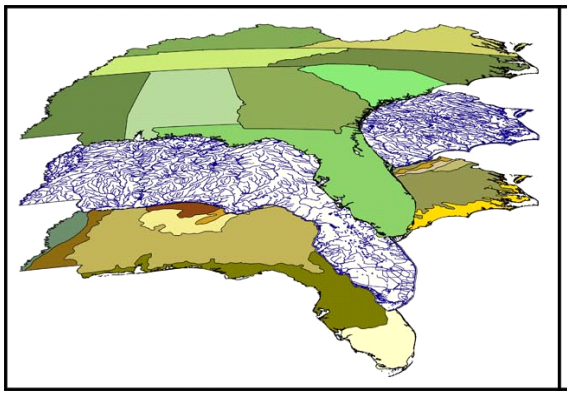


SOUTHEAST GAP ANALYSIS PROJECT

Species Modeling Report

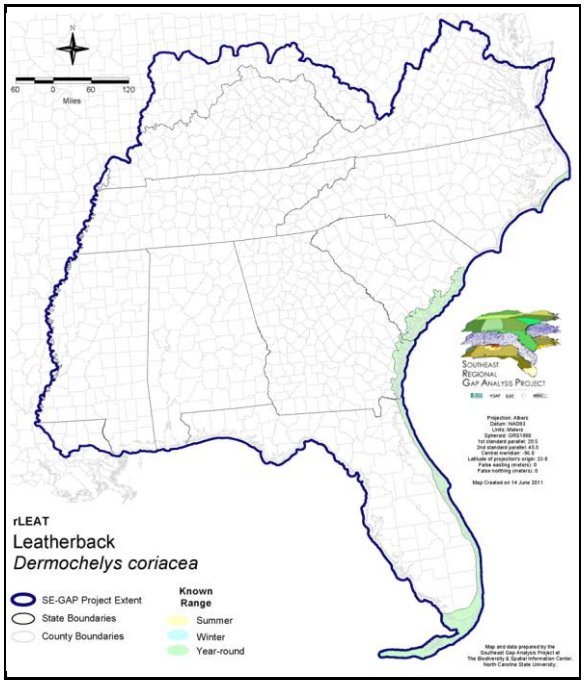
Leatherback

Dermochelys coriacea

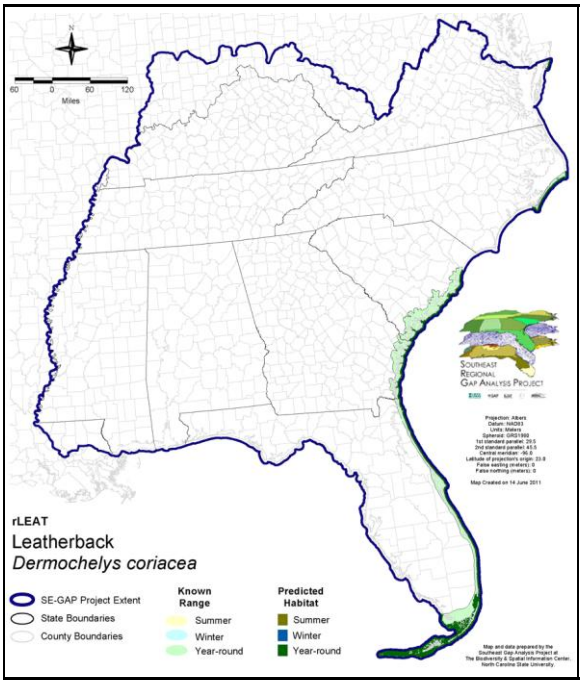
Taxa: Reptilian
Order: Cryptodeira
Family: Dermochelyidae

SE-GAP Spp Code: **rLEAT**
ITIS Species Code: 173843
NatureServe Element Code: ARAAC01010

KNOWN RANGE:



PREDICTED HABITAT:



Range Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Range_rLEAT.pdf
Predicted Habitat Map Link: http://www.basic.ncsu.edu/segap/datazip/maps/SE_Dist_rLEAT.pdf
GAP Online Tool Link: http://www.gapserve.ncsu.edu/segap/segap/index2.php?species=rLEAT
Data Download: http://www.basic.ncsu.edu/segap/datazip/region/vert/rLEAT_se00.zip

PROTECTION STATUS:

Reported on March 14, 2011

Federal Status: LE

State Status: AL (SP), CT (E), DE (E), FL (FE), GA (E), LA (Endangered), MA (E), MD (E), MS (LE), NC (E), NC (E), NJ (E), NY (E), RI (State Endangered), SC (SE-Endangered), TX (E), VA (LE), WA (E), NS (Endangered), QC (Susceptible)

NS Global Rank: G2

NS State Rank: AK (S2), AL (SNR), CA (SNA), CT (SNA), DE (SNA), FL (S2), GA (S1), HI (S1), LA (SNA), MA (S1S2N), MD (S1), ME (SNR), MS (SNA), NC (S1B,SUN), NC (S1B,SUN), NH (SNR), NJ (S1), NY (S1N), OR (SNA), RI (SNR), SC (SNA), TX (S1), VA (SNA), WA (SNA), BC (S1S2N), LB (SNR), NB (S1S2N), NF (SNR), NS (S1S2N), PE (SNR), QC (SNA)

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	398.8	4	0.0	0	0.0	0	0.0	0
Status 2	14.9	< 1	0.0	0	0.0	0	0.0	0
Status 3	0.0	0	0.0	0	0.0	0	89.6	< 1
Status 4	0.0	0	0.0	0	0.0	0	0.0	0
Total	413.7	4	0.0	0	0.0	0	89.6	< 1

	US Dept. of Energy		US Nat. Park Service		NOAA		Other Federal Lands	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	138.2	1	0.0	0	17.5	< 1
Status 2	0.0	0	1,429.9	15	242.8	3	0.0	0
Status 3	0.0	0	0.5	< 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	1,568.7	17	242.8	3	17.5	< 1

	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	0.0	0	523.6	6	0.0	0
Status 3	0.0	0	509.7	5	0.0	0	3.7	< 1
Status 4	0.0	0	0.0	0	0.0	0	0.0	0
Total	0.0	0	509.7	5	523.6	6	3.7	< 1

	State Coastal Reserve		ST Nat.Area/Preserve		Other State Lands		Private Cons. Easemt.	
	ha	%	ha	%	ha	%	ha	%
Status 1	0.0	0	0.0	0	0.0	0	0.0	0
Status 2	0.0	0	342.0	4	0.0	0	0.0	0
Status 3	0.0	0	0.0	0	0.0	0	0.0	0
Status 4	0.0	0	0.0	0	0.0	0	0.0	0
Total	0.0	0	342.0	4	0.0	0	0.0	0

	Private Land - No Res.		Water			Overall Total	
	ha	%	ha	%		ha	%
Status 1	0.0	0	0.0	0		554.5	6
Status 2	0.0	0	0.0	0		2,553.3	27
Status 3	0.0	0	0.0	0		603.5	6
Status 4	5,618.4	60	79.7	< 1		5,698.1	61
Total	5,618.4	60	79.7	< 1		9,409.4	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 leatherback is primarily a tropical nester but is known to wander more widely than other sea turtles. They are mainly pelagic, seldom approaching land except for nesting (Eckert 1992; Martof et al. 1980), but it occasionally enters shallow bays and estuaries. Invertebrates are the main dietary staple, especially jellyfish, which are eaten at or near the surface of the water. The turtles sleep while floating on the surface (Ernst et al. 1994). In the summer, they concentrate in waters mostly 20-40 m deep near Cape Canaveral, Florida. They nest on sloping sandy beaches free of abrasive rocks and coral, backed up by vegetation, often near deep water and rough seas. They are primarily tropical beach nesters. The largest colonies use continental, rather than insular, beaches (CSTC 1990). This species may rapidly occupy newly formed nesting habitat (Pritchard 1992). The absence of a fringing reef and with obstruction free approaches appears to be important [due to heavy body with soft skin] (Mortimer 1981). Nests are dug in sand at night in March-August and many are lost due to high tides. They lay up to 10+ clutches of 70-90 normal eggs at intervals of about 1-2 weeks. Most individuals nest every 2-3 years. Eggs hatch in 8-10 weeks. After nesting, leatherbacks follow schools of jellyfish to temperate waters and then return to the tropics (Ernst et al. 1994). Stacy Smith, 7June05

Customized Model: Brackish/Salt water type was selected for this species, but since water is selected as a map unit, this should serve to limit this species' model to Brackish/Salt water habitats. I therefore un-selected water type from the drop-down menu above. MJR 29aug07.

Added FW and SW 120m and 9999 (unlimited) FROM and INTO buffers respectively. MJR 30 January 2008.
This species is highly pelagic (Palmer & Braswell 1995, Wilson 1995, Eckert 1992; Martof et al. 1980). As a result, model was including brackish waters that would not be approriate habitat. I altered this species' model as a hand model to include only nesting beaches and marine waters. MJR 30 January 2008.

Hydrography Mask:

Brackish/Saltwater Only

Utilizes flowing water features with buffers of 120m from and unlimited into selected water features.

Utilizes open water features with buffers of 120m from and unlimited into selected water features.

Selected Map Units:

Functional Group	Map Unit Name
Anthropogenic	Bare Sand
Beach	Atlantic Coastal Plain Northern Sandy Beach
Beach	Atlantic Coastal Plain Southern Beach
Beach	Southeast Florida Beach
Beach	Southwest Florida Beach
Beach	Unconsolidated Shore (Beach/Dune)
Water	Open Water (Brackish/Salt)

CITATIONS:

Bjorndal, K. A., editor. 1982*. Biology and conservation of sea turtles. Smithsonian Institution Press, Washington, D.C. 583 pp. *Copyright date; date on title page is "1981.".

Chan, E.-H. 1989. White spot development, incubation and hatching success of leatherback turtle (DERMOCHELYS CORIACEA) eggs from Rantau Abang, Malaysia. Copeia 1989:42-47.

Chua, T. H. 1988. Nesting population and frequency of visits in DERMOCHELYS CORIACEA in Malaysia. J. Herpetology 22:192-207.

Chua, T. H., and J. I. Furtado. 1988. Nesting frequency and clutch size in DERMOCHELYS CORIACEA in Malaysia. J. Herpetology 22:208-218.

Committee on Sea Turtle Conservation (CSTC), National Research Council (U.S.). 1990. Decline of the Sea Turtles:Causes and Prevention. National Academy Press, Washington, D.C. xv + 259 pp.

Conant, R. and J. T. Collins. 1991. A field guide to reptiles and amphibians:eastern and central North America. Third edition. Houghton Mifflin Co., Boston, Massachusetts. 450 pp.

Eckert, K. L. 1987. Environmental unpredictability and leatherback sea turtle (DERMOCHELYS CORIACEA) nest loss. Herpetologica 43:315-323.

Eckert, K. L., and S. A. Eckert. 1988. Pre-reproductive movements of leatherback sea turtles (DERMOCHELYS CORIACEA) nesting in the Caribbean. Copeia 1988:400-406.

Eckert, K. L., and S. A. Eckert. 1989. The application of plastic tags to leatherback sea turtles, DERMOCHELYS CORIACEA. Herpetol. Rev. 20:90-91.

Eckert, K. L., et al. 1989. Inter-nesting migrations by leatherback sea turtles (DERMOCHELYS CORIACEA) in the West Indies. Herpetologica 45:190-194.

Eckert, S. A. 1992. Bound for deep water. Natural History, March 1992, pp. 28-35.

Ernst, C. H., and R. W. Barbour. 1972. Turtles of the United States. Univ. Press of Kentucky, Lexington. x + 347 pp.

Ernst, C. H., and R. W. Barbour. 1989. Turtles of the world. Smithsonian Institution Press, Washington, D.C. xii + 313 pp.

Ernst, C. H., R. W. Barbour, and J. E. Lovich. 1994. Turtles of the United States and Canada. Smithsonian Institution Press, Washington, D.C. xxxviii + 578 pp.

Frazer, N. B. 1992. Sea turtle conservation and halfway technology. Conservation Biology 6:179-184.

Fritts, T. H., W. Hoffman, and M. A. McGehee. 1983. The distribution and abundance of marine turtles in the Gulf of Mexico and nearby Atlantic waters. J. Herpetology 17:327-344.

Goff, G. P., and J. Lien. 1988. Atlantic leatherback turtles, DERMOCHELYS CORIACEA, in cold water off New Foundland and Labrador. Canadian Field-Naturalist 102:1-5.

Iverson, J. B. 1991. Patterns of survivorship in turtles (order Testudines). Canadian J. Zoology 69:385-391.

King, F. W., and R. L. Burke, editors. 1989. Crocodilian, tuatara, and turtle species of the world:a taxonomic and geographic reference. Association of Systematics Collections, Washington, D.C. 216 pp.

Lazell, J.D., Jr. 1980. New England waters:critical habitat for marine turtles. Copeia 1980:290-295.

Marine Turtle Recovery Team. 1984. Recovery plan for marine turtles (loggerhead turtle, green turtle, leatherbackturtle, hawksbill turtle, and Kemp's ridley turtle). Natl. Mar. Fish. Serv. and U.S. Fish and Wildlife Service 363 pp.

Martof, B. S., W. M. Palmer, J. R. Bailey, and J. R. Harrison, III. 1980. Amphibians and reptiles of the Carolinas and Virginia. University of North Carolina Press, Chapel Hill, North Carolina. 264 pp.

Matthews, J. R., and C. J. Moseley (editors). 1990. The Official World Wildlife Fund Guide to Endangered Species of North America. Volume 1. Plants, Mammals. xxiii + pp 1-560 + 33 pp. appendix + 6 pp. glossary + 16 pp. index. Volume 2. Birds, Reptiles, Am

McKeown, S. 1978. Hawaiian reptiles and amphibians. Oriental Pub. Co., Honolulu. 80 pp.

Meylan, A., P. Meylan, and A. Ruiz. 1985. Nesting of DERMOCHELYS CORIACEA in Caribbean Panama. J. Herpetology 19:293-297.

Mitchell, J. C. 1991. Amphibians and reptiles. Pages 411-76 in K. Terwilliger (coordinator). Virginia's Endangered Species:Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

Mrosovsky, N., and M. Benabib. 1990. An assessment of two methods of sexing hatchling sea turtles. Copeia 1990:589-591.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1995. Status reviews for sea turtles listed under the Endangered Species Act of 1973. National Marine Fisheries Service, Silver spring, Maryland. vi + 139 pp.

Palmer, W. M., and A. L. Braswell. 1995. Reptiles of North Carolina. North Carolina State Museum of Natural Sciences, University of North Carolina Press, Chapel Hill, North Carolina.

Pritchard, P. C. H. 1980. Dermochelys coriacea. Cat. Am. Amph. Rep. 238.1-238.4.

Pritchard, P. C. H. 1992. Leatherback turtle DERMOCHELYS CORIACEA (Vandelli). Pages 214-218 in P. E. Moler, editor. Rare and endangered biota of Florida. Vol. III. Amphibians and reptiles. Univ. Press of Florida.

Pritchard, P. C. H., and P. Trebbau. 1984. Turtles of Venezuela. Society for the Study of Amphibians and Reptiles. 403 pp.

Rabon, D.R, S.A. Johnson, R. Boettcher, M. Dodd, M. Lyons, S. Murphy, S. Ramsey, S. Roff and K. Stewart. 2003. Confirmed leatherback turtle (Dermochelys coriacea) nests from North Carolina, with a summary of leatherback nesting activities north of Florida

Shoop, C. R., and R. D. Kenney. 1992. Seasonal distributions and abundances of loggerhead and leatherback sea turtles in waters of the northeastern United States. Herpetology Monongraphs 6:43-67.

Tucker, A. D., and N. B. Frazer. 1991. Reproductive variation in leatherback turtles, DERMOCHELYS CORIACEA, at Culebra National Wildlife Refuge, Puerto Rico. Herpetologica 47:115-124.

U.S. Fish & Wildlife Service. 1980. Selected vertebrate endangered species of the seacoast of the United States-- leatherback sea turtle. FWS/OBS-80/01.12.

U.S. Fish and Wildlife Service (USFWS). 1990. Endangered and threatened species recovery program:report to Congress. 406 pp.

Van Meter, V. B. 1983. Florida's sea turtles. Florida Power & Light Company, Miami. 46 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.