

# Chapter 1

## Introduction to Vermont's Wildlife Action Plan

### 2015

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# Introduction

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Vermont is known for its beautiful juxtaposition of forests and farms, streams and ponds, Lake Champlain and the Green Mountains. Fish and wildlife are an integral part of the Vermont experience and quality of life for Vermonters. White-tailed Deer, Black Bear, Wild Turkey, and geese are thriving and offer sustainable hunting and viewing opportunities. In recent years, and after a lot of effort, Common Loon, Osprey and Peregrine Falcon populations have recovered allowing for their removal from the state threatened and endangered species list, the Bald Eagle is again nesting in Vermont and many of our waters teem with healthy fish communities. The landscape and the wildlife attest to the state's meaningful conservation ethic.

Over the past 10 years Vermont's Wildlife Action Plan helped guide the Vermont Fish & Wildlife Department, partners, stakeholders and others in the conservation of our Species of Greatest Conservation Need and efforts to keep common species common. This 10-year revision to the Action Plan has allowed us to: evaluate our implementation efforts; reassess the status of our Species of Greatest Conservation Need (SGCN) and their habitats; investigate emerging issues; and, renew our vision for fish and wildlife conservation in Vermont.

Notable in this 2015-2025 Wildlife Action Plan are the addition of a climate change chapter; the re-recognition of diseases as significant threats to some species, and of the vital role pollinators play in the environment (a suite of bumble bees is included as SGCN); and, that habitat loss and degradation remains the primary threat to most SGCN.

This Wildlife Action Plan's emphasis on landscapes reflects a doubling-down on habitat conservation as the most effective and efficient strategy for keeping common species common and reducing the need to place species on the endangered species list. By maintaining and enhancing healthy, connected, landscapes we maintain the habitat integrity, help a wide range of species, improve climate change resiliency, and reduce the potential impacts of diseases and non-native invasives. Moreover, healthy landscapes support healthy economies, human communities and our quality of life, and ensure that wildlife and the places they live will be there for future generations to enjoy.

This Wildlife Action Plan has not changed its focus on implementation through collaboration and partnership. Conserving and managing Vermont's wildlife requires everyone's help. From landowners and land managers, to municipalities and regional planning commissions, state and federal agencies, and non-profit organizations and for-profit businesses all need to work together if we are to achieve our goal.

## **The Vermont Fish & Wildlife Department: Mission and Strategic Focus**

The Vermont Fish & Wildlife Department's mission is to protect and conserve our fish, wildlife, plants and their habitats for the people of Vermont. The Department's planning goals are:

*Conserve, enhance, and restore Vermont's natural communities, habitats, and plant and wildlife species along with the ecological processes that sustain them as informed by the Vermont Conservation Design.*

*Provide a diversity of fish and wildlife-based activities, opportunities, and access that allow hunting, fishing, trapping, and viewing consistent with the public trust.*

*Increase public understanding and support for natural resource conservation issues and promote and facilitate a land stewardship ethic in Vermont that includes the safe and ethical utilization of wildlife. Maintain department relevancy with the public and our traditional constituents.*

*Maintain safe and lawful fish and wildlife–based activities to protect species and their habitats and, to limit harmful human encounters.*

*Strengthen the framework of fish and wildlife conservation through efficient operations and effective and adaptive management to better accomplish the mission*

Throughout its 100-year history, many of the Fish & Wildlife Department’s initiatives focused on game species, in part because of constituent interest, as well as the user-pay system of funding fish and wildlife conservation through license sales and excise taxes on hunting and fishing equipment. As our mission statement suggests, the scope of conservation challenges facing Vermont extends beyond species which people choose to harvest.

## **Vermonters Care about Wildlife**

Wildlife is very important to the people of Vermont. This love of wildlife is more than anecdotal. The 2011 National Survey of Fishing, Hunting, and Wildlife Associated Recreation conducted by the U.S. Fish and Wildlife Service documented that 62 percent of Vermonters went fishing, hunting, or wildlife watching. Vermont ranked second, only two points behind Alaska in participation (U.S. Dept of Interior 2011). When it comes to wildlife watching, however, Vermont was first in the nation with an impressive 53 percent of residents enjoying this activity. This same survey estimates more than \$704 million was spent on fish-and wildlife-based recreation in Vermont.

A July 2015 public attitude survey measured trends in Vermonters’ support for the Department’s mission: “The conservation of fish, wildlife, plants, and habitats for the people of Vermont” (Duda et al 2015). Findings included:

- 83 percent responded, when asked to compare the importance of wildlife with economic development that the use and development of land should be restricted to protect fish and wildlife; and 81 percent responded that wildlife habitat must be protected even if it reduces the land use options of some landowners and developers.
- 81 percent strongly agreed that endangered species must be protected (only 2% moderately or strongly disagreed). 86 percent of hunters and anglers strongly agree that endangered species should be protected.
- When asked which of the following were big problems, residents listed invasive species (71%), climate change (64%), forest and habitat fragmentation (46%), fish and wildlife habitat loss (46%), loss of Vermont’s scenic landscape (41%), and posting land closed to hunting/recreation (26%).

## **Problem and Need: Secure Funding**

Historically, dedicated funds have been available for the conservation and management of game and sportfish species, and to a lesser extent for Threatened and Endangered species. Unfortunately, there has not been a dedicated revenue stream supporting management for most wild animals that do not fall within either category. For example, 269 species of birds are found in Vermont. Only about 30 of these are hunted and only a handful (e.g., Common Loon, Osprey, Peregrine Falcon) have benefitted from Endangered Species recovery funding.

In 1985, Vermont’s Nongame and Natural Heritage Program (now the Wildlife Diversity Program) was established within the Fish and Wildlife Department. Both an income tax check-off and a conservation license plate were important funding mechanisms for the management and recovery of non-game species, generating approximately \$200,000 per year, but has never adequately met program needs.

Congress responded to the funding need in 2001 with a new annual appropriation, first called the Wildlife Conservation and Reinvestment Act and later the State Wildlife Grants Program (SWG). SWG funds were to be targeted to fish and wildlife species (plants are not eligible) in need, including those that had not previously benefitted from traditional funding. Since that time, the Vermont Fish and Wildlife Department has received \$8.1 million in SWG appropriations and have vastly improved Vermont's ability to fund new research, inventory, and management initiatives for species such as Timber Rattlesnake, Lake Sturgeon, butterflies, and the Bicknell's Thrush. Education and law enforcement are not eligible activities.

To receive SWG funds, Congress requires states to develop Wildlife Action Plans to guide use of the funds. But SWG funds are not sufficient to fully implement the Vermont Wildlife Action Plan. Annual SWG allocations have declined by 40% since 2002 and additional cuts are threatened every year. Currently Vermont receives less than 10% of what would be needed for full Wildlife Action Plan implementation.

Within the State of Vermont, the annual funding picture is rosier. Thanks to the strong support of the Governor and Legislature, general fund allocations to the Fish & Wildlife Department have increased approximately four-fold from \$1.25 million in 2011 to over \$5 million annually in 2015. While only a small portion of these funds are directly invested in Wildlife Action Plan implementation, it all helps the Department meet its broader mission. In 2015 the [Vermont Habitat Stamp](#) was created to provide additional opportunities for Vermonters and friends of Vermont to contribute to the purchase and maintenance of Wildlife Management Areas.

## **Revising Vermont's Wildlife Action Plan**

The revision of Vermont's Wildlife Action Plan followed the [eight required elements](#), revision guidance provided by the U.S. Fish & Wildlife Service and that published in Best Practices for State Wildlife Action Plans (AFWA 2012) and The Northeast Lexicon: Terminology Conventions and Data Framework for State Wildlife Action Plans in the Northeast Region (Crisfield 2014).

Revision began with a close review of the 2005 Action Plan. We found that it had weathered the decade surprisingly well. Much of the plan, in terms of focus, organization and goals, did not need change, only some updating. The foundation of both the 2005 and 2015 plans are the detailed reports on individual SGCN (Appendix A1-4). Both Action Plans focus on habitat conservation as a primary means of conserving SGCN (the 2015 Action Plan provides additional emphasis on landscape conservation and connectivity). And, both stress collaborations and partnerships in implementation.

With this revision, we take advantage of the many tools, guidance documents and programs developed since 2005 designed to support the conservation and management of wildlife by partners and the public—several of which were created as a direct result of the first Wildlife Action Plan. These include the [Community Wildlife Program](#), [Foresters for the Birds](#), [BioFinder](#), [Vermont Invasives](#) the [Landowners Guide - Wildlife Habitat Management for Lands in Vermont](#) and [Community Strategies for Vermont's Forests and Wildlife](#) among many.

Notable changes/additions to the Vermont's Wildlife Action Plan with this revision include:

- An expanded discussion of climate change impacts to SGCN and their habitats and strategies to help wildlife adapt and to improve resiliency (chapter 3).
- A focus on landscape conservation and habitat connectivity (chapter 6) and a design for landscape conservation (appendix F).
- Greater attention to diseases as significant threats to some species.

- Recognition of the important role pollinators play in their ecosystems and the addition of a suite of nine bumble bee species included as SGCN (Appendix A4). The 2005 Action Plan was silent on pollinators.
- A plant conservation summary (chapter 5). The 2005 Action Plan included only a list of plant SGCN.
- Expanded guidance to help municipalities implement the Action Plan (Appendix G).
- Addition of the state’s Big Game Management Plan (for Black Bear, Moose, White-tailed Deer, and Wild Turkey) as an appendix (H).
- Revisions to Species of Greatest Conservation Need: SGCN lists have been updated (chapter 5) along with conservation summaries for each SGCN (appendices A1-A5). Table 1.1 summarizes these changes.

**Table 1.1 Summary of Changes to SGCN Lists 2005:2015**

<b>Taxon</b>	<b>2005 SGCN</b>	<b>2015 SGCN</b>	<b>Change Notes</b>
Amphibians & Reptiles	19	19	No changes
Birds	57	50	Removed: Long-eared Owl, Henslow’s Sparrow, Osprey, Cooper’s Hawk, Barn Owl, Veery, Blue-winged Teal Added: None
Fishes	33	29	Removed: Arctic Char, Atlantic Salmon (anadromous), Brassy Minnow, Muskellunge and Quillback Added: Northern Pearl Dace
Invertebrates	191	198	Removed: 19 species Added: 26 including 9 bumble bee species
Mammals	33	33	Removed: Black Bear and Mink Added: Moose and Snowshoe Hare
Plants	577	673	Added 96 species

***The Eight Required Elements of a Wildlife Action Plan***

Wildlife Action Plans are meant to guide the use of SWG funds. To remain eligible for State Wildlife Grants funding Congress requires that states develop Wildlife Action Plans and revise them at least every ten years. Congress prescribed the following eight required elements for Wildlife Action Plans:

1. Identify wildlife distribution and abundance: Provide information on the distribution and abundance of species of wildlife, including low and declining populations as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife.
2. Describe location and condition of key habitats: Describe the locations and relative condition of key habitats and community types essential to conservation of species identified in (1).
3. Describe key problems and research needs: Describe problems that may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats.
4. Describe and prioritize conservation actions: Describe conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions.

5. Monitor species, habitats and conservation actions: Describe plans to monitor species identified in (1) and their habitats; monitor the effectiveness of the conservation actions proposed in and, adapt these conservation actions to respond appropriately to new information or changing conditions.
6. Develop a plan review process: Describe procedures to review the Wildlife Action Plan at intervals not to exceed ten years.
7. Coordinate with other plans: Coordinate the development, implementation, review, and revision of the Action Plan with Federal, State, and local agencies and Indian tribes that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.
8. Include public participation: Describe public participation in the development, revision, and implementation of the Action Plan and projects and programs.

### **A Decade of Conservation: Implementing the 2005 Wildlife Action Plan**

A summary of efforts to implement Vermont's first Wildlife Action Plan can be found in appendix E.

# Statewide Goals, Objectives, Actions for Wildlife Action Plan Implementation

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- 1. Goal: Conserve, restore, and enhance habitats, natural plant and animal communities, and ecosystem integrity to maintain suitability for SGCN and ecological function and to improve resiliency to climate change.**
  - 1.1. Objective: Prioritize and implement land acquisition based on conservation planning initiatives to protect important SGCN habitats through acquisition of easements or fee title.**
    - 1.1.1. Action: Acquire fee title of lands providing important SGCN habitat and habitat connectivity. Measure: Number of acres/miles protected.
    - 1.1.2. Action: Acquire conservation easements on lands providing important SGCN habitats and habitat connectivity. Measure: Number of acres/miles protected.
    - 1.1.3. Track the number of acres of contiguous forest lost to fragmentation/development. Measure: Number of acres lost to fragmentation/development.
  - 1.2. Objective: Participate in regulatory permitting and enforcement activities to protect significant natural communities, endangered and threatened species, and fish and wildlife habitats.**
    - 1.2.1. Action: Participate in Section 248 and Act 250 development processes to reduce negative impacts from development. Measure: Number of acres of habitat protected from development.
    - 1.2.2. Action: Participate in regulatory review processes to reduce negative impacts of altered flow in streams and rivers. Measure: Number of permits modified or issued that ensure sufficient flows.
    - 1.2.3. Action: Participate in regulatory review processes to reduce negative impacts of shoreline development to prevent increases in improperly hardened shorelines on lakes and streams through regulatory review and enforcement. Measure: Linear feet of shoreline habitat protected from improper development through project review and permitting; miles of riparian connectivity maintained.
    - 1.2.4. Action: Participate in development review processes to reduce negative impacts of development near wetlands and insure that projects don't disrupt riparian connectivity.
    - 1.2.5. Action: Support the updating of wetland delineations and maps, particularly for Class 1 wetlands. Measure: Acres of wetlands added to the state wetland maps.
  - 1.3. Objective: Maintain, restore and promote management of public and private lands and waters to enhance their suitability for SGCN, integrity and ecological function, and climate change resiliency.**
    - 1.3.1. Action: Implement ecosystem and landscape-level management on lands managed by ANR and other agencies. Measure: Number of state lands with Long Range Management Plans addressing landscape management goals.
    - 1.3.2. Action: Restore or enhance floodplain and riparian buffers at key locations. Measure: acres of floodplain and riparian forest buffer restored.
    - 1.3.3. Action: Restore or enhance wetlands at key locations. Measure: acres of wetlands restored.

- 1.3.4. Action: Restore aquatic organism passage through barrier mitigation in waters critical to SGCN. Measure: Miles of natural passage reconnected in SGCN habitats.
- 1.3.5. Action: Restore natural hydrologic flow regime through barrier mitigation in waters critical to SGCN. Measure: Miles of natural stream flow reconnected in key SGCN habitats.
- 1.3.6. Action: Restore and maintain grassland habitats within grassland focus areas. Measure: Number of acres appropriately managed for grassland SGCN.
- 1.3.7. Action: Implement management to restore and maintain habitat for young forests (early successional) and old forests (late succession) dependent species on state lands to meet objectives of landscape conservation plans. Measure: Percentage of forest meeting target successional stages.
- 1.3.8. Action: In collaboration with FPR, provide technical and financial assistance to private forest owners to support land management to meet habitat goals within targeted successional stages for SGCN. Measure: Acres of private forest land primarily managed for young forest/old forest SGCN; Number of landowners and acres enrolled in the Current Use Ecologically Sensitive Treatment Area (ESTA) program.
- 1.3.9. Action Provide technical assistance to local state and federal agencies that own or manage lands or set policies affecting land management and SGCN. Measure: the number of municipalities with town plans that address SGCN needs.
- 1.3.10. Support efforts to educate landowners about estate planning and other multi-generational planning to help protect and manage habitat for SGCN.

**1.4. Objective: Integrate SGCN conservation into natural resource planning and support conservation planning efforts at local, statewide and regional scales.**

- 1.4.1. Action: Develop and maintain interagency cooperatives and enhanced coordination among organizations and agencies to protect and manage SGCN.
- 1.4.2. Action: Participate in DEC basin planning processes to ensure that SGCN where present, are included in these agency watershed plans.
- 1.4.3. Action: Work with FPR to implement Act 171 (H.857) that encourages forestland management to improve forest blocks and habitat connectors and encourage the use of locally grown forest products.
- 1.4.4. Action: Participate in existing cooperatives to include SGCN in program implementation, including the interstate fish and wildlife cooperatives, Lake Champlain Basin Program, and Staying Connected. Measure: Number of interagency cooperatives incorporating SGCN needs into planning documents.
- 1.4.5. Action: Implement existing cooperative natural resource plans including the Lake Champlain Opportunities for Action Management Plan. Measure: Number of implementation actions conserving SGCN habitats or populations.
- 1.4.6. Action: Continue the collaborative biodiversity conservation work of the northeastern states, including the Regional Conservation Needs Program and the Northeast Fish and Wildlife Diversity Technical Committee. Measure: Number of regional conservation projects.
- 1.4.7. Action: Continue engagement with the, North Atlantic Landscape Conservation Cooperatives (LCC). Measure: Number of LCC projects in Vermont benefitting SGCN.

- 1.4.8. Action: Continue coordinating with regional and local planning commissions and conservation commissions to address SGCN conservation, habitat protection and the maintenance of habitat blocks through land use planning at the municipal and regional levels.
- 1.4.9. Action: Support regional, multi-town and local planning efforts with technical and financial assistance, training and education. Support efforts to build capacity within the RPCs to add natural resource planners to staff.

**1.5. Objective: Identify, prioritize and control problematic native species and invasive species deleterious to SGCN and prevent introduction of these species.**

- 1.5.1. Action: Develop and adopt guidelines and best management practices for invasives and problem native species surveys and mapping, prioritization, introduction prevention, and control in cooperation with the Agency of Natural Resources for the management of riparian buffers, vernal pools, and other ecologically significant habitats; and, incorporate same in Long Range Management Plans for lands and waters managed by ANR. Measure: Number of guidelines/BMPs/LRMPs developed and implemented.
- 1.5.2. Action: Prevent introductions and control invasive species in priority SGCN habitats to protect ecosystem health and stability. Measure: acres surveyed/mapped; acres with dominant native vegetation protected or restored.
- 1.5.3. Action: Implement invasive plant and pest surveys, prevent introductions and control on priority lands and waters managed by ANR and other agencies. Measure: Number of state lands with Long Range Management Plans addressing invasive species implemented.
- 1.5.4. Action: Manage and control the spread of insect invasive species in priority forested SGCN habitats. Measure: Acres of priority areas protected from invasive encroachment; Estimate of reduction or prevention of forest damage.
- 1.5.5. Action: Manage white-tailed deer and moose populations to foster forest regeneration and understory growth in areas of very high deer or moose population density per VFWD's Big Game Management Plan. Measure: Deer/moose density.
- 1.5.6. Action: Control double-crested cormorant, gull, and problematic mammalian predators at locations where they are negatively impacting nesting birds, turtles and other SGCN. Measure: Nesting success of SGCN species.
- 1.5.7. Action: Continue efforts to limit the introduction of aquatic invasive species. Measure:
- 1.5.8. Action: Continue efforts to limit the introduction of emerald ash borer, Asian long-horn beetle, hemlock wooly adelgid and other forest pests. Measure: Number of confirmed infestations.
- 1.5.9. Action: Work with the Forests, Parks & Recreation Department and researchers to identify examples of hemlock and other forest types to be protected from forest pests and diseases, and strategies to combat infestations while limiting impacts to non-target species.
- 1.5.10. Action: Prevent introduction of feral swine. Measure: Number of feral swine in the state.

**1.6. Objective: Protect habitat viability by developing and maintaining programs to reduce environmental contamination and pollution, atmospheric mercury and acid deposition and the atmospheric discharges of greenhouse gases that are contributing to climate change.**

- 1.6.1. Action: Implement the [Lake Champlain restoration plan](#) to reduce phosphorous and other nutrient pollutant inputs into the Lake Champlain watershed. Measure: Progress

toward meeting the Total Maximum Daily Load (TMDL) goals for the lake and its tributaries.

- 1.6.2. Action: Reduce the occurrence of combined sewer overflow discharges. Measure: The number of waste water treatment systems that have been updated to reduce combined sewer overflow events.
- 1.6.3. Action: Continue controlling mercury discharges from energy generating and industrial facilities. Measure: Decline in mercury levels in impacted SGCN.
- 1.6.4. Action: Continue controlling acid discharges from combustion sources. Measure: Increase in pH in impacted waters.
- 1.6.5. Action: Continue participating in the Regional Greenhouse Gas Initiative. Measure: Number of carbon pollution credits sold.
- 1.6.6. Work with state and federal agencies, legislators, and partners to reduce water and air pollution and greenhouse gas emissions.

### **1.7. Objective: Manage human disturbance in SGCN habitats.**

- 1.7.1. Action: Restrict public access to bat hibernacula to protect bats and continue closures of cliff areas and turtle nesting beaches to protect peregrine falcons and turtles during the nesting seasons. Measures: Number of hibernacula with restricted access; nesting success of Peregrine Falcons and Spiny Softshell Turtles in protected areas.
- 1.7.2. Action: Manage recreational use of off-road vehicles in important SGCN habitats. Measure: Number of acres protected.
- 1.7.3. Support changes in laws to minimize degradation to fish and wildlife habitat.

### **1.8. Objective: Promote habitat connectivity for SGCN.**

- 1.8.1. Action: Restore and maintain natural habitats in linkage areas between large blocks of habitat for SGCN. Measure: Number of acres of viable habitat in identified linkage areas.
- 1.8.2. Action: Remove or replace culverts and dams that impede passage of aquatic SGCN in high priority areas. Measure: Miles of SGCN habitat with restored connectivity.
- 1.8.3. Action: Work with VTTrans to identify and mitigate barriers to habitat connectivity. Measure: Number of projects implemented to reduce road mortality and increase connectivity.
- 1.8.4. Action: Work with regional and local planning commissions and conservation commissions to address connectivity for SGCN through land use planning at the municipal and regional levels.
- 1.8.5. Action: Foster northeast regional habitat connectivity projects for wide-ranging SGCN. Measure: Identification and conservation of important habitat linkages between Vermont and neighboring states and provinces.

### **1.9. Objective: Promote practices to improve habitat for pollinator species by providing a diversity of flowering plants throughout the active season.**

- 1.9.1. Action: Enhance pollinator habitat on state lands. Measure: acres of pollinator habitat enhanced.
- 1.9.2. Provide technical and financial assistance to private landowners to support land management that supports pollinator species. Measure: Acres of private land primarily

managed for pollinators.

- 1.9.3. Action: Provide information on pollinator-friendly landscaping and agricultural practices to the public via the VFWD website. Measure: Number of visits to pollinator habitat management webpage.
- 1.9.4. Action: Develop vegetation management plans for state lands (e.g., parks, roadsides, rest stops, old fields and rights-of-way) to benefit SGCN pollinators and to limit the spread of invasive plants. Develop similar mowing best management practices for use by partners including VTrans and municipal highway departments. Measure: Completion and implementation of plans and best management practices.

## **2. Goal: Conserve and manage Vermont's Species of Greatest Conservation Need for self-sustaining populations.**

### **2.1. Objective: Maintain appropriate legal protection for all SGCN.**

- 2.1.1. Action: Revise Vermont's Endangered/Threatened statutes to better support habitat protection.
- 2.1.2. Action: Update rules and policies for plant and animal importation, possession and collection/harvest to protect populations and to prevent disease introductions.
- 2.1.3. Through policy and education support the enforcement of existing laws that protect Species of Greatest Conservation Need.

### **2.2. Objective: Recover populations of Species of Greatest Conservation Need.**

- 2.2.1. Action: Continue spiny softshell turtle, spotted turtle, lake sturgeon, spruce grouse, Canada Lynx, American Martin recovery projects. Measure: Status of species populations.
- 2.2.2. Action: Collaborate with neighboring states to manage SGCN populations that cross state boundaries. Measure: Number of collaborative projects with neighboring states.
- 2.2.3. Action: Evaluate the need for recovery plans for additional SGCN and develop such plans where feasible. Measure: the number of recovery plans developed for targeted species.

### **2.3. Objective: Maintain fish and wildlife health programs and biosecurity to document the causes of SGCN mortality and occurrence and to track disease outbreaks impacting SGCN.**

- 2.3.1. Action: Investigate and report mortality of fish SGCN as appropriate, and report unusual incidences of mortality. Measure: Annual reports on causes of fish mortality in Vermont.
- 2.3.2. Action: Investigate and report mortality of animal SGCN as appropriate, and report unusual incidences of mortality through the Northeast Wildlife Disease Cooperative. Measure: Annual summary reports on causes of wildlife mortality in Vermont.
- 2.3.3. Action: Prevent the transmission of diseases, and invasive species, through the practice of standard disinfection procedures.
- 2.3.4. Action: Monitor chemical contaminants in fish, bird, and mammal top predators. Measure: Number of species monitored for contaminants.

**3. Goal: Inventory, monitor, and research SGCN, their habitats and natural communities to provide baselines for conservation and to maintain ecological integrity.**

**3.1. Objective: Inventory and monitor the abundance, distribution and status of Vermont's SGCN.**

- 3.1.1. Action: Identify and prioritize inventory and research needs, and collect information according to priority.
- 3.1.2. Action: Develop abundance and distribution objectives for fish and wildlife species and, where appropriate, prepare species management plans to maintain sustainable species population levels within ecological limits while considering social implications.
- 3.1.3. Action: Develop a collaborative, statewide monitoring and adaptive management program to determine SGCN baselines, measure progress toward desired SGCN outcomes, and to evaluate and improve the effectiveness of conservation strategies.
- 3.1.4. Action: Continue and enhance habitat monitoring programs to better track the distribution, abundance and status of SGCN habitats.

**3.2. Objective: Maintain data management systems to share data among partnerships and better integrate Vermont data into regional collaborations.**

- 3.2.1. Action: Maintain and enhance the Natural Heritage Inventory and other data collection and management programs to inform SGCN and habitat conservation.
- 3.2.2. Action: Continue participation in regional efforts including those with other Northeast states to assess SGCN and their habitats, share data and to implement regional conservation actions. Measure: Number of regional actions implemented.

**3.3. Objective: Foster research that improves our understanding of SGCN population dynamics and habitat utilization.**

- 3.3.1. Action: Partner with universities fish and wildlife cooperative research units and nongovernmental organizations on research into species and habitat issues.

**4. Goal: Maintain and enhance public support for SGCN conservation**

**4.1. Objective: Inform and engage the public and conservation communities about SGCN conservation and the Wildlife Action Plan.**

- 4.1.1. Action: Distribute information on SGCN conservation to the public.
- 4.1.2. Action: Support Citizen Science programs for SGCN monitoring.

**4.2. Objective: Consult with all levels of government and conservation partners to seek unity of effort in conserving SGCN.**

- 4.2.1. Action: Share information regarding important SGCN, their habitats, and best-practices conservation actions with county and town governments to inform their land use decision making and conservation efforts. Measure: Number of local governments that adopt modified practices to conserve SGCN and their habitats.

**4.3. Increase funding and support for local, state and federal conservation programs.**

- 4.3.1. Action: Collaborate and support partners (NGO's, municipalities, state and federal agencies, etc.) to build capacity for conservation initiatives.

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