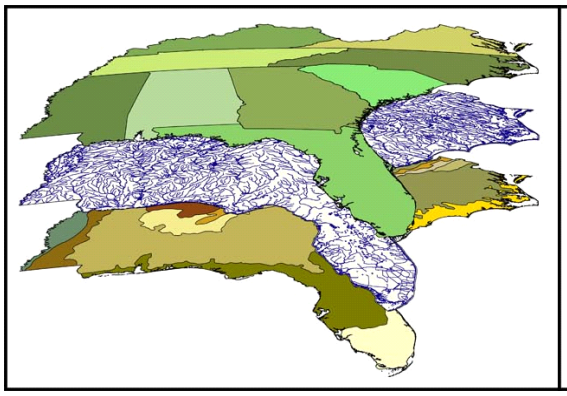


SOUTHEAST GAP ANALYSIS PROJECT

Species Modeling Report

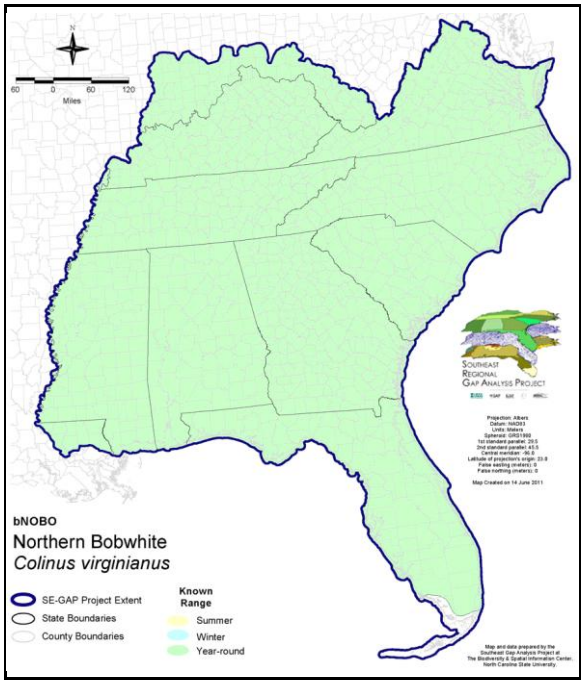
Northern Bobwhite

Colinus virginianus

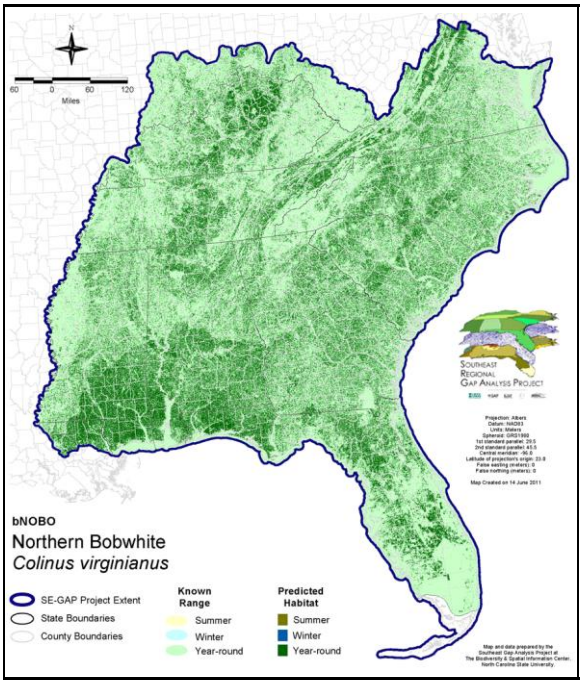
Taxa: Avian
Order: Galliformes
Family: Odontophoridae

SE-GAP Spp Code: **bNOBO**
ITIS Species Code: 175863
NatureServe Element Code: ABNLC21020

KNOWN RANGE:



PREDICTED HABITAT:



Range Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Range_bNOBO.pdf
Predicted Habitat Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Dist_bNOBO.pdf
GAP Online Tool Link: http://www.gapserve.ncsu.edu/segap/segap/index2.php?species=bNOBO
Data Download: http://www.basic.ncsu.edu/segap/datazip/region/vert/bNOBO_se00.zip

PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: ---

State Status: AL (GB), ID (G), KY (N), NY (PB - GS), OH (SC), RI (Not Listed), WI (SC/M), WI (SC/M), BC (7 (2000)), ON (END), QC (Non suivie)

NS Global Rank: G5

NS State Rank: AL (S5), AR (S5), AZ (S1), CO (S4), CT (S4), DC (S1), DE (S4), FL (SNR), GA (S5), IA (S5B), ID (SNA), IL (S5), IN (S4), KS (S5), KY (S5), LA (S5), MA (S2), MD (S5), ME (SNA), MI (S4), MN (SU), MO (S5), MS (S3S4), MT (SNA), NC (S5), NE (S5), NH (SX), NJ (S5B,S5N), NM (S5B,S5N), NY (S4), OH (S5), OK (S5), OR (SNA), PA (S1), RI (S4B,S4N), SC (S4), SD (S4), TN (S2S3), TX (S4B), VA (S5), VT (SNA), WA (SNA), WI (S3B), WI (S3B), WV (S3B,S3N), WY (S1), AB (SNA), BC (SNA), ON (S1), QC (SNA)

SUMMARY OF PREDICTED HABITAT BY MANAGMENT AND GAP PROTECTION STATUS:

	US FWS		US Forest Service		Tenn. Valley Author.		US DOD/ACOE	
	ha	%	ha	%	ha	%	ha	%
Status 1	14,424.5	< 1	763.1	< 1	0.0	0	0.0	0
Status 2	39,949.9	< 1	24,108.5	< 1	0.0	0	427.6	< 1
Status 3	174.5	< 1	494,825.9	1	19,409.9	< 1	342,502.7	1
Status 4	8.4	< 1	0.0	0	0.0	0	18.8	< 1
Total	54,557.3	< 1	519,697.5	2	19,409.9	< 1	342,949.1	1

	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	5,980.8	< 1	0.0	0	147.6	< 1
Status 2	0.0	0	779.4	< 1	2,170.9	< 1	43.2	< 1
Status 3	29,582.9	< 1	20,178.7	< 1	0.0	0	5,243.2	< 1
Status 4	0.0	0	0.0	0	0.0	0	0.0	0
Total	29,582.9	< 1	26,938.9	< 1	2,170.9	< 1	5,434.0	< 1

	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Forest	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	284.1	< 1	4.7	< 1	0.0	0
Status 2	0.0	0	751.0	< 1	112,482.6	< 1	17.6	< 1
Status 3	3,017.8	< 1	137,162.0	< 1	50,372.2	< 1	170,200.6	< 1
Status 4	0.0	0	0.0	0	37,764.9	< 1	37.5	< 1
Total	3,017.8	< 1	138,197.1	< 1	200,624.4	< 1	170,255.7	< 1

	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	2,418.0	< 1	0.0	0	0.0	0
Status 2	1,603.5	< 1	8,984.5	< 1	1.9	< 1	1,486.9	< 1
Status 3	0.0	0	7,129.1	< 1	17,702.8	< 1	61,306.1	< 1
Status 4	0.0	0	0.0	0	1,804.8	< 1	< 0.1	< 1
Total	1,603.5	< 1	18,531.6	< 1	19,509.5	< 1	62,793.1	< 1

	Private Land - No Res.		Water		Overall Total	
	ha	%	ha	%	ha	%
Status 1	0.0	0	0.0	0	24,022.8	< 1
Status 2	0.0	0	0.0	0	192,807.5	< 1
Status 3	266.5	< 1	< 0.1	< 1	1,359,075.1	6
Status 4	31,348,626.5	94	7,350.3	< 1	31,433,367.8	94
Total	31,348,893.0	94	7,350.4	< 1	33,009,273.1	100

GAP Status 1: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, and intensity) are allowed to proceed without interference or are mimicked through management.

GAP Status 2: An area having permanent protection from conversion of natural land cover and a mandated management plan in operation to maintain a primarily natural state, but which may receive use or management practices that degrade the quality of existing natural communities.

GAP Status 3: An area having permanent protection from conversion of natural land cover for the majority of the area, but subject to extractive uses of either a broad, low-intensity type or localized intense type. It also confers protection to federally listed endangered and threatened species throughout the area.

GAP Status 4: Lack of irrevocable easement or mandate to prevent conversion of natural habitat types to anthropogenic habitat types. Allows for intensive use throughout the tract. Also includes those tracts for which the existence of such restrictions or sufficient information to establish a higher status is unknown.

PREDICTED HABITAT MODEL(S):

Year-round Model:

Habitat Description: A habitat generalist (Nicholson 1997), the Northern Bobwhite breeds in a variety of early successional stage habitats, such as what exists in agricultural areas, open deciduous and mixed woodlands (Brennan 1999), overgrown fields, woodland edges (Fussell 1994), and gaps made in the forest by logging (Stupka 1963). They are commonly found in pine woodlands with well developed grass ground cover and little or no midstory, such as longleaf-slash, loblolly-shortleaf in the Coastal Plain and Piedmont and virginia pine, shortleaf pine in the Ridge and Valley, Highland Rim, Cumberland Plateau and Peidmont (Hunter 1990). In Tennessee, are most abundant in a mosaic of agricultural fields, wooded hedgerows, and fallow fields dominated by broom sedge (Nicholson 1997). Bobwhites nest May-September in the northern part of the range. Clutch size usually is 12-16; takes about 18-20 days to complete a clutch of 14 eggs. Incubation, by both sexes, lasts 23-24 days. Young follow and are are attended by both parents soon after hatching; at about weeks of age they join other adults and young and form coveys. Brood remains together until spring. Generally there is one brood/season in the north. Renests if clutch is lost. The nesting sites can be found in woodlands or fields (Harrison 1975), usually within 15-20 m of an opening such as a field or road . The nest is located on ground that is partially covered with standing vegetation <45 cm tall (Brennan 1999) and placed in a tuft of dead or live grass with surrounding herbaceous plants covering it and often woven into an arch above it (Harrison 1975).

Ecosystem Classifiers: Successional, open pine woodlands, & Praire- Woodland systems only.

Elevation Mask: < 975m

Avoidance Mask: Medium - moderately intolerant of human disturbance.

Contiguous Patch Minimum Size (hectares): 8

Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Developed Open Space
Anthropogenic	Pasture/Hay
Anthropogenic	Successional Grassland/Herbaceous
Anthropogenic	Successional Grassland/Herbaceous (Other)
Anthropogenic	Successional Grassland/Herbaceous (Utility Swath)
Anthropogenic	Successional Shrub/Scrub (Clear Cut)
Anthropogenic	Successional Shrub/Scrub (Other)
Anthropogenic	Successional Shrub/Scrub (Utility Swath)
Forest/Woodland	Atlantic Coastal Plain Fall-Line Sandhills Longleaf Pine Woodland - Loblolly Modifier
Forest/Woodland	Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Open Understory Modifier
Forest/Woodland	Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Scrub/Shrub Understory Modifier
Forest/Woodland	Atlantic Coastal Plain Upland Longleaf Pine Woodland
Forest/Woodland	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Woodland Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest - Pine Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Loblolly Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Open Understory Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Scrub/Shrub Modifier
Forest/Woodland	Florida Longleaf Pine Sandhill - Open Understory Modifier
Forest/Woodland	Florida Longleaf Pine Sandhill - Scrub/Shrub Understory Modifier
Forest/Woodland	Northeastern Interior Dry Oak Forest - Virginia/Pitch Pine Modifier
Forest/Woodland	Southeastern Interior Longleaf Pine Woodland
Forest/Woodland	Southern Piedmont Dry Oak-(Pine) Forest - Loblolly Pine Modifier
Prairie	Bluegrass Basin Savanna and Woodland
Prairie	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland
Prairie	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Herbaceous Modifier
Prairie	East Gulf Coastal Plain Jackson Prairie and Woodland
Wetlands	Atlantic Coastal Plain Northern Wet Longleaf Pine Savanna and Flatwoods
Wetlands	East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Open Understory Modifier
Wetlands	East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Scrub/Shrub Understory Modifier

CITATIONS:

American Ornithologists' Union (AOU), Committee on Classification and Nomenclature. 1983. Check-list of North American Birds. Sixth Edition. American Ornithologists' Union, Allen Press, Inc., Lawrence, Kansas.

Brennan, L. A. 1991. How can we reverse the northern bobwhite population decline? Wildl. Soc. Bull. 19:544-555.

Brennan, L.A. 1999. Northern bobwhite. In A. Poole, P. Stettenheim, and F. Gill, eds., The Birds of North America, No. 397. The Academy of Natural Sciences, Philadelphia and The American Ornithologists' Union, Washington, DC.

Coody, C. J. 1991. An improved census technique of the northern bobwhite (COLINUS VIRGINIANUS) using recorded calls of the female. M. S. thesis, Univ. of Arkansas. 46 pp. [Issued also as Arkansas Cooperative Fish and Wildlife Research Unit Publication No.

Droege, S., and J.R. Sauer. 1990. North American Breeding Bird Survey, annual summary, 1989. U.S. Fish and Wildlife Service, Biological Report 90(8). 22 pp.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1992. Birds in jeopardy:the imperiled and extinct birds of the United States and Canada, including Hawaii and Puerto Rico. Stanford University Press, Stanford, California. 259 pp.

Errington, P. L., and F. N. Hammerstrom, Jr. The northern bob-white's winter territory. Iowa State Univ. Press. 141 pp.

Fussell, J.O. III. 1994. A birder's guide to coastal North Carolina. Chapel Hill and London: The University of North Carolina Press.

Hamel, P. B. 1992. The land manager's guide to the birds of the south. The Nature Conservancy, Chapel Hill, North Carolina. 367 pp + several appendices.

Harrison, C. 1978. A field guide to the nests, eggs and nestlings of North American birds. Collins, Cleveland, Ohio.

Harrison, H.H. 1975. A field guide to bird's nests in the U.S. east of the Mississippi River. Houghton Mifflin Company, Boston, Massachusetts. 257 p.

Hess, G.R., King, T.J., 2002. Planning for wildlife in a suburbanizing landscape. Part I. Selecting focal species using a Delphi survey approach. Landscape and Urban Plann. 58 (1), 25–40.

Hunter, W. C. 1990. Handbook for nongame bird managment and monitoring in the Southeast Region. U.S. Fish and Wildlife Service, Atlanta, Georgia. 198 pp.

Janvrin, J. A., E. P. Wiggers, and T. V. Dailey. 1991. Evaluation of drive counts for estimating northern bobwhite densities. Wildl. Soc. Bull. 19:XXX-481.

Johnsgard, P. A. 1973. Grouse and quail of North America. U. of Nebraska, Lincoln. 553 pp.

Johnsgard, P. A. 1988. The quails, partridges, and francolins of the world. Oxford Univ. Press, New York. 264 pp.

Lehmann, V. W. 1984. Bobwhites in the Rio Grande plain of Texas. Texas A & M Univ. Press. xv + 371 pp.

Natural Resources Conservation Service 1999. Northern Bobwhite (Colinus virginianus), Fish and Wildlife Management Leaflet Number 9. September 1999. Available online http://policy.nrcs.usda.gov/OpenNonWebContent.aspx?content=18530.wba.

Nicholson CP. 1997. Atlas of the breeding birds of Tennessee. Knoxville: University of Tennessee Press.

Palmer-Ball, B.L., Jr. 1996. The Kentucky Breeding Bird Atlas. The University Press of Kentucky, Lexington.

Potter, E. F., J. F. Parnell, and R. P. Teulings. 1980. Birds of the Carolinas. Univ. North Carolina Press, Chapel Hill. 408 pp.

Raffaele, H.A. 1983. A guide to the birds of Puerto Rico and the Virgin Islands. Fondo Educativo Interamericano, San Juan, Puerto Rico. 255 pp.

Roseberry, J. L., and W. D. Klimstra. 1984. Population ecology of the bobwhite. Southern Illinois Univ. Press, Carbondale. xvii + 259 pp.

Rosene, W. 1969. The bobwhite quail. New Brunswick. 418 pp.

Rosene, W. 1969. The bobwhite quail; its life and management. Sun Press. 418 pp. [reissued by Morris Communications in 1984].

Scott, M.D. and G. Servheen. 1985. Wildlife research:caribou ecology. Idaho Dept. Fish and Game. 137 pp.

Stevenson, H. M., and B. H. Anderson. 1994. The birdlife of Florida. University Press of Florida, Gainesville. 892 pp.

Stoddard, H. 1942. The bobwhite quail:its habits, preservation and increase. New York. 559 pp.

Stoddard, H. 1978. The bobwhite quail:its habits, preservation and increase. New York. Scribner's. 559 pp.

Stupka A 1963. Notes on the birds of the Great Smoky Mountains National Park. Knoxville: The University of Tennessee Press.

Taylor, J. S., and F. S. Guthery. 1994. Daily movements of northern bobwhite broods in southern Texas. Wilson Bull. 106:148-150.

Terres, J.K. 1980. The Audubon Society encyclopedia of North American birds. Alfred A. Knopf, New York.

Tomlinson, R. E. 1972. Review of literature on the endangered masked bobwhite. U. S. Fish & Wildl. Serv. Res. Publ. 108:1-28.

For more information:: SE-GAP Analysis Project / BaSIC
127 David Clark Labs
Dept. of Biology, NCSU
Raleigh, NC 27695-7617
(919) 513-2853
www.basic.ncsu.edu/segap

Compiled: 15 September 2011

This data was compiled and/or developed by the Southeast GAP Analysis Project at The Biodiversity and Spatial Information Center, North Carolina State University.