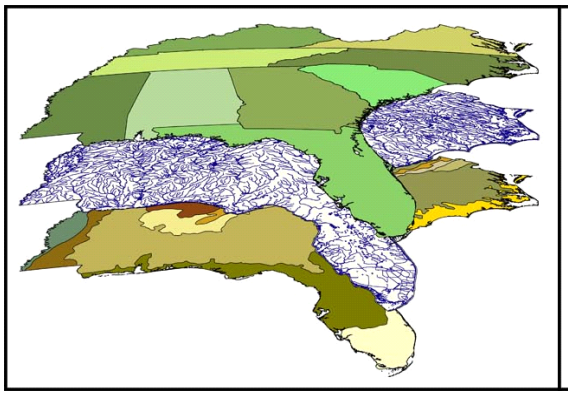


SOUTHEAST GAP ANALYSIS PROJECT

Species Modeling Report

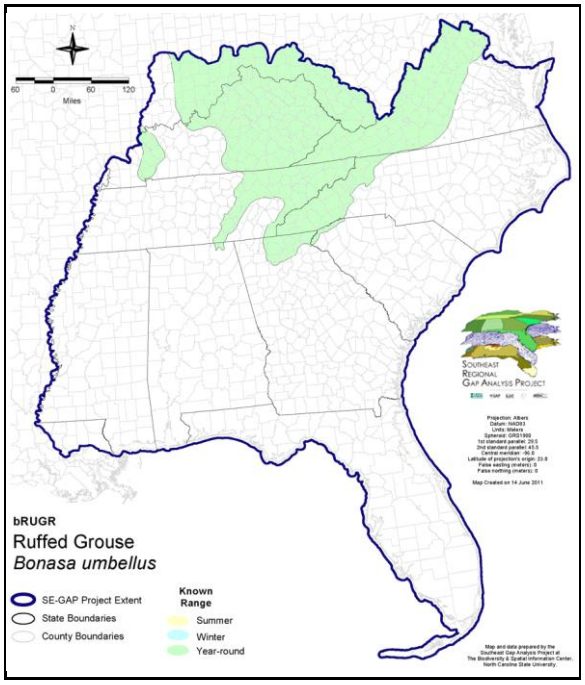
Ruffed Grouse

Bonasa umbellus

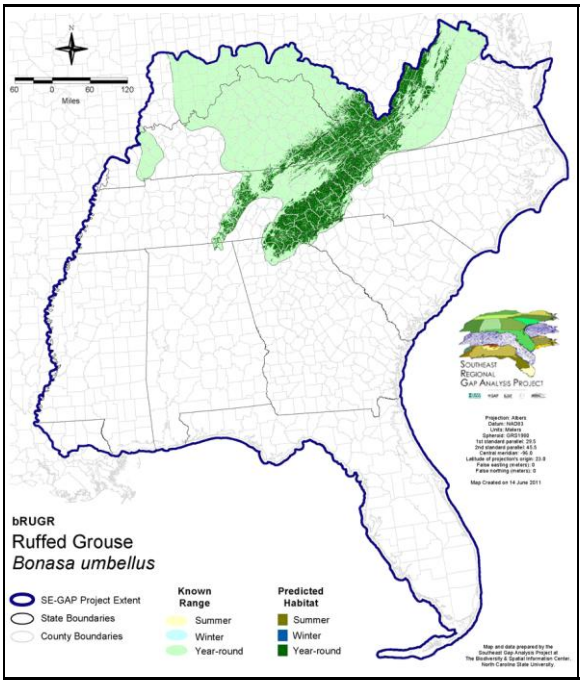
Taxa: Avian
Order: Galliformes
Family: Phasianidae

SE-GAP Spp Code: **bRUGR**
ITIS Species Code: 175790
NatureServe Element Code: ABNLC11010

KNOWN RANGE:



PREDICTED HABITAT:



Range Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Range_bRUGR.pdf
Predicted Habitat Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Dist_bRUGR.pdf
GAP Online Tool Link: http://www.gapserve.ncsu.edu/segap/segap/index2.php?species=bRUGR
Data Download: http://www.basic.ncsu.edu/segap/datazip/region/vert/bRUGR_se00.zip

PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: ---

State Status: AL (GBNOS), CA (None), ID (G), KY (N), NV (YES), NY (PB - GS), RI (Not Listed), UT (None), BC (4 (2005)), QC (Non suivie)

NS Global Rank: G5

NS State Rank: AK (S4), AL (S1), AR (SNA), CA (S4), CO (SU), CT (S5), DC (SX), DE (SX), GA (S4), IA (S4B), ID (S5), IL (S3), IN (S4), KS (S2), KY (S4), MA (S4), MD (S4), ME (S5), MI (S5), MN (SNR), MO (SU), MT (S5), NC (S4), ND (SNR), NE (SX), NH (S5), NJ (S5), NV (SNA), NY (S5), OH (S5), OR (S4?), PA (S5), RI (S5B,S5N), SC (S4), SD (S4B,S4N), TN (S4), UT (S4), VA (S5), VT (S5B), WA (S5), WI (S5B), WI (S5B), WV (S5B,S5N), WY (S5), AB (S5), BC (S4), LB (S3S4), MB (S4S5), NB (S5), NF (SNA), NS (S5), NT (SNR), ON (S4), PE (S5), QC (S5B), SK (S5B,S5N), YT (S4)

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	0.0	0	29,571.9	< 1	0.0	0	0.0	0
Status 2	0.0	0	247,767.8	4	0.0	0	0.0	0
Status 3	0.0	0	1,058,622.6	16	411.3	< 1	1,207.8	< 1
Status 4	26.6	< 1	0.0	0	0.0	0	0.0	0
Total	26.6	< 1	1,335,962.3	20	411.3	< 1	1,207.8	< 1

	US Dept. of Energy		US Nat. Park Service			NOAA	Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	243,283.9	4	0.0	0	0.0	0
Status 2	0.0	0	6,519.1	< 1	0.0	0	0.0	0
Status 3	0.0	0	30,266.0	< 1	0.0	0	0.0	0
Status 4	0.0	0	0.0	0	0.0	0	0.0	0
Total	0.0	0	280,068.9	4	0.0	0	0.0	0

	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Forest	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	0.0	0	0.0	0	0.0	0
Status 2	0.0	0	9,448.9	< 1	111,207.1	2	414.9	< 1
Status 3	17,656.2	< 1	17,773.9	< 1	19,178.3	< 1	8,582.8	< 1
Status 4	0.0	0	0.0	0	6,139.2	< 1	0.0	0
Total	17,656.2	< 1	27,222.8	< 1	136,524.5	2	8,997.7	< 1

	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	3,469.3	< 1	0.0	0	0.0	0
Status 2	0.0	0	17,625.4	< 1	0.0	0	0.0	0
Status 3	0.0	0	184.1	< 1	76.8	< 1	0.0	0
Status 4	0.0	0	0.0	0	211.9	< 1	0.0	0
Total	0.0	0	21,278.9	< 1	288.6	< 1	0.0	0

	Private Land - No Res.		Water		Overall Total	
	ha	%	ha	%	ha	%
Status 1	0.0	0	0.0	0	276,325.1	4
Status 2	0.0	0	0.0	0	392,983.2	6
Status 3	0.0	0	0.0	0	1,153,959.8	34
Status 4	3,661,932.8	56	24.9	< 1	3,674,447.9	56
Total	3,661,932.8	56	24.9	< 1	5,497,716.0	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: The Ruffed Grouse is associated with young mixed-deciduous forests in the southernly parts of its range, where important cover species include oak, hickory, and pine species (Rusch et al. 2000). Quality brood habitat includes small forest openings with a substantial shrub component and is often relatively mesic, typically on north or east slopes in hilly terrain, or in riparian areas (Dessecker and McAuley 2001). In general, they prefer forests with a heavy understory, such as mountain laurel or rhododendron (GA-GAP). Often foraging along grassy roadsides (Alsop 1991). Optimal habitat is countinous young growth forests with a reduction in overstory and an increase in sapling and shrubs (Anderson et al 1981). Nest is located on the ground at the base of a tree, under a log, rock, or root, or in dense cover (Harrison 1975). Male drums from atop a log, rock, or other elevated perch (Farrand 1983). the first eggs are laid in April or May, depending on the location (latitude). Clutch size is 4-19 (generally 9-12). Incubation, by female, lasts 23-24 days. Nestlings are precocial, downy; can fly in 10-12 days. Young are tended by female. Broods break up in fall when young about 84 days old; young disperse (Terres 1980), at about 120-125 days in Wisconsin (Small and Rusch 1989). In Alberta, about 50% of young survived from fall to spring (Rusch and Keith 1971). Single-brooded, but females may renest of first nesting attempt is unsuccessful.

Ecosytem Classifiers: Evergreen, Mixed, Hardwood, Mesic, Cove & Montane Forests, and Riparian Forest.

Elevation Mask: > 500m and < 2500m

Contiguous Patch Minimum Size (hectares): 10

Selected Map Units:

Functional Group	Map Unit Name
Forest/Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland
Forest/Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood Modifier
Forest/Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland - Pine Modifier
Forest/Woodland	Appalachian Hemlock-Hardwood Forest
Forest/Woodland	Appalachian Serpentine Woodland
Forest/Woodland	Central and Southern Appalachian Montane Oak Forest
Forest/Woodland	Central and Southern Appalachian Northern Hardwood Forest
Forest/Woodland	Central and Southern Appalachian Spruce-Fir Forest
Forest/Woodland	Central Appalachian Oak and Pine Forest
Forest/Woodland	Central Appalachian Pine-Oak Rocky Woodland
Forest/Woodland	Northeastern Interior Dry Oak Forest - Mixed Modifier
Forest/Woodland	Northeastern Interior Dry Oak Forest - Virginia/Pitch Pine Modifier
Forest/Woodland	Northeastern Interior Dry Oak Forest-Hardwood Modifier
Forest/Woodland	South-Central Interior Mesophytic Forest
Forest/Woodland	Southeastern Interior Longleaf Pine Woodland
Forest/Woodland	Southern and Central Appalachian Cove Forest
Forest/Woodland	Southern and Central Appalachian Oak Forest
Forest/Woodland	Southern and Central Appalachian Oak Forest - Xeric
Forest/Woodland	Southern Appalachian Low Mountain Pine Forest
Forest/Woodland	Southern Appalachian Montane Pine Forest and Woodland
Forest/Woodland	Southern Interior Low Plateau Dry-Mesic Oak Forest
Forest/Woodland	Southern Interior Low Plateau Dry-Mesic Oak Forest - Evergreen Modifier
Forest/Woodland	Southern Piedmont Dry Oak-(Pine) Forest - Hardwood Modifier
Forest/Woodland	Southern Piedmont Dry Oak-(Pine) Forest - Mixed Modifier
Forest/Woodland	Southern Piedmont Dry Oak-Heath Forest - Hardwood Modifier
Forest/Woodland	Southern Piedmont Dry Oak-Heath Forest - Mixed Modifier
Forest/Woodland	Southern Piedmont Dry Oak-Heath Forest - Virginia/Pitch Pine Modifier
Forest/Woodland	Southern Piedmont Mesic Forest
Forest/Woodland	Southern Ridge and Valley Dry Calcareous Forest
Forest/Woodland	Southern Ridge and Valley Dry Calcareous Forest - Hardwood Modifier
Forest/Woodland	Southern Ridge and Valley Dry Calcareous Forest - Pine Modifier
Wetlands	Central Appalachian Riparian - Forest Modifier

Wetlands	South-Central Interior Small Stream and Riparian
Wetlands	Southern Piedmont Small Floodplain and Riparian Forest

Selected Secondary Map Units within 120m of Primary Map Units:

Functional Group	Map Unit Name
Anthropogenic	Developed Open Space
Anthropogenic	Successional Shrub/Scrub (Clear Cut)
Anthropogenic	Successional Shrub/Scrub (Utility Swath)
Anthropogenic	Successional Shrub/Scrub (Other)
Anthropogenic	Successional Grassland/Herbaceous
Anthropogenic	Successional Grassland/Herbaceous (Other)
Anthropogenic	Successional Grassland/Herbaceous (Utility Swath)
Anthropogenic	Pasture/Hay

CITATIONS:

Alsop FJ III. 1991. Birds of the Smokies. Gatlinburg: Great Smoky Mountains Natural History Association.

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.

Anderson, S.H., C.S. Robbins, and J.R. Partelow. 1981. Habitat Management for Birds of Alabama. Technical Report Number FWS/OBS-81/39.3, Eastern Energy and Land Use Team, US Fish and Wildlife Service, Laurel, MD

Atwater, S., and J. Schnell, eds. 1989. Ruffed grouse. Stackpole Wildlife Series. xiii + 370 pp.

Bergerud, A. T., and M. W. Gratson, editors. 1987. Adaptive strategies and population ecology of northern grouse. Univ. Minnesoat Press. 785 pp.

Bump, G. et. al. 1947. The ruffed grouse:life history, propagation and management. New York State Conservation Department. 1947. 915 pp.

Crawford, J. A. 1986. Ruffed grouse (BONASA UMBELLUS). Section 4.1.1, US Army Corps of Engineers Wildlife Resources Management Manual. Tech. Rep. EL-86-4. US Army Corps of Engineers Waterways Expt. Sta., Vicksburg, Mississippi. 42 pp.

Dessecker, Daniel R and Daniel G McAuley. 2001. Importance of early successional habitat to ruffed grouse and American woodcock. Wildlife Society Bulletin 29(2) Summer.

Devers, P.K. 2005. Population ecology of and the effects of hunting of ruffed grouse (Bonasa umbellus) in the southern and central Appalachians. Ph.D. Dissertation. Virginia Polytechnic Institute and State University, Blacksburg, VA. 219 pp.

Edminster, F.C. 1947. The ruffled grouse -- its life story, ecology, and management. Macmillan, New York. 385 pp.

Ellsworth, D. L., R. L. Honeycut, and N. J. Silvy. 1995. Phylogenetic relationships among North American grouse inferred from restriction endonuclease analysis of mitochondrial DNA. Condor 97:492-502.

Farrand, J., editor. 1983. Audubon Society master guide to birding. Alfred A. Knopf, New York. 3 vols., 1244 pp.

Godfrey, W.E. 1966. The birds of Canada. National Museums of Canada. Ottawa. 428 pp.

Gullion, G. 1989. The ruffed grouse. NorthWord. 144 pp.

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.

Hammerson, G. 2004. Ruffed Grouse (Bonasa umbellus), Management Summary,Preserve Selection & Design Considerations, in NatureServe Explorer website: http://www.natureserve.org/explorer/.

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.

Haulton, G. S. 1999. Ruffed Grouse natality, chick survival, and brood micro-habitat selection in the southern Appalachians. M.S. thesis, Virginia Tech., Blacksburg.

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

Johnsgard, P. A. 1983. The grouse of the world. Univ. Nebraska Press, Lincoln. xvi + 413 pp.

Kaufman K. 1996. Lives of North American Birds. Boston, New York: Houghton Mifflin Company.

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

Rusch, D. H., and L. B. Keith. 1971. Seasonal and annual trends in numbers of Alberta ruffed grouse. J. Wildl. Manage. 35:803-822.

Rusch, D. H., S. DeStefano, M. C. Reynolds, and D. Lauten. 2000. Ruffed Grouse (Bonasa umbellus). In The Birds of North America, No. 515 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Servello, F. A., and R. L. Kirkpatrick. 1987. Regional variation in the nutritional ecology of ruffed grouse. J. Wildl. Manage. 51:749-770.

Small, R. J., and D. H. Rusch. 1989. The natal dispersal of ruffed grouse. Auk 106:72-79.

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

Thompson, F.R., III and E.K. Fritzell. 1989. Habitat use, home range, and survival of territorial male ruffed grouse. J. of Wildlife Management 53:15-21.

Wakeley, J. S., T. H. Roberts, and C. O. Martin. 1990. Auditory survey methods. Section 6.3.5, US Army Corps of Engineers Wildlife Resources Management Manual. Tech. Rep. EL-90-7. Waterways Expt. Station, Vicksburg, Mississippi. 34 pp.

Whitaker, D. M. 2003. Ruffed grouse (Bonasa umbellus) habitat ecology in the central and southern Appalachians. Ph. D. Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA. 220 pp.

Williamson, S. J. No date. Forester's guide to wildlife habitat improvement. Cooperative Extension Service, Univ. of New Hampshire. 56 pp.

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.