



SOUTHEAST GAP ANALYSIS PROJECT



Species Modeling Report

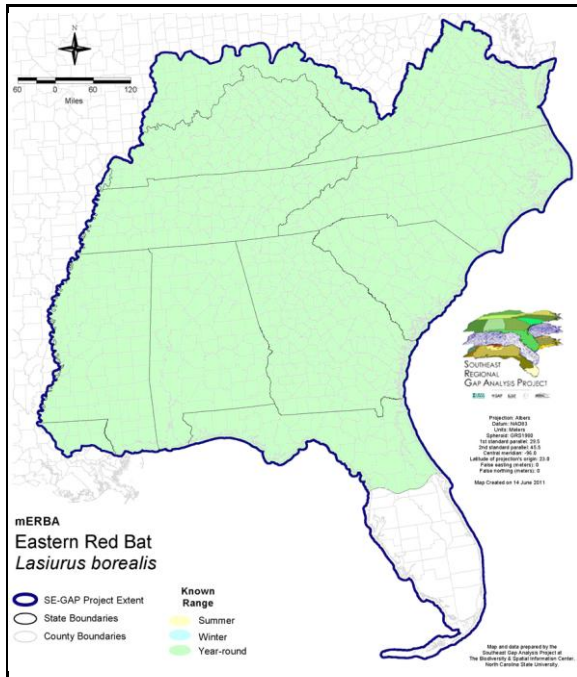
Eastern Red Bat

Lasiurus borealis

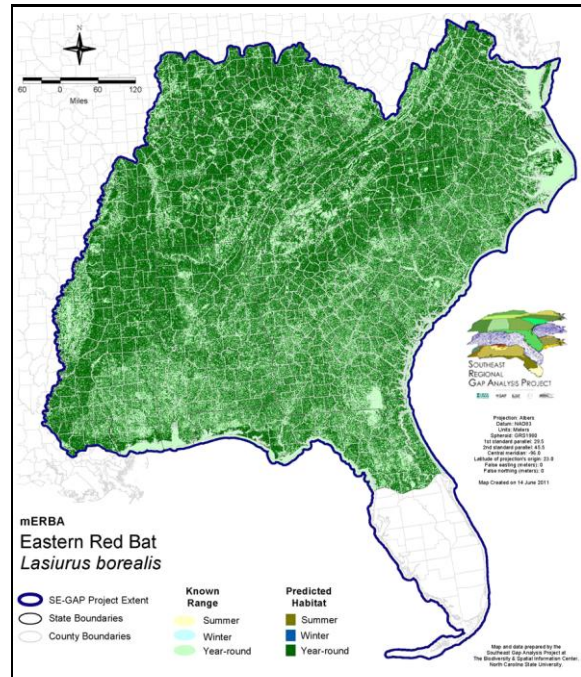
Taxa: Mammalian
 Order: Chiroptera
 Family: Vespertilionidae

SE-GAP Spp Code: **mERBA**
 ITIS Species Code: 180016
 NatureServe Element Code: AMACC05010

KNOWN RANGE:



PREDICTED HABITAT:



Range Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Range_mERBA.pdf

Predicted Habitat Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Dist_mERBA.pdf

GAP Online Tool Link: <http://www.gapservice.ncsu.edu/segap/segap/index2.php?species=mERBA>

Data Download: http://www.basic.ncsu.edu/segap/datazip/region/vert/mERBA_se00.zip

PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: ---

State Status: CT (SC), IN (SSC), KY (N), ME (SC), MS (Non-game species in need of management), NH (SC), NJ (S), NY (U), NY (U), RI (Not Listed), WI (SC), QC (Susceptible)

NS Global Rank: G5

NS State Rank: AL (S5), AR (S5), CO (S2B), CT (S3), DC (S4), DE (SU), FL (SNR), GA (S5), IA (S4), IL (S5), IN (S4), KS (S5B), KS (S5B), KY (S5), LA (S4), MA (S3M), MD (S5B,S5N), MD (S5B,S5N), ME (SU), MI (S5), MN (SNR), MO (SNR), MS (S4S5), MT (S2S3), NC (S5), ND (SNR), NE (S5), NH (S3?B), NJ (SU), NY (S5B), NY (S5B), OH (SNR), OK (S4), PA (S5B), RI (SNR), SC (SNR), SD (S5), TN (S5), TX (S4), VA (S4), VT (S4), WI (S3), WV (S4), WY (SNA), WY (SNA), AB (S1), BC (SNA), MB (S3B), MB (S3B), NB (S2?), NS (S2?), ON (S4), PE (SNA), QC (S3), SK (S4B,S5M), SK (S4B,S5M)

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	85,716.7	< 1	14,477.9	< 1	0.0	0	0.0	0
Status 2	192,747.7	< 1	145,373.4	< 1	0.0	0	4,203.1	< 1
Status 3	2,840.2	< 1	1,102,822.4	2	68,140.6	< 1	463,257.2	< 1
Status 4	76.7	< 1	< 0.1	< 1	0.0	0	115.9	< 1
Total	281,381.3	< 1	1,262,673.8	2	68,140.6	< 1	467,576.2	< 1
	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	72,184.3	< 1	151.0	< 1	437.3	< 1
Status 2	0.0	0	13,275.2	< 1	10,345.4	< 1	63.8	< 1
Status 3	36,528.4	< 1	85,260.7	< 1	0.0	0	5,577.0	< 1
Status 4	0.0	0	1.0	< 1	0.0	0	0.0	0
Total	36,528.4	< 1	170,721.5	< 1	10,496.4	< 1	6,078.2	< 1
	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Forest	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	1,000.4	< 1	63.0	< 1	0.0	0
Status 2	0.0	0	6,146.5	< 1	440,824.8	< 1	567.7	< 1
Status 3	16,907.5	< 1	250,535.7	< 1	181,505.3	< 1	203,509.2	< 1
Status 4	0.0	0	0.0	0	63,273.9	< 1	15.6	< 1
Total	16,907.5	< 1	257,682.6	< 1	685,666.9	1	204,092.5	< 1
	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	8,117.9	< 1	0.0	0	0.0	0
Status 2	13,604.7	< 1	59,685.4	< 1	7.0	< 1	1,599.1	< 1
Status 3	0.0	0	10,265.9	< 1	21,450.0	< 1	74,141.9	< 1
Status 4	0.0	0	0.3	< 1	3,761.6	< 1	< 0.1	< 1
Total	13,604.7	< 1	78,069.5	< 1	25,218.6	< 1	75,741.1	< 1
	Private Land - No Res.		Water		Overall Total			
	ha	%	ha	%	ha	%		
Status 1	0.0	0	0.0	0	182,148.7	< 1		
Status 2	0.0	0	0.0	2	888,443.9	1		
Status 3	467.8	< 1	1.1	< 1	2,523,210.8	5		
Status 4	61,835,108.9	93	40,669.6	< 1	62,006,221.1	93		
Total	61,835,576.8	93	40,670.8	< 1	65,600,024.5	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: *Lasiurus borealis* is a tree-roosting bat, which finds shelter among the foliage of trees and shrubs (Webster et al. 1985). Foliage of mid to lower branches is used most frequently in thickets of woods near more open habitats or water bodies. Spanish moss is used frequently in southern portions of its range. Red bats are typically solitary when roosting. Young are raised from the same roosting situations as adults (Whitaker and Hamilton 1998). However, maternity roosts are typically slightly higher in the tree (Webster et al. 1985). Hardwood forests seem to be preferred over pine or cypress (Brown 1997). Red bats are typically found in edge situations, along wide fencerows, forested edges of crop fields, woodlots, stream banks, residential areas, parks, orchards, and cemeteries (FL-GAP 2001). They will forage along roads and above the tree canopy (Kern & Humphrey 1995) and at lights, for example street lights (Barbour and Davis 1969). Amy Silvano 16jun05

Ecosystem Classifiers: All Except: Xeric Evergreen (i.e. longleaf unless scrub/shrub), High Urban, Bare distributed, Pine plantations, Coastal, Fresh & Brackish marshes and wetlands, Emergent wetlands, herb modifiers, bald & Rock outcrop. Amy Silvano 16jun5

Elevation Mask: < 1375m

Mask of Forest/Open Ecotone: Include within 250m of ecotone edge.

Mask of Woodlands and Shrublands: Include all woodland and shrubland interiors and 250m buffer from them.

Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Deciduous Plantations
Anthropogenic	Developed Open Space
Anthropogenic	Low Intensity Developed
Anthropogenic	Medium Intensity Developed
Anthropogenic	Pasture/Hay
Anthropogenic	Row Crop
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)
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Northern Tidal Wooded Swamp
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Southern Tidal Wooded Swamp
Brackish Tidal Marsh & Wetland	East Gulf Coastal Plain Tidal Wooded Swamp
Forest/Woodland	Alabama Ketona Glade and Woodland
Forest/Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland
Forest/Woodland	Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood Modifier
Forest/Woodland	Appalachian Hemlock-Hardwood Forest
Forest/Woodland	Appalachian Serpentine Woodland
Forest/Woodland	Appalachian Shale Barrens
Forest/Woodland	Atlantic Coastal Plain Central Maritime Forest
Forest/Woodland	Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest
Forest/Woodland	Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Offsite Hardwood Modifier
Forest/Woodland	Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Scrub/Shrub Understory Modifier
Forest/Woodland	Atlantic Coastal Plain Mesic Hardwood and Mixed Forest
Forest/Woodland	Atlantic Coastal Plain Northern Maritime Forest
Forest/Woodland	Atlantic Coastal Plain Northern Mixed Oak-Heath Forest
Forest/Woodland	Atlantic Coastal Plain Southern Maritime Forest
Forest/Woodland	Central and Southern Appalachian Montane Oak Forest
Forest/Woodland	Central and Southern Appalachian Northern Hardwood Forest
Forest/Woodland	Central Appalachian Alkaline Glade and Woodland

Forest/Woodland	Central Appalachian Oak and Pine Forest
Forest/Woodland	Central Appalachian Pine-Oak Rocky Woodland
Forest/Woodland	Central Interior Highlands Calcareous Glade and Barrens
Forest/Woodland	Central Interior Highlands Dry Acidic Glade and Barrens
Forest/Woodland	Cumberland Sandstone Glade and Barrens
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 - Hardwood Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest - Mixed Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Offsite Hardwood Modifier
Forest/Woodland	East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Scrub/Shrub Modifier
Forest/Woodland	East Gulf Coastal Plain Limestone Forest
Forest/Woodland	East Gulf Coastal Plain Maritime Forest
Forest/Woodland	East Gulf Coastal Plain Northern Dry Upland Hardwood Forest
Forest/Woodland	East Gulf Coastal Plain Northern Loess Bluff Forest
Forest/Woodland	East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland - Hardwood Modifier
Forest/Woodland	East Gulf Coastal Plain Northern Mesic Hardwood Forest
Forest/Woodland	East Gulf Coastal Plain Southern Loess Bluff Forest
Forest/Woodland	East Gulf Coastal Plain Southern Mesic Slope Forest
Forest/Woodland	Florida Peninsula Inland Scrub
Forest/Woodland	Mississippi Delta Maritime Forest
Forest/Woodland	Nashville Basin Limestone Glade
Forest/Woodland	Northeastern Interior Dry Oak Forest - Mixed Modifier
Forest/Woodland	Northeastern Interior Dry Oak Forest-Hardwood Modifier
Forest/Woodland	Northern Atlantic Coastal Plain Dry Hardwood Forest
Forest/Woodland	Ridge and Valley Calcareous Valley Bottom Glade and Woodland
Forest/Woodland	South-Central Interior Mesophytic Forest
Forest/Woodland	Southeast Florida Coastal Strand and Maritime Hammock
Forest/Woodland	Southern and Central Appalachian Cove Forest
Forest/Woodland	Southern and Central Appalachian Mafic Glade and Barrens
Forest/Woodland	Southern and Central Appalachian Oak Forest
Forest/Woodland	Southern and Central Appalachian Oak Forest - Xeric
Forest/Woodland	Southern Appalachian Montane Pine Forest and Woodland
Forest/Woodland	Southern Coastal Plain Dry Upland Hardwood Forest
Forest/Woodland	Southern Coastal Plain Oak Dome and Hammock
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 Glade and Barrens
Forest/Woodland	Southern Piedmont Mafic Hardpan Woodland
Forest/Woodland	Southern Piedmont Mesic Forest
Forest/Woodland	Southern Piedmont Northern Triassic Basin Dry Forest
Forest/Woodland	Southern Ridge and Valley Dry Calcareous Forest
Forest/Woodland	Southern Ridge and Valley Dry Calcareous Forest - Hardwood Modifier
Forest/Woodland	Southwest Florida Coastal Strand and Maritime Hammock
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 Plain Prairie and Barrens
Prairie	East Gulf Coastal Plain Jackson Prairie and Woodland
Prairie	Eastern Highland Rim Prairie and Barrens
Prairie	Eastern Highland Rim Prairie and Barrens - Dry Modifier
Prairie	Florida Dry Prairie

Prairie	Panhandle Florida Limestone Glade
Prairie	Pennyroyal Karst Plain Prairie and Barrens
Prairie	Southern Ridge and Valley Patch Prairie
Prairie	Western Highland Rim Prairie and Barrens
Wetlands	Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Forest Modifier
Wetlands	Atlantic Coastal Plain Brownwater Stream Floodplain Forest
Wetlands	Atlantic Coastal Plain Clay-Based Carolina Bay Forested Wetland
Wetlands	Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest - Taxodium/Nyssa Modifier
Wetlands	Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest - Oak Dominated Modifier
Wetlands	Atlantic Coastal Plain Northern Basin Peat Swamp
Wetlands	Atlantic Coastal Plain Northern Basin Swamp and Wet Hardwood Forest
Wetlands	Atlantic Coastal Plain Northern Wet Longleaf Pine Savanna and Flatwoods
Wetlands	Atlantic Coastal Plain Peatland Pocosin
Wetlands	Atlantic Coastal Plain Small Blackwater River Floodplain Forest
Wetlands	Atlantic Coastal Plain Small Brownwater River Floodplain Forest
Wetlands	Atlantic Coastal Plain Southern Wet Pine Savanna and Flatwoods
Wetlands	Atlantic Coastal Plain Streamhead Seepage Swamp, Pocosin, and Baygall
Wetlands	Central Appalachian Floodplain - Forest Modifier
Wetlands	Central Appalachian Riparian - Forest Modifier
Wetlands	Central Florida Pine Flatwoods
Wetlands	Central Interior Highlands and Appalachian Sinkhole and Depression Pond
Wetlands	East Gulf Coastal Plain Interior Shrub Bog
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
Wetlands	East Gulf Coastal Plain Large River Floodplain Forest - Forest Modifier
Wetlands	East Gulf Coastal Plain Near-Coast Pine Flatwoods - Offsite Hardwood Modifier
Wetlands	East Gulf Coastal Plain Near-Coast Pine Flatwoods - Open Understory Modifier
Wetlands	East Gulf Coastal Plain Near-Coast Pine Flatwoods - Scrub/Shrub Understory Modifier
Wetlands	East Gulf Coastal Plain Northern Seepage Swamp
Wetlands	East Gulf Coastal Plain Small Stream and River Floodplain Forest
Wetlands	East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods
Wetlands	East Gulf Coastal Plain Treeless Savanna and Wet Prairie
Wetlands	Lower Mississippi River Bottomland and Floodplain Forest
Wetlands	Lower Mississippi River Bottomland Depressions - Forest Modifier
Wetlands	Mississippi River Low Floodplain (Bottomland) Forest
Wetlands	Mississippi River Riparian Forest
Wetlands	North-Central Appalachian Acidic Swamp
Wetlands	North-Central Appalachian Seepage Fen
Wetlands	North-Central Interior and Appalachian Rich Swamp
Wetlands	South Florida Bayhead Swamp
Wetlands	South Florida Dwarf Cypress Savanna
Wetlands	South Florida Hardwood Hammock
Wetlands	South Florida Pine Flatwoods
Wetlands	South Florida Wet Marl Prairie
Wetlands	South Florida Willow Head
Wetlands	South-Central Interior Large Floodplain - Forest Modifier
Wetlands	South-Central Interior Small Stream and Riparian
Wetlands	South-Central Interior/Upper Coastal Plain Wet Flatwoods
Wetlands	Southern and Central Appalachian Bog and Fen
Wetlands	Southern Coastal Plain Blackwater River Floodplain Forest
Wetlands	Southern Coastal Plain Hydric Hammock
Wetlands	Southern Coastal Plain Nonriverine Basin Swamp
Wetlands	Southern Coastal Plain Seepage Swamp and Baygall
Wetlands	Southern Piedmont Large Floodplain Forest - Forest Modifier
Wetlands	Southern Piedmont Small Floodplain and Riparian Forest
Wetlands	Southern Piedmont/Ridge and Valley Upland Depression Swamp

- CITATIONS:** Baker, R. J., et al. 1988. Genic studies of *Lasiurus* (Chiroptera:Vespertilionidae). Occas. Pap. Mus. Texas Tech. Univ. 117:1-15.
- Baker, Rollin H. 1983. Michigan mammals. Michigan State University Press. 642 pp.
- Banfield, A.W.F. 1974. The mammals of Canada. University of Toronto Press, Toronto.
- Barbour, R. W., and W. H. Davis. 1969. Bats of America. The University of Kentucky Press, Lexington, Kentucky.
- Brown, L. N. 1997. A guide to the mammals of the southeastern United States. University of Tennessee Press, Knoxville. xiv + 236 pp.
- Caire, W., J. D. Tyler, B. P. Glass, and M. A. Mares. Z. Marsh (illustrator). 1989. Mammals of Oklahoma. University of Oklahoma Press, Norman. Oklahoma. 567 pp.
- Furlonger, C. L., H. J. Dewar, and M. B. Fenton. 1987. Habitat use by foraging insectivorous bats. Canadian J. Zool. 65:284-288.
- Godin, A.J. 1977. Wild Mammals of New England. Johns Hopkins University Press, Baltimore. 304 pp.
- Hall, E. R. 1981. The Mammals of North America. Second edition. 2 Volumes. John Wiley and Sons, New York, New York. 1181 p.
- Hamilton, William J., Jr., and John O. Whitaker, Jr. 1979. Mammals of the eastern United States. Cornell Univ. Press, Ithaca, New York. 346 pp.
- Hickey, M. B. C., and M. B. Fenton. 1990. Foraging by red bats (*LASIURUS BOREALIS*):do intraspecific chases mean territoriality? Can. J. Zool. 68:2477-2482.
- Jackson, H.H. 1961. Mammals of Wisconsin. Univ. Wisc. Press, Madison. 504 pp.
- Jones, J. K., Jr., et al. 1992. Revised checklist of North American mammals north of Mexico, 1991. Occas. Pap. Mus., Texas Tech Univ. (146):1-23.
- Kern, William H. and Stephen R. Humphrey. 1995. Habitat use by the red bat and seminole bat in northern Florida. Nongame wildlife Program Project Report ed.. Tallahassee, FL: Florida Game and Fresh Water Fish Commission; 1995 Dec; GFC-86-009.
- LaVal, R.K. and M.L. LaVal. 1979. Notes on reproduction, behavior, and abundance of the red bat, *LASIURUS BOREALIS*. J. Mammalogy, 60(1):209-212.
- Lee, D. S., L. B. Funderburg Jr., and M. K. Clark. 1982. A distributional survey of North Carolina mammals. Occasional Papers of the North Carolina Biological Survey, No. 1982-10. North Carolina State. Mus. Nat. Hist., Raleigh, North Carolina. 72 pp.
- Linzey, Alicia V., & Donald W. Linzey. 1971. Mammals of the Great Smoky Mountains National Park. The University of Tennessee Press, Knoxville, Tennessee. 114 p.
- McClure, H.E. 1942. Summer activities of bats (genus *Lasiurus*) in Iowa. Jour. Mamm. 23(4):430-434.
- Morales, J. C., and J. W. Bickham. 1995. Molecular systematics of the genus *LASIURUS* (Chiroptera:Vespertilionidae) based on restriction-site maps of the mitochondrial ribosomal genes. Journal of Mammalogy 76:730-749.
- Padgett, T. M., and R. K. Rose. 1991. Bats (Chiroptera:Vespertilionidae) of the Great Dismal Swamp of Virginia and North Carolina. Brimleyana 17:17-25.
- Ransome, R. 1990. The natural history of hibernating bats. Christopher Helm, London. xxi + 235 pp.
- Schmidly, D. J. 1991. The bats of Texas. Texas A & M Univ. Press, College Station. 188 pp.
- Schwartz, Charles W., and Elizabeth R. Schwartz. 1981. The wild mammals of Missouri. University of Missouri Press, Columbia. 356 pp.
- Shump, K. A., Jr., and A. U. Shump. 1982. *LASIURUS BOREALIS*. Am. Soc. Mamm., Mammalian Species No. 183:1-6.
- van Zyll de Jong, C. G. 1985. Handbook of Canadian Mammals. Volume 2. Bats. National Museums of Canada, Ottawa, Ontario, Canada. 212 pp.
- Webster, W. D., J. F. Parnell and W. C. Biggs Jr. 1985. Mammals of the Carolinas, Virginia, and Maryland. The University of North Carolina Press, Chapel Hill, NC.
- Whitaker, J.O. Jr. and W.J. Hamilton, Jr. 1998. Mammals of the eastern United States. Cornell Univ. Press, Ithaca, New York. 583 pp.
- Wilson, D. E., and D. M. Reeder (editors). 1993. Mammal Species of the World:a Taxonomic and Geographic Reference. Second Edition. Smithsonian Institution Press, Washington, DC. xviii + 1206 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.