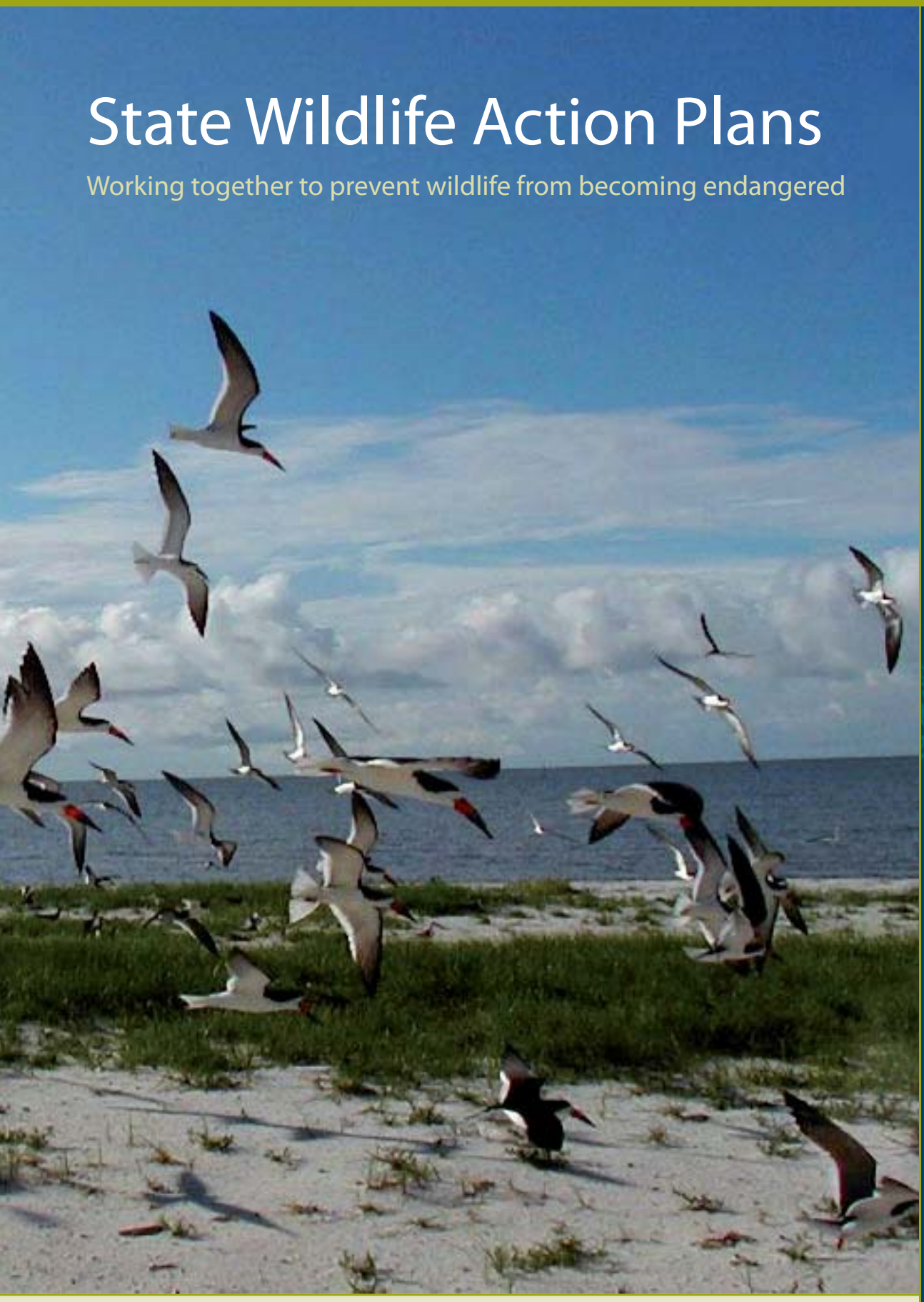
State Wildlife Action Plans

Working together to prevent wildlife from becoming endangered



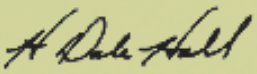
Leaders in Wildlife Conservation Applaud Wildlife Action Plans

We are proud to announce a historic milestone in wildlife conservation: the creation of 56 wildlife action plans, one for each state and territory. The wildlife action plans collectively form a nationwide strategy to prevent wildlife from becoming endangered.

Our nation's wildlife agencies collaborated with a remarkable list of partners to address the challenges to wildlife, identifying ways to conserve the lands and waters that are essential to both wildlife and people. The action plans differ from state to state, reflecting each state's unique natural resources and conservation needs. All are based on the solid success record of state wildlife agencies in restoring habitats, managing wildlife and working with local conservation groups and private landowners to find solutions for wildlife. The action plans are firmly grounded in science, and they also balance differing interests in how we use the lands and waters that are essential to wildlife. The result? Practical action plans that will work in every state.

Our nation has a long history of success in conserving wildlife. Over the last century, we have brought some of our most treasured wildlife back from the brink of extinction. Today, the challenges to keeping wildlife from becoming endangered are greater than ever before. By taking the next critical step toward implementing the wildlife action plans, we will be closer to meeting our goal of preventing wildlife from becoming endangered. There is a role for everyone to implement the wildlife action plans, whether it is managing land, conserving species, or providing funding opportunities. Join us now to ensure our nation's children and grandchildren will be able to enjoy wildlife and the places they live.

John Cooper, President
Association of Fish and Wildlife Agencies



H. Dale Hall, Director
U.S. Fish and Wildlife Service

Table of Contents

Credits

The document was funded in part by grants from the Federal Aid in Sport Fish and Wildlife Restoration Programs and the Doris Duke Charitable Foundation. Additional support was provided by the New York State Department of Environmental Conservation and the Texas Parks and Wildlife Department.

The document was written by Deborah Richie Oberbillig **(www.DeborahRichie.com)** *with support from Ghost-writers Communications, Inc.* **(www.gwriters.com)**. *Dave Chadwick, Kate Haley, Rachel Brittin, and Sean Robertson from Association of Fish and Wildlife Agencies edited the document. Rocky Beach, Chris Burkett, Naomi Edelson, Jim Greer, Genevieve LaRouche, Jon Kart, and Ron Regan commented on earlier versions.*

Graphic design of the document and state summaries was provided by MajaDesign, Inc. **(majadesign@adelphia.net)**. *Based on this design, Rachel Brittin, Rebecca Brooke, and Sean Robertson from Association of Fish and Wildlife Agencies laid-out the state summaries. Cover photo: Black Skimmers by Bruce Reid. Line art provided by USDA-NRCS PLANTS Database.*

Red Cockaded Woodpecker insert installation/AL DWFF

Collared Lizard/Christine Clinger, NV DOW

Weighing a bobcat/IADNR

Milkweed survey/Missouri Department of Conservation

Executive Summary

Wildlife Action Plans: A Bold New Direction for Conservation

The wildlife action plans represent a collective vision for the future of conservation. For the first time, states have had the opportunity to assess the full range of challenges and actions that are vital to keeping wildlife from becoming endangered.

Bald eagle/USFWS, Dave Menke

"The state wildlife action plans are setting the stage for a bold and ambitious new direction for conservation of species and habitats."

– Ron Regan, Wildlife Director, Vermont Fish and Wildlife Department and Chair, Association of Fish and Wildlife Agencies, Teaming With Wildlife Committee

The impetus for the historic planning effort comes from the Teaming with Wildlife coalition, representing more than 3,500 agencies, conservation groups, and businesses who for more than a decade have tirelessly championed the cause for funding to keep wildlife from becoming endangered. The coalition's work led to passage of the Wildlife Conservation and Restoration Program and the State Wildlife Grants Program in 2000. As a requirement of these programs, Congress asked each state wildlife agency to develop a "comprehensive wildlife conservation strategy"—a *wildlife action plan*—that evaluates wildlife conservation needs and outlines the necessary action steps.

While the wildlife action plans share a common framework of the eight required elements, they are tailored to reflect each state's unique wildlife, habitat, and conservation needs. States worked closely through the Association of Fish and Wildlife Agencies and the U.S. Fish and Wildlife Service on the development of the wildlife action plans. By combining the best scientific information available with extensive public participation, states developed effective action plans that will work for wildlife and for people.

The wildlife action plans focus on practical, proactive measures to conserve and restore important lands and waters, curb establishment of invasive species and address other pressing conservation needs. The tools for conservation employed in the action plans emphasize incentives, partnerships and collaborative management, rather than top-down regulations. The action plans also stress the importance of gaining the knowledge necessary to effectively conserve a broad range of wildlife species. In addition, every state wildlife action plan incorporates continued monitoring and evaluation in order to measure the success of the proposed actions in conserving wildlife.

Taken as a whole, the wildlife action plans present a national action agenda for the conservation of wildlife species that is focused on those that have not benefited from conservation attention due to lack of dedicated funding. The results are already apparent in improved relationships at all levels—across public and private ownerships, across state boundaries, and in the growing list of new groups and individuals working together for wildlife. Taking the timely next steps to adequately fund these wildlife action plans is crucial in order to achieve the goal of preventing wildlife from becoming endangered.

Wildlife At The Crossroads—The Need For Action

Today, we stand at a crossroads for wildlife that defines America the Beautiful. Across the planet, one in three amphibian species is waning. In the U.S., amphibian declines are particularly serious in California, the Rocky Mountains, the Southwest and Puerto Rico. More than one-quarter of all bird species in the U.S. have dropped in numbers since the 1970s, and more than 200 of 800 native bird species are listed on the Audubon WatchList, which serves as an early warning system for birds that could become endangered.

From densely populated states like New Hampshire to the big sky country of Montana, and from the coasts of Florida to California, conserving high quality habitat, restoring degraded lands and waters, and removing invasive species are among the top priorities for conservation.

We are clearly at a crossroads, and we have a choice. We can wait for wildlife to decline and react to problems with expensive, last-ditch recovery efforts, or we can act now to prevent wildlife from becoming endangered. Taken together, the wildlife action plans represent the right decision to take action before wildlife recovery becomes costly and controversial. Working together, we can take proactive and cost-effective steps to conserve wildlife before it is too late.

Riparian restoration in Oregon/Bruce Campbell

"It is clear that our agencies have taken this effort well beyond anyone's expectations. The agency biologists, planners, and managers, with considerable help from our conservation partners, have crafted conservation plans that identify priority actions to conserve our nation's wildlife and key habitats. This tremendous effort has illuminated a national need that calls for securing additional funding and exemplifies our leadership role in North American conservation."

–Ed Parker, Chief, Bureau of Natural Resources, Connecticut Department of Environmental Protection; member of the National Advisory Acceptance Team; Vice-President of the Association Fish and Wildlife Agencies

A New Era for America's Wildlife

The state wildlife action plans represent a new era for America's wildlife. The collective feat of completing the action plans took more than three years and required massive mobilization, cooperation and effort. If we take a closer look at how these plans were developed, we see the value both in the completed action plans and in the process that yielded new effective partnerships.

Riparian planting/Idaho DFG

American Wildlife Conservation: Rising to Challenges in Times of Need

In America, wildlife is considered a public trust held by the government for the benefit of the common good. This fundamental idea dates back to the American Revolution and the establishment of our nation's democratic ideals. State wildlife agencies have the responsibility to assure that wildlife remain healthy and to provide people with plentiful places to enjoy wildlife, whether it is watching animals, hunting, or fishing.

As our nation has grown, America's wildlife agencies have adapted and expanded their efforts in the face of new, unprecedented conservation challenges. Time and again, when faced with new conservation challenges, wildlife agencies have worked together with sportsmen and women and other conservationists to craft bold, landmark conservation programs.

The beginning of the twentieth century marked a pivotal point for wildlife. Until then, few regulations protected wildlife. Herds of bison, antelope and elk on the open plains almost vanished, white-tailed deer fell to one or two percent of their original numbers, flocks of wild turkey were scarce, and lakes once abundant with waterfowl fell silent.

Sportsmen and women, conservationists and game wardens rallied. Thanks to their unceasing efforts, Congress responded with a key piece of legislation in 1937, the Wildlife Restoration Act (also known as the Pittman-Robertson Act). The Act established a user fee in the form of an excise tax on hunting equipment to conserve game species and assure conservation of their habitats. A similar act passed in 1950, the Sport Fish Restoration Act (also known as the Dingell-Johnson Act), which extended the user fee to fishing gear with a focus on restoring fisheries. Additional funding for fisheries restoration was provided with the enactment of the Wallop-Breaux Amendments in 1984.

The state wildlife agencies used the fees generated from these programs effectively. In combination with regulated hunting and fishing harvests, the agencies worked with partners to conserve important habitats, and they transplanted game species to help restore populations. The return of the white-tailed deer, striped bass and wild turkey are a tribute to the wildlife agencies, sportsmen and women, conservationists, and the outdoor industry who all worked together.

Half a century later, Congress responded to another time of wildlife crisis with the passage in 1973 of the Endangered Species Act. By providing emergency protec-

tions for wildlife in immediate danger of extinction, the Endangered Species Act helped prevent species from disappearing forever. Nearly every state also enacted state programs to formally identify and protect critically imperiled species. This combined effort has resulted in the successful recovery of many treasured species such as the bald eagle and peregrine falcon.

The Unfinished Legacy

The tremendously successful programs of the 20th century were focused on species that were hunted and fished or formally identified as "endangered". While these programs have achieved remarkable successes, the approximately 85 percent of our wildlife that are not considered "game" or "endangered" have lacked adequate conservation attention. Consequently, many are declining. This includes thousands of species of birds, mammals, reptiles, amphibians, fish and invertebrates. Lacking the resources to conserve these remaining species, our nation's wildlife agencies have been constrained in their ability to realize fully their conservation mission to conserve all wildlife resources.

Teaming with Wildlife: A National Coalition

In the early 1990s, a coalition of wildlife agencies and conservation organizations launched the Teaming with Wildlife initiative to expand the funding base for wildlife conservation to include species that are not "game" or "threatened" or "endangered" in order to allow state wildlife agencies to take a more comprehensive approach to conservation. The initiative informs members of Congress and other decision-makers about the importance of this work and the need for funding. Over time, the initiative has grown to include more than 3,500 organizations and agencies, including bird watchers, hunters and anglers and other recreational users, conservationists, professional biologists, wildlife managers, and nature-related businesses.

New Federal Funds for Wildlife Conservation

In response to the efforts of the Teaming with Wildlife initiative, Congress enacted two new programs in 2000, the Wildlife Conservation and Restoration Program and the State Wildlife Grants Program. Both programs provide funding to state wildlife agencies for on-the-ground conservation projects and wildlife conservation planning aimed at preventing wildlife from becoming endangered, and both are administered by the U.S. Fish and Wildlife Service. The Service distributes funds to states based on each state's population and land area. Federal funds allocated under both programs must be matched by funding from state or other non-federal sources. Although the Wildlife Conservation and Restoration Program was authorized as a permanent program, funding was only provided for the first year. Nonetheless, federal funding has continued to flow to the State Wildlife Grants Program. Over the

The State-Federal Wildlife Conservation Partnership

Wildlife conservation in the United States is a partnership between the states and the federal government. While state wildlife agencies have the primary responsibility for managing wildlife, the federal government plays a crucial role in helping conserve migratory species, managing national wildlife refuges and other federal lands, and providing funding for wildlife conservation. The state wildlife agencies and the U.S. Fish and Wildlife Service have a long history of working closely together to jointly support the national interest in wildlife conservation. Federal funds for state-level wildlife conservation are administered by the U.S. Fish and Wildlife Service, including the Wildlife and Sport Fish Restoration Programs, State Wildlife Grants, Endangered Species programs, and the Landowner Incentive Program.

"The strategies are large-scale, efficient, effective and will give taxpayers the biggest bang for the buck."

– Amelia Orton-Palmer, Biologist, U.S. Fish and Wildlife Service's lead staff person on the wildlife action plans in the Mountain-Prairies Region

last five years, these two programs have provided more than $400 million in new money for wildlife conservation, funds that have been matched with over $200 million from the states. These programs have become the federal government's primary vehicles designed to prevent wildlife from becoming endangered.

Wildlife Action Plans: A Strategic Approach to Wildlife Conservation

As a condition for receiving the new federal funds from the Wildlife Conservation and Restoration Program and State Wildlife Grants Program, Congress charged the state wildlife agencies with preparing a strategic assessment and action plan for wildlife, known technically as a "comprehensive wildlife conservation strategy." The states were required to submit these action plans to the U.S. Fish and Wildlife Service for review by October 1, 2005.

Eight Elements of Conservation Success

Congress required states to address eight core elements in the wildlife action plans. The states first identified the condition of wildlife in terms of wildlife distribution, abundance, locations, and conditions of habitats. Next, they analyzed those findings and identified knowledge gaps and problems in order to specify actions needed to address conservation needs. Then they developed monitoring plans to ensure the conservation of species and habitats and the effectiveness of the actions. During development and implementation of the plans, the states made great efforts to coordinate with conservation partners, including federal, state, and local agencies, Indian tribes, and the public in order to secure expertise and opinions. The states included a schedule of plan review to make sure it would be regularly updated. These statewide plans use all available information to outline the most pressing conservation needs in each state.

Karner blue butterfly/J&K Hollingsworth

The US Fish and Wildlife Service's National Advisory Acceptance Team

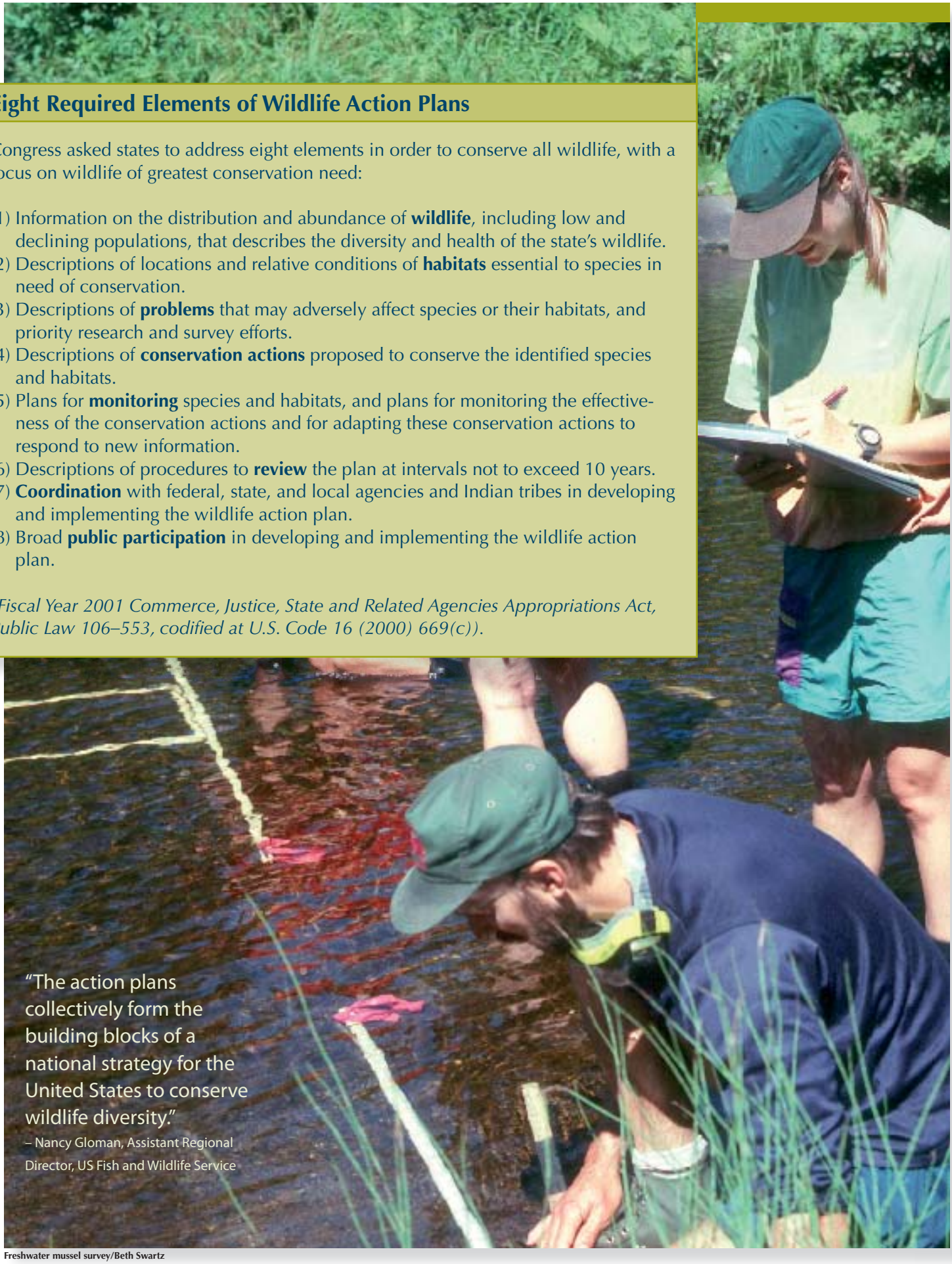
The Director of the U.S. Fish and Wildlife Service established the National Advisory Acceptance Team to review each of the wildlife action plans. Reflecting the collaborative spirit that characterized the entire process, this team was composed of assistant regional directors from each of the eight U.S. Fish and Wildlife Service regions and five state wildlife agency directors. The group held week-long meetings once a month to review the state action plans, with in-depth regional reviews taking place between meetings. The team carefully scrutinized every wildlife action plan to make sure that all eight required elements were addressed fully and then made a final recommendation of approval to the U.S. Fish and Wildlife Service Director.

Eight Required Elements of Wildlife Action Plans

Congress asked states to address eight elements in order to conserve all wildlife, with a focus on wildlife of greatest conservation need:

(1) Information on the distribution and abundance of **wildlife**, including low and declining populations, that describes the diversity and health of the state's wildlife.
(2) Descriptions of locations and relative conditions of **habitats** essential to species in need of conservation.
(3) Descriptions of **problems** that may adversely affect species or their habitats, and priority research and survey efforts.
(4) Descriptions of **conservation actions** proposed to conserve the identified species and habitats.
(5) Plans for **monitoring** species and habitats, and plans for monitoring the effectiveness of the conservation actions and for adapting these conservation actions to respond to new information.
(6) Descriptions of procedures to **review** the plan at intervals not to exceed 10 years.
(7) **Coordination** with federal, state, and local agencies and Indian tribes in developing and implementing the wildlife action plan.
(8) Broad **public participation** in developing and implementing the wildlife action plan.

(Fiscal Year 2001 Commerce, Justice, State and Related Agencies Appropriations Act, Public Law 106–553, codified at U.S. Code 16 (2000) 669(c)).



"The action plans collectively form the building blocks of a national strategy for the United States to conserve wildlife diversity."
– Nancy Gloman, Assistant Regional Director, US Fish and Wildlife Service

Freshwater mussel survey/Beth Swartz

Charting the Course

"We collectively are trying to construct a new comprehensive vision for the future of conservation in our states. Make no mistake, this is uncharted territory, so there is no blueprint, no off-the-shelf recipe, no one size fits all. Each state may learn facets of its strategy from the others, but each state is unique in its needs."

– Dr. Jeffrey Koenings, Director of the Washington Department of Fish and Wildlife

Bighorn capture/Utah DWR

Flexible, Innovative Conservation Strategies

State wildlife action plans needed to meet the eight required elements in order to receive State Wildlife Grant funding, but, ultimately, the opportunity was for states to accomplish the larger goal of comprehensive conservation in order to prevent wildlife from becoming endangered. Congress and the U.S. Fish and Wildlife Service gave states considerable flexibility in developing strategies that fit each state's unique wildlife resources, management context, and local issues. The intent was to give states the flexibility to reach the goal of keeping wildlife from becoming endangered in a way that works for wildlife and for the people in each state.

Wildlife agencies worked together to share information and priorities across jurisdictions. The states also gathered ideas and suggestions from federal agencies and conservation groups, drawing on many different models and approaches to develop new and innovative planning approaches.

Association of Fish and Wildlife Agencies Leads National Effort

The Association of Fish and Wildlife Agencies played a pivotal role in convening states to help them develop high quality action plans that would guide wildlife conservation in the states. Working through the Association, the state wildlife agencies outlined guiding principles for the planning process and created a working group of state agency personnel, U.S. Fish and Wildlife Service staff, other agency partners, and conservation groups. The working group recommended starting points on issues such as defining wildlife of greatest conservation need, identifying and assessing habitats, and public involvement and outreach.

The Association's semi-annual meetings and working group meetings provided a forum for states to share ideas with each other, and to keep the wildlife action plans on track for completion. In 2003, the Association and the U.S. Fish and Wildlife Service sponsored workshops in four regions of the country for agency personnel and partner organizations to review key planning tasks, brainstorm ideas, and test out approaches. In 2004, one year before the action plans were due, the Association hosted a national "One Year Out" conference where participants from almost every state and territory shared ideas and discussed the merits of different planning approaches. The conference proved an ideal forum for discussing both cutting edge conservation planning theories and practical experience in on-the-ground wildlife management. Throughout the entire planning process, the Association organized smaller meetings, conference calls, and workshops as new topics arose, maintaining an ongoing dialogue across the states and building an active network among the people writing the plans.

Working Together: Reaching Out to Stakeholders and Citizens

The state wildlife action plans stand out from many prior conservation plans because of the broad participation and open

The Association of Fish and Wildlife Agencies

The Association of Fish and Wildlife Agencies' mission is to serve as the voice of fish and wildlife agencies by helping to foster a deep appreciation and understanding for the public management and conservation of the fish, wildlife, and natural communities that represent the diversity of North America.

In 1902, eight wildlife managers from six states met in Yellowstone National Park on behalf of the country's beleaguered fish and wildlife populations. They realized that the nation's rich fish and wildlife legacy would survive only with careful planning and vigilance. And they stood together—one voice for fish and wildlife.

Today, more than 100 years since their first meeting, the Association of Fish and Wildlife Agencies includes all 56 states and territories, and the federal agencies of the United States. The Association also represents many provinces of Canada and Mexico. Its core functions are inter-agency coordination, legal services, international affairs, conservation and management programs, and legislation. Over the last century, the Association has provided the forum for achieving most of our nation's landmark fish and wildlife successes—including the Pitman-Robertson, Dingell-Johnson, and Wallop-Breaux Acts.

process. This was not just a technical exercise carried out by a few scientists and planners. Thousands of people contributed to the action plans, with input and advice coming from federal, state and local government agencies, bird watchers, hunters, anglers, private landowners, conservation groups, local industries, and many other members of the community. The extensive involvement of stakeholders and the general public demonstrated a widespread enthusiasm for actions to conserve wildlife and habitats. When it comes to caring about wildlife, there is plenty of common ground.

Public participation and stakeholder coordination were requirements of the wildlife action plan process laid out by Congress. The state wildlife agencies saw beyond this requirement and focused instead on their long-standing role to serve both wildlife and people. By working with stakeholder groups and the general public, state wildlife agencies could translate pressing conservation needs into practical, consensus-based actions. The wildlife action plans are firmly grounded in science, and they successfully balance differing interests when considering how we use the lands and waters that are home to wildlife.

The range of effective ways employed to involve people in the development of the wildlife action plans can serve as models for future conservation efforts. In developing the wildlife action plans, many state agencies tried to break free from traditional "public comment periods" and routine public meetings to find new ways to engage resource users and the general public in the wildlife action plan discussion. Working together led to new relationships, fostered greater trust and encouraged creative problem solving. Across the country, people contributed time and energy to action plans that they now can claim as their own. Many of the individuals and groups are taking the next step toward carrying out the action plans as partners in wildlife conservation.

In Action: Nebraska's Natural Legacy Project Partnership Team

The Nebraska Game and Parks Commission recognized early on the importance of including a diverse array of stakeholders in their state's action plan, known as the Nebraska Natural Legacy Project. Wildlife agencies and some stakeholders, such as private landowners, have had conflicts in the past over endangered species and federal regulations that

"Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity."
– George Patton, General, United States Army

might impede farming and ranching. The state agency created the Natural Legacy Project Partnership Team to involve stakeholders in the public participation process. The members became trained facilitators and hosted 16 public meetings that generated positive discussions among private landowners and conservation groups.

The stakeholders who served on the Partnership Team remain active in carrying out the action plan's recommendations. Groups as diverse as The Nature Conservancy, Pheasants Forever, the Nebraska Cattlemen, and Audubon Nebraska have taken an active role in putting the action plan to practice by working with landowners and implementing much-needed prairie restoration projects that benefit people and wildlife.

Bobcat/New Jersey DEP

In Action: Taking New Jersey's Action Plan to Stakeholders and the General Public

In New Jersey, the Division of Fish and Wildlife first worked internally to create a draft that was reviewed by conservation leaders. Then, the Division of Fish and Wildlife and New Jersey Future, an independent foundation, co-hosted a "Wildlife Summit" that drew more than 150 people representing a spectrum of agencies, watershed associations, planning councils, conservation organizations, and sportsmen's groups and foundations, who engaged in lively discussion on nine key conservation topics. Their comments provided invaluable guidance to shaping the final wildlife action plan.

Building on Existing Conservation Plans

The wildlife action plans built upon decades of conservation experience and a sizeable volume of prior plans for individual species, habitats, and landscapes. Rather than attempt to duplicate or replace prior conservation planning efforts, developing the wildlife action plans gave the states the opportunity to take a new look at them and to synthesize what they collectively meant for preventing wildlife from becoming endangered. By drawing together the ideas from these other sources, the wildlife action plans began with a strong foundation.

In Action: Building on Florida's Existing Efforts

The Florida Fish and Wildlife Conservation Commission is a leader in conducting species assessments and adopting systematic, landscape-based designs to protect connections among important habitats and maintain important natural processes. Florida incorporated two of the most significant conservation planning efforts for statewide wildlife diversity in its wildlife action plan. The Florida Fish and Wildlife Conservation Commission's report, *Closing the Gaps in Florida's Wildlife Habitat Conservation System,* identified the minimum amount of land in Florida that, if conserved, would ensure the long-term persistence of most elements of Florida's wildlife diversity. The University of Florida's Ecological Network Project identified a statewide system of landscape hubs and conservation corridors to conserve critical elements of Florida's native ecosystems and maintain connectivity among ecological systems and processes. These resources were used as building blocks to create new and innovative conservation efforts in Florida's wildlife action plan.

A Strong Foundation of Prior Planning

In developing the wildlife action plans, state wildlife agencies drew on a sizeable volume of data sources and prior plans for individual species, habitats, and landscapes. Plans consulted by wildlife agencies ranged from:

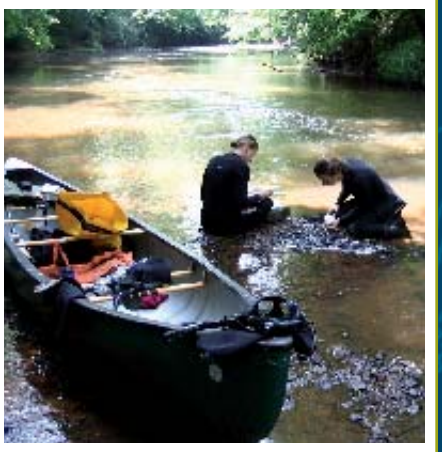
- Existing Wildlife and Fish Management Plans
- State Heritage Programs/Conservation Data Centers
- Audubon Important Bird Areas
- Regional Species At Risk Conservation Plans
- Endangered Species Recovery Plans
- Existing Wildlife Diversity Strategic Plans
- Partners in Flight Bird Conservation Plans
- The Nature Conservancy's Ecoregional Assessments
- North American Waterbird Conservation Plan
- US Shorebird Conservation Plan
- Bat Conservation Plans
- Ducks Unlimited Conservation Plans
- Regional Marine Fisheries Commission Management Plans
- GAP Analysis Programs
- State Natural Areas Assessments
- State and Regional Growth Management Plans
- State Outdoor Recreation Plans
- National Wetlands Inventory
- Partners in Amphibian and Reptile Conservation Management Guidelines

Egrets at sunset/USFWS

Focusing on Wildlife in Greatest Need of Conservation

The wildlife action plans are building a new approach to conservation by looking beyond wildlife that is formally listed as "endangered" or managed as a traditional game species. Congress asked states to assess the health of a "full array" of wildlife with particular attention to the wildlife species that have low or declining populations and are "indicative of the diversity and health of wildlife" of each state. Most of the wildlife action plans refer to these targeted species as "species of greatest conservation need." In identifying these species, the intent was not to define a new "official" status like the Endangered Species list. Instead, the goal was to identify the wildlife species that need proactive attention in order to avoid additional formal protections.

States used a variety of information sources to identify target species, including natural heritage programs and other wildlife occurrence databases, data from other planning efforts and assessments, and input from agency biologists, academics, and other scientific experts. While the selection process included species under state-level programs and formal protection of the federal Endangered Species Act, the effort placed a major emphasis on identifying a broader set of species of concern that would include at-risk species not yet identified by other conservation efforts. States identified wildlife of greatest conservation need based on a variety of criteria: if a species had low populations, or had already been formally identified as a conservation



Little Fishing Creek freshwater mussel distribution survey/NCWRC

"North Dakota's wildlife action plan does a good job of highlighting the important systems, like native grasslands and wetlands, that are critical to maintaining healthy populations of a myriad of species of wildlife for future generations of North Dakotans. I am hopeful this plan will generate a diverse suite of partners who can focus their efforts on protecting these critical components of North Dakota's natural heritage."

– Scott Stevens, Ducks Unlimited, Bismarck, North Dakota

Oystercatcher/South Carolina DNR

priority, or showed other signs of imminent decline, it was flagged for attention. Some states, such as Montana, Alabama and Virginia, opted for a tiered approach, prioritizing their state's wildlife of concern in two or more levels of concern or priority.

Because each state developed a different approach, the wildlife identified as species of conservation need vary significantly. For example, the South Carolina action plan identifies more than 1,200 species in need of conservation, while the North Dakota wildlife action plan identifies 100. There are also differences that reflect special state-based considerations, such as including marine wildlife in coastal regions or urban wildlife in heavily populated areas.

In Action: Identifying South Carolina's Species of Greatest Conservation Need

The South Carolina action plan identifies more than 1,200 species in need of conservation. South Carolina formed groups of experts on birds, mammals, reptiles, amphibians, fish, and invertebrates who shared knowledge to help build a list of wildlife meeting criteria for conservation. The species on the list include species that are rare or at-risk, those about which scientists have insufficient knowledge, and those that have not received adequate conservation attention in the past. The list also includes "responsibility" and "indicator" species. The Carolina pygmy sunfish appears on the list as a responsibility species because the fish exists almost entirely in this state. If it disappears here, it will likely become extinct. Fiddler crabs are an indicator species of the health of aquatic systems. Crabs accumulate toxins and serve as a warning sign for the health of aquatic systems.

In Action: Identifying North Dakota's Species of Greatest Conservation Need

The North Dakota wildlife action plan identifies 100 species in need of conservation including birds, mammals, reptiles, amphibians, fish and freshwater mussels. The list was developed with expert input ranging from federal and state agency staff to non-governmental organizations, tribes and private citizens. The species were initially categorized by degrees of rarity, geographic range, and breeding status of species. However, fewer categories more accurately represented the level of knowledge of a broad range of species and facilitated those species being placed in order of priority. Several species included on the list are considered common in North Dakota, or, at least, not declining. These species were included because of the state's importance as a last stronghold for that particular population, or because of their contribution to species diversity in North Dakota. North Dakota has a long-term stewardship role for these species, even if there is no immediate need for conservation there. For example, the American white pelican is found in great numbers in North Dakota, but is designated as vulnerable, imperiled, or critically imperiled in 27 states and provinces.

Identifying Habitat for Wildlife

As a critical first step in conserving wildlife, scientists must identify the lands and waters that species need in order to survive. Identifying, locating, and describing habitat for wildlife is complex. Biologists must look at an animal's habitat needs for each day, season, and over the course of their lives. For example, long-eared owls nest and roost in woody draws, but they forage in grasslands and thus require both kinds of habitats. What do marine mammals need for food, for resting, for breeding areas and seasonal needs? How about fish like salmon that spawn in

streams and swim to the sea? Or eels that do the opposite, spawning in oceans and swimming up rivers?

Habitats are interdependent and each will affect and be affected by others, especially those geographically adjacent to each other. Additionally, most species move freely across habitats and are dependent upon a diversity of resources for life. The concept within the action plans is that by taking actions that sustain the health and integrity of the habitats, the broad array of wildlife that lives within each will be conserved and maintained.

While many of our great wildlife restoration efforts have restored one species at a time, today it is not practical or effective to take a species-by-species approach as our country experiences widespread loss and fragmentation of natural landscapes. In many of the wildlife action plans, states used a habitat or ecoregion approach to arrange wildlife species into meaningful and manageable groups. These groups were typically identified by large-scale vegetation or geographical associations across each state for terrestrial, freshwater and marine ecosystems.

In Action: Defining Essential Habitats for Virginia's Imperiled Wildlife

To identify both aquatic and terrestrial habitats for the wildlife action plan, Virginia created the Habitat Affinity Database, which matches species with their required habitat features. Using these relationships, the habitats for each of the most imperiled species were mapped where possible. This process involved an exhaustive review of the literature, coordination with experts, and mining of species observation databases to identify essential habitat and to define distributions. Then the necessary spatial data were assembled to create maps of where these habitats occur within each species' known range in Virginia. Spatial data included a series of terrestrial habitat factors such as land cover, distance from water, and topography. The aquatic habitat classification grouped streams into different classes depending on the region in which they are located, their size, the geology underlying the stream, the elevation of the stream, and the stream's biological community. These processes involved the use of sophisticated Geographic Information Systems software and techniques.

"It comes down to habitats. You cannot build conservation species by species. The task is too big. Habitat is the common ground for biologists, land managers, agencies and the public to work together to conserve wildlife."

– Dennis Figg, Wildlife Programs Supervisor, Missouri Department of Conservation

Tennessee River Watershed mussels/VA Department of Game and Inland Fisheries

"For the first time, Illinois has a road map for where wildlife and habitat conservation wants to go! That is an incredible tool that anyone and everyone can find a piece to take ownership of, and do the work that will make a real difference."

– Jeff Walk, author of Illinois' Wildlife Action Plan, Illinois Department of Natural Resources

In Action: Identifying Priority Habitats for Mississippi's Wildlife

Mississippi approached its habitat classification based on different planning needs in their wildlife action plan. They used the Bailey/US Forest Service Ecological Units as modified in 1998 by The Nature Conservancy for larger scale planning efforts. These ecoregions are widely accepted within the ecological community and have a close association with other planning efforts such as the Partners in Flight regional plans. In order to associate species of greatest conservation need with their habitats, Mississippi combined the *Ecological Communities List* from the state Natural Heritage Program into a list of core habitat types and subtypes. The habitat types and subtypes were used to identify threats and actions to abate the threats.

Identifying Challenges to Wildlife and their Habitats

Effective conservation depends on an assessment of the specific issues, challenges, and problems that are contributing to declines in wildlife and their habitat. Once we have identified the reasons why wildlife are at risk, we can decide on action steps that will effectively and efficiently prevent them from becoming endangered.

A wide variety of factors contribute to the decline of wildlife. The lands and waters that provide habitat for wildlife can be destroyed, fragmented, or altered by development, roads, and resource extraction. The elimination of natural cycles like fire and flooding can also change habitats and reduce their value for wildlife. Nonnative, invasive plants and animals can compete with native species for habitat and food. Contaminants can degrade the quality of habitat and directly harm animals. Human actions can directly disturb or injure animals, both intentionally and accidentally.

In addition to the breadth of issues facing wildlife, the specific challenges can vary greatly from state to state. An animal threatened in one part of the country by habitat loss can be subject to competition with invasive species in another state.

To lay groundwork for practical, effective conservation actions, the state wildlife action plans undertook an exhaustive assessment of the threats affecting species

Red-eared slider/USFWS, Gary M. Stolz

and habitats. By consulting with experts, reviewing existing research, and conducting new field studies, states investigated the specific issues driving wildlife into decline. The impact of these threats were evaluated at many different scales including species, habitats, ecoregions or basins, and statewide.

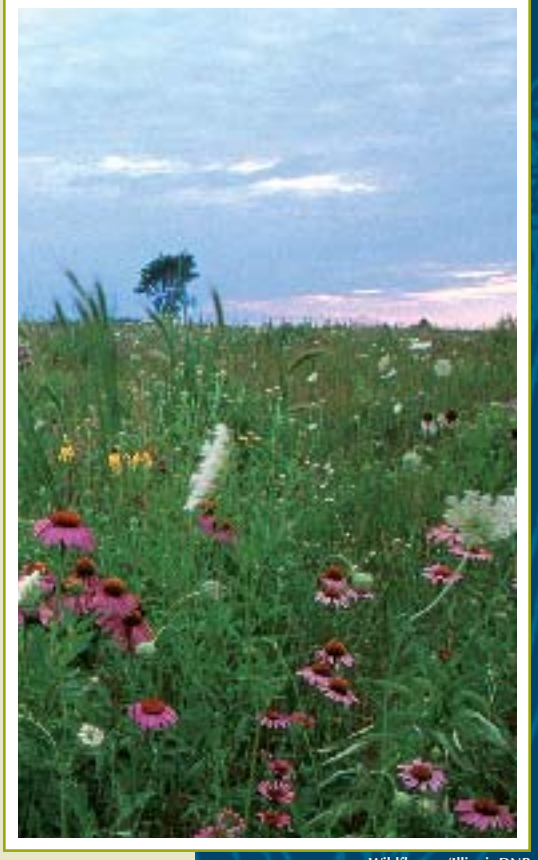
In Action: Identifying New York's Statewide Threats to Habitats and Species

As a core step in setting their conservation priorities, the New York State Department of Environmental Conservation looked at the array of threats to that state's wildlife and habitats. The magnitude of each threat was assessed based on species life history traits, population trends, habitat type and location, and other key factors. After identifying threats for individual species and habitats, the Department of Environmental Conservation's planning team evaluated the highest magnitude threats to New York's wildlife at the statewide level:

- Habitat loss, fragmentation, and disruption of natural functions
- Degraded water quality, acid rain, and alteration of natural river and stream hydrology
- Invasive exotic plants and animals
- Incompatible forest management and agricultural practices
- Direct human-wildlife conflicts, including vehicle collisions and illegal harvest
- Climate change affects on the distribution of plants and animals and small or isolated populations and the potential impacts of severe weather patterns.

In Action: Assessing Stresses to Illinois' Wildlife and Habitats

In assessing the stresses on Illinois' wildlife and habitats, the Illinois Department of Natural Resources reviewed published literature and consulted with experts. The challenges for species and habitats were assessed at the level of habitat, community, population, and direct human-caused stresses. Experts convened by the DNR ranked stresses according to their effect on a species' or habitat's viability or abundance.



Wildflowers/Illinois DNR

The Illinois wildlife action plan's assessment of the challenges facing the state's forest habitats illustrates the complexity of the issues facing this important habitat type. While the amount of forest has been increasing in Illinois over most of the last century, the exclusion of natural fires, the spread of invasive plants and disease, and poor timber harvest practices have resulted in forest structure and composition that is very different from what the state's native wildlife depend on for survival. In addition, the state's forests are highly fragmented by development and infrastructure. By looking at the full spectrum of issues facing this important habitat type, the Illinois wildlife action plan identifies the management and restoration interventions that are needed to improve the condition of the forests for the state's wildlife.

Oak Barrens Habitat, Juneau Co., WI/Armund Bartz

"We can really do more for sensitive species conservation by working proactively through farmers and ranchers than we can through the federal listing of sensitive species. The Utah Division of Wildlife Resources & Utah Farm Bureau Federation share the same goal of making it unnecessary to federally list species as endangered or threatened in Utah."

– Mark Petersen, Utah Farm Bureau Federation

Targeting Action at Key Challenges

The heart of the wildlife action plans is the identification of the action steps that are needed to recover and conserve imperiled wildlife by protecting their habitat and addressing other pressing conservation issues. Many prior conservation planning efforts have conducted assessments—identifying critical conservation needs or describing pressing challenges—but they have stopped there. The wildlife action plans take the process one step farther and actually identify the actions that need to be taken to address those problems and keep wildlife healthy. Because they draw on a wide range of past efforts and new input, the action plans also provide a statewide, strategic picture of how different projects and activities can fit together.

The actions identified in the wildlife action plans are built on a foundation of cooperative conservation that emphasizes the importance of species and habitat health and prevention of problems rather than regulatory fixes or top-down mandates. There are often many different actions that we can take to address the challenges facing species and habitats. By working closely with stakeholders and local communities, wildlife agencies were able to identify practical and appropriate conservation actions that will work in each state.

The actions recommended by states have similar and important themes like research, species management, education, habitat restoration, and land conservation. What also emerged from the action plans are similar tools applied differently, depending on each state's needs.

In Action: Cooperative Conservation for New Hampshire's Blanding's Turtles

New Hampshire's Appalachian Oak Pine forest habitat is undergoing a high rate of loss due to development. Those forests include freshwater marshes that are home to the Blanding's turtle, identified by New Hampshire's wildlife action plan as a species of conservation need. The Blanding's turtle is declining in numbers, due to high mortality from collisions with automobiles and lack of suitable nesting habitat. The state wildlife action plan calls for innovative private and public partnerships to strategically conserve the refuge and movement corridors that are essential for the Blanding turtle's conservation:

- Incorporate habitat conservation into land use planning, including advising conservation commissions and planning boards, and working with regional planning agencies to conserve large blocks of unfragmented habitat.

- Develop tools for habitat conservation through existing programs, such as the Landowner Incentive Program, Land and Community Heritage Investment Program.

- Supply habitat maps to towns that have passed open space bonds to assist local decision makers with land purchases that will conserve the Blanding's turtle and other declining wildlife and provide for nature-based recreation.

In Action: Restoring Wisconsin's Oak Savanna

Fewer than 500 acres of intact oak savanna remain in Wisconsin. These oak openings are home to red-headed woodpeckers, ornate box turtles, woodland voles and a host of other wildlife identified in the action plan as species of greatest conservation need. The action plan helps the state prioritize restoration efforts by locating oak savanna that have major opportunities for restoration and by

identifying species of greatest conservation need that have a significant association with the habitat.

Bringing back the savanna will require considerable effort in order to focus on restorable sites and to hone restoration techniques. Education is also important to success; the action plan recommends setting up education demonstration areas to give people a first-hand look at the kinds of active management it will take to restore the savanna, including the rejuvenating force of prescribed fires.

In Action: Strategies to Prevent and Control Invasive Species in the Great Lakes Region

Michigan's wildlife action plan identifies preventing and controlling invasive species as a high priority. Today, more than 200 invasive species are in the Great Lakes basin, making invasive species one of the greatest threats to Michigan's lands, waters and wildlife. Control efforts and monitoring for one problem species alone, zebra mussels, may cost millions over the next ten years. The wildlife action plan outlines what is needed to stave off new invasive species from gaining entry into the Great Lakes region, including:

- Develop and apply invasive species monitoring and inspection systems for private aquaculture, the bait industry, the ornamental fish and plant industries, the shipping industry, and recreational boaters.

- Coordinate efforts between agencies, non-governmental organizations, businesses and individuals to develop a response strategy to contain and prevent establishment of newly introduced invasive species.

In Action: Putting Prairies Back into Oklahoma's Landscape

Historically, natural fires in eastern Oklahoma created open woodlands and prairies that supported the red-headed woodpecker, prairie warbler, brown-headed nuthatch, Bachman's sparrow, prairie butterflies and reptiles. Without fire, forests have grown dense and shady and prairies are overgrown. Consequently, these species are declining.

Yellowlegs/Oklahoma DWC

The state's wildlife action plan sets the stage for using controlled burns to restore the prairies and open woodlands, which will reverse wildlife declines. The action plan recommends using prescribed burning in a way that is feasible, safe, and economically viable to restore native prairies.

In Action: North Carolina's Landowners and Partners Team Up for Bog Turtle Conservation

Almost half of the nation's wetlands lie in the Southeast, and in North Carolina they add up to close to a fifth of the state. However, more than half of the state's original wetlands are gone—drained and converted for other uses. Wetlands are

"The ancient longleaf forest presented a vista of great beauty matched by few in the world."

– John Powers, biologist, Alabama Department of Conservation and Natural Resources

vital to the survival of a majority of the state's rare wildlife and are important to everyone for absorbing flood waters and protecting water quality. The North Carolina wildlife action plan ranks wetlands such as mountain bogs as priority habitats for conservation action, and it ranks the rare bog turtle as high on the list for conservation attention. To conserve and restore mountain bogs that support the bog turtle, specific strategies in the action plan include:

Common Murre/USFWS, R. Rohleder

- Engage in voluntary cooperative agreements with landowners to keep wetlands intact.
- Coordinate with the North Carolina Department of Transportation to conserve mountain bogs when planning new roads.
- Join with partners to search for wetlands that still support the bog turtle and other rare wildlife.

In Action: Conserving Alabama's Longleaf Pine Forests

Longleaf pine forests are considered one of the most endangered habitats in the country. Alabama's wildlife action plan identifies longleaf pine conservation as one of its statewide priorities—with 31 species of greatest conservation need and 34 kinds of wildlife on an additional watch list associated with the habitat. That list includes species like the flatwoods salamander, the eastern indigo snake, mimic glass lizard, Rafinesque's big-eared bat, as well as game species like the northern bobwhite and eastern wild turkey.

Flatwoods salamander/Pierson Hill

Alabama's wildlife action plan spells out what is needed for longleaf pine communities, including the restoration of longleaf pine on state-owned lands and coordination with local and federal agencies to conserve additional large tracts of longleaf pine forests. By working with partners like the US Forest Service, local land trusts, and The Nature Conservancy, the state will conserve and restore these high priority tracts, conserving habitat for hundreds of important wildlife species.

In Action: Protecting Alaska's Bird Nesting Islands from Invasive Predators

Invasive species are negatively impacting Alaska's island-nesting birds. Wherever ships have landed and stowaway Norway rats have escaped, they have become predators of eggs, young birds, and even adult birds that Alaska's state wildlife action plan names as species of greatest conservation need, such as the common murre, black-legged kittiwake, least and crested auklets, and storm-petrels.

The Alaska wildlife action plan outlines proactive measures to prevent Norway rats from infesting islands through rigorous "rat-spill" procedures for shipwrecks, education of ship crews and removal of rats that arrive at harbors, warehouses, and other points of entry. The action plan further addresses conservation actions within bird nesting islands to monitor islands where invasive predators have been removed to detect if the birds have started nesting successfully again. The actions will help prevent these species from undergoing additional declines that could lead to these birds becoming endangered.

In Action: Pika Alert: Tracking Climate Change in Nevada

Since the 1990s, this engaging denizen of the mountain peaks has disappeared from nine of 25 research sites in the mountains of Nevada, California and Oregon, according to a recent U.S. Geological Survey study. The pika may be one of the first U.S. mammals to be impacted by global warming. Unlike other species that live at lower elevations, the pika cannot move higher to find cooler grounds that fit its needs because its home already lies at high elevations. The pika depends on insulating snows to survive the winter in its den, and in summer, it retreats to the rocks to stay cool. Without enough snow cover, the pika freezes in the winter, and if the rocks become too hot in summer, the pika succumbs to heat.

Tracking the long-term responses of the pika to global climate change is listed as a high priority research need in Nevada's Wildlife Action Plan, which also calls for assessments of the effects of increased access and recreation on alpine and tundra vegetation and wildlife species.

In Action: Montana: New Information Leads to Proactive Steps

Montana Fish, Wildlife & Parks biologists surveyed thousands of miles of prairie streams that had never been surveyed for fish. Crews explored the seemingly fishless streams and discovered close to 40,000 individual fish, with up to 10 different species at the average site. Most were minnows or small fish such as the brook stickleback, goldeye, emerald shiner, shorthead redhorse and sand shiner. The crew found a total of 48 species during the summer and 30 were native to Montana.

Mountain stream/Carl Heilman

Montana's wildlife action plan lists prairie streams as a community type of greatest conservation need. Armed with new knowledge of the rich wildlife present in these little-known streams, the action plan identifies proactive conservation steps with the support of public and private partners. For example, to prevent diverting and dewatering streams, the recommended action is to apply water conservation or flow management practices that will restore essential habitats. To make sure ranchers continue to have needed water for livestock during drought, the strategy is to increase stockwater wells in place of irrigation ditches. Sometimes, fairly simple changes in practices can make the key difference for wildlife survival.

"Like the resource it seeks to protect, wildlife conservation must be dynamic, changing as conditions change, seeking always to become more effective."

– Rachel Carson

Measuring Success

The wildlife action plans begin with an assessment of the issues facing each state's wildlife and then identify the full range of actions that are needed to prevent them from becoming endangered. The success of this approach hinges on taking one more step: evaluation. Once we have implemented a project to reintroduce sturgeon to a river system, protect an important parcel of habitat for bobcats, or restore a degraded freshwater marsh ecosystem, how do we know if our actions have had the desired effects? Are the projects and programs we are undertaking translating into benefits for targeted fish and wildlife? Are we using limited resources efficiently and effectively? Are we ultimately succeeding in preventing wildlife from becoming endangered? To answer these questions, the wildlife action plans describe how each state will monitor the status of wildlife and the effects of conservation actions. By collecting and analyzing information on the status of wildlife and the lands and waters they need to survive, we can determine if our management actions are having the desired effects and what, if any, adjustments are needed to improve outcomes.

Wildlife monitoring activities range from the long-term collection of data to establish large-scale population trends, to focused investigations into the cause-and-effect results of specific management actions. Monitoring is also about keeping track of the activities, programs, and projects that each state is undertaking. Taken as a whole, the wildlife action plans embody a new, strategic approach to measuring conservation outcomes.

Pallid sturgeon/Louisiana DWF

Adaptive Management: Learning by Doing

There are many uncertainties in conserving and managing wildlife. While we know a lot about some animals and their habitats, we lack a complete understanding of the issues and solutions that are needed for every species and habitat. This is especially true when it comes to the state wildlife action plans. Because the action plans are focused on wildlife species that have received very little prior conservation attention, they identify thousands of species about which we have very little information. Similarly, we lack basic information on where some critical habitats occur and how these complex systems function.

In the face of incomplete information, the state wildlife action plans offer an adaptive management approach to conservation. This approach views conservation as a process of implementing conservation actions as practical experiments to test what we know about wildlife and habitats. By evaluating the outcomes of our actions, we can revise and improve our original conservation approaches in order to improve future outcomes. By working adaptively, we can still take action to conserve declining wildlife in the face of uncertainty. The more action we take, the more we improve our understanding of how we can ultimately bring about even better outcomes for fish and wildlife.

In Action: Unifying Information to Measure Outcomes in Utah

Managing information on wildlife and habitat condition and status is a core challenge to effectively measuring conservation outcomes. To support the implementation of their Wildlife Action Plan, the Utah Division of Wildlife Resources will link several existing databases with new systems specifically focused on Wildlife Action Plan priorities. These databases include several pre-existing individual species databases, the Utah Natural Heritage Program's rare species occurrence database, and a habitat monitoring database. All of these systems will be unified under an umbrella of a new master database that provides uniform codes to link species, habitat, and conservation action information together.

Trumpeter Swan/Wyoming GFD

Through these links, database users will be able to identify threats, proposed conservation actions, implemented actions, and, ultimately, the response of species and habitats identified as priorities in the Utah Wildlife Action Plan.

Working Together

Collecting information and tracking the results of conservation projects and programs can be expensive and resource-intensive. Even monitoring the needs of a few species in a small project can require a substantial investment of time and energy. Undertaking this effort for

thousands of species across entire states could quickly overwhelm any one agency that is working alone.

Instead of proposing extensive, independent new monitoring programs, the wildlife action plans place a strong emphasis on partnerships. By working together, across state boundaries and with federal agencies, nongovernmental organizations, and the private sector, we can conduct monitoring initiatives and build consistent and coordinated monitoring programs that will be useful at multiple scales and for multiple purposes. For rare, wide-ranging wildlife that do not recognize political boundaries, multi-state and regional monitoring efforts may be vital to ensuring conservation success. Standardizing protocols and measures and improving data sharing among state agencies, federal agencies, and nongovernmental organizations will improve our collective ability to compare the effectiveness of strategies and programs.

Puget blue butterfly/Kelly McAllister, WA DFW

In Action: Citizen Scientists Play a Vital Role in Monitoring Wildlife Diversity in Washington

Washington's wildlife action plan proposes developing a Biodiversity Index to track long-term changes in wildlife and their habitats. The scientifically developed index will focus on the action plan's species of greatest conservation need, priority habitats and ecoregions. To help carry out the massive task of collecting this information, the Washington Department of Fish and Wildlife proposes a program of volunteer citizen scientists. The benefit of involving citizens is two-fold: it is cost-effective and it involves people in helping wildlife, which in turn builds conservation understanding and support.

In Action: Partnerships to Meet Monitoring Needs in Wisconsin

Although the Wisconsin Department of Natural Resources has the primary responsibility for managing and monitoring the state's wildlife and other natural resources, the job is too big to manage alone. Therefore, the WDNR is working with its many local, state and federal partners to tackle the monitoring of species of greatest conservation need and their habitats.

The WDNR is already taking some actions in working with partners on improving monitoring efforts in the state. The Wisconsin EcoAtlas is a web-based, searchable system that compiles existing inventory, monitoring and research projects from around the state with the goal of helping scientists and managers identify where work is already being done. It can link the partner with existing databases of information on biological diversity such as the Natural Heritage Inventory Portal and the Aquatic and Terrestrial Resource Inventory. Another ongoing effort is focusing on obtaining input from partners on improving the coordination of natural resources monitoring. The first step was the *Wisconsin Resource Monitoring Summit.* The Summit brought together individuals from sixteen local, state, regional and federal organizations to share information about monitoring programs and identify issues related to various elements of a monitoring program. A set of recommended actions and next steps from the Summit will help WDNR move forward with a coordinated framework for monitoring the state's natural resources.

Taking Action

The wildlife action plans are already being implemented both by state wildlife agencies and their partners, including federal, state, and local governments, conservation groups, private landowners, and a variety of other individuals and organizations with an interest in wildlife. States are working with partners to develop shared priorities based on their wildlife action plans, and to adjust the wildlife action plans to local and regional scales. Implementation actions address problems or threats to habitats and species by creating partnerships, restoring habitats, monitoring species, and filling in data gaps. States developed a variety of approaches to taking action based on the issues they identified and the circumstances of each state. Implementation projects are built on a foundation of cooperative conservation that emphasizes the importance of species and habitat health and the prevention of problems, rather than regulatory fixes or top-down mandates.

Action Plans as a Common Platform for Action

The wildlife action plan provides a common platform for action and can be a tool for partners to use to develop projects based on shared priorities. Now, all those interested in wildlife can work toward the same goals and move from opportunistic conservation to coordinated, strategic conservation.

In Action: Pennsylvania: Restoring Mining Sites Revives Grassland Wildlife

In the mining country of western Pennsylvania, reclaimed strip mines will offer hope for the return of declining grassland birds that in turn attract avid birdwatchers to spend money in rural areas. Pennsylvania's wildlife action plan calls for a grassland mining reclamation initiative to restore habitat for birds of greatest conservation need, including the Henslow's sparrow. State biologists and mine regulators are teaming up to locate active surface mines that can be reclaimed in grass instead of trees. Since 90 percent of the state's grasslands are in private ownership, conserving and restoring these habitats takes the kind of strategic partnerships that are the hallmark of the state's action plan.

In Action: Restoring Sagebrush Communities in Utah

Shrubsteppe, which includes sagebrush, is a high priority for habitat conservation in the Utah Wildlife Action Plan. Wildlife species of conservation need that depend on sagebrush include Greater Sage-grouse, Gunnison's Sage-grouse, Brewer's Sparrow, Sage Sparrow, Sage Thrasher, and Pygmy Rabbit. Fire suppression and invasive species, such as cheatgrass, have impacted the health of sagebrush communities by altering the natural shrubsteppe plant composition. These factors have also decreased forage quality for cattle, which is an important component of Utah's rural economy.

Utah's Wildlife Action Plan provides new information pinpointing the sagebrush areas in greatest need of restoration and a better understanding of the intricacies of its wildlife inhabitants. The Utah Division of Wildlife Resources and its partners are taking action to rejuvenate sagebrush communities to support native species and Utah's economy. Reintroducing fire is not often an option, because high temperatures in thick

"It is just unbelievable to see the results that the Rich County Coordinated Resource Management group (a landowner/government partnership) has had in Rich County. I have seen landowners who would not give the time of day to [government agencies] say, 'well, what can we do for wildlife?' and on the other side, the government agencies have said, 'well, these are the benefits that will come to livestock [through habitat work to help wildlife].'"

– Bill Hopkin, Former Desert Land and Livestock Ranch Manager

Sage grouse/USFWS, Dave Menke

stands of trees and old sagebrush would kill native seeds in the top soil layer. Instead, land managers are using heavy equipment to remove non-native plants, rejuvenate sagebrush stands, and reseed native grasses and forbs. In addition, grazing practices are being altered to maintain quality shrubsteppe habitat. Using Utah's wildlife action plan to carry out sagebrush restoration to improve ecosystem health has the enthusiastic endorsement of landowners, conservationists, and local communities.

Taking Action with Public Lands Partners

Many western states have significant federal land ownership—National Forests, Bureau of Land Management, National Parks, National Wildlife Refuges, military bases and more. Public lands compose 83 percent of Nevada and 62 percent of Idaho. State wildlife action plans for these states emphasize coordination among public land managers and state wildlife agencies for the benefit of the wildlife resource.

In regions like the Southeast where public lands are few, the national forests, national parks and national wildlife refuges are critical sanctuaries for wildlife diversity. They also serve a growing number of outdoor recreationists. The U.S. Forest Service, Bureau of Land Management, National Park Service and U.S. Fish and Wildlife Service have demonstrated their commitment to the action plans—both in helping develop them and supporting efforts to enact the strategies in every state.

Otter Release/Utah DWR

In Action: Working Together to Restore the American Eel in New York

The wildlife action plans are helping states improve coordination both beyond their borders and within their states. In New York, as a result of the development of the wildlife action plan, the biologists in different fields are now working together to restore the American eel. The American eel is an unusual species that breeds in the ocean and matures in freshwater. The eel is a declining and important species for commercial fisheries, as well as within ocean and freshwater food webs. Before the state wildlife action plan, freshwater biologists studied eels along the St. Lawrence River and marine biologists followed the eels in the Hudson and Long Island bay area. As a result of the planning process, the biologists are now working together to develop a statewide conservation strategy to restore the American eel.

In Action: Teaming Up to Clean Missouri's Waters

Missouri's wildlife action plan identifies Tumbling Creek Cave Ecosystem as one of its Conservation Opportunity Areas —landscapes where conservation actions will result in healthy habitats. Each conservation area has its own team of partners who drafted the profile and the resulting conservation tools.

The Quest for Knowledge to Take Action

During the development of the wildlife action plans, states identified information gaps on species and habitat distribution, status and trends along with other conservation needs. Filling data gaps is an important step in carrying out the wildlife action plans. Some gap analyses may identify a need for an appropriate future conservation action, while others may identify current limitations of time and resources.

Tumbling Creek Cave offers an excellent example of the solutions we can expect across the state in Conservation Opportunity Areas. Here, groundwater and cave conservation go hand in hand. Recent studies revealed that 88 percent of the Mark Twain school's sewage lagoon was leaking into the groundwater that feeds Tumbling Creek Cave—the most biologically diverse cave west of the Mississippi River and home to at least six animals recently discovered by science, such as the Tumbling Creek Cavesnail—the only known location in the world for this endangered species.

With the aid of State Wildlife Grants, local residents have come together to improve the sewage treatment system for the school. The next step will be to create an outdoor classroom/community space that will help local residents better understand the connections between surface and subsurface ecosystems in this important cave. The outdoor classroom vision fits within a larger strategy to expand environmental education programs. Rather than taking a regulatory approach to mandate cleaner water, the solution is cooperative and beneficial to people and wildlife alike.

Working Across Boundaries

Wildlife knows no boundaries and often the quest to conserve wildlife requires working across ownership lines of public and private lands, as well as state and international borders. Neotropical migratory birds—from scarlet tanagers to Arctic terns—nest in the U.S. and winter south of the border. Salmon in the Pacific Northwest swim from the ocean up the Columbia River to spawning streams as far away as Idaho. Elk, bighorn sheep, and mule deer in the Rocky Mountain states descend from higher elevation National Forest lands to spend winters in the mild foothills.

In Action: Bringing Back Oklahoma's Grassland Wildlife

If a grassland looks like a grassland is it always suitable for wildlife? The answer might be no—if the grasses are not native. That is why the Texas horned lizard, the mountain plover, and other grassland species in trouble. In western Oklahoma, the Conservation Reserve Program has played a tremendous role in preventing soil erosion by taking the most sensitive lands out of production. Farmers are compensated for not farming the lands. However, those lands traditionally were planted with exotic grasses. Oklahoma's wildlife action plan proposes to replant those lands with native grasses and bring back native wildlife.

"The future of three-quarters of Georgia's woodlands rests in the hands of private non-industrial landowners. As development spreads throughout the state, it is critical to help private landowners conserve adequate, healthy forests for all of our wildlife and for the citizens of this state who cherish their natural lands so much. That's why we took an active role in helping develop the Wildlife Action Plan."

– Steve McWilliams, Georgia Forestry Association Executive Vice President

Prairie dogs/Oklahoma DWC

"When wildlife conservation is integrated with transportation planning, wildlife, motorists and taxpayers all win. Roads and wildlife are safer, maintenance costs may be reduced, and projects speed through the permitting and regulatory process."

– Gina Campoli, Environmental Policy Manager, VTrans

Taking Action to Help Private Landowners

Private landowners play a vital role in conserving habitats that support wildlife that are at risk of becoming endangered. Action plan tools emphasize incentives and other positive approaches that foster cooperation across public and private boundaries. States with high levels of private land ownership and few public lands strongly emphasize the role of private lands in their action plans, as well as the need to conserve key wildlife habitats that are not yet conserved.

In Action: Wildlife Workshops for Georgia's Private Landowners

Offering guidance to private landowners to manage rare wildlife and sensitive habitats on their properties emerged as one of the top priorities in the Georgia wildlife action plan. The Georgia Department of Natural Resources worked with a variety of stakeholders including private forestland owners and managers throughout the state to develop the plan, and the agency strengthened its participation in the Georgia Sustainable Forestry Initiative Implementation Committee. Through that committee, Georgia DNR is putting its action plan on the ground by offering wildlife workshops and technical guidance for foresters, timber harvesters and private landowners.

In Action: Where the rubber meets the road—new partnership with Vermont's highway department

Wildlife is literally on a collision course with the automobile. Vermont's road system grew by more than 14,000 miles over the past 25 years and the number of vehicle miles traveled by Vermont residents is growing at seven times the population growth. Now, thanks to a partnership that has blossomed from the state wildlife action planning effort, the Vermont Fish and Wildlife Department and the Vermont Agency of Transportation (VTrans) have formed a wildlife steering committee to pinpoint wildlife travel corridors. They are planning for wildlife underpasses and overpasses at key road crossings that will cut down on mortality for black bear, bobcat and amphibians. The committee also steers highway development away from important habitats and corridors. State Wildlife Grants are helping fund improved culvert designs to allow fish passage—good news for lamprey and brook trout.

Culvert assessment/C. Alexander

Carrying on the Legacy

A Call to Action

We now have the guidance we have long sought as a nation to make sure our wildlife conservation efforts are efficient and directed to the habitats, wildlife and actions of highest need. The wildlife action plans are the result of unprecedented cooperation. It is critical that the plans not sit on a shelf. The action plans collectively outline a national effort—we need to adequately fund them and to provide resources and commitments from partners to make them a reality.

Our nation has risen to the challenge to conserve our wildlife in great times of need. When our game species were in perilous straits, our country rallied to pass the 1937 Wildlife Restoration Act. We pulled together again to conserve our fisheries in 1950 for the Sport Fish Restoration Act. When we saw wildlife faced with extinction we passed the 1973 Endangered Species Act. Most recently, Congress approved the 2000 State Wildlife Grants program to promote a more comprehensive approach to wildlife conservation. Today, we stand at another juncture where acting now to fund the action plans requested by Congress will demonstrate our generation's commitment to keep wildlife from becoming endangered.

We have a clear strategy to prevent wildlife from falling through the cracks, by taking actions to restore the lands and waters that all wildlife depends on. State wildlife agencies will lead the way—working closely with the individuals, organizations and agencies that helped develop plans to carry out the actions. The cooperation, collaboration and goodwill that are the stamp of every action plan also offer hope for positive solutions to balance growth and wildlife conservation. The action plans are full of examples of such solutions, and they give a strong indication of what we can expect ahead of us. Our country is poised to follow a plan in every state so that we can keep wildlife from declining to the brink of extinction. We know that once wildlife has slipped to dangerously low numbers, it is much more difficult and more costly to recover the species.

Carrying out state wildlife action plans will conserve wildlife and vital natural places, protecting clean water and air that are essential to our health, bringing peace and relaxation to our busy lives, and ensuring that nature continues to play a part of our important family traditions. As our communities grow, we will depend on the actions in the plans to fulfill our responsibility for the next generation to safeguard our precious birds, fish, mammals and other wildlife before they become more rare and more costly to conserve.

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased and not impaired in value."

– Theodore Roosevelt

Louisiana Pine Snake/Louisiana DWF

State Wildlife Grants Increases Capacity of States to Conserve Wildlife Diversity

State Wildlife Grants have significantly increased the capacity of states to keep wildlife from becoming endangered. Prior to State Wildlife Grants, in 1992 Montana had a wildlife diversity budget of $130,000. In 2005, State Wildlife Grants alone provided more than $1 million to Montana's wildlife diversity program. Alabama increased its wildlife diversity budget from $462,000 in 1998 to more than $2.5 million in 2004. The great majority of this was derived from State Wildlife Grants. While State Wildlife Grants have helped states make huge strides in wildlife diversity there is much more to be done. All states and territories have a great need for more funding to keep ou r wildlife populations healthy.

Camp Marydale joins the Natural Areas Registry Program/Louisiana DWF

Teaming with Wildlife

Teaming with Wildlife is a national coalition of more than 3,500 organizations working together to prevent wildlife from becoming endangered by supporting increased state and federal funding for wildlife conservation, outdoor recreation and conservation education in every state. This coalition includes wildlife biologists, state wildlife agencies, conservationists, hunters, anglers, bird-watchers, businesses, and many others who support the goal of restoring and conserving our nation's wildlife. Visit Teaming for Wildlife at:
www.teaming.com

TEAMING WITH WILDLIFE
a natural investment

State Agency Contacts

Alabama Department of Conservation & Natural Resources
(334) 242-3849, www.conservation.alabama.gov

Alaska Department of Fish & Game
(907) 465-614, www.adfg.state.ak.us

Arizona Game & Fish Department
(602) 789-3278, www.azgfd.com

Arkansas Game & Fish Commission
(501) 223-6305, www.agfc.com

California Department of Fish & Game
(916) 653-7667, www.dfg.ca.gov

Colorado Division of Wildlife
(303) 291-7208, www.wildlife.state.co.us

Connecticut Department of Environmental Protection
(860) 424-3010, www.dep.state.ct.us/burnatr

Delaware Division of Fish & Wildlife
(302) 739-9910, www.dnrec.state.de.us/fw

District of Columbia Natural Resources Division
Fisheries & Wildlife Branch
(202) 535-2273, www.dchealth.com/dcfishandwildlife

Florida Fish & Wildlife Conservation Commission
(850) 488-2975, www.MyFWC.com

Georgia Wildlife Resources Division
(770) 918-6401, www.georgiawildlife.dnr.state.ga.us

Hawaii Department of Land and Natural Resources
(808) 587-0401, www.hawaii.gov/dlnr

Idaho Fish & Game Department
(208) 334-5159, www.fishandgame.idaho.gov

Illinois Department of Natural Resources
(217) 785-0075, www.dnr.state.il.us

Indiana Department of Natural Resources
(317) 232-4091, www.in.gov/dnr/fishwild

Iowa Department of Natural Resources
(515) 281-5385, www.iowadnr.com

Kansas Department of Wildlife & Parks
(316) 672-5911, www.kdwp.state.ks.us

Kentucky Department of Fish/Wildlife Resources
(502) 564-7109 X333, www.kdfwr.state.ky.us

Louisiana Department of Wildlife and Fisheries
(225) 765-2623, www.wlf.louisiana.gov

Maine Department of Inland Fisheries & Wildlife,
(207) 287-5202, www.maine.gov/ifw/index.html

Maryland Department of Natural Resources
(410) 260-8549, www.dnr.state.md.us

Massachusetts Division of Fisheries & Wildlife
(508) 792-7270, www.mass.gov/masswildlife

Michigan Department of Natural Resources
(517) 373-2329, www.michigan.gov/dnr

Minnesota Department of Natural Resources
(651) 259-5180, www.dnr.state.mn.us

Mississippi Department of Wildlife, Fisheries & Parks
(601) 432-2001, www.mdwfp.com

Missouri Department of Conservation
(573) 522-4115, www.mdc.mo.gov
Montana Department of Fish, Wildlife & Parks
(406) 444-3186, www.fwp.mt.gov

Nebraska Game & Parks Commission
(402) 471-5539, www.ngpc.state.ne.us/default.asp

Nevada Department of Wildlife
(775) 688-1599, www.ndow.org

New Hampshire Fish & Game Department
(603) 271-3422, www.wildlife.state.nh.us

New Jersey Division of Fish and Wildlife
(609) 292-9410, www.state.nj.us/dep/fgw

New Mexico Game & Fish Department
(505) 476-8008, www.wildlife.state.nm.us

New York State Department of Environmental Conservation
(518) 402-8924, www.dec.state.ny.us

North Carolina Wildlife Resources Commission
(919) 707-0010, www.ncwildlife.org

North Dakota Game & Fish Department
(701) 328-6305, www.gf.nd.gov

Ohio Division of Wildlife
(614) 265-6304, www.dnr.state.oh.us/wildlife/default.htm

Oklahoma Department of Wildlife Conservation
(405) 521-4660, www.wildlifedepartment.com

Oregon Department of Fish & Wildlife
(503) 947-6044, www.dfw.state.or.us

Pennsylvania Fish and Boat Commission
(717) 705-7801, www.fish.state.pa.us

Pennsylvania Game Commission
(717) 787-3633, www.pgc.state.pa.us

Rhode Island Division of Fish & Wildlife
(401) 789-3094, www.dem.ri.gov/index.htm

South Carolina Department of Natural Resources
(803) 734-4007, www.dnr.sc.gov

South Dakota Game, Fish and Parks Department
(605) 773-3387, www.sdgfp.info/Index.htm

Tennessee Wildlife Resources Agency
(615) 781-6552, www.state.tn.us/twra/index.html

Texas Parks & Wildlife Department
(512) 389-4802, www.tpwd.state.tx.us

Utah Division of Wildlife Resources
(801) 538-4703, www.wildlife.utah.gov/index.php

Vermont Department of Fish & Wildlife
(802) 241-3730, www.vtfishandwildlife.com

Virginia Department of Game & Inland Fisheries
(804) 367-9231, www.dgif.virginia.gov

Washington Department of Fish and Wildlife
(360) 902-2225, www.wdfw.wa.gov

West Virginia Division of Natural Resources
(304) 558-2771, www.wvdnr.gov

Wisconsin Department of Natural Resources
(608) 266-2621, www.dnr.state.wi.us

Wyoming Game & Fish Department
(307) 777-4501, www.gf.state.wy.us

Alabama Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Alabama snapshot

Landscape: Alabama owes its biological wealth to an abundance of water, moderate climate and complex terrain, varying from the Cumberland Plateau in the north to the Coastal Plain in the south. Significant rainfall feeds more than 77,000 miles of rivers and streams.

Management: A variety of state and federal agencies, including the Alabama Department of Conservation and Natural Resources, the Alabama Forestry Commission, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Army Corps of Engineers and the Tennessee Valley Authority, manage Alabama's widespread public lands.

Wildlife highlights: Alabama surpasses all eastern states in plant and animal diversity and exceeds any other state in diversity of freshwater fish and invertebrates.

Turkey creek/ADWFF

Snowy Plover/Bill Summerour

Alabama's planning approach

Completing and implementing the Comprehensive Wildlife Conservation Strategy gives the Department of Conservation and Natural Resources a historic opportunity to assess and address Alabama's wildlife diversity on a statewide scale. To develop the Strategy, the Division of Wildlife and Freshwater Fisheries compiled, coordinated and integrated the best available scientific information on the status of Alabama's wildlife populations, and incorporated the concerns, recommendations and existing conservation priorities of an array of public and private stakeholders. The Strategy puts particular emphasis on the needs

"We intend to use the Alabama Comprehensive Wildlife Conservation Strategy and the associated State Wildlife Grants funding to guide our efforts and those of our many conservation partners. This proactive approach is the most practical and cost effective way to address long-term wildlife conservation issues."

- Corky Pugh, Director, Alabama Division of Wildlife and Freshwater Fisheries

species whose populations are declining from habitat loss and fragmentation. The Department intends to work proactively to stop such declines and to minimize the need to protect additional species under the Endangered Species Act.

Pine Barrens Treefrog/John Jensen

Primary challenges to conserving wildlife in Alabama

Alabama's land and waterscapes are threatened by habitat loss and fragmentation, loss of natural community integrity, impacts from disturbance and exotic species, and lack of adequate protection and/or information. For most species of conservation concern, the current species distribution and status, as well as various aspects of life history and biology, are poorly understood in most habitats. Insufficient conservation-related education, as well as inadequate outreach about biologically significant areas and species, also threatens many habitats and species.

Working together for Alabama's wildlife

Throughout this two-year effort, the Division of Wildlife and Freshwater Fisheries built upon the solid framework of the 2002 Non-game Symposium which assembled scientific experts and stake-

Anthony's Riversnail/Art Bogan

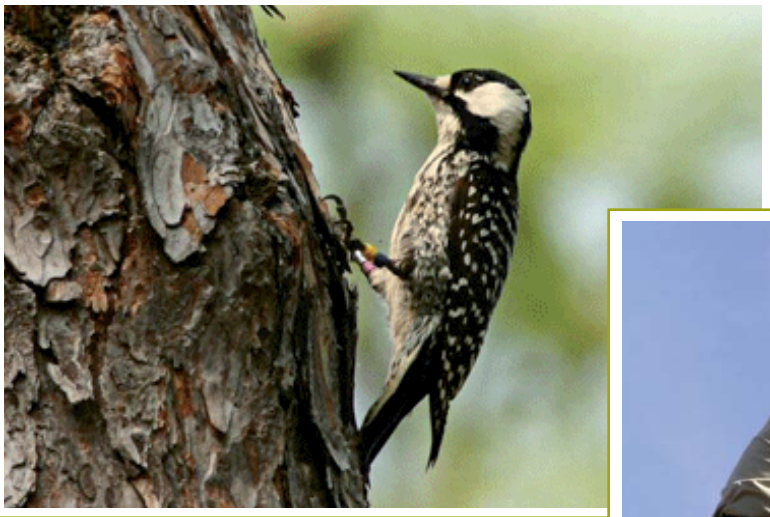
Wildlife	Total number of species	Species of conservation concern*	Threatened/endangered listed species
Freshwater Mussels	153	92	43
Freshwater Snails	135	34	10
Crayfish	83	28	
Freshwater Fish	306	57	14
Amphibians	73	14	3
Reptiles	93	26	9
Birds	244	28	6
Mammals	64	24	5
Totals	**1151**	**303**	**90**

** Species of concern are those meeting at least three of the four following criteria: rarity; very limited distribution; decreasing population trend; vulnerability of specialized habitat. Also included are extirpated species, those that historically occurred but no longer occur in Alabama.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Tennessee River Basin	101 of the 303 Alabama species of concern are aquatic species of this basin	Loss and fragmentation of habitat due to impoundment	Restoration of high priority species to remaining river and large stream habitat
Dry Longleaf Pine Forest	Red-cockaded woodpecker Gopher tortoise Eastern indigo snake	Once Alabama's most abundant tree, now reduced to three percent of previous range throughout the southeast	Convert introduced pines back to longleaf and restore appropriate management including the use of prescribed burning
Glades and Prairies	Prairie kingsnake Henslow's sparrow Meadow jumping mouse	Exotic species: bermudagrass, bahia, tall fescue, cogon grass	Restore native grasses and maintain through prescribed burning

Recommended actions to conserve Alabama's wildlife



Red Cockaded Woodpecker/USFWS

holders to compile the best data on the full array of Alabama's wildlife species. Using that data, the Division identified those species with the greatest conservation needs. In order to identify priority conservation targets and actions for the next decade, the Strategy updated and expanded the symposium proceedings, Alabama Wildlife, by engaging public and private stakeholders, including local, regional, state and federal agencies, and tribes.

Red Cockaded Woodpecker insert installation/ADWFF

Bear Den Hollow/Eric Soehren

Eastern Diamondback/ADWFF

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

James J. McHugh
Wildlife Diversity Coordinator
Alabama Division of Wildlife and
Freshwater Fisheries
64 North Union Street
Montgomery, AL 36130
Tel: 334.242.3874
Jim.McHugh@dcnr.alabama.gov
www.outdooralabama.com

Alaska Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (CWCS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Alaska snapshot

Geography: At 365 million acres in land area, Alaska is roughly one-fifth the size of the 48 contiguous states. It contains over a third of the United States' coast and, with over 3 million lakes and extensive wetlands, nearly half the nation's surface waters.

Landscape: Land ownership is largely public (roughly 64% federal, 25% state), with the rest held by Native corporations (10%) and others (0.7%). About 53% of the state is designated in conservation units, from national parks, sanctuaries, and refuges focusing on landscape and species conservation to state forests and other lands designated for multiple uses including resource extraction. Only 18 species (17 animals, 1 plant) are listed as threatened or endangered.

Walruses on pack ice, a diminishing habitat/Joel Garlich-Miller, USFWS

Wildlife highlights: Alaska's location and largely undeveloped landscapes provide productive areas of habitat for many species, including migratory birds. Thriving populations of big mammals, including caribou, brown bear, and mountain goat, along with five species of Pacific salmon, still exist in Alaska. Nearly 1,100 vertebrate species regularly occur; Alaska is also thought to have thousands of invertebrate species in habitats as varied as subterranean caves, marine and intertidal substrates, many terrestrial habitats, and countless rivers, lakes, and bogs. Alaska offers unique opportunities for scientific study in multi-disciplinary fields like species formation and dispersal, marine productivity, and effects of climate change. Threespine stickleback populations around Cook Inlet provide subjects for international discoveries in evolutionary biology, animal behavior, ecology, and genetics.

Alaska's planning approach

In creating its CWCS, Alaska conducted a broad initial scoping phase. It then gathered specific information from scientific experts and others who have detailed knowledge of certain species or habitats of conservation need, provided an extensive public review of the draft, and cataloged and incorporated comments before finalizing the document. More than 250 people worked together to generate this conservation planning blueprint. Participants looked at needs for wildlife using a species-based approach and created a multiyear strategy designed to better conserve and manage the full spectrum of Alaska's wildlife, promote coordination among

"I'm excited by the results of this planning effort. It will help ensure that we avoid the need to list additional Alaska species as threatened or endangered. Completing the CWCS is a key step in better managing Alaska's fish and wildlife."

– McKie Campbell, Commissioner, Alaska Department of Fish and Game

agencies, organizations, and programs and encourage multi-source funding that will enhance and expand Alaska's wildlife conservation toolbox.

Alaska's CWCS outlines conservation goals and proposed actions for a diverse array of wildlife. Rather than directing attention to the few species known to be in serious decline, the document highlights conservation needs common to large numbers of species and the habitats that support them. Meanwhile, it provides specific action plans, including needed research, survey, and monitoring efforts, for 74 featured species and species groups ranging from little known cave insects to familiar species such as loons, owls, and whales.

Threespine stickleback (Jeffrey S. McKinnon)

Primary challenges to conserving wildlife in Alaska

Lack of information and compatible data management systems poses a serious challenge to wildlife conservation in Alaska: With some exceptions, mostly among birds, very little scientific information exists for species that are not commercially or recreationally hunted, trapped or fished. Data on many furbearers and game birds is also lacking. In order to effectively conserve Alaska's wildlife, substantial effort must be devoted to collecting baseline information, including spatial data, for a wide array of species, especially those of conservation concern. To be most useful, such information must be collected and stored in compatible formats.

Climate change is affecting Alaska's weather, landforms, people, wildlife, and habitat, and this trend is expected to continue. As forests dry out, the state is experiencing an increase in forest insect outbreaks and the frequency and severity of wildfires. Drying or flooding of wetland and tundra areas may have profound effects on nesting success of many migratory birds and their predators. The ranges of species from more temperate regions,

Wildlife	Total number of species*	Species in need of conservation**	Threatened/endangered listed species
Invertebrates	Unknown	13	
Fish	485	44	
Amphibians	8	6	
Reptiles	4	4	4
Birds	469	242	4
Mammals	105	116	9
Totals	**1071**	**425**	**17*** **

**Excludes subspecies*

***Includes subspecies and species groups. The 412 vertebrates listed here are a compilation of 61 vertebrate species and species groups identified during species expert meetings, plus species and subspecies found on lists published by 16 state, national and international conservation organizations; typically these species have one or more characteristics that make them vulnerable, such as small, declining, endemic or isolated populations. Experts later identified 13 invertebrates or invertebrate groups to include among the 74 species and groups featured in the CWCS with specific action plans; although little data exists on these animals, some are believed to be fairly common and representative of broader groups of species in terms of their habitat needs.*

****Almost all of these species depend heavily, if not entirely, on the marine environment.*

Wildlife Highlights

including nuisance species, will likely expand into higher latitudes and elevations, causing major shifts in types of plants and animals across Alaska. Scientists expect some species that depend on sea ice (e.g., polar bears, walrus and ice seals) to decline and possibly go extinct in the next century.

Habitat fragmentation and loss occurs when land alteration (e.g., logging, wetland fill) and urbanization (expanding communities and transportation systems) break up large landscapes into smaller blocks. Adverse effects on wildlife can include altered migration routes, disrupted dispersal, and reduced reproduction; as an example, amphibian species that overwinter in forested areas must be able to reach their spring breeding grounds in order to survive. Newly opened corridors can act as conduits for invasive species, or make a secretive species more visible to its predators. Also, even in very small remote communities, food, trash, and habitat changes linked to human activities can boost numbers of predators like ravens, with serious effects for at-risk species like Bristle-thighed Curlew nesting nearby.

Some of the greatest pressures on wildlife occur in riparian areas and coastal ecoregions, the primary focus of Alaska's growth in human population, development, and tourism. Habitat alteration can affect forest-dwelling animals like Sitka black-tailed deer, little brown bats, Northern flying squirrels, Marbled Murrelets, and songbirds like Townsend's Warbler. In the same way, filling and loss of mudflats and eelgrass beds affects many species, such as Dunlin that depend on ice-free foraging grounds during spring migration, Black Scoters that feed in these areas through the winter, and fish like herring and juvenile salmon that use eelgrass beds as nurseries. For many species, Alaska's lack of baseline data and GIS capability makes documenting effects of fragmentation and urbanization nearly impossible.

Working together for Alaska's wildlife

At the start of the CWCS project, in order to get broad input on process, goals, and species with conservation needs, the planning team reached out to a range of partners including government agencies, conservation interests, landowners, resource users, representatives of the Native community, and the state's 77 fish and game advisory committees, as well as to the general public. This was followed by two-day meetings and months of work with more than 100 scientific experts, peers, and others with Alaskan expertise on species and habitats in 14 major animal groups.

The planning team provided an eight-week window in which to review the draft CWCS, announcing the opportunity via email or letter to nearly 2,000 individuals and groups, and notice to the general public through a press release, newsletters, Alaska's CWCS website, and a notice published in major in-state newspapers. The team considered hundreds of comments received from universities, government agencies, and organizations including The Wildlife Society, Tanana Tribal Council, National Rifle Association, Territorial Sportsmen, Defenders of Wildlife, and Alaska Bird Observatory.

"Alaska is characterized by diversity —in its ecosystems, habitats, and wildlife species. Many species are important for harvest or appreciation by the diversity of peoples, both urban and rural, who live in or visit the state. Diversity also exists among the agencies, organizations, businesses, and individuals involved in managing Alaska's wildlife. Completing a comprehensive wildlife conservation strategy is of major importance in planning for the long term future of Alaska's wildlife."

- David R. Klein, Professor Emeritus, Institute of Arctic Biology, University of Alaska Fairbanks

"We were very impressed by how many experts from around Alaska were involved in developing the CWCS. It gives recognition to the fact that local users have valuable information about fish and wildlife, and they care deeply about protecting it."

- David Banks, Executive Director, The Nature Conservancy, Alaska Field Office

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Sea Ice	Arctic cod; Spectacled Eider; Walrus; Bearded seal	Melting/thinning sea ice; coastal pollution & development; airborne contaminants	Identify & conserve polar bear dens and ringed seal lairs in areas of industrial development, through research, regulation, and education; to reduce impacts from Bering Sea crab fishery, design gear less likely to entangle bowhead whales
Karst Caves	Cave invertebrates; Keen's bat; Long-legged myotis	Land use practices that alter water & landscape quality; tourism pressure	Develop best management practices, including setting water flow reservations, to protect cave watersheds from land altering actions; develop a GIS database of cave locations and geographic areas likely to contain caves
Forests	Rough-skinned newt; Queen Charlotte Goshawk; Red Crossbill; Kenai marten	Habitat loss & fragmentation; increased insect outbreaks & wildfire	Monitor changes in forest cover by compiling data on timber and salvage harvest and reforestation activities on an annual or biennial basis; develop survey & monitoring methods for hard-to-detect forest birds and those with low numbers
Marine and Coastline Habitats	Eelgrass shrimp; Forage fish species; Red-faced Cormorant; Black Oystercatcher	Coastal dredging & development; invasive/ introduced species; spills/ discharges; tourism pressure	Identify remote sensing methods for large-scale mapping/monitoring of eelgrass beds; protect sensitive island ecosystems from introduction of rats, foxes, and reindeer; educate mariners to provide verifiable records of beaked whales across the North Pacific
Tundra	Yellow-billed Loon; Long-tailed Duck; Snowy Owl; Barrow ground squirrel	Contaminants; invasive & introduced species; plant, prey & lake changes	Identify sources of contaminants in loons & prey; following fox removal, reintroduce Rock Ptarmigan to islands they previously inhabited; establish long-term monitoring to identify marmot population shifts in alpine tundra habitats
Wetlands	Western toad; Horned Grebe; Solitary Sandpiper; Rusty Blackbird	Dredge & fill, pollution; habitat change due to use of ATVs; water level & plant changes	Obtain local information on Alaska blackfish distribution, relative abundance, and harvest; develop a central statewide amphibian database; continue Alaska wetlands mapping inventory
Freshwater Aquatic	Yukon floater; River lamprey; Arctic Tern; Dusky shrew	Degraded water quality, quantity, & connectivity; invasive & introduced species	Develop criteria and an approach for identifying juvenile and adult lampreys; identify mussels' host species, and habitats used; inventory & replace blocked culverts

Recommended actions to conserve Alaska's wildlife

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Mary Rabe, Nongame Program Coord.
Alaska Department of Fish and Game
Division of Wildlife Conservation
P.O. Box 25526
Juneau, AK 99801
Tel: 907.465.6195
Mary_Rabe@fishgame.state.ak.us
www.sf.adfg.state.ak.us /statewide/ngplan/

Arizona Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Arizona snapshot

Geography: Known for its stately Saguaro cacti and the magnificent Grand Canyon, Arizona provides a variety of habitats ranging from near-sea-level deserts to high alpine tundra.

Desert Tortoise/Arizona

Landscape: Lands managed by tribal governments make up 28% of the state, while private lands account for 18%. The majority of the remaining lands are administered by various federal agencies. The state is bordered by Mexico to the south, New Mexico to the east, and shares the Colorado River as a border with California, Nevada, and Utah.

Wildlife: Arizona ranks third in the nation for the number of native birds species, second for reptiles, fifth for mammals, and eighth overall for vertebrate animal diversity.

Arizona's planning approach

Arizona's Wildlife Action Plan provides a common strategic framework and information resource designed to help conserve Arizona's terrestrial and aquatic wildlife and the lands and waters on which they depend for survival. The action plan is built on the premise that the most effective way to benefit and conserve rare, declining, and common wildlife species is to restore and conserve healthy areas to live. Consequently, the action plan focuses on habitat types, such as desert scrub, grasslands, forests and woodlands, and aquatic/riparian systems. Recommended conservation actions are provided for these habitat types on a regional basis. The action plan begins the task of identifying conservation requirements for all wildlife by developing conservation priorities for the 183 species that are of most immediate concern. By combining habitat- and wildlife-specific approaches, Arizona's action plan will help to guide the conservation of the state's diverse wildlife.

Primary challenges to conserving wildlife in Arizona

Arizona's action plan identifies 70 priority stressors that operate in one or more of the habitat types in each region of the state. Many of these stressors are related

"This Action Plan represents the most comprehensive analysis of Arizona's Diverse Wildlife and their resources that has ever been undertaken. A full range of partnerships, which included land owners, scientists, sportsman, and non-consumptive wildlife enthusiasts, was used to identify threats, and more importantly, suggest actions that can be taken to ensure our state's wildlife diversity is here for our future generations to enjoy."

-Duane Shroufe, Director, Arizona Game & Fish Department

to four statewide phenomena: a rapidly increasing human population, changes to water storage and delivery systems in the Southwest, alteration of communities by invasive nonnative species, and the ongoing drought and warming trend. Specific stressors are highlighted in the descriptions below.

Saguaro Lake/Arizona

Recent population expansion in Arizona is tied directly to **Urban growth and Rural development**. Population centers directly convert wildlife habitat - often along waterways – and require an infrastructure of **Roads, Power lines** and **Telephone lines** that fragment the landscape. Human population growth has decreased the quality and quantity of water available to Arizona wildlife, increased demand for recreational opportunities in open areas, and increased the amount and transportation of **Pollution, Invasive species, and Diseases/pathogens/parasites**.

Dams, reservoirs, and impoundments result in loss of water from downstream channels, loss of natural flow variability, suppression of native tree germination, and establishment of high densities of non-native plants and animals in and around reservoirs. Other effects include reduction in sediment transport, water quality, water table integrity, and fish migration. **Water diversions** and **Groundwater depletion** also reduce the amount of aquatic habitat for wildlife, especially in smaller drainages.

Once established, **Invasive species** have the ability to displace native plant and animal species (including threatened and endangered species), disrupt nutrient and fire cycles, and alter the character of the community by enhancing additional invasions. Impacts of introduced crayfish have completely altered waters where they occur, removing aquatic vegetation and extirpating native fish, frog, and salamander species. Exotic annual grasses have established themselves

"This proactive plan will guide how resource managers can work together to address threats to our state's wildlife diversity. It provides an invaluable resource, including identification of specific actions that can be undertaken to help protect our future."

-Eric Gardner, Nongame Branch Chief, Arizona Game & Fish Department

Wildlife	Total number of species	Species of greatest conservation need*	Threatened/endangered
Crustaceans and mollusks	86	28	1
Insects	?	0	?
Fish	72	33	19
Amphibians	32	12	2
Reptiles	145	26	2
Birds	297	49	7
Mammals	164	35	8
Totals	**796****	**183**	**39**

* Arizona has started by giving increased attention to state and federally listed species; federal candidate species; species currently petitioned for listing, recently delisted, or for which conservation agreements already exist; closed-season invertebrates; as well as species that are receiving attention from cooperators.
**Numbers reflect those species that can be effectively managed in Arizona. For instance, resident nonnative species are included, but transient, casual, and rare birds that occur unpredictably are not.

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Streams, Rivers, and Associated Riparian Areas	• Chiricahua leopard frog • Apache trout • Humpback chub • Western yellow-billed cuckoo	• Groundwater depletion/springhead use • Nuisance animals • Dams/reservoirs/ impoundments • Altered flow regimes	• Develop new watershed planning efforts to positively affect groundwater dynamics at the watershed scale. • Survey for areas of suitable habitat for reestablishment of species • Determine if adjusting dam operations to adjust water temperatures downstream is a benefit to native species • Adopt national standards and efforts to reduce and control nuisance species.
Upland Sonoran Desertscrub	• Burrowing treefrog • Sonoran desert tortoise • Desert bighorn sheep • Cactus ferruginous pygmy-owl • Costa's hummingbird	• Invasive species • Roads for motorized vehicles • Urban/Rural development • Livestock management • Unauthorized roads and trails	• Limit extent and level of disturbance that promotes invasion and spread of nuisance plants • Encourage wildlife friendly design for all road building. • Work with city and county planners to incorporate wildlife values in urban/rural development plans • Develop and implement livestock and big game management guidelines that minimize habitat degradation • Increase public awareness on the negative effects of creation and use of unauthorized roads and trails for recreation.
Semidesert Grassland	• Botteri's sparrow • Grasshopper sparrow • Desert box turtle • Black-footed ferret	• Rural/urban development • Nuisance plants • Habitat degradation/ shrub invasions • Loss of keystone species • Unnatural fire regimes	• Identify key conservation areas to protect from development • Acquire land or conservation easements to protect key conservation areas • Develop plans to conserve priority conservation species that are not sufficiently addressed under existing plans. • Design fire management plans and wildland/urban interface policies that consider wildlife value.
Montane Conifer Forest	• Spotted bat • Northern goshawk • Wet Canyon Talussnail • Mountain treefrog • Western purple martin • Red-naped sapsucker	• Forest and woodland management • Drought • Insect infestations • Unnatural fire regimes	• Design forest/woodland harvesting and management strategies that promote wildlife habitat diversity and connectivity • Promote adjustment of livestock management practices during droughts to ensure sufficient forage for wildlife • Restore natural fire regimes (frequency, intensity, and mosaic distribution) to improve wildlife habitat.

Recommended actions to conserve Arizona's wildlife

throughout the state, and have become part of the cycle of **Unnatural fire regimes**.

Drought/Climate change is expected to have long-term region-wide impacts. In the arid Southwest, the distribution of plant communities may be controlled primarily by soil moisture. Recent research has shown that considerable vegetation changes have occurred in the past and can be expected in Arizona's future. Often, these changes were a result of widespread tree and shrub death due to secondary effects such as **Insect infestations** and **Unnatural fire regimes**; Arizona has already experienced large-scale die-offs of Ponderosa pine forest.

Chiricahua Leopard Frog Research/Arizona

Working together for Arizona's wildlife

To develop the action plan, the Department used various administrative and technical teams, stakeholder meetings, responsive management surveys, and a public input process. Ecoregion Workgroups consisted of Department species- and habitat- professionals and cooperating federal, state, and tribal resource managers. The Department held Wildlife summit workshops and open forum public meetings and accepted comments via the internet.

The Department used extensive outreach to inform and encourage participation from the public and partners, including 20 staff presentations, 28 presentations to external agencies, stakeholder councils, and non-government organizations, four media news releases, and email subscriber announcements to over 16,000 individuals and organizations. Four Wildlife Summit Workshops were held around the state, with 54 participants providing input into developing the major components of the plan and an additional 418 constituents providing input via an online Wildlife Summit survey. Forty-two constituents participated in a series of eight public meetings held statewide.

"The state's Action Plan is the most exciting effort I have seen in many years that is designed to better manage Arizona's wildlife and the places in which they live. The plan used an unbiased approach to identifying threats to our wildlife and provides concrete actions that can be undertaken to ensure that those threats do not lead to the disappearance of these valuable resources."

- Bruce Taubert, Assistant Director, Wildlife Management Division
Arizona Game and Fish Department.

Native fish study/Arizona

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Eric Gardner, Nongame Branch Chief
Arizona Game and Fish Department
2221 West Greenway Road
Phoenix, AZ 85023
Tel: 602.789.3507
egardner@azgfd.gov,
http://www.azgfd.gov/

Arkansas Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

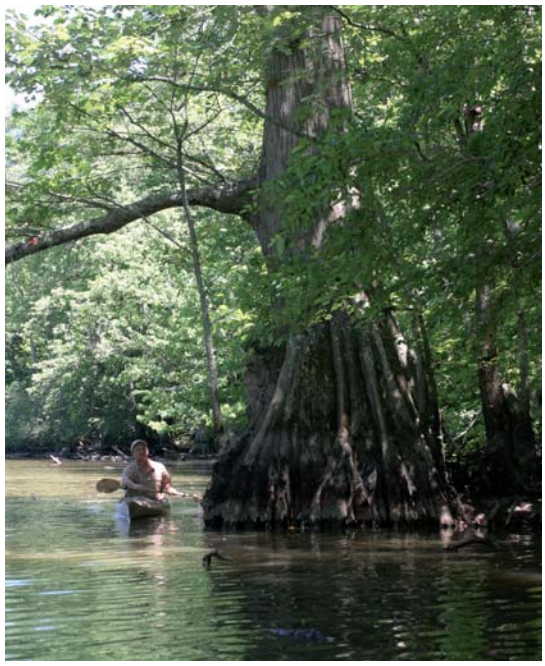
Arkansas snapshot

Geography: Arkansas is a study in contrasts, with dramatic mountains in the Ouachitas, vast alluvial plains in the Mississippi River delta, and deep, rich hollows in the Boston and Ozark mountains.

Wildlife highlights: The species diversity is rich and the citizenry takes wildlife matters seriously: over 85 percent of the public in a recent poll declared that they are concerned or very concerned about the impacts of human activity on wildlife.

Arkansas's planning approach

Expert Arkansas biologists gathered over the course of a year to assemble a list of 369 species prioritized by greatest conservation need. Participants also identified threats associated with each of these species' habitats, and identified conservation actions necessary to prevent the species from declining. This information was organized in a format that can be easily updated as the state improves its knowledge of little-known species and determines what is needed to protect the overall health of habitats that house and feed many of these species. Special care was taken to communicate to the public during this process and to listen to and incorporate constituents' views.



Bayou DeView near where Ivory-billed woodpecker was first spotted in 2004

Spotted Skunk/Mundy Hackett

Primary challenges to conserving wildlife in Arkansas

The Arkansas action plan identifies 18 categories of threats facing wild

"I have supported full funding for State Wildlife Grants in past appropriation cycles and we are proud to have a wildlife champion like Senator Lincoln in the Arkansas delegation. As president of the National Governors Association this year I hope to move a resolution for a dedicated funding mechanism for species of greatest conservation need.

- Mike Huckabee, Governor of Arkansas

Painted Bunting/Joe Neal

life. These are hydrological alteration, nutrient loading, habitat destruction, sedimentation, biological alteration, chemical alteration, alteration of natural fire regimes, altered composition/structure, excessive herbivory, extraordinary competition for resources, extraordinary predation/parasitism/disease, groundwater depletion, habitat destruction or conversion, habitat disturbance, habitat fragmentation, resource depletion, riparian habitat destruction and toxins/contaminants.

For example, habitat loss results from changes in the land and waters that adversely affect the homes and food of species of conservation concern. Each species has special needs, and alterations in the habitat may reduce their ability to survive or thrive. Learning what the special needs are, communicating these to land managers, taking conservation actions and monitoring the species response are necessary to keep species and habitats healthy. An example of this would be conversion of prairie or woodlands to non-native fescue pasture, which reduces the survivability of some species, such as ornate box turtles and bobwhite quail.

Habitat alteration, such as road construction, can also introduce sediments into flowing waters to the detriment of fish, mussels, dragonflies and other aquatic species that require clear, clean water.

Lorance Creek Natural Area. Lower Mississippi River Bottomland habitat/AGFC

"Our CWCS is intended to be a useful planning tool for both professional and citizen conservationists in Arkansas. We involved our major partners from the beginning. Their response has been more than gratifying. It has been heroic--considering the scope of the work. I am also struck by the receptivity of Arkansas citizens to this initiative. They have demonstrated again support for the broad array of wildlife and seem supportive of assembling the scientific underpinnings for sound decision making."

- Scott Henderson, Director, Arkansas Game and Fish Commission

Wildlife	Total number of species	Species in need of conservation **	Threatened/endangered listed species
Mussels	83	52	10
Insects	1137	63	1
Crayfish	64	24	2
Other Invertebrates	389	44	1
Fish	224	50	3
Amphibians	71	25	0
Reptiles	114	14	1
Birds	321	78	5
Mammals	78	19	3
Totals	**2481**	**369**	**24**

**Source: Natureserve.org (may include extirpated species)*

***Species of conservation concern were identified and prioritized using Natureserve s rankings of imperilment (statewide and global). Threatened and endangered species are included in the list of species of conservation concern.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Natural, large pools of water	Lake sturgeon	• Commercial harvest • Habitat destruction • Dams	• Restrict commercial harvest in Mississippi River • Reintroduce sturgeon to appropriate habitat • Restore fish passage in dammed rivers
Prairies, glades, pasture and woodland	Painted bunting	• Cowbird nest parasitism • Caged bird trade • Habitat loss	• Reduce threat of parasitism by brown-headed cowbirds • Reduce capture of birds outside of the US for the pet trade • Maintain or restore open habitat with scattered shrubs
Along streams and rivers in forested mountains and hills	Ozark clubtail Dragonfly	• Dams • Sedimentation • Municipal/ industrial point source pollution	• More research is needed to determine best actions for conservation. •Additional research is needed to learn about distribution and population status.

Recommended actions to conserve Arkansas's wildlife

Working together for Arkansas's wildlife

AGFC engaged the public through a series of news releases, brochures, e-mail contact lists and a continually evolving website. The Commission involved the community of natural resources professionals by inviting their participation in the creation of a comprehensive survey of species and habitats in the state. AGFC also conducted an attitude and opinion survey to understand public and stakeholder attitudes prior to a campaign to involve and inform members of targeted interest groups.

Other steps included a letter that was sent to leaders of 107 key intermediary organizations that represent or provide information to individuals and landowners with an interest in species and habitat conservation, and an informational mailing that was sent to 2,600+ individuals, primarily landowners and members

Arkansas ecoregions/AGFC

"I sincerely hope this program survives the budget axe in Washington, D. C. The future health of our nation depends on healthy ecosystems and a balance between the built and natural communities. "
- Kenneth L. Smith, State Director, Audubon Arkansas

of hunting clubs who participate in the Acres for Wildlife program. This mailing included the informational brochure, an invitation to register online for one of five stakeholder meetings, and links to the website. Nearly 250 individuals attended five evening stakeholder meetings in Hope, Jonesboro, Fayetteville, Lake Village and Little Rock in June 2005. Each meeting was designed to elicit public involvement and comment using story-telling exercises, a presentation and small group discussions and response.

"This is a unique tool that represents all wildlife species, not just demand species, and I believe it represents an ideological shift to comprehensive management for ecosystem health."
- Alan G. Newman, Forest Supervisor, Ouachita National Forest

Cave crayfish/David Kampwerth

Sherfield Cave/Ethan Inlander, TNC

Karst habitat, Boston Mountain Ecoregion/Ethan Inlander, TNC

"The CWCS is a coordinated approach that has pooled the resources of a larger group of conservation partners to fund research and improvements for species of greatest conservation need."
- Kay McQueen, Director of Conservation Programs, Arkansas Field Office of The Nature Conservancy

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

David Goad
Deputy Director
Arkansas Game & Fish Commission
2 Natural Resources Drive
Little Rock, AR 72205
Tel: 501.223.6308
dgoad@agfc.state.ar.us
www.WildlifeArkansas.com

California Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

California snapshot

Geography: California's landscape highlights include deserts, mountain ranges, wetlands, woodlands, and 1,100 miles of coastline. It provides habitats for more than 391 bird species, 222 mammals, 160 reptiles and amphibians, and 116 freshwater fishes.

Landscape: California's land mass spans more than 158,000 square miles. Water resources include 4,955 lakes and reservoirs, 103 major streams, and 74 major rivers.

Wildlife: Island foxes are recovering on several Channel Islands, the only place in the world where they are found. Fairy shrimp exist in California's remaining vernal pools. Millions of reddish-orange Monarch butterflies continue their migration from Mexico to California's central coast each year. Abalone, a native species of the California coast , cling to rocks and wave-swept ledges. And the Common murre can dive to depths of more than 300 feet to catch squid and fish.

Clapper rail/Jeremy Rowell

California's planning approach

California's Wildlife Action Plan (Action Plan) was developed as a reference for conservationists and the general public alike. The mission was to draw upon decades of conservation efforts and to recommend conservation actions based on sound science and stakeholder involvement. The Action Plan continues an ecosystem approach to conservation issues. This approach recognizes the interdependence of multiple species and their habitats. The plan also considers the needs of select species inhabiting a particular region of the state.

The action plan looks at 807 vulnerable wildlife species and what actions are likely to ensure their survival. The plan is largely based on the idea that the best strategy the state can implement is to expand the study of species and habitats –in order to answer such questions as: What are the species and habitats in greatest conservation need and where are they found? And what is threatening their survival and how can we effectively work together to strengthen conservation actions?

The Action Plan identifies five key issues: 1) integrating wildlife conservation into local land-use decisions; 2) restoring and conserving riparian habitats; 3) providing essential water for wildlife; 4) controlling invasive species; 5) and expanding conservation education.

The action plan is organized into nine geographic regions. To complement the plan, a user-friendly website was created to provide conservationists with digital

"California's Wildlife Action Plan represents a plan of investment in our natural heritage that will benefit both wildlife and people. There is a shared consensus in support of clean air and water and the preservation of agriculture and scenic landscapes…and a growing recognition that wildlife needs to be included in these efforts. This plan identifies key objectives and challenges in wildlife management that can help direct positive conservation efforts."

– L. Ryan Broddrick, Director, California Department of Fish and Game

maps depicting the regions of the state where various species are found.

Primary challenges to conserving wildlife in California

San Joaquin Kit fox, Copyright Photographer, Jeremy Rowell

California's Wildlife Action Plan identifies four primary statewide threats or "stressors" – each with major consequences for species, ecosystems, and habitats. Additional threats were also identified on a region-by-region basis. Growth and development, water management conflicts and invasive species have all contributed to the decline in the state's wildlife species.

Human activities: population growth and development have placed even-greater demands on the state's land, water, and other natural resources. Without conservation planning, development can eliminate or fragment important habitats, decrease the quality of remaining natural areas, and disrupt fish and wildlife migration routes.

Limited water resources are stretched between meeting the demands of residential and agricultural land uses, and not enough water is being secured for wildlife. The operation of dams and water diversions and other causes have also reduced the amount of water available for fish and wildlife in certain areas of the state, including many species of concern. Coordinated water planning and advances in technology can help with the allocation of water for wildlife.

Invasive species, including animals, plants, and pathogens rank among the major statewide threats affecting California's native wildlife. Invasive plants (more than a thousand types) such as medusa-head and French broom pose a direct threat to animals by producing harmful awns and seeds. Many key habitats are under siege by nonnative species that invade and take over ecosystems, resulting in a lack of nutritional forage for animals.

Working together for California's wildlife

California's Wildlife Action Plan was developed for the California Department of Fish and Game in cooperation with the California Department of Fish and

"This is an important piece of work than can help the state of California become more effective at wildlife conservation. It demonstrates that more time, effort and resources are needed to conserve the living things that are so intrinsically linked to our quality of life. This action plan shows us how we can do it. Our future depends on it."

–Mark Burget, Executive Director, The Nature Conservancy California Program

Wildlife	Total number of species	Species of Conservation Concern*	Threatened/endangered listed species
Snails (land)	280	101	3
Fairy Shrimp	23	10	5
Insects	30,000-100,000	257	22
Freshwater Fish	116	95	29
Amphibians	68	39	12
Reptiles	92	43	9
Birds	391*	139	30
Mammals	222	123	24
Totals		**807**	**134**

**California's "Special Animal List" includes wildlife species with populations that are rare and at risk. This includes animals closely associated with a declining habitat or very restricted distributions, and animals listed under state and federal Endangered Species Acts. Includes both species and subspecies.*

***Represents regularly occurring species.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Riparian/ Aquatic **Ownership: public/private**	Wilson's warbler, Western pond turtle	• water quality • degradaded habitat • invasive species	• Cooperative efforts among resource agencies and conservation organizations to protect, enhance, and restore riparian habitats. • Surveys and monitoring efforts to assess the distribution and trends over time in these riparian-dependent species.
Grassland **Ownership: private**	Swainson's hawk, tricolored blackbird San Pablo vole, Western burrowing owl, Buena Vista Lake shrew, American badger	• Breeding and or foraging on private lands/farms	• Provide incentives to farmers to manage their lands for wildlife. • Compensation to landowners who delay harvest to allow for undisturbed nesting (proactive approach). • Integrating conservation planning into land-use decisions (regional planning). • Coordination among adjacent landowners. • Habitat mitigation guidelines. • Preserving agricultural foraging areas. •Conducting rangewide surveys to assess populations and creating long-term monitoring strategies to assist in the development of sound regional conservation plans.
Montane Meadows **Ownership: public/private**	Willow flycatcher, Great Gray owl, amphibian species	Rare habitats affected by land management activities	• Species such as these are not well-studied hence the Department is engaging in rangewide surveys to increase our understanding of habitat requirements for guiding future management.
Sierra/Cascade Lakes and Streams **Ownership: mostly public**	Native trout species, native amphibians such as the mountain yellow-legged frog	Introduced trout and other factors affecting the biodiversity of high-elevation lakes and waters	• Implement rangewide surveys to determine the status and monitor the trends in species over time. • Develop management actions to reduce/eliminate potential conflicts with introduced fish and conserve/enhance native species.

Recommended actions to conserve California's wildlife

Game and the Wildlife Health Center at the University of California, Davis. The plan was created with a broad array of conservation partners, including The Nature Conservancy, Defenders of Wildlife, Ducks Unlimited, Water Education Foundation, Trout Unlimited, Natural Resource Conservation Service, California Waterfowl Association, Resource Land Owners Coalition, Riparian Habitat Joint Venture, and many others.

Nine regional public workshops, attended by more than 740 people, were held to discuss conservation issues, wildlife needs, and current conservation activities. Stakeholders also participated in another series of seven action workshops held throughout the state. Each one included between 20 and 30 conservation experts representing government agencies, universities, and outdoors and conservation organiza

Desert Storm, Anza Borrego Desert State Park (Colorado Desert Region)/Copyright Photographer, John J. Blair, DDS

tions. The overall goal of these workshops was to identify ways to protect and preserve habitat for California's threatened species. The product of these efforts, California's Wildlife Action Plan, represents the consolidation of these wildlife management ideas.

"The California Wildlife Action Plan provides a statewide assessment of threats to our wildlife heritage. With growth and development identified as one of the greatest threats to wildlife diversity, we must move quickly to protect and restore habitat. This plan is a good starting point that Defenders of Wildlife and other conservation partners can use to focus our wildlife conservation efforts."

– Kim Delfino, California Program Director, Defenders of Wildlife

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Dale Steele, Project Manager,
California Species Conservation and Recovery Program
California Department of Fish and Game, Habitat Conservation Planning Branch
dsteele@dfg.ca.gov
http://www.dfg.ca.gov/habitats/wdp/

Colorado Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (CWCS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Colorado snapshot

Geography: Colorado is a mountainous state with headwaters for five major interstate river basins.

Landscape: With the Rocky Mountains' Continental Divide bisecting the State, habitat types range from alpine tundra at 10,000 ft, to aspen-fir-pine forestland at 8,000 ft. to shortgrass prairie at 4,000 ft. Superimposed on this landscape is a human history of westward expansion and settlement accelerated by explosive development from gold and silver mining and natural resource use. Opportunities afforded by our scenic natural resources for big game hunting, trout fishing and outdoor recreation fuel the very development that stress and threaten all our wildlife communities.

Big Horn Sheep/CO Division of Wildlife

Wildlife: Drawn by abundant herds of elk and deer, and trout fishing in mountain streams, Colorado's residents and visitors discover native cutthroat trout, sage grouse viewing on breeding leks, crane festivals, and ribbons of riparian-wetland areas with a startling diversity of wildlife viewing opportunities.

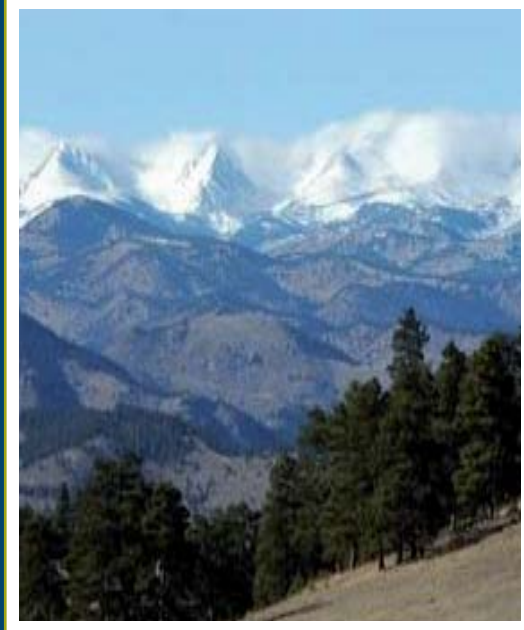
Colorado's planning approach

To create an action plan, the Colorado Division of Wildlife developed an eight-step process for acquiring scientific and stakeholder input to identify species in greatest need of pro-active conservation measures, as well as to identify key habitat conservation issues. The eight federally-required elements, including species' distribution and abundance status, location and relative condition of key habitats, threats and needed research or surveys, required conservation actions, monitoring strategies, periodic plan review, coordination with governmental partners, and public participation, served as the planning framework. The plan combines a review of priority species and 41 land cover types in order to focus expert opinion and data-based documentation on identification of the highest conservation priorities while also addressing species and habitat protection, restoration, enhancement, and information gaps. Given the large library of conservation plans already

"Colorado has repeatedly proven its ability to secure species at risk, and avoid the need for species protection through federal listing. Colorado's wildlife conservation community continues to demonstrate its commitment to the goals of conserving all the state's wildlife species with tangible, on-the-ground actions. Our State's wildlife action plan demonstrates that Colorado's conservationists are poised to take these efforts even further."

-Governor Bill Owens, State of Colorado

available for Colorado wildlife species, species groups and ecosystems, many specific actions are already identified as priorities, described in detail and are perhaps already being implemented. Where priority species and ecosystems are identified but lack specific information, another purpose of this plan is to provide guidance on inventory, research and monitoring needs. Federal, State, local, and private resource management agencies and organizations may also use this CWCS to inform and guide their conservation programs to fill gaps identified as priorities for both species and habitat types.



CO Division of Wildlife

"Colorado has long been committed to the conservation of all wildlife species, whether hunted, or fished for or not. One of the nation's great wildlife restoration success stories – the American Peregrine Falcon – had its beginnings here in the early 1970's. Other successes, such as breakthroughs in the restoration and recovery of prairie grouse, lynx, and a number of native fishes, also have their roots in the efforts of Colorado's wildlife professionals and citizens."

- Bruce McCloskey, Director,
Colorado Division of Wildlife

Primary challenges to conserving wildlife in Colorado

Given an expected increase in the State's population of more than 50% over the coming 25 years, the primary challenges our wildlife conservation programs face are the conversion and fragmentation of habitat, human use and depletion of natural resources, pollution, introduction of invasive and exotic species, and alteration of ecological processes. Fragmentation of wildlife habitat is occurring through extensive statewide oil and gas well development, expanding road networks

Wildlife	Total number of species	Species in need of conservation *	Threatened/ endangered listed species
Mussels	83	9	0
Crayfish	6	0	0
Insects/Arachnids	39	34 (5)	2
Fish	48	26 (9)	14
Amphibians	17	9 (3)	1
Reptiles	51	14 (5)	0
Birds	365	87 (42)	9
Mammals	151	26 (14)	8
Totals	**760**	**210 (87)**	**34**

** Criteria used in Colorado for identifying this species group included Federal-State listed as T&E, federal candidates, State special concern; Colorado Natural Heritage ranking as G/S 1-3; scientist Internet questionnaire and forum input. () indicate highest concern from forum assessment.*

Wildlife Highlights

with greater frequency of high-speed travel on interstate highways, and in-stream barriers for water storage, diversion or aesthetic purposes. All serve to disconnect and isolate wildlife populations, inhibit movement or migration corridors and increase mortality.

Intensive use and re-use of limited water resources degrade aquatic habitats and water quality, especially in eastern plains streams for mollusks, amphibians, fish, and birds. The effective coordination of population and habitat objectives and data/information sharing among a wide array of federal, state, and local agencies, native American tribes, and agricultural, water conservancy, environmental and other non-governmental organizations is also recognized as a key challenge in contending with population growth, as well as in bringing a landscape conservation message to the public.

Working together for Colorado's wildlife

Species experts both within and outside the Division of Wildlife developed preliminary assessments of species' population status and key habitat conditions.. The stakeholder input and draft strategy review processes were initiated with direct mailings to 1,000 interested parties, as well as through news releases and newspaper articles. A series of four public stakeholder meetings across the State were held to broaden input from all stakeholders. The input process culminated in an invitation to previously identified scientists to participate in a science-based forum which focused on gaining additional input on species and habitat issues, and collectively developing status, condition, trends, and threats for identified species and habitats. A draft plan addressing the eight required elements was distributed via Internet and also reviewed in four public meetings across the State to prepare the final draft.

CO Division of Wildlife

"The task of conserving and managing Colorado's fish and wildlife is too big for any one group or agency to achieve alone. This wildlife action plan identifies conservation priorities that can be used by everyone in Colorado. It reflects the interests, concerns, and ideas of citizens with a stake in Colorado wildlife conservation who also participated in its development. Thus, it is truly a strategy for all of Colorado."

- Russell George, Executive Director, Colorado Department of Natural Resources

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Shortgrass prairie **Total occupied habitat: 631,000 acres**	Black-tailed prairie dog, Swift fox, Mountain plover, Burrowing owl, Ferruginous hawk, Lesser prairie chicken, Greater prairie chicken, Plains minnow, Suckermouth minnow, Brassy minnow, Arkansas darter, Orangethroat darter, Plains leopard frog, Couch's spadefoot, Massasauga, Midget faded rattlesnake	Conversion to agricultural land; oil and gas drilling; groundwater depletion via center pivot irrigation; prairie dog control	Develop and implement defensible aerial survey monitoring for estimating populations and distribution of black-tailed prairie dog; initiate outreach for reporting of plague occurrences; monitor long term population trends for mountain plover, burrowing owl, ferruginous hawk; implement mark-recapture monitoring of swift fox; identify and secure 150,000 acres of high quality shortgrass prairie habitat through partnerships; build partnerships with grassland conservation partners (e.g. Farm Bureau, Cattlemen's Assoc., NRCS, Soil Conservation Districts); mountain plover nest conservation in cultivated fields
Sagebrush	73 species-total 25 of concern (SCGN) Greater sage-grouse, White-tailed prairie dog, Black-footed ferret, Columbian sharptail grouse, Gunnison's sage- grouse, Gunnison's prairie dogKit fox*, Merriam's shrew*, Sagebrush vole*, Big free-tailed bat, Brazilian free-tailed bat, Long-eared myotis, Pallid batSpotted bat, Townsend's big-eared bat, Western small-footed myotis, Western pipistrelleBlack-throated, sparrow*, Brewer's sparrow*, Green-tailed towhee*, Lark sparrow*, Northern harrier*, Sage sparrow*, Sage thrasher*, Vesper sparrow*	Invasive plants; energy development; ungulate grazing	Identify and preserve high-quality sagebrush habitats; minimize loss and fragmentation; target large habitat area for highest species richness; restore degraded sagebrush habitat; maintain self-sustaining populations of SGCN; improve understanding of SGCN habitat requirements and response to change for 11 SCGN (*); reduce encroachment of invasive plants in high priority areas (Moffat, Rio Blanco, Jackson, Grand,Costilla counties); reduce adverse energy development impacts during breeding, wintering of sage grouse (i.e timing, construction, speed limits); reduce pinyon-juniper encroachment; promote conservation easements on private land (CSCP, Land Trusts, Farm Bill); promote educational materials to local and county land use planners; reduce overgrazing by domestic and wild ungulates; develop and implement monitoring for 11 SGCN (*)

Recommended actions to conserve Colorado's wildlife

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Thomas P. Nesler, Manager
Wildlife Conservation Section
Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216
Tel: 303.291.7461
tom.nesler@state.co.us;
www.wildlife.state.co.us

Connecticut Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Connecticut snapshot

Landscape: Stretching from southern coastal plains to mountain ridges and valleys in the northwest and northeast corners, Connecticut is bisected by the broad Connecticut River Valley and Metacomet Ridge. Both salt and fresh water define the state, including mountain streams, tidal creeks, numerous lakes and ponds, the Connecticut and Housatonic Rivers, and the southerly bounding Long Island Sound.

Freshwater Marsh/USFWS

Management: The Connecticut Department of Environmental Protection, through its Bureau of Natural Resources has a long and successful record in wildlife management. This is credited to a dedicated professional staff, and the science-based wildlife management that has been implemented with the help of many conservation partners. Most of the success, to date, has involved the restoration of game species including birds, fish and mammals, such as the wild turkey, the striped bass and the fisher. These and other efforts were made possible by the revenue derived from both the sale of fishing and hunting licenses, and the payment, by anglers and hunters, of federal excise taxes on fishing and hunting equipment as required pursuant to the public laws known today as Pittman-Robertson and Dingell-Johnson. These laws were enacted many decades ago because congress recognized that a stable, long-term funding mechanism was needed to reverse the decline in the populations of many of these species across the nation. In keeping with the Department's commitment to wildlife management, the comprehensive strategy creates a framework for wildlife conservation for the next decade.

At the heart of this strategy are conservation actions. Implementing these actions will improve the quality of life for the citizens of Connecticut by conserving the diversity of ecosystems and wildlife in the state. Additionally, the likelihood of new species being listed as endangered or threatened will be minimized, helping to keep today's common species common in the future.

Wildlife: Connecticut is home to a variety of terrestrial, freshwater, estuarine, and marine species, including black bears, bog turtles, bald eagles and burbots. Here, too, live globally significant populations of species such as the saltmarsh sharp-tailed sparrow and the blue-winged warbler. Ancient species such as the horseshoe

"This is an historic opportunity to help reverse the decline of wildlife populations and the loss of key habitats, with the goal of keeping common species common and minimizing the need to list additional species as endangered or threatened."

– Edward C. Parker, Chief, Connecticut DEP Bureau of Natural Resources

Backpack Shocking/CT DEP

crab share the state with species expanding their ranges and species that are newly discovered and as yet unnamed. Porcupines reside in the northwest corner's most remote areas; peregrine falcons hunt the skies of Connecticut's most urbanized areas; diamond-back terrapins float in the quiet covers and inlets along the states' extensive shoreline. Connecticut's wildlife is remarkably diverse for a small state. This diversity is due to the state's wide range of landscapes, waterscapes, and habitat diversity.

Connecticut's planning approach

The strategy was developed after an exhaustive two-year planning and coordination process that included the compilation and review of an extensive inventory of natural resource information and conservation programs, in consultation with a diversity of stakeholders in the state, region and nation. In addition, information on the full array of wildlife and wildlife conservation efforts in Connecticut was solicited, researched, and compiled. From these data, DEP Bureau of Natural Resources staff, an Endangered Species Scientific Advisory Committee, and conservation partners identified those species of greatest conservation need. Altogether, 475 species of greatest conservation need were identified, including 27 mammals, 148 birds, 30 reptiles and amphibians, 74 fish and 196 invertebrates. A lack of information on the status of many GCN species, especially invertebrates, confirms the need for targeted research so that these species can be addressed in future revisions of this Strategy.

Internal and external scientific experts and stakeholders associated the GCN species with 12 key habitats and 43 sub-habitats located throughout Connecticut. Each of these habitats was linked to standardized state, regional and national vegetation classification systems. These habitats, including both terrestrial and aquatic, were identified as those of greatest conservation need in Connecticut. They include several types of forest, wetlands, and other unique communities such as sparsely vegetated areas, caves, and coastal beaches. The location, distribution and condition of each of these habitats were researched and summarized. Threats facing the key habitats and GCN species along with priority research,

Bat Research/CT DEP

Wildlife	Total number of species	Species in need of conservation *	Threatened/endangered listed species
Invertebrates	More than 20,000	196	170
Fish	168	74	7
Reptiles and Amphibians	49	30	18
Birds	335	148	50
Mammals	84	27	11
Totals		**475**	**256**

** Each state is using its own criteria for this category. Connecticut defines species of greatest conservation need as those legally listed as threatened or endangered, as well as those with declining or vulnerable populations, those having special conservation or management needs, or those for which Connecticut has a global responsibility for conservation.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Upland Woodland and Shrub **Ownership: mix of private/public**	• New England cottontail • Brown thrasher	Lack of wildlife conservation on most private lands.	• Implement specialized management techniques (e.g., burning) to benefit certain Greatest Conservation Need species.
Upland Herbaceous **Ownership: mix of private/public**	• Upland sandpiper • Bobolink	Loss, degradation, or fragmentation of habitats from development or changes in land use.	• Identify and protect key grassland areas. • Monitor population trends of grassland birds within Connecticut and as part regional efforts among other Northeastern states.
Estuarine Aquatic **Ownership: mix of private/public**	• Horseshoe crab • Atlantic sturgeon	Disturbance, destruction, alteration, or loss of critical habitat structure or function.	• Minimize disturbance of spawning habitat of horseshoe crabs. • Work with the DEP Environmental Quality Branch to mitigate the effects of sediment pollution, water contamination, nutrients and pesticides.

Recommended actions to conserve Connecticut's wildlife

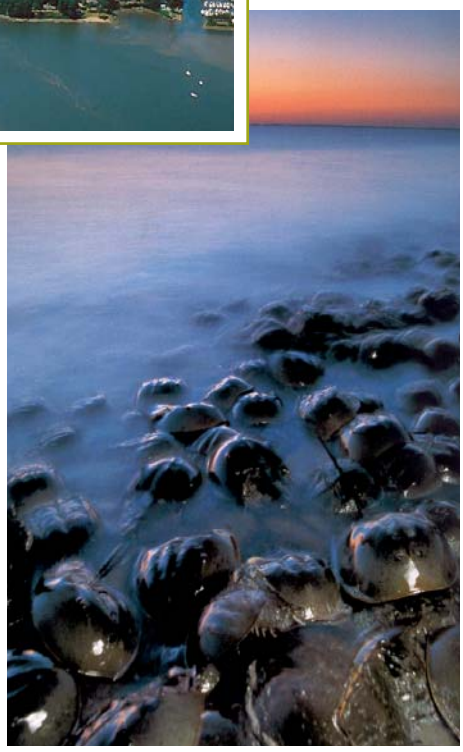
survey and monitoring needs, and conservation actions to address these threats were then developed for each habitat. Key partnership opportunities for implementation, priority areas for conservation, proposed performance measures for each research and conservation action, and a list of sources for more information were developed for each key habitat.

Connecticut River Esturary/CT DEP

By identifying the species and habitats of greatest conservation need, and defining the conservation actions and research needs required to conserve them, the plan serves as a comprehensive guide to the conservation of wildlife in Connecticut for the next decade.

Primary challenges to conserving wildlife in Connecticut

Connecticut is the 3rd smallest state in the nation and the 4th most densely populated. Despite this, Connecticut ranks third in forest cover and supports a wide variety of wildlife from black bears to Atlantic sturgeon. The challenge of balancing



Horseshoe crabs/CT DEP

"The Comprehensive Wildlife Conservation Strategy [Wildlife Action Plan] provides the greatest opportunity in the history of Connecticut for pro-active wildlife conservation."

–Gina McCarthy, Commissioner, Connecticut Department of Environmental Protection

natural resource protection with cultural priorities requires smart planning and an informed and committed public.

The most significant threats to Connecticut's land and waterscapes include habitat loss, degradation, and fragmentation from development; changes in land use; and competition from non-native, invasive species. Other threats include insufficient scientific knowledge regarding wildlife and their habitats (distribution, abundance and condition); the lack of landscape–level conservation; insufficient resources to maintain or enhance wildlife habitat; and public indifference toward conservation. In total, Connecticut's plan identifies 43 threats to wildlife species and their habitats. These threats are categorized as statewide, species-focused or habitat-focused.

Working together for Connecticut's wildlife

Connecticut's conservation actions address threats at multiple scales and levels. For this reason, implementation of these actions will be coordinated with key partners, including the U.S. Fish and Wildlife Service, U.S. Forest Service, Natural Resources Conservation Service, U.S. Army Corps of Engineers, Connecticut Office of Policy and Management, The Nature Conservancy, Partners in Flight, Connecticut Audubon, Audubon Connecticut, Connecticut Forest and Parks Association, Ducks Unlimited, Trout Unlimited, tribal groups, watershed groups, land trusts, and many others.

As the plan is implemented, the State will continue to use the best scientific information available, while communicating and collaborating with conservation partners and constituents. New information on species distribution and abundance derived from this effort will help these many partners make informed decisions on issues that affect wildlife and their habitats in Connecticut.

At a time when Connecticut's wildlife species and their habitats face formidable threats, the strategy helps provide the vision necessary for conservation partners to work together over the next decade to conserve Connecticut's wildlife.

CWCS Logo/CT DEP

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Jenny Dickson
Wildlife Action Plan Coordinator
Connecticut DEP, Wildlife Division
PO Box 1550
Burlington, CT 06013
Tel: 860.675.8130
jenny.dickson@po.state.ct.us
www.ct.gov/dep

Delaware Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Delaware snapshot

Landscape: Delaware is rich in wildlife habitats in spite of its small size, from coastal waters and beaches, to extensive tidal marshes and streams, to forested slopes and flatlands. Some are abundant and widespread, such as the mixed forests found throughout the state. Others, ranging from seepage wetlands to dune grasslands, are rare and scattered.

Banded Red Knot/DNREC

Management: More than 230,000 acres in Delaware are managed—either publicly or privately—for wildlife conservation, with about 75 percent of this land managed by the State.

Wildlife highlights: Perhaps Delaware's most dramatic natural spectacle occurs each spring on the shores of the Delaware Bay. Here, millions of spawning horseshoe crabs are followed by thousands of migrating sandpipers and plovers that feast on crab eggs, making the Bay one of the largest migratory shorebird stopovers in eastern North America.

Delaware's planning approach

The Delaware Wildlife Action Plan provides a general framework and specific strategies for conserving Delaware's native wildlife and the habitats they depend on as vital components of the state's natural heritage. The plan identifies over 450 Species of Greatest Conservation Need—many of them rare, some declining, others still fairly common—and focuses on protecting the forests, streams, meadows, offshore waters and wetlands that sustain them. The plan prescribes on-the-ground management actions for both public and private lands, strategies for enhancing partnerships and increasing public awareness, and steps to enhance the State's internal capacity to coordinate implementation.

Primary challenges to conserving wildlife in Delaware

Nearly 90 different conservation issues affecting species or habitats in Delaware

"Delaware's Wildlife Action Plan is a blueprint for a legacy we can leave for our children and grandchildren: forests, fields, wetlands and waterways that teem with wildlife, a landscape that supports the outdoors as a part of family traditions, and a sense of place for future generations."

– Governor Ruth Ann Minner

were identified in the plan, representing 16 categories, such as agricultural and forestry operations, water use, solid waste disposal, wildlife harvesting, climate change and others.

Habitat Loss/DNREC

Habitat loss, fragmentation or degradation, especially from residential development and related road construction, emerges as the most significant issue for wildlife conservation. Long confined to northern Delaware and the vicinity of a few cities and towns, the problem has now spread throughout the state. Impacts vary among habitats, with loss and fragmentation most significant in upland forests and non-tidal wetlands, and degradation—from the destruction of buffers—most significant in tidal wetlands.

Invasive species, nuisance animals and diseases, also threaten wildlife and habitats. The non-native common reed displaces native marsh grasses, while overabundant deer destroy forest wildflowers, and the Dermo parasite decimates oysters in the Bay. Even outdoor cats and dogs off leash may impact some wildlife. In addition to those species already present in Delaware, others nearby—Asian long-horned beetle, chronic wasting disease, water chestnut—can be expected to eventually reach the state.

Working together for Delaware's wildlife

A group of "key partners" guided development of the Delaware Wildlife Action Plan, providing input on species lists, habitat classification and conservation issues and actions. The group included representatives from State and Federal

"Delaware's Wildlife Action Plan is our best chance to escape the endless cycle of studies and research and actually do things to help the plants and animals we are pledged to protect. It's a true call to action and gives us the science and practice for success."

– John A. Hughes, Secretary, Delaware Department of Natural Resources and Environmental Control

Wildlife	Total number of species	Species in need of conservation	Threatened/endangered listed species
Mussels	14	10	6
Snails	27	18	0
Crustaceans	6	1	0
Arachnids	1	1	0
Insects	405	207	9
Fish	99	23	1
Amphibians	27	9	2
Reptiles	43	24	6
Birds	408	146	24
Mammals	66	18	1
Totals	**1096**	**457**	**49**

** This category was determined by a number of criteria, including rarity both in Delaware and range-wide, sensitivity to decline or other disturbance, and inclusion on certain other lists of species of concern. Generally, these species are indicative of the overall diversity and health of the State's wildlife resources. Some may be rare or declining, others may be a vital component of certain habitats, and still others may have a significant portion of their population in Delaware.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Beach and Dune Habitats	• White tiger beetle • Diamondback terrapin • Red knot	• Loss of natural beach dynamics from jetties and groins • Accidental spills of toxins and sewage • Recreational use	• Assess and monitor the environmental and economic costs and benefits of individual jetties and groins, and remove those that are ineffective or obsolete. • Develop/enhance partnerships with wildlife rehabilitators to improve emergency response. • Work with manufacturers and retailers to develop education and outreach for beach users and boaters about minimizing impacts.
Tidal High Marshes	• Four-spotted pennant (dragonfly) • Rare skipper (butterfly) • Black rail	• Overgrazing by snow geese and resident Canada geese • Excessive nutrients from agricultural runoff •Sea level rise	• Increase goose harvest on public and private lands as necessary to reduce impacts. • Work with the Department of Agriculture and the Tributary Action Teams to promote the use of Best Management Practices for erosion and sediment control. • Incorporate sea level rise scenarios in all relevant area, habitat and species management plans.

Recommended actions to conserve Delaware's wildlife

Rare Skipper on Milkweed/DNREC

Horseshoe Crabs Spawning Pair/DNREC

agencies and from non-profit conservation, land management and academic organizations and institutions. Public input was gathered during several public meetings and through the Division of Fish and Wildlife's website. The key partners group will be expanded into a broader steering committee to guide implementation of the plan.

"The plan is great for Delaware. It focuses management efforts on protecting animals and habitats that need it the most."
– Michael Riska, executive director, Delaware Nature Society

Shorebirds in Flight/DNREC

Assn. of Fish & Wildlife Agencies
David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact
Olin Allen, Biologist
Delaware Department of Natural Resources and Environmental Control
4876 Hay Point Landing Road
Smyrna, DE 19977
Tel: 302.653.2880
olin.allen@state.de.us,
http://www.dnrec.state.de.us

District of Columbia Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

District of Columbia snapshot

The District of Columbia is not only the nation's capital decorated with historic monuments and memorials, but also a refuge for nature enthusiasts, fishermen and wildlife. Within its 68 square miles, the District is home to unexpectedly large tracts of forest and National Parks, 1000 acres of city parkland, as well as two rivers and several wetlands. The District brings to light the importance of conserving habitats surrounding highly urbanized areas and the species that use urban areas. Therefore, the District can serve as a model for creating a sustainable interface between wildlife and urbanization.

Catfish/USFWS

District of Coumbia's planning approach

The District of Columbia Fisheries and Wildlife Division worked in partnership with local wildlife agencies, and conservation organizations and the public to develop the District of Columbia Wildlife Action Plan. Working with partners, the Department identified species of greatest conservation need, their habitats and threats, and actions needed to conserve those species. Local biologists and resource managers worked with conservation planners and District residents to develop the wildlife action plan, capturing the best scientific expertise in the District.

Primary challenges to conserving wildlife in the District of Columbia

Major challenges to wildlife in the District of Columbia are those that accompany rapid urbanization within a small area, such as air, water and noise pollution, soil erosion, recreation, and habitat fragmentation. The District's primary challenge is one shared by the majority

"The District of Columbia is unique in so many ways. It is the nation's capital and the only totally urban jurisdiction in the country required by federal law to manage its fisheries and wildlife resources. The Fisheries and Wildlife Division takes great pride in the fact that it is one of the 56 jurisdictions required to complete a Comprehensive Wildlife Conservation Strategy."

– Ira Palmer,
Former Program Manager,
District of Columbia Fisheries & Wildlife Division

of other states—the invasion of non-native species that change the character of the natural landscape.

For example, an overpopulation of resident Canada Geese is putting a strain on the District's wetland habitats. These geese feed on the plants that provide habitat for species of greatest conservation need, and have destroyed costly restoration work that has been done on those wetlands.

Wood thrush/USFWS

Another challenge exists in one of the District's national parks. Rock Creek Park contains some of the largest unfragmented natural areas in and around the District, so it is inundated with recreationalists. It is also home to the Spotted Salamander, a species of greatest conservation need. The salamander breeds in vernal pools of Rock Creek Park. However, the pools are disturbed and damaged by recreational activities and pets off leash. Despite signs and other enforcement, salamanders in the park continue to be threatened by recreation.

Working together for District of Columbia wildlife

Engaging the public in the development of conservation plans within their home city was a top priority for the District of Columbia Fisheries and Wildlife Division. The Division held two public meetings during which they briefed the public on plan activities and approach. Community members were encouraged to comment on the process, especially the listing of species of greatest conservation need and the proposed actions to conserve them. Integral to developing the wildlife action plan, non-governmental organizations participated in all the Working Group meetings, and their experience in conservation planning helped guide the approach we took to our wildlife action plan.

"As the nation's capital, the District of Columbia looks forward to serving as a model for urban wildlife conservation."
– Jon Siemien, Acting Program Manager, District of Columbia Fisheries and Wildlife Division

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Invertabrates	314	51	2
Fish	90	12	2
Amphibians	29	16	0
Reptiles	47	23	1
Birds	249	35	0
Mammals	53	11	0
Totals	**782**	**148**	**5**

** Species of greatest conservation need include those species which are considered 'species of concern' by National Parks located within the District and by the US Fish and Wildlife Service. Also, species which are considered 'species of concern' by neighboring wildlife agencies and local and regional conservation organizations were included. For birds, at least four agencies or organizations were required to deem the species as a 'species of concern.' For all other taxa, two or more agencies or organizations were required.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Hardwood forest **Ownership: The largest tract of hardwood forest occurs on federal parkland. The rest occurs largely on city parks, residential yards and schoolyards.**	• Bald eagle • Wood thrush (the "District bird") • Gray fox • Wood turtle • American toad • Spotted salamander • Appalachian grizzled skipper	• Invasive/ alien species • Recreation	• Fully fund the Exotic Plants Management Team and implement the team District-wide. • Maximize use of existing recreational areas.
Rivers and streams **Ownership: The District has jurisdiction over waterbodies.**	• Bald eagle • Wood duck • American shad • Sturgeon • American mink • Spotted turtle • Bullfrog • Dwarf wedgemussel	Sedementation and changes to the hydrologic regime.	• Promote best management practices for all District of Columbia projects. • Work with outside agencies and developers to mitigate impacts to the watershed.
Urban landscapes **Ownership: This land is both public and private and shared among schools, golf courses, cemeteries, parks, etc.**	• Chimney swift • Red-shouldered hawk • Eastern chipmunk • Box turtle	Recreation and Contaminants	• Actively participate in land use planning committee. • Conduct Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) cleanups and/or pre-CERCLA investigations.

Recommended actions to conserve DC's wildlife

Mallards/USFWS

Kingman Wetlands/DCFWD

Herring Day/DCFWD

Assn. of Fish & Wildlife Agencies
David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact
Mary Pfaffko, Wildlife Biologist
DC Fisheries & Wildlife Division
51 N Street, NE
Washington, DC 20002
Tel: 202.262.8710
Mary.pfaffko@dc.gov
doh.dc.gov/doh/cwpview,a,1374,q,601604.asp

Florida's Wildlife Legacy Initiative and Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Florida snapshot

Geography: Florida's vast array of native wildlife depends upon highly productive and often delicate natural systems that range from the tropical coral reefs of the Keys and the Everglades' "river of grass" to the crystal blue waters of natural springs and the quiet beauty of the rolling sandhills.

Landscape: Florida's coral reefs, beautiful lakes, pristine beaches and unique recreational opportunities attract 80 million visitors each year.

Great Egret/Jason Hahn

Wildlife: With over 700 animals on land, more than 1,250 freshwater and marine fish, numerous other aquatic and marine vertebrates and many thousands of insects and other invertebrates, Florida is teeming with wildlife.

Florida's planning approach

Florida's Wildlife Legacy Initiative is a comprehensive program developed by the Florida Fish and Wildlife Conservation Commission to address the conservation needs of all wildlife in Florida. The mission of the Initiative is to work together to sustain Florida's diverse array of native wildlife and their habitats for future generations through implementing Florida's Wildlife Action Plan, developing partnerships, and using funding sources effectively.

Florida's Wildlife Action Plan provides a strategic framework to support the state's native wildlife and natural habitats. The action plan identifies 974 animals and the actions needed to conserve them. A habitat-based approach categorizes the state into freshwater, saltwater, and land systems consisting of forty-five habitat categories. The plan recognizes that Florida is an interwoven system of habitats, and that wildlife moves freely across the landscape with most species dependent on a mix of habitats. By sustaining the health and integrity of these habitats, the broad array of wildlife and natural places within them are preserved for the enjoyment of future generations.

Primary challenges to conserving wildlife in Florida

Florida's action plan identifies many threats that cross multiple habitats. Five of these threats ranked as high statewide priorities.

"The goal of Florida's Wildlife Action Plan is to sustain the incredibly rich and diverse fish and wildlife resources of the state for the enjoyment and use of our citizens and visitors. Florida is implementing a sound comprehensive strategy, developing and expanding cooperative partnerships and strategically using State Wildlife Grants to leverage greater resources."

– Ken Haddad, Executive Director of the Florida Fish and Wildlife Conservation Commission

Image provided by VISIT FLORIDA

"The Florida Wildlife Action Plan is an essential piece of the combined effort of all 56 states and territories to proactively conserve declining wildlife before they become rare and more costly to protect. Florida is important to a rich variety of wildlife and habitats not found anywhere else. Investing in Florida's wildlife action plan now will help conserve fish, wildlife and natural areas for future generations to enjoy."

– John Baughman, Executive Vice President, Association of Fish and Wildlife Agencies

Habitat loss: This threat is directly related to human development and activities, for example roads and cars, shopping centers, and houses. Habitat loss and fragmentation isolate wildlife and can prevent them from locating food, water, shelter and mates. As the human population increases, more land will be developed with the highest pressure occurring on coastal and upland habitats.

Loss of water resources: This threat stems from groundwater withdrawal, drainage of wetlands, and inadequate stormwater management. Many of Florida's springs have declining water quality and reduced water flow. Contamination by fertilizers and harmful chemicals can degrade water systems to the point that they no longer support wildlife and are harmful to humans. Increased salt levels are another source of decline in water quality.

Fire management: Many of Florida's habitats are fire-maintained systems, and many animals and plants depend on periodic fires to maintain healthy habitat conditions. Lack of fire is a threat in many upland habitats and can result in reduced availability of flowers, fruits, seeds and other foods for wildlife. Fire hazards increase when fire frequency and timing are altered, as well as when fire management does not keep pace with the accumulation of fuels. Consequently, when fire does occur it can be severe, resulting in loss of natural places for wildlife to live and threats to human health and safety.

Exotic plants and animals: Florida's mild climate contributes to the establishment of many species of exotic plants, mammals, fish, amphibians and reptiles. Exotic marine species also are introduced into Florida waters when large boats discharge bilge water and exchange ballast water in ports or in nearshore marine environments. While the distribution of exotic species differs regionally in Florida, the threat posed by these species occurs across all habitats. Exotic species pose direct threats to wildlife through competition, predation and transmission of disease.

Artificial structures: The overall effect of dams, seawalls and other sources of shoreline hardening, dredging, beach nourishment and impoundments also can be a threat to Florida's water resources.

Wildlife	Total number of species	Species of conservation need*	Threatened/endangered listed species
Invertebrates	50,000[1]	369	10
Fish	1,250	378	3
Amphibians	57	19	1
Reptiles	114	48	12
Birds	485	104	10
Mammals	99	56	15
Totals		**974**	**51**

[1] *Estimate*

** Each state is using its own criteria for this category. Florida focuses on the full array of native wildlife, including fish and invertebrates, state and federally threatened/endangered species, and game animals.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Scrub *Ownership:* Approx. 80% public 20% private	Spotted skunk Florida scrub-jay Striped newt Gopher tortoise	• Conversion to agriculture and development • Altered natural fire cycles	• Identify Scrub that is to be converted to other uses and work with landowners on a voluntary basis to preserve the habitat via acquisition, easement agreements or other incentives programs. • Target preservation of large contiguous areas rather than small piecemeal efforts.
Freshwater Marsh and Wet Prairie *Ownership*: Approx. 72% public 28% private	River otter Little blue heron Carpenter frog Spotted turtle	• Conversion to agriculture and development • Surface water withdrawal	• Encourage funding projects that restore and conserve habitats. • Form an interagency task force to streamline the permitting process for wetland restoration projects that restore natural water movement.
Coral Reef *Ownership*: 100% Public	Atlantic bottlenose Dolphin Green sea turtle Spotted eagle ray Blue parrotfish	• Vessel impacts • Coastal development	• Support a marine/estuary trust fund. • Create state and federal collaborative incentive-based programs to more effectively preserve coastal resources across jurisdictions.

Recommended actions to conserve Florida's wildlife

Image provided by VISIT FLORIDA

Shallow-water reef, Florida Keys Marine Sanctuary/NOAA

"Fish and wildlife resources in Florida will benefit greatly from the strategic thinking and science-based approach that went into this wildlife action plan. We are proud to work in partnership with the Florida Fish and Wildlife Conservation Commission as it implements its plan. The result will be sustainable ecosystems and healthier wildlife populations."
– Sam D. Hamilton, Southeast Regional Director for the U.S. Fish and Wildlife Service

Such management actions can be incompatible with wildlife, due to reduced land and water quality or destruction of habitats.

Florida scrub/James Valentime

Working together for Florida's wildlife

Numerous state, federal and local agencies, universities and education centers, conservation and environmental organizations, recreation groups, as well as businesses and the general public participated in questionnaires, 16 workshops, two conferences, an open house and an on-line virtual workshop. A Web site and e-mail contact list of approximately 1,200 individuals' raised awareness and participation in action plan development. A broad cross-section of stakeholders with interest or expertise in Florida's natural resources contributed over 5,000 comments on two draft plans.

The Wildlife Action Plan is one major component of Florida's Wildlife Legacy Initiative. The Initiative seeks to conserve our native wildlife and habitats through measures emphasizing non-regulatory, voluntary, and incentive-based actions designed to create partnerships. Reaching the goals of the Initiative is an ambitious undertaking that will involve the efforts and energies of numerous individuals, groups, and agencies. Commission staff is dedicated to playing a leading role in these efforts and is committed to making the Initiative a success.

Image provided by VISIT FLORIDA

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Katherin Haley
Initiative Coordinator
Florida's Wildlife Legacy Initiative
Florida Fish and Wildlife Conservation Commission
620 S. Meridian St. MS: 2A
Tallahassee, FL 32399
Tel: 850.488.3831
Kate.Haley@MyFWC.com
MyFWC.com/wildlifelegacy

Georgia Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Georgia snapshot

Geography: Georgia contains portions of five major physiographic provinces and a wide variety of habitats ranging from high-elevation cliffs to underground caverns, from piedmont granite outcrops to coastal plain pitcherplant bogs, and from headwater streams to the mouth of the Altamaha River.

Landscape: Less than 10% of Georgia is publicly owned, and most of this public land is found in the mountains of North Georgia or in the lower Coastal Plain. While ample opportunities exist for wildlife habitat improvements on public lands, expansion of programs that provide technical and financial assistance for protection and restoration of habitat on private lands is critically important for maintenance of Georgia's wildlife diversity.

Wood Storks/Georgia DNR

Wildlife: Georgia is one of the most biologically diverse states in the nation, ranking second in number of amphibians, third in the number of freshwater fishes, third in number of crayfishes, seventh in the number of reptiles, and seventh in the number of vascular plants. Moreover, Georgia ranks sixth in the nation in overall species diversity based on numbers of vascular plants, vertebrate animals, and selected invertebrates.

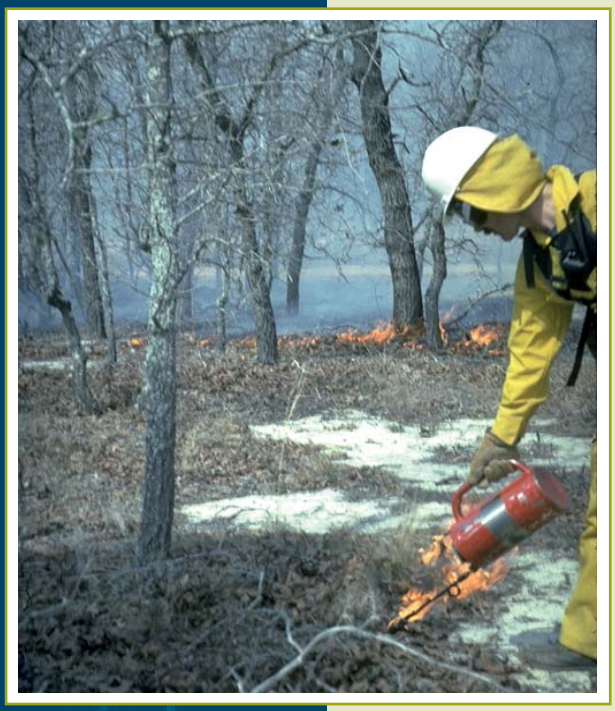
Georgia's planning approach

The general approach taken in the planning effort was to emphasize activities that would lead to more effective wildlife conservation at local and state levels. The goal of the Wildlife Action Plan is to conserve Georgia's animals, plants, and natural habitats through proactive measures emphasizing voluntary and incentive-based programs on private lands, habitat restoration and management by public agencies and private conservation organizations, rare species survey and recovery efforts, and environmental education and public outreach activities.

Innovative analytical approaches and methods were utilized to explore new ways of identifying and addressing conservation priorities for species and habitats in Georgia. Examples include development of datasets and analytical tools to allow historic vegetation mapping, and the use of land cover data,

"Growing up on a farm in rural Georgia, I learned early on the most basic principles of stewardship. I learned them from my father and from the land itself. And that most basic lesson was simply this: If you take care of the land, the land will take care of you."

– Georgia Governor Sonny Perdue



Controlled Burning Ohoopee Dunes/Georgia DNR

along with species-habitat models and documented rare species occurrence data, to identify potential "conservation opportunity areas". Other approaches include delineation of high priority streams and watersheds, and the development of recommendations for new ways of sharing biodiversity information and conservation messages with other public agencies, private conservation organizations, educators, land managers, and the general public.

A list of 296 high priority animals and 323 high priority plants was developed based on input from DNR staff and other biologists. High priority habitats and landscape features were also identified for each of five ecological regions of the state. Specific programs to address conservation needs for these species and habitats were identified and ranked, and resources, partnerships, performance indicators, and monitoring needs were identified for each of these high priority conservation actions. The result is a detailed wildlife action plan that will help guide conservation of Georgia's plants, animals and natural habitats.

Primary challenges to conserving wildlife in Georgia

Georgia's action plan identifies 25 types of problems affecting wildlife species and their habitats. Some of the most significant of these include invasive exotic species, altered fire regimes, and dam and impoundment construction.

Invasive exotic species are non-native plants and animals that can cause ecological and economic harm. Examples of invasive species that impact high priority species and habitats in Georgia include feral hogs, flathead catfish, channeled apple snail, hemlock wooly adelgid, cogon grass, and Chinese privet.

Altered fire regime refers to an unnatural frequency, seasonality, or intensity of fire that reduces habitat quality. This includes

Wildlife	Total number of species	Species of Conservation Concern*	Federally Threatened/ endangered species
Birds**	328	33	7
Mammals	92	23	4
Amphibians	86	22	1
Reptiles	83	22	6
Fishes (Freshwater)	250	74	8
Mollusks	191	75	17
Aquatic Arthropods	?	47	0
Plants***	3,000+	323	25
Totals		**619**	**58**

** Each state is using its own criteria for this category. Georgia focuses on wildlife species with small or declining populations or other characteristics that may make them vulnerable (this includes legally recognized threatened/endangered species).*

*** Includes species known to breed in Georgia as well as migratory birds.*

**** Includes vascular and nonvascular plants.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Mountain Bog **Ownership: mix of private and public**	Bog turtle (reptile) Swamp pink (plant)	• Hydrologic alterations • Encroachment of woody vegetation	• Restore mountain bogs by improving hydrologic functions and removing excess woody vegetation. • Propagate and release bog turtles and associated species into restored habitat
Brownwater River **Ownership: mix of private and public**	Robust redhorse (fish) Shoals spiderlily (plant) Altamaha spinymussel (mollusk)	• Sedimentation of shoals • Dams and other barriers to dispersal • Invasive exotic species	• Protect vegetated stream buffers to limit sedimentation • Provide fish passage around dams and eliminate barriers at road crossings by improving culverts • Control invasive species such as flathead catfish
Longleaf Pine Forest **Ownership: mix of public and private**	Bachman's sparrow (bird) Flatwoods salamander (amphibian) Chaffseed (plant)	• Altered fire regimes • Habitat fragmentation • Invasive exotic species	• Reestablish growing season fire regime to improve habitat quality • Provide incentives to private landowners to restore and maintain longleaf pine habitats • Reduce use of nonnative plants in landscaping and erosion control

Examples of recommended actions to conserve Georgia's wildlife

suppression of fires in fire-adapted communities, prescribed burns conducted in the wrong season, and fires that are too intense for communities that are not fire-adapted. Altered fire regimes are responsible for degradation of many of Georgia's natural habitats.

The construction of dams and impoundments (from agricultural ponds to large reservoirs) can alter stream flows and water temperatures and create barriers to dispersal of fish and other aquatic species. Many of Georgia's imperiled aquatic species are vulnerable to habitat degradation and fragmentation resulting from man-made impoundments.

Invasive Channeled apple snail/Georgia DNR

Working together for *Georgia's wildlife*

The Georgia Wildlife Action Plan was developed with input from a wide array of public and private agencies and organizations. A steering committee composed of representatives of state and federal agencies, private conservation organizations, and private landowners provided guidance for the planning effort. An interagency committee, first convened in November 2005, is facilitating the implementation of the plan. Like the steering committee, the implementation committee includes representatives from a broad range of public and private conservation organizations and land managing entities.

Stocking Lake Sturgeon/Georgia DNR

Efforts to involve the public in the development, revision, and implementation of the wildlife strategy included public meetings, numerous presentations to groups around the state, news releases, brochures, fact sheets, newspaper and radio interviews, and a project website. Throughout the planning process, updates on the wildlife action plan were provided to the public and comments on the plan were solicited. Six regional stakeholder meetings, at which more than 60 organizations were represented, were held around the state to gather input from knowledgeable individuals. A public review draft of the document was developed on May 31, 2005 and posted on the project website. The public review period was from June 1 to July 15, 2005. Six public meetings were held in June 2005 to solicit input on the public review draft prior to development of the final draft.

"This conservation strategy articulates a set of interrelated wildlife conservation goals and prioritizes methods and approaches to reach these goals. Through the development of this conservation strategy, Georgia DNR and its conservation partners have indicated their commitment to maintain the natural heritage of this great state."
- Noel Holcomb, Commissioner,
Georgia Department of Natural Resources

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Dr. Jon Ambrose
Wildlife Action Plan Coordinator
Georgia Department of Natural Resources
Wildlife Resources Division
2070 US Highway 278 SE
Social Circle, GA 30025
Tel: 770.761.3035
jon_ambrose@dnr.state.ga.us
www.gadnr.org/cwcs/

Hawai'i Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Hawai'i snapshot

Geography: The Hawaiian Islands are the most isolated archipelago in the world, situated more than 3200 km (2000 mi) from the nearest continent. Hawai'i provides a textbook example of adaptive radiation, the process by which many new species evolve from a single common ancestor in a relatively short time span. With the world's highest degree of endemism, 90 percent for terrestrial species and 20 percent for marine species, the diversity of unique species that have evolved in the islands is virtually unparalleled. Furthermore, the combinations of temperature and precipitation found in Hawai'i include nearly 95% of the climatic variation in the Earth's tropics, resulting in an extremely diverse range of habitat types founds at all elevations.

South Kona Mesic Forest on the island of Hawai'i/Hawai'i DLNR

Landscape: Hawai'i is often referred to as the extinction capital of the United States, possessing one-third of the species federally listed as endangered. Much of Hawaii's biological diversity however, is still in existence and can be conserved with well-planned management and collaborative efforts. Given the endemic nature of many of the species found in Hawai'i, the focus for highlighting wildlife was on native species that were grouped into ten categories: terrestrial mammal, birds, terrestrial invertebrates, freshwater fishes, freshwater invertebrates, anchialine pond fauna, marine mammals, marine reptiles, marine fishes, and marine invertebrates. Based on public feedback, Hawai'i included native plants as well. Hawaii's CWCS is a historic endeavor, as never before has the state attempted to address the needs of so many of its unique species in such a comprehensive manner, from the mountains to the sea.

Federally endangered Hawaiian hawk/Hawai'i DLNR

"By building on earlier conservation and research efforts, the CWCS uses the best possible science available to establish statewide objectives and strategies to address the challenges facing our native wildlife and habitat."

-Linda Lingle, Governor of Hawai'i

Federally endangered *Achatinella* tree snail/Hawai'i DLNR

Wildlife: management in Hawai'i focuses on preventative measures and threat abatement. The major threats to Hawaii's wildlife include habitat loss and degradation, invasive species introductions, excessive extractive uses, uneven compliance with existing laws, management constraints, and inadequate funding for research and management.

Hawaii's planning approach

From the beginning, Hawaii's CWCS was a collaborative effort involving partners such as government agencies (federal, state, county), non-profit organizations, universities, private landowners, researchers and scientists, community members, partnership initiatives, resource user groups such as hunters, recreationists, fishermen, Native Hawaiians, and the public at large. Primary staffing and project management was provided by the Department of Land and Natural Resources and the University of Hawaii Pacific Cooperative Studies Unit. From developing the list of species of greatest conservation need to finalizing the final plan, Hawaii's CWCS team developed advisory groups, conducted workshops and public meetings, and used a website as well as a mailing list to jointly develop its CWCS through a collaborative process. This approach to the overall planning and strategy development was chosen in the recognition that conserving and protecting Hawaii's unique native wildlife and habitats for future generations is everyone's responsibility, duty, and honor.

Primary challenges to conserving wildlife in Hawai'i

The primary threats to wildlife in Hawai'i include habitat loss and degradation, introduced invasive species, limited information and information management, uneven compliance with existing conser-

Cliff and Ridge habitats (these areas are usually native and require preventative management actions)/DLNR

Wildlife	Species of greatest conservation need*	Threatened/endangered listed species
Snails	800+**	41+
Invertebrates	5,000+***	3
Fishes	159****	0
Reptiles	6	5
Birds	77	34
Mammals	27	8
Totals	5769+	91

**The Totals included are from the submitted document page 3-13 and do not include any revisions conducted since submission.*

***Including terrestrial and aquatic species*

****Does not include snails (noted above), nor all marine invertebrates*

*****Including fresh and marine*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Habitat example Montane Mesic habitats **Ownership: public and private**	• Ohia (*Metrosideros polymorpha*) • I'iwi (*Vestiaria coccinea*) • *Achatinella* spp.	Conversion to pasture land, invasive weed species, browsing by feral ungulates such as pigs and goats, clearing for commercial tree planting	Through supporting public-private partnerships such as watershed partnerships to work with private landowners to identify areas in need of conservation and restoration
Lowland dry habitats **Ownership: public and private**	• Wiliwili (*Erythrina sandwichensis*) • Hawaii Amakihi (*Hemignathus virens*)	Invasive weed species, habitat loss, browsing by feral ungulates, fire	Identify priority habitats for protection and restoration initiatives
Coastal habitats **Ownership: public and private**	• Naupaka kahakai (*Scaevola sericea*) • Wedge-tailed shearwater (*Puffinus pacificus*) • *Megalagrion* spp.	Development, habitat degradation by invasive species, fire	Support protected areas such as wildlife sanctuaries and refugees and activities centered on restoration and prevention
Freshwater aquatic habitats (streams) **Ownership: public and private**	• O'opu 'alamo'o (*Lentipes concolor*) • Newcomb's snail (*Erinna newcombi*)	Insufficient instream flow due to diversions and dams, Pollution through sedimentation, inadequate protections of mid-elevation streams, multiple landowners, inadequate data on fauna	Establish instream flow standards throughout the state, identify priority streams in need of protection and management activities, increase efforts to collect data to assess stream fauna and health, work with landowners to protect priority streams

Recommended actions to conserve Hawaii's wildlife

vation laws, rules, and regulations, overharvesting and excessive extractive use, management constraints such as inadequate or conflicting policies, and inadequate funding. Due to their evolutionary history and high levels of endemism, Hawaii's wildlife species are particularly susceptible to the threats posed by the introduction and spread of introduced species and pathogens. Non-native species may out-compete native species or may directly harm native species through predation, infection, and interbreeding and hybridization. Hawaiian terrestrial animals evolved in the total absence of mammalian predators and are extremely vulnerable to predation by these introduced species, especially rats (*Rattus* spp.), feral cats (*Felis silvestris*), and mongoose (*Herpestes auropunctatus*). Rats have been implicated in the decline in native bird populations during the early 1900s. Feral cats are extremely skilled predators and have been responsible for the extinction of birds on other islands.

Given that Hawai'i is the main transportation hub for the Pacific involving military, tourism, and commercial transport, the state

Restoration of native plants by a school group on O'ahu/ Hawai'i DLNR

is at high risk for invasive introduction which will affect not only native wildlife and habitats but also the human population via diseases such as West Nile Virus, and the economy via animals such as the Brown Tree Snake.

Working together for Hawaii's wildlife

Hawaii's CWCS was developed collaboratively with many partners and interested members of the public. The Department began by alerting people to this initiative via a mailing to over 600 organizations and individuals, as well as by creating a website to share information and gather feedback from the public. The Department also built on existing and prior conservation efforts with analysis of management and recovery plans and data resources. From these methods we developed a mailing list to consistently update partners on the development of the plan, as well as to solicit feedback on various products such as the list of SGCN and the species fact sheets (which were also made available on the website for review and comment). Additionally, the Department participated in several outreach forums such as Earth Day events and conferences in which booths and presentations were made about the CWCS. Technical workshops and public meetings were held on six islands to share the first draft of the plan, and based on the feedback from these meetings a second draft of the plan was developed and made available via the website and mail. This resulted in the plan that was submitted to the National Advisory Acceptance Team.

Area suffering from feral pig damage in 1998/Hawai'i DLNR

Same area in 2005 restored with fencing and removal of feral pigs/Hawai'i DLNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW, Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Scott Fretz, Wildlife Program Manager
Hawai'i Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, HI 96813
Phone: 808.587.4187
wildlife.strategy@hawaii.gov
http://www.state.hi.us/dlnr/dofaw/cwcs
http://www.hawaii.gov/dlnr/dar/sawcs.htm

Idaho Comprehensive Wildlife Conservation Strategy

What is a conservation strategy?

Congress asked each state to develop a strategy for wildlife, known technically as a Comprehensive Wildlife Conservation Strategy (CWCS). These proactive strategies examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Idaho snapshot

Landscape: Idaho is a Rocky Mountain state known for its scenic beauty, diverse landscape, and abundant natural resources. Fertile soil, rich mineral deposits, thick forests, vast rangelands, and numerous rivers and streams have supported agriculture, mining, and forestry since the Idaho Territory was established in 1863. Habitats vary from dense forests in the north to high desert sagebrush steppe in the south. Idaho has the largest block of designated wilderness with the longest undammed river in the conterminous U. S. flowing through it.

Pygmy Rabbit/IDFG

Management Issues: Idaho is 64 percent publicly owned, and as such is managed primarily by two agencies: the USDA Forest Service and the USDI Bureau of Land Management. Because of this, Idaho presents a different scenario for conservation than states that are predominantly privately–owned.

Highlighted fish and wildlife: Idaho is home to an assemblage of wildlife as diverse as the landscape it occupies: wide–ranging carnivores such as gray wolf and grizzly bear, sagebrush obligates such as pygmy rabbit and greater sage–grouse, and anadromous fishes such as chinook and sockeye salmon exemplify Idaho's wildlife diversity.

Idaho's planning approach

The planning team for the Idaho Comprehensive Wildlife Conservation Strategy consisted of a coordinator and a core team of individuals from the Idaho Department of Fish and Game. We involved multiple staff levels within the Department and the Director took an active role in the Strategy Leadership Committee, as well as met with stakeholders and gave presentations on the Strategy.

We chose an ecologically–based landscape approach to planning that allowed us to organize the Strategy by geographic regions—referred to as "ecological sections" or simply "sections"—expected to have similar species, habitats, and conservation needs. We combined this section–level approach with a fine–scale approach of identifying species–level issues and conservation needs for 229 species. The use of ecological sections as a means of planning appealed to us

"The Wildlife Conservation Strategy is a source of valuable information about the diversity of wildlife in Idaho. It will help guide those with the responsibility and the interest in conserving Idaho's wildlife to take appropriate actions before federal protection becomes warranted."

- Steven M. Huffaker, Director, Idaho Department of Fish & Game

because of its wide acceptance within the ecological community and its close association to The Nature Conservancy's ecoregional plans and Partners in Flight regional plans. In addition, this approach facilitates coordination with adjacent states, e.g., Oregon and Washington, who organized their strategies similarly.

Peregrine Nestling/IDFG

The aim of Idaho's Strategy is to provide a common framework that will enable conservation partners to jointly implement a long–term approach for the benefit of "species of greatest conservation need." To this end, this strategy promotes proactive conservation to ensure cost–effective solutions instead of reactive measures enacted in the face of imminent losses.

Primary challenges to conserving wildlife in Idaho

Idaho faces many challenges to ensuring that healthy wildlife populations remain for future generations. As the state's population grows, development and transportation systems also increase. Idaho's working farms, ranches, and private forests have long provided homes for fish and wildlife. But its burgeoning population is converting many of these areas into residential developments. Subdivisions and second homes are pushing deeper and deeper into core areas used by wildlife. As a result, transportation systems have to be improved and coupled with development, fragment habitats used by wide-ranging species. State and local governments need to have a strategy

Wildlife	Total number of species	Species in need of conservation *	Threatened/endangered listed species
Lampreys	1	1	0
Ray-finned fishes	85	26	6
Amphibians	15	6	0
Reptiles	23	5	0
Turtles	1	0	0
Birds	383	54	1
Mammals	111	33	5
Bivalves	26	3	0
Gastropods	149	49	5
Branchiopods	2	0	0
Crustaceans	4	1	0
Arachnids	3	3	0
Amphibians	388	48	0
Totals	**1191**	**229**	**17**

** Each state is using its own criteria for this category. In Idaho, to define the overall focus and scope of species included in the Strategy, we considered the following: (1) full array of wildlife species, (2) species of greatest conservation need, (3) species with low and declining populations, (4) species indicative of the diversity and health of Idaho's wildlife, and (5) species whose needs are not being met through other funding sources or for which we lack basic information on their distribution and abundance.*

Wildlife Highlights

for ensuring that wildlife can continue to thrive as Idaho's landscapes change.

With each passing year, it becomes more obvious that noxious weeds and other invasive species are an enormous threat to a wide range of fish and wildlife. Noxious weeds have already degraded several million acres of Idaho's forests and grasslands. Aquatic invaders, such as Eurasian water milfoil and New Zealand mud snail, are spreading in our waterways. Even more damaging invasives have been found in nearby states. The magnitude of the invasive species threat is still not fully understood by the public, but that is changing. The response of the public and natural resources managers to this threat must improve if strong and diverse wildlife populations are to survive in this state.

Riparian Planting/IDFG

Working together for Idaho's wildlife

The Idaho Department of Fish and Game used a variety of methods to facilitate public input and involvement in developing its Strategy. Immediately prior to developing the Strategy, Fish and Game conducted focus groups, a statewide public opinion survey, and workshops to gather information about public attitudes, opinions, and preferences regarding the management of fish and wildlife including nongame and at–risk species.

Early in the process of developing the Strategy, Fish and Game established a Leadership Committee that represented agencies and entities that would likely use or implement the Strategy. This committee comprised representatives of the USDA Forest Service, Idaho Legislature, Idaho Association of Counties, Intermountain Forest Association, USDI Fish and Wildlife Service, Governor's Office of Species Conservation, USDI Bureau of Land Management, Office of Governor Dirk Kempthorne, The Nature Conservancy, private ranching community, Idaho Conservation League, University of Idaho, Idaho Council on Industry and the Environment, Idaho State Department of Agriculture, and Idaho Department of Lands.

In addition, we contracted with the Environmental Science and Public Policy Research Institute at Boise State University to conduct public involvement and outreach activities specifically for the Strategy. An Idaho-specific brochure was developed for distribution through Idaho Fish and Game regional offices and at outreach meetings. Presentations were made to 23 groups—primarily those involved with natural resources issues—and at several less formal meetings with a limited number of stakeholders across the state. Resource Advisory Committees (RACs) of the Forest Service and Bureau of Land Management were targeted because of the broad nature of interests represented by members. The purpose of the presentations was to inform stakeholders about the development of the Strategy, to gather input, and to encourage participation in implementing the Strategy.

"We believe the Wildlife Strategy is a proactive approach to conserving and enhancing all fish and wildlife in Idaho. For too long we have reacted too late in preserving species in decline. We need to ensure Idaho's tremendous variety of species remain abundant for all Idahoans to enjoy."

- James L. Caswell, Administrator, Governor's Office of Species Conservation

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Dry Conifer Forest **Ownership: Mix of private/ public**	• White–headed Woodpecker • Pygmy Nuthatch • Northern Idaho Ground Squirrel	• Reduced fire frequency has altered the vegetative structure and composition resulting in increased risk of stand–replacing fires. • Highways and roads can fragment forest habitats and result in direct mortality.	• Restore and maintain historic fire intervals through the use of prescribed fire, timber harvest, and thinning. • Identify and manage linkage zones to provide connectivity between habitats for wide–ranging species.
Southern Xeric Shrubland and Steppe **Ownership: Mix of private/ public**	• Columbia Spotted Frog • Greater Sage–Grouse • Pygmy Rabbit	• Invasive plant species replace native species and reduce the value of habitat for wildlife. • Conversion and degradation has resulted in landscape–scale loss and fragmentation of this habitat.	• Use appropriate methods to control invasive plant species and restore native species. • Identify and conserve large remaining areas of intact shrub–steppe in good ecological condition.
Riparian Woodland **Ownership: Mix of private/ public**	• Yellow–billed Cuckoo • Mountain Quail • Idaho Giant Salamander	• Overgrazing or grazing at the wrong time of the year can reduce the value of the habitat for wildlife. • Alteration of stream flows can affect streamside wetlands and vegetation.	• Adjust season and level of use as needed with appropriate grazing schedules and best management practices to promote desired habitat conditions and restoration efforts. • Develop flow regimes that balance the needs of man's use of water and natural processes that maintain riparian habitats. Obtain minimum stream flows where necessary and feasible to maintain riparian habitats.

Recommended actions to conserve Idaho's wildlife

Assn of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Charles E. Harris
State Nongame Wildlife Manager
Idaho Department of Fish and Game
600 South Walnut, P.O. Box 25
Boise, ID 83707-0025
Tel: 208. 287.2747
charris@idfg.idaho.gov
http://fishandgame.idaho.gov/CDC/

Illinois Wildlife Action Plan

What is a wildlife action plan?

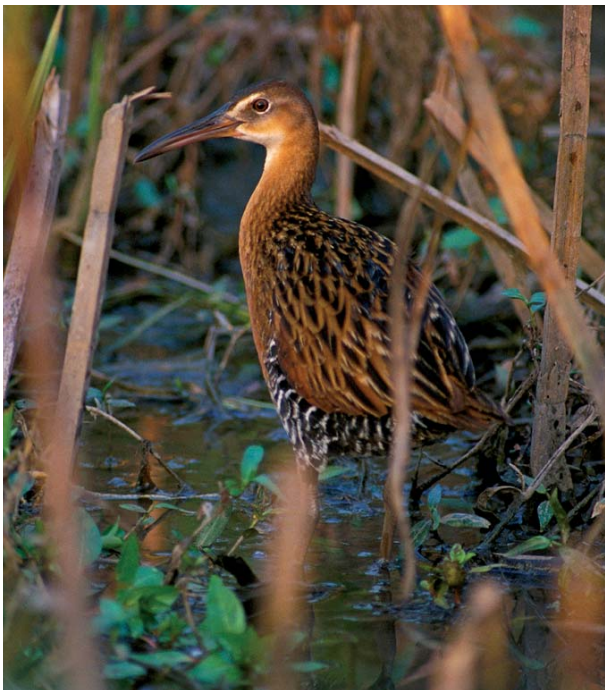
Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Illinois snapshot

Landscape: Illinois spans nearly 400 miles from north to south, with species ranging from Ice Age relicts like the Iowa Pleistocene snail on rocky outcrops in the northwestern corner of the state, to bird-voiced treefrogs in 1,000-year old cypress swamps at the southern tip. In between live 12 million people, reaping the benefits of fertile soils, 26,000 miles of streams and rivers, and other natural treasures.

Management: The amount of forest in Illinois has doubled over the past century, but in spite of efforts like the Conservation Reserve Program, the state has less than half as much grassland today as in 1950. The Mississippi Flyway and Lake Michigan shoreline continue to bring spectacular concentrations of migratory birds to Illinois, and the state has long been a leader in identifying and conserving high-quality natural areas.

Wildlife highlights: Bald eagles and river otters, once endangered, now thrive. Meanwhile, greater prairie-chickens—the signature bird of the tallgrass prairie—barely hang on in The Prairie State. Water quality and many fish populations have greatly improved, but a quarter of our freshwater mussels are extinct or extirpated. Game animals like white-tailed deer, wild turkeys, and Canada geese are doing well, while bobwhite are not.



King Rail/USFWS

Illinois' planning approach

The Illinois Wildlife Action Plan provides a means for public agencies, not-for-profit organizations and citizens to focus collective efforts on common goals. The action plan gives an overview of the major habitat types: their current condition, challenges to their integrity, and actions to conserve them. Assessments of the 15 ecological regions of Illinois focus on key natural communities and species, places with special importance for conserving

"Illinois has tremendously valuable land and water. As we use these resources for housing, agricultural production and economic development, it is important to consider how we are going to conserve our wildlife and natural areas for future generations to enjoy. A pro-active plan will be more cost-effective than waiting until wildlife becomes more rare and more difficult to protect."

– Sam Flood, Acting Director of the Illinois Department of Natural Resources

wildlife, and opportunities for outdoor recreation. The assessments also denote regions with partners who are already working together locally.

Kids in a stream/Adele Hodde

Primary challenges to conserving wildlife in Illinois

In much of Illinois, intensive agriculture and development limit wildlife habitat. Carefully planned development, along with incentives and technical assistance to landowners are keys to conserving wildlife species. Habitat fragmentation and fire suppression, among other factors, diminish habitat quality. Invasive species are an enormous problem. For example, Asian carp escaped from fish farms into the Mississippi River system. Now , Asian carp account for 90 percent of the biomass in some pools of the Illinois River and are threatening to invade the Great Lakes. Securing a future for Illinois's wildlife will require a blend of maintaining the habitat we have, helping landowners restore some habitat that has been lost, and finding ways to balance economic needs and wildlife conservation.

Working together for Illinois' wildlife

More than 850 people representing 150 agencies and organizations helped develop the Illinois Wildlife Action Plan. These partners represented diverse perspectives, and included the Illinois Farm Bureau, Field Trial Clubs of Illinois, and the Sierra Club. They also varied greatly in geographic scope, from the USDA Natural Resources Conservation Service to municipal park districts. In the fall of 2004, the Illinois Department of Natural Resources hosted 8 planning workshops for partners. Drafts of the Illinois Wildlife Action Plan were posted on our website, with hard copies sent on request, for 2 public comment periods in the spring and summer of 2005.

Grouped by habitat and issues, these seven overlapping 'campaigns' outline the steps to reach our goals:

Farmland & Prairie Campaign - Expand-

"The Illinois Wildlife Action Plan is not just an inventory of species, but a plan to address the particular needs of wildlife that are declining This is a blueprint for the future of successful wildlife management in Illinois."

– Joint statement from Carl Becker of The Nature Conservancy, John Burk of the National Wild Turkey Federation, Marilyn Campbell of the Illinois Audubon Society and Eric Schenck of Ducks Unlimited

Wildlife	Total number of species	Species in need of conservation *	Threatened/endangered listed species
Mussels	61**	29	24
Snails	170	25	2
Insects	About 17,000	347	12
Crustaceans	207	22	10
Fish	187	80	31
Amphibians	41	14	8
Reptiles	60	23	16
Birds	300**	83	32
Mammals	59	20	9
Totals		**638**	**144**

** Based on seven criteria, including low or declining populations, dependence on a rare or vulnerable habitat, and usefulness as an indicator of the health of a community or habitat.*

***An additional 19 species are extinct, or have been eliminated from Illinois.*

****Approximate number of regularly occurring species. Including vagrants and accidentals, 432 species have been documented.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Savanna **Ownership: mix of private and public**	• Red-headed woodpecker • Baltimore oriole • Slender glass lizard	• Invasion by exotic shrubs • Succession into closed forest	• Mechanical removal and chemical treatment of invasive shrubs • Use prescribed fire to maintain a healthy, grassy ground layer
Streams **Ownership: private**	• Creek heelsplitter • River redhorse • Smooth softshell turtle	• Channelization • Streambank erosion	• Restore meanders, pools, riffles, and stream-side habitat • Moderate the speed of drainage waters by planting filter strip vegetation and enhancing upstream wetlands
Grassland **Ownership: mostly private**	• Regal fritillary • Crawfish frog • Bobolink	• Scarcity	• Work with farm conservation programs to focus in areas with greatest restoration potential • Develop incentives for grazing practices with economic and wildlife benefits

Recommended actions to conserve Illinois' wildlife

ing and improving grassland, shrub and wetland habitats in agricultural landscapes, with economic incentives and technical assistance for private land owners

Forests Campaign - Improving wildlife habitat, ecological integrity, and economic value of the state's forests and savannas with through appropriate, sustainable forestry practices

Wetlands Campaign - Restoring and enhancing wetlands for wildlife habitat, reduced flooding, and improved water quality

Streams Campaign - Reduce sedimentation and enhance biodiversity by protecting riparian areas, stabilizing stream banks, and repairing in-stream habitat

Invasive Species Campaign - Working together to prevent, contain and manage exotic plants, animals and diseases that threaten natural areas, wildlife and

Wildflowers/IDNR

"To conserve low and declining populations that are indicative of the diversity and health of Illinois state's wildlife.
–Element One, as set forth in the guide by the U.S. Fish & Wildlife Service's National Acceptance Advisory Team

human health

Land & Water Stewardship - Providing public and private land owners with the knowledge and tools to best manage healthy forests, grasslands, wetlands, streams and lakes with abundant wildlife

Green Cities Campaign - Making cities and towns more livable through smart growth, protecting open space, and providing wildlife recreation opportunities

"The cooperation of many agencies, the agricultural community, and conservation organizations in putting together the action plan has been encouraging. We all recognize that healthy wildlife populations, functioning natural systems and clean water go hand-in-hand with our own health and quality of life."

– Jeff Walk, Developer/Author of the Illinois Wildlife Action Plan, Illinois Department of Natural Resources

Barn Owl/IDNR

E/T Prairie Chickens/Adele Hodde, IDNR

E/T Eastern Massasauga/Scott Ballard, IDNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW,
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Joel Cross, Chief
Watershed Protection Section
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Tel: 217.785.8266
joel.cross@illinois.gov
http://dnr.state.il.us

Indiana Comprehensive Wildlife Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (or CWS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Indiana snapshot

Landscape: Indiana stretches from the sandy dunes of Lake Michigan to steep wooded ravines and bluffs along the Ohio River. The Wabash River bisects the state and defines the state's southwestern border, flowing through fertile prairies, fields and forest.

Management: Since most of Indiana's land and water resources are privately owned, wildlife conservation in Indiana must be a joint effort between public agencies and private land managers.

Veterinarian checking an Osprey/Indiana

Wildlife: Recovering populations of otters, bald eagles and nesting osprey once again inhabit Indiana's streams, rivers and lakes.

Indiana's planning approach

As habitat loss is the biggest threat to Indiana wildlife, The Indiana Division of Fish and Wildlife considered a habitat-based approach to wildlife conservation the most efficient way to address the needs of the widest variety of species. Though previous Division strategic plans have indicated the need to improve habitats, they had not identified a "good way to get there." A habitat-based approach also avoided the polarization among interest groups that can accompany single species conservation efforts.

Traditional Federal Aid funding and even Endangered Species funding tends to limit the areas and types of habitat-associated activities that qualify for grants. The Wildlife Conservation and Restoration Program and the State Wildlife Grant legislation (which initiated the CWS process) make funds available for habitat work.

Indiana's CWS provides a comprehensive overview of conservation in Indiana and identifies needs and opportunities for helping to prevent species from becoming threatened or endangered in the future.

"We believe in Hoosier ingenuity and look forward to working with all our partners in this historic effort to ensure the future of our critical wildlife resources and the habitats on which they—and we—depend."

– Kyle Hupfer, Director, Indiana Department of Natural Resources

"The Strategy" also includes information on the conservation organizations currently working to address specific conservation needs and areas where interests overlap, creating the potential for partnerships.

Lake sturgeon/Indiana

Primary challenges to conserving wildlife in Indiana

Wildlife experts, surveyed via a detailed questionnaire, identified protection of large blocks of habitat—required by species with extensive home ranges and species dependent on large, undisturbed areas—a key challenge in conserving Indiana's wildlife. Finding successful ways to engage private landholders also emerged as a significant challenge.

Wildlife conservation challenges also include development, land use changes, competition, contamination and climate change. Experts strongly supported protecting migration routes and managing populations of common species as methods for conserving wildlife populations.

Working together for Indiana's wildlife

While developing Indiana's strategy, the Indiana Division of Fish and Wildlife focused most of its resources on communicating with potential partners with vested interests in the plan.

Cave salamander/Indiana

Wildlife	Total Number of Species of Greatest Conservation Need*	State Special Concern	State Endangered	Federal Threatened or Endangered or Candidate **
Mammals	22	15	7	2
Birds	40	12	28	5
Reptiles	18	2	16	2
Amphibians	10	5	5	
Fish	25	15	10	
Mussels	24	9	15	12
Snails	2	2		
Crayfish	2	1	1	
Other arthropods and invertebrates	129	48	81	3
Totals	**272**	**109**	**163**	**24**

** Indiana's Species of Greatest Conservation need (SGCN) were identified using the published list of federally threatened, endangered (T&E) or candidate species and Indiana's list of endangered species and species of special concern.*

***All extant species native to Indiana that are federal candidates or listed species are also on the state endangered species list.*

Wildlife Highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Wetlands	Crayfish frog Common moorhen King rail Least bittern Upland sandpiper	Loss of wetlands habitat	Purchase Goose Pond, an 8,000-acre wetland complex in southwestern Indiana. Purchase was accomplished by a large coalition of conservation partners.
Savanna	Ornate box turtle Plains pocket gopher Rough green snake Eastern spadefoot toad Henslow's sparrow	Invasive exotics, habitat loss and degradation	Habitat management activities such as removal of invasive exotic species are conducted on over 10,000 acres of savannas in public and private ownership.
Water bodies statewide	Osprey	Population decline resulting in state-endangered status.	Restore ospreys by obtaining six-week-old chicks from eastern states and releasing approximately eight chicks a year at each of four release sites throughout Indiana for three years.

Recommended actions to conserve Indiana's wildlife

Osprey Pat Hack/Indiana

Osprey nestling/Indiana

Many partners communicate directly with community members that share an interest in conservation. Organizations distributed solicitations for public comment via their newsletters, websites, listservs and meetings.

To reach community members with no active interest in conservation, the Division distributed a news release through the Wild Bulletin, soliciting public input on the final draft version of the Strategy.

Wild Bulletin reaches more than 10,000 recipients, including most media outlets in the state. A presentation at the annual meeting of the Hoosier Outdoor Writers organization led to publication of several newspaper articles about the Strategy around the state.

The Division developed a database of all partners able and willing to communicate about the plan, and will continue to utilize these communication channels to involve the public in implementing and revising The Strategy.

Franklin Ground Squirrel/Indiana

Franklin Ground Squirrel in trap/Indiana

Assn. of Fish & Wildlife Agencies
David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact
Catherine Gremillion-Smith,
Chief, Wildlife Diversity Section
Indiana Department of Natural Resources, Division of Fish and Wildlife (DFW)
Tel: 317.232.8160
kgsmith@dnr.in.gov
www.djcase.com/incws

Iowa Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Iowa snapshot

Landscape: At the heart of America's farmbelt, Iowa's agricultural reputation is reflected in a landscape of row crops and livestock. But bordered by two mighty rivers and hiding pockets of scenic hills, remnant grand prairies, prairie pothole wetlands and hardwood forests, the state holds an unexpected diversity of wildlife.

Kellerton View/IDNR

Management: In a landscape dominated by private agriculture, resource management on public lands is necessarily intense, and cooperation with private landowners is essential to preserving the state's remaining fish, wildlife, forests, waters and grasslands.

Wildlife highlights: Prairie-chickens boom in southwestern grasslands; brook trout flash in northeastern coldwater streams; eastern massasaugas sun on southeastern river floodplains; black terns hover above northern pothole wetlands; regal fritillaries forage in the western Loess Hills prairies; and one of the largest wintering bald eagle populations south of Alaska spreads out along Iowa's rivers every December to March.

Weighing a bobcat/IDNR

Iowa's planning approach

Iowa's Wildlife Action Plan constitutes the first-ever attempt at accounting and planning for the entire range of the state's wildlife—birds, fish, mammals, reptiles and amphibians—plus butterflies, freshwater mussels and selected other creatures for which information is available. The plan is habitat-based and focuses on meeting the needs of 296 "species of greatest conservation need," identified by experts and a

"Iowa's Wildlife Action Plan is a long-needed tool that provides the first thorough accounting of all our wildlife resources, stresses on habitats, and visions to promote sound conservation for decades to come. We eagerly anticipate working alongside our conservation, agriculture and business partners in seeing this plan secure an even brighter future for Iowa's wildlife"

–Jeffrey R. Vonk, Director, Iowa Dept. of Natural Resources

thorough screening process. It also aims to "keep common species common." The plan presents six visions for the future of Iowa's wildlife, with goals and multiple management strategies for each. Funding availability will determine which visions are implemented.

Bobcat/IDNR

Primary challenges to conserving wildlife in Iowa

Iowa's action plan identifies 4 statewide "high" and 8 "moderate" conservation issues and stresses to land-based wildlife and habitats. Habitat absence, fragmentation, isolation and overgrazing top the priority list. Habitat loss and fragmentation reduce or eliminate critical wildlife across vast portions of Iowa. Agriculture has been the greatest historical cause, but surburban sprawl, road development, stream channelization and other human intrusions have accelerated habitat losses in recent years. Species that have declined to near-disappearance include Greater prairie-chicken, regal fritillary (butterfly), Franklin's ground squirrel and Iowa Pleistocene snail.

For wetland/riverine wildlife and habitat, 4 "high" and 10 "moderate" stresses and conservation issues surfaced. Top concerns include runoff, invasive species and loss of streamside/lakeside vegetation. Intensive agriculture and suburban developments allow runoff into the state's waters. This adds excessive loads of silt and nutrients, and accompanying oxygen depletion, degrading aquatic habitats. Crawfish frog, slimy sculpin, Higgins' eye pearlymussel and spangled skimmer (dragonfly) all are species in trouble.

DNR Director Jeff Vonk unveiling new wildlife license plates/IDNR

Wildlife	Total number of species	Species of conservation concern*	Threatened/endangered
Breeding birds	206	67	10
Migratory birds	199	18	1
Mammals	88	18	6
Fish	153	68	17
Reptiles & amphibians	71	31	19
Freshwater mussels	55	29	14
Land snails	8**	8	8
Butterflies	113	30	7
Dragonflies & damselflies	106	28	***
Totals	**999**	**297**	**80**

*Each state is using its own criteria for this category. Iowa focuses on those wildlife species that are declining, are legally threatened or endangered, or for which there is insufficient information to determine their status.

**Only T&E species of snails are included in the Iowa plan, due to insufficient information on Iowa's snails.

***No T&E status yet determined for Iowa dragonflies and damselflies.

Wildlife highlights

"The Iowa DNR has done a wonderful job of including its conservation partners in the crafting of the Iowa Wildlife Action Plan. We truly hope that the State Wildlife Grant programs will catalyze non-game wildlife conservation in Iowa in the same way that other great conservation programs like Pittman Robertson and Wallup-Breaux have done for huntable and fishable wildlife."
–Leslee Spraggins, State Director, The Nature Conservancy in Iowa

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Prairie/ grasslands **Ownership: Mix of public and private lands**	• Greater prairie-chicken • Smooth green snake • Franklin's ground squirrel	• Habitat fragmentation • Woody encroachment	• Create expansive grassland landscapes of 2,000 acres or more around a core of public land, to benefit grassland wildlife with great spatial needs. • Remove invading trees and shrubs, use burning, mowing and rotational grazing as primary management tools.
Forest **Ownership: Mix of public and private lands**	• Veery • Southern flying squirrel	• Housing development • Clearcutting	• Work with city and county governments to promote rural zoning and "smart growth" developments that reduce forest fragmentation. • Provide technical guidance to professional foresters, and technical/financial assistance to private forest landowners, to reduce size and scope of clearcuts.
Backwater wetland **Ownership: Mix of public and private lands**	• Least bittern • Topeka shiner • Blanding's turtle	• Siltation • Loss of riparian (waterside) vegetation	• Establish buffer strips of grasses, trees and shrubs along banks, by working with adjacent landowners and utilizing federal farm program conservation practices. • Fence shorelines to exclude livestock.

Recommended actions to conserve Iowa's wildlife

Researchers measuring grassland songbird nesting cover/IDNR

Native prarie wildflower production plots/IDNR

Working together for Iowa's wildlife

The Iowa Department of Natural Resources invited more than 100 conservation partners to help create visions and strategies for Iowa's plan. Partners from wide-ranging interest groups participated, including The Nature Conservancy, Pheasants Forever, Iowa Farm Bureau Federation, Iowa Association of

"The Iowa Wildlife Action Plan is about so much more than wildlife. By protecting and managing Iowa's wildlife, we're protecting our natural landscapes, our water quality, recreation, tourism and our state's very identity. It's an investment in our future—for all species, common and rare, wildlife and human—for all of Iowa."

–Mark C. Ackelson, President, Iowa Natural Heritage Foundation

Boone River critical habitat for rare fish and forest birds/IDNR

County Conservation Boards, Iowa Department of Transportation, Morningside College, Safari Club international, Iowa Audubon, National Park Service and the Iowa Prairie Network. A day-long meeting assembled 59 statewide interest groups to recommend conservation priorities and strategies. Individualized presentations at locations throughout the state also reached many organizations.

Gladys Black Eagle Refuge dedication/IDNR

Red rock eagle roost/IDNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW,
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Douglas C. Harr
Wildlife Diversity Program Coordinator
Iowa Department of Natural Resources
Wildlife Bureau
Walace State Office Building
Des Moines, IA 50319
Tel: 515.281.4815
doug.harr@dnr.state.ia.us
www.iowadnr.com

Kansas Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Kansas snapshot

Geography: From the woodlands and tall grass prairies of its eastern region to the shortgrass priaries of its western High Plains, Kansas is home to a diverse array of landscapes and habitats.

Landscape: Since more than 97 percent of Kansas' 82,000 square miles is in the hands of private owners, effective public/private partnerships are crucial to conserving the state's rich wildlife legacy.

Wildlife: Wetlands, such as the internationally acclaimed Cheyenne Bottoms Wildlife Area, host a vast array of migratory and resident bird species, making Kansas a must-see birding destination.

Kansas' planning approach

Kansas approached this plan as a Strategic Planning effort, and worked to compile the best information available for assembly into this plan, entitled "A Future for Kansas Wildlife." Species lists were compiled, and evaluated according to 6 criteria for qualification as Species of Greatest Conservation Need. The resulting 316 species were then verified and ranked through use of a questionnaire sent both in-house and to known experts throughout the state. Species were also associated with habitats within three Conservation Regions through the same process. Issues and strategies were then compiled for the top-ranked habitats within Conservation Regions, starting with those listed in the Kansas Wildlife Diversity Plan. Issues were prioritized.

Primary challenges to conserving wildlife in Kansas

From the many perspectives we listened to concerning the future of Kansas' fish and wildlife, certain themes emerged over and over. Although details and specifics for species, habitat types and conservation regions are listed in the Plan, they can be broadly stated as: a) existing data gaps impede effective conservation planning and implementation; b) land management practices have changed the

"A Future for Kansas Wildlife" action plan is a major cooperative approach in solving long-term conservation challenges for our outdoor heritage. It's essential to implement strategies like these to maintain our excellent Kansas quality of life. I encourage every Kansan to be a part of this proactive effort."
– Kansas Governor Kathleen Sebelius

Blue-winged teal/Ken Brunson

structure of habitats over large areas; c) fragmentation and conversion of habitat is occurring; d) invasive exotic plants and animals are a problem; e) natural resource management may affect habitat conditions; and f) inadequate coordination between government agencies who may have conflicting goals for resource management. From the many perspectives we listened to concerning the future of Kansas' fish and wildlife, certain themes emerged over and over. Although details and specifics for species, habitat types and conservation regions are listed in the Plan, they can be broadly stated as: a) existing data gaps impede effective conservation planning and implementation; b) land management practices have changed the structure of habitats over large areas; c) fragmentation and conversion of habitat is occurring; d) invasive exotic plants and animals are a problem; e) natural resource management may affect habitat conditions; and f) inadequate coordination between government agencies who may have conflicting goals for resource management.

Swift Foxes/Mike Blair

"This action plan is a well thought-out process for benefiting the health of the wildlife and people of Kansas. It will ensure quality outdoor experiences for generations to come. If we invest in conserving wildlife now, we can protect species for future generations and keep them off endangered species lists."
– Mike Hayden, Former Governor and current Secretary of Kansas Department of Wildlife and Parks

Working together for Kansas' wildlife

Stakeholders were identified through existing Kansas Department of Wildlife and Parks (KDWP) constituent and mailing lists. A statewide news release, and 175 letters from the Secretary announced the initiation of the planning process, inviting participation from any interested parties. Reports were made at all KDWP Commission meetings (5) between the initiation of the process, and the completion of the final draft. Because these meetings are open to the public, the agenda and outcomes are included in press releases, giving the public notice and the opportunity to participate.

A questionnaire was developed to confirm the selection of SGCN, to rank

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mussels	53	43	11
Snails	18	3	2
Crayfish & Isopods	23	14	0
Planarian	1	1	0
Insects	611 named	25	2
Fish	127	67	16
Amphibians	31	17	10
Reptiles/Turtles	54/15	22/3	6/1
Birds	467	100	8
Mammals	89	21	3
Totals	**1488**	**316**	**59**

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Tallgrass prairie **Ownership: Mostly private, some federal, some state**	Greater prairie chicken, Spotted skunk, Crawfish, frog	• Land management: annual burning. • Wind farm placement.	• Promote research on economic impacts of rotational burning and implement best practices. • Work with other state agencies to avoid, minimize, reduce and mitigate impacts to habitat.
Shortgrass prairie **Ownership: Nearly all private**	Ferruginous hawk, Black-tailed prairie dog, Lesser prairie chicken, Mountain plover,	• The intensification of agriculture, particularly grazing, cotton production, and the practice of wheat stubble burning, is having major impacts on the heterogeneity of the shortgrass prairie habitat.	• Develop a broad scale education approach and outreach efforts. These programs would be designed to effectively communicate with various publics: landowners, managers, local governments, agricultural industries, and the general public. • Develop cost-neutral/positive conservation practices for producers to provide for maintenance of viable farming/ranching operations. • Develop additional positive conservation incentives for landowners.
Mixed prairie **Ownership: Nearly all private**	Ferruginous hawk, Black-tailed prairie dog, Lesser prairie chicken, Loggerhead shrike	• The conversion and fragmentation of land is having a negative impact on the flora and fauna of the mixed prairie.	• Inform and promote, with landowners and managers, the benefits and proper use of fire to manage habitat. • Assess habitat fragmentation and its implications to natural communities through GAP analysis.

Recommended actions to conserve Kansas' wildlife

Mixed grass prairie/Mike Blair

"The collaborative approach of 'A Future for Kansas Wildlife' paves the way for effective wildlife conservation. It's a logical approach for framing a better future for our grandchildren's ability to enjoy the excellent outdoor resources we have experienced."
– Steven G. Sorensen, President of Kansas Wildlife Federation

the species on the level of risk, and to associate them with habitats. This questionnaire was sent to about 200 experts, and posted on the internet. Input was taken for 30 days.

The process for public input culminated with a Summit Meeting, attended by more than 70 people. Experts and stakeholders were invited, as well as the general public. At this meeting, participants confirmed the information gathered on the questionnaire, prioritized habitat types within Conservation Regions, and identified top issues and strategies for those habitats.

Loggerhead Shrike/USFWS, Gary Stolz

A web page for the Plan was incorporated into the KWDP website, which explained the purpose of the plan and provided background information. As progress was made, the site was updated, adding the SGCN list, the Questionnaire, and the Draft and Final Plan.

Prairie chicken/USFWS, Gary Halvorsen

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Ken Brunson
Kansas Department of Wildlife and Parks
512 SE 25th Avenue
Pratt, KS 67124
Tel: 620-672-0792
kenb@wp.state.ks.us
www.kdwp.state.ks.us

Kentucky Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Kentucky snapshot

Geography: Diversity is the keyword when describing Kentucky. The rugged mountains and valleys with flat ridge tops found in the east contrast sharply compared to the flat bottom lands and sloughs of the west. Between these extremes can be found the cave country surrounding Mammoth Cave and the gently rolling hills of the Bluegrass Region.

Landscape: Approximately 93 percent of Kentucky is privately owned. Successful stewardship of the state's plants and animals rests firmly in the hands of private landowners. Working with landowners is critical to the success of our Wildlife Action Plan.

Kentucky Wren/KDFWR

Wildlife: Many different habitat types, ranging from highland forests, grassland barrens, and swamps support a variety of animals. Small headwater streams, winding creeks, and the expansive Ohio and Mississippi Rivers support an even more diverse group of fish and freshwater mussels.

Kentucky's planning approach

Kentucky's Wildlife Action Plan provides background information and the framework needed to protect the state's wildlife species and their habitats. Kentucky used a species-based approach to developing the Action Plan. A list of 251 species were identified as having a great need for conservation work. De

Black Bear in the snow/KDFWR

"This action plan is Kentucky's roadmap for sustaining fish and wildlife diversity, but it is not a panacea. By itself, it is simply pages, pictures, maps, and words. However, in the hands of united fish and wildlife professionals, it will become a powerful motivating force for change."

- Jonathan Gassett, Ph.D., Commissioner, Kentucky Department of Fish and Wildlife Resources

Stream habitat/ KDFWR

Primary challenges to conserving wildlife in Kentucky

Kentucky's Action Plan identified priority conservation actions for both terrestrial and aquatic habitat guilds. Protecting habitat through acquisition, easements, or economic incentives with private landowners was an important strategy across species and habitat groups, as was developing partnerships with other state and federal agencies and other conservation organizations in order to protect habitat. There is also a great need for long-term monitoring of at-risk species to detect population trends for species that cur

tailed accounts were developed for each species that included distribution maps, habitat requirements, and condition of their populations. In order to give consideration to both individual species and habitat types, species were assigned to groups (guilds) based on the similarities of habitat used, then conservations strategies and actions were then assigned to the habitat groups.

Copperbelly water snake/KDFWR

"The health of these species is a barometer of the overall health of the environment. If we can conserve and enhance the habitat for these species, we believe the quality of life for people will be enhanced as well."

- Mark Cramer, Deputy Commissioner, Kentucky Department of Fish and Wildlife Resources

Wildlife	Total number of species	Species in need of conservation	Threatened/endangered listed species
Mussels	134	46	21
Fish	269	59	7
Amphibians	74	22	0
Reptiles	80	27	1
Birds	361	81	6
Mammals	94	16	3
Totals	**1012**	**251**	**38**

** The criteria are based on the list of species monitored by Kentucky Heritage Program and NatureServe Global Rank. The list was then modified based on biologists' knowledge of state endemics, species that are not well studied, and potential re-introductions.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Large Rivers (in Current)	Fish: Pallid sturgeon, Alabama shad Mussels: Elephantear, Orangefoot Pimpleback	• Construction/ Operation of impoundments. • Channelinzing and ditching of streams	• Work with dam and hydroelectric operators to enhance and protect aquatic habitat. • Provide financial incentives to protect riparian corridors and watersheds.
Cave Streams	Northern cavefish, Southern cavefish	• Alteration of surface runoff flow	• Acquisition and conservation easements of critical aquatic habitat. • Work with municipalities, industries, and government agencies to reduce physical impacts of non-point and storm water runoff
Cumberland Highland Forest	Black mountain salamander, Common raven, Eastern spotted skunk, timber rattlesnake	• Loss and degradation of special and unique microhabitats • Conversion of native forest to short-rotation crop trees	• Work with partners to prioritize land protection, acquisition, and restoration projects that work toward connecting blocks of habitat and restoring ecological processes. • Provide information and guidance to the mining industry and contractors on reclamation practices that benefit wildlife.

Recommended actions to conserve Kentucky's wildlife

Cave crayfish/KDFWR

Cedar Post Cave Gate/KDFWR

Rafinesque's Big Eared Bat/ KDFWR

"Far better it is to dare mighty things, to win glorious triumphs, even though checkered by failure, than to take ranks with those poor spirits who neither enjoy much nor suffer much, because they live in the gray twilight that knows neither victory nor defeat."

- Theodore Roosevelt

rently lack long-term data sets. This is particularly true for aquatic species and herpetofauna.

Working together for Kentucky's wildlife

Since 1993 extensive public surveys have been conducted in order to understand public attitudes and preferences for wildlife conservation in Kentucky.

This detailed, pre-existing data was used in developing the Action Plan. Several news releases, an article in Kentucky Afield Magazine, and links on the Department's web page were used to inform the public of the state's efforts. Additionally, input was solicited from 44 experts representing five federal agencies, three state agencies, eleven universities, and seven private organizations to provide detailed information needed to develop the Action Plan.

Cumberland arrow darter/KDFWR

Ohio River study/KDFWR

Fishing/KDFWR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Mark S. Cramer
Deputy Commissioner
Kentucky Department of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601
Tel: 502.564.3400
mark.cramer@ky.gov
http://fw.ky.gov/

Louisiana Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

"Louisiana's Wildlife Action Plan will guide the agency's efforts in habitat management to benefit those species flourishing now and focus on those needing additional care for their continued survival long term."
– Parke Moore, Assistant Secretary LDWF Office of Wildlife

Louisiana snapshot

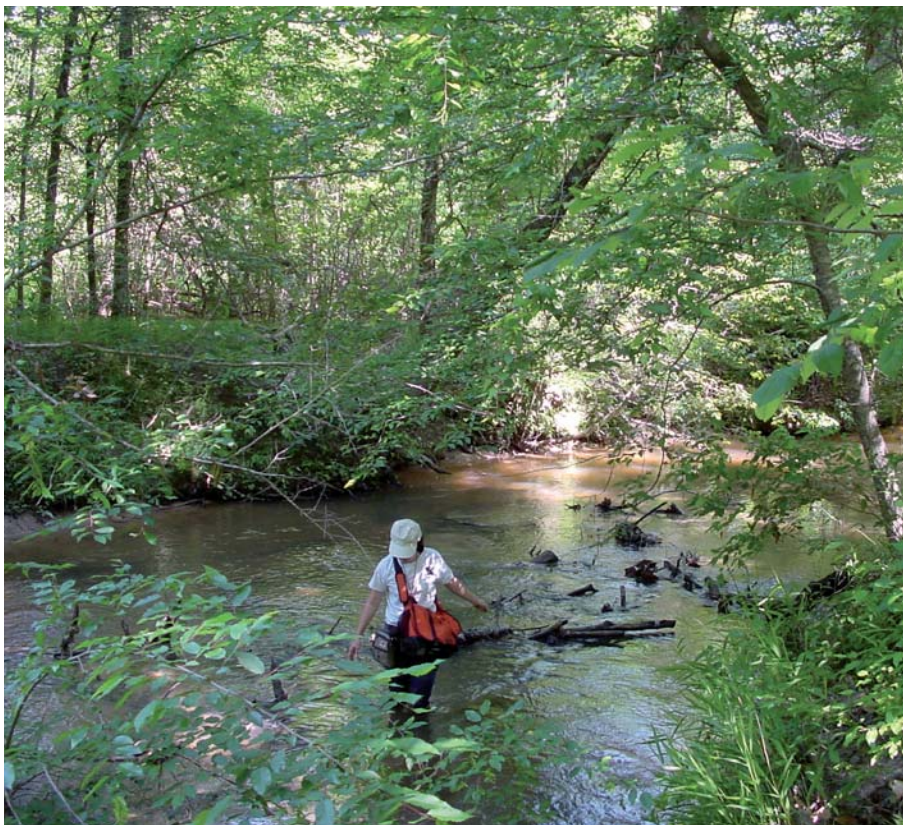
Geography: Louisiana has 30% of the coastal wetlands found in the contiguous 48 states. The Atchafalaya River basin swamp is the largest in the nation.

Landscape: More than 10% of Louisiana is in federal and state managed areas. Some half-million acres of private lands, most of which have been reforested, have been enrolled in federal conservation programs to benefit wildlife.

Wildlife: The largest wading bird colony in North America can be found at Miller's Lake, which housed some 52,000 nesting pairs of egrets, herons, night herons, and other species in 2004. More than 900 vertebrate species have been recorded in the state.

Louisiana's planning approach

Louisiana's Wildlife Action Plan provides a common strategic framework and information resource to help conserve Louisiana's terrestrial and aquatic wildlife and the lands and waters on which they depend for survival. The action plan is primarily a habitat-based approach to conserving rare and declining wildlife species. It focuses on habitats such as open water marine environments, riverine systems, and 38 terrestrial habitats, including agricultural-crop-grasslands. Conservation actions were developed with a variety of partners for these landscape features on a regional basis. The action plan also looks at the conservation needs of 240 rare or declining wildlife species and identifies conservation priorities for implementation. By combining habitat and wildlife-specific approaches, and considering multiple scales, Louisiana's action plan will help to guide the conservation of the state's full wildlife diversity until 2015.



Louisiana Natural Heritage Program Zoologist, Inés Maxit, surveys a stream for mussels listed as a species of conservation concern/LDWF

Primary challenges to conserving wildlife in Louisiana

Eighteen threats to wildlife were identified in Louisiana. Four of these were commonly identified as primary factors in affecting terrestrial habitats throughout the state: *habitat destruction or conversion, habitat fragmentation, habitat disturbance, and altered composition and structure of the habitat.* In aquatic systems, the following five threats appeared repeatedly across basins: *modification of water levels or changes in natural hydrologic patterns, sedimentation, habitat disturbance, nutrient loading, and altered composition and structure.* Along the coast, the primary threat has been coastal erosion and subsequent changes in hydrologic patterns. For terrestrial forested habitat areas in Louisiana, the longleaf pine system was ranked as a habitat of immediate priority due to its extensive historical and recent decline, and because more than 32 species of conservation concern are found in that habitat type. Lack of data in aquatic systems, both freshwater and marine, highlighted the need to do more inventory and research in these systems. Regardless of the ecological system (terrestrial or aquatic), improving dialogue with existing partners and developing new partners remains the biggest challenge to implementing the plan.

Pallid sturgeon, a species of conservation concern/LDWF

Wildlife	Total number of species	Species in need of conservation*
Mussels	64	30
Crawfish	34	14
Butterflies		23
Freshwater Fish	148	28
Marine Fish	Approx. 400	13
Amphibians	52	15
Reptiles	82	30
Birds	400*	69
Mammals	70	18
Totals		**240**

**includes 160 breeding and 240 migrant species*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Eastern upland longleaf pine *Forest Ownership:* private and industrial timber companies	Ornate chorus Frog, Brown-headed nuthatch, Henslow's sparrow, Yucca giant skipper, Scarlet kingsnake, Northern scarlet snake	• Commercial/ industrial development • Fire suppression • Invasive/alien species	• Educate landowners, adjacent residents, developers, and the general public about the crucial role of prescribed burning in the management of longleaf pine systems (multi-agency, multi-group effort). • Work with land managers/hunting clubs/extension agents, etc. to discourage the placement of food plots in this habitat type. • Promote utilization of state and federal cost share programs (FLEP and NRCS programs) to address invasive species problems. • Promote value-added products produced from longleaf pine to encourage landowners to replant longleaf pine instead of loblolly pine. • Provide additional cost share funds through programs such as FLEP in order to drastically reduce or eliminate landowners' costs associated with conducting prescribed burns on their property. • Investigate the availability of additional cost-share funding opportunities, through FLEP, FPP or other programs, for landowners to reduce the cost of longleaf pine management.
Ouachita River Basin *Ownership*: private and commercial	Elegant crawfish, Paddlefish, Steelcolor chiner, Pink mucket, Fatmucket, White heelsplitter, Black sandshell hickorynut, Alligator snapping turtle	• Channelization of rivers or streams • Construction of navigable waterways • Crop production practices	• **Crustaceans:** Continue surveys to update historic locality records in order to update abundance and distribution data for inclusion in the LNHP database. • **Mussels:** Surveys are needed to update historic occurrence records and develop new baseline data on current species population distributions and abundance. • **Alligator Snapping Turtle:** Baseline mark-release data were obtained during the late 1990s. New surveys are needed to obtain population trend data for this species. • Improve partnerships with LDEQ, NRCS, TNC, LSU CoOp Extension Service and others to share data on threats to this watershed and participate in the development of future strategies to abate these identified threats. • Prepare educational material on potential impacts of invasive species to the Ouachita River and its tributaries. • Continue LDWF involvement in the environmental review process of all river related projects. Identify potential impacts and recommend appropriate mitigation. • Develop education and outreach programs with NRCS to reduce sediments and nutrient loading within the Ouachita Basin.

Recommended actions to conserve Louisiana's wildlife

"As the state recovers from the environmental impact of two major hurricanes in 2005, the state's Wildlife Action Plan becomes additionally significant, at least short-term, for those species in areas where habitat damage was most severe."

– Dwight Landreneau Secretary of the Louisiana Department of Wildlife and Fisheries

Working together for Louisiana's wildlife

Committees of professional biologists within this and other state and federal agencies and universities, as well as from non-governmental organizations and the public at large, developed the list of species of conservation concern for this plan. The biologists met at multiple venues to analyze the threats for each habitat in each of six ecoregions across the state. Subsequently, conservation actions or strategies were developed in a series of seven focus group meetings across the state with invited representatives of conservation organizations, forestry, wildlife, and fisheries associations, industry, federal and state agencies, universities, and private citizens. The outcome of each meeting was posted on the Department's web site to inform the public on how the plan was progressing and to solicit comments. Each iteration of the plan was posted on the web site, and comments were solicited.

Education is a key strategy in conserving the Louisiana Pine Snake, a species of conservation concern/LDWF

Camp Marydale Girl Scout Camp joins the Louisiana Natural Areas Registry Program/LDWF

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Gary Lester
Louisiana Department of Wildlife and Fisheries
P.O. Box 98000
Baton Rouge, LA 70898
Tel: 225.765.2823
glester@wlf.louisiana.gov
www.wlf.state.la.us/apps/netgear/index.asp?cn=lawlf&pid=1377

Maine Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Maine snapshot

Geography: Maine is a land rich in contrasts between the boreal and temperate, freshwater and saltwater, upland and wetland, and alpine and lowlands. The state has enormous, natural variety and owes its biological wealth to its 17.5 million acres of forests, its mountains, more than 5,600 lakes and ponds, 5,000,000 acres of wetlands, 31,800 miles of rivers and streams, 4,100 miles of coastline, and 4,613 coastal islands and ledges. Maine is the most heavily forested state in the nation, but also contains significant grassland and agricultural lands.

Canada Lynx/Jennifer Vashon

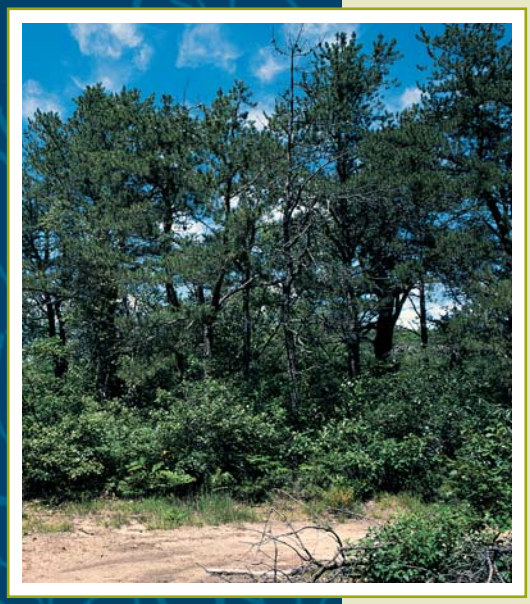
Landscape: Maine is almost as large as all other New England states combined, yet the acreage of public lands is minimal. In fact, 95% of the land in the state is privately owned, thus private landowners are integral to the conservation of our wildlife heritage and natural resources.

Wildlife: Maine's mosaic of diverse physical settings supports a wide diversity of wildlife. Maine has the largest population of bald eagles in the Northeast. The state's islands support one of the most diverse nesting seabird populations on the East Coast, including habitat for rare species such as the Roseate and Arctic Tern, Atlantic Puffin, and Razorbill Auk. Maine's relatively clean, free-flowing rivers sustain some of the best remaining populations of rare freshwater mussels and dragonflies in the East, and host globally rare endemics, such as the Tomah mayfly and Roaring Brook mayfly. Maine's mountains and forested habitats contribute significantly to the global breeding habitat of neotropical migrants such as Bicknell's Thrush and Blackthroated-blue Warbler, and the state has some of the best examples of pitch pine-scrub oak forest remaining in New England, hosting a suite of globally rare plants and invertebrates.

Eastern Box Turtle/Phillip deMaynadier

Maine's planning approach

Maine's Wildlife Action Plan addresses the full array of fish and wildlife and their habitats across the state, including vertebrates and invertebrates. The plan



Pitch pine-Scrub Oak Forest/MDIFW

targets species in greatest need of conservation while keeping "common species common." The plan covers the entire state, from the coastline to the heights of Mt. Katahdin. It is intended to supplement, not duplicate, existing fish and wildlife programs, and it builds on a species planning effort that has been ongoing for nearly 40 years, a landscape approach to habitat conservation—*Beginning with Habitat,*—that was initiated in 2000, and a long history of public involvement and collaboration among conservation partners.

Beginning with Habitat is a habitat-based model that provides the information to create a landscape in cooperation with local decision-makers that will support all breeding species of wildlife occurring in Maine. Too often, the ability of the landscape to support wildlife is eroded by the impacts of unplanned development. Beginning with Habitat takes habitat data from multiple sources, integrates it into one package, and makes it accessible to communities to use proactively. Beginning with Habitat partners can then work with communities to design a landscape that accommodates the growth they need with the highest resource conservation. The program is designed to help towns create a vision for their future that includes maintaining the ability of their landscape to support all wildlife 100 years from now.

Primary challenges to conserving wildlife in Maine

The Maine landscape is not static but the result of profound natural and human changes. Changes brought about by fire, land conversion, abandonment of agricultural land, timber harvesting, and the defoliation of forest by insects have had, and will continue to have, a dramatic impact on habitats and levels of biodiversity. Similarly, aquatic ecosystems in Maine have been profoundly and adversely affected by exotic introductions, dam building, pollution, pesticide use, and excessive nutrient input. These effects have occurred, and are occurring, statewide, but they differ in intensity from north to south.

Wildlife	Total number of species	Species in need of conservation[1]	Threatened/endangered listed species[2]
Amphibians & Reptiles	38	7	4
Birds	292	103	15
Invertebrates	15,000+	72	12
Inland Fish	56	12	1
Mammals (nonmarine)	59	6	1
Marine	1,727[3]	13[4]	1
Totals	**17,000+**	**213**	**34**

1 SGCN are species with a moderate to high potential for state extirpation without management intervention and/or protection. Assessment was based on a number of criteria and best scientific opinion of agency staff and conservation partners. Consult Maine's Wildlife Action Plan for full details.

2 These species are listed as Threatened or Endangered in Maine.

3 Includes chordates (37), marine fishes (252), marine invertebrates (1,414), and marine mammals (24). Marine birds (177) are included in the bird taxa.

4 Attention focused on listed marine mammals (whales), listed marine turtles, and diadromous fish from the suite of marine species. See Plan for further details.

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Marine Open Water	Greater shearwater, Red-necked phalarope, Atlantic salmon, Humpback whale, Atlantic ridley	• Oil spills and contamination, prey availability/competition with commercial harvesters, entanglement (fishing lines and traps), wind energy development	• Avoid over-fishing and polluting nursery areas for herring, hake, and other fish stocks important as food for seabirds. • Continue Oil Spill Response and planning. • Utilize state and federal contacts for Whale Disentanglement Networks to locate entangled whales and remove gear.
Deciduous and Mixed Forests	Canada warbler, Eastern box turtle, American burying beetle, Early hairstreak	• Habitat fragmentation and stand conversion, development, predation and nest parasitism, contaminants, over collection/illegal collection	• Develop specific forest management guidelines for priority species. • Work with partners to conserve upland habitats for priority species.
Rivers and Streams	Barrow's goldeneye, Wood turtle, American eel, Redfin pickerel, Boreal snaketail	• Watershed conversion to impervious surfaces, invasive plants and animals, aquatic vegetation control and/or removal, development in adjacent uplands, contaminants	• Work with partners to conserve riverine and riparian habitat. • Remove invasive plants and animals and prevent new introductions.

Recommended actions to conserve Maine's wildlife

"The first Comprehensive Wildlife Conservation Strategy for Maine not only focuses on a wonderful array of wildlife, ecosystems, and habitats, but it sets in motion actions to sustain all Maine's wildlife resources, thus ensuring these resources will be available for future generations to enjoy. The word "comprehensive" within the title was carefully chosen, and is of critical importance from a number of perspectives. Its use indicates that one of the goals of this endeavor is to engage people and organizations with a diversity of interests and viewpoints. The word also speaks to the fact that this initiative embraces a broad spectrum of species within its definition of "wildlife", including fish, invertebrates, amphibians, and reptiles, along with birds and mammals. It speaks to the fact that the approach includes rare and endangered species, as well as common and abundant ones, and little known species, as well as highly visible and popular ones. It speaks to the fact that wildlife is valued and sought by many: photographers, nature enthusiasts, educators, philosophers, and casual wildlife watchers, as well as by hunters, trappers, and anglers. It recognizes that wildlife can be valued and appropriately managed for all those varied uses, and that conserving habitat, often at an ecosystem or landscape scale, is at the root of any comprehensive approach."

– Alan Hutchinson, Executive Director, Forest Society of Maine

Freshwater Mussel Surveys/Beth Swartz

The primary challenges affecting wildlife diversity in southern and coastal Maine are conversion and fragmentation of habitats. This area has the highest level of plant and wildlife diversity in the State, yet is also one of the most desirable areas for development. Sprawl —the conversion of rural lands for urban or suburban purposes—in the greater Portland area is occurring at one of the fastest rates in the country. Nesting sites for endangered birds, such as the Piping Plover and Least Tern, have been lost to development. Of 2,700 lakes in southern and coastal Maine, more than 200 have been harmed by development, and another 300 are at risk if current trends continue.

Northern Maine has remained largely unsettled but not untouched. As a result of increased demand for forest products and the opening of more extensive road systems as transportation corridors, the nature of timber harvesting in Maine has changed over the last 50 years. Though still the most heavily forested state in the country, Maine's forested landscape is strongly influenced by human use.

Working together for Maine's wildlife

As is the case in most undertakings of this magnitude, Maine's Wildlife Action Plan could not have been completed without the assistance of many devoted individuals who infused their expertise and passion into this effort. The Plan brought together scientists, managers, hunters, anglers, conservationists, landowners, academics, guides, community leaders, and many others with an interest in working together for Maine's wildlife. All worked to challenge assumptions, provide constructive criticism, and encourage the Department to complete what many of them believed to be an historical effort on behalf of fish and wildlife conservation in Maine. These collaborative efforts, and their accomplishments, provide the foundation on which Maine's Wildlife Action Plan was built and will be implemented, reviewed, and revised.

Five Taxa Committees were responsible for identifying species of greatest conservation need and assessing needs, habitats, threats, and conservation actions. A Coalition of more than 70 state and federal agencies, tribes, conservation organizations, and other partners provided guidance and input into the development and review of the Plan. An Implementation Team will oversee program development and implementation, review progress, reevaluate priorities, foster partnerships, build cross-state alliances, and leverage funding.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Sandy Ritchie, Habitat Conservation and Special Projects Biologist
Maine Department of Inland Fisheries and Wildlife
41 SHS-284 State Street
Agusta, ME 04333
Tel: 207.287.5265
sandy.ritchie@maine.gov
www.mefishwildlife.com

Maryland Wildlife Diversity Conservation Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Maryland snapshot

Geography: Maryland's diverse landscape is dominated by the Chesapeake Bay, the nation's largest estuary. With nearly 8,800 miles of rivers and streams and ecoregions ranging from the Atlantic Ocean to the Appalachian Mountains, Maryland harbors a broad species and habitat diversity for a state of its size.

Landscape: Maryland's natural landscape has been significantly altered by the population increase and associated human activities. By the 1990s both the state's forests and wetlands had been reduced by half. Human development currently drives land cover changes in Maryland. Federal, state, or local governments manage approximately 12% of Maryland's land area, including such areas as Assateague Island National Seashore and Blackwater National Wildlife Refuge.

Wildlife: Delmarva fox squirrels grace Eastern Shore forests. Bald eagles depend on forests and open water. Brook trout inhabit clear, coldwater streams.

Maryland's planning approach

Maryland's Wildlife Diversity Conservation Plan lays the groundwork for conserving Maryland's full array of terrestrial and aquatic wildlife by focusing on its more vulnerable species and the lands and waters they require for survival. The action plan reviews the status and conservation needs of 502 "at risk" wildlife species and further summarizes these into 35 "key wildlife habitats," such as carolina bays, tidal marshes, grasslands,

Blackwater Refuge/USFWS

and old growth forests. Threats and conservation actions, as well as inventory, research and monitoring needs, are recommended for each of the key wildlife habitats. Because both species and habitat-based needs have been considered, Maryland's action plan will help guide the conservation of all wildlife species.

Swainson's warbler/G. Jett

Primary challenges to conserving wildlife in Maryland

Maryland's action plan outlines 24 overarching statewide conservation actions. Habitat loss and fragmentation are common themes among the many significant threats.

Habitat loss can occur either directly, such as filling wetlands for development, or indirectly, such as through pesticide contamination or through deer overbrowse impacting the structural diversity within a forest. Habitat loss can be very obvious, such as a new housing development where an old growth forest formerly stood, or it can be insidious, such as an unforested stream buffer increasing the erosion of stream banks and the amount of sediment within the stream.

Habitat fragmentation results from breaking up larger landscapes into smaller patches. Housing development, new roads, stream diversions, and dams can isolate animal populations, create barriers to wildlife move-

Bog turtle/MD DNR

Wildlife	Total number of species	Species of greatest conservation need*	Threatened/ endangered**
Invertebrates	20,000+	245	58
Fish	635	40	26
Amphibians	41	17	9
Reptiles	49	25	11
Birds	410***	141	33
Mammals	97	34	24
Totals		**502**	**161**

** Each state is using its own criteria for this category. Maryland focuses on wildlife species with small or declining populations or other characteristics that may make them vulnerable (this includes legally recognized state-listed species)*

*** Threatened/endangered includes species listed under Maryland's endangered species act as endangered, threatened, or species in need of conservation (which is a legal category).*

**** Includes about 206 species known to breed in Maryland, as well as migratory birds.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Carolina Bays **Ownership: mix of private/ public**	• Barking treefrog • Tiger salamander • Aurora damselfly	• Habitat loss • Altered natural water cycles	• Protect wetlands from drainage, ditching, filling, water withdrawal, and other damaging practices. • Restore wetlands through plugging ditches or other appropriate techniques.
Tidal Marshes **Ownership: mix of private/ public**	• Snowy egret • Am. black duck • Diamond-backed terrapin	• Ditching, channelization, pond construction, and inadequate buffers. • Invasive plants and animals	• Work with local agencies to promote planning and zoning that protects marshes on privately-owned lands. • Control invasive plants and animals and prevent new introductions.
Floodplain Forests **Ownership: mix of private/ public**	• Bald eagle • Hooded warbler • Eastern box turtle	• Conversion to other land uses or forest types that result in habitat loss. • Forest pest species that may cause landscape level effects	• Conserve large blocks of contiguous forest and maintain movement corridors. • Implement appropriate IPM practices to minimize effects of serious forest pests

Recommended actions to conserve Maryland's wildlife

ment, and lead to wildlife declines. Fragmentation can be especially harmful to aquatic wildlife, such as freshwater mussels, and to animals that need large habitats, including songbirds like scarlet tanagers and meadowlarks.

Working together for Maryland's wildlife

The Maryland Department of Natural Resources invited more than 400 conservation partners to assist in the development of the action plan. Partners included resource professionals from governmental agencies, colleges and universities, and conservation organizations, such as National Audu

Black skimmers/MD DNR

bon Society, The Nature Conservancy, U.S. Fish and Wildlife Service, and the Maryland Farm Bureau. Advice and input were sought by various means, including surveys, personal contact and correspondence, meetings and presentations. Stakeholders and the public were also kept informed of the plan's progress and allowed to comment through an online forum.

Bald eagle at nest/MD DNR

Least tern and chick/MD DNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Glenn Therres, Associate Director
Maryland Department of Natural Resources
Wildlife and Heritage Service E-1
Tawes State Office Building
Annapolis, MD 21401
Tel: 410.260.8572
gtherres@dnr.state.md.us
www.maryland.gov

Massachusetts Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (CWCS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Massachusetts snapshot

Landscape: In Massachusetts, the landscape ranges from calcium-rich valleys of western Massachusetts to the cold, acidic Worcester Plateau, and from the mountains of the Taconics and the Berkshires to the floodplains of the Connecticut River Valley. The Atlantic Ocean shapes the sandy glacial outwash plains of Cape Cod and the rest of Massachusetts' coastal system.

Eastern box turtle/Massachusetts

Management: The land trust movement began in Massachusetts. In 1891, Charles Eliot founded The Trustees of Reservations, the first non-profit land trust. With the Boston area rapidly developing, Eliot feared that city dwellers would lose touch with the countryside if specific places of natural beauty were not preserved. Today, Massachusetts leads the nation with a total of 143 land trusts in operation. The population of Massachusetts has grown by 28 percent from 1950-2000 but the area of developed land has increased by 200 percent.

Massachusetts's planning approach

Perhaps because Massachusetts is a small state with a large population where the negative impacts to wildlife populations are clearly recognized, development of the Comprehensive Wildlife Conservation Strategy was more a bringing together of existing plans rather than having to start the planning process from scratch. For example, the BioMap project analyzed Natural Heritage and Endangered Species Program data collected over many years to identify key wildlife habitats throughout the state. This information allows land- use planners from the most local level right on up to the broadest landscape perspective to understand why these areas are so important to the long-term conservation of declining wildlife populations.

The Ecological Restoration Program funds research that assesses the dynamics of natural communities before initiating

"Massachusetts has a closing window of opportunity to conserve our most vulnerable wildlife habitat from the effects of poorly planned development. The Massachusetts Wildlife Action plan outlines collaborative goals and strategies for the Massachusetts Division of Fisheries and Wildlife, Mass Audubon, and other partners that are essential steps to protect the nature of Massachusetts for people and wildlife."

– Laura Johnson, President of Massachusetts Audubon, the largest conservation organization in New England.

management actions to restore ecologically significant systems. The Upland Program restores and maintains early-successional habitats needed by so many declining bird and small mammal populations in New England. Taken together, these pieces and many others described in the document lay out strategies to improve our knowledge of declining species populations and create partnerships that will engage Massachusetts citizens in actions that will conserve our wildlife legacy for future generations.

Shadbrush/Massachusetts

"The conditions facing the thousands of wildlife species in Massachusetts provide a key measure of the health of our overall environment. The health of wildlife is important in its own right and is often an early indicator of problems that can affect us all. Investing in the Massachusetts Wildlife Action Plan will allow us to identify, remedy, or prevent such problems before they threaten the natural systems that wildlife and humans alike depend on."
– Jim Gomes, President of the Environmental League of Massachusetts

Primary challenges to conserving wildlife in Massachusetts

The loss of habitat and the secondary impacts to wildlands and wildlife from increased water usage and pollution are the main threats addressed in the Massachusetts Comprehensive Wildlife Conservation Strategy. The primary challenge to conserving wildlife in Massachusetts is protecting enough habitat to support the species identified as being in greatest need of conservation. Whether habitat is lost to development, fragmented into smaller and smaller pieces that cannot

"The Massachusetts Wildlife Action Plan details how to conserve the varied and abundant wildlife and habitat that are important to the interests and traditions of sportsmen and women. We need to act now to preserve the sporting heritage for future generations of hunters and anglers."
– Mike Moss, President Massachusetts Sportsmen's Council

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Fish	98	27	10
Amphibians	21	7	6
Birds	30	19	16
Reptiles	448	63	28
Mammals	101	20	11
Mussels	12	8	8
Snails	31	8	7
Sponges	15	2	1
Flatworms	54	1	1
Segmented Worms	58	1	1
Beetles	Estimated 2,500 - 4,000	10	9
Dragonflies/ damselflies	165	31	30
Butterflies/ Moths	Estimated 2,500 - 3,000	53	48
Other Invertabrates	Estimated 1,300 aquatic	3	0

**All animal species on the state list of Endangered, Threatened, and Special Concern species, as of June 18, 2004. All federally listed species extant in the state are automatically included in the state list. All globally rare species as ranked by NatureServe as G1 –G3 if not already listed by the state and are extant in Massachusetts. Other regionally rare or declining species were added under specific conditions and a number of other species judged to be declining or uncommon in the state were also included. Each state is using its own criteria for this category.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Connecticut and Merrimack Rivers	Shortnose sturgeon Atlantic salmon Bald eagle Dwarf wedge mussel	Flow alteration, bypass reaches, population fragmentation	Continue ongoing anadromous fish restoration programs on both rivers. Investigate effects of mainstem dams on resident fish populations. Fund research on the natural history of river mainstem animals.
Upland Forest **About 2.82 million acres mainly in private ownership**	Silver-haired bat Eastern bat Hoary bat Long-eared owl Box turtle	Development, invasive species, forest cutting practices	Survey for long-eared owl, silver-haired bat, eastern bat and hoary bat to determine range, distribution and abundance. Participate in multi-agency task force to identify invasions of exotic fungal and insect pests which threaten forests. Employ even-aged forest cutting practices that can successfully regenerate oak stands as a model for private forest owners who want to provide good wildlife habitat.
Vernal Pools Potentially	Marbled salamander Blanding's turtle	Destruction of pool, clearing of surrounding	Determine land area and habitat features needed to protect existing wildlife populations using vernal pools. Produce conservation and recovery plans for suites of vernal pool animals. Prioritize clusters of vernal pools across the state for survey and conservation efforts.

Recommended actions to conserve Massachusetts's wildlife

support these species, or degraded by pollution and competition from invasive plants, the challenge before us is to protect enough habitat now before the opportunity is lost.

Working together for Massachusetts's wildlife

Public involvement in policy issues such as the development of the Comprehensive Wildlife Conservation Strategy must include a formal public review process and be approved by the Fish and Wildlife Board. Once the Strategy draft was completed, it was presented at a public meeting of the Fish and Wildlife Board and the Natural Heritage and Endangered Species Advisory Committee. The Division of Fisheries and Wildlife also made a special presentation of the draft Strategy to the Massachusetts Teaming with Wildlife Committee.

Molly Beatty Bog/USFWS

The draft Strategy was posted on the Division website for a six-week public comment period and received hundreds of visits to the site. In addition to announcing the web posting at the public meeting, the Division sent out announcements by email, fax and mail to more than 4300 stakeholders and interested parties. Drawing on comments taken during this period, the Division revised the Strategy reposted it on the website, and scheduled a formal public informational meeting to field additional oral and written comments.

"With the understanding that it is our responsibility to conserve our wildlife through professional management and planning, the Massachusetts Wildlife Action Plan has been put in place to provide us with a map that will lead us to a successful future. By bringing people from all walks of life together to participate in this virtuous effort, the Massachusetts Plan will lead all of us to a healthy tomorrow for our wildlife species."
--James Wallace, Executive Director
Gun Owners Action League

Parker River National Wildlife Refuge/USFWS

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

John A. O'Leary CWCS Coordinator
Massachusetts Division of
Fisheries and Wildlife
One Rabbit Hill Road
Westborough, MA 01581
Tel: 508.792.7270 ex 171
John.oleary@state.ma.us
www.mass.gov/masswildlife

Michigan Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and identify actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Michigan snapshot

Landscape: Water dominates Michigan's landscape–from the surrounding Great Lakes to 11,000 inland lakes and 36,000 miles of rivers and streams, and more freshwater shorelines than any other state in the nation.

Forests cover much of the undeveloped land in the Upper Peninsula and northern Lower Peninsula, while grasslands and other open lands are more common in southern Michigan. Urban sprawl and high rates of residential and commercial development are a concern throughout the state.

Stewardship: Michigan has more public land than any state east of the Mississippi River. Federal, state, or local governments manage one-fifth of the land area, including the country's largest state forest system.

Hundreds of conservation partners, including other public agencies, local governments, tribes, watershed groups, nature centers, land conservancies, corporations, special interest groups, and dedicated individuals, are also working for the conservation of Michigan's native wildlife and their habitats on publicly- and privately-owned lands.

Erecting osprey towers/Michigan DNR

Karner Blue Butterfly/Jennifer Fettinger, Michigan DNR

Wildlife highlights: Karner blue butterflies lend brilliant color to the prairies and savannas of southern Michigan. Lake sturgeon grace Michigan's waters, which also provide a backdrop for the unexpected beauty of more than 40 species of native mussels.

Each year, Kirtland's Warblers faithfully return to the only nesting area they've ever known – in northern Michigan's jack pine forests.

"The Michigan Wildlife Action Plan is a major step in the journey to preserve our outdoor heritage...Our outdoor heritage depends on our willingness to act to reduce or remove the threats to our state's wildlife diversity. I encourage every one of our state's citizens to become involved in this effort. Our state, our sense of place, and the future of our wildlife species depend on our response."

– Michigan Governor Jennifer M. Granholm

Michigan's planning approach

Michigan's Wildlife Action Plan provides a common strategic framework and information resource to help conserve Michigan's terrestrial and aquatic wildlife and the lands and waters on which they depend for survival. The action plan takes a primarily habitat-based approach to conserving rare, declining, and common wildlife species. The action plan focuses on 'landscape features,' such as prairies, bogs, large rivers, and coastal dunes. Recommended conservation actions are provided for these landscape features on a regional basis. The action plan also looks at the conservation needs of more than 400 vulnerable wildlife species and at statewide conservation priorities.

Sturgeon /Michigan DNR

By combining habitat and wildlife-specific approaches, and considering multiple scales, Michigan's action plan will help to guide the conservation of the state's full wildlife diversity.

Primary challenges to conserving wildlife in Michigan

Michigan's action plan identifies 20 statewide priority threats and significant conservation issues. *Invasive species* and *habitat fragmentation* repeatedly surface as highest priority threats.

Invasive species are non-native plants and animals that cause ecological and economic harm. The Great Lakes region alone hosts more than 200, including plants like purple loosestrife and autumn olive, and animals such as the gypsy moth and zebra mussel. The emerald ash borer, a native of eastern Asia, arrived in Michigan less than a decade ago and has

Frog/Dave Kenyon, Michigan DNR

"If we invest in conserving wildlife now, we can protect species for future generations. A proactive plan will benefit the health of wildlife and people, and conserve wildlife before they become rarer and more costly to protect."

–Rebecca Humphries, Director, Michigan Department of Natural Resources

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mussels & Clams	77	28	10
Snails	180	36	4
Crayfish	6	2	0
Insects	15,000–20,000	138	19
Fish	152	44	15
Amphibians	23	14	2
Reptiles	29	16	4
Birds	414**	99	21
Mammals	66	27	6
Totals		**404**	**81**

** Each state is using its own criteria for this category. Michigan focuses on wildlife species with small or declining populations or other characteristics that may make them vulnerable (this includes legally recognized threatened/endangered species)*
*** Includes 233 species known to breed in Michigan, as well as migratory birds.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Prairie **Ownership: Mix of private/ public**	• Barrens locust • Fowler's toad • Eastern meadowlark	• Habitat Fragmentation • Altered natural fire cycles	• Protect grasslands of at least 250 acres to benefit wildlife that depend on large open areas. • Use mowing, grazing, and prescribed burning to restore lands that benefit from disturbance.
Bog **Ownership: Mix of private/ public**	• Tapered vertigo (snail) • Ringed boghunter (dragonfly) • Snowshoe hare	• Unplanned housing & business development • Invasive plants and animals	• Work with municipalities to promote planning and zoning that protects bogs on privately-owned lands. • Remove invasive plants and animals and prevent new introductions.
Great Lakes Nearshore **Ownership: Public**	• Lake sturgeon • Channel darter • Mudpuppy	• Invasive plants and animals • Dredging	• Help stop the spread of invasive species and disease by improving ship ballast control practices. • Continue to work on limiting dredging to time periods that will avoid harming aquatic species during their breeding seasons.

Recommended actions to conserve Michigan's wildlife

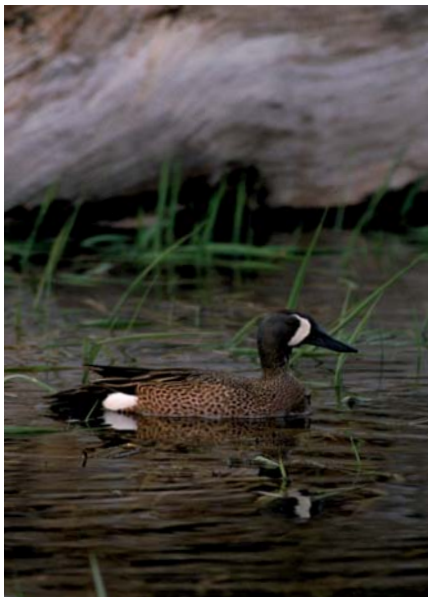
Zebra Mussels/Michigan DNR

Zebra Mussels/Michigan DNR

"This is a marvelous piece of work...Its quality, clarity and depth were clear to me after the first page of the executive summary and it did not let up."
–Dave Borgeson, Policy Advisor, Michigan United Conservation Clubs

already destroyed millions of the state's ash trees.

Habitat fragmentation results from breaking up larger landscapes into smaller patches. Housing development, new roads, stream diversions, and dams can isolate animal populations, create barriers to wildlife movement, and lead to wildlife declines. Fragmentation can be especially harmful to migratory aquatic wildlife such as lake sturgeon, and animals that need large habitats, including songbirds like scarlet tanagers and meadowlarks, and mammals like the American marten.


USFWS

Working together for Michigan's wildlife

Michigan Department of Natural Resources invited more than 200 conservation partners to help shape the action plan and nearly 60% actively participated– including the American Fisheries Society, DTE Energy, The Nature Conservancy, Michigan Bow Hunters Association, Michigan Farm Bureau, and the Nottawaseppi Huron Band of Potawatomi. The 12 public meetings and 8 additional partner meetings included regional technical workshops that brought together natural resource professionals from conservation organizations, state and federal agencies, and universities to examine the conditions and threats facing each landscape feature and to recommend conservation actions.

Michigan's action plan identifies a wide variety of needed conservation efforts, making it a valuable resource for all conservation partners in Michigan. Each conservation partner, whether government, tribe, organization or individual, will determine for itself which actions are most appropriate to help fulfill its mission and goals. Some of these decisions have already been made; that is, many of the recommended conservation efforts in the action plan were drawn from existing strategies and plans, and implementation is already progressing. In many ways, Michigan's conservation partners have already started on the path toward ensuring representation of the full diversity of Michigan's wildlife species and their habitats. Success will require continued coordination, cooperation and a common vision for the conservation of natural resources in Michigan.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St.
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Amy Clark Eagle
Wildlife Action Plan Coordinator
Michigan Department of Natural Resources--Wildlife
P.O. Box 30444
Lansing, MI 48909-7944
Tel: 517.373.1263
eaglea@michigan.gov
www.michigan.gov/dnr

Minnesota Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and lay the foundation for taking action to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Minnesota snapshot

Geography: Minnesota lies at the center of North America where three major biomes meet: the prairie, the boreal forest and the eastern deciduous forest. This confluence creates a natural heritage rich in wildlife resources. Minnesota is water-rich, with approximately 10 million acres of wetlands, 69,000 miles of rivers, and 12,000 lakes. Minnesota's varied landscape and abundant natural resources provide resource-based economies important to all Minnesotans.

Bald eagle/USFWS, S. Hillebrand

Management: Over 75% of Minnesota land is privately owned and 1.5% is in tribal ownership. Nearly 23% of Minnesota's land and all its waters are managed by local, state, or federal governments. Public lands include national forests, national wildlife refuges, state forests, parks, wildlife management areas, and scientific and natural areas. Conservation partners like The Nature Conservancy share in the management of a number of conservation lands.

Wildlife: Minnesota's opportunities for fishing, hunting, and wildlife-watching are world-renowned, with participation rates among the highest in the country. A natural diversity of wildlife, however, is critical to supporting a healthy ecology, economy, and society. Minnesota has identified 292 species that have significant conservation need, including the Spruce Grouse, Karner blue butterfly, Lake sturgeon, Spectaclecase mussel, and the Eastern Timber wolf.

Minnesota's planning approach

Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife focuses on "species in greatest conservation need" and the habitats on which they depend. The plan defines species in greatest conservation need as animals whose populations are rare, declining, or ulnerable to decline, as well as below levels desirable to ensure their long-term health and stability. The 292 identified species in Minnesota represent approximately one-quarter of the state's nearly 1,200 known native wildlife species.

The strategy's approach involves a partnership of conservation organizations working together to ensure that these species are sustained for future generations. Members of the partnership include the Minnesota Department of Natural Resources, the U.S. Fish and Wildlife Service, The Nature Conservancy, Audu

"Historic figures do not necessarily know that they are making history. A century ago, as Theodore Roosevelt implemented sweeping changes in how people viewed public land and conservation, many people were working behind the scenes to affect historic achievements. Decades and centuries from now, students of history and millions of Americans may look back at 2005 and 2006 as a key period in conservation. In a span of a few short months, each state fish and wildlife agency has submitted an action plan that will move us into the next phase of caring for our natural resources, and making America a healthier place for wildlife and people."

– Gene Merriam, Commissioner, Minnesota Department of Natural Resources

bon Minnesota, and the University of Minnesota, as well as many other agencies and conservation organizations.

This plan outlines priority conservation actions that partners can adopt and adapt to their unique interests and capacities. The plan presents profiles for 25 ecologically defined landscapes within Minnesota (see ecological classification map on page 4). Key habitats for species in greatest conservation need, a priority focus for action, are identified within each of these ecological landscapes.

Swan Lake, Border Lakes Subsection, Cook County/D. Carlson

Primary challenges to conserving wildlife in Minnesota

Habitat loss and degradation are the most significant problems facing wildlife in Minnesota, affecting forests, grasslands, lakes and wetlands. These habitat concerns impact not only species in greatest conservation need, but also the economic and cultural benefits of a healthy environment, including people's opportunity to enjoy quality outdoor experiences.

A lack of knowledge about wildlife species, their habitats, and management requirements limits informed decision-making and recommendations for protecting and managing habitats. Wildlife manag-

Gilt Darter/MN DNR, K. Schmidt

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mollusks	120	39	30
Spiders	20	8	8
Crayfish	6	0	0
Insects	420	56	42
Fish	147	47	8
Amphibians	20	6	1
Reptiles	29	17	9
Birds	311	97	28
Mammals	84	22	16
Totals	**~1200**	**292**	**142**

**Species in greatest conservation need are defined as rare, declining, or vulnerable to decline.*

Wildlife highlights

ers need more surveys for species of greatest conservation need, and more applied research that directly benefits land managers. Information is the key to adaptive management. Sometimes, new information reveals that a species is doing worse than expected and more attention is needed. Other times, a species originally thought to be rare and declining is found to be fairly secure.

A lack of adequate information and education programs related to wildlife conservation reduces the opportunities for Minnesotans to appreciate, understand, and protect many little-known wildlife species.

Dry Sand-Gravel Prairie, Minnesota River Prairie Subsection, Glacial Lakes State Park/MN DNR, T. Whitfeld

Examples of priority conservation actions

Projects	Key activities/findings	Outcomes
Accelerate completion of the County Biological Survey	• Found several new animal and plant species for the state. • Important habitats and rare features identified and mapped.	• Improves our understanding of Minnesota's natural resources. • Brings focus for areas of management, protection, and collaboration.
Statewide Mussel survey	• Improved understanding of mussel status and distribution, making Minnesota a national leader in mussel surveys. • Found 2 new species.	• Provides an indication of the health of our water systems. • Aids in the management and protection of mussel populations.
Important Bird Areas	• Provided technical assistance and survey work.	• Identification of a statewide system of areas important for the management, protection and appreciation of Minnesota's diverse bird population.
Habitat enhancement and protection	• Focus on key habitats.	• Helps ensure the stability and health of Minnesota's wildlife.
Partnership grants	• A variety of survey, research, and habitat enhancement projects.	• Builds partnerships that aid in conservation.
Information management	• Database development and maintenance.	• Essential in making informed management decisions.

The decision to create the State Wildlife Grants Program in 2001 provided Minnesota with the ability to develop and support projects to better manage and understand Minnesota's wildlife. This effort included the generation of information critical to the development of the action plan. A few examples are above.

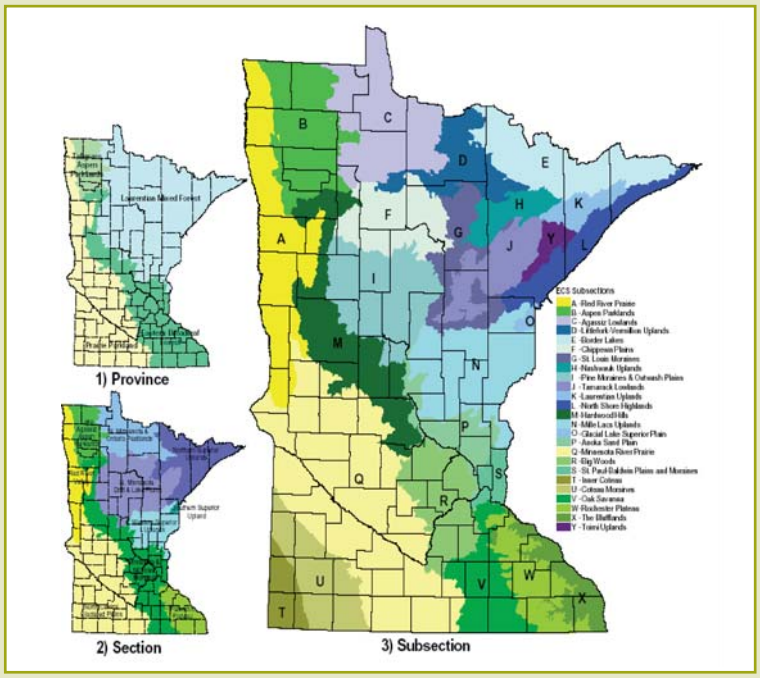
"Our encounters with wildlife are as diverse as the neighborhoods and towns in which we live. Ensuring that wildlife remains a prominent component of our natural world for generations to come is an increasingly complex challenge. Minnesota's State Wildlife Action Plan provides a strategic framework to direct and inform habitat conservation efforts throughout the state to ensure that we provide for the full array of Minnesota's diverse wildlife community."
– Lee Pfannmuller, Director of the Division of Ecological Services, Minnesota DNR

"The Minnesota plan considers the unique natural resources, historic trends and public interests of the state. The Service was pleased to participate in the development of the Minnesota plan by identifying key natural resources at our national wildlife refuges, as well as trust responsibilities, such as migratory birds. We now look forward to continued partnership with Minnesota, to help address priority actions identified in its plan."

– Robyn Thorson, U.S. Fish and Wildlife Service's Midwest Regional Director

Working together for Minnesota's wildlife

The Minnesota Wildlife Action Plan created a project structure that engaged over 100 conservationists across the state. Individuals with a broad range of technical expetise—including knowledge of individual native species, habitats, native communities, and conservation planning—comprehensively reviewed the best available information to identify a set of species in greatest conservation need and create a conservation approach that seeks to ensure the survival of all Minnesota's wildlife for future generations to experience and enjoy.



Ecological classification map of Minnesota

Black Crowned Night Heron/Stephen J. Maxson

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Emmett Mullin, Project Manager
Minnesota Department of Natural Resources
500 Lafayette Rd.
St. Paul, MN 55155
Tel: 651.259.5566
emmett.mullin@dnr.state.mn.us
www.dnr.state.mn.us/cwcs

Mississippi's Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Mississippi snapshot

Geography: Mississippi's 47,716 square mile area includes 44 miles of coastline, 450 square miles of open water and five major river systems that empty into the Gulf of Mexico or the Mississippi River. Elevations range from sea level to 806-foot Woodall Mountain in Tishomingo County. Forests dominate the landscape, comprising over half the land area, and about 37 percent of the land is in agricultural production.

Small stream swamp forest/MMNS

Landscape: As more than two-thirds of the State is in private ownership, conservation management programs coordinated through state, federal and non-profit organizations are geared toward private land stewardship. These include Farm bill conservation programs, conservation easements, and cost-share and partner programs that benefit both game and non-game wildlife. The U.S. Forest Service holds the largest percentage of public land, and, together with federal wildlife refuges and state wildlife management areas, these lands serve as important habitat for many of the endangered species in the state.

Wildlife: Lying directly above the geographic center of the Gulf of Mexico, Mississippi is in the main flyway for transgulf bird migrants. Black bear wander the bottomlands along the Mississippi, Pearl and Pascagoula Rivers. The Gulf sturgeon spends much of its life in marine environments of the Mississippi Sound, but moves to the freshwater of the Pearl and Pascagoula Rivers to spawn.

Mississippi's planning approach

The Mississippi Department of Wildlife Fisheries and Parks coordinated the development of the strategy with the help of internal committees, a large statewide advisory committee, and an extensive team of experts. The goal of the strategy was to provide a guide for the effective and efficient long-term conservation of Mississippi's biodiversity. Expert surveys and data from the Mississippi Natural Heritage Program led to the identification of 297 Species of Greatest Conservation Need, as well as their habitats. Sixty-four habitat subtypes were grouped into inland terrestrial, flowing water, standing water and marine catego-

"I am pleased to introduce the Mississippi Department of Wildlife Fisheries and Parks' new effort to serve as steward of ALL of our state's wildlife resources: the Mississippi Comprehensive Wildlife Conservation Strategy. This strategy has been developed in compliance with a congressional mandate and will serve as Mississippi's blueprint for fish and wildlife conservation for the next half century. It is my hope that the success of this effort will be measured by the cultivation of lasting conservation partnerships and the promise of fish and wildlife resources for future Mississippians."

– Sam Polles, Ph.D.
MDWFP Executive Director

Swallow-tailed Kite/Bruce Reid

"Mississippi's Comprehensive Wildlife Conservation Strategy is the most comprehensive plan devised in the State to address the needs of Mississippi's wildlife resources. It will serve well as the foundation for determining the best ways to conserve our natural resources for generations to come."

– Cathy Shropshire, Ph.D. Mississippi Wildlife Federation Executive Director

Habitat subtypes were prioritized according to the number of Species of Greatest Conservation Need found in each subtyped, and by the degree of imperilment of these species. Our collaborators helped identify 23 general threats and 30 potential conservation actions needed to abate the greatest threats to wildlife and habitats. Mississippi's strategy represents a habitat-based approach to conserve rare and declining, as well as common, species.

Primary challenges to conserving wildlife in Mississippi

Mississippi identified 23 statewide priority threats to the identified species of greatest conservation need. While the threats vary greatly among the diverse habitat types, **urban and suburban development, incompatible forestry practices** and **stream channel modification** were high priority threats for many of the habitats. One goal of the strategy is to engage all stakeholders in balancing wildlife conservation needs with ongoing economic activities.

Urban and suburban development includes primary home construction as well as development of associated infrastructure (e.g. subdivision roads and driveways, sewer and stormwater utilities). Impacts may include habitat destruction, disturbance, fragmentation and introduction of invasive species.

Incompatible forestry practices involve poor forestry BMP implementation and site management activities that result in altered structure and composition of adjacent natural habitats or degraded stream or wetland habitats. Examples include excessive chemical use, effects of some harvesting equipment, significant site alteration prior to planting (bedding) and excessively high stocking densities.

Channel modification includes construction and use of ditches, levees, dikes, drainage tiles, flow diversion, dredging,

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mussels	82	49	12
Crayfish	74	34	0
Fishes	213	74	4
Amphibians	59	18	1
Reptiles	84	35	10
Birds	270	70	8
Mammals	65	17	5
Totals	**847**	**297**	**40**

**Each state is using its own criteria for this category. Mississippi focuses on species 1) listed by state or federal statute as threatened or endangered; 2) ranked as critically imperiled, imperiled or vulnerable by the Mississippi Natural Heritage Program; 3) with low or rapidly declining population density, low reproductive potential and narrow geographic distributions but not listed as endangered, threatened, imperiled or vulnerable; 4) identified as a conservation priority under national plans and peer reviewed reviewed publications.*

Some animal groups were not included in this first CWCS version. Insects, snails, marine fishes and invertebrates were deemed insufficiently well-known to evaluate. Plans are being developed to identify species in need from these groups, and to include them in future iterations.

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Small Stream Swamp Forest	Black Bear, Rafinesque's Big-eared Bat River Frog, Swallow-Tailed Kite	• Incompatible Water Quality • Invasive Species	• Encourage and improve agriculture/forestry/ watershed land-use planning and Best Management Practices to address non-point pollution, erosion and water quality issues. • Control exotic and invasive species - plants and animals.
Tombigbee River Drainage	Red Salamander, Southern Walleye, Ridged Mapleleaf Mussel, Black-Knobbed Map Turtle	• Channel Modification	• Maintain/improve/restore hydrologic and channel sinuosity and floodplain integrity.
Estuarine Marshes	Black Skimmer, Saltmarsh Topminnow, Mississippi Diamondback Terrapin	• Altered Hydrology (flow) • Second Home/ Vacation Home Development	• Encourage buffers and improve land use practices adjacent to wetland habitats. • Encourage retention, preservation and conservation of remaining natural habitat through purchase, easements, MOAs. • Develop/improve urban/suburban/infrastructure land use development planning/zoning.

Recommended actions to conserve Mississippi's wildlife

Tombigbee River System/MMNS

channelization, filling of wetlands, destabilization of streambanks or channels (head-cutting), and other alterations to stream channels and natural flow regimes.

Working together for Mississippi's wildlife

Representatives from over 290 natural resources agencies, conservation organizations, agriculture and forest products industries, technical experts, conservation educators and academics were invited to participate on the Advisory Committee. This group, which included 179 active members, met quarterly to review and develop sections of the strategy. Their role was to provide input and advice during the development of the strategy, to recommend existing plans or strategies for incorporation, and to review and comment on drafts of the strategy prior to submission. All meeting agendas and minutes were posted on the strategy webpage, and the public was encouraged to participate.

Individual briefings and group presentations were provided to interested individuals, organizations and agencies throughout the development of the strategy. A promotional brochure was used for presentations, and was distributed to potential stakeholders and the public. A website, www.mdwfp.com/cwcs, served as the primary method of providing material to the public and stakeholders for additional review and comments. Finally, news media throughout the state reported on the development of the strategy.

Black Skimmers/Bruce Reid

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Charles Knight, Conservation Resources Coordinator
Mississippi Department of Wildlife, Fisheries and Parks
MS Museum of Natural Science
2148 Riverside Drive
Jackson, MS 39202
Tel: 601.354.7303
Charles.knight@mmns.state.ms.us
www.mdwfp.com/cwcs

Missouri Comprehensive Wildlife Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Missouri snapshot

Few other states are as enriched as Missouri by the intersection of plants and animals representing the vast prairies of the Great Plains, southwest deserts, southern swampy coastal plains, northern boreal forests and eastern Appalachians. Two big rivers, the Missouri River and the Mississippi River, shape the state and influence our landscape and wildlife.

Prairie Chicken/MDC

Four ecological regions characterize our wildlife heritage. Many people are familiar with the Ozark Highlands – a region of forests and woodlands that still supports much native wildlife. The northern plains were formerly prairies and savannas dissected with wooded streams. Today, much of north Missouri is used for crop agriculture and cattle grazing. The western border of Missouri lies at the edge of the Great Plains; our best remaining prairie grasslands are in southwest Missouri. The extreme southeastern tip of Missouri is the Bootheel – formerly swamps and forests that produce wildlife characteristic of the South. The wildlife of each of these ecological regions is different; therefore the management challenges are different.

Missouri's planning approach

Utilizing wildlife information gathered over the past 30 years, Missouri's Comprehensive Wildlife Strategy promotes management that benefits all wildlife, rather than targeting single species. The strategy identifies 33 Conservation Opportunity Areas in which management strategies will conserve both wildlife populations and the natural systems on which they depend. For each Conservation Opportunity Area, a team of partners developed a common vision of issues and actions.

Milkweed Survey/MDC

"Development of the Comprehensive Wildlife Strategy demonstrates our commitment to all wildlife. The Strategy highlights a renewed Department focus to conserve a broad array of wildlife and plants in recognition that all living things are part of a complex system."

– John D. Hoskins, Director, Missouri Department of Conservation

The Department of Conservation, other public agencies, private conservation organizations and citizen conservationists can use the framework of Conservation Opportunity Areas to focus their efforts for species of conservation concern and their habitats.

Paint Brush Prairie/MDC

Primary challenges to conserving wildlife in Missouri

Invasive exotic plants and animals, development and urbanization, fire suppression, and diminishing water quality are all statewide threats. Missouri's strategy identified primary threats facing wildlife in the Conservation Opportunity Areas.

Woodlands are one of Missouri's most threatened natural communities; not because the state is losing tree structure but because of a lack of ground fires. Though Missouri presently adds a million acres of trees every decade, today's woodlands differ in species composition and structure from those shaped by fire, and thus support different wildlife species. The Thousand Hills Woodland Conservation Opportunity Area is one location where we hope to increase prescribed fire management on public and private lands.

Grotto salamander, William R. Elliott, MDC

"State government and private organizations can bring different capacities to bear to get things done. When you match the private sector with the public sector you can really magnify the amount of work you get done on the ground for all species."
–Roger Still, Executive Director, Audubon Missouri

Wildlife	Total number of species	Species of conservation concern*	State endangered	Federally threatened/ endangered
Plants	>2,000	635	10	10
Mussels	65	28	10	6
Snails	178	21	1	1
Crayfish	33	17	0	0
Other crustaceans, flatworms, arachnids & millipedes	unknown	31	0	0
Insects	~20,000	90	2	2
Fish	212	68	19	5
Amphibians	48	16	2	0
Reptiles	78	18	7	0
Birds	**398	50	11	2
Mammals	72	25	6	4
Totals		**1003**	**68**	**30**

**The reference list for plants, animals and natural communities of conservation concern is the Missouri Species and Communities of Conservation Concern Checklist. These plants and animals are the "species of greatest conservation need" in Missouri. Our Strategy is designed to conserve species, natural communities and landscapes.*

***Includes 167 species known to breed in Missouri, as well as migratory birds.*

Wildlife highlights

Highlight habitats	Wildlife	Issues	Actions
Prairie: **Golden Grasslands Conservation Opportunity Area** **Ownership:** **Mix of public/private**	• Prairie mole cricket • Grassland Crayfish • Northern crawfish frog • Bullsnake • Greater prairie-chicken • Upland sandpiper • Prairie vole	• Habitat Fragmentation • Invasive plants	Golden Prairie Grassland Connectivity Initiative: Build connectivity for grassland wildlife by promoting conservation actions on 5,000 acres of private land and the existing conservation network. Control invasive plants and animals (e.g. sericea lespedeza).
Glade/Woodland Complex: **Roaring River Conservation Opportunity Area** **Ownership:** **Mix of public/private**	• Eastern collared lizard • Flat-headed Snake • Greater roadrunner • Painted bunting	• Altered natural fire cycles • Invasion of red cedars	Roaring River Glade and Woodland Restoration Initiative: Use prescribed burning and cedar tree removal as tools to improve 2,500 acres of glades and woodlands.
Cave: **Tumbling Creek Cave Ecosystem Conservation Opportunity Area** **Ownership:** **Mix of public/private**	• Ozark cave amphipod • Causeyella cave millipede • Tumbling Creek cavesnail • Grotto salamander	• Groundwater pollution and sedimentation	Tumbling Creek Cave Ecosystem Groundwater Protection Initiative: Reduce sedimentation and pollution in the Tumbling Creek groundwater system by implementing erosion control efforts, protecting karst features and improving sewage treatment methods.

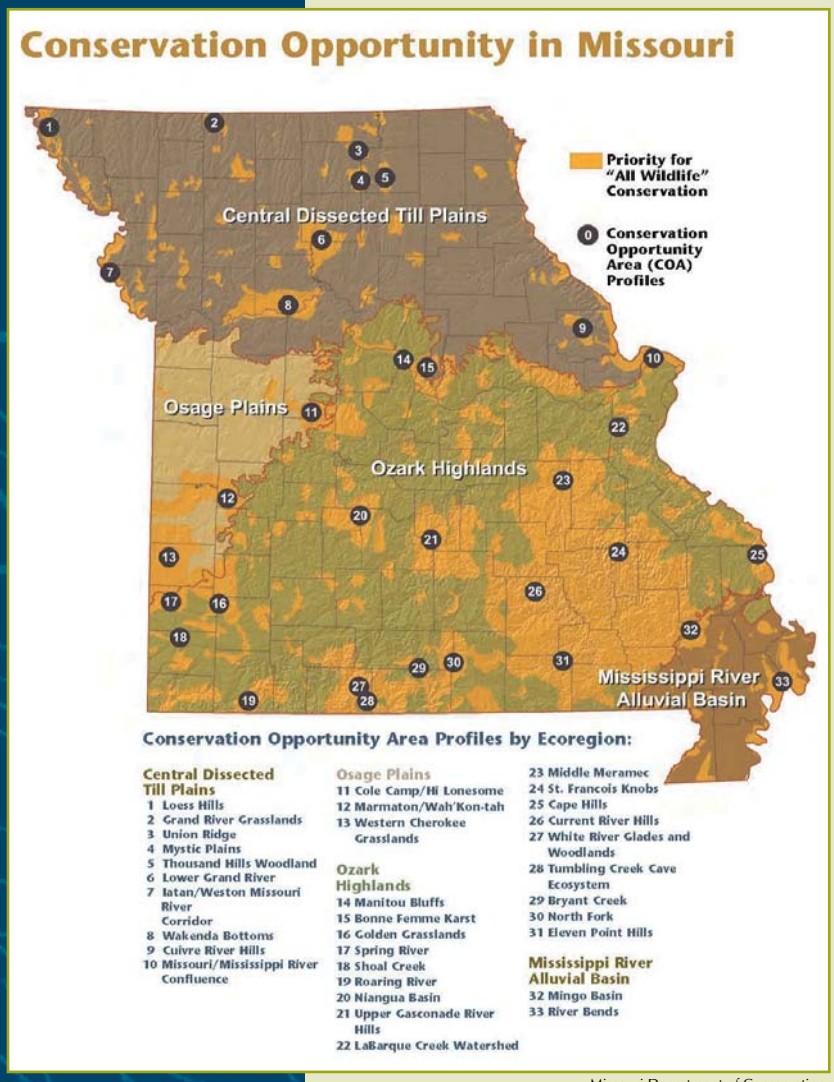
Recommended actions to conserve Missouri's wildlife

Prairie burn/MDC

Pawnee Nursery Planting/MDC

Working together for Missouri's wildlife

The Missouri Department of Conservation worked with selected conservation partners to develop criteria for evaluating and identifying priority conservation opportunities. Then, a broad coalition of conservation partners participated in



Missouri Department of Conservation

a Conservation Landscapes Meeting to identify and select Conservation Opportunity Areas. Participants from many agencies and organizations volunteered to be team leaders for Conservation Opportunity Areas, hosting the first stakeholder meetings and collecting information needed to profile each area. Other participating partners identified the Conservation Opportunity Area meetings to which they would like to be invited. This was an effective way to build the initial stakeholder teams. As team leaders planned their meetings, they were challenged to invite additional stakeholders, especially local individuals and communities that were not present at the statewide meeting.

During the meeting process, the Missouri Department of Conservation provided access to spatial data layers and facilitators, provided guidance on how to conduct the meetings, and identified specific information needed for area profiles. The Department facilitated 37 stakeholder meetings across the state.

The Department took the results of the stakeholder meetings and prepared draft Conservation Opportunity Area profiles, which participants could review and comment on. The final profiles are collected in the publication, *Conserving All Wildlife in Missouri: A Directory of Conservation Opportunity.*

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contacts

Dennis Figg
Wildlife Programs Supervisor
Tel: 573.522.4115 (ext 3309)
Dennis.Figg@mdc.mo.gov

Amy Buechler
CWS Project Manager
Amy.Buechler@mdc.mo.gov
Tel: 573.522.4115 (ext 3154)

Missouri Deptartment of Conservation
PO Box 180
Jefferson City, MO 65109
www.mdc.mo.gov

Montana Comprehensive Fish & Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

"A collaborative approach to conservation will ensure future generations of Montanans a diverse landscape rich in fish and wildlife, as well as the preservation of our outdoor traditions."
–Montana Governor Brian Schweitzer

Montana snapshot

With over 90 million acres of land, 40,000 lakes or ponds, 98,000 miles of named streams and rivers, Montana has been tagged "The Last Best Place." Over 600 vertebrate species are known to exist across Montana's diverse landscapes, ranging from forest-covered mountains in the west, to grasslands and sagebrush in the east. Montana's hunting, fishing and wildlife viewing opportunities are the basis of many outdoor traditions, and the reasons why people call Montana home or return time and time again to visit the state's natural places.

Grizzly Bear Family /MT FWP

Montana's planning approach

Montana's Comprehensive Fish and Wildlife Conservation Strategy is an extensive analysis of more than 600 species of birds, mammals, fish, reptiles, amphibians, and mussels along with the places they live. The strategy sets out to identify critical habitats for both species in need of conservation and species that are doing well. The strategy consists of four components: geographic focus areas, fish and wildlife community types, species of greatest conservation need, and species in need of inventory. Focus areas have been identified as geographic starting points for Fish, Wildlife and Parks and partners to direct combined efforts to conserve

Panoramic/Carl Heilman

Montana's community types and species in greatest conservation need.

Primary challenges to conserving wildlife in Montana

Pygmy Rabbit - Tier 1 species/MT Natural Heritage Program, C. Currier

Montana's action plan identifies conservation concerns for all components of the strategy: 30 focus areas, seven community types, and 60 species in greatest conservation need. Each conservation concern identified has at least one or multiple conservation strategies accompanying it that could be implemented on the ground. The hope is to put the strategies into action in cooperation with conservation organizations, landowners, and others, to address the conservation concerns proactively before they become an issue requiring regulatory action.

Working together for Montana's wildlife

An advisory group consisting of state and federal agencies, tribes, industries, conservation organizations and other interest groups met in 2003 to discuss the development of Montana's action plan. These groups, along with all Fish, Wildlife and Parks staff and the general public were involved in review of the draft action plan before it was submitted for federal approval. Seven meetings were held around the state during the summer of 2005 to review the draft strategy and provide comments. About 45 people attended, representing more than 25 different organizations, along with private landowners and interested citizens. Web pages were developed with online comment forms to facilitate action plan review as well. Comments were received on all sections of the draft action plan.

Wildlife	Total number of species	Species of conservation concern*	Species of conservation concern that can be hunted or fished	Threatened/ endangered
Mussels/crayfish	8	1	0	0
Fish	87	17	9	3
Amphibians	18	3	0	0
Reptiles	17	5	0	0
Birds	398	19	2	4
Mammals	108	15	1	4
Totals	**636**	**60**	**11**	**11**

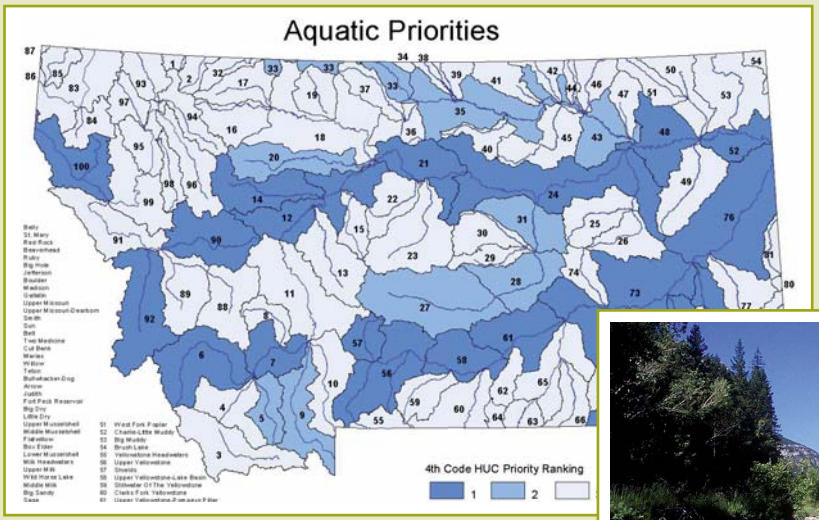
** Each state is using its own criteria for this category. Montana prioritized its species component into four tiers based on level of conservation need. The species of conservation concern as noted above are Tier I species, considered in greatest conservation need. Tier II species are in moderate conservation need, Tier III are in lower conservation need, and Tier IV species are non-native, incidental, or periphery species.*

Wildlife highlights

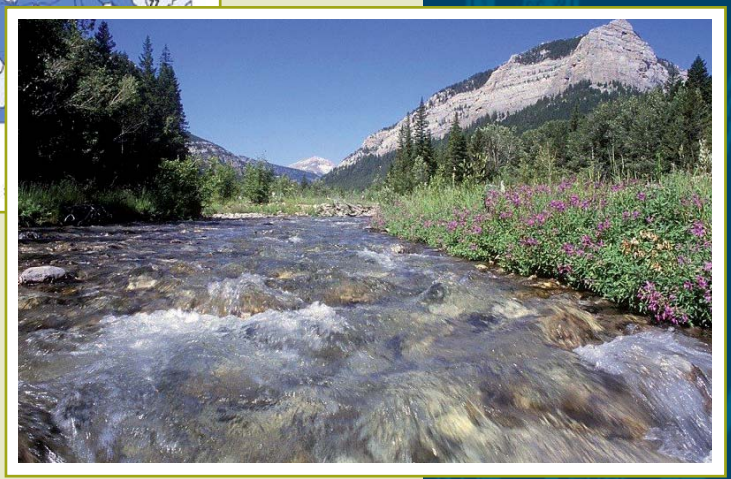
Panoramic/Carl Heilman

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Grassland Complexes Community Type	Northern Leopard Frog, Smooth Greensnake, Greater Sage Grouse, Black-footed Ferret	• Spread of noxious weeds and non-native plants, especially knapweed, leafy spurge and cheatgrass • Loss of natural fire disturbance	• Prevent the introduction and spread of noxious weeds on existing tracts of palouse prairie. • Maintain the appropriate native species composition using resource management strategies. • Work with public and private activities to re-establish natural fire regime.
Riparian and Wetland Community Type	Western Toad, Common Loon, Northern Bog Lemming	• Draining and conversion of wetlands to agricultural croplands and subdivisions • Loss of riparian habitat due to streamside residential development	• Work with other groups to identify riparian areas and wetlands that are critically important to wildlife diversity and work toward protection and enhancement. • Support strategic conservation easements by conservation organizations and public agencies.
Mountain Streams	Western Pearlshell Mussel, Yellowstone Cutthroat Trout, Westslope Cutthroat Trout, Arctic Grayling, Columbia Basin Redband Trout, Bull Trout	• Riparian habitats effected by roads, housing development, and range and forest management practices that degrade the adjacent riparian habitat and stream channel • Entrainment of fish in irrigation diversions	• Support government and private conservation activities that encourage and support sustainable land management practices in riparian areas.

Recommended actions to conserve Montana's wildlife



Map of aquatic focus areas/MT FWP



Mountain Stream - Community Type/Carl Heilman

"Montana's Comprehensive Fish and Wildlife Conservation Strategy will help identify and prevent problems before they threaten fish, wildlife and natural places. It is preventative health care – investing in the health of species now rather than spending on recovery later. It will help keep important outdoor traditions alive and add to the quality of life for future generations."
–Jeff Hagener, Director, Montana Fish, Wildlife & Parks

The advisory group reconvened in early January 2006 to help develop selection criteria that will be applied to the action plan to determine conservation priorities for the next five years. Subsequent meetings in each region of the state will involve other partner groups and will focus on developing cooperative projects that comply with identified conservation priorities.

Montana FWP also developed and has begun implementing a communications plan in cooperation with groups like Montana Wildlife Federation, National Wildlife Federation, Theodore Roosevelt Conservation Partnership and others to increase awareness, understanding and involvement in comprehensive conservation.

Arctic grayling restoration at Sun River/MT FWP

Little Elk Creek - Prairie Fish Survey/MT FWP

Arctic grayling - tier 1 species/MT Natural Heritage Program

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

T.O. Smith, Comprehensive Conservation Planning Coordinator
Montana Fish, Wildlife and Parks
1420 East Sixth Street
Helena, MT 59620
Tel: 406.444.3889
tosmith@mt.gov
fwp.mt.gov/wildthings/cfwcs/

Panoramic/Carl Heilman

Nebraska Natural Legacy Project

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Nebraska snapshot

Geography: Nebraska is predominantly a prairie state comprised of tallgrass, mixed grass and shortgrass prairie. Approximately 40 percent of the state is in grasslands, about half of which occur in the Sandhills region, the largest grass-stabilized dune system in the western hemisphere. Roughly 4 percent of the state is comprised of wetlands and about 2 percent is forested, mostly along major river courses and in the northwestern region of the state. Nebraska contains more than 12,000 miles of rivers and streams and two thirds of Nebraska lies over the Ogallala Aquifer, one of the largest sources of groundwater in the world.

Swift fox/Nebraska

Landscape: Of Nebraska's 49 million acres, more than 97 percent are privately owned, mostly in family farms and ranches. Nebraska contains approximately 1.1 million acres of federal land and 247,00 acres of state-owned land, ranking the state 48th in the amount of federal and state lands. Approximately 1.1 million acres of private land are enrolled in the USDA Conservation Reserve Program.

Wildlife: Nebraska supports one of the largest wildlife migration spectacles in the nation, as more than 500,000 sandhill cranes and 10 million waterfowl visit the state each spring. The diminutive swift fox is a resident of the shortgrass prairie in western Nebraska. The state and federally endangered American burying beetle appears to be faring better in Nebraska than it is over most of its range. The northern red-belly dace is found in high quality prairie streams in grass-dominated landscapes. The state and federally endangered salt creek tiger beetle is found only in Nebraska's Lancaster County.

Nebraska's planning approach

The Natural Legacy Project took a habitat-based approach to conservation, identifying 40 biologically unique landscapes to help prioritize where conservation work can best be directed. These landscapes contain representative samples of each of the state's natural communities and host the greatest known assemblage of biological diversity, including many populations of at-risk species. The Natu

"Nebraska is comprised of varied landscapes and overlapping ecosystems. It plays host to a diverse collection of wildlife species, many of which are found here on the outer reaches of their ranges. Because Nebraska is 97 percent privately owned, efforts to conserve biodiversity are dependent on collaboration with private landowners. The strength of Nebraska's Natural Legacy Project is that it was developed through a partnering effort with our stakeholders – ranchers, farmers, conservation organizations, governmental entities, and the citizens of our state – with an eye on preserving our natural treasures for future generations."

- Rex Amack, Director, Nebraska Game and Parks Commission

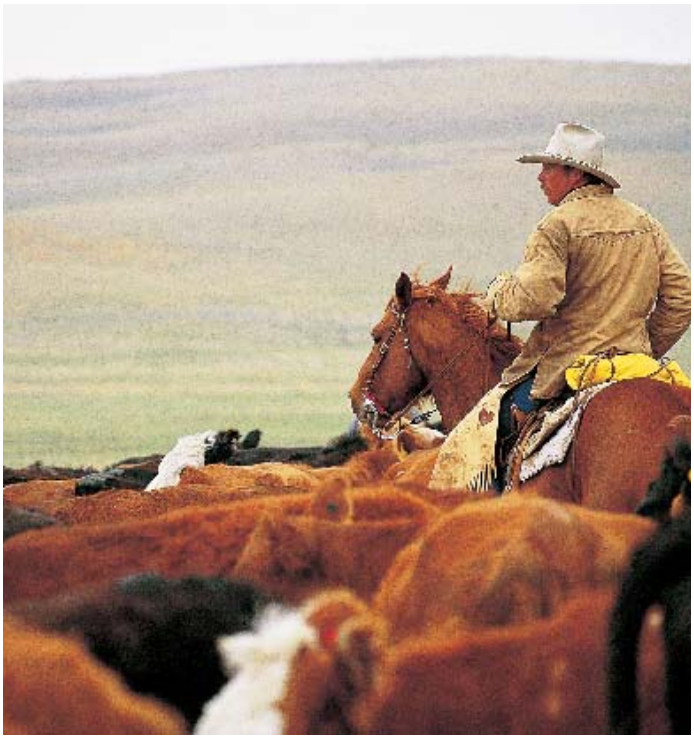
ral Legacy Partnership Team, made up of twenty of the state's major conservation and agricultural partners, was assembled at the outset to develop a public input process and guiding principles, as well as to develop a shared responsibility for conserving biodiversity. Twenty public meetings were held across the state to gather input from private landowners. In addition, a workshop of conservation practitioners was held to solicit advice from natural resource professionals, and a series of small workshops was used to gather input from species experts. Since most of the state is under private ownership, it was agreed that conservation actions would focus on working lands, be voluntary and incentive-based, and be implemented using a local community-based approach.

Primary challenges to conserving wildlife in Nebraska

Nebraska's wildlife action plan identifies conservation barriers and priority stress factors at statewide, eco-region, and landscape levels. In total, several hundred actions are proposed based on input from natural resource professionals and private citizens.

Key conservation barriers and stresses include:

- Insufficient communication and collaboration between conservation organizations and private landowners
- Insufficient environmental education
- Insufficient and ineffective conservation programs and incentives
- Improper habitat management (e.g. fire suppression, hydrologic modification, invasive species)
- Inefficient use of resources
- Incomplete network of public and private conservation lands
- Inadequate wildlife-viewing opportunities.



Sandhills rancher/Nebraska

Wildlife highlights

Wildlife	Total number of species	Species of Conservation Concern	Threatened/endangered listed species
Mammals	95	33	5
Birds	400	101	6
Reptiles & Amphibians	60	25	1
Fish	80	25	7
Insects	25,000+	28	2
Mollusks	32	13	1
Plants	1,470	300+	7

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Tallgrass Prairie	Henslow's sparrow, Plains Pocket mouse Massasauga (snake)	Reduction of native plant diversity due to grazing and lack of fire	Voluntary installation of planned grazing systems and controlled burning
Mixedgrass Prairie	Long-billed curlew, Whooping crane, Regal Fritillary	Loss of native plant diversity to broadcast herbicide spraying	Integrated pest management
Shortgrass Prairie	Burrowing owl, Brewer's sparrow, Swift Fox	Invasion by exotic grasses (e.g. cheatgrass)	Implement ecologically sensitive grazing practices on federal lands
Rainwater Basin Wetlands	Buff-breasted Sandpiper, whooping crane, King rail	Sedimentation of wetlands	Install grassland buffers around wetlands
Pine Ridge Forest	Lewis' woodpecker, Townsend's Big-eared bat, tawny crescent (butterfly)	Fire suppression resulting in increased stand density	Use of fire and mechanical clearing to thin ponderosa pine stands
Missouri River	Pallid surgeon, Piping plover, Higgins eye (mussel)	Channel cutting due to lack of sediment	Restore river meandering where possible.

Recommended actions to conserve Nebraska's wildlife

Working together for Nebraska's wildlife

Through public meetings, expert workshops, and outreach activities an effort was made to reach the greatest possible number of interested professionals and citizens. More than 500 Nebraskans directly contributed to the development of the plan. The Natural Legacy Partnership Team was one of seven teams that helped guide the planning process. Partnership Team members included leaders from Nebraska's conservation and agricultural community. Organizations included on the Partnership Team were: *Audubon Nebraska • Ducks Unlimited Inc. • The Grassland Foundation • Natural Resources Conservation Service (USDA) • Nebraska Alliance for Conservation and Environment Education • Nebraska Association of Resource Districts • Nebraska Cattlemen, Inc. • Nebraska Department of Agriculture • Nebraska Farm Bureau • Nebraska Farmers Union • Nebraska Forest Service • Nebraska Game and Parks Commission • Nebraska Partnership for All-Bird Conservation • Nebraska Wildlife Federation • Pheasants Forever, Inc. • Ponca Tribe of Nebraska • Rainwater Basin Joint Venture • The Nature Conservancy • US Fish and Wildlife Service • US Forest Service*

"In today's ever changing society, it's more important than ever that we have a plan for the future. Although we are headed towards uncharted waters, we now have a compass and a roadmap that better prepares us for the challenges ahead. The future of Nebraska's natural legacy looks bright."

- Bill Grewcock, Chairman, Nebraska Game and Parks Commission

Fishing/Nebraska

"The Natural Legacy Project is a comprehensive wildlife strategy that addresses the needs of the unique diversity of life and landscapes in Nebraska. Based on the most current information available, it reflects the best opportunities for wildlife conservation, as identified by a diverse group of Nebraskans from the private, public and non-profit sectors. It is a valuable tool for those wishing to protect and enhance our natural heritage for current and future generations."
- Vince Shay, Director, Nebraska Chapter of The Nature Conservancy

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Mark Humpert,
Wildlife Diversity Program Manager
Nebraska Game and Parks Commission,
Wildlife Division
Tel: 402.471.5438
mark.humpert@ngpc.ne.gov

Rick Schneider,
Natural Heritage Program Manager
Nebraska Game and Parks Commission,
Wildlife Division
Tel: 402.471.5438/5569
rick.shneider@ngpc.ne.gov
http://www.ngpc.state.ne.us/wildlife/programs/legacy/

Nevada Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Nevada snapshot

Geography: Nevada's diversity of life is derived from its geography; the many mountain ranges are effectively isolated from one another by arid and treeless basins. Nevada's borders encompass about 71 million acres, making it the seventh largest state.

Yucca Forest/USFWS

Landscape: The federal government administers 86% of the land base.

Wildlife: Among the 50 states, Nevada ranks eleventh in overall biological diversity, sixth in number of endemic species, third in number of species at risk and eleventh in the number of species extinctions.

Nevada's planning approach

To develop the Nevada Wildlife Action Plan, the Nevada Department of Wildlife partnered with the Nature Conservancy's Nevada Chapter, the Lahontan Audubon Society, and the Nevada Natural Heritage Program. A grant from the Nevada Division of State Land's Question One Conservation Bond program was awarded to assemble Nevada's Wildlife Action Plan.

With the help of experts from all taxonomic fields, the Plan Team identified a total of 263 Species of Conservation Priority, including 72 bird species, 49 mammal species, 40 fish species, 20 reptiles, 7 amphibians, 74 gastropods, and 1 bivalve. GIS and documented occurrences of wildlife species within Nevada's landscapes were used to identify key areas essential to the conservation of fish and wildlife species.

Collared Lizard/Christine Klinger, NDOW

Using data derived from the Southwest Regional Gap Analysis Project, the Plan Team organized the various ecological systems of the state into 27 key habi

"Given Nevada's tremendous population growth and its resulting development of open spaces, this Wildlife Action Plan is critical. The effort is cost-effective because it aims to conserve wildlife before species become rare and more costly to protect, thereby inhibiting Nevada's economic progress."

–Nevada Governor Kenny Guinn

tat types. Multi-level strategies were devised for these 27 key habitats that integrate conservation needs for species categories, as well as for individual species. Each strategy describes the habitats, their values to wildlife, land uses within the habitat and problems facing the species and habitats. This information provides support to the goals, objectives and actions that follow. The Plan Team derived objectives and actions from existing conservation plans, where available, and supplemented with new strategies, where necessary, in consultation with species experts and conservation partners . The draft strategy sections also underwent extensive expert review. Each strategy includes a list of key conservation partners, programs, and projects likely to fulfill the objectives for each key habitat, and each identifies preliminary focal areas for action through an intuitive process involving coordination with partners and concurrent planning processes.

American Avocet in nest/Larry Neel, NDOW

Primary challenges to conserving wildlife in Nevada

Nevada is uniquely challenged in developing effective wildlife conservation programs in part because of its arid climate, geography and relative scarcity of water resources, which has created a unique endemic biota easily subject to threats and stressors. Throughout Nevada, water is a scarce and valuable resource essential for both human needs and maintenance of wildlife and their habitats. Consequently, the alteration of hydrologic resources is a significant source of stress to wildlife resources. Nevada is also one of the fastest growing states in the nation, with human population creating a need for additional development into open space, causing habitat loss. Invasive, exotic and feral species are one of the most critical problems facing both terrestrial and aquatic species and habitats in Nevada.

Wildlife	Total number of species	Species of conservation priority*	Threatened/ endangered
Mussels	5	1	0
Snails	95	74	0
Crayfish	5	0	0
Fish	122	40	25
Amphibians	15	7	0
Reptiles	54	20	1
Birds	467	72	3
Mammals	136	49	0

** Species of Conservation Priority were determined through the implementation of three separate matrix evaluations – one each for nongame terrestrial animals, game animals, and aquatic animals – generally following standard species prioritization theory such as practiced by Partners In Flight. Consideration was given for state Natural Heritage Program rankings, as well as federal or state listing status. Each evaluation matrix process employed its own ranking criteria, but all considered the degree of threat facing a species, our current knowledge of the species' life history and conservation need, and some kind of evaluation of the opportunity to effect significant conservation action given the Nevada conservation partnership's interest in the species. For birds, additional consideration was given to species that had already been identified as priorities in some other conservation planning process at either the state, regional, or continental level.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Sagebrush **Ownership:** **Public 86%** **Private 14%**	• Greater sage-grouse • Brewer's sparrow • Pygmy rabbit • Sagebrush vole	• Wildfire type conversion • Depletion of understory	• In collaboration with the BLM and Forest Service, update fire response plans for all districts using the latest information gathered from collaborative wildlife conservation planning efforts such as the Governor's Sage Grouse Conservation Team. Prioritize areas for rapid fire response; set fire response objectives for all lands in a district. • Improve understory condition and diversity of native forb communities through progressive grazing management. Design grazing management strategies that initiate range recovery while providing the compensations necessary to maintain livestock operation objectives.
Intermountain Rivers and Streams **Ownership:** **Public 43%** **Private 57%**	• Lahontan cutthroat trout • Willow flycatcher • Northern leopard frog • Northern river otter	• Interruption of natural flow • Degradation of habitat quality • Invasive plants	• Develop new and implement existing strategies to address and eliminate potential movement barriers to reconnect fragmented stream habitat complexes. • Develop riparian wildlife objectives and best management practices; incorporate into NRCS Nevada WHIP Plan; in cooperation with NRCS, develop wildlife consultation services that provide quantified wildlife outputs for NRCS project proposals. • Support actions by land management partners and local governments to control invasive and noxious plants and weeds.
Aspen Woodland **Ownership:** **Public 88%** **Private 12%**	• Northern goshawk • Columbia spotted frog • Mule deer	• Stand regeneration • Water table maintenance	• Develop aspen regeneration strategies at the landscape scale with consideration for the preservation of active Northern Goshawk territories in project design and implementation. • Avoid spring development in and directly above aspen woodlands that withdraws water beyond sustainable levels.

Recommended actions to conserve Nevada's wildlife

One of the most critical ecological processes threatening wildlife conservation in Nevada today is the rapid conversion, due to wildfire, of sagebrush, Mojave, and shadscale shrub habitats to invasive annual grasses and forbs. The invasion of such aggressive species as cheatgrass, red brome, and medusa head converts rangelands to much more frequent fire cycles for which the exotic species are better adapted. Over time, these more frequent burn patterns select against native vegetation, eventually achieving permanent type conversion. Each year, if prudent, immediate action to re-seed with appropriate seed mixes is not taken, more native rangeland will be burned by wildfire and exposed to extreme risk of invasion by exotic grasses and forbs. Fire rehabilitation at this scale is expensive, however, and many of the techniques for success are still being formulated.

Working together for Nevada's wildlife

Public involvement and partnership development was facilitated throughout all development phases of the Plan. Open house meetings and focus group workshops were held across the state in order to get input and advice from

"Our lands hold a wide and wonderful variety of wildlife and wildlife habitat. Threatened and endangered species serve as a red flag for the overall health of our environment. We must preserve a legacy of large landscapes to benefit the health of both wildlife and people, and to preserve those things which are so important to many of our family traditions."
– Terry Crawforth, Director, Nevada Department of Wildlife

the broadest possible array of conservation partners, including federal and state resource agencies, county governments, tribes, sportsmen's groups, environmental groups, conservation organizations and others. In all, more than 150 individuals representing over 60 organizations attended the open houses and workshops . In May of 2005, a final partnership group including members from the Governor's Sage Grouse Conservation Team was convened. This group developed a set of guiding principles for the Action Plan writing team to consider while preparing the Draft Plan. Nevada's Wildlife Action Plan Team stayed in close contact, and coordinated, with federal land management agencies and Tribal governments throughout the development of the Strategy.

"Nevada's Wildlife Action Plan stands as a model for what public and private interests can achieve when they put their differences aside and work in partnership. The action strategies presented in the plan provide opportunities for conservationists and resource managers to work from the same playbook, toward the same goal: the long-term conservation of Nevada's wildlife and their habitats."
– Kathryn Landreth, State Director,
The Nature Conservancy in Nevada


Western toad/Anita Shaul


Hot Creek Spring/Anita Shaul, NDOW


Leopard frog/Anita Shaul, NDOW

Assn. of Fish & Wildlife Agencies
David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact
Larry Neel, Staff Specialist
Nevada Department of Wildlife
1100 Valley Road
Reno, NV 89512
Tel: 775.688.1525
neel@ndow.org
www.ndow.org
www.ndow.org/wild/conservation/cwcs/

New Hampshire Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

New Hampshire snapshot

Geography: New Hampshire's diverse landscape includes granite peaks, forests, wetlands, grasslands, coastal islands, and nearly a thousand lakes and ponds. The state's seven major watersheds provide habitat for hundreds of fish and wildlife species, many of them at risk.

Karner Blue Butterfly/NHF&G

Wildlife: The increasing development pressure of recent years has forced New Hampshire to work harder than ever to conserve the state's wildlife and habitat, and to help the public understand the importance of wild places and wild things to the state's future. New Hampshire's Wildlife Action Plan helps accomplish this by pointing to where the most vulnerable species and habitats are in relationship to the rapidly transforming landscape.

New Hampshire's planning approach

To develop the New Hampshire Wildlife Action Plan, more than a dozen partner organizations, including UNH Cooperative Extension, NH Audubon, and The Nature Conservancy, collaborated with NH Fish and Game to research, write, and compile the plan over three years.

Scientists first merged data from several existing sources in the state to identify New Hampshire's low and declining wildlife populations, as well as species that are indicative of overall wildlife diversity and health. Biologists developed comprehensive profiles of each of these species and habitats, then used Geographic Information Systems mapping both to assess the location and relative condition of key wildlife habitats, and to predict potential habitats. To determine both threats and exposure pathways that continue to affect the state's natural resources at many levels , biologists completed a scientific risk assessment process for priority habitats and wildlife species.

Cross-referencing all of this information, Wildlife Action Plan team members were able to produce assessments and strategies at the species, habitat, and landscape levels. The resulting strategies are organized under four focus areas, covering needed conservation actions at every scale, from local to global. Region

"Here in New Hampshire, wildlife and wild lands bring peace and relaxation to our lives. Fish and wildlife are at the heart of many of our family traditions -- fishing, hunting, birdwatching and moose-watching. These activities contribute to our overall enjoyment of the Granite State's scenery and natural wonders, as well as the New Hampshire economy. The Wildlife Action Plan is an investment in future generations -- of both wildlife and people."

- Lee E. Perry, Executive Director, N.H. Fish and Game

al air and water quality strategies target thereduction of harmful air and water pollutants by promoting sustainable energy, transportation, and industrial development practices. Plans for local land and water conservation include approaches for promoting sustainable development and resource use in order to support wildlife health and diversity through a combination of coordinated working groups, technical assistance, and the production of targeted information and education materials. Actions for biodiversity stewardship will help maintain New Hampshire's biodiversity and habitats by coordinating management, restoration, and land and regulatory protection. And conservation science and information management actions will ensure that the best available science is used to adapt management protocols and monitor those species and habitats of greatest conservation concern.

Pine Barrens Controlled Burn/NHF&G

Primary challenges to conserving wildlife in New Hampshire

The greatest current and future danger for New Hampshire's wildlife is conversion of wildlife habitat into surfaces and structures – in a word, development. Many habitats are rapidly disappearing or are fragmented by roads and dams, and many ecosystems are pushed out of equilibrium by human activities. New Hampshire is the fastest-growing state in the Northeast, with a human population increase of more than 17 percent from 1990 to 2004. Conversion of land use to residential development increased at almost twice that rate; so, despite many local land conservation victories, some critical species and habitats show declines that need to be addressed right now. Nearly 27% of the state is now protected thanks to large purchases of National Forest Land in the early 20th century and multi-agency efforts to place easements and protection on large tracts

Wildlife	Total number of species	Species of Conservation Concern*	Threatened/endangered listed species
Freshwater Mussels	10	1	2
Insects	~10,000	8	8
Fish	56	22	2
Amphibians	22	5	1
Reptiles	18	7	2
Birds	315	33	19
Mammals	63	8	5
Totals	**10,000+**	**84**	**39**

**Species of conservation concern include: those in the NH Natural Heritage database as vulnerable to extinction due to rarity and biological fragility; species considered regionally rare according to the Northeast Wildlife Diversity Technical Committee; and those identified by a team of specialists as vulnerable. Since so little is known about many invertebrate species in New Hampshire, these experts feel that it is not yet possible to assess the health of many invertebrate populations. The need for more research is identified as a priority in the Wildlife Action Plan.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Appalachian Oak-Pine Forest **13% protected with 7.5% permanently protected in public and private ownership.**	Eastern red bat, Timber rattlesnake, Whip-poor-will, Bobcat	Development or conversion of habitat into home lots, roads, businesses, etc.; resulting fragmentation degrades quality of remaining habitat.	• Develop and implement Regional Conservation Plans. • Advise Conservation Commissions, - Open Space Committees and Planning Boards. • Improve interagency coordination for environmental reviews.
Pine Barrens **19% protected in public/ private partnerships and ownership.**	Karner blue butterfly, Pine pinion moth, New England cottontail	Fire suppression (this habitat is maintained by fire and other natural disturbances); lack of active management results in habitat degradation.	• Develop protocols for limiting activity in sensitive habitats. • Prioritize and refine strategies to conserve wildlife. • Revise endangered species list.
Non-tidal Coastal Watershed **11% protected in public and private ownership.**	Brook floater, Atlantic salmon, Shortnose sturgeon, Redfin pickerel, Banded sunfish, Bald eagle	Dams, culverts, and stream crossings fragment habitat and curtail spawning. Headwater streams have lowest amount of forested buffer in the state.	• Restore or maintain natural flow regimes. • Protect riparian/shoreland habitat and other wildlife corridors. • Develop stream crossing guidelines and restoration protocols.

Recommended actions to conserve New Hampshire's wildlife

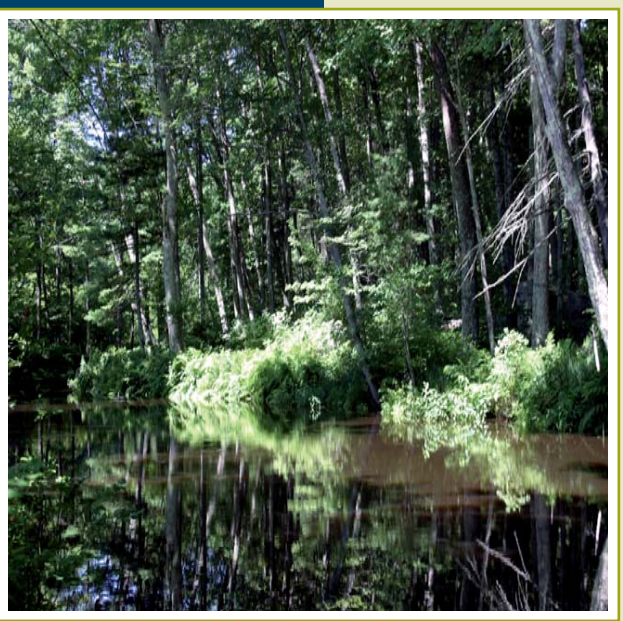
of forest in the late 20th century. Nevertheless, 75% of these protected lands are in the northern half of the state, and many of the state's most vulnerable species and habitats are found in the southern half of the state.

Even the best-protected wildlife populations and habitats -- and the clean air and water they depend on -- are threatened by climate change, environmental degradation, and pollution. Species and habitats in geographic extremes, such as mountaintops, northern lakes, and coastal islands, suffer most from climate change, while pollution such as acid deposition and mercury affects many

Salmon Parr/Eric Aldrich

habitats throughout the state.

Working together for New Hampshire's wildlife



Piscassic River/Eric Aldrich

A wide diversity of stakeholders and members of the public were incorporated into the planning process. The Wildlife Action Plan brings together the latest science with the opinions of hundreds of conservationists, foresters, academics, managers, planners, landowners, hunters, anglers, community leaders, and many others with a stake in wildlife and habitat conservation.

Working with the Wildlife Action Plan coordinators, a Communications and Outreach Team developed and implemented plans to gather public input. At the beginning of the process, as part of a larger northeast regional project, a random telephone survey provided information on New Hampshire residents' wildlife priorities and concerns. An all-day "Wildlife Summit" workshop brought together more than 100 people with an interest or an active role in conserving New Hampshire wildlife. A web survey helped further prioritize wildlife issues, and stakeholder meetings were held to understand participants' perceptions of threats to our wildlife and habitats. A Wildlife Conservation Strategy Forum was held to gather input on some of the major conservation strategies, and a second Wildlife Summit took place in February of 2006 to prioritize and begin implementation of the Wildlife Action Plan.

"The Wildlife Action Plan shows that wildlife face many challenges in New Hampshire, but if we invest in strategies now, we can conserve wildlife and vital natural habitats for future generations. The plan gives communities, conservation commissions, planning boards, and leaders in transportation and economic development more complete information about wildlife populations and critical habitats. As our communities grow, the Wildlife Action Plan will help guide their important decisions around local and regional land and water use and development, so we can fulfill our responsibility to safeguard wildlife and the places they live."

- John Kanter, coordinator, Nongame and Endangered Wildlife Program, New Hampshire Fish and Game

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

John Kanter, Nongame and Endangered Wildlife Program Coordinator
NH Fish and Game Department
11 Hazen Drive
Concord, NH 03301
Tel: 603.271.2461
jkanter@wildlife.state.nh.us
www.wildlife.state.nh.us

New Jersey Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

New Jersey snapshot

Geography: New Jersey sits at the convergence point of the east coast's northern and southern ecosystems. Consequently, the state consists of a variety of mountains, valleys, rolling hills, wetlands, pinelands, beaches, estuaries and riverine systems. The state's larger, unfragmented forest tracts are among the largest on the mid-Atlantic coast.

Bobcat/NJDEP

Landscape: The nation's most densely populated state, however, has a rapidly changing landscape, which creates an unprecedented wildlife conservation challenge for its citizens. Destructive influences on habitat and wildlife populations abound, some being the result of unsustainable development while others include increased human competition with wildlife for natural resources, declining forest health and the influx of exotic or invasive species.

Wildlife highlights: New Jersey's inland forests are home to resident bobcats, barred owls and timber rattlesnakes, and provide essential stopover habitat for most of the eastern U.S. migratory population of songbirds and raptors. At the same time, the state's Atlantic and Delaware Bay coastal habitats are home to bald eagles, northern harriers, black rails and piping plovers and are critical to millions of migratory raptors, waterfowl, shorebirds, butterflies, dragonflies, and fishes.

New Jersey's planning approach

Under the leadership of the Division of Fish and Wildlife, partner conservation agencies and stakeholder groups from across the state collaborated in the creation of our Action Plan, which is a blueprint for statewide protection of wildlife with special conservation needs. The plan, which is based on accurate and current data, is an ecosystem based management strategy that focuses heavily on habitat and species protection, management and restoration. The Wildlife Action Plan embodies the collective judgment of the state's conservation professionals regarding which species should receive special attention and what actions should be taken. It identifies tasks for nearly every agency and stakeholder group that has some influence over land use and wildlife habitats.

"Our Wildlife Action Plan will provide a brighter future for New Jersey's rare species and important habitats. While the strategy focuses on special need species and describes the conservation work that will benefit those species, ultimately all fish and wildlife species in New Jersey will benefit from this work."

–Lisa P. Jackson, Commissioner, NJ Department of Environmental Protection

Primary challenges to conserving wildlife in New Jersey

New Jersey's action plan identifies statewide threats as well as specific regional threats. The primary threats to state wildlife include habitat fragmentation, invasive species, and contaminants.

Eaglets/NJDEP

Habitat fragmentation resulting from suburban sprawl and increased housing and road development breaks up large critical habitats into smaller patches, which do not provide suitable habitat for many of the state's rare species. Fragmentation can be especially harmful to interior forest species that need large habitats such as bobcats, timber rattlesnakes and red-shouldered hawks, as well as to grassland species such as the grasshopper and vesper sparrows.

Invasive species include native and exotic, terrestrial and aquatic animals, plants, invertebrates and exotic pathogens that cause significant impacts and permanent loss of terrestrial and aquatic ecosystems. The cost of restoring habitat destroyed by invasive species can be prohibitive and requires persistent and long-term management.

Contaminants include point and non-point source pollution and oil spills. Oil spills threaten freshwater and salt marsh ecosystems and the wildlife that rely on them, while contaminants from point and non-point sources degrade habitat and cause developmental and behavioral abnormalities and reproductive failure in wildlife.

Wildlife	Total number of species	Species in need of conservation[1]	Threatened/endangered listed species
Mussels	14[3]	9	8
Snails[2]	85	0	0
Insects	> 10,000	66	9
Fish	400[4]	20	1
Amphibians	33	11	6
Reptiles	44	17	11
Birds	327[5]	149	29
Mammals	89[6]	17	9
Totals		**289**	**73**

1 Each state is using its own criteria for this category. New Jersey focuses on wildlife species with small or declining populations or other characteristics that may make them vulnerable to state extirpation or future listing. This group includes legally recognized threatened/endangered species, species of regional priority, nongame fish and game species which are recognized by Division of Fish and Wildlife staff as species of potential concern.

2 Snails are not included within the NJ Wildlife Action Plan as little or no research has been done to determine their population status within the state.

3 Includes two introduced species.

4 Figure represents marine and freshwater fish species, twenty-one of which have been recorded in both marine/estuarine and freshwater environments (or ecosystems).

5 Figure includes migratory and resident species.

6 Figure includes 29 marine mammals including 25 cetacean species and four pinniped species.

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Atlantic Coast-Beaches & Dunes Ownership: mix of private/public	• Bobcat • Timber rattlesnake • Pine snake • Cerulean warbler • Black-throated green warbler	• Impacts of beach nourishment projects	• Develop beach management agreements with municipalities that address impacts of recreation and municipal beach management in collaboration with the U.S. Army Corps of Engineers and NJDEP will implement features of the agreement into beach nourishment projects to increase availability of and access to nesting and foraging habitat.
Cape May-Forests and Wetlands Ownership: mix of private/public	• Migratory birds including: peregrine falcon, red-shouldered hawk, American kestrel, Cooper's hawk, sharp-shinned hawk	• Habitat loss and fragmentation due to development	• Require environmental review of all development projects in the Cape May peninsula that would affect field, forest, and shrub habitats. • Minimize impacts by requiring clustered design & mitigating habitat loss. • Institute and promote backyard habitat management with incentives to landowners and municipalities that adopt habitat management.
Delaware Bay-Beaches and Marshes Ownership: mix of private/public	• Migratory shorebirds including: red knots and sanderlings	• Over-harvest of horseshoe crabs • Bulkheading • Development of shoreline	• Identify a population level of horseshoe crabs that sustains the horseshoe crab (HSC) population in Delaware Bay while also meeting the nutritional needs of the migratory shorebirds that depend on horseshoe crab eggs. • Restrict commercial harvest of HSC to a level that sustains crabs & birds. • Don't issue state permits for bulkheading along Delaware Bay beaches in areas suitable for HSC spawning and shorebird resting, feeding & roosting.
Delaware River Ownership: States of New Jersey, Pennsylvania, New York	• Shortnose sturgeon • Dwarf wedgemussel, brook floater, yellow lampmussel and other rare mussels	• Dredging • Water quality • Instream projects (e.g. bridge modifications)	• Minimize impacts on shortnose and Atlantic sturgeon and on rare mussels during spawning and glochidial release times from dredging. • Seek antidegradation stream classification or critical areas designation in spawning and nursery areas to protect water quality for shortnose and Atlantic sturgeon and where rare mussels occur. • Work with water watch groups, etc. to plant native vegetation and encourage stream bank restoration efforts.
Piedmont-Upland and Wetland forest Ownership: mix of public/private	• Wood turtle • Pine snake • Migratory & resident species of bats (eg. hoary & Indiana bats), & breeding birds (eg. northern goshawk),	• Habitat loss and fragmentation • Lack of species and habitat data	• Establish a working group with NJ Department of Transportation (NJDOT) to increase wildlife egress and reduce mortality byincreasing habitat connectivity and road permeability. • Incorporate extant data from conservation organizations into Landscape Project mapping and use data to to define important stop over locations and target systematic surveys of these sites through Citizen Science Program.
Piedmont-Early Successional Habitat Ownership: mix of public/private	• Migratory & resident breeding birds (eg. golden-winged warbler, Henslow & vesper sparrow) • Migratory & resident invertebrates (eg. Appalachian grizzled skipper)	• Habitat loss and fragmentation • Lack of species and habitat data	• Establish a working group with NJDOT to develop actions to increase habitat along secondary roads for invertebrates and early successional bird species with reduced mowing and planting of host and native plants. • Use Landscape Project to protect critical stopover and breeding areas through targeted land acquisition and conservation easements; enhance sites through incentives to landowners & municipalities that adopt habitat standards.
Piedmont-Riparian Ownership: mix of public/private	• Migratory and resident species of bats (eg. eastern red & silver-haired bats) and breeding birds (eg. Louisiana waterthrush) • Freshwater fish • Wood turtle	• Habitat loss, degradation, and fragmentation • Lack of species and habitat data	• Increase fish passage through multiple bridge culverts w/ natural bottoms. • Increase the effective size and connectivity of open space in suburban landscape and reduce the influence of developed edge through non-regulatory methods such as increased enrollment in landowner incentive and backyard habitat management programs targeting properties adjacent to public lands and bordering riparian areas.
Pinelands-Forest Ownership: mix of private/public	• Timber rattlesnake • Pine snake • Corn Snake	• Habitat loss and fragmentation • Altered natural fire cycles	• Create larger and more contiguous patches of permanently preserved land through targeted land acquisition. • Reevaluate the boundaries of the existing Pinelands Management Zones & incorporate new species information into regional planning in the Pinelands. • Develop and implement management techniques that can safely be used to mimic the historic role of fire in shaping the Pinelands ecosystem.
Northern NJ-Emergent Wetlands & Wet Meadows Ownership: mix of private/public; mostly private	• Bog turtle	• Habitat loss and fragmentation • Alteration to hydrology • Nest predation	• Use the Landscape Map to identify critical wetland habitats for bog turtles and/or other wetland dependent species and manage them through fee simple acquisition, conservation easements, development of management plans w/ public agencies and through private landowner incentives/agreements. • Use the Landscape Map to identify important corridors that form a system of large, connected wetland habitat and protect these areas through land acquisition, conservation easements, acquisition of development rights and transfer of development rights.
Highlands-Forests Ownership: mix of private/public	• Timber rattlesnake • Indiana bat	• Habitat loss & fragmentation • Wanton killing; poaching	• Implement forest management plans and increase the acreage of existing large, contiguous forest tracts by developing partnerships with public agencies and private landowners to increase enrollment in the landowner incentive programs.

Recommended actions to conserve New Jersey's wildlife

Working together for New Jersey's wildlife

Grasslands Management/ NJDEP

The New Jersey Department of Environmental Protection (NJDEP), Division of Fish and Wildlife (DFW) worked internally to create a draft Wildlife Action Plan to be used as guidance. Leaders representing the constituencies of various conservation organizations including NJ Audubon Society, The Nature Conservancy-NJ Chapter and the NJ Conservation Foundation then reviewed the draft.

NJDEP then co-hosted a Wildlife Summit with N.J. Future where more than 150 attendees from numerous organizations actively participated in discussions focused on nine key topics (municipal land use planning, state and regional land use planning, land use regulation, landowner incentive program, public and private acquisition, infrastructure, invasive and overabundant species management, habitat restoration and management, and public land management). Participants included state and federal agencies such as the US Fish and Wildlife Service-N.J. Field Office, N.J. Dept. of Agriculture, National Park Service, National Wildlife Refuges throughout the state, the governor's office, the N.J. Department of Transportation, the N.J. Forest Service, and N.J. Office of Smart Growth. In addition, a wide range of conservation organizations, watershed associations, sportsmen's groups and regional planning councils participated in the Summit. Comments were submitted during the Summit and via a website comment form after the Summit.

The final draft was then posted on the DFW's website. The NJDEP continues to receive public comment for consideration and incorporation into the plan.

"New Jersey has an incredible diversity and abundance of wildlife and habitats. Our Wildlife Action Plan will ensure future generations can enjoy the same diversity and abundance we enjoy today."

- Dave Chanda, Director, NJ Division of Fish and Wildlife

Forested Wetland/NJDEP

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

NJ Division of Fish and Wildlife, Endangered and Nongame Species Program

Larry Niles, PhD., Bureau Chief
Tel: 609.292.9101
Larry.niles@dep.state.nj.us

Kris Schantz, Senior Zoologist,
Wildlife Action Pland Coordinator
Tel: 908.735.9281
kschantz.ensp@earthlink.net

www.njfishandwildlife.com

New Mexico Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (CWCS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

New Mexico snapshot

Geography: New Mexico is the 5th largest state, encompassing nearly 122,000 square miles. Though primarily a dry state it has approximately 234 square miles of rivers, streams, lakes, and reservoirs. New Mexico spans a variety of regions from the Great Plains, Rocky Mountains, Colorado Plateau and Madrean Archipelago to the Great Basin, and the Chihuahuan Desert. Elevations range from about 2,800 feet at Red Bluff Reservoir in the southeastern desert to over 13,000 feet at Wheeler Peak in the northern Sangre de Cristo range.

Cranes/New Mexico

Landscape: Approximately 34% of New Mexico is federally owned, 12% is state owned, 44% is privately owned, and 10% is within Native American reservations. Federally owned lands are primarily under the stewardship of the Bureau of Land Management, USDA Forest Service, Department of Defense, and the National Park Service. There are 22 tribes and reservations within the state. The Navajo Nation and Zuni Tribe own much of the northwestern part of the state, especially along the Arizona border, and the Jicarilla and Mescalero Apache Tribes own land in the north and southeast, respectively. Most of the Pueblo tribes are located along the northern half of the Rio Grande. In rural New Mexico agriculture is among the top 5 industries and is of significant economic, cultural, and social importance to the state.

Wildlife: Size, topography, physical location, and the convergence of several life zones in its southwestern quadrant combine to make New Mexico a biologically diverse state, with more than 4,500 different species of plants and animals. More than 1,000 species of mammals, birds, fish ,frogs, toads, salamanders, snakes, turtles, and lizards occur within the state's borders. Though the total number of species is unknown, diversity is also high among animal groups such as snails, shrimp, insects and spiders.

New Mexico's planning approach

The Comprehensive Wildlife Conservation Strategy for New Mexico focuses upon species of greatest conservation need, key wildlife habitats, and the

"This strategy demonstrates our concern for wildlife and habitat resources here and across the nation. It is our job to keep our wildlife populations healthy and sustainable, and we take that responsibility seriously. The approaches to conservation expressed in the Strategy are both substantial and sensible. We have focused on strategic actions that are intended to keep common species common and work to prevent wildlife from becoming endangered."

- New Mexico Governor Bill Richardson

challenges affecting the conservation of both. The overriding desired outcome is that New Mexico's key habitats will persist in the condition, connectivity, and quantity necessary to sustain viable and resilient populations of these species while hosting a variety of land uses with reduced resource use conflicts. The scope, focus, and content of the Strategy were influenced by the direct involvement of over 170 individuals external to the New Mexico Department of Game and Fish who provided valuable technical and socio-economic insights and constructive criticism from diverse and often conflicting perspectives. Participants included interests who did not necessarily agree with all portions of the CWCS or with the CWCS initiative in general. The Strategy is intended as a blueprint to guide collaborative and coordinated wildlife conservation initiatives involving the New Mexico Department of Game and Fish, local, state, federal, and tribal government agencies, non-governmental organizations, and interested individuals.

Sonorella/New Mexico

Primary challenges to conserving wildlife in New Mexico

Habitat degradation or loss are the most significant factors adversely affecting New Mexico's wildlife.As might be expected in a dry state, aquatic habitats and the lands immediately associated with them may be at higher risk of alteration than other New Mexico habitats. Conversion to other uses, extraction of minerals or water, excessive removal of biological resources, and pollution present the highest probability of altering New Mexico's key habitats. The presence of non-native aquatic species also has considerable adverse effects upon native fish and other inhabitants of New Mexico's aquatic habitats. For example:

Habitat Conversion: Conversion of habitats to urban, residential, commercial, energy, and recreational development, agriculture and other such land uses have

Wildlife	Total number of species	Species of Greatest Conservation Need*	
		Number	%
Amphibians	26	15	58
Birds	504	74	15
Crustaceans	35	32	91
Fish	130	37	28
Mammals	184	42	23
Molluscs	182	66	36
Reptiles	105	32	31
Subtotal	1166	298	26
Arthropods	Unknown	154	--
Totals	**--**	**452**	**--**

**Species that are indicative of the diversity and health of New Mexico's wildlife and, with some exceptions, are also associated with key habitats. Indicative species include those considered to be declining or vulnerable, those that are keystones of ecosystem function, populations restricted to small geographic areas, those with isolated or disjunct populations, those dependent upon vast areas, and those of high recreational, economic, or charismatic interest.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Madrean Forests and Woodlands **Ownership: Mixed public and private.**	• Gould's wild turkey • Mexican gray wolf • Jaguar • Western red bat • Sonoran mud turtle	Habitat fragmentation	• Work with state, federal, and private landowners to develop measures, such as closure of unnecessary roads, to reduce habitat fragmentation. • Work with willing private landowners to obtain conservation easements on lands valuable as corridors connecting Madrean mountain ranges..
Western Great Plains Shortgrass Prairie **Ownership: Mixed public and private.**	• Bald eagle • Scaled quail • Sandhill crane • Black-tailed prairie dog • Mule deer • Tiger salamander	Changes in plant diversity and structure alter grassland habitats and wildlife species composition.	• Work with land management agencies, private land managers, and the agriculture industry to identify and promote rangeland grazing systems that ensure long-term ecological sustainability and are cost effective for livestock interests. Such practices may include collaborative development of grazing management plans, altering livestock and wildlife stocking rates, time, use and distribution, and promoting grass banking opportunities that allow rangelands to recover.
Statewide Riparian Habitats and 5th Order Streams **Ownership: Mixed public and private.**	• Eared grebe • Beaver • Western Boreal toad • Chiricahua leopard frog • Roundtail chub • Colorado pikeminnow • Razorback sucker	Altered natural flow regimes	• Work with federal and state agencies, private landowners, non-government organizations and research institutions to design and implement projects that establish flow regimes downstream of reservoirs that mimic the historic high-flow dynamics of the original river system.

Recommended actions to conserve New Mexico's wildlife

accelerated over the past century. Consequently, large areas of formerly contiguous landscapes have become increasingly fragmented and isolated. Many aquatic habitats have become altered and fragmented by dams and water diversions associated with such conversions.

Pollution: Concerns about pollution in New Mexico are primarily focused on aquatic habitats. Runoff from livestock feedlots, dairy operations, and urban road surfaces introduces nutrients and contaminants to aquatic habitats. Petrochemicals from extraction sites and refineries also reach aquatic habitats. Both petrochemicals and mercury have been found in many of New Mexico's reservoirs.

Consumptive Biological Uses: Logging, deforestation, fuel wood collection, and improper domestic livestock and wildlife grazing regimes (those that reduce long-term plant and animal productivity) can adversely affect species of greatest conservation need and their habitats throughout New Mexico. In areas where multiple consumptive biological uses occur, concerns persist about the ability of these habitats to sustain viable and resilient wildlife populations.

Working together for New Mexico's wildlife

The New Mexico Department of Game and Fish (NMDGF) initiated public involvement early in the process by announcing its intent to develop the Strategy and soliciting interest through articles in more than 30 newspapers with a total circulation of 332,000. Drafts of the Strategy were made available on the Department's website where reviewers were encouraged to complete an on-line survey or simply share their thoughts by e-mail. Presentations were made to the New Mexico Wildlife Federation and the Native American Fish and Wildlife Society. NMDGF conducted several forums seeking to identify and engage potential partners from local, state, federal, and

Mule Deer/New Mexico

"This Comprehensive Wildlife Conservation Strategy for New Mexico is both a culmination and a springboard. It is a culmination of 2 years of efforts on the part of resource professionals, conservation organizations, commodity interests, private individuals, tribal interests, municipal governments, and others to construct a better wildlife conservation overview for New Mexico. It is the springboard to an important conservation future for wildlife in New Mexico and the Southwest. Its potential can only be realized through a broad array of natural resource agencies, other public programs, and private interests all being guided by this approach and pulling together to implement its conservation actions."

- Dr. Bruce Thompson, Director, New Mexico Department of Game & Fish

tribal government agencies and non-governmental organizations representing recreation, conservation, agriculture, and energy development interests. In addition, through other meetings, e-mails, and phone conversations the Department exchanged information with a broad range of groups who did not participate in the forums. In all, the scope, focus, and content of the strategy were influenced by the direct involvement of over 170 individuals external to the Department, not all of whom agreed with all portions of the CWCS or the CWCS initiative in general. NMGDF also participated in the 2004 Wildlife Values in the West Survey which contained questions intended to inform our perceptions about public attitudes pertaining to the conservation of New Mexico's biodiversity. The Department received survey responses from 859 individuals.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

William D. Graves, Planner
New Mexico Department of Game and Fish
PO Box 25112
Sante Fe, NM 87504
Tel: 505.476.8023
William.graves@state.nm.us;
wildlife.state.nm.us

New York Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

New York snapshot

Geography: New York has a stunning array of natural resources from the Great Lakes to the Atlantic Ocean, and the heights of the Adirondack Mountains to the depths of the underwater Hudson Canyon. Our state has 1,894 square miles of inland lakes and rivers and 981 square miles of ocean and estuaries. Forests cover 60% of New York's land area and contribute significantly to the diversity of our wildlife. Wetlands in New York are incredibly diverse and contain examples of every major wetland class in both fresh and saltwater. Our geographic location places us at the boundary between southern, warmer climate adapted plants and animals and northern, cooler climate adapted plants and animals. Our native fish and wildlife reflect a mixture of both types.

NY State Dept. of Environmental Conservation

Landscape: Our forests, streams, lakes and ocean have provided bounty first to our tribal nations, then to European settlers. We are now a state of over 19 million residents, 20% of which are foreign born. Our cultural and natural diversity mirror each other and deserve to be celebrated. The population density of our residents ranges from over 300,000 people per square mile to less than 1 person per square mile. In the 400 years of European settlement in our state, there have been changes to our landscape from dense primeval forest to abundant farmland, and now the return of crop lands to forest between our large cities. Every part of the state contains special natural beauty from the wilderness of our forest preserves to the refuges of our stunning urban parks.

Wildlife: We host an amazing variety of wildlife from the huge Atlantic right whale to the tiniest salamanders and animals of all sizes in between. New York is home to the only known population of Chittenango ovate amber snail in the world. There are more dragonfly and damselfly species in New York than any state but Texas and more mammal species than any state in the northeast. However, only 55% of the State's plants and vertebrates are considered secure and the status of most invertebrate species remains unknown according to the New York Natural Heritage Program.

"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."

– Denise Sheehan, Commissioner, NYSDEC

Mussel survey/NY State Dept. of Environmental Conservation

New York's planning approach

The Department of Environmental Conservation sought to use the Wildlife Action Plan enhance the state's efforts to conserve species that improve the lives of New York residents and visitors. Planners used the state's major watersheds to organize the strategy, both to instill a sense of place to users of the document and to build on the state's successful watershed programs. Many of these watershed programs have been running successfully for over 30 years. New York's Wildlife Action Plan offers an opportunity to integrate and strengthen those programs that are primarily driven by water chemistry with goals for fish and wildlife.

Primary challenges to conserving wildlife in New York

Statewide, the top three threats identified were habitat loss and fragmentation, various types of water and air pollution, and invasive species. Poorly planned development that includes road building and

Wildlife	Total number of species	Species of Conservation Concern*	Threatened/endangered listed species
Mussels & Clams	82 known freshwater unknown maire	55 freshwater 5 marine	9 all freshwater
Snails	10 families	14 freshwater 1 terrestrial	1 federally listed 15 state listed
Fish			
Freshwater	>160	40	24 state listed
Diadromous	16	8	1 federally/state listed
Marine	unknown	51	2 federally/state listed
Amphibians & Reptiles	70	44	6 federally listed 20 state listed
Birds	>450	118	3 federally listed 39 state listed
Mammals	92	22	6 federally listed 14 state listed
Totals	**>1385**	**537**	**32 federally listed 127 state listed**

**Species included were selected with a variety of criteria and best scientific opinion of agency staff and cooperating researchers. See full details of the selection process in the NY Wildlife Action Plan.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Upland forests cover 60% of the states total land area **Ownership: 72% of forest lands in the state are privately owned**	85 Species statewide including: American burying beetle, Bald eagle, Barn owl, Spruce grouse, Tennessee warbler, Three-toed woodpecker, Black-crowned night-heron, Scarlet tanager, Wood thrush, American woodcock. Sharp-shinned hawk, Four-toed salamander, Fowler's toad, Northern cricket frog, American marten, New England cottontail, Bicknell's thrush, Indiana bat, Eastern ribbonsnake, Wood turtle, Silvery blue, Southern grizzled skipper, Barrens dagger moth, Least weasel, Longtail salamander	• Fragmentation of large forest tracts • Low forest diversity	• Develop land protection strategies for large blocks of unfragmented forests by working with private land owners and public land managers, transportation planners, and local government to reduce planned fragmentation. Development of tax incentives and disincentives, easements, and cooperative management programs is crucial to the achievement of this task. • Increase hunting opportunities in forest tracts where overabundant deer populations are inhibiting forest understory regeneration.
Freshwater Wetlands **Ownership: Unknown, but wetlands over 12.4 acres in size are regulated by the state.**	97 species statewide including: American black duck, Blue-winged teal, Ruddy duck, Black-crowned night-heron, Glossy ibis, Eastern spadefoot, Red-shouldered hawk, Devil crawfish, Yellow rail, Fowler's toad, Southern leopard frog, Northern harrier, Sedge wren, Short-eared owl, Queen snake, Coal skink, Eastern massasauga, Black meadowhawk, Taper-tailed darner, Seaside golden borer moth, Northern red salamander, Sylvan hygrotus diving beetle, Tomah mayfly	• Loss and fragmentation of habitat •Invasive species	• Document the use of wetland habitats smaller than 12.4 acres by species of greatest conservation need and amend wetland regulatory maps to include those wetlands in protective status. • Expand the control of purple loosestrife in wetlands with conspecific insects statewide. • Educate nursery owners about the threat to wildlife from invasive plant species such as purple loosestrife and Japanese knotweed.
Estuaries	86 species statewide including: Alewife, American black duck, American eel, American lobster, Atlantic silverside, Bay scallop, Eastern mud turtle, fiddler crab, Glossy ibis, Horseshoe crab, Lined seahorse, Menhaden, Northern diamondback terrapin, Northern puffer, Osprey, Oyster toadfish, Piping plover, Ribbed mussel, River otter, Saltmarsh sharp-tailed sparrow, Shortnose sturgeon, Tautog, Winter flounder, Yellow-crowned night-heron	• Loss and fragmentation of habitat • Water quality degradation	• Incorporate the construction of vernal/ephemeral pools into large civil works projects (e.g. beach nourishment, wetland restoration) to provide foraging habitat for shorebirds and breeding habitat for amphibians and dragonflies. • Restore salt marsh habitat. • Implement the USEPA's Phase II regulations for storm water control to improve water quality in coastal receiving waters.

Recommended actions to conserve New York's wildlife

The only place in the world one may find Chittenango ovate amber snails is in the spray zone of Chittenango Falls, located in a State Park near Syracuse, New York. Chittenango snails apparently feed on microscopic algae and other species of microflora that grow on the rocks and vegetation which occur in the spray zone of the waterfall around which they live. They ingest a lot of calcium carbonate for shell development. Adapted to relatively constant environmental and climatic conditions, including a clean water supply, the snail is intolerant of sudden changes. They are most threatened by the invasion of a European snail that out competes our native snail.

NY State Dept. of Environmental Conservation

The Comprehensive Wildlife Conservation Strategy is a tool to move our Division forward into a new phase of natural resource management. It allows us to communicate with a broad suite of partners both within and outside our agency in a common language, and move toward achieving common goals to conserve our fish and wildlife populations.

– Gerald A. Barnhart, Director, Division of Fish, Wildlife and Marine Resources

sprawling retail and residential development moving into formerly rural and wild areas has a severe impact on most of the vulnerable species in the state. In areas of central and western New York, this increase in developed land is occurring at nearly ten times the population growth rate. The results include a drain on community services and real destruction of the natural resources in the area, without economic or social benefit to the surrounding communities.

Working together for New York's wildlife

The New York State Department of Environmental Conservation invited participation from a wide array of stakeholders from the beginning of the planning process. Many scientists and non-governmental organizations participated in the selection of the species of greatest conservation need in 2002 and 2003. A State Wildlife Grants Partnership, consisting of 70 agency representatives, Indian tribal nations, sportsmen's groups, and other conservation organizations, was established in 2003 to assist in developing the Wildlife Action Plan. Many of these stakeholders reviewed and revised sections of the Plan as they were drafted. The entire draft of the Plan was released for public review prior to submittal to the US Fish and Wildlife Service.

Disabled and able bodied bird watchers/ NY State Dept. of Environmental Conservation

Jefferson salamander/NY State Dept. of Environmental Conservation

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
Chadwick@fishwildlife.org
www.fishwildlife.org • www.teaming.com

State Contact

Lisa K. Holst
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-4750
Tel: 518.402.8887
lkholst@gw.dec.state.ny.us
www.dec.state.ny.us/website/dfwmr/swg/

North Carolina Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

North Carolina snapshot

Geography: North Carolina stretches from a thin strand of sand known as the Outer Banks that extends out into the Atlantic Ocean, and stretches back across 1.8 million acres of the Albemarle-Pamlico estuary and over the black water streams and pocosins of the coastal plain,. The state covers the rolling hills of the piedmont, then climbs into the mountains where elevations may exceed 6,000 feet and plants and animals from colder climates are common.

Little Fishing Creek freshwater mussel distribution survey/NCWRC

Landscape: North Carolina's population has grown from 5 million people in the 1970s to more than 8 million people today, putting pressure on all wildlife species and their habitats, including special wild areas like beaches and dunes along the coast, large tracts of habitat in the piedmont, and wetlands in the mountains.

Green salamander/NCWRC

Wildlife highlights: Sea turtles nest on the state's Atlantic beaches. Thousands of nesting pairs of royal terns may take flight simultaneously off an island rookery when disturbed. Red cockaded woodpeckers live in remnants of what was once a vast longleaf pine forest. The small wavy-rayed lampmussel lies on the floor of a mountain stream displaying her offspring in a package designed to look like a small fish in the hope that the smallmouth bass will strike the lure and give her offspring the chance to attach to the fish's gills. The fluorescent flecked green salamander lays her eggs attached to the roof of a moist crevice at the base of a large rock outcrop in the mountains.

North Carolina's planning approach

North Carolina's Wildlife Action Plan is a guide and planning resource for

"It is a comprehensive Strategy for fish and wildlife, whose success will not be measured by population estimates or growth rates, but by the cultivation of long lasting conservation partnerships and by the promise of fish and wildlife resources for future North Carolinians."
–John E. Pechman, Chairman
North Carolina Wildlife Resources Commission

conserving North Carolina's wildlife and habitats. It builds on the strategic thinking of many organizations in North Carolina's conservation community and reflects the ideas and input of many of the state's citizens. It takes a habitat- based approach to addressing the needs of the state's conservation priority wildlife. The plan gives 371 species statewide priority status for conservation efforts. It categorizes those species with 23 habitat types, such as "beach/dunes", "floodplain forests", "bogs and associated wetlands", or one of 17 river basins in the state. The plan then identifies threats and appropriate conservation actions by habitat type or river basin. The Wildlife Action Plan also includes sections on strategies for urban wildlife management, private lands management, land conservation, and conservation education, outreach, and recreation.

Northern Flying Squirrel/NCWRC

"Wildlife in North Carolina will benefit for decades to come as a result of your efforts and those of everyone who contributed to this project."
–Ann B. Somers, Chair
NCWR Nongame Wildlife Advisory Committee

Primary challenges to conserving wildlife in North Carolina

North Carolina is located in the rapidly developing southeast. Its population has increased from 5 million people in the 1970s to more than 8 million today. Many of the threats facing species of conservation concern and their habitats are derived from this growth. The challenge is to manage human population growth to minimize those threats.

Direct habitat destruction: Only 3% of a formerly vast longleaf pine forest and 1% of its canebrake and white

Robust Redhorse in the Pee Dee River/NCWRC

Wildlife	Total number of species	Species of conservation concern*	Threatened/endangered
Mussels	56	40	7
Snails	62	10	0
Crayfish	41	21	0
Fish	231	83	4
Amphibians	80	41	0
Reptiles	79	43	7
Birds	260	92	8
Mammals	80	38	10
Totals	**889**	**368**	**36**

** * Each state is using its own criteria for this category. North Carolina used a combination of current protection status (state and/or federal listing) and known population trends. Knowledge of status, distribution, and trends was evaluated and species were awarded priority status if available information was poor.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Dry Longleaf Pine **Ownership: Mix of public and private ownership**	Red-cockaded woodpecker Bachman's sparrow Seminole bat Southern hognose snake	• Fire suppression • Displacement by other species	• Prescribed burning to manage understory. • Longleaf planting to re-establish stands. • Promote larger tracts of longleaf pine to meet habitat requirements of some conservation needy species
Pocosins **Ownership: Mix of public and private, most altered are private.**	Oak toad Southern dusky Salamander Pine barrens tree Frog Long tailed weasel	• Invasive plants • Fire suppression • Draining • Fragmentation • Conversion to cropland or silviculture	• Prescribed burning to manage plant species composition. • Restore natural hydrology.
Little Tennessee River **Ownership: Land within the basin is a mix of public and private.**	Sicklefin redhorse Olive darter Spotfin chub Appalachian elktoe (mussel) Wavyrayed lampmussel (mussel)	• Sedimentation • Flow alteration • Dams • Invasives	• Riparian protection (buffers) to stabilize banks and reduce erosion. • Species re-introductions where water quality has improved. • Use the hydropower re-licensing process to improve flow management and obtain other mitigation measures. • Support site specific water quality management plans for listed species.

Recommended actions to conserve North Carolina's wildlife

cedar forests still exist in the southeast. Experts estimate that North Carolina has half of its presettlement wetlands, the rest having been converted to development or cropland. Land use changes have increased sediment deposits and altered streamflows, resulting in smothered stream bottoms and changed natural stream channels. All of these changes are direct threats to those species dependant upon the habitats destroyed.

Habitat Fragmentation: Road construction, urban corridors, and dams are examples of manmade barriers that break larger habitat units into smaller units, hinder wildlife movement, and isolate wildlife into smaller and more vulnerable populations. Dams deny access to spawning grounds to fish that live in the sea and reproduce in freshwater, while associated reservoirs may isolate freshwater mussel populations trapped in the small headwaters of drowned tributaries to the impounded waters. Available

Wildlife stakeholders meeting in Wake County/NCWRC

space for animals that need large blocks of habitat can become too small to continue to support those animals.

Working together for North Carolina's wildlife

The North Carolina Wildlife Resources Commission made a concerted effort to involve other state and federal governmental agencies, local governments, conservation NGO's, academia, and private citizens. Over 40 meetings were held with nearly 50 stakeholder groups stakeholder groups in order to solicit direct input on the plan. Outreach to the general public included more than 15 magazine and newspaper articles designed to introduce the public to the planning process, and a web site created to allow the public to respond to drafts of the plan. An e-mail list was developed from all of these public interactions and quarterly communications were issued reporting on the plan's progress and inviting input and response. Finally, several of the Commission's partners reviewed the final draft of the strategy.

The North Carolina Wildlife Action Plan charts the course, and North Carolinians now have the opportunity to help conserve the wildlife resources of the State of North Carolina for the use and enjoyment of present and future generations.

Royal tern colony/NCWRC

Songbird surveys on gamelands/NCWRC

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Carol Price
Wildlife Action Plan Coordinator
North Carolina Wildlife Resources Commission
1721 Mail Service Center
Raleigh, NC 27699-1721
Tel: 919.707.0227
carol.price@ncwildlife.org
http://www.ncwildlife.org

North Dakota Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

North Dakota snapshot

Geography: North Dakota is a prairie state harboring hundreds of thousands of wetlands and prairie potholes. Bison skulls still lay in prairie streams and lakes today, reminders of the animals that inhabited this unique ecosystem.

Avocet/NDGFD

Landscape: Nearly 90 percent of North Dakota is held in private ownership, with much of that land entered into various agricultural practices. Cropland, rangeland, prairie, wetland, and woodland components are the framework of a farm or ranch, and the majority of the state's habitat. Working with landowners to conserve fish and wildlife resources is a top priority.

Wetland with waterfowl/NDGFD

Wildlife: Baird's sparrows fill the prairie with song heard in few other places. Endless flocks of migrating ducks and geese find food and rest on countless wetlands or rivers. North Dakota is one of the last strongholds for the ancient pallid sturgeon.

North Dakota's planning approach

The North Dakota Comprehensive Wildlife Conservation Strategy is a habitat-based approach to conserving all types of fish and wildlife including rare, declining, common, nongame and game species. Nine landscape components, or major habitat types such as mixed-grass prairie, wetlands/

"North Dakota's Comprehensive Wildlife Conservation Strategy does a good job of highlighting the important systems, like native grasslands and wetlands, that are critical to maintaining healthy populations of myriad species of wildlife for future generations of North Dakotans. I'm hopeful this plan will generate a diverse suite of partners who can focus their efforts on protecting these critical components of North Dakota's natural heritage."

–Scott Stephens
Director of Conservation Planning, Ducks Unlimited, Inc.

lakes, badlands, or upland deciduous forest, comprise the habitat found in North Dakota. Twenty-one focus areas represent unique natural community types rare to North Dakota or are habitats outlined as especially crucial to species of conservation priority. The strategy provides a framework for developing coordinated conservation actions involving partners to safeguard all fish and wildlife resources found in the state. The key to ensuring long-term survival of these resources in North Dakota is to maintain diverse grasslands, wetlands, woodlands, rivers and streams.

Sage grouse study/NDGFD

"I think it's fitting that while celebrating the Department's 75th year of managing fish and wildlife resources in North Dakota, we look to the future as well as the past. The State Wildlife Grants Program represents an ambitious endeavor as we take a more active hand in keeping species from becoming threatened or endangered in the future. This strategy will provide the framework for working towards that goal and preserving an important part of our state's heritage for future generations."

–Dean Hildebrand
former Director
ND Game and Fish Department

Primary challenges to conserving wildlife in North Dakota

North Dakota's plan identifies habitat loss, fragmentation, degradation, invasive and noxious species, pesticides, industrial development, human impacts, and conservation awareness as common challenges for managing fish and wildlife across all habitat types.

Direct loss of habitat was identified as a key threat to wildlife in North Dakota. The prairies are at risk of being converted to farmland and other uses which result in the complete loss of grassland. A minimum of 25 bird species of conservation concern require expanses of prairie to maintain populations.

Habitat degradation is of concern to the quality of wildlife habitat. For example, grazing practices that result in little to no residual vegetation or allow for direct contact with wetlands or streams, thereby degrading water quality, are of concern. The loss of fire regime, a natural element of the prairie cycle, allows woody invasion of grassland that can be detrimental to some grassland species of wildlife.

Wildlife	Total number of species	Species of conservation priority*	Threatened/endangered
Mussels	13	7	0
Fish	103	22	1
Amphibians	11	2	0
Reptiles	15	9	0
Birds	**365	45	4
Mammals	86	15	2
Totals	**593**	**100**	**7**

** North Dakota assigned all species of conservation priority a designation based on conservation need. Level I species are those having a high level of conservation priority because of declining status in North Dakota or across their range; or have a high rate of occurrence in North Dakota, constituting the core of the species breeding range, but may be at-risk range-wide. Level II species are those having a moderate level of conservation priority; or a high level of conservation priority but a substantial level of non-SWG funding is available to them. Level III species are those having a moderate level of conservation priority but are believed to be peripheral or non-breeding in North Dakota.*

*** Includes 365 species known to occur in North Dakota, with at least 223 considered breeding species.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Mixed-grass Prairie **Ownership: primarily private**	Northern pintail, Ferruginous Hawk, Marbled godwit, Baird's sparrow, Richardson's Ground squirrel	• Habitat Loss: native prairie conversion • Noxious Weeds: leafy spurge	• Protect native prairie where possible. • Control noxious weeds through biological and chemical methods
Rivers, Streams and Riparian **Ownership: primarily private**	Bald eagle, Smooth softshell turtle, Sicklefin chub, Blue sucker, Threeridge	• Habitat Loss: alteration of natural hydrology • Restriction of Fish Migration	• Work with the North Dakota State Water Commission to develop minimum in-stream flow recommendations, and work with partners to implement easements. • Work with dam owners for potential removal or modification.
Badlands **Ownership: majority public, interspersed with private**	Prairie falcon, Burrowing owl, Swift fox, Short-horned Lizard	• Habitat Fragmentation: oil well roads • Habitat Degradation: loss of fire regime	• Communicate with the oil industry to minimize road impacts. • Work cooperatively with state and federal agencies to develop Best Management Practices that promote the use of fire.

Recommended actions to conserve North Dakota's wildlife

Piping Plover/NDGFD

Wetland/NDGFD

Working together for North Dakota's wildlife

The North Dakota Game and Fish Department invited over 60 federal, state and local agencies, conservation groups, and local experts to provide comments on identifying species of conservation priority, offer feedback on the development of the strategy, and identify ways to strengthen partnerships. Expert meetings were held to gather more specific information on threats and to determine necessary conservation actions, monitoring and survey efforts needed. The Department informed the public and provided an opportunity for input on fish and wildlife issues through the Department's monthly magazine, news releases, radio and television programs, website, and other media outlets throughout the state.

Coteau Wetland/NDGFD

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Steve Dyke
Conservation Supervisor
North Dakota Game and Fish Department
100 N. Bismark Expressway
Bismark, ND 58501
Tel: 701.328.6347
sdyke@state.nd.us
http://gf.nd.gov/

Comprehensive Wildlife Conservation Strategy for the Commonwealth of the Northern Mariana Islands

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Northern Mariana Islands snapshot

Geography: The Commonwealth of the Northern Mariana Islands (CNMI) consists of an archipelago of fourteen tiny islands, strung across nearly 500 miles of the mid-Pacific Ocean. Approximately 70,000 people live on the southern limestone islands of Rota, Tinian and Saipan, while the volcanic northern islands remain primarily uninhabited.

The Mariana Fruit Dove, called Totot, for its call, a series of "tot" sounds /Shelly Kremer

Landscape: Terrestrial wildlife, especially native forest birds, are threatened by loss of native forest habitat and the risk of extirpation by the Brown Treesnake. Surrounded by vast expanses of ocean but constrained by ever declining revenues, the CNMI faces the challenge of managing and protecting marine species through enforcement efforts.

Wildlife: In a way that is typical of island ecosystems, most of the terrestrial wildlife species of the CNMI exhibit a high degree of endemism, occurring nowhere else in the world. For example, the Rota Bridled White-eye is found only on the island of Rota. Its numbers and the extent of its native habitat are declining, for reasons not yet fully understood. The marine environment hosts animals both large—like the Green Sea Turtle and the Hawksbill Sea Turtle—and small—including the Shortspine Sea Urchin, the Common Spider Conch and the Turban Shells. Some animals depend upon both environments; the Wedge-tailed Shearwater, for example, forages at sea, but nests on the tiny islet of Mañagaha.

Planning approach

In developing the Comprehensive Wildlife Conservation Strategy for the Commonwealth of the Northern Mariana Islands, an islands framework was adopted. Each of our islands represents its own ecosystem, with its own capacity to support native wildlife, based on its size, the extent and condition of native forest cover, impacts of human population in both the marine and terrestrial environments, frequency of natural disasters (typhoons and volcanic eruptions), and the presence of feral animals. With input from the public, professional wildlife staff identified 24 terrestrial species of special conservation

"The Comprehensive Wildlife Conservation Strategy presented to you here is the culmination of a year-and-a-half's hard work on the part of professional staff of our Division of Fish and Wildlife. Inasmuch as it was developed to satisfy the Eight Elements required by U.S. Congress, we have styled this strategy also to serve our local conservation needs. In one document, we have identified the species in greatest need of conservation, their habitats, priority research needed, and a set of conservation actions to give us conservation direction over the next decade."

– Richard Seman, Former Secretary CNMI Department of Lands and Natural Resources

Mañagaha Island/Parke Gregg

"Dependence on our flora, fauna and sea resources is the basic means of survival throughout the history of Chamorro Society and to a significant degree holds true even today! Conservation is a must to sustain this heritage for future generations. Therefore, serious commitment must be focused on broad and wide-ranging public outreach (outcome based) educational programs. Results from such public education conservation programs shall aim at compliance to and respect for all species in designated conservation areas."

– Anonymous comment submitted at public meeting in Rota

need, and 28 marine species (or genera). The distribution, abundance, habitat condition, and threats to each of these species were described, with the island ecosystem framework as a backdrop. Conservation actions were developed that could be applied to individual island ecosystems to further the conservation of species of special conservation need.

Primary challenges to conserving wildlife in the Commonwealth of the Northern Mariana Islands

Terrestrial: The Brown treesnake (*Boiga irregularis*) poses the highest priority threat to terrestrial wildlife in the CNMI. Most of our terrestrial wildlife species are small animals—birds, geckos, skinks, and bats—which would easily fall prey to Brown treesnakes once they become established on our southern islands. The Brown treesnake is responsible for the extinction of nearly all avian species on the neighboring island of Guam.

Marine: The Commonwealth of the Northern Mariana Islands is surrounded by miles of ocean. Not much is known

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Terrestrial snails	Unknown	3 (endemic land snails)	3 (candidate species for federal listing)
Terrestrial invertebrates	Unknown	1 (coconut crab)	none
Marine Invertebrates	Unknown	22 (species or genera)	none
Insects	Unknown	none	
Fish	Unknown	3	2 (IUCN listed)
Amphibians	1 (introduced)	none	
Terrestrial Reptiles	17 (both native and introduced)	4 (geckos and skinks)	1 (locally listed)
Marine Reptiles	3	2	2
Birds	146	14	8 (locally listed); 6 (federally listed)
Terrestrial Mammals	2 (native only; does not include feral animals, such as rodents, cats, dogs, cattle, goats, pigs)	2 (bats)	1 (federally listed); 1 (candidate species for federal listing)
Marine Mammals	2	1 (spinner dolphin)	1 (IUCN listed)
Totals	**Lots**	**52**	

**Selection criteria for terrestrial species:* *all endemics; native species for which we have little or no information; native species which are rare or declining; native species with limited distribution; native species for which we have no funding; native species facing threat of extirpation by Brown Treesnake.*

Selection criteria for marine species: *native species for which Dingell-Johnson Sportfish Restoration Grant funds cannot be expended; native marine species for which we have little or no information but are important for social, cultural, economic or subsistence reasons; native marine species which are rare or declining; native marine species which appear to be overharvested, or are being harvested at unknown levels; native marine species which occur within three miles seaward of low water mark on CNMI's coastlines, per court order.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Native forest **Ownership: Primarily public**	Saipan bridled White-eye, Golden white-eye, Rufous fantail, Micronesian megapode, Coconut crab, Micronesian gecko, Partulid snails	• Degradation and loss of extent of native forest habitat. • Introduction of the predatory Brown treesnake (*Boiga irregularis*)	• Conserve remnant native forest on the island of Tinian by establishing a conservation area in the Kastiyu, Barangka and Piña areas. • Implement the Rota Agricultural Homestead Habitat Conservation Plan, to provide a mitigation option for the agricultural homesteads demanded by the public on Rota. • Interdiction of the Brown Treesnake through the DFW Brown Treesnake Program, using trapping, detector dog teams, containment barriers and public awareness and outreach to effectively prevent and control the entry, establishment and spread of the snakes in the CNMI. • Translocation of native forest birds from the southern islands to the northern islands and establishment of a captive breeding program.
Limestone caves **Ownership: Public and Private**	Mariana swiftlet, Sheath-tailed bat	• Deforestation, resulting in reduction of prey base. • Predation by cockroaches, resulting in swiftlet nest failure. • Human and feral animal disturbances to swiftlet caves. • Predation by the Brown treesnake.	• Protect limestone caves on Rota, Aguiguan, Tinian and Saipan from disturbance by people, through public education, regulatory means, and signage. • Continue to control predation by cockroaches in swiftlet caves, by setting cockroach traps on a regular basis. • Translocate Mariana swiftlets from Saipan to Rota, following a study to assess suitable swiftlet food availability in certain Rota caves. • Cull goats from the island of Aguiguan.
Near-shore waters **Ownership: Public**	Green sea turtle, Hawksbill sea turtle, Napolean wrasse, Green humphead parrotfish, *Octopus* spp., Surf redfish	• Illegal harvest of sea turtles. • Damage to coral reef due to storms, people walking on the reef. • Any harvest of sea cucumbers will threaten remaining population.	• Continue to manage the established marine protected areas as no-take zones. • Increase public awareness on the long term effects of over-exploitation of sensitive reef fish stocks; possibly institute a moratorium on harvest of Green humphead parrotfish. • The harvest of octopus is prohibited unless permitted by the Director of the Division of Fish and Wildlife. Effective enforcement of illegal harvest is essential. • A ten-year moratorium on harvest of sea cucumbers is soon to close. A survey of current sea cucumber population status has been initiated.

Recommended actions to conserve wildlife in the Commonwealth of the Northern Mariana Islands

"What a monumental undertaking the plan was! It will serve well as a handy-dandy reference, with so much data summarized, for years to come."
– Dr. Tina de Cruz
Former Wildlife Section Supervisor

about the myriad species of marine animals, and more research is needed. Population levels of many marine species are perceived to be dropping, probably due to overharvesting and degraded marine habitat. Efforts to maintain an enforcement presence are limited and expensive.

Working together for wildlife in the Commonwealth of the Northern Mariana Islands

An independent contractor was hired to solicit input from the public and from government agencies concerning conservation of wildlife species. Participants were solicited through radio announcements, a series of newspaper articles featuring species of special conservation need, and e-mail. At public meetings held on each of the three populated islands, Saipan, Tinian and Rota, the planning process was explained, and participants were encouraged to give their views, both verbally and on written comment forms. Individual interviews were also conducted with interested parties, including fishermen, hunters, hikers, bird watchers, medicinal plant gatherers and other resource users. Not surprisingly, most of the public opinion was delivered verbally, in small groups or through individual interviews.

Anatahan volcano spewing ash, June 2005/Curt Kessler

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Gayle M. Berger
Natural Resources Planner
Commonwealth of the Northern Mariana Islands
Division of Fish and Wildlife
Caller Box 10007, Saipan, MP 96950
Tel: 670.664.6025
gayle.berger@gmail.com
www.dfw.gov.mp

Ohio Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy (CWCS). These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Ohio snapshot

Geography: The landscape of Ohio is characterized by forestlands, vast agriculture, Lake Erie, and the Ohio River, interspersed with a number of large cities and a statewide population of more than 11 million citizens.

Great Spangled Fritillary/Ohio DNR

Landscape: Ohio ranks 47th per capita among the 50 states in the amount of public land available for outdoor recreation. Ohio's private lands make up approximately 95% of the state, creating a challenging environment for fish and wildlife management.

Wildlife: Ohio enjoys a diverse wildlife community including healthy populations of white-tailed deer, wild turkeys, bald eagles, and numerous other game and wildlife diversity species. Lake Erie is one of the most productive fresh water systems in the world, and is often referred to as the "walleye capital of the world". In recent years populations of osprey, Karner blue butterflies, trumpeter swans, and other threatened and endangered species have increased substantially.

Ohio's planning approach

Ohio has operated under a comprehensive management system for more than 15 years. The Comprehensive Wildlife Conservation Strategy is an extension of this larger planning system, which includes a long-term strategic plan to address the threats and opportunities for Ohio's fish and wildlife resources.

The Division's comprehensive management system incorporates all aspects of the agency, including personnel, fiscal, technical, and biological information, into a system of checks and balances that ensures effective and efficient decision making and positive results for Ohio's wildlife resources. The Division of Wildlife's CMS is highlighted by a long-range strategic plan, regular communication and interaction with constituents and employees, and regular reviews and evaluations of activities in order to improve effectiveness.

The Division's strategic plan, as well as the Comprehensive Wildlife Conserva

"This plan allows Ohio to protect endangered species as well as their habitat for future generations to enjoy. Perhaps more importantly, it will help prevent species from becoming rare or endangered and ultimately more expensive and difficult to protect and restore. Ohio's natural heritage will surely be more secure with this plan in place."

- Samuel W. Speck, Director, Ohio Department of Natural Resources

"Ohio's Wildlife Action Plan is a landmark document that will guide wildlife diversity conservation in Ohio for many years. Implementing the plan will certainly help restore endangered species and prevent other species from becoming rare or endangered."

- Steven A. Gray, Chief, Ohio Division of Wildlife

tion Strategy, focuses on wildlife, their habitat, and people of the state. The Plan approaches fish and wildlife conservation with diverse strategies that involve not only the Division of Wildlife, but also private landowners, conservation organizations, and other governmental agencies.

Sandhill crane/Ohio DNR

Primary challenges to conserving wildlife in Ohio

Loss and degradation of wildlife habitat continues to be the primary threat to Ohio's wildlife, although invasive species and emerging wildlife diseases are also significant threats and will certainly be more important in the future. Examples of current threats include the loss of habitat to a variety of development interests, the introduction and expansion of invasive species such as the Asian Carp and purple loosestrife, and the continued threat from a number of wildlife diseases such as West Nile Virus and rabies.

Asian Carp: Various species of Asian carp continue to expand their range in the

Eastern Spadefoot Toad/Ohio DNR

Wildlife	Total number of species	Species of Conservation Concern*	Threatened/endangered listed species
Mussels	81	31	28
Snails	169	0	
Crayfish	20	1	1
Insects	Thousands	22 (terrestrial)	64
Fish	156	40	37
Amphibians	14	10	6
Reptiles	70	22	7
Birds	200 (breeding)	89	27
Mammals	56	25	5
Totals		**240**	**175**

** While all terrestrial wildlife are considered "species of conservation concern," 168 species will be given increased attention. Aquatic "species of conservation concern" includes those that have demonstrated low or declining populations.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Rivers and Streams **Ownership: Mix of public and private**	• Shovelnose sturgeon • Lake sturgeon • Purple catspaw • Northern riffleshell • Eastern hellbender	• Loss of riparian corridor habitat • Dams • Cattle in streams	• Protect riparian corridor in target watersheds through purchase or conservation easements. • Remove dams that no longer serve a useful purpose. • Exclude cattle from streams with fencing in target watersheds.
Oak Savannas **Ownership: both private and public**	• Karner blue butterfly	• Loss of habitat • Extirpated from the state	• Through purchase and/or conservation easement, protect remnant oak savanna habitat focus area. • With a network of partners, develop and implement a conservation plan to reintroduce and establish a self-sustaining wild population of Karner blue butterflies.
Forestland **Ownership: private and public**	• Cerulean warbler • American redstart • Ruffed grouse	• Forest fragmentation • Inappropriate proportions of age-classes and forest community composition to sustain wildlife	• Through purchase, conservation easements, and land management agreements, conserve forest habitat (60,000 acre areas) within designated focus areas. • Inventory all forest habitat within the focus area to establish baseline data. • Implement management practices to conserve appropriate age-class and forest composition to ensure viable self-sustaining forest-dependent species.

Examples of recommended actions to conserve Ohio's wildlife

Midwest through a number of water systems such as rivers, canals, and reservoirs. Their ultimate impact is unknown, but early indications show that they will have a significantly negative impact on native aquatic vertebrates, invertebrates and plant species.

Urban Growth

The Ohio Legislative Service Commission reports that from 1960 to 1990 urban land use expanded by almost five times the growth rate of the overall population of the state. This growth puts increased pressure on wildlife habitat and creates a complicated atmosphere for natural resources management.

Working together for Ohio's wildlife

Ohio is home to more than 700 conservation organizations. The Division of Wildlife has on-going interaction with these grassroots constituent groups, as well as with

Cave salamander/Ohio DNR

statewide and regional NGO's, in order to understand their concerns and issues related to Ohio's wildlife resources. In addition to this regular communication, the Division undertook five constituent group meetings specific to the Comprehensive Wildlife Conservation Strategy, in addition to holding a statewide meeting of key conservation organization leaders. These meetings highlighted the CWCS and the Division's overall planning efforts and strategic direction. More than 250 participants attended these meetings, including representatives from The Nature Conservancy, the Ohio Parks and Recreation Association, the Columbus and Cincinnati Zoos, The Ohio Lepidopterists, Ohio Biological Survey, Cleveland Museum of Natural History, Columbus Metro Parks, American Electric Power, Pheasants Forever, U.S. Forest Service, National Wild Turkey Federation, Ohio Audubon, and the U.S Fish and Wildlife Service. Each meeting included a participant survey to determine their concerns and interests. Appropriate comments were incorporated in the final draft of the CWCS.

Bobcat/Ohio DNR

Ohio DNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Verdie Abel, Wildlife Planner
Ohio Division of Wildlife
2045 Morse Rd., Building G
Columbus, OH 43229-6693
Tel: 614.265.7020
Verdie.Abel@dnr.state.oh.us
www.dnr.state.oh.us

Oklahoma Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

"Oklahoma's Wildlife Action Plan is not about regulations. It is about innovate and positive ways to conserve wildlife and natural places to pass a healthy wildlife legacy to future generations."
– Greg Duffy, Director, Oklahoma Department of Wildlife Conservation

Oklahoma snapshot

Landscape: Oklahoma has the greatest biological and ecological diversity of any inland state. Its plant communities range from Bald Cypress swamps in the southeast to the vegetation of the Rocky Mountain foothills in the far northwest. The variety in between includes prairies, shrublands and forests.

Management: Nearly 97 percent of Oklahoma's landscape is privately owned. A key component for successful wildlife conservation lies in partnerships between landowners and conservation agencies.

Wildlife highlights: Existing native habitats support locally healthy populations of migrating shorebirds and songbirds, such as Oklahoma's state bird, the Scissor-tailed Flycatcher. The eastern forests of Oklahoma support rich communities of songbirds, salamanders and bats. Oklahoma's rivers support an impressive diversity of fish and freshwater mussels unique to eastern regions of the country. In the prairies of western Oklahoma, globally rare species are found, such as the Texas Horned Lizard, Loggerhead Shrike, Swift Fox and other prairie icons like the Black-tailed Prairie Dog, Long-billed Curlew and Lesser Prairie Chicken.

Watching wildlife in Oklahoma/ODWC

Oklahoma's planning approach

Oklahoma's Wildlife Action Plan is a guide and planning resource to conserve Oklahoma's wildlife and habitats. It applies a habitat-based approach to address the state's 240 priority wildlife species. The document divides the state into six ecological regions and 22 habitat-types. It covers important conservation issues, recommends conservation actions, and identifies

Juvenile Texas Horned Lizard/ODWC

potential conservation partners in each region. By focusing on the health of Oklahoma's natural areas, actions may benefit multiple wildlife species before their populations become more rare and more costly to protect.

Bottomland hardwood forest/ODWC

Primary challenges to conserving wildlife in Oklahoma

Oklahoma's Wildlife Action Plan reveals five recurring conservation issues:

Information Gaps: Inadequate information exists in Oklahoma about the historic distributions, acreages or population sizes of most habitats/communities; there is incomplete information regarding the current acreage, condition and distribution of these communities, as well as incomplete information about many of the rare species within them.

Habitat conversions: Large percentages of local prairies, woodlands and bottomland forest landscapes have been converted to crop fields or to pastures of non-native grasses such as Bermuda and tall fescue. In some areas, forests and woodlands of diverse structure and species composition have been converted to even-age forests or pine plantations.

Water degradation and flow alteration: Many aquatic and riparian communities have been altered by changes in flow patterns and diminished water quantity as a result of the construction of impoundments and the clearing / development of riparian zones and flood plains. Additionally, increasing human demand for water, both from within and outside of the state, affect these habitats and the wildlife communities they support.

Fire suppression: A reduction in periodic fires has negatively affected woodlands, prairies and shrublands across the state. Tree densities have greatly increased within woodlands, and prairies and shrublands have ex-

Prairie dogs/ODWC

Wildlife group	Total number of species	Species of greatest conservation need	Threatened/ endangered species
Freshwater mussels	54	24	4
Crayfish	27	7	1
Insects	15,000-18,000	15	1
Fish	179	51	6
Amphibians	52	15	0
Reptiles	82	23	1
Birds	389	73	6
Mammals	106	26	3
Totals		**234**	**22**

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Shortgrass Prairie	• Burrowing Owl • Scaled Quail • Texas Horned Lizard • Swift Fox	• Habitat Conversion • Landowner Partnerships	• Convert existing Conservation Reserve Program fields to native prairie grasses. • Develop conservation easements, landowner incentive programs or tax incentives
Bottomland Hardwood Forest	• Prothonotary Warbler • Red-headed Woodpecker • Ouachita Map Turtle • Northern Pintail • River Otter	• Information Gaps • Landowner Partnerships • Habitat Conversion	• Develop current and accurate assessment of acreage, distribution and condition of habitat • Maintain/restore habitat through conservation easements • Develop habitat corridors to connect disjunct tracts of bottomland forest to important upland forest
Gravel-bottom Streams	• Peregrine Falcon • Kentucky Warbler • Orange-bellied Darter • Kiamichi Crayfish • Neosho Madtom • Mississippi Map Turtle • Swamp Rabbit	• Information Gaps • Habitat Conversion • Landowner Partnerships • Diminished Water Quality	• Assess current biological communities (fish, crayfish, mussels) • Provide technical and financial assistance to landowners to restore riparian vegetation and sloped banks • Remove or rehabilitate road crossings with new structures that allow movement of fish
Shortleaf Pine/ Oak Woodland and Savannah	• Prairie Warbler • N. Bobwhite Quail • Whip-poor-will • Long-tailed Weasel • N. Long-eared Myotis Bat	• Fire Suppression • Landowner Partnerships • Habitat Conversion	• Study historic fire regimes to use prescribed fire to restore/maintain habitat • Encourage landowners to use prescribed burning as a tool • Develop programs to restore/maintain large tracts of habitat.

Recommended actions to conserve Oklahoma's wildlife

perienced a dramatic increase in Eastern Redcedar to the point of invasiveness.

Landowner partnerships and education: Greater incentives and more accurate information are needed to encourage private landowners to restore native communities. Farm Bill programs such as the Conservation Reserve Program have failed to restore native communities and have actually increased the planting of non-native and invasive

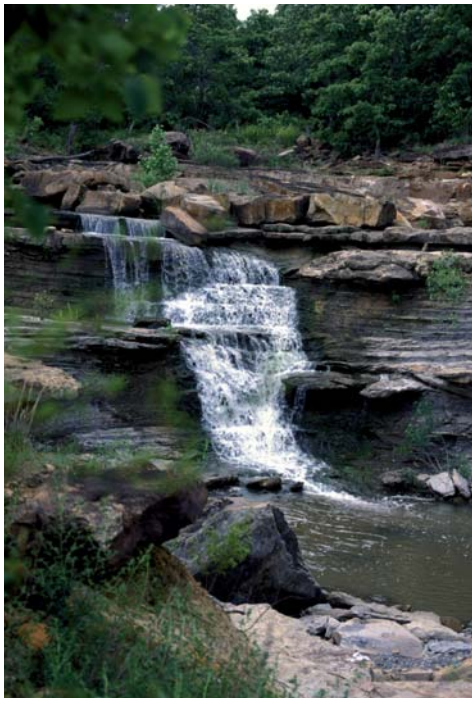
Yellowlegs/ODWC

"We are looking at Oklahoma's Wildlife Action Plan and subsequent funding as the key to our future success as stewards and caretakers of Oklahoma's wildlife."
– Greg Duffy, Director Oklahoma Department of Wildlife Conservation

species. Restoration and enhancement of riparian habitats and wetlands has been a difficult sell with landowners. Landowners recognize the need for increased burning, but are faced with liability concerns. In addition, the biological affects of prescribed burning on rare species is still poorly understood by biologists.

Working together for Oklahoma's wildlife

Diverse interests developed this plan including wildlife professionals, academic professionals, farm organizations, utility companies, sportsmen's groups, conservation educators, conservation NGOs, public land managers, Indian tribal members and members of the public.



Gravel bottom stream/ODWC

An Advisory Committee represented 32 Oklahoma organizations. A technical group of nearly 400 individuals and members of the public provided additional input. A two-day workshop brought the technical group and public citizens together to lay the framework for the plan's creation. Attendees reviewed a list of wildlife-in-need and identified regional conservation issues and actions. To encourage additional public participation, the state held two rounds of five regional meetings, both at the start and at the end of the document's development. All committee members and the public had an opportunity to review the document's final version.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Ron Suttles
Natural Resources Supervisor
Oklahoma Dept. of Wildlife Conservation
1801 N. Lincoln Boulevard
Oklahoma City, OK 73105
Tel: 405.521.4616
rsuttles@odwc.state.ok.us
http://www.wildlifedepartment.com/CWCS.htm

Oregon Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan. In Oregon, the action plan is called the Oregon Conservation Strategy. This proactive strategy examines the health of wildlife and prescribes actions to conserve wildlife and vital habitat before they become more rare and more costly to protect. Developed and led by the Oregon Department of Fish and Wildlife, the Oregon Conservation Strategy presents a vision and role for all Oregonians.

Oregon snapshot

Geography: Oregon is a 96,000-square-mile melting pot of ecological regions, and geological formations. The state's natural features attract people from around the world and include Hells Canyon, Crater Lake, Steens Mountain, the John Day Fossil Beds the state's 300 miles of rugged coastline, and 38 champions from the National Registry of Trees.

Landscape: Oregon's varied geology, soil and climate support a unique collection of species and habitats which, in turn, help define the state's culture and economy. Oregon's prosperity depends on the use of land for agriculture, timber, industry, and ranching and outdoor recreation. These working landscapes, along with wilderness and other natural areas, provide the rich mix of habitat that supports Oregon's fish and wildlife.

Wildlife: There are significant existing challenges to maintaining Oregon's fish and wildlife habitats and emerging issues require new adaptations. The Oregon Conservation Strategy (Strategy) identifies these challenges and the actions needed to address them. The Strategy builds upon collaborative partnerships, many of which exist in the state today as evidenced by the cooperative work to increase populations of sage grouse and salmon. Through the work, of these partnerships not only will sage-grouse benefit, but so will many other sagebrush-associated species including the sagebrush lizard, sage sparrow, sage thrasher, Brewer's sparrow, pygmy rabbit and many plants and invertebrates. Salmon, pivotal to Oregon's economy and identity, have also rallied people. Salmon populations are being restored through the innovative Oregon Plan for Salmon and Watersheds. Together, Oregonians have restored riparian vegetation, improved salmon habitat, addressed water quality issues and removed stream barriers.

Greater sage-grouse/Gary Kramer

Oregon's planning approach

The Strategy provides a non-regulatory, statewide approach to species and habitat conservation. It synthesizes existing plans, scientific data and local knowledge into a broad vision and conceptual framework

"One of Oregon's many unique treasures is our diverse and vibrant wildlife, and the new Oregon Conservation Strategy offers an opportunity for every citizen to contribute to the protection of Oregon's natural resource heritage for future generations."
– Oregon Governor Ted Kulongoski

Coastal tailed frog/Brome McCreary

"The Conservation Strategy is critical to preserving our state's native fish and wildlife and their habitats. It was developed by a diverse coalition -- including scientists, conservation groups, landowners, extension services, fishers, hunters, and representatives from agriculture, forestry, and rangelands -- all working together to conserve the natural treasure that is Oregon."
– Marla Rae, Chair, Oregon Fish and Wildlife Commission

for long-term conservation of Oregon's native fish, wildlife and habitats. The Strategy provides a long-term "blue print" for all Oregonians to help conserve our natural resources in a manner that will maintain or improve those resources for today and for future generations. It is intended to leverage limited conservation resources -- such as money, equipment and time -- in a more efficient and effective manner. Moreover, it aims to encourage voluntary conservation efforts, recognize the contributions that landowners and land managers are already making towards conserving Oregon's natural heritage, and demonstrate to landowners and local conservation groups how local conservation actions fit into a broader regional or statewide perspective.

The Oregon Conservation Strategy contains information on species and habitats most in need of conservation action, the issues and problems affecting them, and key conservation actions, research and monitoring needed to address those issues. It also presents ideas for expanding and improving voluntary conservation tools, briefly discusses education, tourism and other ways to engage citizens in conservation, and describes many successful cooperative conservation projects. These "success stories" highlight projects that benefit priority species, habitats and issues discussed in the Strategy and demonstrate how people have come together to conserve fish and wildlife.

Primary challenges to conserving wildlife in Oregon

The statewide issues that impact the most species and habitats, as well as people, are conversion of land uses, invasive spe-

Species group	Total number of species*	Species or populations of conservation concern**	Threatened/ endangered***
Invertebrates****	Unknown (thousands)	59	3
Fish*****	138	65	23
Amphibians	33	17	0
Reptiles	28	5	0
Birds******	360	62	6
Mammals	121	18	2
Plants (vascular)	~ 4,500	60	60
Totals		286	94

** Existing native species, not including marine species.*

*** Each state is using its own criteria for this category. Oregon focuses on wildlife species with small or declining populations or other characteristics that may make them vulnerable (this includes legally recognized threatened/endangered species).*

**** Either state or federally listed species that are discussed in the Conservation Strategy.*

***** Includes mussels, snails, insects and other invertebrates.*

****** Includes both species and populations ("species management units").*

******* Regularly occurring species; includes 253 species known to breed in Oregon, as well as migratory and wintering birds.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Grasslands **Ownership: mix of private/public**	• Burrowing owl • Long-billed curlew • Common kingsnake • Fender's blue butterfly	• Altered fire regimes • Invasive species • Land use conversion (resulting in habitat loss and fragmentation)	• Use mowing, grazing, hand-removal of encroaching shrubs and trees, and prescribed burning to restore lands that benefit from disturbance. • Remove invasive plants and prevent new introductions. Re-seed with native plants after restoration. • Implement existing land use regulations and landowner incentive programs to conserve, manage and restore grasslands.
Riparian **Ownership: mix of private/public**	• Willow flycatcher • Yellow-breasted chat • Columbian white-tailed deer • Columbian Gorge Oregonian (snail)	• Loss of riparian habitat, floodplain function, habitat complexity and connectivity • Water availability • Invasive plants and animals	• Maintain channel integrity and natural hydrology. Where feasible, restore historic hydrological conditions and reconnect streams to their floodplains. Maintain and restore riparian vegetation. • Use cooperative voluntary approaches which allow for purchase of instream water rights, prioritize use for agricultural purposes providing the greatest economic benefit, and maintain streamflow and water storage • Remove invasive plants and animals and prevent new introductions.
Sagebrush steppe and shrublands **Ownership: mix of private/public**	• Greater sage-grouse • Loggerhead shrike • Sagebrush lizard • Pygmy rabbit	• Altered fire regimes and localized issues with prescribed fire • Invasive plants and animals • Damage to microbiotic soil crusts (not relevant to all areas)	• Reintroduce natural fire regimes but avoid fire in low productivity sites with long recovery times or where invasive annual grasses dominate. • Remove invasive plants and prevent new introductions. To the extent practical, re-seed with native plants after restoration. • Continue to work with public land managers to ensure grazing is carefully managed. Conduct research and develop incentives to determine grazing regimes that are compatible with a variety of conservation goals.

Recommended actions to conserve Oregon's wildlife

Oregon's Strategy Habitats are aspen woodlands, coastal dunes, estuaries, freshwater aquatic, grasslands, late successional conifer forest, oak woodlands, ponderosa pine, sagebrush and wetlands. The above chart shows some recommended actions for conserving three of these habitats.

cies, disruption of historic fire and flooding disturbance regimes, barriers to fish and wildlife movement, water quality and quantity, and institutional barriers to voluntary conservation.

The expanding footprint of human development and 150 years of landscape alteration have left much of Oregon's fish and wildlife at varying degrees of risk. For example, the melodious song of Oregon's state bird, the western meadowlark, is rarely heard in the Willamette Valley anymore. A grassland bird still common in eastern Oregon, the mead

Riparian restoration/Bruce Campbell

"I believe it is possible to maintain healthy fish and wildlife populations and healthy economies if we work together and find common ground. This plan gives us the blueprint."
– Russ McKinley, Western Oregon Timber Procurement Manager, Boise Cascade

"The Strategy does a great job of identifying investments that will provide the greatest benefit to Oregon's native ecosystems and the plants and animals they support; wise investments in conservation will provide ecosystem service, quality of life, and economic benefits to all Oregonians."
– Catherine Macdonald Conservation Director, The Nature Conservancy in Oregon

owlark is not going to be a candidate for listing under the Endangered Species Act any time soon. The state bird, however, is in trouble across a significant portion of its historic range in Oregon and needs some conservation attention. For the western meadowlark and dozens of other similarly vulnerable species including fish, amphibians, reptiles, mammals, invertebrates, and plants, the Conservation Strategy offers hope for a more secure future.

Working together for Oregon's wildlife

The Oregon Department of Fish and Wildlife (ODFW) involved as many people and entities as possible during development of the Strategy. While developing the draft, ODFW specialists talked to hundreds of citizens, biologists, agency personnel and elected officials to gather information and perspectives. The Strategy's development was guided by a broad-based, geographically-balanced Stakeholder Advisory Committee representing the state's agriculture, forestry and rangeland management interests, as well as conservation, fishing and hunting, tourism, local governments, landowners, and groups and organizations that work with landowners on conservation and restoration efforts. The draft Strategy was distributed widely for public review and comment, as well as posted on ODFW's website, with a link for providing comments on-line. Comments and edits were incorporated into the draft document sent to the Oregon Fish and Wildlife Commission in August 2005. The Commission endorsed the Strategy at their September 2005 meeting.

Buena Vista/Bruce Taylor

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Holly Michael
Oregon Conservation Strategy Coordinator
Oregon Department of Fish and Wildlife
3406 Cherry Avenue NE
Salem, OR 97303
Tel: 503.947.6321
Holly.B.Michael@state.or.us
www.dfw.state.or.us/conservationstrategy/

Pennsylvania Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Pennsylvania snapshot

Geography: From east to west, Pennsylvania's ecosystems include an estuary on the Delaware River, woodlots and wide agricultural valleys in the southeast, deciduous forests from the central ridges to the extensive mixed forest of the Allegheny high plateau, and glaciated woodlands and wetlands to Lake Erie in the northwest.

Landscape: Pennsylvania is part of six major river basins -- Ohio, Lake Erie, Susquehanna, Potomac, Genesee, and Delaware River drainages -- and contains numerous wetlands, nearly 4000 lakes and over 83,000 miles of flowing waters ranging from high-gradient coldwater streams to large warm-water rivers. These waters support a high diversity of fish, freshwater mussels and other aquatic life, dependent upon Pennsylvania's management and protection efforts. One example, the Chesapeake logperch in the lower Susquehanna River, may represent an estimated 40% of the global population of this species.

Wildlife: Sitting at this ecological crossroads means that Pennsylvania plays an important role in conserving many diverse species and habitats, both resident and migrant, common and rare. For example, the Commonwealth's expansive hardwood forests, which cover 62% of the landscape, provide critical wildlife habitat for abundant white-tailed deer and an array of neotropical migrant songbirds.

Short-eared owl/ Dan Brauning, PGC

Pennsylvania's planning approach

Pennsylvania's Wildlife Action Plan vision and the focus of the plan development encompass five guiding principles:

Conserving species at-risk: Species exhibiting warning signs today must be conserved before they become imper

"The development of the Wildlife Action Plan is strategic action, designed to proactively manage and safeguard Pennsylvania's declining fish and wildlife."

– Carl Roe, Executive Director, Pennsylvania Game Commission

"The health of our fish and wildlife is an indicator of overall environmental conditions and therefore protecting and improving the habitats for these vulnerable species can provide benefits for humans as well. Pennsylvania's Wildlife Action Plan will serve an important role in guiding resource agencies, institutions and organizations in managing and protecting the diversity of the Commonwealth's fauna."

– Dr. Douglas Austen, Executive Director, Pennsylvania Fish and Boat Commission

"These efforts surely will become milestones in Pennsylvania's wildlife conservation timeline. They are historic and far-reaching, and represent our greatest opportunity yet to shape the future of fish and wildlife management and expand coverage to more species than ever before."

– Peter S. Duncan, retired Pennsylvania Game Commission Executive Director

iled at the regional, national or global level.

Keeping common species common: Native wildlife species must be retained in healthy numbers throughout their natural ranges to maintain their role in ecological processes.

Recognizing the unique role of Pennsylvania: Action Plan strategies and priorities incorporate the needs of species and their associated habitats for which Pennsylvania holds particular responsibility.

Voluntary partnerships for species, habitats and people: The resources of public and private organizations throughout the Commonwealth must be brought to bear on this effort – common contribution to common values.

A comprehensive strategy: The strategies and priorities are presented at the species, habitat, and species-suite levels so that the diverse stakeholders of the Wildlife Action Plan can find meaningful recommendations regardless of their scale and scope of interest.

Primary challenges to conserving wildlife in Pennsylvania

Factors affecting habitat are critical in Pennsylvania. The features to be addressed include maintaining and improving existing habitat quality by minimizing habitat fragmentation and loss of wetlands, and improving forest regeneration. These factors also play a significant role in water issues.

Protecting surface and groundwater, instream flows, and water quality is an important aspect of Pennsylvania's plan. There are numerous urban and industrial demands upon the water sources of Pennsylvania due to expanding human population and habitat degradation.

Stable funding sources need to be developed in order to address species-of-concern. The dynamic landscape and complexity of the problems requires a long-term and sustained initiative to protect and recover species of greatest conservation need. Stable funding will be critical for maintaining the successes achieved thus far.

Working together for Pennsylvania's wildlife

Pennsylvania developed the State Wildlife Action Plan through extensive public input. The major components of that input took the following forms:

A facilitated meeting, hosted by the PGC

Wildlife	Total number of species	Species of conservation concern*	Threatened/endangered species
Mussels	65	41	22
Snails	>170	52	23
Crayfish	13	4	1
Insects	>10,120	312	161
Fish	194	69	20
Amphibians	36	15	4
Reptiles	37	22	5
Birds	394	44	17
Mammals	73	14	6
Totals	**>10,854**	**572**	**259**

**Species of concern excludes "maintenance" species*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Wetlands **Ownership: Private and Public**	• Wood turtle • Jefferson salamander	• Habitat loss • Road mortality • Degraded habitats including polluted waters • Collection for use as pets	• Protect wetlands and vernal pools by encouraging buffers and implementing management activities, developing conservation easements.
Rivers and Streams **Ownership: Private and Public**	• Eastern sand darter, Spotted darter and 11 other darter species occur in this drainage (French Creek Drainage)	• Siltation from non-point sources • Potential biotic interactions with invasive species (round goby in Lake Erie Drainage)	• Riparian habitat protection through conservation easements (e.g., Landowner Incentive Program) and other management activities. • Conduct surveys to evaluate populations and determine if additional conservation measures are needed.
Northern Hardwoods Forest **Ownership Public: 25% Private: 75%**	• Cerulean warbler • Wood thrush • Many forest birds	• Forest health, • Lack of regeneration	• Private Landowner Assistance Program outreach and other forms of landowner outreach to priority habitats and species occurrences, funded with LIP and SWG. • Deer management designed to sustain deer populations that don't impede healthy regeneration • Acid rain mitigation

Recommended actions to conserve Pennsylvania's wildlife

Wood turtle/ Andy Shiels, PFBC, www.fish.state.pa.us

and PFBC, with conservation partners from across Pennsylvania worked together to identify the overall vision, issues, and goals of the State Wildlife Action Plan. These partners have continually provided comments and suggestions as Commission staff worked to develop Strategic and Operational Objectives in order to accomplish partners' vision for comprehensive wildlife conservation in the Commonwealth.

Scientific committees of the Pennsylvania Biological Survey selected and prioritize lists of species of concern.

Collaboration with the Pennsylvania Biodiversity Partnership's (PBP) stakeholder and public input process to assist in developing a comprehensive statewide Pennsylvania Biodiversity Conservation Plan, including a) 500 surveys presented for the public to complete at conferences and meetings attended by PBP and b) a series of facilitated focus groups designed to gather critical information and input from a broad range of stakeholders

Survey of public input conducted in May-June of 1996, with more than 1,000 persons participating.

Assorted facilitated meetings, including an "All-Bird Workshop" in November 2004.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St.
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contacts

Dan Brauning,
Wildlife Diversity Program Coordinator
Pennsylvania Game Commission
61 Windy Lane
Montgomery, PA 17752
Tel: 570.547.6938
Dbrauning@state.pa.us
www.pgc.state.pa.us

David Day
Conservation Coordinator
Pennsylvania Fish and Boat Commission
1601 Elmerton Avenue
Harrisburg, PA 17106-7000
Tel: 717.346.8137
davday@state.pa.us
www.fish.state.pa.us

Jefferson salamander/Andy Shiels, PFBC

Rhode Island Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Rhode Island snapshot

Geography: Rhode Island's wildlife is remarkably diverse considering that it is the smallest state in the nation and supports the second highest human population density. From the highlands in the northwest to the open waters of the Atlantic Ocean, Rhode Island has thousands of resident and migratory aquatic and terrestrial faunal species.

Carrion provision/RIDEM

Landscape: Hosting almost 100 natural vegetative community types, the state's land and waterscapes support a spectrum from rare and endangered species to the most common and abundant. Rhode Island supports almost 900 vertebrate wildlife species and an estimated 20,000 invertebrates along the scenic coastline of Narragansett Bay and throughout the upland forests typical of the New England region.

Wildlife: Included in this natural diversity are 23 mammal species, 129 bird species, 21 reptile and amphibian species, 34 fish species and 157 invertebrate species that Rhode Island DEM DFW has identified as "in greatest conservation need" (GCN). These 364 GCN species are supported throughout the state in 64 different types of key habitats.

Rhode Island's planning approach

This Comprehensive Wildlife Conservation Strategy (CWCS) process identified threats to these important species and habitats, and it identified habitat loss and degradation from human population growth, with its associated impacts, as high on the long list of threats. This plan outlines a series of actions prescribed for the next decade to address these threats and to effectively conserve Rhode Island's important wildlife resources.

The CWCS planning process began with an exhaustive inventory of existing natural resource information, programs and stakeholders. This broad and inclusive approach was taken to compile and represent information on the status of wildlife conservation in the state and the diversity of public and private stakeholders. It included a review of other programs and efforts in the state, region and nation. Information on the full array of wildlife was researched, solicited and compiled. This information is presented as a summary of the status of wildlife species and their habitats in the state, and as the foundation for identifying species of greatest conservation need and their key habitats.

"The role of the states in identifying and working in partnership to preserve, protect and increase habitats that sustain wildlife, bird and plant species is vital for ensuring the future of resource protection in our nation. The State Wildlife Grant Program provides critical annual funding and technical assistance to enable the states to take the lead in restoring high value species habitat and maintain healthy native populations. I am thrilled with Rhode Island's work in developing and implementing the Rhode Island Wildlife Conservation Strategy, and I believe it highlights important needs within our state to ensure a continued and beneficial coexistence between recreation, the economy, and the prosperity of Rhode Island's wildlife resources."

– U.S Senator Lincoln Chafee

American Redstart/Jay Osenkowski

The resulting product provides the vision and direction for effective and efficient wildlife conservation in Rhode Island, including collaboration with the conservation community and citizens alike for the next decade. It is designed to respond and adapt to current needs and to be evaluated at regular intervals in order to provide the most appropriate and effective conservation for wildlife in greatest need of conservation in Rhode Island.

Primary challenges to conserving wildlife in Rhode Island

In Rhode Island, regional and localized threats add to national and international threats such as climate change, habitat conversion, overfishing and pollution. Development, human disturbance, catastrophic oil spills, and inadequate funding for surveys and management threaten the region's shorebirds. The state's forests and their fauna are threatened by habitat loss, fragmentation, residential development, pests and pathogens, climate change, acid deposition, and invasive plant species. General or statewide threats that were identified in multiple plans and by stakeholder input include:

- Habitat loss and fragmentation from lack of conservation planning and coordination (resulting in land conversion, etc.)
- Habitat loss from inadequate-sized reserves (including poor landscape context, loss of connectivity, etc.)
- Habitat fragmentation from lack of focal area approach to conservation
- Lack of GCN species and key habitat data needed for incorporation into the comprehensive strategy
- Lack of research to guide threat assessment and prioritization of conservation planning
- Lack of strategy to implement landscape-level biodiversity and water quality/quantity monitoring to support planning and assessment
- Lack of strategy to support priority research

Taxa	Species found in RI	State listed	Federally listed	S1 & S2 Ranked	S3 Ranked	G1 & G2 Ranked	GCN Species
Mammals	91	12	8	8	3	1	23
Birds	427	58	4	75	28	0	129
Reptiles & Amphibians	46	13†	4	9	3	2	21
Fish	306	2	1	7	8	0	34
Invertebrates (estimated 20,000 +)	396†	56	1	56	17	1	157
Totals	**870†**	**71**	**18**	**155**	**59**	**4**	**364**

† As listed in RI DEM
Key: S1 Rank = Critically imperiled in the state
S2 Rank = Imperiled in the state
S3 Rank = Vulnerable to extirpation or extinction in the state
Species ranked S4 Rank = Apparently Secure, S5 Rank = Secure or unknown (for invertebrates) are not shown
G1 Rank = Critically imperiled across its entire range (i.e., globally)
G2 Rank = Imperiled across its entire range (i.e., globally)

Wildlife diversity of Rhode Island- species richness by taxa

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Pitch Pine/ Scrub Oak Barrens	Pine barrens buckmoth, Oblique-lined tiger beetle, Eastern hognose snake	• Fragmentation, development, plant succession	• Develop habitat management plans for barrens on public lands.
Shrublands	New England cottontail, Blue-winged warbler, neotropical migrants	• Vegetation succession	• Develop forest regeneration programs to create successional habitats.

Recommended actions to conserve Rhode Island's wildlife

- Lack of advocacy for environmental review
- Lack of authority from and enforcement of current regulations
- Lack of advocacy for comprehensive wildlife conservation
- Broad scale temporal and spatial climate change

Some of these general statewide threats reflect landscape-level land-use trends in Rhode Island. The state's cultural history has played an important role in shifting land uses over time, leading to changes in the abundance and distribution of various habitats. As true historically as for other New England states, Rhode Island's natural landscape has been significantly altered by the increase in human population and associated human activities. The colonists quickly cleared the state's forests (which dominated the landscape) and converted them to farms, but by the 1850s, when the state's agricultural production was eclipsed by the country's westward expansion, the abandoned fields gradually reverted to forest. Forest recovery peaked in the 1950s and has been declining ever since; by 1998, only 59% of the state was forested. During the 1990s, the human population grew by 4.5% to 1,048,319 inhabitants, making Rhode Island the second most densely populated state in the nation. Yet the state

Wilbur Woods River/Jay Osenkowski

ranks 9th in the nation in percentage of forest cover, making the state one of the few places in the world where so many people live within the forest.

Wood Frog (*Rana sylvatica*)/Jay Osenkowski

For aquatic species and habitats, this CWCS process identified loss of habitat value for wildlife through hydrologic impacts such as water withdrawals for irrigating agricultural fields and golf courses, non-point source pollution from development and urban runoff, and point source pollution from municipal and industrial discharges as primary, overarching threats across many habitats within Rhode Island. Increased sedimentation and pollution from adjacent land use changes/development was another important multi-habitat problem needing conservation action.

Working together for Rhode Island's wildlife

A wide array of stakeholders participated in the development of the process as well as the resulting lists of wildlife species and habitats, threats and conservation actions. Extensive input was provided by natural resource staff throughout the RI DEM DFW. The resulting process engaged a broader network of individuals and entities and sparked increased communication, coordination and integration. Close coordination with the Teaming with Wildlife and Association of Fish and Wildlife Agencies committees as well as local, state, regional, and national conservation partners was maintained in order to capitalize on advancements and encourage integration and future coordination through the implementation of this SWG CWCS. Coordination cut across traditional program divisions to encourage integrated natural resource priority setting to result in mutually beneficial efficiency and economy of scale. It fostered the broader "system" approach that identified and addressed wildlife species in broader habitat associations and more holistic assemblages representing biotic communities for more effective conservation.

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Christopher Raithel
Rhode Island Division of
Fish and Wildlife
PO Box 218,
West Kingston, RI 02892
Tel: 401.789.0281
Christopher.Raithel@dem.ri.gov
http://www.dem.ri.gov/programs/bnatres/fishwild/swgindex.htm

South Carolina Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

South Carolina snapshot

South Carolina is richly endowed with unbroken coastal vistas, miles of scenic rivers, aged swamps and untouched mountains. Scattered throughout we find places not wild but well-tended, forests and fields, managed for the abundant natural resources that bring many to call this state home. Natural treasures abound in this diversity. Tiny fish like the Christmas darter, named for its jewel toned sides, team in our waters. Fleeting blues and scarlets flash in the skies from the wings of Painted Buntings. Brilliantly striped turtles bask on logs in the sweet southern sunshine.

Tidal marsh/SCDNR

South Carolina's planning approach

South Carolina's Comprehensive Wildlife Conservation Strategy emphasizes a cooperative, proactive approach to conservation. Expert review helped to identify the current needs of wildlife in South Carolina. These needs translate into conservation actions that can cross multiple scales, with treatments recommended at the species, habitat and regional level. The result is a guide to conserving the 1,240 species of fish and wildlife that have immediate conservation needs or are key indicators of the diversity and health of the state's wildlife. Public and partner review then helps turn these conservation recommendations into actions.

Oystercatcher/SCDNR

Primary challenges to conserving wildlife in South Carolina

As we evaluated the challenges to wildlife species and habitats in our state, eight recurring conservation

"Our wildlife, our water, and our land are all important parts of the quality of life that uniquely defines our state. An important part of protecting that quality of life lies in South Carolinians working together to conserve those resources, and the South Carolina Comprehensive Wildlife Conservation Strategy outlines a plan for the people of this state to do that."
– South Carolina Governor Mark Stanford

"If we invest in conserving wildlife now, we can protect species for future generations. A proactive plan will benefit the health of wildlife and people, and conserve wildlife before they become rarer and more costly to protect."
– John Frampton, Director South Carolina Department of Natural Resources

action areas were identified, including: education and outreach; habitat protection; invasive and nonnative species; private land programs; public land management; regulatory actions; survey and research needs; and urban and developing lands. All of South Carolina's 62 priority actions to address problems and issues fall within these conservation action areas.

Banding a red-cockaded woodpecker/SCDNR

Although there are many issues surrounding conservation of wildlife in South Carolina, three challenges were identified for many species and habitats throughout the state. The three primary challenges are loss and degradation of habitat, invasive and nonnative species and lack of knowledge about many of our priority species. As land use shifts from rural to urban, this changing landscape affects the ability of wildlife to thrive. Presence of invasive and nonnative species can result in direct and indirect problems to native wildlife. Through direct competition, habitat destruction, inbreeding and other impacts, nonnative plants and animals present a major challenge to South Carolina's wildlife species. The lack of knowledge about natural history, diversity, abundance and range of many of our priority species also represents a significant challenge in South Carolina. Without a good understanding of all characteristics of wildlife, it is extremely difficult to help temper the changing landscape in the interest of conserving priority species.

Toxaway river/SCDNR

Wildlife	Total number of species	Priority species*	Threatened/endangered species
Marine invertebrates	803	775	0
Freshwater mussels	29	26	1
Freshwater snails	24	4	0
Crayfish	36	23	0
Marine fish	256	163	0
Freshwater and diadromous fish	146	62	1
Reptiles and amphibians	142	52	9
Birds	390**	111	9
Mammals (marine and terrestrial)	106	24	12
Totals	**1932**	**1240**	**32**

** South Carolina included in this category all species that are currently rare or designated as at-risk, those for which we have little available knowledge and those that have not received adequate conservation attention in the past. Additionally, this list includes species for which South Carolina is "responsible," that is, species that may be common in our state, but are declining or rare elsewhere, as well as those that could provide indication of failing habitats.*

*** 179 of these are classified as breeding in South Carolina.*

Wildlife highlights

Habitat/species highlights	Wildlife (examples)	Issue (examples)	Action (examples)
Pine Savannah-- Habitats consist of sparse stands of pines, almost always longleaf or loblolly pine, and rich vistas of grasses. Ownership is often a mix of public and private.	• Red cockaded woodpecker • fox squirrel • gopher tortoise • Bachman's sparrow • northern yellow bat • Rafinesque's big eared bat • gopher frog • flatwoods salamander	• Pine Savanna is a fire-maintained community. Without fire, Pine Savanna will grow into a much denser forest habitat. Fire suppression and land conversions for agriculture or development place the greatest pressure on this habitat type.	• Restore and enhance impaired habitat, where feasible, including the use of prescribed burning and replanting of native plants.
Cannonball jellyfish, Stomolophus meleagris-- Not state or federally listed; however, ecologically important because they are the major prey base for endangered leatherback sea turtles (Dermochelys coriacea)		• While, abundant along the southeastern and Gulf coasts of the U.S., Cannonball jellyfish are susceptible to harmful algal blooms; oil spills and nonpoint source pollution. Increased demands for jellyfish from Asian markets may encourage a commercial trade in the species.	• Determine the maximum sustainable yield for a harvest fishery. Develop an education program that stresses that cannonball jellyfish are important and active members of the coastal ecosystem and are harmless to humans. If a fishery develops in South Carolina for cannonball jellyfish, it should be monitored and regulated to avoid overexploitation and appropriate harvest techniques should be identified that are protective of other marine species.
Cove Forests of Hemlock and Rhododendron-- The sheltered coves occur in stream bottoms or on lower hill slopes along small streams. Thickets of hemlock trees and rhododendron bushes dominate the habitat. They will also include rich growth of Christmas ferns and strawberry-bush. In some cases you may also find patches of wildflowers like foamflower or Oconee bell, a plant found only in the Blue Ridge region of South Carolina. Most cove forests are in public ownership though some may be found on private lands.	• Shovel-nosed salamander • seepage slope salamander • Swainson's warbler • Acadian flycatcher • Carolina red-backed vole • spotted skunk • Rafinesque's big eared bat • eastern small-footed myotis	• The Hemlock Wooly Adelgid, an introduced insect of Asian origin spreading southward from the Northeastern US, is established at numerous sites in the Southern Blue Ridge Mountains. Most infested Hemlocks will die. There are no control methods currently available for large stands of infected trees though expensive methods can be used for individual infestations.	• Determine the effects of plant and animal invasive and nonnative species (including diseases) on South Carolina's priority species and their habitats. Prevent the spread of existing invasive and non-native species, eliminating them, where possible. Determine the impacts of invasive and non-native species on South Carolina's priority species and habitats used by those species. Strive to prevent the import of additional invasive and non-native species to South Carolina.

Recommended actions to conserve South Carolina's wildlife

Assisting landowners with wildlife foodplots/SCDNR

Working together for South Carolina's wildlife

From the beginning of the CWCS effort, South Carolina's planning team sought to realize successful partnerships and public involvement in the development of the strategy. Representatives from partner groups were invited to share their ideas with the planning team through focus groups. These partner organizations included federal and state agencies, tribal councils, conservation organizations and non-governmental groups such as local and county planners, developers and other professionals interested in the fate of conservation in South Carolina. Additionally, SCDNR gathered information from South Carolina's citizens through a series of public meetings that were conducted throughout the state. These meetings allowed people to present their ideas on wildlife priorities and issues of concern. As conservation actions were being developed, SCDNR worked with partners to identify methods for conserving wildlife in several of our conservation action areas. As we move from planning to acting, these same partners will help set priorities and methods for realizing our conservation goals.

Fish survey of the Reedy River/SCDNR

Electroshocking in the Reedy River/SCDNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Tom Kohlsaat, Project Coordinator
Lynn Quattro & Jenn Rinehart,
Project Leaders--Comprehensive Wildlife Conservation Strategy
South Carolina Department of Natural Resources
PO Box 167, Columbia, SC 29202
Tel: 803.734.9094
http://www.dnr.sc.gov/wcp/index.htm

South Dakota Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

South Dakota snapshot

Geography: The tallgrass prairie reaches its western boundary in eastern South Dakota, while rich, deep soils and abundant streams and rivers once made the area very desirable for settlement and farming. Western South Dakota's rolling terrain, wide open spaces, and native prairie also created a rich ranching heritage.

Landscape and Wildlife: Grasslands and prairie pothole wetlands in eastern South Dakota support some of the highest concentrations of breeding waterfowl and other wetland birds in North America. Much of the open landscape in western South Dakota is still intact, which will help the cause of such species as long-billed curlew, pearl dace, and burrowing owl. Meanwhile, although bisected by 4 dams, there are still places along the Missouri River where a person can experience the wide and meandering "Big Muddy," as well as some of its unique wildlife, including paddlefish, pallid sturgeon, least terns, piping plovers, and bald eagles. The Black Hills' forests, streams, and grasslands support many species found in few other places in the state, such as the American dipper, Townsend's big-eared bat, and the longnose sucker.

Burrowing Owl/Doug Blacklund

South Dakota's planning approach

The Department of Game, Fish and Parks used the best information available to draft a framework for Department specialists and others to address species and habitats that need special attention to help prevent future endangered species

"This Plan is a voluntary guidance document with an emphasis on conserving biological diversity in South Dakota through partnerships and cooperation…To be successful in avoiding future endangered species conflicts and jeopardizing unique habitats, we must engage private landowners, tribes, environmental and agricultural organizations, government entities ranging from local to federal agencies, as well as the more than 90% of our citizens who believe in the importance of wildlife to our quality of life and to our economy."

- John Cooper, Secretary of South Dakota Department of Game, Fish and Parks and President of the Association of Fish and Wildlife Agencies

listings. The key to healthy people and healthy wildlife is habitat - clean air and water, healthy and diverse landscapes, and other features that help fish and wildlife thrive. South Dakota's plan emphasizes habitat that will benefit all wildlife in the state, while addressing the needs of 90 animal species of conservation concern. The plan attempts to identify and locate South Dakota's essential habitats, identify the habitats that have changed since the state was settled, determine which animal species need special attention to ensure their long-term survival, and develop ways for the state to be more proactive in wildlife and habitat management.

Long Billed Curlew/Kent (KC) Jensen, South Dakota State University

Primary challenges to conserving wildlife in South Dakota

South Dakota's Wildlife Action Plan identified several key challenges to wildlife and habitats. Land has been converted for other uses throughout the state. Some fish and wildlife species have general habitat needs and can adapt to such changes. Others have specific requirements, and those species have suffered from loss or degradation of habitat and impacts from the decline of traditional impacts, such as fire or grazing, which help to keep certain habitats healthy. For example, tallgrass prairie benefits greatly from fire. Species that are not native to the state have been intentionally or accidentally introduced, often with disastrous consequences. Sylvatic plague was recently found in black-tailed prairie dog colonies, and black-footed ferrets in southwestern South Dakota are being closely watched for the impacts of this exotic disease. The Missouri River dams changed it from a diverse, meandering river to a series of reservoirs, jeopardizing the future of such species as the pallid sturgeon, piping plover, and interior least tern.

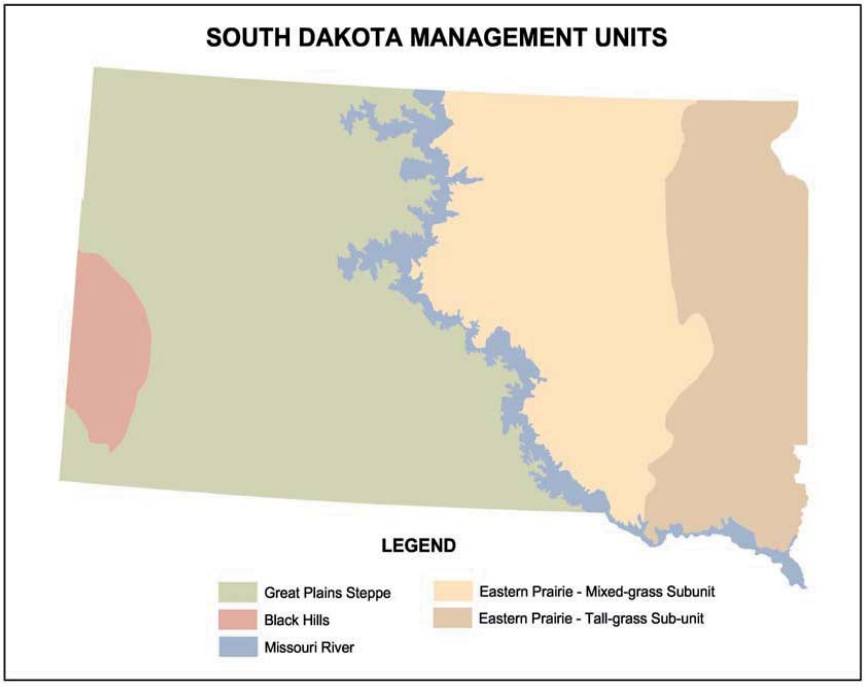
Wildlife	Total number of species	Species of Conservation Concern*	Threatened/endangered listed species
Mussels	34	7	2
Snails	~100	4	0
Crayfish	3	0	0
Insects	6,000-7,000	9	2
Fish	108	20	10
Amphibians	15	2	0
Reptiles	32	10	3
Birds	439	28	8
Mammals	97	10	5
Totals		**90**	**30**

**Criteria: 1. State and or federal listed species, 2) species for which South Dakota represents a significant portion of the species' overall range, and 3) species that are indicative of or depend upon a declining or unique habitat in South Dakota.*

Wildlife highlights

Key Habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Prairie rivers of western South Dakota **Ownership: mixture of tribal, private, federal and state**	• Trumpeter swan • Black tern • Pearl dace • Northern river otter	• Poor water quality and siltation • Conversion and loss of adjacent stream vegetation	• Continue gathering information on species that depend on this habitat and encourage NRCS, USFWS, and SDGFP private lands programs to enroll riparian lands in land protection and enhancement programs • Share information with land managers and the public about the importance of intact blocks of native grassland.
Black Hills forests **Ownership: primarily national forest, with intermingled lands of various ownerships**	• Cooper's rocky mountainsnail • Fringe-tailed myotis • Black-backed woodpecker	• Emphasis on pine production at the expense of more diverse habitats • Suppression of natural fires	• Work with private and public landowners and foresters to promote diverse forest types, including the maintenance of snags • Promote prescribed burning where feasible and conduct evaluations of wildlife response to prescribed and natural fires
Tallgrass prairie **Ownership: tribal, private, state, and federal**	• Dakota skipper • Franklin's ground squirrel, • Ferruginous hawk	• Invasion of exotic species, such as leafy spurge and smooth brome • Lack of fire, a critical historical disturbance factor	• Continue or expand efforts to control exotic and invasive plant species, targeting remaining blocks of tallgrass prairie • Evaluate SDGFP lands for opportunities to use fire and grazing as tools to simulate the historical disturbance factors that created and maintained this habitat

Recommended actions to conserve South Dakota's wildlife



South Dakota Management Units/SDGFP

Working together for South Dakota's wildlife

From start to finish, South Dakota incorporated public involvement as part of the planning process. Forty-eight invitations to join the Advisory Team were extended to universities, government entities, and tribes. Other opportunities included an interactive website, an open invitation for anyone to join the Advisory Team, regional town meetings held in 4 of the state's largest cities to gain insight on problems and strategies early in the planning process, presentations to the SDGFP Commission and staff, and specific invitations to universities, tribes, and other government entities to meet early in the process in order to incorporate mutually-beneficial strategies and philosophies, which resulted in 7 specific meetings. There was also a 30-day public comment period on the draft plan and an opportunity for participation in the "Wildlife Values in the West 2004" survey to help the state understand how South Dakotans may react to the wildlife policies that will be used to implement South Dakota's Wildlife Action Plan.

"The document provides an impressive synthesis of South Dakota's knowledge of wildlife and habitat. In addition, the plan includes a fairly extensive presentation of public input into the plan."
-Jeff Lerner, Director of Conservation Planning, Defenders of Wildlife

Black Hills South Dakota/Dave Ode

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St.
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Eileen Dowd Stukel, Wildlife Diversity Coordinator
South Dakota Department of Game, Fish and Parks
523 E. Capitol Avenue
Pierre, SD 57501
Tel: 605.773.4229
eileen.dowdstukel@state.sd.us;
http://www.sdgfp.info/Wildlife/Diversity/Comp_Plan.htm

Tennessee Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Tennessee snapshot

Geography: Terrestrial habitats range from the wetlands and bottomland hardwoods of western Tennessee, cedar glade and grassland barrens of middle Tennessee to the high elevation spruce-fir forests of the mountainous east. Aquatic environments range from the oxbows and sloughs of the Mississippi River to the spring and subterranean habitats of the Middle Tennessee barrens and Cumberland Plateau to the cold mountain streams of the Appalachian Mountains.

Tree Frog/Robert English

Landscape: The Mississippi River Valley is the pathway of one of the largest avian migrations in North America. The Tennessee and Cumberland River drainages are unrivaled nationally in the diversity of fish, mussels, and other types of freshwater aquatic fauna. The subterranean landscape of the Interior Low Plateau and adjoining Cumberland Plateau is one of the most extensive in the country housing hundreds of rare and unique species, with many more yet to be discovered.

Wildlife highlights: Over 300 species of birds utilize habitats within Tennessee. Tennessee is home to 77 amphibians (frogs, toads and salamanders) with the Appalachian mountains considered the world's epicenter of lungless salamander diversity. Furthermore, 55 reptiles (snakes lizards and turtles) and 77 mammals, including 12 species of bats, inhabit Tennessee. The diversity of aquatic habitats supports an unparalleled array of aquatic species. Seventy-six species of crayfish, 99 species of aquatic snails, 130 species of freshwater mussels and over 325 species of fish all call Tennessee home.

Tennessee's planning approach

The Tennessee Wildlife Resources Agency (TWRA) used this planning opportunity to undertake the most comprehensive analysis of the state's wildlife conservation needs to date. The plan was produced primarily with assistance from The Nature Conservancy and assistance from other partners such as the Tennessee Wildlife Federation, Tennessee Ornithological Society, World Wildlife Fund, and other state and federal agencies. Tennessee's Wildlife Action Plan utilizes species occurrences coupled with information about rarity, viability, mobility, and habitat preference to evaluate units of habitat across the state. By utilizing GIS technology, species and habitat information is available for analysis at multiple geographic scales.

"It is my belief that Tennessee's State Wildlife Action Plan answers Congress's call to address the conservation of the full array of our state's wildlife. The Plan's grounding in scientific data and innovative use of technology makes it an important tool for state and local conservation planning and development."

– Phil Bredesen, Governor, State of Tennessee

"The centerpiece of the Tennessee Comprehensive Wildlife Conservation Strategy is the development of a geographically based, comprehensive GIS database that will be used to inform and help guide management decisions in conserving our state's rare and imperiled fish and wildlife."

– Gary T. Myers, Director, Tennessee Wildlife Resources Agency

Primary challenges to conserving wildlife in Tennessee

Wading Bird/Byron Jorjorian

A total of 37 potential sources of stress were identified as affecting Greatest Conservation Need (GCN) species and habitats. Incompatible land use and development were consistently identified as major sources of stress to GCN species. Additionally, the lack of distributional data for many of the GCN species is a substantial impediment to fully utilizing the tools developed within this Wildlife Action Plan.

Incompatible land use practices often result in erosion and loss of land, water quality degradation, and loss of terrestrial and aquatic habitat. In many instances the landowner is unaware of solutions, or unable to implement best management practices. Technical advice and assistance must be provided to meet the needs of private landowners.

Tennessee's human population is projected to grow by 1.5 million people by the year 2025. This projected growth will require communities to plan for and meet the needs of its citizens while conserving and managing the land, water and wildlife resources that enhance the quality of life within and near those same communities.

Tennessee's Wildlife Action Plan provides a GIS model that evaluates priorities for wildlife and habitats. (See the habitat priority maps p. 4.) It is essential for species distributional data and land cover information to be maintained and updated in order to fully utilize the model's ability to evaluate habitat.

Working together for Tennessee's wildlife

In developing its Comprehensive Wildlife Conservation Strategy, TWRA actively solicited input from a broad

"We believe the state wildlife action plan will provide us and our partners with the implementation tools we need to protect wildlife and their habitats throughout Tennessee. We know from our work that what helps our wildlife, helps all of us."

-Scott Davis, State Director, The Nature Conservancy, Tennessee Chapter

Wildlife	Total number of species	Species of conservation concern*	Federal or state listing as threatened, endangered, in need of management, or other category
Mussels	132	77	41 (all are federally listed; 36 are state listed)
Snails	374	120	3 (all are fed. & state listed)
Crayfish and other crustaceans	101	52	12 (only 1 is federally listed; all 12 are state listed)
Insects	Unknown	120	3 (all 3 are federally listed; 0 are state listed)
Fish	>325	85	69 (only 20 are federally listed; all are state listed)
Amphibians	70	24	11 (none are federally listed; all 11 are state listed)
Reptiles	61	17	7 (only 1 is federally listed, all 7 are state listed)
Birds	>300	81	25 (only 3 have full federal listing; 24 are state listed)
Mammals	89	29	20 (only 4 are federally listed; 19 are state listed)
Other invertebrates	Unknown	59	1 (this species is only federally listed)
Totals	**1,452**	**664**	**192**

**Greatest Conservation Needs were determined by a species' rarity, legal status, distribution, and population trend.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Terrestrial habitat: Wetlands and bottomland forests of the Mississippi River	Barking Treefrog Mississippi kite	• Incompatible land use practices • Residential, commercial and industrial development	• Utilize existing and develop new landowner incentive and assistance programs to implement best land management practices. • Restoration of wetlands and bottomland hardwood forests. • Participate and assist in the review of county urban growth plans. • Develop strategic alliances with local government, planners and developers to address development issues.
Aquatic System: Cumberland River System	Ashy darter Cumberland Bean pearlymussel	• Construction of dams and impoundments	• Develop strategic alliances with regulatory agencies and local water boards to address the issues of water management. • Develop standards for minimum stream flows to protect GCN species.
Subterranean system: A Highland Rim Cave	Bigmouth cave salamander Southern cave fish	• Incompatible forestry practices • Municipal wastewater Treatment / Stormwater runoff	• Map Karst systems to delineate subterranean watersheds • Develop formal management agreements with private landowners to provide species and habitat management assistance. • Develop strategic alliances with regulatory agencies and local water boards to address the issues of water management.

Recommended actions to conserve Tennessee's wildlife

array of federal and state agencies, interest groups, and the public. A Steering Committee was established with representatives from agencies and non-governmental organizations that were considered to be important stakeholders for wildlife conservation in Tennessee. The Nature Conservancy and World Wildlife Fund, both internationally known for their roles in wildlife and habitat conservation, were members of the Steering Committee, as were the Tennessee Ornithological Society and the Tennessee Wildlife Federation. The Steering Committee held four meetings during the course of the planning effort to provide guidance and oversight to development of the Wildlife Action Plan.

Four additional partner meetings were held across the state. Attending these meetings were representatives of five federal agencies, two additional state departments, two state universities and 10 nongovernmental organizations (NGOs). Nongovernmental representatives attending ranged from the League of Women Voters to Tennessee Citizens for Wilderness Planning to individuals involved in wildlife rehabilitation.

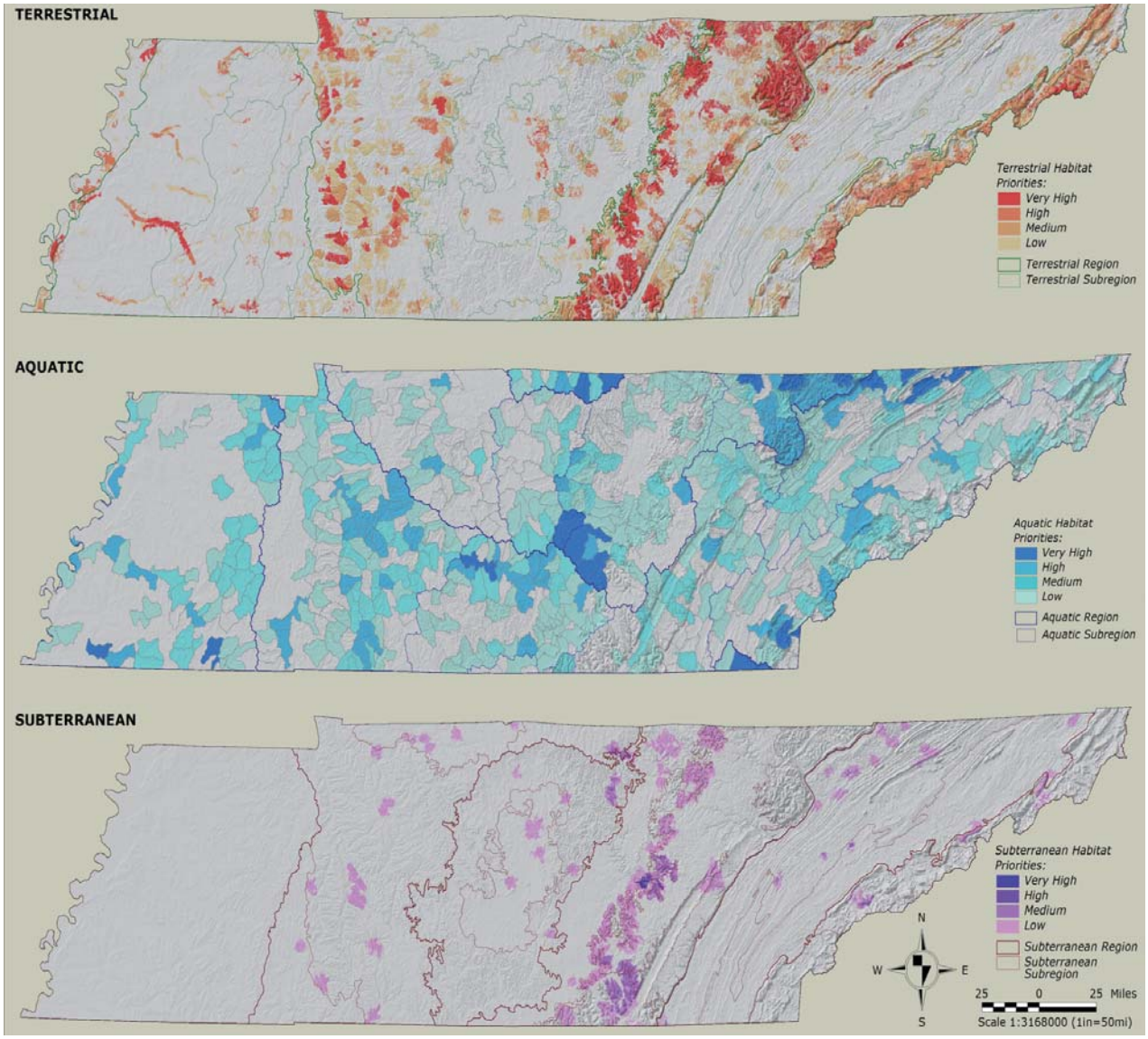
TWRA also established an informational web site and questionnaire about the CWCS planning process. To promote the website, 8,500 informational cards were mailed to hunting and fishing license agents asking that the cards be provided to the public. Numerous public presen

"Tennessee's State Wildlife Action Plan provides a framework for partners from government, conservation groups, communities and businesses to work together in a coordinated fashion on the ground to benefit species and habitats."

- Wendy Smith, Director, Southeast Rivers and Streams Program, World Wildlife Fund

tations, magazine and newspaper articles were produced that reached circulations across the state. TWRA also produced two segments on its television show Tennessee Wildside.

Finally, four mid-week, evening public meetings were held across the state which included a Wildlife Action Plan presentation and a question and answer session.



Priority areas for wildlife of greatest conservation need in Tennessee/TWRA

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW,
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Richard Kirk, Nongame and Endangered Species Coordinator
Tennessee Wildlife Resources Agency
Ellington Agricultural Center, PO Box 40747
Nashville, TN 37204
Tel: 615.781.6619
Richard.kirk@state.tn.us
http://www.state.tn.us/twra/wildlife/cwcs/cwcsindex.html

Texas Wildlife Action Plan

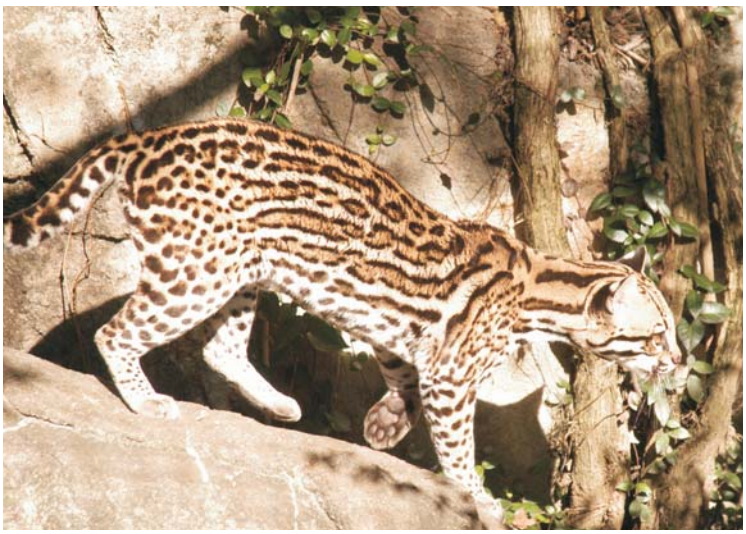
What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Texas snapshot

Geography: Texas is an extremely diverse state with 10 distinct ecoregions ranging from desert in the western portion of the state to the dense forests of the east. The area of the State of Texas is greater than 250,000 square miles, or about one-twelfth that of the entire United States. According to NatureServe's 2002 States of the Union: Ranking America's Biodiversity, Texas is second only to California in terms of its biodiversity. Texas has the highest number of birds and reptiles and the second highest number of plants and mammals in the United States. It has the third largest rate of endemism in the country (TPWD 2002). There are 22 major river basins in the state that all eventually flow into the nine major bays and estuaries along the Texas coast. Texas also shares a border and ultimately a portion of its landscape with Mexico. In addition, the Gulf of Mexico lines 367 mi. of the Texas coast and provides important habitat for a variety of fish, invertebrates, birds and mammals.

Landscape: More than 94% of Texas is privately owned, making it critical for private landowners to be partners in all aspects of conservation from land acquisition to land management and restoration. It is also important that Texas appropriately manage lands that are owned or maintained by Texas Parks and Wildlife. With 51 wildlife management areas and about 80 state parks, Texas has over one million acres of land to manage and in many cases to restore. Being a good partner is the only way to ensure healthy ecosystems in Texas.



Ocelot/Houston Zoo

Wildlife: Texas has tens of thousands of species that fall under the loose-fitting title "nongame". These species are vital to the ecology of Texas. Texas species are as diverse as the Texas landscape. There are 5,500 species of plant in Texas, and greater than 425 of those species are endemics. There have been over 600 bird species identified within the borders of Texas and 184 known mammal species,

"This [State Wildlife Grants] money is important to Texas and will help a number of species and habitats stay healthy and prosper in the future. Collecting information and doing good wildlife management cost money with hopeful results always pending. Texas Parks & Wildlife Department is proud to invest this new source of money in the future of Texas wildlife and reverse the downward trend of so many species. This is an investment in the wildlife, no doubt, but it is also an investment in the children and grandchildren of all Texas citizens. Used wisely it is a powerful investment in the future. It is important to remember that we only get one opportunity to fail but we have vast opportunities to succeed. Texas intends to succeed."

– Robert L. Cook
Executive Director,
Texas Parks & Wildlife Department

Houston Toad/Houston Zoo

including marine species that inhabit Texas' coastal waters (Schmidly 2004). It is estimated that there are approximately 29,000 insect species in Texas that take up residence in every conceivable habitat, including rocky outcroppings, pitcher plant bogs and on individual species of plants (Riley in publication). One example of a Texas native is the Louisiana black bear, which is on the verge of making a comeback in east Texas. This species, along with several other species, relies on the east Texas woods for survival. Habitat loss has been one of the main reasons for the bear's decline. Reservoir construction has flooded many miles of former bottomland hardwood habitat. In addition, many bottomlands forests have been cut and converted to agricultural areas or housing developments. Another species attempting to reestablish itself in Texas is the Ocelot. Historical records indicate that the Ocelot once occurred throughout south Texas, the southern Edwards Plateau, and along the Coastal Plain. Today, its range is limited to the south Texas brush country and lower Rio Grande valley. Only about 30 to 35 Ocelots live in the shrublands remaining at or near the Laguna Atascosa National Wildlife Refuge near Brownsville, Texas. In 1995 it was estimated that 80 to 120 individuals lived in Texas. Like the Louisiana black bear, the ocelot shares it's critical habitat with numerous other species that rely on the remaining south Texas brushlands for survival. These are just two examples of native Texas species that help comprise the second highest level of biodiversity in the country. This level of biodiversity creates a great deal of responsibility for stewardship. Texas Parks and Wildlife shares this responsibility with other state agencies and conservation NGOs , and

McKinney Falls State Park/Eric Martinson

Wildlife	Total number of species	Species of conservation concern*	Threatened/endangered listed species
Mussels	52	21	1
Snails	±78	11	0
Crayfish	36	11	0
Insects	~29,950	272	20
Fish**	808	104	59
Amphibians	71	15	13
Reptiles	149	19	25
Birds	629***	163	32
Mammals	184	53	34
Totals		**669**	**184**

**The category of Species of Conservation Concern was derived from the development process. Species working groups were developed and each group put together a prioritized list of species including some T and E species. The number of Species of Conservation Concern is the number of species on the CWCS species list, minus all of the species on the list that are listed as threatened or endangered.*

***Includes salt water species, freshwater species and estuarine species*

****Includes all species of birds documented in Texas including those considered as "vagrants."*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Blackland Prairie **Ownership: Mostly Private**	• Cassin's Sparrow • River otter • Box turtles	• Habitat loss	• Baseline determination and monitoring. • Identify, map and ground truth locations and conditions of habitats. • Restoration of native prairie.
East Texas hardwood forest bottomlands **Ownership: Some public, mostly private**	• Louisiana black bear • Red-cockaded Woodpecker	• Habitat loss due to multiple factors including reservoir construction and fragmentation.	• Identify all remaining bottomland hardwood areas and manage intensely. • Educate the citizenry on the affects of traditional forestry practices and promote or develop sustainable forestry practices • Work to minimize the affects of reservoir construction or avoid construction if possible.
Galveston Bay System		• Suburban and industrial development; chemical spills; dredging; bycatch	• Continue to monitor the bay for species as well as water quality. • Minimize impacts of dredging and spoil removal. • Reduce excess commercial fishing impacts.

Recommended actions to conserve Texas' wildlife

together these groups are making great strides towards protecting Texas' array of animal species.

Texas' planning approach

Texas' planning approach was developed around current and potential partnerships with multiple organizations. From local area governments and landowners to state agencies to conservation NGOs, the only viable option Texas habitats and species have is the work that is done through partnerships. These partnerships must accomplish management on the land, in the fresh water environs and in the bays and estuaries along the coast. While the coastal waters of Texas are monitored consistently, the terrestrial habitats and inland waterways are in need of inventory and eventually monitoring. Once this information is gathered, Texas biologists will be able to make informed, directed decisions. The Texas Action plan incorporated documents such as the Land and Water Resources Conservation and Recreation Plan (Land and Water Plan), The Texas Shrimp Fishery (2002) report to the Governor and the Texas Wetlands Plan.

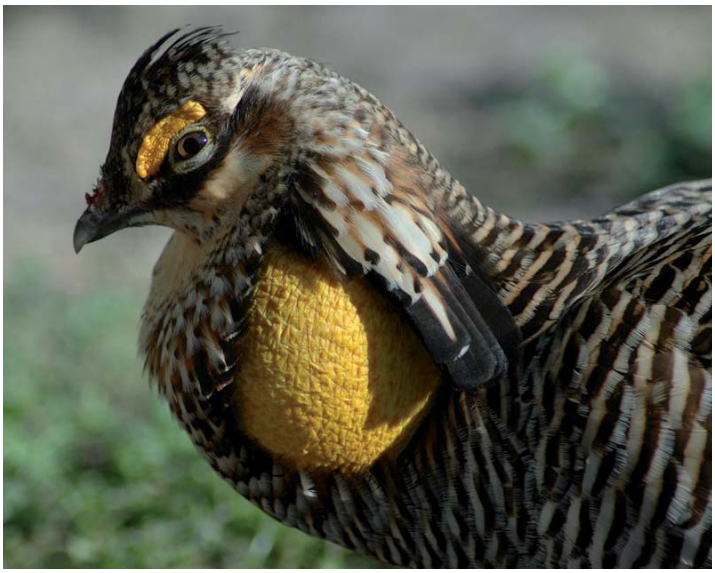
All of these documents were developed to facilitate the alignment of conservation of resources and initiatives for Texas. By using these documents as guideposts there is an increased likelihood that the outlined initiatives will be followed.

Primary challenges to conserving wildlife in Texas

Black Bear/TPWD

Texas' biggest challenge is the size of the state and the immense variety of ecological habitats it encompasses. It the second largest state in the Union and the largest of the lower 48 states. With diversity (and size) come great challenges. These challenges are rooted in the bureaucracy of monitoring an entire State as well as the specific

conservation actions that must be enacted to ensure the stability and improvement of habitat for native species. The immense size and diversity, combined with the preponderance of private landownership, make it very difficult to manage wildlife resources effectively with the financial assets available. As Texas is a state largely owned by private individuals, it is critical that programs aimed at conservation on private lands be maximized in order to effectively implement conservation. Programs such as the Landowner Incentive Plan and farm bill programs such as the Environmental Quality Incentive Program and the Wildlife Habitat Incentive Program act as effective tools for planning and implementing the goals of the Texas Wildlife Action Plan with regard to conservation on private lands.



Attwater Prairie Chicken/Houston Zoo

Working together for Texas' wildlife

The Texas Parks and Wildlife Department started the stakeholder process with a Wildlife Diversity Conference in San Marcos, TX in August of 2004. Approximately 150 professional biologists attended and spoke at the conference. The conference also served as a vehicle for the development of species-based working groups that were used to gather information and debate issues associated with habitat and species as well as discuss the Action Plan itself. The working groups spent 6 months developing information for the Action Plan, with the next six months being spent developing the final draft version. Once the draft was complete the Texas Parks and Wildlife Department took the strategy to the public through two vital and interacting operations. The draft version of the strategy was maintained on the TPWD website in multiple pieces for easy download. The draft was available to both the public and professionals. In addition, feedback forms were also available in the form of a portable document file (pdf). These documents were easy to fill out and return via e-mail. In addition to web-based comment, TPWD created a program that was transported to 11 major venues throughout Texas. The locations were mostly AZA accredited zoos or aquaria with one TPWD-owned historic site and a children's museum. The public was invited by means of press releases news articles, television interviews and radio interviews. Overall, three weeks were spent touring the state and taking this presentation to constituents and stakeholders. The website was also used to collect information from the tour by using the pdf comment forms.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St.
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Steven Bender
Wildlife Division Planner
Texas Parks & Wildlife Department
4200 Smith School Road
Austin, TX 78744
Tel: 512.389.4427
steven.bender@tpwd.state.tx.us
www.TPWD.state.tx.us

Utah Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Utah snapshot

Geography: In Utah, climate varies by elevation, ranging from semi-arid to montane. With deserts like the Great Basin and Mojave in the state, streamside areas are the richest landscapes in terms of species variety and wildlife numbers. The Great Salt Lake, too, creates a desert oasis for migrating birds.

UDWR

Landscape: Federal agencies manage over two-thirds of Utah's landbase. An innovative coalition, the Utah Partners for Conservation and Development, is working to resolve issues like introduced non-native species and apply best management practices to address changes to wildlife communities associated with agriculture, mining, and urban development.

Wildlife: Approximately 700 species of wildlife and thousands of species of insects inhabit Utah. Almost 250 species of birds use habitats within the Great Salt Lake environment alone. The Great Salt Lake supports colonies of rare birds, such as the American pelican, while other species that visit the lake are salt water specialists that rely upon the unique life forms in and around the lake.

Utah's planning approach

To create its wildlife action plan the Utah Division of Wildlife Resources forged an on-going public-private partnership from the beginning of the planning process that will continue through plan implementation. Planners used the best science and knowledge available to document the status and condition of species and habitats, identify and understand threats, develop effective responses and initiate monitoring assessments. The plan serves as a foundation for cooperative conservation efforts.

Primary challenges to conserving wildlife in Utah

Utah identified many threats to species of conservation need and to the top wildlife habitats in the state, including development, stream channelization, environmental contamination, habitat loss, invasive species, fire cycle alteration, and human disturbance.

Bighorn capture/UDWR

Habitat loss: With a rapidly urbanizing population, prime agricultural lands with high wildlife values are being subdivided and developed along the Wasatch Front and Back. Additional habitat loss occurs from road and trail expansion, energy development, transmission corridors, and surface mining.

Fire cycle alteration: Though fire suppression and the resulting lack of disturbance degrade habitat for many wildlife species, increased fire frequency and intensity caused by certain invasive, non-native plant species, such as cheatgrass, also pose a habitat threat. In the shrub-steppe rangelands, drought has created a precipitous drop in winter forage in northeastern and southeastern Utah for both wildlife (such as greater sage-grouse, pygmy rabbits and mule deer) and livestock.

"Fish and wildlife in Utah will benefit from the strategic and science-based planning that went into this plan, which is one of the first wildlife action plans to be approved in the nation."

– Ralph Morgenweck, Director of the U.S. Fish and Wildlife Service's Mountain-Prairie Region

Utah taxa groupings	Total	Tier I*	Tier II**	Tier III***
Amphibians	10	2	2	6
Birds	44	8	12	24
Fish	29	15	7	7
Mammals	39	5	14	20
Mollusks	40	5	24	12
Reptiles	34	1	12	21
Totals	**196**	**4**	**71**	**90**

**Tier I species are federally threatened, endangered and candidate or conservation agreement species.*
***Tier II species are Utah's "state species of concern" which the UDWR manages to prevent from being federally listed.*
****Tier III species are those species that: have need more information, indicate a habitat at-risk, demonstrate a marked decline in status, or are facing an immediate threat.*

Wildlife highlights

General Threats	Specific Threats	General Conservation Action	Specific Conservation Action	Priority
Development	Direct loss of habitat/habitat fragmentation	Education and Outreach	Educate the public and conservation partners about the consequences of losing grassland habitat.	M
		Permanent Conservation of Habitat	Acquire conservation easements or fee-title to key grassland areas.	M
		Restore Degraded Habitats	Improve degraded grassland habitats to compensate for areas lost to development.	H
		Increase Coordination with Federal/State Agencies and Private Landowners	Coordinate with agency planners so that management activities enhance, not degrade, important grassland habitats; coordinate habitat management activities with private landowners who own key wildlife habitats.	H
Fire Cycle Alteration	Cheatgrass and other non-native species are favored by (and result in) increased fire frequency	Restore Natural Fire Cycle Where Appropriate	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals.	H
		Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation, including use of non-invasive, non-native perennial grasses when ecologically indicated to fight invasive annuals.	H
Improper Grazing Practices	Over-grazing or grazing at the wrong time of year can greatly degrade the value of habitat for wildlife	Improve Grazing Practices	Change season of use as appropriate; introduce time-controlled grazing with appropriate rest-rotation schedules.	M
		Habitat Monitoring and Research	Conduct grazing research and monitor results of grazing changes to determine response in habitat conditions.	M
Invasive Plant Species	Cheatgrass and noxious weeds can out-compete desirable plant species	Restore Degraded Habitats	Use herbicides, mechanically remove, or otherwise control invasive non-native vegetation; plant desirable vegetation.	H
		Education and Outreach	Educate the public about the negative impacts from cheatgrass.	M
		Determine and Map Distribution	Map areas impacted by invasive non-native plant species.	M
		Restore Natural Fire Cycle Where Appropriate	Restore natural fire cycle by restoring degraded habitats.	H
		Habitat Monitoring and Research	Conduct research into new methods of invasive species control.	M

Recommended actions to conserve Utah's grassland wildlife

Examples of grassland species: Black-footed ferret, Utah prairie-dog (Tier I); Long-billed curlew, Grasshopper sparrow, Gunnison's prairie-dog, White-tailed prairie-dog (Tier II); Idaho pocket gopher, Coachwhip, Glossy snake (Tier III); land ownership is predominantly by the federal agency, Bureau of Land.

"It ... (Utah's Wildlife Action Plan) ... also helps conserve the places that bring peace and relaxation to our daily lives, (a)nd it shows us how to cooperatively conserve the wildlife and natural places that are important to many of the family traditions we have in Utah."
– James Karpowitz, Director of the Utah Division of Wildlife Resources

Working together for Utah's wildlife

The Utah Division of Wildlife Resources (UDWR) recognized that a successful wildlife action plan required the insights and input of a coalition of Utahns. To develop the plan, the Division encouraged participation among interest groups and solicited input into proposed actions for wildlife enhancement and land management, particularly through the Utah Partnership for Conservation and Development.

Otter release/UDWR

Since 2003, collaborative habitat restoration at the regional and community levels has been crucial for the success of the Utah Wildlife Action Plan. The Utah Division of Wildlife Resources gave presentations across the state over an eight-month period, initiating more than 50 dialogs with strategy partners like the Nature Conservancy, Audubon Society, Sportsmen for Fish and Wildlife and the Utah Anglers Coalition. Such collaboration has resulted in not only informed partners and stakeholders, but shared resources, agendas and projects as well.

Association of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Janet Sutter
Sensitive Species Specialist
Utah Division of Wildlife Resources
1594 W. North Temple
Salt Lake City, UT 84114
Tel: 801.538.4713
janetsutter@utah.gov
www.wildlife.utah.gov/cwcs/

Vermont Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Vermont snapshot

Landscape: Vermont's landscape is a tapestry of mountains, valleys, woods and wetlands. It is Vermont's natural landscape that enriches the lives of those who live and visit here. It is this same landscape that provides Vermonters with clean air, clean water, and habitat for thousands of species of plants and animals.

People and Wildlife: While less than 15 percent of the land base is in public ownership, 97 percent of Vermont residents surveyed in a 2001 U.S. Fish and Wildlife Service public opinion survey indicated that it is important to them that ecologically important habitats and lands in Vermont are protected. Furthermore, 95 percent indicated that knowing that Vermont's native fish and wildlife populations are healthy is very important.

American marten/USFWS

That same survey ranked Vermont first in the nation in percentage of residents that actively observed wildlife (60%). But the problems impacting wildlife have changed and increased in intensity in the past few decades. Vermont's Wildlife Action Plan was developed to harness the Vermont conservation ethic to effectively address these new problems and to engage new constituencies with a goal of proactively conserving all wildlife species.

Vermont's planning approach

Vermont's Wildlife Action Plan is a statewide, all-species conservation strategy. It provides a science-based foundation for understanding the issues involved in addressing wildlife needs, and it serves as a common conservation vision to guide local, state and federal agencies, sportsmen's and non-profit conservation organizations and the general public in wildlife conservation. Strategies identified in the plan are primarily voluntary and incentive-based.

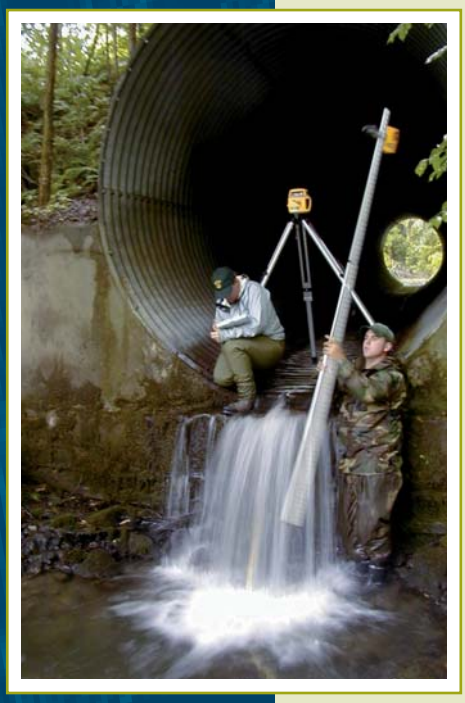
Species Assessment Reports form the base of the action plan. These are detailed reviews of 144 vertebrates (from brook trout and peregrine falcon, to bobcat and wood turtle) and 191 invertebrates (from the tawny emperor butterfly and cobblestone tiger beetle, to the fragile papershell mussel) identified as Species of Greatest Conservation Need. The action plan also describes the habitats and landscapes

"The Comprehensive Wildlife Conservation Strategy [Wildlife Action Plan] marks the start of a new era in wildlife conservation, one where we can keep common species common."
–Vermont Governor James Douglas

"We are tremendously impressed with the overall quality of Vermont's Wildlife Action Plan and the extensive partnerships employed to develop it."
–Marvin Moriarty Northeast Regional Director U.S. Fish and Wildlife Service

used by these species within Habitat/Landscape Summary Reports.

The action plan further identifies the specific problems facing both Species of Greatest Conservation Need and the habitats and landscapes upon which they depend. Conservation strategies are identified for each Species of Greatest Conservation Need, as well as for their habitats and surrounding landscapes. By addressing both species-specific and habitat/landscape needs, Vermont can target conservation resources at the appropriate level to strategically conserve all of the state's wildlife.



Culvert assessment/C. Alexander

Primary challenges to conserving wildlife in Vermont

Vermont's Wildlife Action Plan identified 22 major categories of problems adversely affecting Species of Greatest Conservation Need or their habitats. The most common, widespread and serious problems identified in the action plan include loss of habitat (due to conversion, degradation, fragmentation and lack of needed successional stages), the impacts of roads, pollution and sedimentation, invasive species, climate change, and data gaps and information needs.

Habitat Loss: Though many agencies and organizations work diligently to conserve important wildlife habitats, Vermont continues to lose approximately 525 acres of significant habitat each year to regulated development alone. Regulated development in Vermont constitutes approximately one-third of the total development that occurs on an annual basis. Significant habitats include deer winter range, wetlands with significant wildlife functions, habitat for rare, threatened and endangered species and several types of habitat necessary for the survival of black bears. These habitats represent only a few of the many habitats that are affected by loss due to development.

Impacts of Roads: In the last quarter of the 20th century, Vermont expanded its road system by an average of 26 miles per year to a total of about 14,000 miles. The number of vehicle miles traveled by Vermont residents is growing at seven times the rate of population growth. Transportation systems can cause numerous problems for wildlife, including: vehicle-wildlife collisions; reducing animal and fish passage, thus limiting habitat availability and isolating populations; vehicle emissions of pollutants such as ozone and greenhouse gases; and facilitating the spread of an exotic, invasive species into otherwise healthy areas.

Wildlife	Total number of species**	Species of Greatest Conservation Need*	Threatened/endangered listed species
Invertebrates	15,000-36,000	191	2
Fish	94	33	0
Amphibians	21	7	0
Reptiles	19	12	0
Birds	269	57	1
Mammals	23	61	3
Totals		**323**	**9**

** Each state is using its own criteria for this category. Vermont focused on species with declining populations, species threatened or potentially threatened; and, species that are so little known in the state that experts cannot yet ascertain status.*

*** Includes migratory species which may not breed in Vermont*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
• **Floodplain forests** • **Aquatic/ riparian areas** **Ownership: primarily private lands.**	41 SGCN/SGCN groups use these habitats including: cerulean warbler, wood turtle, common mudpuppy, silver-haired bat, river otter, freshwater mussels & snails, blacknose shiner, & lake sturgeon.	• Habitat conversion, inadequate disturbance regime, invasive exotic species.	• Provide technical assistance to private landowners to maintain and enhance SGCN habitat in floodplain forests and riparian areas. • Identify areas within the state with the largest matrix of floodplain forest for inclusion in a conservation opportunity area. • Work with the Agency of Transportation, towns, and private landowners to maintain (or restore) aquatic/riparian habitat connectivity and provide access to critical habitats for fish and other Species of Greatest Conservation Need.
Landscape forests **Ownership: A mix of public and private lands.**	American marten, lynx, red-shouldered hawk, northern goshawk, bobcat, black bear.	• Forest conversion, degradation and fragmentation resulting from poorly planned development.	• Identify and prioritize for conservation existing contiguous forest blocks linked together by habitat corridors in order to provide a network of interconnected habitats. Reduce pressures on landowners to subdivide and parcelize properties.
Vernal Pools **Ownership: primarily private lands.**	Whippoorwill, American woodcock, Jefferson's salamander, Fowler's toad, & vernal pool dragonflies.	• Direct loss of pools due to hydrologic manipulation, filling, draining. • Loss of associated upland habitat due to development or conversion. • Stormwater directed into pools carrying sediments and contaminants.	• Educate foresters, landowners, developers, and municipalities about the value of vernal pools and seeps and support efforts that conserves wildlife dependent on these features and the necessary surrounding habitat. • Develop and distribute forestry guidelines for the protection and management of vernal pools and seeps

Recommended actions to conserve Vermont's wildlife

Invasive Exotic Speices: The introduction and spread of nuisance exotic species may lead to the elimination of native wildlife populations, threaten long-term stability of habitats and even lead to extirpation by out-competing a native species, displacing its food source or altering a key process or function of a habitat. Invasive exotic species in Vermont include Eurasian watermilfoil, purple loosestrife, common buckthorn, Japanese knotweed, Morrow's honeysuckle, goutweed, black swallowwort, alewife and zebra mussels.

Map of Vermont's Biophysical Regions/VFWD

"The Wildlife Action Plan, a blueprint for the conservation of all of Vermont's wildlife, is the largest planning effort of its kind in Vermont's history. It was created by pooling the knowledge of the people who know Vermont's wildlife best—the representatives of more than 60 local, state and national agencies, sportsmen and conservation groups, academics, land managers and other wildlife experts."

–Wayne A. Laroche
Commissioner, Vermont Fish & Wildlife Department

Working together for Vermont's wildlife

Vermont's Wildlife Action Plan was developed over the course of two years with extensive public involvement throughout. Numerous stakeholders from local, state and federal agencies, non-governmental organizations, sportsmen groups, and the public at large were involved in every phase of development. These Conservation Partners took part in Action Plan development through service on technical, review and guidance committees. Partners helped select Species of Greatest Conservation Need (SGCN), identified problems impacting wildlife, developed conservation strategies and influenced the organization of the Action Plan. The general public was kept abreast of plan development through public meetings and presentations to stakeholder groups, media outreach and through Fish & Wildlife Department publications and a website.

"Pro-active conservation like the Wildlife Action Plan makes real sense for the bottom line. If we invest in conserving wildlife and wildlife habitat now, drastic and expensive measures won't be required later. As a science-based organization, Audubon supports the research driven process that created the plan. Personally, as a taxpayer, I like that it has cost-effective recommendations for getting the work done. And as a parent I like knowing that my children and future generations will enjoy wildlife too."

– Jim Shallow, Director of Conservation, Audubon Vermont.

South American Pond/J.Binhammer

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Jon Kart
Vermont Fish & Wildlife Department
103 South Main Street
South Waterbury, VT 05676
Tel: 802.241.3652
jon.kart@state.vt.us
www.vtfishandwildlife.com/SWG_home.cfm

Virginia Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Virginia snapshot

Geography: From the Atlantic Ocean and coastal beaches on Virginia's eastern shores to the towering Mount Rogers and the Cumberland Gap at its southwest corner, the Commonwealth includes every wildlife habitat that occurs naturally from Maine to Florida.

Landscape: Nearly 10% of Virginia is public land—one of the largest percentages of public holdings of any state along the Eastern Seaboard. These lands are managed by an array of federal, state, and local government agencies, often in cooperation with local non-profit organizations. Programs that provide technical and financial assistance for habitat conservation and restoration on private lands are vital to sustaining Virginia's rich and diverse wildlife resources.

Wildlife: Peregrine falcons soar from the beaches to the mountains, making their homes occasionally in Virginia's cities. The incredibly rich diversity of native mussels, with interesting names like elephant-ear, rabbitsfoot, and Tennessee heelsplitter, inhabit nearly 40,000 miles of rivers and streams.

Piney Grove Preserve (red-cockaded woodpecker habitat)/Dwight Dyke, VA Dept of Game and Inland Fisheries

Virginia's planning approach

Virginia's Wildlife Action Plan united its natural resource agencies and citizens through a common vision and concept for the conservation of the Commonwealth's wildlife and the habitats in which they live. It also provides a means for prioritizing actions and spending for the greatest return. The Action Plan includes 925 species of greatest conservation need, representing a broad array of wildlife, and it focuses on the habitats that support them, such as caves, high elevation forests, coastal marshes and barrier islands. Most importantly, the Action Plan identifies the tasks needed to conserve these species and habitats on a regional basis. While many of these actions are direct on-the-ground activities, priorities for enhancing partnerships and increasing public awareness are also included. The work of conserving wildlife can be challenging, but it is possible, and this Action Plan provides the needed direction.

"The planning and this report represent vital steps that will enable us to keep our common species common and to ensure that the Commonwealth's wildlife and wild places remain for future generations."
–Virginia Audubon Council Representative John Coe

"During my tenure as a member and as chairman of the Board [of Game and Inland Fisheries], I have had few opportunities to participate in projects that have involved such a wide and diverse array of citizens and constituent groups... Importantly, this initiative allowed us to reaffirm and strengthen our relationships with our long-time conservation partners. It also allowed us to meet new friends... We have all agreed that this ... will guide us together, sharing our limited resources to address the commonly-identified priority needs."

– Sherry Smith Crumley
Chairman of the Board of Game and Inland Fisheries

Primary challenges to conserving wildlife in Virginia

Habitat destruction and fragmentation dominate the list of problems facing terrestrial wildlife in the Commonwealth. For Virginia's aquatic wildlife, the Action Plan identifies certain agricultural and forestry practices that have greatly affected water and habitat quality. Pollution and habitat changes from industry and municipal development are also critical issues for aquatic species.

Many grassland wildlife species are experiencing dramatic declines in populations because of the loss of grassland and savannah habitats across the Commonwealth. These important habitats are being converted to other agricultural crops (including cool season grasses), are being lost as farms are converted for municipal uses, and are being replaced by other habitats when farmlands are abandoned and allowed to mature into forested lands.

Habitat degradation in the rivers of southwestern Virginia, resulting from certain mineral extraction and agricultural practices, and as well as from the impoundment of these rivers downstream in Tennessee, has significantly impacted this biologically diverse "hot spot" in the United States. Over one-half of the freshwater mussel species found in this watershed are now listed as threatened or endangered. These species, which are important food sources for other wildlife and which serve as filterers in these rivers, are highly dependent on good water quality.

Working together for Virginia's wildlife

The Virginia Wildlife Action Plan was developed with input from a wide array of public and private agencies and organizations. A steering committee composed of representatives of state and federal agencies, private conservation organizations, and land management

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mussels	89	63	36
Snails	?	96	7
Crayfish	?	14	0
Insects	20,000+	290	9
Fish	210	97	20
Amphibians	74	32	4
Reptiles	61	28	8
Birds	374**	96	12
Mammals	85	24	10
Other Invertebrates	?	185	5
Totals	**20,893++**	**925**	**111**

** Each state is using its own criteria for this category. Virginia focused on species that demonstrated some level of rarity or risk of imperilment (e.g., subject to habitat loss, impacted by pollution, currently at low population levels, etc.). These species were further grouped into four tiers of relative imperilment, with the top tier including those of "critical conservation need" and the fourth tier including those of "moderate conservation need." The list does include some wildlife officially listed as threatened or endangered within the Commonwealth.*

*** Includes breeding and most migratory birds.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Barrier Islands **Ownership: mix of public/private**	Piping plover (bird), American oystercatcher (bird), Northern diamond-backed terrapin	• Recreational use • Predation by introduced species	• Work with partners and local communities to provide greater outreach to beach users about the need to minimize impacts. • Remove introduced predators, particularly foxes and raccoons, on public and private lands as necessary to reduce impacts.
Upper Tennessee watershed (Clinch, Powell, and Holston Rivers) **Ownership: mix of public/private**	Birdwing pearlymussel (freshwater mussel), Wounded darter (fish), Eastern hellbender (amphibian), Clinch River crayfish (crayfish)	• Sedimentation • Channel and shoreline alteration • Organic pollutants	• Provide incentives to private landowners to restore and maintain shoreline and stream habitats. • Protect vegetated stream buffers to limit sedimentation. • Work with government agencies and industries on strategies to reduce contaminant discharges.
Grassland **Ownership: mix of public/private**	Grasshopper sparrow (bird), Upland sandpiper (bird), Eastern slender glass lizard (reptile)	• Habitat fragmentation and degradation • Exotic species	• Improve incentives to private landowners to restore and maintain large patches of grassland habitats. • Restore warm season grasses and reduce the use of cool season grasses.

Recommended actions to conserve Virginia's wildlife

Assateague Island/
Dwight Dyke, VA Department
of Game and Inland Fisheries

"I am particularly pleased with the outcome [of the Virginia Wildlife Action Plan] because it is the result of the work of hundreds of Virginians... Through this partnership, we were also able to identify a wide array of needs that we must address if we are to continue our roles as stewards of these resources... This strategy presents a challenge to each and every Virginian. We cannot follow this new course or uphold our duty to conserve the Commonwealth's biological diversity without the support of our citizens and the financial assistance of our elected officials... I hope that you will find your niche and do your part."

– W. Tayloe Murphy, Jr. (former) Virginia Secretary of Natural Resources

entities provided guidance throughout the development of the plan. Technical committees comprised of more than 50 scientific experts from around Virginia provided input into the development of the list of species of greatest conservation need, the identification of the habitats that support them, the problems these resources face, and important conservation actions needed to address these threats. Key partners from public and private interests will become part of the steering committee that is guiding the implementation of the plan; all agencies, groups and organizations interested in wildlife conservation can participate in the implementation working groups.

Tennessee River watershed mussels/
VA Department of Game and Inland Fisheries

An important component of the development of the Virginia Wildlife Action Plan was the participation of citizens from around the state. Efforts to involve Virginians included numerous presentations to groups throughout Virginia, news releases, periodic mailings, fact sheets, radio and newspaper interviews, and a dedicated project Web site. In fact, the Wildlife Action Plan project Web site was used as the primary tool for soliciting comments from the public. Twenty-two meetings were held across the Commonwealth, attended by nearly 200 individuals representing over 100 agencies and organizations and themselves. At these meetings, participants were asked to identify what, in their opinions, was working well in Virginia in wildlife conservation and what needed improvement in this area. They were also asked to identify and rank the top issues facing wildlife and habitats in their communities now and in the next decade, along with local solutions to address those problems.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW, Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com
www.fishwildlife.org

State Contact

Rebecca Gwynn, Assistant Director,
Wildlife Diversity Division
Virginia Department of Game and Inland Fisheries
4010 W. Broad Street
Richmond, VA 23230
Tel: 804.367.8351
Becky.Gwynn@dgif.virginia.gov
www.dgif.virignia.gov or
www.vawildlifestrategies.org

Washington Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Washington snapshot

Geography: Washington's diverse topography, exposure to Pacific Ocean currents and weather patterns, and location on the migratory path of many wildlife species make it one of the most biologically diverse states in the nation, encompassing seacoast, shrub-steppe, native prairie, parts of four major forested mountain ranges, and Puget Sound.

Landscape: Washington contains two ecosystems found nowhere else in the world: the Olympic rainforest and the channeled scablands of eastern Washington. These ecosystems and the biological diversity they support range across a landscape that extends from the Pacific Northwest Coast and Puget Sound in the west to the Columbia Plateau and Northern Rocky Mountains in the east.

Wildlife: Washington is home to a large variety of fish and wildlife species—a natural heritage important to the long-term health and economic security of every resident of the state. However, changes to the landscape and native habitat, primarily as a result of human activity, have put many of these species at risk. There is a great need to be proactive, to protect what the state already has, and to keep common species common before they become endangered or at risk.

Puget blue butterfly/Kelly McAllister, WDFW

Washington's planning approach

Although the Washington Department of Fish and Wildlife (WDFW) is driven by planning at many different levels, from multi-agency salmon recovery plans to individual Wildlife Area plans, creation of the State Wildlife Grants program and the CWCS requirement provided an opportunity for WDFW to undertake an agency-wide effort to reassess wildlife conservation priorities and set a new direction for the future. Specifically, the CWCS process provided the impetus for a thorough reevaluation of priorities for species and habitat conservation, a transition from statewide to ecoregional conservation, acceleration of the evolution from species management (fine filter) to a more ecosystems-based management approach (coarse filter), and expanding the emphasis on biodiversity conservation, at the statewide and ecoregional scales.

"The Washington Wildlife Action Plan will help conserve wildlife and vital natural areas before they become too rare and costly to protect. As our communities grow, the wildlife action plan will give us the ability to fulfill our responsibility to conserve wildlife and the lands and waters where they live for future generations."
– Washington Governor Christine M. Gregoire

Operation Dark Goose/WDFW

"The CWCS creates a compelling vision for wildlife conservation and represents a key resource for conservation planning in Washington state."
– John Floberg, Manager of Ecoregional Planning, The Nature Conservancy

In times of diminishing habitat and declining revenues for conservation, it has been important for WDFW to initiate a new round of strategic planning and to begin to establish new ground rules for how the state and its conservation partners prioritize species, habitats and conservation actions, as well as for where the state directs future funding and human resources to address these priorities.

Primary challenges to conserving wildlife in Washington

The following major influences have the greatest impact on Washington's fish, wildlife and habitat base:

- Habitat loss through conversion, fragmentation and degradation
- Invasive alien plant and animal species
- Water quantity—allocation and diversion of surface water
- Water quality issues
- Salmon recovery
- Forest conservation and management practices
- Agricultural and livestock grazing practices
- Disease and pathogens
- Inadequate data on wildlife species, populations, and habitat

Habitat loss through conversion, fragmentation and degradation: Habitat conversion, fragmentation and degradation together pose the most serious statewide threat to Washington's native fish and wildlife resources. Since statehood in 1889, these combined problems have cost the state more than half of its highest priority functioning habitats, including an estimated 70 percent of estuarine wetlands, 50 to 90 percent of riparian habitat, 90 percent of old growth forest, 70 percent of arid grasslands, and more than 50 percent of shrub-steppe.

Wildlife	Total number of species	Species in need of conservation*	Threatened/endangered listed species
Mammals	140	33	17
Birds	341	58	12
Herptiles	150		
Reptiles		8	4
Amphibians		11	2
Fish	470	41	0
Invertebrates	>20,000		
Snails		4	0
Mussels		6	0
Insects		26	2
Arthropods		6	0
Totals		**201**	**37**

** Many of the wildlife species on Washington's SGCN list ranked high because of biological concerns such as threat and vulnerability. Some were targeted for the list because it was determined that their recovery or conservation efforts were not adequately funded. Others were included because their life histories and habitat relationships are not well understood and need more research, surveys and/or management dollars directed to them. Only native animal species were considered in developing this list; however, no major groups of wildlife (taxa) were excluded from consideration.*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Shrub-steppe *Ownership:* Mix of private/public	Burrowing owl, Ferruginous hawk, Sage grouse, Washington ground squirrel, Pygmy rabbit, Merriam's shrew, Sagebrush lizard	• Conversion to agriculture and grazing • Alteration of fire regimes	• Work with public and private landowners to reestablish and restore native shrub-steppe and grassland plant communities to support species at risk and increase species richness. • Work with public agencies and private landowners to reduce the potential destructive impact of wildfires on native habitats by incorporating measures such as fire breaks and prescribed burning into wildlife and land management plans.
Marine and nearshore	Killer whale, Pacific harbor porpoise, Brant Common loon, Western grebe, Surf scoter, Marbled murrelet, Pacific herring, Pacific sand lance, Yelloweye rockfish	• Shoreline habitat loss • Environmental contamination	• Implement the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) to plan and undertake large-scale restoration initiatives. Coordinate PSNERP with other restoration efforts, including the Puget Sound and Adjacent Waters Program, the Northwest Straits Commission, salmon habitat restoration through the Salmon Recovery Funding Board, and other efforts. • Work with governmental and nonprofit agencies to develop an ecoregion-wide strategy for identified toxins and other pollutants: their sources, destinations and effects, and ways to reduce their discharge.
Westside grasslands (prairies) *Ownership:* Mix of private/public	Western gray squirrel, Mazama pocket gopher, Western bluebird, Slender-billed white-breasted nuthatch, Puget Sound fritillary butterfly, Propertius' duskywing butterfly	• Habitat loss and fragmentation • Invasive species	• Protect existing habitat, remove invading trees and shrubs, and restore function to prairies, balds, and heaths through management plans, conservation agreements, easements, or acquisition. • Provide funding, incentives and technical assistance to private landowners to eliminate undesirable invasive plant species and to restore native plants that provide important habitat for native fish and wildlife. Use integrated pest management practices to control currently established invasive species with help from volunteers.
Ponderosa pine forest *Ownership:* Mix of private/public	Flammulated owl, Northern goshawk, Great gray owl, Pygmy nuthatch, White-headed woodpecker, Western gray squirrel	• Forest practices • Alteration of fire regimes	• Work with the Washington Department of Natural Resources and the Washington Forest Practices Board to develop, implement and enforce forest practices regulations to enhance biological diversity on existing state and private managed and protected areas. • Coordinate with public land managers on the use of controlled fire regimens and stand management practices. Attempt to simulate natural disturbance regime and restore proper ecological function. Consider impacts to local wildlife in each burn plan, including timing, size and location of the burn.

Recommended actions to conserve Washington's wildlife

Killer whale/NOAA

"Washington's Wildlife Action Plan, as well as those of the other states and territories, presents a new comprehensive vision that will change the face of wildlife conservation in North America. We are exploring new frontiers, biologically, socially and economically. In Washington, this is more than the ethic of conserving our state's biodiversity—lasting solutions to complicated natural resource issues require collaborative processes with our many conservation partners."

– Dr. Jeffrey P. Koenings, Director, Washington Department of Fish and Wildlife

Invasive alien plant and animal species: Invasive species constitute a severe and growing threat to Washington's native wildlife, habitat and biodiversity; second only, many believe, to habitat fragmentation. Everywhere in the state, aggressive non-native plants and animals are displacing native species, profoundly altering natural systems and affecting the state's economy and human health.

Working together for Washington's wildlife

The Washington Department of Fish and Wildlife met with existing WDFW advisory councils, an appointed CWCS Advisory Committee, federal and state agencies, Washington Indian tribes, the Governor's Office, key legislators and the Washington State Association of Counties on many occasions. WDFW met with a wide range of agencies and organizations in the initial outreach phase, but the main outreach focus was on public and private agencies and organizations with special responsibilities for fish and wildlife conservation. Special outreach efforts were directed toward conservation partners such as The Nature Conservancy, Audubon Washington and Defenders of Wildlife, as well as private timber and agriculture groups, which are regulated and have a direct influence on Washington's rural landscape. A CWCS Advisory Committee was appointed by the Director of Fish and Wildlife and met periodically throughout the development of the CWCS. The committee included professionals experienced in their respective industries and fields. They provided honest, constructive feedback and served as a valuable sounding board for development of the CWCS.

WDFW sent out a statewide press release announcing that the draft CWCS would be posted on WDFW's website and a series of six public meetings would be held around the state. These public meetings were successful in giving interested stakeholders an opportunity to review and ask questions about the draft CWCS. The public was also asked to provide comments on the draft CWCS via our Washington CWCS website. Follow-up meetings were scheduled with major conservation partners, including the Washington Department of Natural Resources, U.S. Fish and Wildlife Service, the USDA Forest Service, and Indian Tribes with significant land holdings.

A number of outreach tools were developed by WDFW prior to publicizing the CWCS process. These include the CWCS website at www.wdfw.wa.gov/wlm/cwcs, a variety CWCS PowerPoint slideshows tailored to fit different audiences, and two color brochures: one describes the Washington CWCS, and the other illustrates the interactive relationships between the CWCS and other planning efforts at different scales.

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St. NW
Suite 725
Washington, DC 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Rocky Beach
Wildlife Diversity Division Manager
Washington Department of Fish & Wildlife
600 Capitol Way North
Olympia, WA 98501-1091
Tel: 360.902.2510
beachrjb@dfw.wa.gov
www.wdfw.wa.gov/wlm/cwcs

West Virginia Wildlife Conservation Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

West Virginia snapshot

Geography: West Virginia, with a mean elevation of 1500 feet, is the most elevated state east of the Mississippi River. Because of the wide variation in elevation, latitude and longitude, West Virginia is considered a "transition state," having attributes of the northern and southern states, and to some extent, eastern and western states. With a population of only about 1.8 million, it is also one of the most rural states in the East.

Landscape: Approximately 12 percent of land in West Virginia is public land, with the remaining 88 percent in private holdings. Thus, West Virginia faces the challenge of working with private landowners to conserve species in greatest need of conservation.

Sphagnum Bog in a High Elevation Wetland/ Elizabeth Byers, WVDNR

Wildlife: With its wealth of contiguous quality forested habitats, West Virginia is crucial to sustaining viable populations, as well as providing source populations, for many of the declining neotropical migratory bird species. The state's pristine mountain streams harbor a broad array of fish, mussels, dragonflies and damselflies, and other aquatic invertebrates.

Golden-winged Warbler/Peter and B.B. Wood

West Virginia's planning approach

Recognizing that in many cases vital conservation information on the natural history, abundance and distribution of those species defined as in greatest need of conservation is incomplete, the West Virginia Wildlife Conservation Action Plan charts a course for science-driven, active conservation of fish and wildlife resources over the next decade. Key features of the plan are its emphasis on

"The plan is really a roadmap for habitat conservation in West Virginia. That's a goal shared by hunters, anglers, birdwatchers, nature photographers and everyone else who enjoys the outdoors."

– Frank Jezioro, Director West Virginia Division of Natural Resources

conservation actions, including a habitat conservation initiative, and the collaborative approach to plan implementation. The plan is both species- and habitat-based, its core component being the 128 species and species group fact sheets that will function as mini-plans within the broader comprehensive plan. Although the plan covers a ten-year span, it is actually only the first step in a continuous, adaptive management process for collaborative conservation of the state's fish and wildlife resources and the habitats that sustain them.

Allegheny Woodrat /Jeff Hajenga, WVDNR

Primary challenges to conserving wildlife in West Virginia

The West Virginia Wildlife Conservation Action Plan identifies eight major conservation issues, although 12 others were identified in the planning process and identified in the individual fact sheets. The three major regional conservation issues include mining, commercial and residential development and atmospheric acid deposition. The remaining five major conservation issues occur statewide and include stream sedimentation, forest health, invasive species, water pollution and in-stream, wetland and riparian habitat loss.

Wildlife	Total number of species	Species of conservation concern*	Threatened/ endangered**
Birds	234	74	1
Mammals	72	26	3
Amphibians	49	19	1
Reptiles	39	20	0
Fish	180	73	0
Mussels	69	43	6
Crayfish	21	9	0
Snails (land)	130	10	1
Cave invertebrates	190	87	1
Butterflies	128	31	0
Tiger beetles	12	12	0
Stoneflies***	12	12	0
Odonates****	146	72	0
Moths*****	92	17	0
Spiders******	401	18	0
Totals		**524**	**13**

Each state is using its own criteria for this category. The West Virginia focus is on species that exhibit a lack of specific or quantifiable data, small or declining populations, are found in habitats facing imminent threats, or on the federal threatened and endangered species list.

***West Virginia has no state designated threatened or endangered species. Species listed in this column appear on the Federal Threatened and Endangered Species List.*

**** Species listed here are those that appear only on the West Virginia Natural Heritage List of Tracked Species. It is estimated that there are 135 species in the state.*

*****Odonates are dragonflies and damselflies.*

******The species listed here represent only those species in the WVDNR database.*

*******The species listed here represent only vouchered specimens; it is estimated that there are about 650 species in the state*

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Red Spruce **Mix of public/ private ownership**	Northern Flying Squirrel, Cheat Mountain Salamander	• Spruce conversion, loss to development and forest fragmentation	• Work with the Monongahela National Forest to develop and carry out a red spruce management plan • Conserve additional habitat through easement purchases or donations
Caves **Mix of public/ private ownership**	Several rare bat species, many globally rare cave invertebrates	• Loss to development and sedimentation	• Cave gates • Monitoring • Easements • Management of surface areas for recharge of cave streams
Streams **Mix of public/ private riparian ownership**	Candy Darter, Crystal Darter, Elk River Crayfish	• Mine drainage, atmospheric acid deposition, sedimentation, and losses of riparian buffers	• Stream liming • Catalogue potential habitat conservation projects for implementation with a variety of partnerships

Recommended actions to conserve West Virginia's wildlife

Working together for West Virginia's wildlife

Over a period of two years the West Virginia Division of Natural Resources held several meetings with 31 experts to review the lists of candidate species in order to select the state's species in greatest need of conservation, as well as to analyze threats to the species and to recommend conservation actions. The Division offered the draft plan for review to 57 cooperators, including the West Virginia Wildlife Diversity Council, Partners in Flight, Cooperative Fish and Wildlife Research Unit, Oglebay Institute, Nature Conservancy, New River Gorge National Park, Entomological Society and Trout Unlimited. In addition, plan partner meetings were held to provide an opportunity for face-to-face input. The West Virginia Conservation Action Plan was also available

Building a Cave Gate at Hoffman-Schoolhouse Cave/Craig Stihler, WVDNR

Hoffman-Schoolhouse Cave—Winter Roost of the Federally Endangered Virginia Big-eared Bat /Craig Stihler, WVDNR

"The work that we do and much of the work that the Division of Natural Resources undertakes have similar goals—the protection of plants, animals and natural communities through the protection of their habitats. . .The West Virginia Wildlife Conservation Action Plan is a further step that strengthens this commitment to conservation and gives direction for successful conservation action and implementation."
–Thomas Minney, Conservation Programs Manager, The Nature Conservancy in West Virginia

for public review on the West Virginia Division of Natural Resources website. At the National Hunting and Fish Days Celebration held at Stonewall Jackson Lake State Park, the plan was presented at a Division-sponsored booth, which was visited by over 300 interested individuals. Finally, every two years the West Virginia Division of Natural Resources will host a public symposium to share information on the species and habitats listed in the plan, reassess the species in greatest need of conservation, set priorities for the next two years and revise the plan. In that way the Conservation Action Plan will remain a dynamic and useful document to conserve wildlife and their habitats for the future.

High Elevation Wetland—Otter Creek, Monongahela National Forest/Elizabeth Byers, WVDNR

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

W. Steve Brown, Wildlife Conservation Action Plan Coordinator
West Virginia Division of Natural Resources
Wildlife Resources Section
P. O. Box 67
Elkins , WV 26241-0067
Tel: 304.637.0245
stevebrown@wvdnr.gov
www.wvdnr.gov

Wisconsin Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Wisconsin snapshot

Geography: Wisconsin is bordered on the east and north by Lakes Michigan and Superior, on the west by the St. Croix and Mississippi rivers, and on the south by a sea of rolling prairie. Moreover, the state sits at the confluence of three great ecoregions--northern boreal forests, eastern deciduous forests and tallgrass prairies to the south and west.

Landscape: The major issues faced by federal, state, county, municipal, tribal and private land managers are habitat loss and fragmentation, the introduction of non-native plants and animals, and land use practices that reduce natural variety on the landscape. Land managers at all levels work together and with land trusts and other conservation organizations to protect, manage, and enhance the state's natural resources.

Wildlife: There are 556 wildlife species native to Wisconsin, the majority (51%) of them birds. Among other species, Wisconsin is home to lake sturgeon, bobolinks, wood turtles, American martens, Karner blue butterflies and 51 species of mussels.

SGCN - Eastern Box Turtle, Terrapene ornata/WDNR

Wisconsin's planning approach

From the beginning, the Wisconsin Department of Natural Resources' guiding philosophy was to create a Strategy for Wisconsin that complements other existing conservation plans and encourages the involvement of all agencies, organizations, and private individuals. Technical consultants, species experts and other individuals from within and outside of the Department worked together in interactive teams to develop Wisconsin's Strategy. This approach optimized the efficiency of the process and made the best possible use of the strengths possessed by each participant. Stakeholders endeavored to make the Strategy dynamic, able to adapt both to changing conditions over time and to feedback gained after it is implemented. The Strategy was developed from a landscape-scale perspective rather than a single- or even multi-species

"Wisconsin's Strategy takes a thorough look at the animal species that are part of Wisconsin's natural heritage, identifies those that most need our attention, and provides a roadmap of conservation actions that we can take to ensure that Wisconsin's natural capital is preserved. This Strategy and its road map are the next steps in an important journey to preserve Wisconsin's biological diversity."

–Wisconsin Governor Jim Doyle

approach. The organization of the final document and the Conservation Actions both reflect this broad view.

Bobolink, Dolichonyx oryzivorus/WDNR

Primary challenges to conserving wildlife in Wisconsin

Threats to invertebrates revolve around a general lack of knowledge about the basic biology of species, which leads other issues, including extensive public misunderstanding about what invertebrates are and the role they play in the environment, and the lack of readily available references to aid in species identification.

Three issues were common to all four of the vertebrate groups: habitat loss, invasive species, and pollution. Habitat loss includes habitat conversion (e.g., to row crops, tree plantations, shoreline modification), habitat degradation (e.g., runoff and sedimentation from housing developments entering streams), and habitat fragmentation (e.g., bisecting large blocks of forest with roads). Invasive species include both plants and animals that tend to dominate landscapes to the exclusion of all others (e.g., purple loosestrife, buckthorn, Asian carp), as well as, in the case of non-native animals, those that prey on or parasitize native species (e.g., feral cats). Pollution threatens wildlife directly through the sedimentation of spawning beds or the bioaccumulation of toxins in fish and birds, and indirectly by affecting

Piping Plover nest exclosure, Chequamegon Point, Lake Superior/WDNR

"The approach taken by the Department was thorough and comprehensive, and the involvement of an external team strengthened the effort tremendously. Having this robust Plan in place positions Wisconsin well for the future to address wildlife species conservation needs."

– Noel Cutright
Senior Scientist
WE Energies

Wildlife	Total number of species	Species of conservation need*	Threatened/ endangered**
VERTEBRATES	556	152	49
Birds	284	84	24
Fish	147	30	13
Mammals	69	14	2
Reptiles and Amphibians	56	24	10
INVERTEBRATES	Unknown	530	42
Insects	20,000-40,000	450	20
Non-insect Arthropods	16,000-25,000	22	22
Non-arthropod Invertebrates	297	58	n/a

• Two methods of identifying SGCN were used, one for vertebrates and another for invertebrates. General guidelines for both methods were to evaluate all native species using existing data; include species for which good data currently exist and document the rationale used to select those species; use objective, straightforward and scientifically defensible methods that could be easily peer reviewed and readily replicated in future Strategy updates; and consider habitat at a broad scale in order to benefit multiple species.

• Our criteria for selecting SGCN included relative abundance, population trends, and threats to successful breeding of the species both within Wisconsin and across the species' entire range, along with the geographic extent of the species' breeding distribution. From these criteria we developed a numerical ranking system, and the top ranked species were included as SGCN.

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Northern Mesic Forest **Ownership: Private-industrial; Federal, state, tribal, and county government; some private-non-industrial.**	• Northern goshawk • Wood turtle • American marten	• Large contiguous forest patches and old forests are under-represented. Conifers (eastern hemlock, eastern white pine, and minor components of white spruce, balsam fir, and northern white cedar) are especially under-represented in the forest canopy. • Simplification of the species composition of the forest is taking place, with sugar maple increasing at the expense of other tree species.	• Maintain large forest blocks and increase connectivity between blocks where possible. Work toward a balanced mosaic of age-classes of trees. • Encourage regeneration or reestablishment of eastern hemlock, other conifers, yellow birch, and Canada yew where appropriate.
Oak Barrens **Ownership: Largely private, but extensive state and county lands.**	• Sharp-tailed grouse • Prairie racerunner • Franklin's ground Squirrel	• Lack of fire allows conversion of barrens to forest, while too much burning may result in lower species diversity and the elimination of some species. • Invasive plants such as spotted knapweed and exotic spurges are an existing serious threat.	• Encourage the use of prescribed fires along with mechanical brush removal and compatible forestry practices to maintain oak barrens. Develop educational tools and demonstration areas that promote the benefits of prescribed fire and address the public's concerns about liability issues with prescribed fire. Follow existing WDNR guidance to minimize potential negative impacts on rare species. • Continue and support research to find biological control agents for invasive plants. Control the spread of new invasive plants, and attempt to identify and eliminate infestations when they are small.
Warmwater Rivers **Ownership: All waters are public property of the state, but ownership along the shore-lines spans the entire spectrum of public and private. There is Federal management of some river-ways.**	• Canvasback • Lake sturgeon • Mudpuppy	• Non-point source pollution resulting from urban and agricultural runoff in the watershed. • Dams have eliminated riverine habitat, blocked migration routes, fragmented populations, and created polluted sediments at levels that are sometimes harmful to fish and other aquatic species.	• Improve watershed land-use practices to reduce non-point source pollution. • Remove dams (as has been done along the Baraboo River (Sauk County), the lower Milwaukee River (Milwaukee County) and other waterways) or install effective fish passage at dams to partially mitigate dam impacts.

Recommended actions to conserve Wisconsin's wildlife

Prescribed burn/TNC

"With many of Wisconsin's natural resources under private ownership, the state needs partners to carry out its mandate. Development of this Strategy by itself reflects the ability of the Department to build these partnerships, and the interest of many organizations and individuals to work on this project."

– Peter T. Murray
Executive Director
Wisconsin Association of Lakes

the invertebrate prey of fish and mammals or increasing the vulnerability of affected species to diseases and predation.

Working together for Wisconsin's wildlife

Public outreach began with the creation of a mailing list that eventually grew to include 600 people and organizations. Using this list, individuals, organizations, and agency staff from across Wisconsin were invited to participate in developing the plan. They were given background information about the need for the plan, as well as a description of the planning process, the required elements of the plan, and the State Wildlife Grant program. An 'Advisory Team' was formed to oversee the entire planning process.

This team included representatives from the Wisconsin Department of Transportation, the Wisconsin Association of Lakes, the Great Lakes Indian Fish and Wildlife Commission, WE Energies, the U.S. Forest Service, the Ruffed Grouse Society, Trout Unlimited, and the Milwaukee Public Museum. Updates, announcements, and information were posted on a website, issued through press releases, and direct-mailed to many interested individuals and groups. Six public meetings held around the state in January provided a forum for presenting Wisconsin's Species of Greatest Conservation Need, laying out the timeline for completing the plan, and soliciting input on threats and recommended conservation actions for species and their habitats from more than 340 attendees. The draft Plan was reviewed by the public during June and July of 2005.

Oak Barrens Habitat, Juneau Co./Armund Bartz

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Signe Holtz, Bureau Director
Wisconsin Department of Natural Resources
Bureau of Endangered Resources
P.O. Box 7921
Madison, WI 53707
Tel: 606.264.9210
signe.holtz@dnr.state.wi.us
http://dnr.wi.gov/org/land/er/cwcp/Strategy_cwcp/strategy.htm

Wyoming Wildlife Action Plan

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Wyoming snapshot

Geography: Wyoming lies at the intersection of seven major eco-regions and at the headwaters of three major river systems. The diversity and abundance of wildlife habitats in Wyoming is unparalleled in the interior West.

Landscape: Wyoming is a mosaic of public and private lands, with the eastern third of the state primarily in private ownership, the western third being primarily in federal ownership and the central third being a mixture of private and public lands. Efforts to manage wildlife and wildlife habitat must take into account the complex needs and desires of a host of stakeholders.

Wildlife highlights: From grizzly bears in the Absarokas to tiger salamanders in the city park, from swift fox to sturgeon, over 800 species of wildlife call Wyoming home.

Lynx/WGFD

Wyoming's planning approach

Wyoming's Wildlife Action Plan provides a long-range plan to conserve the state's wildlife and their habitats. The plan identifies 279 species of greatest conservation need (SGCN) in Wyoming, along with key habitats for these species. Of these species, 44 have been included because of specific known conservation needs. The remaining 235 have been included primarily due to a lack of key data necessary to assess their conservation status. The plan identifies both the threats or challenges to the species of greatest conservation need and the proposed actions to conserve them and their associated habitats. The plan also identifies monitoring measures. This strategy will guide conservation decisions in Wyoming through 2010. A broad range of stakeholders reviewed the plan and their comments were incorporated. Extensive outreach efforts were designed

"Wyoming is home to more than 800 species of wildlife. This wildlife and the habitats they depend upon are a priceless legacy for future generations. Our Comprehensive Wildlife Conservation Strategy will serve as the basis for our efforts to ensure their viability for generations to come."

–Wyoming Governor Dave Freudenthal

to inform the public of its development and to encourage their participation in the process.

Primary challenges to conserving wildlife in Wyoming

By far the most significant challenge facing species of greatest conservation need in Wyoming is absence of data. This problem affects 235 of 279 species of greatest conservation need. For those species that have documented threats in addition to absence of data, habitat-related issues are important. For example, 100 species (36 percent of the species of greatest conservation need) either are or may be experiencing problems with habitat degradation. It is a particularly important threat for mammals, birds and fishes. Habitat fragmentation is also important; 57 species (21 percent of the species of greatest conservation need) either are or may be experiencing problems. It is particularly significant for fishes and birds. Other significant threats for some species include human disturbance for mammals and birds, inter-specific competition for fishes and habitat loss for birds.

Toad/WGFD

Challenges to key habitats for species of greatest conservation need vary by eco-region within the state and by ecological system (habitat type) within eco-region, but clearly resource extraction, rural residential development and a host of challenges to riparian and aquatic habitats will be important in Wyoming over the next five years.

Working together for Wyoming's wildlife

Extensive outreach efforts on the action plan began in January 2005, with radio and TV features briefly explaining the

"No responsible person wants to see another species in Wyoming listed under the federal Endangered Species Act. A listing is a last-ditch effort to conserve wildlife. Our Comprehensive Wildlife Conservation Strategy (Wildlife Action Plan) is a first-ditch effort, designed to eliminate the need to list species in the future."

–Director Terry Cleveland, Wyoming Game & Fish Department

Cutthroat/WGFD

Ferret/WGFD

need for the action plan and introducing viewers/listeners to Wyoming's species of greatest conservation need. In February, the list of species of greatest conservation need and species accounts were posted on the Wyoming Game and Fish Department website. Media coverage continued from January through May. In May, additional news coverage featured a specific species of greatest conservation need, and advised stakeholders of upcoming meetings. In May 2005, the Draft #2 of the plan was posted on the Wyoming Game and Fish Department website. Visitors to the website were advised of opportunities for comment on the plan. Partners and major stakeholders were contacted prior to the public meetings to encourage them to share information on these meetings in their newsletters, websites, etc. Seven public meetings were held in May 2005. Comments on Draft #2 of the plan were solicited. A total of 20 written responses were received on the draft Wildlife Action Plan. Changes to the text were made based on these comments. Partners and stakeholders were invited to review the final draft and to meet to express any final concerns and provide any additional input prior to the presentation of the plan before the Wyoming Game and Fish Commission. The Wyoming Wildlife Action Plan was approved at the July 12, 2005 meeting of the Wyoming Game and Fish Commission.

"The development of Wyoming's Wildlife Action Plan involved over 40 partners and major stakeholders to craft a blueprint for conserving 279 species of greatest conservation need and their habitats. This is the blueprint for the future of wildlife conservation in Wyoming."
–David Gowdey,
Executive Director
Wyoming Wildlife Federation

	Distribution	Habitat	Biological	Population
Mammals	47	50	1	50
Birds	14	19	-	43
Reptiles	26	26	26	26
Amphibians	10	10	8	6
Fishes	32	25	16	32
Crustaceans	19	19	16	19
Mollusks	64	59	-	68

Number of Species Requiring Baseline Information by Information Type and Taxa

Examples of Recommended Actions to Conserve Wyoming's Wildlife

The most important conservation action under this plan will be data collection. For nearly 85 percent of Wyoming's species of geatest conservation need, a lack of information has been identified as a principal problem. Little, if any, research exists to confirm their abundance and distribution within Wyoming's borders. A review of the species accounts for each of these species of greatest conservation need indicates information needs can be divided into four distinct categories, shown in the table on the previous page.

Trumpeter Swan/WGFD

Assn. of Fish & Wildlife Agencies

David Chadwick
Wildlife Diversity Associate
444 North Capitol St., NW
Suite 725
Washington D.C., 20001
Tel: 202.624.7890
chadwick@fishwildlife.org
www.teaming.com • www.fishwildlife.org

State Contact

Walt Gasson, Special Assistant
Office of the Director
Wyoming Game & Fish Department
5400 Bishop Blvd.
Cheyenne, WY 82006
Tel: 307.777.4637
Walt.Gasson@wgf.state.wy.us
http://gf.state.wy.us/

Watching wildlife in Oklahoma/ODWC

ASSOCIATION *of*
FISH & WILDLIFE
AGENCIES

444 No. Capitol St. NW, Suite 725

Washington, DC 20001

Tel: 202.624.7890

www.teaming.com

www.fishwildlife.org

TEAMING WITH WILDLIFE
a natural investment

TEXAS PARKS & WILDLIFE

DEPARTMENT OF ENVIRONMENTAL CONSERVATION · NEW YORK STATE ·

SPORT FISH & WILDLIFE RESTORATION

Printed on recycled paper with vegetable based inks.