

**The Northern Diamondback Terrapin (*Malaclemys terrapin terrapin*)
in the Northeastern United States:
A Regional Conservation Strategy**

*A proposal submitted to the
Northeast Association of Fish and Wildlife Agencies
Regional Conservation Needs Grant Program*

Topic 5. Design and implement conservation strategies for Northeast species of greatest conservation need

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Developed in cooperation with the Northeast and mid-Atlantic Diamondback Terrapin Working Groups (collectively DTWG)

Funds requested from NEAFWA RCN Program: \$45,494
Project Time Frame: January 2014 to December 2015

PROJECT DESCRIPTION:

We propose the development of a regional, landscape level, multi-partner conservation strategy/plan that focuses on the conservation, management, and protection of the northern diamondback terrapin and its habitat in eight states of the Northeast/mid-Atlantic regions (Massachusetts to Virginia). The overarching goal of this proposal is a conservation strategy/plan that will help achieve long-term sustainability of the northern diamondback terrapin population in the Northeast and mid-Atlantic regions. Under RCN Topic 5 - Design and implement conservation strategies for the Northeast and mid-Atlantic Species of Greatest Conservation Need (NE SGCN) we will identify the species current and historical populations, habitat (known and unknown occupancy), threats, prioritize locations for regional and individual state management, data gaps, and review the regulatory status in each state. The conservation strategy will also include components from RCN Topic 7 - Identify and Assess Threats to NE SGCN as we will articulate threats regionally and for each individual state and also address major components of RCN Topics 3 (identifying data gaps). The final report will describe a strategic initiative for implementation of conservation actions across eight states within the Northeast and mid-Atlantic regions with recommendations specific to each state and region-wide and the identification of the most important sites for this species. The results of the proposed conservation strategy/plan could be used to solicit additional funding for implementation for more regionally significant sites for terrapins in the Northeast and mid-Atlantic regions in the future. Completion of this project will require two years (January 2014-December 2015).

BACKGROUND:

Northern diamondback terrapin (*Malaclemys terrapin terrapin*) (NDBT) populations have declined due to a number of factors since the early 1900's. Historic commercial fisheries, loss of habitat, drowning in commercial and recreational crab pots, increased nest failure due to predation from raccoons and other subsidized predators and road mortality have been the primary causations for population decline (Brennessel n.d.). Illegal harvest and trade in the Asian food markets, both domestic and abroad may also be a major threat.

The NDBT has been identified as a Species of Greatest Conservation Need in the Northeast States Wildlife Action Plans (WAP). The NDBT is found in eight states of the Northeast /mid-Atlantic regions and are considered Threatened in Massachusetts, Endangered in Rhode Island, and Special Concern in New Jersey. In Delaware's WAP the species considered a Tier I species which is most in need of conservation action in order to sustain or restore their populations. In Virginia's WAP the species is considered a Tier II Species of Greatest Conservation Need. In Connecticut, New York, and Maryland the species is identified in their respected WAP, but with no priority ranking given. In New York and Connecticut the NDBT is identified as an S3 - Vulnerable species and in Maryland it's an S4 – Apparently Secure species. NatureServe lists the Global Status of the NDBT as T4-Apparently Secure.

The species has been identified by the Northeast Partners in Amphibian and Reptile Conservation (NEPARC) as a species of regional conservation concern in the Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern Report as it found in ≥ 75 % of states listed in the WAP and > 50 % of NDBT distribution is within the Northeast Region of North America (NEPARC 2010). Therres (1999) also suggested that the NDBT merits a federal listing assessment. There is no specific Federal program/policy for the NDBT and state programs rarely coordinate regional efforts in the absence of a Federal mandate (Hackney 2010).

A regional conservation strategy is needed at this time to identify steps that can be taken regionally and by state to reduce further decline of this species and to help achieve long-term sustainability of the NDBT population in the Northeast and mid-Atlantic regions. To pursue a regional conservation strategy, existing data must be compiled and evaluated by state and regionally from a number of partners and organizations. This proposal represents the first major effort of the DTWG to take a comprehensive view of the status of the NDBT in the Northeast and mid-Atlantic regions. In 2008, the (mid-Atlantic) DTWG meeting identified the development of a conservation plan as a priority action item. Despite its importance, no plan has been developed to date due to limited resources. The development of a conservation strategy will help guide and coordinate multiple-state laws and policies to protect the NDBT and its habitat and may reduce the need for a Federal listing assessment (as was also suggested by Hackney (2010)). Therefore, we propose to undertake a landscape level conservation strategy (Topic 5) for the NDBT in the Northeast/mid-Atlantic regions. The conservation strategy will also include components from RCN Topic 7 (identify and assess threats) and RCN Topics 3 (identifying data gaps).

Project Goal: The goals of the project are to: a) Compile and examine existing data on NDBT locations and status within the states and the region, identify data gaps, build a dataset from

existing data, develop maps and show trends in distribution and habitat, and identify the most important sites to the species; b) Compile and review threats to populations both within states and regionally; c) Draft an conservation strategy with best management practices for the NDBT for the eight Northeast and Mid-Atlantic states as described in the BACKGROUND section.

METHODS:

The Conserve Wildlife Foundation of New Jersey (CWFNJ) will take the lead in coordination between the states/partners and organize meeting(s) to help foster a collaborative process and conservation strategy. The CWFNJ will collect, analyze, and interpret range-wide data, in partnership with the DTWG which represents all states where the species occurs in the Northeast and mid-Atlantic regions, multiple NGOs, and other partners (listed in Appendix A). The CWFNJ will compile GIS maps with the data that is collected for historical and current occurrences and areas of important habitat. The CWFNJ will conduct a threat assessment for each state and regionally. The CWFNJ will also conduct a literature search and evaluate the regulatory status region wide. The CWFNJ will develop and write the final conservation strategy with assistance from key players within the DTWG technical review board.

Timeframe: The project timeframe will be January 2014 to December 2015.

Project Area: The area covered by this proposal includes eight of the Northeast Association of Fish and Wildlife Agencies (NEAFWA) states: MA, RI, CT, NY, NJ, DE, MD, and VA. Regionally significant sites will be identified and well as significant sites within each state.

Project Objectives:

Objective 1: Coordinate and collaborate with the DTWG (Appendix A)

- A. Organize a Technical Review Board within the DTWG to evaluate progress and provide technical assistance during several stages throughout the project.
- B. Conduct strategic conference calls and hold regional meeting(s) with the DTWG Technical Review Board and entire DTWG if possible.

Objective 2: Gather available data and have the data compiled reviewed by the DTWG

- A. Gather occurrence data from resource management agencies, researchers, and other partners within the target states of the project.
- B. Research existing literature in order to gather additional occurrence data from previous studies and identify data gaps.
- C. Compile data collected in (A) and (B) into a preliminary NDBT occurrence GIS shape file.
- D. Identify sites of state and regional conservation importance.
- E. GIS shape file of occurrence and sites of conservation importance will be reviewed by the DTWG Technical Review Board.
- F. Report any new NDBT occurrences to responsible State agencies from data gathered.

Objective 3: Summarize and critically review conservation and regulatory status in the Northeast and mid-Atlantic regions (build on Hackney 2010)

- A. Quantify and summarize population occurrence by state and region.
- B. Evaluate population assessments and have reviewed by DTWG Technical Review Board.
- C. Conduct a regional assessment of existing regulatory policies, including a synopsis of enforcement actions and case studies.
- D. Conduct a regional assessment of possession and collection policies, including a synopsis of enforcement actions and case studies.

Objective 4: Draft Status Assessment and Conservation Strategy/Plan

- A. Compile information as gathered above to draft a regional Conservation Strategy/Plan with conservation recommendations, including best management practices, and further needs/research actions for the Northeast and mid-Atlantic regions and by each State.

Conservation Deliverables - Comprehensive Conservation Strategy/Plan for the NDBT consisting of the following:

I. STATUS AND THREATS OF THE NDBT IN THE NORTHEAST AND MID-ATLANTIC REGIONS

- A. Current and historic population and distribution
- B. Important habitats identified
- C. Data gaps
- D. Conservation threats
- E. Review of conservation and regulatory status and deficiencies by State

II. PRIORITY HABITATS BY STATE AND REGION-WIDE (GIS maps and full descriptions Massachusetts to Virginia)

III. CONSERVATION STRATEGIES AND ACTIONS

- A. Desired Condition: Population Goal
- B. Conservation and Management Actions
- C. Research Questions with Management Implications
- D. State and Regional Research Needs
- E. Monitoring Program Needs
- F. Recommendations and Best Management Practices for the Northeast and mid-Atlantic regions
- G. Outreach/Education

BUDGET:

REQUESTED FUNDS RCN					
Organization	Task	Contribution	2013	2014	Total
Conserve Wildlife Foundation of New Jersey, Inc. (CWFNJ)					
PI Biologist Salary	Project Coordinator	Personal service	\$14,040	\$14,040	\$28,080 (based on 10 hrs work/week)
PI Biologist Benefits	Project Coordinator	Fringe Benefits	\$2,080	\$2,080	\$4,160 (based on \$4/hr)
PI Travel	Project Coordinator	Travel for PI	\$700	\$500	\$1,200
Wetlands Institute of New Jersey	Technical Assistance Contractor	Contractual Service	\$2,500	\$2,500	\$5,000
Technical Review Team - Coordinators/Contributors/Partners	Travel for Technical Review Team for Plan Meetings	Travel for Contributors	\$1,000	\$1,000	\$2,000
Direct Total (Before Overhead)			\$20,320	\$20,120	\$40,440
Indirect Costs 18%			\$2,527	\$2,527	\$5,054
Direct + Indirect			\$22,847	\$22,647	\$45,494
Total Requested Funds			\$22,847	\$22,647	\$45,494
MATCHING FUNDS FROM PARTNERS (direct)					
			2013	2014	Total
CWFNJ	Technical support	In-kind services	\$2,850	\$2,850	\$5,700
MA researcher - Baraba Brennessel (Wheaton College)	Population assessment/Technical Support	In-kind services	\$3,000	\$3,000	\$6,000
CT - Leigh Shemitz (SoundWaters)	Population assessment	In-kind services	\$1,500	\$1,500	\$3,000
RI researcher - Charlotte Sornborger (The Barrington Land Conservation Trust Inc.)	Population assessment/Plan Coordination	In-kind services	\$1,500	\$1,500	\$3,000
NY researcher - Russell Burke (Hofstra University)	Population assessment/Plan Coordination	In-kind services	\$2,700	\$2,700	\$5,400
NJ DFW	Population assessment	In-kind services	\$3,000	\$3,000	\$6,000
NJ research - John Wnek (Marine Academy of Technology and Environmental Science)	Population assessment/Plan Coordination	In-kind services	\$3,000	\$3,000	\$6,000
MD DNR - Scott Smith	Population assessment	In-kind services	\$2,500	\$2,500	\$5,000
Virginia DGIF - Ruth Boettinger and John Kleopfer	Population assessment/Plan Coordination	In-kind services	\$2,700	\$2,700	\$5,400
Total Matching Funds:			\$22,750	\$22,750	\$45,500
Total Project Budget:			\$45,597	\$45,397	\$90,994

LITERATURE CITED:

Brennessel, B. No date. The Northern Diamondback Terrapin Habitat, Management and Conservation. Wheaton College Norton, Massachusetts. 15 pp.

Hackney, A. 2010. Conservation Biology of the diamondback terrapin in North America: policy status, nest predation, and managing island populations. Masters of Science Thesis to Clemson University, Clemson, South Carolina. 78 pp.

NEPARC. 2010. Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern. Northeast Partners in Amphibian and Reptile Conservation (NEPARC). Publication 2010-1.

Therres, G. D. 1999. Chairman, Northeast Endangered Species and Wildlife Diversity Technical Committee. Wildlife species of regional conservation concern in the northeastern United States. Northeast Wildlife 54:93-100.

Appendix A: Principal Investigator Qualifications and Working Group Members

Project Coordinator:

Stephanie Egger (Principal Investigator) - Wildlife Biologist with Conserve Wildlife Foundation of New Jersey, previously Fish and Wildlife Biologist with U.S. Fish and Wildlife Service New Jersey Field Office. She has primarily studied beach nesting birds for the past seven years, with her main task being the lead development of partnership-based comprehensive management plans for threatened and endangered beach species at municipal, county, state, and Federal sites. The model program is widely recognized on a regional and Atlantic coast basis. She received an MS in Biology (St. Joseph's University/Rutgers University Marine Field Station) for graduate work on the NDBT (Szerlag and McRobert 2006, Szerlag-Egger and McRobert 2007). She is team member of CWFNJ's NDBT project, which is one of the organization's major initiatives. The combination of a strong background in developing conservation plans, working with diverse local and regional partners, and her technical and scientific knowledge of terrapins and other at-risk coastal species makes Stephanie highly and uniquely qualified to lead this project.

Due to funding opportunities a person who was qualified was not able to previously take on this initiative.

Szerlag, S., and S. P. McRobert. 2006. Road occurrence and mortality of the northern diamondback terrapin. *Applied Herpetology* 3:27-37.

Szerlag, S., and S. P. McRobert. 2007. Northern Diamondback Terrapin Occurrence, Movement, and Nesting Activity Along a Salt Marsh Access Road. 2007. *Chelonian Conservation and Biology* 6(2): 295–301.

Northeast and Mid-Atlantic Diamond Terrapin Working Group (DWTG) and Technical Review Board (to be determined):

Senior Co-Chair Officer - Russell L. Burke - Hofstra University
Northeast Region Representative - Alisha Mullett - SoundWaters
Mid-Atlantic Representative – Patrick Baker – Swathmore College/The Wetlands Institute

Federal, State and Other Research Biologists:

MA Researcher - Baraba Brennessel (Wheaton College)
CT Partner- Leigh Shemitz (SoundWaters)
RI Researcher - Charlotte Sornborger (The Barrington Land Conservation Trust Inc.)
NY Researcher - Russell Burke (Hofstra University)
NJ DFW, NJ Researchers - TBD (Wetlands Institute), John Wnek (Marine Academy of Technology and Environmental Science)
DE DNR - Holly Niederriter
MD DNR - Scott Smith and Rick Morin
VA DGIF - Ruth Boettcher and John Kleopfer
USGS Patuxent Wildlife Research Center - Paula Henry, Dan Day
NOAA - Mary Hollinger, NPS, and USFWS Site Partners
Other Northeast and Mid-Atlantic Working Group Members