



SOUTHEAST GAP ANALYSIS PROJECT



Species Modeling Report

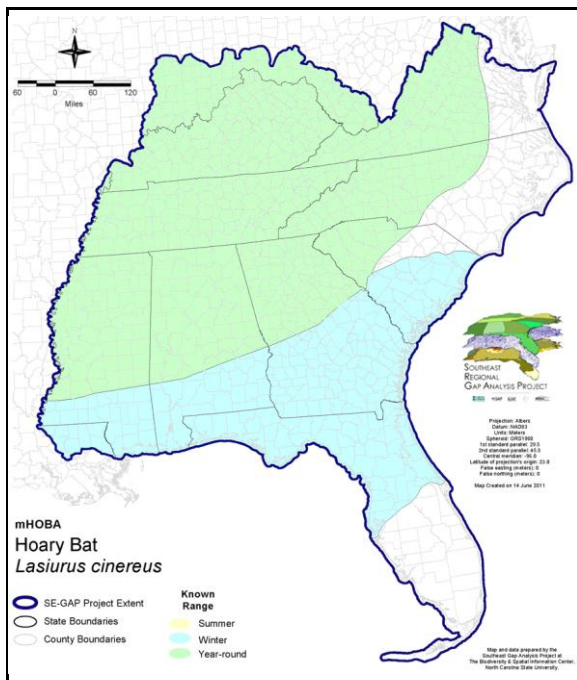
Hoary Bat

Lasiurus cinereus

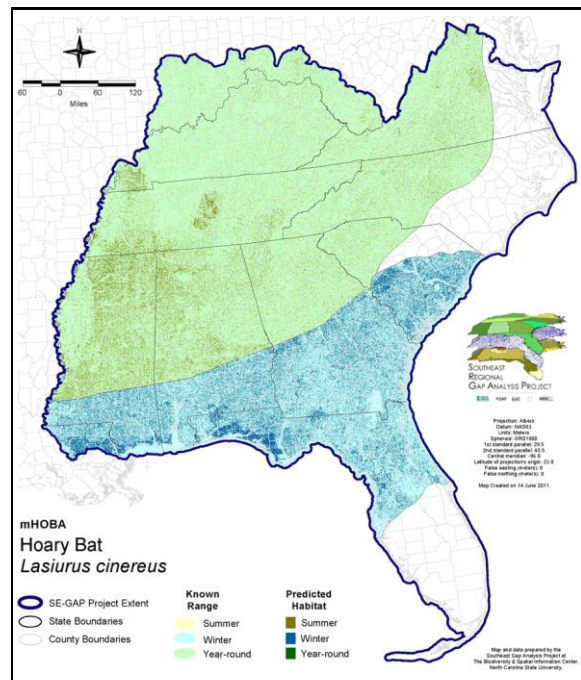
Taxa: Mammalian
 Order: Chiroptera
 Family: Vespertilionidae

SE-GAP Spp Code: **mHOBA**
 ITIS Species Code: 180017
 NatureServe Element Code: AMACC05030

KNOWN RANGE:



PREDICTED HABITAT:



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

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

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

Data Download: http://www.basic.ncsu.edu/segap/datazip/region/vert/mHOBA_se00.zip

PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: ---

State Status: CA (None), CT (SC), ID (P), IN (SSC), KY (N), MA (- WL), ME (SC), MS (Non-game species in need of management), NC (W2), NC (W2), NH (SC), NJ (U), NY (U), NY (U), OR (SV), RI (Not Listed), UT (None), UT (None), WI (SC), BC (4 (2005)), QC (Susceptible)

NS Global Rank: G5

NS State Rank: AL (SNR), AR (S3), AZ (S4), CA (S4?), CO (S5B), CO (S5B), CT (S3), DC (S2N), DE (SU), FL (SU), GA (S4), HI (SNR), IA (S4), ID (S4?), IL (S4), IN (S4), KS (SNA), KY (S3S4), LA (S4), MA (S2B), MD (S5N), ME (SU), MI (S3S4), MN (SNR), MO (S4), MS (S3), MT (S3S4), NC (S3S4), NC (S3S4), ND (SNR), NE (S5), NH (S3B), NJ (SU), NM (S3N), NV (S3), NY (S4B), NY (S4B), OH (SNR), OK (S3), OR (S3), PA (S4B), RI (S1), SC (SNR), SD (S5), TN (S5), TX (S4), UT (S4B), UT (S4B), VA (SUB,S3N), VA (SUB,S3N), VT (S3), WA (S3), WI (S3), WV (S3), WY (S4), AB (S2), BC (S4), MB (S3B), MB (S3B), NB (S2?), NF (SNA), NS (S2?), NT (SNR), ON (S4), PE (SNA), QC (S3), SK (S5B,S5M), SK (S5B,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	16,087.5	< 1	3,166.7	< 1	0.0	0	0.0	0
Status 2	25,869.6	< 1	28,040.1	< 1	0.0	0	474.8	< 1
Status 3	162.3	< 1	341,998.7	2	13,449.0	< 1	245,280.7	2
Status 4	6.0	< 1	0.0	0	0.0	0	0.0	0
Total	42,125.4	< 1	373,205.5	2	13,449.0	< 1	245,755.5	2
	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	11,406.0	< 1	37.0	< 1	1,313.6	< 1
Status 2	0.0	0	3,294.5	< 1	3,703.4	< 1	60.3	< 1
Status 3	28,292.8	< 1	12,595.1	< 1	0.0	0	3,457.0	< 1
Status 4	0.0	0	0.0	2	0.0	0	0.0	0
Total	28,292.8	< 1	27,296.0	< 1	3,740.4	< 1	4,830.8	< 1
	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Forest	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	296.9	< 1	3.7	< 1	0.0	0
Status 2	0.0	0	910.9	< 1	92,577.7	< 1	35.1	< 1
Status 3	2,642.2	< 1	104,957.5	< 1	24,731.8	< 1	144,721.1	< 1
Status 4	0.0	0	0.0	0	19,907.5	< 1	28.7	< 1
Total	2,642.2	< 1	106,165.3	< 1	137,220.7	< 1	144,784.9	< 1
	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	2,707.7	< 1	0.0	0	0.0	0
Status 2	1,790.9	< 1	11,843.0	< 1	1.2	< 1	690.9	< 1
Status 3	0.0	0	4,890.0	< 1	11,772.9	< 1	33,293.8	< 1
Status 4	0.0	0	0.0	0	690.1	< 1	< 0.1	< 1
Total	1,790.9	< 1	19,440.6	< 1	12,464.2	< 1	33,984.8	< 1
	Private Land - No Res.		Water		Overall Total			
	ha	%	ha	%	ha	%		
Status 1	0.0	0	0.0	0	35,019.0	< 1		
Status 2	0.0	0	0.0	< 1	169,292.6	1		
Status 3	107.6	< 1	1.1	< 1	972,353.3	8		
Status 4	14,601,226.2	90	13,911.3	< 1	14,655,671.8	91		
Total	14,601,333.8	90	13,912.6	< 1	15,832,336.8	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: In the eastern US, hoary bats live in the pine-hardwood forests, however they are most abundant on the edges of croplands and deciduous forests and are seldom found in urban settings. These bats prefer the edge of clearings, predominately deciduous, for roosting and rearing young (Shump & Shump 1982). They frequently forage over open areas such as clearcuts or small ponds in wooded areas (GA-GAP 2003) and often along streams or lakes (NatureServe 20058). Amy Silvano 20jun05

****Little information regarding habitat available

Ecosystem classifiers: Xeric woodlands, Mixed & hardwood Forests, Evergreen Mixed, Glades & Barrens, Disturbed for foraging, Floodplained Riparian, prairie when adjacent to forested for foraging. Basically any natural system that was not treed/woodland was selected as AU's rather than PMUs. Amy Silvano 20jun05

Customized Model: Hand Modeling****Select ecotone edge pixels IN ADDITION TO all other selections. Notes: May forage at considerable distances (a mile or more) from the diurnal roost site (NatureServe 2000);KY-GAP used a 30m edge buffer for this species. AMUs are foraging habitat that is not considered roosting habitat also. Amy Silvano 20jun05

I assume Amy's model intends to select ALL map units within a 30m forest/open and shrubland/woodland edge, and not just the map units selected as primary and auxiliary for this species. This was the model approach I used to hand model this species. MJR 12 February 2008.

Mask of Forest/Open Ecotone: Include within 15m of ecotone edge.

Mask of Woodlands and Shrublands: Include all woodland and shrubland interiors and 15m buffer from them.

Hydrography Mask:

Utilizes flowing water features with buffers of 2000m from and 30m into selected water features.

Utilizes open water features with buffers of 2000m from and 30m into selected water features.

Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Deciduous Plantations
Anthropogenic	Developed Open Space
Anthropogenic	Pasture/Hay
Anthropogenic	Successional Shrub/Scrub (Clear Cut)
Anthropogenic	Successional Shrub/Scrub (Other)
Anthropogenic	Successional Shrub/Scrub (Utility Swath)
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	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 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	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 Limestone 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 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	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	Ridge and Valley Calcareous Valley Bottom Glade and 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 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 - 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 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	Southern Ridge and Valley Dry Calcareous Forest - Pine Modifier
Water	Open Water (Fresh)
Wetlands	Central Appalachian Floodplain - Forest Modifier
Wetlands	Central Appalachian Riparian - Forest Modifier
Wetlands	East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Open Understory Modifier
Wetlands	East Gulf Coastal Plain Large River Floodplain Forest - Forest 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	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 Interior and Appalachian Rich Swamp
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 Piedmont Large Floodplain Forest - Forest Modifier
Wetlands	Southern Piedmont Small Floodplain and Riparian Forest
Wetlands	Southern Piedmont/Ridge and Valley Upland Depression Swamp

Selected Secondary Map Units within 1000m of Primary Map Units:

Functional Group	Map Unit Name
Wetlands	Central Interior Highlands and Appalachian Sinkhole and Depression Pond
Wetlands	Southern and Central Appalachian Bog and Fen
Forest/Woodland	Southern Piedmont Glade and Barrens
Forest/Woodland	Nashville Basin Limestone Glade

Forest/Woodland	Cumberland Sandstone Glade and Barrens
Wetlands	Western Highland Rim Seepage Fen
Forest/Woodland	Southern and Central Appalachian Mafic Glade and Barrens
Prairie	Western Highland Rim Prairie and Barrens
Prairie	Eastern Highland Rim Prairie and Barrens
Prairie	Eastern Highland Rim Prairie and Barrens - Dry Modifier
Prairie	Pennyroyal Karst Plain Prairie and Barrens
Prairie	Southern Ridge and Valley Patch Prairie
Forest/Woodland	Appalachian Shale Barrens
Wetlands	North-Central Appalachian Seepage Fen
Prairie	Bluegrass Basin Savanna and Woodland
Prairie	East Gulf Coastal Plain Jackson Plain Prairie and Barrens
Prairie	Florida Dry Prairie
Wetlands	East Gulf Coastal Plain Interior Shrub Bog
Prairie	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland
Prairie	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Herbaceous Modifier
Forest/Woodland	East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Woodland Modifier
Wetlands	East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Scrub/Shrub Understory Modifier
Prairie	Panhandle Florida Limestone Glade
Prairie	East Gulf Coastal Plain Jackson Prairie and Woodland
Anthropogenic	Successional Grassland/Herbaceous
Anthropogenic	Successional Grassland/Herbaceous (Other)
Anthropogenic	Successional Grassland/Herbaceous (Utility Swath)
Anthropogenic	Row Crop

Winter Model:

Habitat Description: Hoary bats hibernate out in the open (Tuttle 1995). Hibernating individuals have been found on tree trunks, in a tree cavity, in a squirrel's nest, and in a clump of Spanish-moss (NatureServe 2005). In Florida this bat prefers mature pine and mixed hardwood pine forest (Brwon 1997). Amy Silvano 20Jun05

*****Little Infomation known regarding winter habitat.

Ecosystem Classifiers: Evergreen, Mixed, Hardwood, Mesic Maritime, Distrubed, flatwoods, Swamps & Depressional (treed), Tidal Wooded swamps, Floodplain/Riparian (herb)

Mask of Forest/Open Ecotone: Include within 30m of ecotone edge.

Mask of Woodlands and Shrublands: Include all woodland and shrubland interiors and 30m buffer from them.

Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Developed Open Space
Anthropogenic	Pasture/Hay
Anthropogenic	Successional Shrub/Scrub (Clear Cut)
Anthropogenic	Successional Shrub/Scrub (Other)
Anthropogenic	Successional Shrub/Scrub (Utility Swath)
Brackish Tidal Marsh & Wetland	Atlantic Coastal Plain Southern Tidal Wooded Swamp
Brackish Tidal Marsh & Wetland	East Gulf Coastal Plain Tidal Wooded Swamp
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 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	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 Maritime 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	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	South Florida Pine Rockland
Forest/Woodland	Southeast Florida Coastal Strand and Maritime Hammock
Forest/Woodland	Southern Coastal Plain Oak Dome and Hammock
Forest/Woodland	Southwest Florida Coastal Strand and Maritime Hammock
Wetlands	Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Forest Modifier
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 Wet Longleaf Pine Savanna and Flatwoods
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	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 Small Stream and River Floodplain Forest
Wetlands	East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods
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	South Florida Hardwood Hammock
Wetlands	South Florida Pine Flatwoods
Wetlands	Southern Coastal Plain Blackwater River Floodplain Forest
Wetlands	Southern Coastal Plain Hydric Hammock

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For more information:: SE-GAP Analysis Project / BaSIC
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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.