

Strategic Implementation of Regional Conservation Priorities for Freshwater Turtles at Risk in the Northeast



**Regional Conservation Needs (RCN) 2017
DRAFT Pre-proposal 10/26/17**

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NEED

The Northeastern USA supports five species of Emydine turtle, more than any other region globally (Figure 1). This taxonomic group includes Blanding's, Spotted, Eastern Box, Wood, and Bog Turtle, all of which exhibit late sexual maturity, small clutch size, extremely long reproductive lifespan, and a range of semi-terrestrial habitat preferences. These life history characteristics have rendered populations susceptible to decline associated with habitat loss and fragmentation. In fact, widespread declines are evident, contributing to a Northeastern regional consensus that all five species merit RSGCN status. Furthermore, three of the five species are currently being considered by the USFWS for listing consideration under the federal Endangered Species Act (Bog Turtles are already federally listed as Threatened). Regional Working Groups, led by state wildlife agencies, have formed to ensure the persistence of these species as functional components of the Northeastern fauna. The Working Groups have developed (or are developing) Conservation Plans based upon Conservation Area Networks and prioritized, site-specific actions. Examples of important management actions include strategic land protection, improved habitat restoration and management, roadway mitigation, technical assistance to key landowners, coordinated population assessment, genetic mapping, and population management. Collectively, the Northeastern states (through State Wildlife Grants programs) have made a nationally significant investment in Conservation Planning for these at-risk species. This proposed RCN project will protect our regional investment and help ensure the stability of remaining populations by addressing the **most urgent regional conservation priorities for multiple species at multiple scales**. We propose four major initiatives under a single grant:

- (1) **Spotted Turtle** Conservation Genetics & Expanded Conservation Planning;
- (2) **Eastern Box Turtle** Status Assessment, Conservation Plan, and BMPs;
- (3) Targeted Road Mitigation Assessment & BMPs;
- (4) Implementation of Regional Conservation Plans in Priority Focal Areas

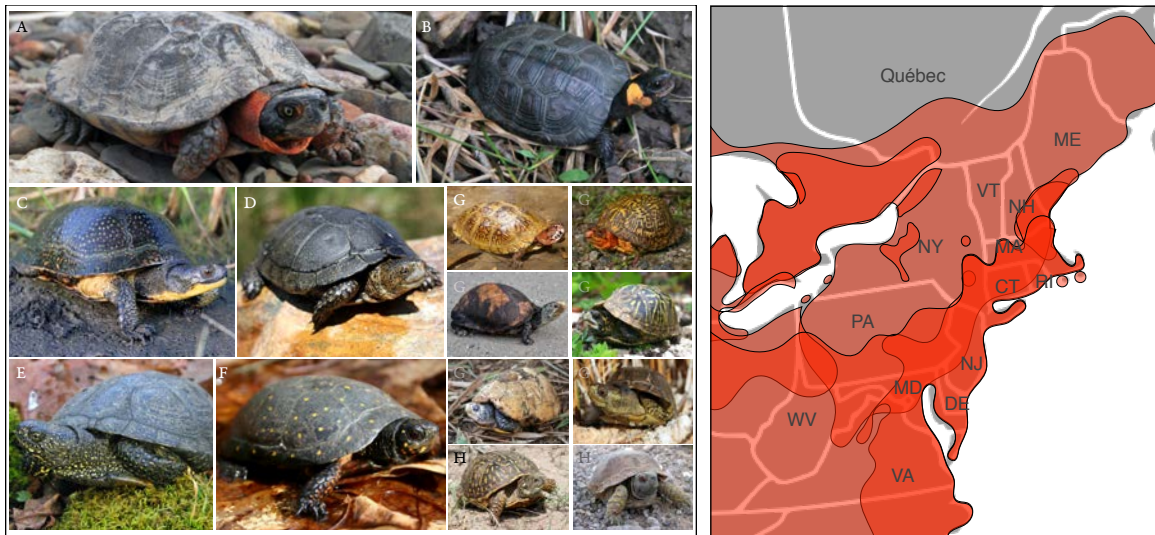


Figure 1. The freshwater turtle group Emydinae is comprised of about twelve North American species and two European species (pictured at left), most of which are of widespread conservation concern. The Northeastern United States supports the highest species richness for this unique, terrestrial-adapted group, as shown in the overlapping ranges of the five northeastern species at right.

Initiative 1. Spotted Turtle Conservation Genetics & Expanded Conservation Planning.

This project would expand and capitalize upon a recently funded Competitive State Wildlife Grant to develop a Conservation Plan for the Spotted Turtle. Cost constraints resulted in the elimination of genetic analysis and several potential state agency partners from that major effort. Because multiple state partners from across the range of this species will be conducting standardized population assessments from 2018 to 2020 as part of the CSWG, there is an opportunity to leverage RCN funds to undertake a comprehensive genetics assessment which otherwise would have been cost-prohibitive because of the difficulty of collecting samples. This project would support a region-wide genetics study to characterize the genetic structure, diversity, and relatedness of spotted turtle populations, informing conservation management units and enforcement actions and additional assessments of priority populations. Further, this project would allow and encourage the involvement of up to five additional Northeastern States that are not receiving funds through CSWG. Specifically, RCN funds would support (A) supplies, equipment, and trainings for partners in up to 14 states to collect blood samples during standardized sampling; (B) general participation in CSWG actions for up to five additional states and/or expanded participation by states signed on to the CSWG; (C) a one-year genetics postdoctoral study, with associated laboratory time and equipment. In-kind match would include volunteer population assessments and tissue collection, reduced rates on contractual services, technical assistance to key landowners and agencies (including NRCS), and a public communication campaign. Deliverables will include an expanded Conservation Plan and a comprehensive genetics report and management plan. Lead: J.D. Kleopfer (VA DGIF) & Spotted Turtle CSWG Working Group



Initiative 2. Eastern Box Turtle Status Assessment, Conservation Plan, & Best Management Practices.

This project would develop a Status Assessment and Conservation Plan for Northeastern populations of the Eastern Box Turtle, an at-risk species that has declined across much of its range from New England to Virginia (Kiestler and Willey 2015). At this time, there is no formal, regional or inter-state coordination for Eastern Box Turtles in the Northeastern USA. Notably, there are more citizen science efforts in place for



this species than for any other target turtle species, so the opportunity to leverage RCN funds for population assessment and conservation implementation is great. Funding through RCN would allow the development of standardized monitoring and population assessment protocols, coordinated data analysis, and targeted study to answer management questions of regional concern as components of a Status Assessment, spatially explicit Conservation Area Network, and Conservation Action Plan. Specifically, RCN funds would support (A) development and early implementation of flexible & quantitative monitoring protocols; (B) a shared reporting system for pooled data analysis; (C) targeted assessment of population response to common habitat management techniques including (but not limited to) barrens

restoration and prescribed fire; (D) regional status assessment based on analyses of pooled data; (E) spatially-explicit Conservation Area Network, and (F) spatially-explicit Conservation Action Plan. In kind match will include volunteer population assessments, reduced rates on contractual services, technical assistance to key landowners, and a public communication campaign. Deliverables will include a monitoring protocol, status assessment, Conservation Plan, best management practices, and concerted public communications materials. Lead: Mike Jones (MassWildlife)

Initiative 3. Road Mortality Hotspot Identification, Targeted Road Mitigation Assessment, & Best Management Practices. This initiative would improve our overall approach to identifying turtle road mortality concentrations, designing effective mitigation strategies, and assessing the mitigation. Road mortality associated with habitat fragmentation is a major threat to the persistence of freshwater turtle populations. Preventive measures for road mortality include warning signs for motorists, turtle-exclusion fencing, and tunnels under roads, the latter of which can be costly to install or maintain. Directed



evaluation of the efficacy of these measures is needed in order support an adaptive management framework for turtle conservation in the Northeast, especially since it is suspected that efficacy may vary by species and rangewide. Strategic and coordinated identification of road mortality “hotspots” and the examination of the effectiveness of turtle-driven road mitigation measures at achieving conservation goals is critical in justifying the limited conservation funds and resources available to turtles in the Northeast and in providing resource managers with the data to adapt and design increasingly effective road mitigation tools in the future. Existing partnerships with focuses on road ecology through NEPARC working groups and bi-annual NE Transportation and Wildlife Conferences will be leveraged to collaborate on product development and communication/outreach of final deliverables. Specifically, RCN funds would support: (A)

development of a standardized approach to identifying and documenting road mortality hotspots, (B) a database of regional roadway mitigation projects for turtles to facilitate best future design practices; (C) development of Best Management Practices for common mitigation measures; (D) development of standardized protocols for pre- and post-mitigation implementation monitoring; and (E) meta-analysis of the effectiveness of these mitigation actions. Leads: Brian Zarate (NJ DFW) & Derek Yorks (ME DIFW)

Initiative 4. Conservation Action Within Priority Blanding’s & Wood Turtle Focal Core Areas. This initiative would improve our overall effectiveness in conserving, restoring, and managing landscapes critical for the conservation of Blanding’s and Wood Turtles, and other species as feasible, building upon years of dedicated coordination among Northeastern States to identify the most important landscapes and necessary conservation actions for these at-risk species. As part of Conservation Planning for both species funded through CSWG grants, regional Working Groups have identified critical **Focal Core Areas** for the conservation of both Blanding’s and Wood Turtles (Figure 2), and have outlined necessary conservation actions within each focal area. This process was completed in 2014 for Blanding’s Turtle and will be complete by the end of 2017 for Wood Turtle. This project would allow a dedicated contractor to work directly with the Working Groups to prioritize, implement, and track the most urgent conservation actions both species at the most important sites across the region. Specifically, RCN funds would support a contracted project coordinator to: (A) coordinate with species Working Groups to prioritize at least 30 sites for the creation of dedicated site management teams; (B) ensure and facilitate the implementation of priority site-specific conservation actions including coordination with land protection committees, habitat restoration, habitat management, site-specific technical assistance to landowners; (C) track conservation actions by States for both species in a spatially-explicit database, monitoring progress on conservation goals and identifying areas in need of assistance; (D) refine, track, implement, and distribute best management practices for habitat management and restoration and population management. Match will be in the form of volunteer in-kind contributions of technical assistance to key landowners and agencies (e.g., NRCS), and the development and distribution of updated habitat management BMPs. Lead: TBD from Wood and Blanding’s Turtle CWSG Working Groups



OBJECTIVES

- The overarching objective of this RCN project is to support the strategic implementation of **regional conservation planning** for at-risk turtles in the Northeastern States, addressing the most time-sensitive research and management needs for at least five priority species (Blanding's, Eastern Box, Wood, Spotted Turtles, and Northern Diamondback Terrapins) through four separate but complementary initiatives.
- This project will track the implementation and evaluate the success of priority management actions, including road mitigation BMPs and habitat management BMPs.

EXPECTED RESULTS OR BENEFITS

- Encourage broader participation among Northeastern States in the regional effort to develop a Conservation Action Plan for Spotted Turtles;
- Quantify the genetic structure and diversity of Spotted Turtles in the Northeastern USA, identifying unique genetic structure worthy of special conservation attention, protecting Spotted Turtle genetic diversity within the region.

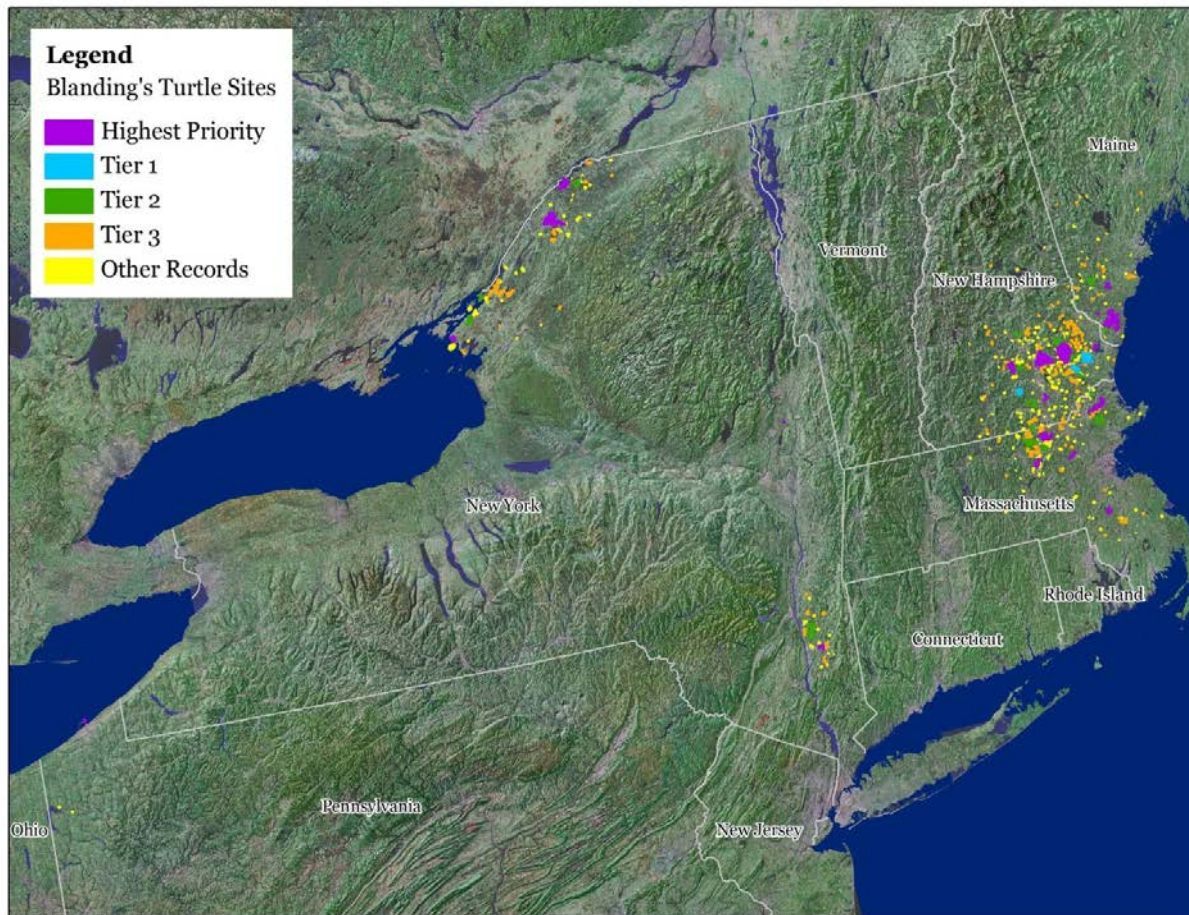


Figure 2. Prioritized Conservation Area Network (CAN) for Blanding's Turtle in the Northeastern United States (Wiley and Jones 2014). Management Plans have been developed for "Highest Priority" sites, outlining necessary management and conservation actions.

- Increase the implementation of standardized population assessment methods for Spotted Turtles and Eastern Box Turtles;
- Initiate coordinated population assessments and coordinated data analysis for Eastern Box Turtles;
- Direct and prioritize conservation and management efforts for Eastern Box Turtles;
- Inform specific management recommendations for Young Forest initiatives throughout the Northeast;
- Understand best management practices for Box Turtles associated with barrens and young forest conservation initiatives;
- Improve efficiency and effectiveness related to road mitigation efforts for freshwater turtles and terrapins;
- Increase the implementation of effective road mitigation efforts for at-risk turtles;
- Ensure the successful and timely implementation of regionally prioritized Conservation Actions for Wood and Blanding's Turtles within selected priority sites;
- Ensure that all management and conservation actions are tracked and monitored in order to critically evaluate successful approaches.

APPROACH

1. Convene a Technical Steering Committee composed of the initiative leads as well as agency biologists from the Northeast Region;
2. Expand and finalize Scopes of Work for Initiatives 1–4 based on input and guidance from the NEFWDTC, Wildlife Administrators, Directors, and agency biologists;
3. Incorporate strong public communications component into the Scope of Work for all four Initiatives.
4. Finalize non-agency partners for each Initiative by soliciting letters of interest, reviewed and selected by the Steering Committee;
5. For Initiative 1, expand upon existing Spotted Turtle Competitive SWG project to fund additional or expanded participation by up to 5 Northeast states through direct contracts with agencies or contractors;
6. For the conservation genetics component of Project 1, establish a contract with a leading conservation genetics program at university to achieve objectives in expanded Scope of Work; contractor will report to the Steering Committee and NEFWDTC;
7. Initiate an Eastern Box Turtle Working Group with state, University and NGO partners;
8. Contractor will develop best management practices for Eastern Box Turtle habitat management, status assessment, and conservation plan and report back to states;
9. Contractor will compile and evaluate best practices for road mitigation measures and report back to states and NEFWDTC;
10. Contractor will support, coordinate and report on implementation of Conservation Action Plans within selected priority sites for Wood and Blanding's Turtles and other species subject to regional conservation planning during the timeframe of this grant; report to NEFWDTC;
11. Communicate freshwater turtle conservation needs to partner organizations across the region. These communications will be strategic in nature to provide guidance to NRCS, FHA, and land trust organizations.

LOCATION – All Northeastern States

ESTIMATED COST: \$115,000 / year for five years (2018 – 2022) (RCN request)

	2018	2019	2020	2021	2022
Initiative 1. Spotted Turtle Genetics & Expanded Conservation Planning	\$57,500	\$28,750	\$28,750	\$57,500	\$0.00
Initiative 2. Eastern Box Turtle Conservation Plan	\$0.00	\$28,750	\$28,750	\$28,750	\$57,500
Initiative 3. Targeted Road Mitigation and BMPs	\$57,500	\$28,750	\$28,750	\$28,750	\$28,750
Initiative 4. Implementation of Priority Actions in Focal Areas	\$0.00	\$28,750	\$28,750	\$0.00	\$28,750
Total	\$115,000.00	\$115,000.00	\$115,000.00	\$115,000.00	\$115,000.00

GRANT PROGRAM	FEDERAL SHARE	NON-FEDERAL SHARE*	TOTAL
State Wildlife Grants (15.634)	\$ 575,000	\$ 309,615.39	\$ 884,615.39

*Non-federal Share:

Matching funds totaling ***at least*** \$309,615.39 will be generated during the project from a variety of sources including contractor waived and reduced costs (as documented on invoice); tracked and certified volunteer contributions; contributions from partner organizations.