ACKNOWLEDGEMENTS

The development of New York State's Comprehensive Wildlife Conservation Strategy (CWCS) benefited from invaluable contributions of many individuals and organizations. This included a *Partnership Group*, composed of representatives of statewide conservation organizations, local government, tribal organizations, state and federal agencies, non-profit organizations, and other interested parties. Participation by several *Species Group Experts* was also an integral part in the early phases of developing the CWCS, especially developing the list of "Species of Greatest Conservation Need." These experts also assisted in the compilation and review of the Species Group Reports that are found in Appendix A and formed the cornerstone of the entire CWCS document.

These and other experts from many government agencies, universities, and non-profit organizations added valuable contributions to the development of the CWCS. We relied heavily on *Watershed Review Teams* that were responsible for reviewing and revising draft watershed chapters. These teams included state and federal agency staff as well as representatives from numerous conservation groups. A list of the individuals who participated as members of these three different groups can be found in Appendix F. Sincere thanks are due to all of them.

Much of the work completing the draft CWCS was accomplished by the staff within state agencies, principally the NYS Department of Environmental Conservation (DEC), with contribution from the Department of State (DOS) and Office of Parks, Recreation and Historic Preservation (OPRHP). This included membership on an internal DEC *Steering Committee* (later expanded to a multiple State Agency Steering Committee). Membership included: Bryan Swift, Peter Nye, Patricia Riexinger, Kim McKown, Debra Barnes, Heidi Bogner, Melissa Cohen, Douglas Carlson, Chris VanMaaren, Tom Wolfe, Harold Evans, Karl Berger, and Lisa Holst, all of DEC; David VanLuven, formerly of the New York Natural Heritage Program; Nancy Pierson (OPRHP); and Greg Capobianco (DOS). Many additional DEC personnel in the Division of Fish, Wildlife and Marine Resources, Division of Water, and Division of Lands and Forests, offered comment, further information, and on-the-spot fact checking that proved invaluable. The Division of Environmental Permits offered expert assistance in meeting the requirements of the State Environmental Quality Review Act. The Division of Public Affairs and Education provided outreach support and extensive services in the mechanics of the document presentation, both on paper and on the agency's website.

Special thanks to Amielle DeWan and Milo Richmond of Cornell University's Cooperative Fish and Wildlife Research Unit for their tremendous contribution to the Monitoring section of this document.

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Thanks, too, to all those who commented on the public draft of the CWCS and helped us make it stronger. It demonstrates the widespread commitment to conservation in our state.

Lastly, special thanks go the CWCS *Core Team*: Lisa Holst, New York's CWCS Program Coordinator, Michael Schiavone, and Tracey Tomajer. Their persistence and dedication was vital to completing New York's Comprehensive Wildlife Conservation Strategy.

Foreword

From Denise Sheehan,
Commissioner
New York State Department of Environmental Conservation

Since 1908, when New York became the first state to require hunting licenses for harvest of wildlife, our State has shown tremendous leadership in the area of natural resource conservation. Our State has some of the most diverse resources in the nation, with aquatic resources ranging from two Great Lakes to the teaming Atlantic Ocean, and from terrestrial features of ancient mountain ranges to glacial valleys and beaches. We are home to the first fish hatchery in the nation. From that one hatchery, we have expanded into a network of facilities that support, in part, restoration of amazing and ancient fishes like paddlefish and sturgeon.

We are the home of the first State Park in the nation at Niagara Falls. We pioneered forest preserves in the Adirondack and Catskill Mountains. There are now more than 172 State Park facilities and more than 700,000 acres of State forest lands that carry on that legacy. Our tremendously diverse human population complements our diverse natural resources. Our citizens and visitors alike value the natural resources held in trust for them and future generations. Even the concrete canyons of our largest cities provide a home to imperiled species like the peregrine falcon.

With the release of New York's Comprehensive Wildlife Conservation Strategy, we intend to build on the solid legacy of natural resource protection and management in this State. The strategy is a step forward into the future of healthy wildlife and habitats in New York for generations to come, but we do not take this step alone. Together with our sister agencies, especially the Department of State and the Office of Parks, Recreation and Historic Preservation, we will move forward with the help and support of many partners to fulfill the charge of preserving the vitality and biodiversity of our natural resources.

We have made tremendous strides under the leadership of Governor George Pataki in New York to protect and restore fish and wildlife, air quality, and water quality. However, our State is not an island separated from the remainder of the nation. The fate of our wildlife, particularly those species that migrate from other parts of the country and the world, relies on cooperation with our neighboring States in this important mission. As we move forward in implementing the recommendations of the strategy, we will strengthen our relationships with our neighboring States, the provincial governments of Canada, and the federal resource agencies who all share our interest in healthy populations of wildlife.

Wildlife Conservation Funding and Protection History in New York

New York has been one of the United States' primary urban centers for centuries but it has also been a leader in conservation activities. It was the first state to declare land 'forever wild' as well as establish a state park, the Niagara reservation. As early as the seventeen hundreds, a law was passed for the protection of New York's native heath hen, though it was subsequently extirpated from the state in the 1920s. Similar laws were enacted for other species, particularly game, and through those early efforts many species were saved. Unfortunately, the early efforts to preserve species were "for the therapeutic aspects of wild nature" and not necessarily for their ecological contributions. Countless more species perished because of the unilateral efforts to conserve species while neglecting their environment. In the late nineteenth century the Adirondack and Catskill Parks were established at the start of the "Conservation Era." New Yorkers Theodore Roosevelt and Gifford Pinchot were influential in early efforts to protect the natural resources of the state and the nation. Roosevelt went on to establish the National Wildlife Refuge System in 1903, during his term as President of the United States (1901-1909). The Audubon Society, headquartered in New York, was instrumental in the passage of the New York Bird Law of 1886. This law gave early protection to all "song and wild birds."

Programs within the DEC's Division of Fish, Wildlife and Marine Resources use a number of state and federal sources of funds to manage and conserve wildlife. The Conservation Fund, which was established in 1925, is the primary source of funds for wildlife conservation programs and is comprised of license and other fees collected by the Division. Federal Migratory Bird and Hunting Conservation Stamps (Duck Stamps) were created in 1934 as federal licenses for hunting migratory waterfowl. The Federal Duck Stamp program has evolved into one of the primary funding sources for wetland conservation. The Federal Aid in Wildlife Restoration (1937) and the Federal Aid in Sport Fish Restoration (1950) provide funding for the management, conservation and restoration of wildlife and fisheries resources. These funding sources operate under the principle that the user pays for management of the resources. Funds for the management of candidate, proposed and listed endangered species are offered through grants from the Cooperative Endangered Species Conservation Fund (authorized under Section 6 of the Federal Endangered Species Act).

During the 1970s environmental laws such as the federal Clean Air Act, Clean Water Act, and Endangered Species Act were passed. These laws and the creation of the U.S. Environmental Protection Agency had a profound influence on the health of natural resources nationwide and rippled out to affect states as well. In 1970, the Conservation Department, Water Resources Commission and Air Pollution Control Board were consolidated in an effort to address all state environmental issues within one agency and the New York State Department of Environmental Conservation (DEC) was established. The agency is responsible for the State's natural resources and environmental quality, and its duties are constantly modified to meet the needs of the changing environment. Edmondson (2001), in a historical overview of environmental affairs of the State, discusses the three schools of thought that govern the management of public lands in New York; Gifford Pinchot's ideal of maximum sustained production, the recreational vision

of Robert Moses, and Roosevelt's love of the wild. These three seemingly different ends are all part of the DEC mission to:

> *"Conserve, improve, and protect New York's natural resources and environment, and control water, land and air pollution, in order to enhance the health, safety and welfare of the people of the state and their overall economic and social well being."*

In 2001, federal legislation established new funding for wildlife conservation through the State Wildlife Grants (SWG) program. SWG funding was proposed as supplemental funding to existing federal programs. These funds will be used to address species of greatest conservation need (SGCN) in each state and will provide much needed support for those species not addressed with traditional funds. States, under the SWG program, are required to develop a Comprehensive Wildlife Conservation Strategy (CWCS) for the management of SGCN and associated habitats.

Management Programs Relevant to the CWCS

There are many extant programs and initiatives in New York that could support further work under the auspices of the State Wildlife Grants Program. Activities of DEC; Department of State; Office of Parks, Recreation, and Historic Preservation; DOT; US Department of Agriculture, US Fish and Wildlife Service, and many other agencies and organizations can be coordinated with the recommendations for the conservation of SGCN and their habitats. A selection of some of these programs includes:

- **Regional Greenhouse Gas Initiative** - a cooperative effort by Northeastern and Mid-Atlantic states to reduce carbon dioxide emissions.
- **Bird Conservation Area Program** - established in 1997 to safeguard and enhance bird populations and their habitats on State lands and waters. The goal of the Bird Conservation Area (BCA) Program is to integrate bird conservation interests into agency planning, management and research projects, within the context of agency missions.
- **Acid Deposition Reduction Program** - requires certain electric generators in the state to reduce emissions of sulfur dioxide (SO2) and nitrogen oxide (NOx) to protect sensitive areas, including the Adirondack and Catskill mountains, from the devastation of acid rain.
- **DEC Land Unit Management Plans** - plans intended to assess the natural and physical resources present within a unit, identify opportunities for recreational use and consider the ability of the resources and ecosystems to accommodate public use. Further, they identify management objectives for public use which are consistent with the land classification guidelines and the wild character of these lands.
- **Governor's Land Acquisition Goal** – 1 million acres in this decade. The governor has announced the protection of over 920,000 acres to date.
- **Forest Land Enhancement Program** - establishes procedures and rules for the implementation of the Forest Land Enhancement Program (Program) by the NYS Department of Environmental Conservation (DEC) to promote sustainable forest management practices on non-industrial private forest land. In addition, there are numerous sustainable forestry certification programs

discussed in the Natural History section of this document, under the *Status and Trends of Major Habitat Types* heading.

- **Brownfields Program** - program to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields".
- **Agriculture Environmental Management Program** - helps farmers meet economic challenges and address environmental concerns while complying with regulatory requirements.
- **Quality Communities Initiative** – program tailored to working with local government leaders and community organizations to find smart, innovative solutions to strengthen our economy, environment, and improve the quality of communities.
- **EPA Phase 2 Stormwater Controls** - encourage and assist all landowners with guidance documents, incentives and funding to implement management practices to control nonpoint source pollution.

Purpose and Authority for the Comprehensive Wildlife Conservation Strategy

In 2002 Congress began funding the State Wildlife Grants (SWG) program with the intent to maintain the biodiversity of wildlife in this country and prevent new listings of endangered species. This federal grant program was the first large-scale funding program for wildlife since the Pittman-Robertson Act in 1937 and Dingell-Johnson Act of 1950 (Federal Aid in Wildlife and Sport Fish Restoration Acts, respectively). States receiving SWG funding are required to prepare a Comprehensive Wildlife Strategy that must identify and be focused on the "species in greatest need of conservation," yet address the "full array of wildlife" and wildlife-related issues. Further, the strategy must include eight specific elements. These elements are:

(1) 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; and,

(2) Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in (1); and,

(3) Descriptions of problems which 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; and,

(4) Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions; and,

(5) Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions; and,

(6) Descriptions of procedures to review the plan at intervals not to exceed ten years; and,

(7) Plans for coordinating the development, implementation, review, and revision of the 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) Congress also affirmed through this legislation, that broad public participation is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the Species in Greatest Need of Conservation that Congress has indicated such programs and projects are intended to emphasize.

All 50 states, U.S. territories, and the Commonwealth of Puerto Rico have committed to developing a CWCS by October 1, 2005 as required by the SWG legislation. In the State of New York, DEC has the statutory authority to manage and protect the natural resources of New York. DEC manages the fish, wildlife,

and marine resources of New York, as well as protecting and managing timber and wetlands, and protecting water and air quality. By virtue of this authority, DEC has taken the lead in developing New York's CWCS. In addition, DEC is the sole eligible recipient of SWG funds from USFWS.

The responsibility to manage and protect natural resources for the benefit of current and future residents of the state is shared with two other executive branch agencies, the Department of State (DOS) and the Office of Parks, Recreation, and Historic Preservation (OPRHP). Among its many administrative functions in state government, DOS bears the responsibility of protecting New York's coastal zone and assisting local communities in watershed planning. OPRHP owns and manages public lands and facilities for New Yorkers and tourists alike. Many of our state parks have outstanding natural resources, including wildlife. DEC often works in close conjunction with DOS and OPRHP to achieve that shared responsibility for the natural resources of New York State. Both of these agencies had significant input into the development of this document.

Methods

Selection of Species of Greatest Conservation Need

The first step DEC took to fulfill the legislative requirements of the SWG program was to identify those species of native wildlife considered to be in greatest need of conservation. This process was begun in 2002 when DEC staff, in consultation with experts and scientists across the state, compiled a list of "species of greatest conservation need" (SGCN). This initial list was completed in March of 2003 and used to guide funding decisions for the SWG program for the first two years.

Once the process of developing the CWCS began, DEC staff reexamined the list of SGCN and revised it, again in consultation with species experts and scientists from across the state. The details of the selection process and a list of species can be found in chapter 3 of this document. The list currently stands at 537 species. The list will likely be revised at the time that the entire CWCS is updated.

Species form the basic building block of the CWCS. While environmental management philosophy has shifted away from "single species" management approaches during the 20th century toward the more holistic ecosystem approach, for the purposes of developing the CWCS we have chosen to begin with species. By using a small building block and identifying important common features of each, we can build from this critical assessment of each species up to an ecosystem application of remedies to the common threats and management needs of each species. These commonalities allow us to maximize effort across habitats and other suites of species. In some cases, however, the needs of a species are so specialized or acute; they may be lost in the "noise" of broader approaches. This is where we can tailor the strategy implementation to make use of the interests of agencies and organizations.

Compilation of Species and Habitat Information

Once the species were selected, DEC staff members were asked to compile known information about those species and their critical habitats into a single, standard database. DEC staff attempted to consolidate the information requested in required elements 1 through 5 of the CWCS into this database. These species reports were reviewed by peers and species experts across the state. In many cases, this information was culled from existing literature and management plans. For lesser-known species, the information was less robust.

Wherever possible, species within taxonomic groups were aggregated into groups with common habitats, threats to their survival, and management needs. These "species groups" are the basic organizing unit for the database. Examples of species groups are:

- Demersal sharks
- Grassland birds
- Odonates (dragonflies and damselflies) of lakes and ponds
- Tree bats
- Vernal pool salamanders

Each of the species groups above are made up of multiple individual species of greatest conservation need. In many cases there were SGCN with unique conservation needs due to specialized habitat, management needs, or extreme rarity. These species were placed into species groups of only a single species. Examples of these groups include:

- Peregrine falcon
- Indiana bat
- Heritage strain brook trout
- Bay scallop
- Karner blue butterfly

There are a total of 128 species groups, 72 of these are single-species groups. Copies of the species group reports generated out of the CWCS planning database are available in Appendix A. Each species group report contains a list of reference materials that are the source, beyond staff expertise, of this condensed species information.

The CWCS planning database collected condensed information on each species and species group. Information collected on each individual species included:

- Migratory status
- Watershed basin distribution
  - Historic
  - Current
- Ecoregion distribution
  - Historic
  - Current
- Critical habitats associated with each life stage/activity

Information collected for each species group included:

- Threats to the species group
- Population trends for the group
- The "no action alternative" as required in NEPA[1] and SEQRA[2] evaluations
- Conservation goal for the group
- Conservation objectives for the group
- Recommended conservation actions
- References and information sources for the group
- Known conservation partners related to each group

Further specific information on the selection of species within the major taxonomic groups is found in the Species Selection chapter of this document.

[1] NEPA = National Environmental Protection Act.
[2] SEQRA = State Environmental Quality Review Act

Landscape Approach

The information in the database related to species and their habitats was also organized by the major watershed basins of the state. The watershed basin boundaries are taken from the U.S. Geological Survey (USGS) 4-digit Hydrologic Unit Codes. The hydrologic units were compiled by USGS for every state and provide a seamless map layer across the country that will facilitate regional and national collaboration in implementing all the state CWCSs over the next decade. A map of New York's 4-digit basins is found in Introduction Figure 1.

Many of the New York State's most successful resource management programs are organized by watershed boundaries, including the state and national estuary management programs, the fisheries management program, local assistance programs through Department of State, and others. DEC made a conscious decision to avoid use of arbitrary administrative boundaries in the CWCS in order to increase the usefulness of the document and its recommendations to partner agencies and organizations across the state. In further development of the State Wildlife Grants Program, CWCS information and recommendations may be tailored to some of those major administrative boundaries like the Adirondack and Catskill Park "blue lines", Great Lakes and estuary management programs, and state agency regional boundaries.

Land Cover Information for New York

DATA DESCRIPTION:

The data used in the land cover summary compiled for the Comprehensive Wildlife Conservation Strategy(CWCS) is the USEPA's Region II Multi-Resolution Landscape Characteristics (MRLC) last revised January, 1997. The dataset consists of 30 by 30 meter cells which correspond to an area on the earth. Each cell was assigned one of fifteen Level II land cover types, descriptions of which follow.

(1) Water - All areas of open water and perennial ice or snow

(2) Low intensity residential - Areas with a mixture of constructed materials and vegetation. Constructed materials account for 30-80% of the cover, vegetation 20-70% of the cover. Most commonly include single-family housing units.

(3) High intensity residential - Areas where people reside in high numbers. Vegetation accounts for less than 20% of the cover and constructed materials account for 80-100% of cover.

(4) High intensity commercial/ industrial - Includes infrastructure and all highly developed areas not classified as High intensity residential.

(5) Pasture/ Hay - Areas of grasses, legumes or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.

(6) Row crops - Areas used for the production of crops such as corn, soybeans, vegetables, tobacco and cotton.

(7) Other grasses - recreational grasses; vegetation planted in developed settings for recreation, erosion control or esthetic purposes. For example, parks, lawns, golf courses.

(8) Evergreen forest - Areas dominated by trees where 75% or more of the species maintain their leaves all year.

(9) Mixed forest - Areas dominated by trees where neither deciduous nor evergreen species represent more than 75% of the cover present.
(10) Deciduous forest - Areas dominated by trees where 75% or more of the species shed foliage simultaneously in response to seasonal change.
(11) Woody wetlands - Areas where forest or shrubland vegetation accounts for 25-100% of the cover and the soil or substrate is periodically saturated or covered with water.
(12) Emergent wetlands - Areas where perennial herbaceous vegetation accounts for 75-100% of the cover and the soil or substrate is periodically saturated or covered with water.
(13) Barren; quarries, strip mines and gravel pits - areas of extractive mining activities with significant surface expression.
(14) Barren; bare rock and sand - perennially barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, beaches and other accumulations of earthen material.
Unknown - Unidentified classes were placed in this category.

LAND COVER CALCULATION METHODS

The land cover summary was compiled in ESRI's ArcView© GIS version 3.3 for Windows. Watershed specific information was obtained by overlaying Hydrologic Unit Coverage, level 4 (HUC-4) layer for New York on an EPA-MRLC layer. Attributes tables were exported to Microsoft Excel and 30x30m cell counts were converted to acres. The percentage cover for each land cover type was calculated and summary tables generated. Statewide coverage was determined from the EPA-MRLC layer in ArcView© version 3.3 for Windows but without overlaying the HUC-4 layer. 30x30m cell count data was exported to Microsoft Excel and converted to acres. The data was compiled for the fifteen land cover classes and a summary table generated for New York State.

DETERMINATION OF ACCURACY

The following accuracy assessment was taken from Yang et al. (2002) "Thematic Validation of Land Cover Data of the Eastern United States Using Aerial Photography: Feasibility and Challenges".

There are inherent accuracy problems with MRLC in that data was interpreted from satellite imagery (Landsat Thematic Mapper (TM) satellite data acquired between 1988 and 1993). Accuracy assessments made for the New York/ New Jersey region (Region II) land cover data was about 62% at Level II and 82% at Level I (Stehman et al. 2003). The inaccuracy can be attributed to several factors. There was difficulty comparing mapped land cover classes and reference data since there were time differences between Thematic Mapper (TM) imagery and National Aerial Photography Program (NAPP) photo dates. Additionally, there were issues with separating location error from mapping error. Spatial uncertainty of a given pixel can arise from geometric accuracy of satellite imagery or locating sample units from satellite data on non-georeferenced NAPP photos. Errors also arose with the inconsistency of photo-interpreters.

The most frequently confused land cover categories for Region II (New York/New Jersey) is given by the chart below. The map class name is the value assigned to a cell in the MRLC data set. The photo-interpreted land cover class is the "actual" value determined during the accuracy assessment.

Map class name	Photo-interpreted land cover class
Low intensity residential	High intensity residential
High intensity residential	High intensity commercial
High intensity commercial	Low intensity residential
Bare rock/ sand	Emergent wetland
Quarry/ strip mine	High intensity commercial
Transitional barren	Woody wetlands
Deciduous forest	Mixed forest
Evergreen forest	Deciduous forest
Mixed forest	Evergreen forest
Hay/ pasture	Row crops
Row crops	Hay/ pasture
Other grass	Low intensity residential
Woody wetlands	Evergreen forest
Emergent wetlands	Woody wetlands

Source: Yang et al. 2000

Development of Conservation Recommendations for Species of Greatest Conservation Need and their Habitats

Information collected in the CWCS planning database was analyzed by DEC staff using species and species group information sorted by watershed basin. A list of SGCN that occur in each basin was compiled and the recommended conservation actions for each species and group were examined. It became readily apparent that a concise and readily implemented strategy depended upon a method to prioritize actions among a list of things that are all important. Several factors were considered in this prioritization process. The prioritization was applied to SGCN. The prioritization criteria used were: species population status; state conservation status; the number of critical habitats used by that species; the number of species found in the species group; and inclusion on the Northeast Non-Game Technical Committee list of species of conservation concern. A more lengthy list of prioritization criteria were originally considered, but resulted in no differentiation in priority among species. A brief discussion of the rationale behind each criterion is below.

- **Population Status:** The status of a species within a basin is indicated as unknown, decreasing, stable, or increasing in the CWCS planning database. Species with populations indicated as decreasing in the basin received 10 points, species with unknown population status received 5 points, species with stable or increasing populations received no points. Species that we know are in decline should not wait for action until we have determined the status of unknown populations. Those that are stable or increasing are not in as critical need. Those with unknown populations must be assessed as soon as possible.
- **State Conservation Status:** Species listed as state endangered, but not federally endangered, received 10 points. Species listed as state threatened, but not federally threatened, received 5 points. All other designations received no points. Species that are only on the state threatened and endangered lists are not receiving funding or planning from other sources and are in the most danger of extirpation in our state.

- **Number of Critical Habitats Used:** The CWCS planning database indicates the number of habitats deemed critical to SGCN over their life span. Species were awarded points based on a 1:1 ratio with the number of critical habitats used. Protection of species such as salamanders and tautog that use several distinct habitats over a lifetime will result in the protection of more habitats.
- **Number of Species in the Species Group:** Species were awarded points based on a 1:1 ratio with the number of species included in their species group that also occurred in that basin. The recommended actions were made by species group in the CWCS planning database and recommendations that benefited a larger group received higher priority.
- **Inclusion on the NE Non-Game Technical Committee List of Species of Concern:** This group works as a committee of the International Association of Fish and Wildlife Agencies. This list of species has been identified as being of conservation concern at a regional scale throughout the Northeast. Species with this designation received 10 points.

Species receiving 20 or more points based on the above criteria were considered to be of the highest priority for implementation activities over the next 5 to 10 years in New York. The "scored" lists of species were shared with Watershed Review Teams consisting of DEC regional staff and other locally interested agencies and organizations for review as part of the overall review of each watershed basin's draft recommendations. Watershed Review Teams were given the opportunity to discuss the priority of species and modify the priority based on additional criteria, including other programs and planning documents, or extenuating circumstances.

It should be noted that the overall drafting of each set of watershed recommendations was the result of a review of extant planning and assessment documents, the information contained in the CWCS planning database, and expert review. DEC staff also did synthesis and analysis of the information contained in all the source documents to shape the final product based on experience. In many cases, actions that could benefit species of both higher and lower priority were included.

The resulting recommended conservation actions that appear in the statewide and basin sets of recommendations are the priorities for implementation over the next 5 to 10 years. The recommendations are categorized within each basin and the statewide sections, but no category of action is given priority. For example, the categories: Data Collection, Planning, Land Protection, Management/Restoration, Regulatory/Legislative, and Incentives consistently appear in this order. The order is ***not*** meant to infer a priority on the kind of actions to be taken. All of the actions recommended for a given species group are retained in the Species Group reports in Appendix A.

Implementation

Looking ahead to implementing a new State Wildlife Grants Program in New York, there is much work to be done. The development of the CWCS is an important first step in this process, and the CWCS will be used to prioritize funding decisions related to State Wildlife Grants expenditures in the coming years.

The Monitoring section of this document begins to outline just one of the massive tasks ahead. It is likely that the DEC and others will need to redirect or dedicate new staff and resources toward implementation of the CWCS.

Many of the species included as SGCN are virtually unknown to us as an agency. Better work needs to be done to track and evaluate habitats across the state, particularly, those not protected under statute or fee title. Remaining facets of implementation will be the subject of future work planning.

Statement of Goals

From Gerald A. Barnhart, Director
Division of Fish, Wildlife and Marine Resources
New York State Department of Environmental Conservation

The mission of the Department of Environmental Conservation's Division of Fish, Wildlife and Marine Resources is to serve the interests of current and future generations of New Yorker's by using our collective skills, in partnership with the public, to describe, understand, manage and perpetuate a healthy and diverse assemblage of fish, wildlife and ecosystems.

New York is a wonderfully complex state. The diversity of our citizens is exceeded only by the richness and variety of our habitats and wildlife. Working with that diversity, of people, places and wildlife, is an amazing challenge and, when we succeed, incomparably rewarding. Our efforts to develop a Comprehensive Wildlife Conservation Strategy (CWCS) reflect the strong influence of our diversity, from the membership of many agencies, organizations and individuals in our State Wildlife Grants Partnership, to the 537 species on our listing of Species of Greatest Conservation Need, to the 11 major watersheds by which our CWCS is organized.

We developed this CWCS to help us achieve our mission and several goals. First, we wanted to develop a product that was authored, owned, and will be implemented by all segments of New York government, all of our conservation organizations, and any interested individual stakeholder. The open, collaborative processes we used to develop our listing of species of greatest conservation need; to develop, analyze and synthesize critical data; to craft species, habitat, watershed, State, and regional conservation recommendations; and bind them together in this CWCS helped move us closer to this goal.

Second, we wanted to organize our CWCS in a way that stimulates synergy between an ecosystem approach to conservation and a sense of place, that sense of belonging that weds our citizens to the landscape where they live, work and play. It is our hope that by creating this synergy we will be more effective at conserving ecological systems and the species they support, in part by increasing public support for and participation in delivering this CWCS.

Third, we wanted to craft a CWCS for conserving species of greatest conservation need that could also, over time, become the organizing force for all our other fish, wildlife and marine resource conservation programs. Our choice to use watersheds as a geographic basis for an ecosystem approach serves to unify most of our current and anticipated conservation efforts. Watersheds work as a basis for integrating individual conservation programs so that the whole is indeed greater than the sum of the parts. Achieving this goal will go a long way towards eliminating artificial distinctions based on taxonomy, or whether or not animals are hunted, fished, trapped – distinctions that hobble our progress towards true systems management and effective conservation.

Fourth, we want this CWCS to foster application of good science and the quest for new knowledge. An enormous volume of information on species status and trends; land use and habitat changes; threats to species and communities; and

research questions was assembled, analyzed and integrated to produce the conservation recommendations that follow. The state of our knowledge is robust for some species, habitats, and watersheds, but for many we have much to learn before we can succeed at conservation. This strategy should nurture application of what we have learned and pursuit of that which remains to be discovered.

Lastly, where the state of the art and science of conservation allows, we wanted this CWCS to set bench marks against which we can measure the success of the conservation efforts described in the recommendations. Results matter far more than intentions or efforts. Wherever we could, we've tried to describe our desired results for this CWCS in a way that our progress can be measured. We have also committed to monitoring and measuring results so we can account for our performance, but, more importantly, so we can learn how to improve.

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Tables and Figures

Introduction Figure 1.

Watershed Map

CANADA

Lake Champlain

Lake Champlain

NE Lake Ontario

Lake Ontario

SW Lake Ontario

SE Lake Ontario

Upper Hudson

Vermont

New Hampshire

Lake Erie

Lake Erie

Allegheny

Susquehanna

Delaware

Pennsylvania

Massachusetts

Connecticut

Lower Hudson

New Jersey

Atlantic Ocean

Atlantic Ocean

N

25 12.5 0 25 Miles

This map was produced by NYS DEC, Sept. 2005.

LEGEND

- Major Waterbody
- County Border

Water Basin Name

- Allegheny
- Delaware
- Lake Champlain
- Lake Erie
- NE Lake Ontario-St. Lawrence
- Southeastern Lake Ontario
- Southwestern Lake Ontario
- Susquehanna
- Upper Hudson
- Lower Hudson-Long Island Bays
- Atlantic Ocean