Northeast Regional Conservation Synthesis for 2025 State Wildlife Action Plans

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Prepared for the

Northeast Fish and Wildlife Diversity Technical Committee,

Northeast Association of Fish and Wildlife Agencies

By

Terwilliger Consulting, Inc.

LAND ACKNOWLEDGEMENT

We acknowledge the Indigenous people of the Northeast. We acknowledge that the focal area of this effort spans the homeland of many tribes. It is with deep gratitude and appreciation that we seek to conserve the species and natural systems that continue to be nurtured by the original stewards and their descendants, whose relationship with these lands is unbroken. We recognize the losses inflicted on these original inhabitants and on the land itself, and we seek to contribute to the conservation and restoration of these lands and waters. We recognize that Indigenous Knowledge is unique and specific to a Tribe or Indigenous people, and Traditional Ecological Knowledge is invaluable to fish and wildlife conservation in the Northeast.

EXECUTIVE SUMMARY

This 2023 Northeast Regional Conservation Synthesis updates the original 2013 synthesis for State Wildlife Action Plans (Terwilliger Consulting Inc. [TCI] and the Northeast Fish and Wildlife Diversity Technical Committee [NEFWDTC] 2013). Its purpose is to support the 2025 State Wildlife Action Plan (SWAP) revisions. In addition, many associated resources are available on the www.northeastwildlifediversity.org website to support the SWAP ten-year revision cycle.

For more than fifty years, 14 fish and wildlife agencies in the Northeast United States (the Virginias to Maine) have worked together through the Northeast Association of Fish & Wildlife Agencies (NEAFWA) to conserve the region's fish, wildlife, and habitats in the greatest need of conservation. This document summarizes the strategic approach to regional conservation planning and implementation developed and applied collaboratively by NEAFWA's NEFWDTC and its key partners.

The Northeast states created a common lexicon and data framework to address the SWAP Elements. This includes:

- Regional species prioritization via Regional Species of Greatest Conservation Need (RSGCN)

- Development of shared terrestrial and aquatic habitat classifications
- Habitat condition assessments and maps
- Identification of priority regional threats
- A set of overarching actions, including assessments and monitoring of species and their habitats

Over the past decade, conservation efforts continued to address priority RSGCN and their habitats. These range from xeric woodland pollinators to rare wetland turtles and butterflies to freshwater mussels and stoneflies. It highlights how the states apply this regional conservation planning framework across boundaries to preempt federal listing under the Endangered Species Act by collaboratively implementing coordinated on-the-ground conservation.

NOTABLE ADVANCEMENTS AND INFORMATION SINCE THE 2013 SYNTHESIS

The 2013 regional conservation synthesis summarized regional conservation actions taken since 2007 through the Regional Conservation Needs (RCN), Competitive State Wildlife Grants (CSWG), and Landscape Conservation Cooperative (LCC) programs (TCI and NEFWDTC 2013). In 2017, the Regional SWAP Synthesis provided a collective summary of the conservation priorities and actions identified in the fourteen 2015 Northeast SWAPs, highlighting regional themes and priorities (TCI and NEFWDTC 2017).

This 2023 Regional Conservation Synthesis updates the inventory of RCN projects supported by NEFWDTC and CSWG projects undertaken in the Northeast region over the past decade. The LCC programs have been discontinued, so no projects were included from this program. Instead, the synthesis of existing regional conservation actions is now updated to include regional efforts of the Science Applications (SA) program of the United States Fish and Wildlife Service (USFWS), which address landscape-scale and priority species conservation.

Over the past decade, these key tools and projects were developed to support NEAFWA's NEFWDTC and SWAPs:

- Northeast SWAP Database, version 3.0 TCI and NEFWDTC 2020)

- Northeast SWAP Synthesis (TCI and NEFWDTC 2017)

- Northeast RSGCN list updates (TCI and NEFWDTC 2013, 2018, 2023)

- RSGCN Limiting Factors Report (TCI and NEFWDTC 2020)

- Northeast RSGCN Database, version 1.0 (TCI and NEFWDTC 2023)

- Northeast Lexicon (Crisfield and NEFWCTC 2013, 2022)

- Northeast Habitat Status and Condition Assessments (Anderson et al. 2011, 2013, 2016, 2023)

- Northeast Regional Conservation Synthesis (TCI and NEFWDTC 2013, 2023)

- Northeast Climate Change Synthesis for 2025 SWAP Revisions (Staudinger et al. 2015, 2023)

- NEFWDTC website update (2023)

- 70+ new RCN, CSWG, and SA conservation projects on RSGCN and their habitats.

This document synthesizes over two thousand programs, projects, plans, resource documents, and tools to provide guidance and information that states can incorporate into their Wildlife Action Plans and beyond. Many of these were developed through NEAFWA's NEFWDTC and its RCN Grant Program as a diverse set of regional tools and best practices for addressing the key landscape and watershed-scale wildlife conservation needs of the Northeast, as prioritized by the states and their partners. Since 2007, the RCN Grant Program, with all states contributing SWG funds to this common effort, continues to provide regionally consistent information and tools. Individual states can use this to meet their SWAP wildlife and habitat conservation goals in the context of a regional planning and implementation framework.

DOCUMENT STRUCTURE

This document follows the order of the required State Wildlife Action Plan Essential Eight Elements, reflecting the steps of the conservation planning framework. *Chapter 1* presents the Regional Species of Greatest Conservation Need. *Chapter 2* presents information on their key regional habitats. *Chapter 3* synthesizes the key regional threats, and *Chapter 4* lists the regional conservation actions that address these threats. *Chapter 5* describes the regional monitoring framework, protocols, and examples. *Chapter 6* describes the SWAP review process and guidance. Finally, *Chapters 7* and *8* highlight the regional coordination, review process, and partnerships that continue to support exemplary collaboration and public engagement across the Northeast states.

REGIONAL PRIORITY SPECIES: REGIONAL SPECIES OF GREATEST CONSERVATION NEED

This 2023 Regional Conservation Synthesis update includes the fourth revision of the RSGCN list developed by NEAFWA's NEFWDTC. The original list was published in 1999 (Therres 1999) and updated by TCI and NEFWDTC in 2013, 2018, and 2023. The list is developed using two main criteria: regional stewardship responsibility (proportion of the species range that occurs in the Northeast region) and conservation concern status (imperilment). It focuses action on current high-priority Northeast species as identified by the NEFWDTC for 2025 SWAP development and conservation planning and implementation by state fish and wildlife agencies and their partners in hopes of preempting state and federal listing.

This 2023 RSGCN list revision identifies 382 Regional Species of Greatest Conservation Need. By using updated methods and selection criteria, 17,916 Northeast species were prescreened. More than 200 experts then provided information on 7,270 mammals, birds, reptiles, amphibians, fish (marine, diadromous, and freshwater), crayfish, freshwater mussels, marine invertebrates, terrestrial snails, Odonata (dragonflies and damselflies), Hymenoptera (bumble and solitary bees), Lepidoptera (butterflies, skippers, and moths), stoneflies, mayflies, fireflies, tiger beetles, caddisflies, and fairy, clam, and tadpole shrimp.
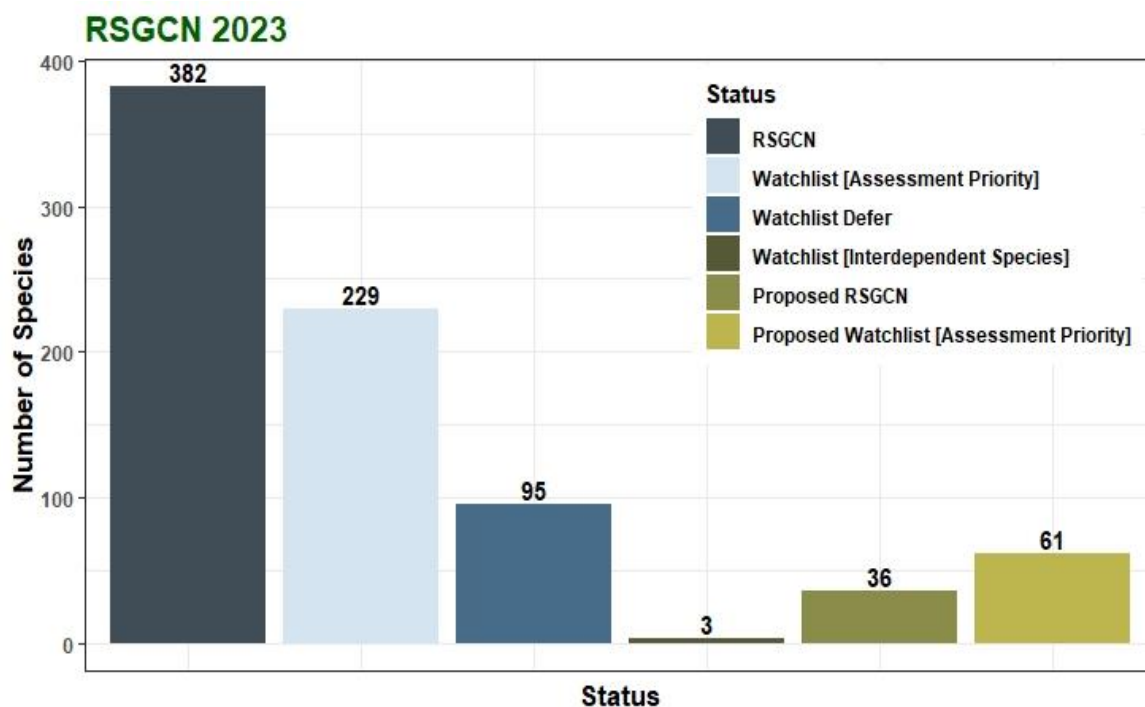

Figure ES 1 The number of Northeast species in each RSGCN category.

RSGCN and Watchlist categories total 806 species, with 47% (382) of those meeting the criteria for RSGCN status (Figure ES 1). The two "proposed" categories (Proposed RSGCN and Proposed RSGCN Watchlist Assessment Priority) represent 12% (97) of the entire list and are not currently identified as SGCN in any Northeast SWAP. However, because they meet the other RSGCN criteria, and/or their taxonomy is new or updated, including them here informs the upcoming 2025 SWAP SGCN selection as species with regional concern. The new RSGCN Watchlist Assessment Priority category contains 28% (229) of listed species highlighting those with data deficiencies, taxonomic uncertainties, or variable trends within the region. Three interdependent species met RSGCN Watchlist Interdependent Species criteria, and 95 additional species are deferred to other regions for primary stewardship in their core range. Of the 382 SGCN that met the regional responsibility and conservation concern criteria for RSGCN, Lepidoptera (Butterflies, Skippers, and Moths) is the largest taxonomic group of RSGCN, followed closely by freshwater fish. Invertebrates comprise 56% of the RSGCN, while the remaining 44% are vertebrates. This list will evolve as additional information emerges, especially for invertebrates (see *Chapter 1*).

REGIONAL PRIORITY HABITATS: REGIONAL SPECIES OF GREATEST CONSERVATION NEED

The 2022 Northeast Lexicon (Crisfield and NEFWDTC 2022) lists the 24 habitat types used in the RSGCN Database, updated with new classification systems for aquatic habitats (i.e., rivers, streams, lakes, ponds, and marine areas). These 24 habitat types allow synthesis of the finer scale Key Habitats from the 14 Northeast 2015 SWAPs for SGCN and regional analysis and application to RSGCN and Watchlist species (Figure ES 2). Available information on each of these Northeast habitat types is synthesized, including:

    a. The associated RSGCN and Watchlist species
    b. Current information on habitat availability and condition
    c. Threats
    d. Relevant national and regional management plans
    e. Available best management practices
    f. Additional information and research needs

In addition, information on partner programs and initiatives and citizen science projects that engage the public in conserving each habitat are summarized (see *Chapter 2*).
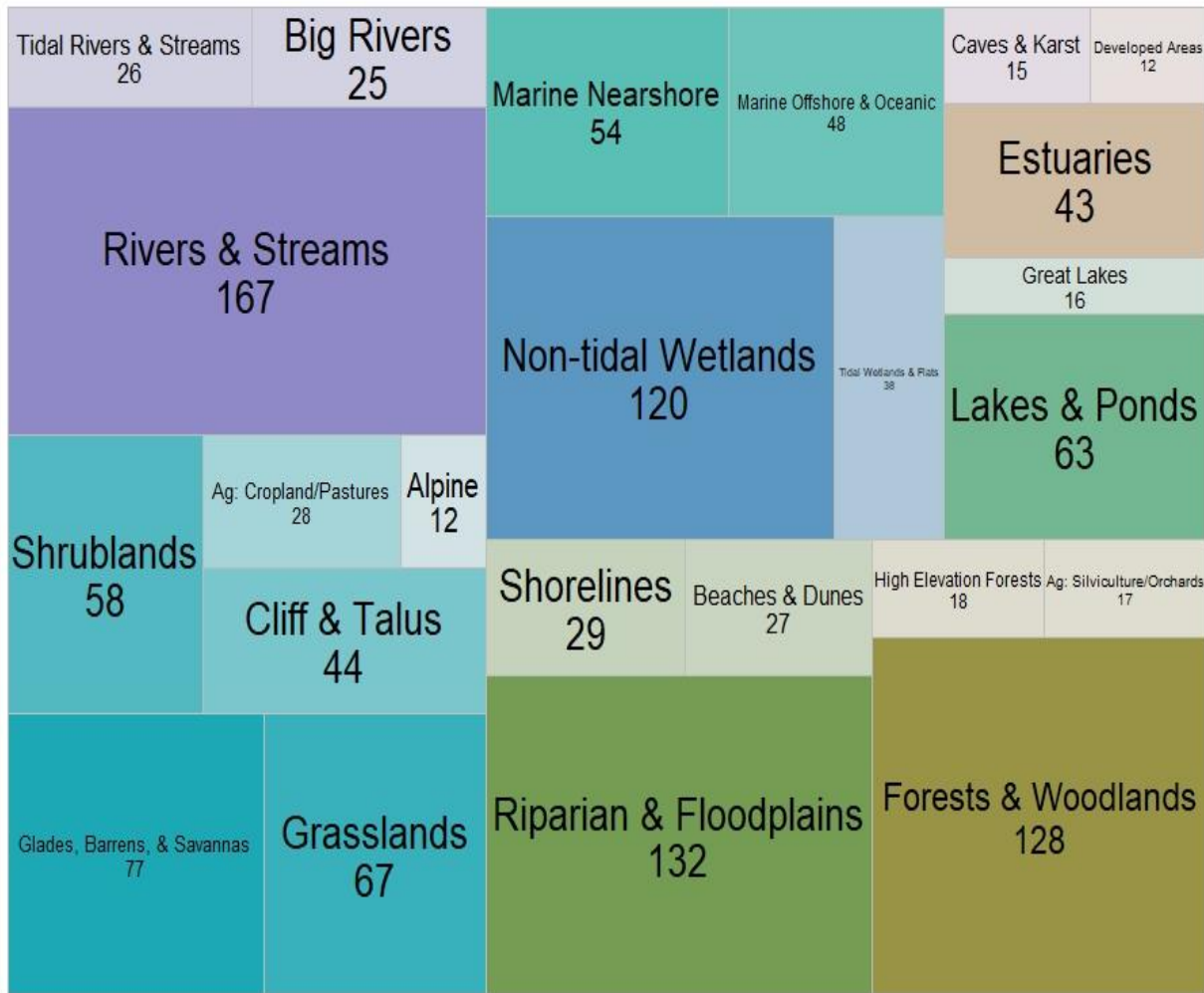
Figure ES 2 Number of RSGCN associated with the 24 Northeast habitats. Rivers and Streams, Riparian and Floodplains, Forests and Woodlands, and Nontidal Wetlands support the most RSGCN in the Northeast.

KEY THREATS IMPACTING THE RSGCN AND THEIR HABITATS IN THE NORTHEAST

Following the development of the 2015 SWAPs, the 2017 SWAP Synthesis report analyzed threats to both species and habitats identified in the 14 SWAPs (TCI and NEFWDTC 2017). Regional working groups reviewed and prioritized this analysis further. As a result, the top threats to SGCN and their Key Habitats identified in the 2005 and 2015 SWAPs are the same threats identified for the 2023 RSGCN (with slight changes in rank order). The top threats to Northeast RSGCN are pollution, climate change, invasive species and disease, biological resource use, modification of natural systems, and development (Figure ES 3).

Taxon per Level 1 Threat

Threat	Number of Species
Geological Events	1
Other	96
Agriculture & Aquaculture	118
Human Intrusions & Disturbance	129
Energy Production & Mining	137
Transportation & Service Corridors	144
Residential & Commercial Development	169
Natural System Modifications	198
Biological Resource Use	200
Invasive & Problematic Species, Pathogens & Genes	228
Climate Change	305
Pollution	338

Level 1 Threat: Agriculture & Aquaculture, Biological Resource Use, Climate Change, Energy Production & Mining, Geological Events, Human Intrusions & Disturbance, Invasive & Problematic Species, Pathogens & Genes, Natural System Modifications, Other, Pollution, Residential & Commercial Development, Transportation & Service Corridors
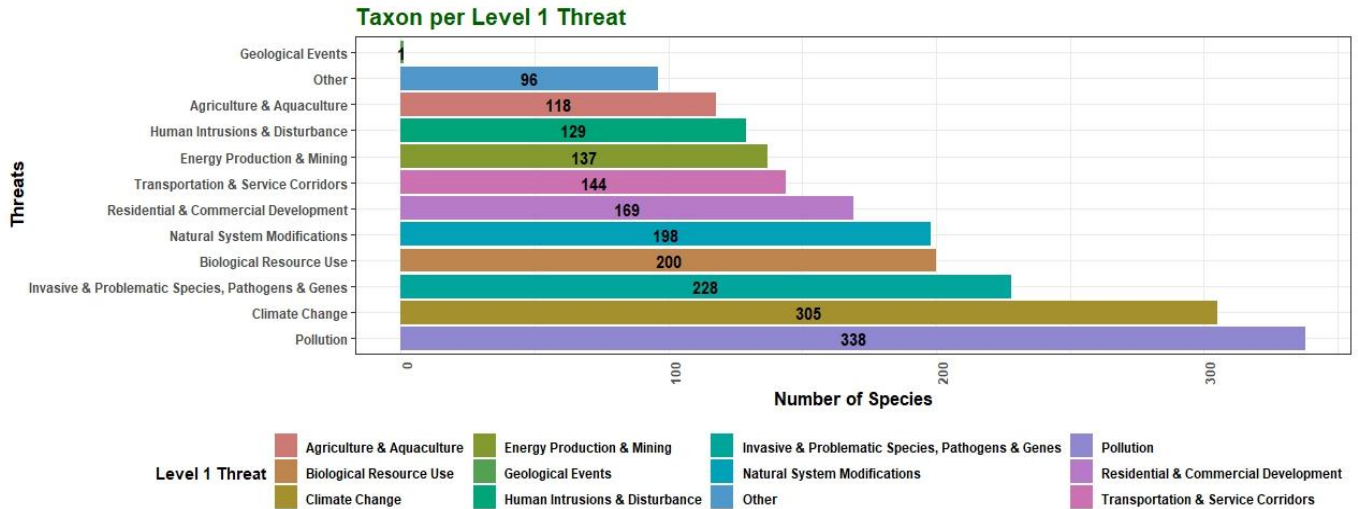
Figure ES 3 Regional threats identified in the SWAP and RSGCN process for RSGCN and Proposed RSGCN taxa (416 total species). Numbers indicate species threatened by each threat category. For an explanation of RSGCN species and categories see *Chapter 1*, for threat details see *Chapter 3* and *Supplemental Information 3*.

The regional threats classification system is consistent with the Conservation Measures Partnership (CMP) Direct Threats Classification System version 2.0 and International Union for Conservation of Nature (IUCN) updated Direct Threats Classification System, version 3.2, and advanced by Lamarre et al. in 2021. This regional classification system includes an actionable level of detail with modifications for the Northeast incorporated by TCI (*Chapter 3*). In addition, the 2022 Northeast Lexicon cites the framework as the regional threat classification scheme for the 2025 SWAPs in the Northeast.

REGIONAL PRIORITY CONSERVATION ACTIONS TO ADDRESS KEY THREATS TO RSGCN AND KEY HABITATS

The fourteen 2015 SWAPs identified and prioritized conservation actions for each state in the region. Those state-specific actions served as a solid framework for developing a set of priority actions to address top regional threats to priority species and their key habitats at the landscape, watershed, and seascape levels across the Northeast as recommended by the Landscape Conservation Report (AFWA 2021). Information was compiled from the 2015 SWAPs, the RCN program, other key regional partners, and data sources available since the 2015 SWAPs. NEFWDTC's Technical Services project used the Northeast SWAP Database to analyze and synthesize this information in its 2017 SWAP Synthesis (TCI and NEFWDTC 2017). With additional input from its Taxonomic Teams, SWAP Coordinators, and Threat Working Groups, the NEFWDTC developed seven overarching regional conservation action themes (Figure ES 4). These broad regional actions call for developing and providing information on the Northeast

conservation priorities (SWAP Elements 1 and 2), addressing the top regional threats to these priority species and habitats (SWAP Element 3), and then for evaluation of those actions (SWAP Elements 4 and 5) to deliver the most effective conservation efforts across the region (SWAP Elements 7 and 8).

These priority regional actions are:

1. *Develop deliver science-based information and tools to conserve RSGCN and key habitats in the Northeast.*

2. *Conserve Northeast RSGCN and their habitats from habitat loss and degradation by addressing development, natural ecosystem modifications, and biological resource use.*

3. *Protect native species and habitats from the introduction and spread of disease and invasive species in the Northeast.*

4. *Conserve aquatic habitats by addressing pollution and aquatic connectivity in Northeast waters.*

5. *Address climate change impacts to Northeast RSGCN and their habitats.*

6. *Coordinate inclusively across state boundaries to maximize efficiency and effectiveness of fish and wildlife diversity conservation in the Northeast.*

7. *Develop and implement effective regional scale monitoring to inform adaptive management of regional priorities and conservation in the Northeast.*

Figure ES 4 Regional priority actions.

In 2016, the Conservation Measures Partnership (CMP) released the **Conservation Actions Classification, version 2.0**, which allows conservation actions to be classified and categorized in a hierarchical system (https://conservationstandards.org). The updated Northeast SWAP Database and the Northeast RSGCN Database are

structured to incorporate species and habitat conservation actions for RSGCN and Watchlist species with Northeast-specific modifications.

The 70+ new NEAFWA RCN, USFWS CSWG, and SA At-Risk Species projects that address regional priority conservation targets are summarized and linked to the action and threat they address (see *Chapter 4*).

MONITORING AND REVISION FOR ADAPTIVE MANAGEMENT OF REGIONAL PRIORITIES

New information and resources for inventorying and monitoring species (Element 1), habitats (Element 2), and threats (Element 3) have become available in the past decade. The updated Northeast RSGCN Database includes information on the availability of standardized monitoring protocols for RSGCN and Watchlist species. New regional monitoring networks developed over the period are described in *Chapter 5* of this document. Programs and projects that monitor the availability and condition of habitats are in *Chapter 2*. Monitoring programs for threats related to habitat conditions are described in *Chapter 2*. *Chapter 3* focuses on monitoring threats (e.g., invasive species, disease), and *Chapter 5* focuses on regional monitoring efforts that address threats to multiple species, taxa, and/or habitats.

The RCN project, **Monitoring the Conservation of Fish and Wildlife in the Northeast: A Report on the Monitoring and Performance Reporting Framework for the Northeast Association of Fish and Wildlife Agencies,** provides a regional monitoring framework based on the status of SGCN and their habitats and the effectiveness of conservation projects implemented as part of SWAPs and the State Wildlife Grants program. The monitoring framework includes eight conservation targets: forests, freshwater streams and river systems, freshwater wetlands, migratory species, lakes and ponds, managed grasslands and shrublands, regionally significant SGCN, and unique habitats in the Northeast. Specific indicators and stressors are identified for monitoring to assess these conservation targets. RCN funded the original **Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape: Implementation of the Northeast Monitoring Framework** in 2011 (Anderson and Olivero Sheldon 2011) and its 2023 revision (Anderson et al. 2023; see *Chapters 5 and 6*).

STAKEHOLDER AND PUBLIC PARTICIPATION

Many partners, stakeholders, and the public participate in fish and wildlife conservation across the Northeast. *Chapter 1* of this Regional Conservation Synthesis provides

information on conservation partners and their programs, projects, and initiatives that address the needs of RSGCN and Watchlist species. *Chapter 2* addresses stakeholder and public participation related to the 24 habitats that support RSGCN and Watchlist species. *Chapter 7* summarizes landscape and seascape-level conservation partnerships that address the Northeast's multiple taxonomic groups and/or habitats. This synthesis of conservation partners and their ongoing regional efforts presents opportunities to enhance collaboration, leverage resources, and synergize conservation efforts across Northeast lands and waters. Finally, *Chapter 8* summarizes available information on best practices for education and outreach activities, citizen science, and diversity, equity, justice, and inclusion initiatives. All these resources can enhance public engagement and contributions to SWAP development and implementation, addressing required Element 8 (see *Chapters 7* and *8*).

The 2023 NEFWDTC website update (www.northeastwildlifediversity.org) allows for web-enabling this Regional Conservation Synthesis, the updated Northeast RSGCN Database, and associated communication tools and products. These tools and resources will be searchable with filters to provide detailed information for specific targets, purposes, or users. In addition, by linking with other NEFWDTC programs, such as the RCN Grants Program, regional information will be integrated into a centralized online platform available to the states, conservation partners, and the public.

TABLE OF CONTENTS

INTRODUCTION

GUIDE TO THIS DOCUMENT

As mandated by Congress, each State Wildlife Action Plan must address eight Essential Elements. This document follows that same structure, but on a regional scale, in sequential chapters as follows:

Chapter 1 addresses SWAP Element 1: Species and summarizes the status of Regional Species of Greatest Conservation Need (RSGCN) and Watchlist species region wide. These 806 species are indicative of the diversity and overall health of wildlife in the Northeast region. The RSGCN list, organized into 20 taxonomic groups, is updated every five years to include new information on the status of select species in the region and for additional taxonomic groups, particularly invertebrates. This Chapter incorporates these updates, which are essential for addressing Element 1 at the regional level.

Chapter 2 addresses SWAP Element 2: Key Habitats and summarizes the regional extent and condition of habitats and community types essential to the conservation of Northeast RSGCN and Watchlist species. This Chapter also highlights the regional terrestrial and aquatic habitat classification systems, maps, guides, and assessments for use in the revisions of State Wildlife Action Plans. It describes 24 coarse habitat types used in the Northeast Lexicon and RSGCN Database. A synthesis of the available information on these habitat types, including lists of RSGCN and Watchlist species associated with each; current information on the habitat's availability and condition; threats; relevant national and regional management plans conservation partners; available best management practices; and habitat-specific information and research needs are provided. Additional information on the availability and the condition of Northeast habitats was developed in coordination with the Northeast Habitat Condition Assessment, a concurrent RCN project (Anderson et al. 2023).

Chapter 3 addresses SWAP Element 3: Threats and summarizes the issues and problems identified in the 14 Northeast SWAPs that may adversely affect RSGCN or their habitats. It also describes the priority research and survey efforts needed to support restoration and improved conservation of these species and habitats. Following the development of the 2015 SWAPs, the *Northeast State Wildlife Action Plan Synthesis: Regional Conservation Priorities* report synthesized the threats to both species and habitats identified in the 14 individual SWAPs (TCI and NEFWDTC 2017). The Conservation Measures Partnership (CMP) and the International Union for Conservation of Nature (IUCN) have developed several threat classification systems, which were advanced by Lamarre et al. (2021) for use in Quebec. This classification

system is consistent with the older classification systems and was modified to include relevant threats for the Northeast (see *Supplemental Information 3*).

Chapter 4 addresses Element 4: Conservation Actions and summarizes how regional priority conservation actions identified by the 2017 SWAP Synthesis are being implemented by RCN, USFWS SA, and CSWG partner projects throughout the region. This Chapter lists seven priority regional conservation actions grounded in the common themes and priorities of the 2015 Northeast SWAPs (TCI and NEFWDTC 2017) and further prioritized by the NEFWDTC and its SWAP Coordinators, Threat Working Groups, and taxonomic teams. *Appendix 4A* updates the inventory of RCN projects supported by the NEFWDTC and the Competitive State Wildlife Grant and Science Applications projects undertaken in the Northeast region over the past decade. Supplemental Information 4 provides the action classification system, and *Appendix 4B* provides a matrix summary of priority actions identified in the 2017 SWAP synthesis to address each key threat.

Chapter 5 addresses Element 5: Inventory and Monitoring and summarizes the Northeast Monitoring and Performance Reporting Framework (NEAFWA 2008), monitoring protocols, and plans identified in RCN and CSWG project reports. The focus is on monitoring RSGCN and their habitats, monitoring the effectiveness of the conservation actions summarized in *Chapter 4*, and adapting these conservation actions in response to new information or changing conditions. This Chapter also provides further information and resources for inventorying and monitoring species (Element 1), habitats (Element 2), threats (Element 3), and Actions (Element 4). In addition, Supplementary Information 5 and *Chapter 4* include newly standardized monitoring protocols for RSGCN and Watchlist species and links to regional monitoring networks developed over the past decade.

Chapter 6 addresses Element 6: Review and summarizes regional coordination and processes for reviewing the plan at intervals not to exceed ten years. It addresses Element 6 and provides the key SWAP guidance and the required review/update schedules. It also includes concise summaries of the advancements since the previous regional conservation synthesis (TCI and NEFWDTC 2013) contained in the other chapters of this 2023 Regional Conservation Synthesis and key guidance resources.

Chapter 7 addresses Element 7: Partners and summarizes landscape and seascape-level conservation partnerships in the Northeast, including federal, state, and local agencies, Native American Tribes, and other non-governmental and non-tribal entities that either manage significant land and water areas within the region or administer programs that significantly affect the conservation of identified species and habitats. This Chapter also provides information on conservation partners and their programs, projects, and initiatives that address the needs of RSGCN and Watchlist

species and their 24 habitats, suggesting opportunities to enhance collaboration, leverage resources, and synergize conservation efforts.

Chapter 8 addresses Element 8: Public Engagement and summarizes advancements in social science relevant to the conservation of regional priority species and habitats, public outreach and education, and citizen science programs. *Chapter 8* also summarizes available information on best practices for education and outreach activities and diversity, equity, justice, and inclusion initiatives. Key citizen science projects and programs that are currently contributing to the conservation of RSGCN and Watchlist species and their habitats in the Northeast are included in *Chapter 1* (species or taxa-based), *Chapter 2* (habitat-based), and *Chapter 8* (multi-taxa and/or habitat).

Appendices for this and all Regional Conservation Synthesis chapters can be found together in the appendices document so the reader can open the chapters and appendices side-by-side if desired. Appendices include Acronyms, RSGCN Methods, Crosswalk of SWAP Key Habitats with the 24 habitats, Crosswalk of DSLland Formations and Ecosystems with the 24 habitats, List of NEAFWA RCN and USFWS (CSWG, SA) projects, and the Action matrix from 2017 SWAP Synthesis.

Supplemental Information for this and all Synthesis Chapters can be found in the Supplemental Information Excel file. It contains data tables better represented in a data file for ease of use including tables of all RSGCN categories, state breakdown of RSGCN species, lists of RSGCN and Watchlist species associated with each of the 24 habitats, the threats classification system, with TCI customization of the Quebec system (Lamarre et al. 2021), IUCN/CMP Actions classification system, and standardized monitoring protocols for species.

NEED AND PURPOSE

This document is intended to inform State Wildlife Action Plan revisions and conservation efforts at any scale in the Northeast. It is available for use by local, state, regional, and national conservation entities. It represents another milestone in the long-term relationship between NEAFWA's Fish and Wildlife Diversity Technical Committee and its partners, one that continues to produce a strategic series of information, tools, and networks for the effective conservation of regional priority species and habitats as well as a framework for regional planning, partnerships, and alliances.

As states revise their Wildlife Action Plans for 2025, there is a need to synthesize this regional information in a way that is most useful and applicable to their own needs, as well as to the needs of partners in their planning processes. Therefore, states can use this document to address the regional context (as an appendix or by reference) and individual sections to address each required element for State Wildlife Action Plans.

The four goals and six primary objectives for developing this Regional Conservation Synthesis are described below.

UPDATED GOALS

1) Inform SWAP revisions by providing regional context, synthesized information, and priorities to support states in their Wildlife Action Plan development and implementation.
2) Inform conservation planning at many scales in the Northeast.
3) Raise the awareness and use of these shared regional priorities in the Northeast.
4) Highlight the defining ecological features and resources of the Northeast.

UPDATED OBJECTIVES

1) Identify opportunities for coordinated conservation activities across a regional landscape,
2) Identify regional conservation priority species, habitats, threats, and conservation actions for state fish and wildlife agencies and their partners.
3) In a regional context, provide information about species, habitats, threats, stressors, and conservation activities.
4) Compile and organize existing regional information and best management practices for species, habitats, threats and stressors, conservation actions, monitoring and evaluation programs, and consistent metrics and reporting tools to evaluate conservation effectiveness consistent with the order and content of SWAP Elements
5) Facilitate consistency through the use of the Northeast Regional Lexicon and standard taxonomies.
6) Advance conservation adoption through clear identification and communication of a set of shared conservation priorities relevant to the Northeast region, supporting SWAP revisions and facilitate the development of regional and state-level partnerships.

PROVIDE REGIONAL CONTEXT AND OPPORTUNITIES FOR COORDINATED CONSERVATION

Many conservation issues are broader than any one state or jurisdiction. For example, restoring the rare wetland turtles, butterflies, Brook Floater (*Alasmidonta varicosa*), other freshwater mussels, or xeric pine barren pollinator habitat requires collaboration among many states to achieve a stable population. Similarly, coordinated conservation activities addressing water quality, disease and invasive species, climate change, and

habitat connectivity is most effective when implemented in a coordinated, consistent approach across multiple state jurisdictions. This document encourages each state fish and wildlife agency to identify opportunities for collaborative action across a regional landscape, to take advantage of economies of scale, and to ensure that vulnerable species or habitats are not overlooked. It also provides basic background information about the region as a whole—its special habitats, species, and human impacts. This regional perspective is essential for understanding the dynamics of fish and wildlife conservation as practiced in the Northeast states.

PROVIDE REGIONAL CONSERVATION PRIORITIES

The information contained in this document will help state fish and wildlife agencies and their partners address the most pressing conservation issues through a collaborative, regional approach involving the states, USFWS, and the many Northeast conservation partners. The SWAP Elements align with the NEFWDTC charges, RCN projects designed to address the priorities identified, and the Northeast Monitoring and Performance Reporting Framework (NEAFWA 2008), all of which reflect the structure of this document. Accordingly, this Regional Conservation Synthesis serves as a compendium of information for states and their public and private partners. It also emphasizes the importance of coordinating conservation activities and economies of scale for regional planning.

HIGHLIGHT WHAT IS IMPORTANT AND DEFINING ABOUT THE NORTHEAST REGION

This document brings attention to the special ecological features of the Northeast states, including the region's numerous endemic species and globally rare communities, its biodiversity hotspots (from high-elevation forests, barrens and grasslands, to the wetlands and coastal bays and marshes of the Atlantic), and its diversity of species that are now of conservation concern. It also places information about threats, stressors, and conservation activities into a regional context and provides further support for collaborative conservation efforts across state lines.

SYNTHESIZE AND ORGANIZE EXISTING INFORMATION

One of the most valuable aspects of this document is its organization and presentation of a decade of existing regional information about species, habitats, threats and stressors, conservation actions, and monitoring and evaluation programs of either

regional interest or regional concern. Although a wealth of information about these topics is contained in most states' Wildlife Action Plans, this document brings together and organizes the state-specific information at a regional scale, thus making it easier for groups of states to develop multi-jurisdictional conservation strategies and approaches.

ASSIST WITH CONSERVATION ADOPTION

By clearly identifying a set of shared conservation priorities relevant to the entire Northeast region, this document supports the efforts of individual states and their partners to adopt and incorporate regional conservation priorities into future iterations of their Wildlife Action Plans. It also helps to facilitate the development of regional and state-level partnerships. Identifying shared regional conservation priorities may also make it easier to obtain buy-in and support for the Wildlife Action Plans from the private sector as well as public entities, including non-governmental organizations and various municipal and federal agencies. These regional priorities will also provide states with the support they need to justify committing limited resources to regional as well as state-specific conservation efforts.

FACILITATE CONSISTENCY

This document summarizes and incorporates the Northeast regional lexicon, using standard terminology for the eight required elements. It follows standard taxonomies for species recommended as national Best Practices (AFWA 2012, 2021, 2022a), b) and developed by the Integrated Taxonomic Information System (ITIS) and NatureServe. It also applies standard habitat classifications (Crisfield and NEFWDTC 2022, Gawler 2008, Olivero and Anderson 2008, Anderson et al. 2023) as well as standard taxonomies for threats, stressors, and conservation actions developed by the International Union for the Conservation of Nature and the Conservation Measures Partnership (CMP 2020, Lamarre et al. 2021). By using standard definitions and classifications, the ability of Northeast states to communicate and collaborate effectively across jurisdictional boundaries is greatly enhanced.

New national and regional guidance is available for 2025 SWAPs. In 2012, the Association of Fish and Wildlife Agencies "Teaming with Wildlife" Committee issued *Best Practices for State Wildlife Action Plans: Voluntary Guidance for States for Revision and Implementation* (AFWA 2012). These best practices include guidance on all eight SWAP elements, from classification standards and systems to assessing conservation status. AFWA is updating this guidance for the 2025 SWAPs (AFWA *in prep*). In August 2022 AFWA provided guidance on adding plants to the SWAPs as

Species of Greatest Conservation Need, using the minor revision process (AFWA 2022a).

In December 2017, the USFWS and AFWA issued a joint memorandum with updated guidance for reviewing and revising State Wildlife Action Plans (USFWS and AFWA 2017). The guidance provides detailed information regarding procedures for comprehensive, major, and minor SWAP revisions. The roles of Regional Review Teams are outlined, and examples of comprehensive, major, and minor revisions are provided.

In late 2022 AFWA issued a 2nd edition of **Voluntary Guidance for States to Incorporate Climate Adaptation in State Wildlife Action Plans and Other Management Plans**, updating guidance from 2009. The updated guidance includes "principles and tools that can be used to plan for and implement climate change adaptation, voluntary guidance for incorporating climate change into the existing required elements of SWAPs, and case studies to demonstrate adaptation strategies deployed by states in their management efforts" (AFWA 2022b, p. 4).

BACKGROUND

State fish and wildlife agencies in the Northeast United States have worked collaboratively on wildlife conservation priorities for over half a century. By the 1980s, state wildlife diversity managers coordinated to develop a regional list of priority species—now called the Regional Species of Greatest Conservation Need—and to identify regional conservation needs. These projects have been designed through a collaborative regional prioritization process to address important conservation needs and recently, to help with the revision of Wildlife Action Plans for the Northeast states. This document synthesizes the suite of regional projects initiated by NEAFWA's Fish and Wildlife Diversity Technical Committee and its key partners that address identified regional priorities.

Originally drafted at the request of Congress to enable eligibility for funding through the State Wildlife Grants Program, the first Wildlife Action Plans were successfully completed by wildlife management agencies in each of the 56 US states and territories in 2005. Together, the 14 Northeast plans represent a detailed blueprint for wildlife conservation across the Northeast United States. Each plan identifies a set of species of greatest conservation need, priority wildlife habitats for conservation, threats and stressors, recommended conservation actions, partnership and outreach opportunities, and methods for monitoring and evaluation specific to the individual state's needs. Although each of the plans is based on a common set of elements, the individual state wildlife agencies were given considerable latitude by Congress and the US Fish and Wildlife Service to customize their plans to fit the particular conservation needs of their respective states. While the ability to develop customized plans provides obvious

benefits, one important drawback is the inherent difficulty of comparing and planning across states.

Recognizing this need to identify major conservation issues that extend across state lines to larger landscape or regional scales, NEAFWA held meetings in 2006 and 2011 to begin developing and implementing the plans at a regional level. As a result of these initial meetings, the Northeast states, working with the US Fish and Wildlife Service and Wildlife Management Institute (WMI), began pooling a portion (4%) of their State Wildlife Grant funds program allocation to develop a grant program that would specifically address regional conservation needs. Since then, the Regional Conservation Need Grant program has supported the development of almost 100 key regional tools (see *Appendix 4A* for the complete list) and contributed significant yearly funding towards regional conservation needs. These steps toward creating a regional culture of cooperation have also enabled states to pool and leverage their individual resources for wildlife conservation to address issues of common interest region wide.

IDENTIFYING PRIORITIES FOR REGIONAL CONSERVATION

The development of coordinated regional species lists began in the 1980s (French and Pence 2000). It led to the publication of the first region-wide list of species in need of conservation (Therres 1999) and in subsequent species accounts (TCI 2001). Hunt (2005) adapted the methodology to rank fish and wildlife species as SGCN in the New Hampshire Wildlife Action Plan. This methodology was applied region-wide by the Northeast Partners in Reptile and Amphibian Conservation (NEPARC) to identify high-priority members of the Northeast herpetofauna. This priority-setting process continues to evolve, and four revisions later, the 2023 list now includes several advancements (see *Chapter 1* and *Appendix 1A*).

Similar standard classification and prioritization systems were developed for habitats, threats, and actions, enabling an unprecedented compilation of all 14 State Wildlife Action Plans in the Northeast Region. This collaboration led to a coordinated revision of the 2015 SWAPs, with Northeast states utilizing a common framework, guidance, and terminology from the Northeast Lexicon (Crisfield and NEFWDTC 2013 and 2022) and the Northeast SWAP Database (TCI and NEFWDTC 2020, version 3.0). This enabled the compilation of information on RSGCN, their habitats, and the threats they face (TCI and NEFWDTC 2013, 2015, 2017, 2020, 2023). The RCN program funded projects to develop a consistent habitat classification framework and condition assessment (Anderson et al. 2023). Similarly, consistent threat and action classification systems were used to characterize SWAP threats and actions (CMP 2020 and LaMarre et al. 2021); and these, in turn, enabled compilation and comparison across all 14 Northeast SWAPs.

The goal was to determine priority RSGCN and their habitats, common threats, and to identify actions that could be implemented through regional collaboration and coordination. The compilation, analysis and development of a Regional SWAP Synthesis (TCI and NEFWDTC 2017) summarized the threats to RSGCN and their habitats as well as regional conservation priority actions with recommendations for collaborative regional action. The resulting regional priorities outlined in the 2017 SWAP Synthesis were further prioritized and refined by NEFWDTC's taxonomic teams and Regional Threat Working Groups to identify top threats and actions, region wide. This Regional Conservation Synthesis presents those collaboratively developed regional priorities as well as the hundreds of projects developed and funded to address these priority needs through the RCN and other programs.

In 2018, AFWA adopted a landscape conservation resolution. In 2020, the AFWA President's Task Force on Shared Science and Landscape Conservation Priorities recommended convening a new working group to develop recommendations on how SWAPs could become even more effective at improving range-wide conservation of SGCN by leading or contributing to national and/or regional landscape conservation priorities. The AFWA SWAP and Landscape Conservation Working Group subsequently prepared the *Leading At-risk Fish and Wildlife Conservation: A Framework to Enhance Landscape-Scale and Cross-Boundary Conservation through Coordinated State Wildlife Action Plans* report in 2021 (AFWA 2021). This report summarizes five Guiding Principles, each with specific Recommended Actions, associated outcomes, and a recommended implementation framework. In addition, a NEAFWA Landscape Committee was established in 2022 to guide the implementation of this report in the Northeast. The NEFWDTC and its SWAP Coordinator subcommittee contribute to this effort monthly as they work together to identify and prioritize projects that facilitate even more robust and strategic collaboration while the 2025 SWAP revisions are being developed. Each of the Chapters of this Regional Conservation Synthesis addresses multiple Recommended Actions, implementing the first four of the five Guiding Principles, and this Regional Conservation Synthesis implements at least 11 of the AFWA Recommended Actions (see *Chapters 4* and *7*).

Several recent grant projects were prioritized and funded to accomplish this in 2022-2023. The **Updating Three Foundational Tools for the 2025 State Wildlife Action Plan Revisions** project funded the development and production of the Northeast Lexicon (Crisfield and NEFWDTC 2022), this Northeast Regional Conservation Synthesis (TCI and NEFWDTC 2023), and the Northeast Habitat Condition Assessment (Anderson et al. 2023). NEFWDTC's SWAP Coordinators subcommittee also secured Wildlife and Sport Fisheries (WSFR) CSWG funding to upgrade and modernize the Northeast SWAP Database. These projects facilitate coordination and provide the 14 Northeast SWAPs with a common terminology, data framework, and a portal to enter and analyze consistent SWAP data. Significant

progress enhancing SWAP coordination for the 2025 revisions continues through the work of NEFWDTC and its SWAP Coordinators subcommittee. This legacy of collaboration includes monthly coordination between the 14 states and the RSGCN and RCN prioritization and planning processes. The latter shapes the NEFWDTC's ability to respond to its regional charges through technical services and RCN projects that focus action on the Northeastern highest priority land, water, and seascapes. RCN and key partner projects (see Table 4.1.1 and *Appendix 4A*) enable the states to collaboratively address these emerging and current priorities through mutual investment and consistent, more effective regional implementation.

The regional collaboration and conservation partnerships described in this document can be traced to the creation of the RCN Grant Program. Since 2007, the NEAFWA members (thirteen states and the District of Columbia) have each contributed 4% of their annual federal State Wildlife Grants Program funding to support projects of regional conservation interest. Since its inception, the RCN program has awarded more than $4.7 million to address regional fish and wildlife management challenges and high-priority conservation initiatives. Partners matched these awards for total conservation funding of more than $4 million between 2007 and 2023. Many of the funded projects have produced results that were used as the foundation for successful grant proposals to implement recommendations or further study the species, habitat, or threats identified both in the individual SWAPs and through previous regional syntheses.

In the years ahead, this grant program will continue to support innovative approaches that address conservation priorities across the Northeast states. The RCN Grant Program thus represents a significant regional conservation collaboration success story and serves as a model for the nation, one that is expected to continue as long as the Northeast states provide financial support. In addition, funding is also available for regional collaboration through the competitive portion of the SWG Program administered by the USFWS. This grant program has funded almost 40 projects since 2008 for a total of $18 million with partners matching more than $8 million.

Funding priorities for the Northeast RCN Grant Program continue to evolve and many of the projects funded to date are summarized in this document. The program itself practices adaptive management, refining priorities and selecting topics for funding in response to urgent emerging wildlife needs, while simultaneously addressing longstanding regional conservation concerns and keeping common species common. Specific project priorities addressed during each RCN grant cycle are available at the website, http://www.northeastwildlifediversity.org.

INTENDED AUDIENCES AND USES

This document is a product of the RCN Grant Program (RCN 2- Project GSA-00029) and is intended to serve as a resource for fish and wildlife agencies and their conservation partners during their comprehensive review and revision of Wildlife Action Plans. It is also a resource for other conservation agencies, organizations, and individuals in the Northeast. It further provides a regional conservation context in which each of the Northeast states participates and should therefore be incorporated into local, state, and regional planning efforts.

States are encouraged to use part or all of the text of this document in their Wildlife Action Plan revisions to address the regional context of state-specific concerns. State wildlife agencies and their partners are welcome to copy or reproduce any of the material contained in this document or to incorporate it by reference in their Wildlife Action Plan. They are also welcome and encouraged to use the entire document providing regional context for their Action Plan; or to include or incorporate it as an appendix or by reference (TCI and NEFWDTC 2023).

FURTHER INFORMATION

The NEFWDTC website update (www.northeastwildlifediversity.org) in 2023 allows for web-enabling this Regional Conservation Synthesis, the updated Northeast RSGCN Database, and associated communication tools and products. These tools and resources will be searchable with filters to provide detailed information for specific targets, purposes, or users. In addition, by linking with other NEFWDTC programs, such as the RCN Grants Program, regional information will be integrated into a centralized online platform available to the states, conservation partners, and the public.

Northeast SWAP Website links:

- Connecticut
- D.C.
- Delaware
- Maine
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- Pennsylvania - Fish

- [Pennsylvania - Game](#)
- [Rhode Island](#)
- [Vermont](#)
- [Virginia](#)
- [West Virginia](#)

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