



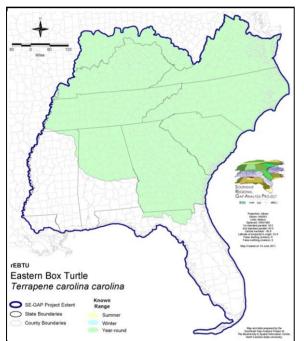
# Species Modeling Report

## **Eastern Box Turtle**

Terrapene carolina carolina

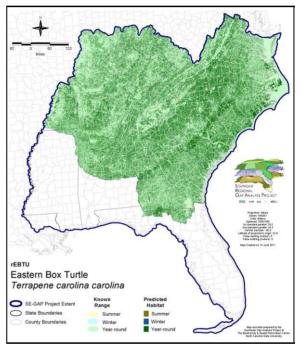
- Taxa: Reptilian
- Order: Cryptodeira
- Family: Emydidae

#### **KNOWN RANGE:**



SE-GAP Spp Code: **rEBTU** ITIS Species Code: 173777 NatureServe Element Code: ARAAD08012

### PREDICTED HABITAT:



 Range Map Link:
 http://www.basic.ncsu.edu/segap/datazip/maps/SE\_Range\_rEBTU.pdf

 Predicted Habitat Map Link:
 http://www.basic.ncsu.edu/segap/datazip/maps/SE\_Dist\_rEBTU.pdf

 GAP Online Tool Link:
 http://www.gapserve.ncsu.edu/segap/segap/index2.php?species=rEBTU

 Data Download:
 http://www.basic.ncsu.edu/segap/datazip/region/vert/rEBTU\_se00.zip

#### **PROTECTION STATUS:**

Reported on March 14, 2011

Federal Status: ---

State Status: CT (SC), IN (SSC), KY (N), ME (E), MI (SC), NJ (SC), RI (Protected)

NS Global Rank: G5T5

NS State Rank: CT (S4), FL (SNR), IN (S3), KY (S5), ME (S1), MI (S2S3), NJ (S3), PA (S3S4), RI (S4), ON (SU)

### 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	9
Status 1	47,852.3	< 1	5,527.7	< 1	0.0	0	0.0	(
Status 2	104,167.5	< 1	46,332.6	< 1	0.0	0	2,228.7	< 1
Status 3	1,463.1	< 1	429,132.0	1	45,342.5	< 1	303,160.6	< 1
Status 4	65.8	< 1	0.0	0	0.0	0	27.2	< 1
Total	153,548.7	< 1	480,992.3	2	45,342.5	< 1	305,416.4	< 1
	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Land	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	22,583.7	< 1	22.5	< 1	0.0	(
Status 2	0.0	0	2,585.3	< 1	3,127.7	< 1	0.0	(
Status 3	43,889.9	< 1	41,346.1	< 1	0.0	0	467.4	< 2
Status 4	0.0	0	0.0	0	0.0	0	0.0	(
Total	43,889.9	< 1	66,515.1	< 1	3,150.2	< 1	467.4	< 1
	Native Am. Reserv.		State Park/Hist. Park		State WMA/Gameland		State Fores	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	283.4	< 1	11.6	< 1	0.0	(
Status 2	0.0	0	2,907.1	< 1	200,444.1	< 1	212.7	< 1
Status 3	4,717.0	< 1	60,717.1	< 1	103,791.0	< 1	50,957.2	< 2
Status 4	0.0	0	0.0	0	30,943.4	< 1	0.0	(
Total	4,717.0	< 1	63,907.6	< 1	335,190.2	1	51,169.9	< 2
	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt	
	ha	%	ha	%	ha	%	ha	9
Status 1	0.0	0	2,854.3	< 1	0.0	0	0.0	(
Status 2	7,160.0	< 1	31,730.3	< 1	3.9	< 1	600.0	< 2
Status 3	0.0	0	1,547.1	< 1	4,603.0	< 1	6,220.5	< 2
Status 4	0.0	0	0.0	0	2,228.5	< 1	0.0	(
Total	7,160.0	< 1	36,131.7	< 1	6,835.3	< 1	6,820.6	< 2
	Private Land - I	No Res.		Water			Overa	all Tota
	ha	%	ha	%			ha	9
Status 1	0.0	0	0.0	0			79,135.5	< 2
Status 2	0.0	0	0.0	0			401,500.0	:
Status 3	514.0	< 1	0.0	0			1,097,868.4	1
Status 4	29,797,357.7	93	12,934.9	< 1			29,874,435.1	94
Total	29,797,871.7	93	12,934.9	< 1			31,452,939.0	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: Eastern box turtle is predominatly a species of open woodlands, fields, pastures, forest-field edges and also marshy meadows (Ernst et al. 1994, NatureServe 2005). In general, most all box turtles 'show little habitat specificity, but are generally most abundant in moist, woodland habitats, usually with and open canopy' (Mount 1975, Wilson 1995). Amy Silvano 8jul05

> \*\*\*Limited info on subspecies, only general information regarding nominate species is available. Amy Silvano 8jul05

Ecosystem Classifiers: Habitat is primarily, moist but will nest in uplands so used Wetlands, swamps and Forested Bottomlands as well as bare soil for burrowing as PMU's and Forested Classes as AMU's. Amy Silvano 8jul05

Mask of Forest/Open Ecotone: Include within 125m of ecotone edge. Mask of Woodlands and Shrublands: Include all woodland and shrubland interiors and 125m buffer from them.

Functional Group	Map Unit Name	
Anthropogenic	Bare Sand	
Anthropogenic	Bare Soil	
Anthropogenic	Developed Open Space	
Anthropogenic	Pasture/Hay	
Anthropogenic	Successional Grassland/Herbaceous	
Anthropogenic	Successional Grassland/Herbaceous (Other)	
Anthropogenic	Successional Grassland/Herbaceous (Utility Swath)	
Coastal Dune & Freshwater Wetland	Atlantic and Gulf Coastal Plain Interdunal Wetland	
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 Serpentine Woodland	
Forest/Woodland	Appalachian Shale Barrens	
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 Mixed Oak-Heath Forest	
Forest/Woodland	Atlantic Coastal Plain Upland Longleaf Pine Woodland	
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 - 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 Northern Loess Bluff Forest Forest/Woodland East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland - Hardwood Modifier East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland - Juniper Modifier Forest/Woodland 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 Nashville Basin Limestone Glade 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 Southeastern Interior Longleaf Pine Woodland 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 Low Mountain Pine Forest 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 - 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 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 Southern Ridge and Valley Dry Calcareous Forest - Pine Modifier Forest/Woodland 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 Fast 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 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 Northern Wet Longleaf Pine Savanna and Flatwoods
Wetlands	Atlantic Coastal Plain Peatland Pocosin
Wetlands	Atlantic Coastal Plain Sandhill Seep
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 Herbaceous Seep
Wetlands	Central Florida Pine Flatwoods
Wetlands	Central Interior Highlands and Appalachian Sinkhole and Depression Pond
Wetlands	Cumberland Riverscour
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 Large River Floodplain Forest - Herbaceous Modifier
Wetlands	East Gulf Coastal Plain Northern Depression Pondshore
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 Depression Pondshore
Wetlands	East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods
Wetlands	East Gulf Coastal Plain Treeless Savanna and Wet Prairie
Wetlands	Floridian Highlands Freshwater Marsh
Wetlands	North-Central Appalachian Acidic Swamp
Wetlands	North-Central Appalachian Seepage Fen
Wetlands	North-Central Interior and Appalachian Rich Swamp
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	South-Central Interior/Upper Coastal Plain Wet Flatwoods
Wetlands	Southern and Central Appalachian Bog and Fen
Wetlands	Southern Appalachian Seepage Wetland
Wetlands	Southern Coastal Plain Herbaceous Seepage Bog
Wetlands	Southern Coastal Plain Hydric Hammock
Wetlands	Southern Coastal Plain Nonriverine Basin Swamp
Wetlands	Southern Coastal Plain Nonriverine Cypress Dome
Wetlands	Southern Coastal Plain Seepage Swamp and Baygall
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	Southern Piedmont/Ridge and Valley Upland Depression Swamp
Wetlands	Unconsolidated Shore (Lake/River/Pond)
Wetlands	Western Highland Rim Seepage Fen

CITATIONS: Ernst, C. H., and J. F. McBreen. 1991. TERRAPENE. Cat. Am. Amph. Rept. 511.1-511.6. Ernst, C. H., and R. W. Barbour. 1972. Turtles of the United States. Univ. Press of Kentucky, Lexington. x + 347 pp. Iverson, J. B. 1991. Patterns of survivorship in turtles (order Testudines). Canadian J. Zoology 69:385-391. Johnson, T. R. 1987. The amphibians and reptiles of Missouri. Missouri Department of Conservation, Jefferson City. 368 pp Langtimm, C. A., C. K. Dodd, Jr., and R. Franz. 1996. Estimates of abundance of box turtles (TERRAPENE CAROLINA BAUERI) on a Florida island. Herpetologica 52:496-504. Lieberman, S. 1994. Can CITES save the box turtle? Endangered Species Technical Bulletin 19(5):1, 16-17 Mitchell, J. C. 1994. The reptiles of Virginia. Washington, DC: Smithsonian Institution Press. Schwartz, E. R., and C. W. Schwartz. 1991. A quarter-century study of survivorship in a population of three-toed box turtles in Missouri. Copeia1991:1120-1123. Stickel, L. 1950. Population and home range relationships of the box turtle, Terrapene c. carolina (Linnaeus). Ecol. Monogr. 20:351-378 Stickel, L. F. 1978. Changes in a box turtle population during three decades. Copeia 1978:221-225. Stickel, L. F. 1989. Home range behavior among box turtles (TERRAPENE C. CAROLINA) of a bottomland forest in Maryland. J. Herpetol. 23:40-44 Stuart, M. D., and G. C. Miller. 1987. The eastern box turtle, TERRAPENE C. CAROLINA (Testudines: Emydidae), in North Carolina. Brimleyana 13:123-131. Ward, J. P. 1980. Comparative cranial morphology of the freshwater turtle subfamily Emydinae:an analysis of the feeding mechanisms and systematics. Ph.D. dissertation, North Carolina State Univ., Raleigh. Williams, E. C., Jr., and W. S. Parker. 1987. A long-term study of a box turtle (TERRAPENE CAROLINA) population at Allee Memorial Woods, Indiana, with emphasis on survivorship. Herpetologica 43:328-335. DeGraaf, R. M., and D. D. Rudis. 1983. Amphibians and reptiles of New England. Habitats and natural history. Univ. Massachusetts Press. vii + 83 pp. Dodd, C.K. 2001. North American Box Turtles: A Natural History. University of Oklahoma Press, Norman, OK. 231p Dundee, H. A., and D. A. Rossman. 1989. The amphibians and reptiles of Louisiana. Louisiana State Univ. Press, Baton Rouge. Ernst, C. H., and J. F. McBreen. 1991. TERRAPENE CAROLINA. Cat. Am. Amph. Rept. 512.1-512.13

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