



# SOUTHEAST GAP ANALYSIS PROJECT



## Species Modeling Report

### Belted Kingfisher

*Ceryle alcyon*

Taxa: Avian

Order: Coraciiformes

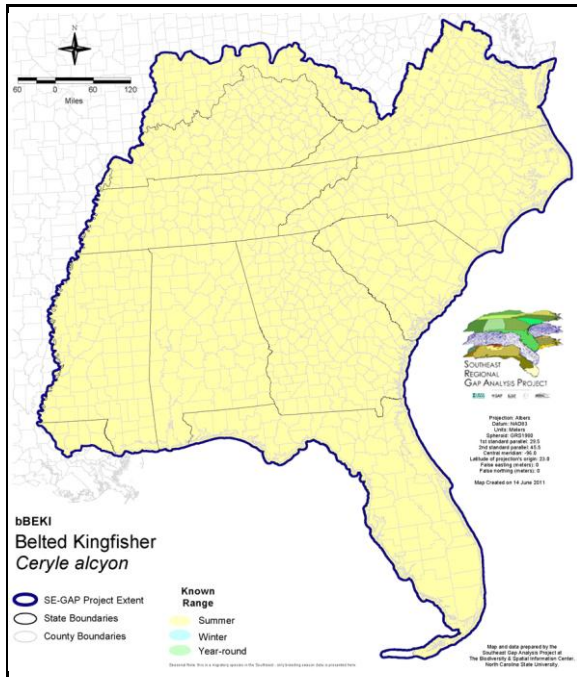
Family: Alcedinidae

SE-GAP Spp Code: **bBEKI**

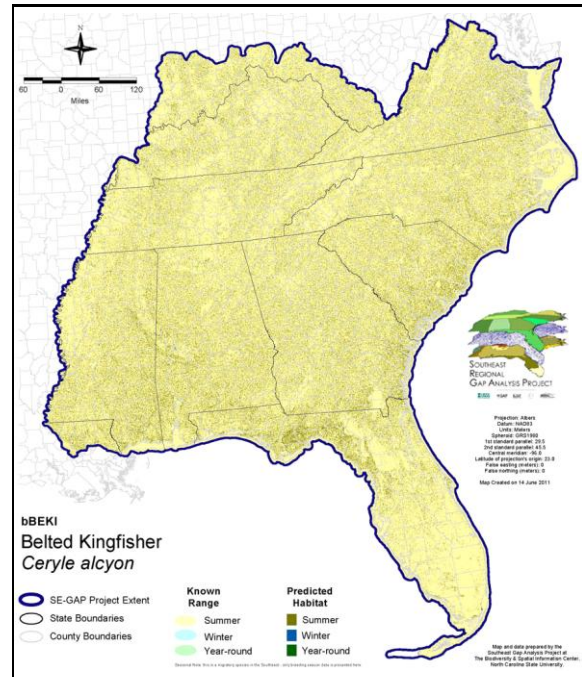
ITIS Species Code: 178119

NatureServe Element Code: ABNXD01020

#### KNOWN RANGE:



#### PREDICTED HABITAT:



Range Map Link: [http://www.basic.ncsu.edu/segap/datazip/maps/SE\\_Range\\_bBEKI.pdf](http://www.basic.ncsu.edu/segap/datazip/maps/SE_Range_bBEKI.pdf)

Predicted Habitat Map Link: [http://www.basic.ncsu.edu/segap/datazip/maps/SE\\_Dist\\_bBEKI.pdf](http://www.basic.ncsu.edu/segap/datazip/maps/SE_Dist_bBEKI.pdf)

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

Data Download: [http://www.basic.ncsu.edu/segap/datazip/region/vert/bBEKI\\_se00.zip](http://www.basic.ncsu.edu/segap/datazip/region/vert/bBEKI_se00.zip)

#### PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: ---

State Status: AZ (WSC), ID (P), KY (N), NJ (S/S), NV (YES), NY (PB), RI (Not Listed), UT (None), BC (4 (2005)), QC (Non suivie)

NS Global Rank: G5

NS State Rank: AK (S5), AL (S5), AR (S3), AZ (S2B,S5N), CA (S5), CO (S5B), CO (S5B), CT (S5B), CT (S5B), DC (S2N,S2S3B), DE (S4), FL (SNRB,SNRN), GA (S5), IA (S4B), ID (S5), IL (S5), IN (S4), KS (S4B), KS (S4B), KY (S4S5B,S4N), LA (S4), MA (S5B,S5N), MD (S5B,S4N), ME (S3N,S5B), MI (S5), MN (SNRB,SNRN), MO (SNRB,SNRN), MS (S5), MT (S5B), MT (S5B), NC (S5B,S5N), ND (SNRB), NE (S4), NH (S5), NJ (S4B,S4N), NM (S4B,S4N), NV (S4), NY (S5), OH (S5), OK (S3S5), OR (S4), PA (S5), RI (S4B), SC (SNR), SD (S5B), SD (S5B), TN (S5), TX (S5B), UT (S3S4B,S3N), VA (S5), VT (S5B), VT (S5B), WA (S5), WI (S5), WV (S4B,S4N), WY (S5B,S5N), AB (S5), BC (S4S5B), LB (S3B), MB (S4S5B), MB (S4S5B), NB (S5B), NF (S5B), NS (S5B), NT (SNRB), ON (S4B), PE (S5B), QC (S4B), SK (S5B,S5M), YT (S5B)

**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	31,942.8	< 1	5,604.2	< 1	0.0	0	0.0	0
Status 2	55,231.0	< 1	78,600.9	< 1	0.0	0	1,848.4	< 1
Status 3	1,373.8	< 1	630,356.9	4	21,761.5	< 1	202,463.4	1
Status 4	38.5	< 1	0.0	0	0.0	0	23.9	< 1
Total	88,586.1	< 1	714,562.0	4	21,761.5	< 1	204,335.7	1
	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	57,289.7	< 1	310.2	< 1	6,403.2	< 1
Status 2	0.0	0	14,533.7	< 1	11,899.5	< 1	50.2	< 1
Status 3	21,318.4	< 1	46,450.3	< 1	0.0	0	1,614.2	< 1
Status 4	0.0	0	4.0	2	0.0	0	0.0	0
Total	21,318.4	< 1	118,277.9	< 1	12,209.8	< 1	8,067.7	< 1
	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Forest	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	399.0	< 1	12.8	< 1	0.0	0
Status 2	0.0	0	4,279.6	< 1	191,071.3	1	198.1	< 1
Status 3	3,735.2	< 1	126,430.3	< 1	59,585.5	< 1	106,878.5	< 1
Status 4	0.0	0	0.0	0	32,401.0	< 1	15.1	< 1
Total	3,735.2	< 1	131,108.9	< 1	283,070.5	2	107,091.7	< 1
	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	3,545.0	< 1	0.0	0	0.0	0
Status 2	8,386.8	< 1	26,905.5	< 1	3.8	< 1	827.6	< 1
Status 3	0.0	0	3,400.3	< 1	7,644.4	< 1	31,865.7	< 1
Status 4	0.0	0	0.0	0	1,129.3	< 1	0.0	0
Total	8,386.8	< 1	33,850.8	< 1	8,777.5	< 1	32,693.2	< 1
	Private Land - No Res.		Water		Overall Total			
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	0.0	0			105,506.9	< 1
Status 2	0.8	< 1	0.0	2			393,837.5	2
Status 3	312.7	< 1	1.1	< 1			1,265,192.0	11
Status 4	15,227,687.3	86	60,538.7	< 1			15,354,200.7	87
Total	15,228,000.8	86	60,540.1	< 1			17,118,737.1	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):

### Summer Model:

Habitat Description: Breeding habitat is always near water, such as lakes, swift mountain streams, coasts, tidal creeks, swamps, and rivers (Fry & Fry 1992, Hamel 1992). Fresh, brackish, and saltwater all may provide suitable habitat (GA) including magroves (NATURE SERVE). They are always found near water, lakes, ponds, streams, and tidewater, and breed in vertical banks along streams or lakes.(Hamel 1992). Kingfishers are found throughout North Carolina, although they are less common above 3,000 ft. (Hamel 1992, Simpson 1992). They may often be seen perching in trees or on poles or wires near water (GA). They usually require clear, still water for fishing, vertical, sandy banks near water for nests, and elevated perches such as trees, telephone wires and posts (Fry & Fry 1992, Hamel 1992). Kingfishers hunt primarily small fish by diving into clear water while hovering or flying slowly (Hamel 1992).

The breeding pair digs nest burrows or long tunnels, generally in a steep bank (Hamel 1992, Harrison 1975). According to Fry & Fry (1992), secondary sites sometimes chosen are 'earth cuttings, embankments, mounds, gravel pits, mudslides made by Beavers, impacted soil in the roots of a fallen tree, and even sawdust heaps and tree holes.' The four inch hole is usually three to six feet deep, although 10 to 15 feet deep burrows have been reported (Harrison 1975, Potter et al 1980).

Quoted directly from existing state habitat notes - K. Cook, 17Feb05

#### Additional information:

"Shape of the territory usually conforms to that of the body of water; lateral boundaries were defined by trees lining the border of the stream (Davis 1980). Breeding territory size appears less important than food density for the production of offspring (Davis 1982)." - Hamas 1994 - Birds of North America. There was no breeding or habitat use by king fishers along grazed streams in a study of 12 grazed and non- grazed control streams in Pennsylvania (Popotkin and Giuliano 2000).K. Cook, 17Feb05

Elevation Mask: < 914m

#### Hydrography Mask:

Utilizes flowing water features with buffers of 60m from and 60m into selected water features.

Utilizes open water features with buffers of 60m from and 60m into selected water features.

Utilizes wet vegetation features with buffers of 60m from and 60m into selected vegetation features.

#### Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Deciduous Plantations
Anthropogenic	Evergreen Plantations
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Central Salt and Brackish Tidal Marsh
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Embayed Region Tidal Salt and Brackish Marsh
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Indian River Lagoon Tidal Marsh
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Northern Sea-Level Fen
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Northern Tidal Salt Marsh
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
Brackish Tidal Marsh & Wetland	Florida Big Bend Salt-Brackish Tidal Marsh
Brackish Tidal Marsh & Wetland	Mississippi Sound Salt and Brackish Tidal Marsh
Brackish Tidal Marsh & Wetland	South Florida Everglades Sawgrass Marsh
Brackish Tidal Marsh & Wetland	South Florida Mangrove Swamp
Brackish Tidal Marsh & Wetland	Southwest Florida Perched Barriers Salt Swamp and Lagoon - Mangrove Modifier
Brackish Tidal Marsh & Wetland	Southwest Florida Perched Barriers Salt Swamp and Lagoon - Marsh Modifier
Coastal Dune & Freshwater Wetland	Atlantic and Gulf Coastal Plain Interdunal Wetland
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	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 - Loblolly Modifier
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 - Open Understory 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	Atlantic Coastal Plain Upland Longleaf Pine Woodland
Forest/Woodland	Central Appalachian Oak and Pine Forest
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 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 - Offsite Hardwood 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	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 Dry Upland Hardwood Forest - Offsite Pine Modifier
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 Loess Plain Oak-Hickory Upland - Juniper 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 Longleaf Pine Sandhill - Open Understory Modifier
Forest/Woodland	Florida Longleaf Pine Sandhill - Scrub/Shrub Understory Modifier
Forest/Woodland	Mississippi Delta Maritime Forest
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	Northern Atlantic Coastal Plain Dry Hardwood Forest
Forest/Woodland	South-Central Interior Mesophytic Forest
Forest/Woodland	Southeast Florida Coastal Strand and Maritime Hammock
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 Coastal Plain Dry Upland Hardwood Forest
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 - Loblolly Pine 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
Forest/Woodland	Southwest Florida Coastal Strand and Maritime Hammock

Freshwater Tidal Marsh & Wetland	Atlantic Coastal Plain Central Fresh-Oligohaline Tidal Marsh
Freshwater Tidal Marsh & Wetland	Atlantic Coastal Plain Embayed Region Tidal Freshwater Marsh
Freshwater Tidal Marsh & Wetland	Atlantic Coastal Plain Northern Fresh and Oligohaline Tidal Marsh
Freshwater Tidal Marsh & Wetland	Florida Big Bend Fresh-Oligohaline Tidal Marsh
Water	Open Water (Brackish/Salt)
Water	Open Water (Fresh)
Wetlands	Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Forest Modifier
Wetlands	Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Herbaceous Modifier
Wetlands	Atlantic Coastal Plain Brownwater Stream Floodplain Forest
Wetlands	Atlantic Coastal Plain Clay-Based Carolina Bay Forested Wetland
Wetlands	Atlantic Coastal Plain Clay-Based Carolina Bay Herbaceous Wetland
Wetlands	Atlantic Coastal Plain Depression Pondshore
Wetlands	Atlantic Coastal Plain Large Natural Lakeshore
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 Pondshore
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	Atlantic Coastal Plain Xeric River Dune
Wetlands	Central Appalachian Floodplain - Forest Modifier
Wetlands	Central Appalachian Floodplain - Herbaceous Modifier
Wetlands	Central Appalachian Riparian - Forest Modifier
Wetlands	Central Appalachian Riparian - Herbaceous Modifier
Wetlands	Central Florida Herbaceous Pondshore
Wetlands	Central Florida Pine Flatwoods
Wetlands	East Gulf Coastal Plain Large River Floodplain Forest - Forest Modifier
Wetlands	East Gulf Coastal Plain Large River Floodplain Forest - Herbaceous 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 Depression Pondshore
Wetlands	East Gulf Coastal Plain Small Stream and River Floodplain Forest
Wetlands	East Gulf Coastal Plain Southern Depression Pondshore
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	Lower Mississippi River Bottomland Depressions - Herbaceous Modifier
Wetlands	Mississippi River Low Floodplain (Bottomland) Forest
Wetlands	Mississippi River Riparian Forest
Wetlands	North-Central Appalachian Acidic Swamp
Wetlands	North-Central Interior and Appalachian Rich Swamp
Wetlands	South Florida Bayhead Swamp
Wetlands	South Florida Cypress Dome
Wetlands	South Florida Freshwater Slough and Gator Hole
Wetlands	South Florida Hardwood Hammock
Wetlands	South Florida Pond-Apple/Popash Slough
Wetlands	South Florida Wet Marl Prairie
Wetlands	South Florida Willow Head
Wetlands	South-Central Interior Large Floodplain - Forest Modifier
Wetlands	South-Central Interior Large Floodplain - Herbaceous Modifier

Wetlands	South-Central Interior Small Stream and Riparian
Wetlands	Southern Coastal Plain Blackwater River Floodplain Forest
Wetlands	Southern Coastal Plain Hydric Hammock
Wetlands	Southern Coastal Plain Nonriverine Cypress Dome
Wetlands	Southern Coastal Plain Seepage Swamp and Baygall
Wetlands	Southern Coastal Plain Spring-run Stream Aquatic Vegetation
Wetlands	Southern Piedmont Large Floodplain Forest - Forest Modifier
Wetlands	Southern Piedmont Large Floodplain Forest - Herbaceous Modifier
Wetlands	Southern Piedmont Seepage Wetland
Wetlands	Southern Piedmont Small Floodplain and Riparian Forest
Wetlands	Unconsolidated Shore (Lake/River/Pond)

**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.

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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](http://www.basic.ncsu.edu/segap)

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