

# The State and Tribal Wildlife Grant Programs

20 Years of Conservation Success

September 2020



A report published jointly by the U.S. Fish and Wildlife Service and the Association of Fish and Wildlife Agencies, with support from the National Wildlife Federation, The Wildlife Society, and the American Fisheries Society.



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**Front Cover Photo:** Regal Fritillary Nectaring on Echinacea at Stone State Park, Sioux City, Iowa. Photo: Jessica Flieger.

**Report Organization:** This report features project highlights from conservation agencies of all 56 states, commonwealths, and territories of the United States and from conservation agencies of selected federally-recognized tribes. States and tribes are organized in this report based on geographic location of these agencies and their alignment within boundaries of the Northeast, Southeast, Midwest, and Western Associations of Fish and Wildlife Agencies.



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## FOREWORDS

# AFWA/Service Foreword

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Twenty years ago, recognizing the need for additional proactive conservation for our Nation's fish and wildlife, Congress created the State and Tribal Wildlife Grant Programs. These programs re-shaped how state and tribal fish and wildlife agencies manage the tens of thousands of species entrusted in their care. This report highlights some of the successes of the programs over the last two decades. Much like how these programs brought change, the COVID-19 pandemic of 2020 that swept across our country and globe this year has left an indelible mark. During this time, millions of people have poured into natural areas to reconnect with nature, find solace, and responsibly recreate. The work funded through the State and Tribal Wildlife Grant Programs has never been more important or urgent.

The State Wildlife Grant Program was created in 2000 and the Tribal Wildlife Grant Program in 2001. These programs launched new partnerships—between the U.S. Fish and Wildlife Service (Service) and the states, commonwealths, territories, and tribes—to undertake monumental conservation challenges. Since then, these partnerships have focused on implementing conservation actions aimed at preventing new federal listings of threatened and endangered species, recovering those species already listed, and ensuring that tribal communities are able to maintain traditional subsistence-based lifestyles reliant on healthy populations of fish and wildlife.

During the initial years of the programs, fish and wildlife agencies and their private and public partners embarked on an unprecedented effort to develop Wildlife Action Plans for every state, territory, commonwealth, and the District of Columbia. When completed, the plans identified over 12,000 rare, declining, and imperiled fish and wildlife and the conservation actions needed for their recovery. Development of these plans was historic, providing the first nationwide blueprint for conserving fish and wildlife. Service staff were there every step of the way to support this daunting undertaking.

As you will see in this report, these programs have leveraged millions of dollars in state and private resources to implement the Wildlife Action Plans. The State and Tribal Wildlife Grant Programs give fish and wildlife agencies flexibility in the approaches they use. In rural states like South Dakota, personal connections with ranchers and farmers who manage most of the state's land are key to successful conservation. Tribal communities have the flexibility to focus program resources on any species of traditional value, including federally listed species. Nationwide, the programs support survey and monitoring that provides crucial data to the Service to make species listing determinations, or in many cases to provide scientific evidence that federal listing is not warranted. The programs fund the full suite of conservation activi-

ties including habitat restoration and management, land protection, research, and species reintroduction. Although the programs have achieved many successes on public lands, they also support voluntary conservation on private lands where most at-risk fish and wildlife are found.

It has become abundantly clear this year, that as much as fish and wildlife need us, we need healthy and sustainable fish and wildlife even more. We hope you enjoy this report and can get outside to witness the diversity of birds, mammals, fish, frogs, turtles, and insects that these programs and wildlife professionals are working hard to conserve.



*Kelly Hepler*  
*President of AFWA*  
*Secretary of South Dakota Department*  
*Game, Fish and Parks*



*Aurelia Skipwith*  
*Director, U.S. Fish & Wildlife Service*

# **Native American Program Foreword**

Since its inception nearly 20 years ago, the competitive Tribal Wildlife Grants (TWG) Program has awarded more than \$94 million to federally recognized Native American Tribes throughout the United States, providing support for approximately 506 conservation projects in Indian Country. These grants benefit a wide range of fish, wildlife, and habitats, including species of Native American cultural or traditional importance and species that are not hunted or fished.

By reducing threats to these species, the TWG Program directly benefits many Tribes, whose members depend on these species for subsistence, cultural uses, and their livelihoods. Tribes use certain species as traditional food sources, and species of cultural importance are a necessary component of tribal sovereignty.

Using a multi-partner approach that often involves inter-tribal organizations, state and federal agencies, and volunteers, Tribes often use TWG Program funds as “seed” money to launch key programs, facilities, and partnerships that continue to deliver results. TWG Program funds also are used to develop the capacity of tribal natural resources agencies to address species conservation.

The TWG Program has helped Tribes achieve numerous conservation successes in Indian Country. For example, in 2004, the Iowa Tribe of Oklahoma received TWG Program funds to establish an eagle aviary to nurse sick or injured eagles back to health for eventual release back to the wild and to provide a lifelong sanctuary for eagles whose wounds prevent them from returning to the wild. The eagles benefit as does the Tribe, whose members will be able to use the birds’ molted feathers for ceremonial purposes.

In Minnesota, the Red Lake Band of Chippewa Indians used TWG Program funds to inventory, monitor, and understand movement patterns, habitat use, and factors affecting gray wolves to help responsibly manage the species on Red Lake lands. This project is producing a better understanding of gray wolf territorial boundaries, habitat use and requirements, movement patterns, and mortality factors on Tribal lands.

In Alaska, the Chickaloon Native Village received TWG Program funds to restore and enhance fish passage and in-stream salmon habitat diversity and to restore salmon populations within the Matanuska River watershed due to adverse anthropogenic activities within the watershed.

I am proud of all that the TWG Program has accomplished and know the Tribes' use of these funds will paint a bright future for the nation's wildlife, natural resources, and all Americans.



*Scott Aikin*

*National Native American Programs Coordinator,  
U.S. Fish and Wildlife Service*



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# The State and Tribal Wildlife Grant Programs Turn 20

The dawn of the new decade marks the 20<sup>th</sup> anniversary of two important milestones for fish and wildlife conservation. Congress created the State Wildlife Grant Program in 2000 and the Tribal Wildlife Grant Program in 2001 to provide critical funding to state, territorial, commonwealth, District of Columbia (D.C.), and tribal fish and wildlife agencies to conserve at-risk fish and wildlife. These programs, administered by the U.S. Fish and Wildlife Service's Wildlife and Sport Fish Restoration Program, filled a significant void in conservation funding and opened the door to a new era of partnership between federal, state, and tribal governments.

The primary purpose of the State Wildlife Grant Program is to help states proactively invest

in fish and wildlife conservation strategies to prevent species from becoming endangered and accelerate efforts to restore those already endangered or threatened. Similarly, the primary purpose of the Tribal Wildlife Grant Program is to help tribes conserve species of traditional and cultural significance, including fish, wildlife, and plants. Both Programs support state and tribal projects designed to assess the status of fish and wildlife and implement actions to spur their conservation. Both Programs also support local decision-making and encourage the involvement of broad constituencies who have an interest in conserving the resources they know and treasure. State and tribal fish and wildlife agencies employ staff with expertise in planning, monitoring, research, and species and habitat



## Snapshot of the State and Tribal Wildlife Grant Programs

### Formula State Wildlife Grant Program

- Created by Congress in 2000
- Funds distributed through formula to all 56 U.S. states, territories, and D.C.
- Apportionments based on population and land area

### Tribal Wildlife Grant Program

- Created by Congress in 2001
- Funds distributed through competitive awards to federally-recognized tribes
- Maximum award of \$200,000

### Competitive State Wildlife Grant Program

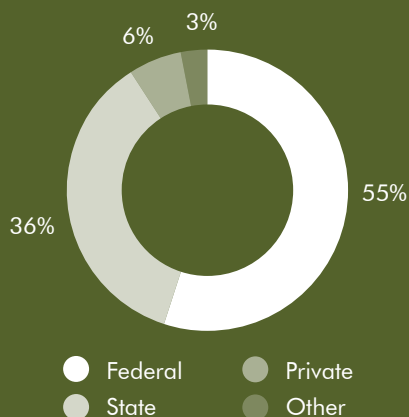
- Created by Congress in 2007
- Funds distributed through competitive awards to states, territories and D.C.
- Maximum award of \$1,000,000

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*State fish and wildlife agencies in the West are using State Wildlife Grant Program funds to conserve and protect the Short-Eared Owl.*

Photo: Bob Tregilus, used with permission. Three-year project volunteer, Northeastern California, 2018.

## Funding Sources for Wildlife Action Plan Implementation



Source: Association of Fish and Wildlife Agencies, Wildlife Funding Survey. Survey and Analysis Provided by Southwick and Associates. December 7, 2012.

## Blue Ribbon Panel on Sustaining America's Diverse Fish and Wildlife Resources

In 2016, the Association of Fish and Wildlife Agencies organized a Blue Ribbon Panel comprised of 26 leaders from business, conservation and outdoor recreation. It was charged with examining the current system of conservation funding and recommend changes that would lead to greater sustainability for all fish and wildlife. The Panel was chaired by John Morris, Founder of Bass Pro Shops, and David Freudenthal, former Governor of Wyoming.

More Information:

[https://www.fishwildlife.org/application/files/8015/1382/2345/BlueRibbonPanel\\_ShortReport.pdf](https://www.fishwildlife.org/application/files/8015/1382/2345/BlueRibbonPanel_ShortReport.pdf)

management, and they leverage resources from many interested parties to bolster federal investments.

These Programs support state and tribal government agencies, acknowledging their unique responsibilities and authorities for management of our Nation's fish and wildlife. The work of state and tribal fish and wildlife agencies is guided in part by Wildlife Action Plans—also known as Comprehensive Wildlife Conservation Strategies—which were mandated by Congress. These natural resources agencies collaborate with industry, universities, non-profit conservation organizations, private landowners, citizens, and other local, state, and

federal government agencies to implement innovative conservation strategies across the country. The State and Tribal Wildlife Grant Programs and the agencies that receive funding have launched a multitude of new partnerships to conserve fish and wildlife and their habitats. Abundant species populations and high-quality habitats benefit millions of Americans who use and enjoy them.

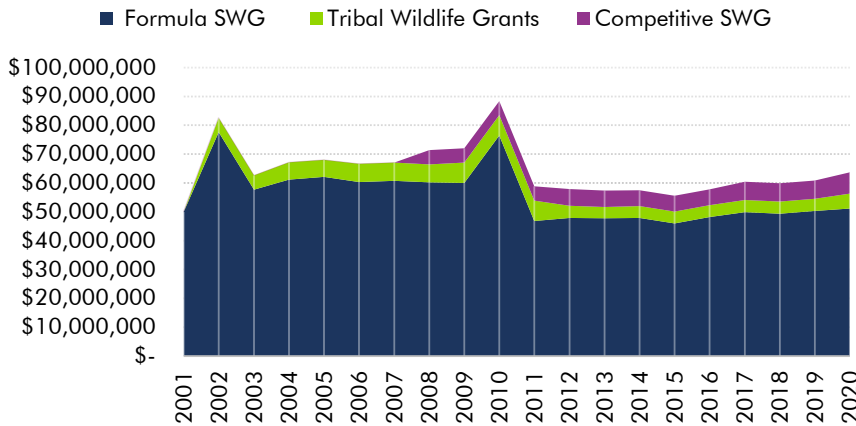
During the last 20 years, the U.S. Fish and Wildlife Service has distributed over \$1 billion to the 56 states, territories, commonwealths, and D.C. through the State Wildlife Grant Program using a formula based on land area and population. State agencies



*Wildlife watching is a favorite pastime enjoyed annually by an average of 100 million Americans of all ages and backgrounds.*

Photo: Texas Parks and Wildlife Department.

## State and Tribal Wildlife Grant Programs Funding Levels, Fiscal Year 2002–2020



provide at least 25 percent of project costs in non-federal matching funds. Since 2008, a portion of the State Wildlife Grant Program funding has been used for competitive grants to encourage interstate collaboration, innovation, and species conservation at larger scales.

From a high of \$90 million in Fiscal Year 2010, the State Wildlife Grant Program’s average annual appropriation more recently has been about a third less, or \$67 million per Fiscal Year. This is far less than the estimated \$1.3 billion recommended by the Blue Ribbon Panel on Sustaining America’s Diverse Fish and Wildlife Resources that is needed to fully implement the State Wildlife Action Plans (see sidebar). Congress has introduced the *Recovering America’s Wildlife Act* to address the shortfall.

The Tribal Wildlife Grant Program was started in 2001 to support conservation projects that benefit fish, wildlife, and plants on tribal lands, including species of Native American cultural or traditional importance. Funds are made available by the

U.S. Fish and Wildlife Service to the [584 federally-recognized tribes in the U.S.](#) through competitive grants. Demand for Tribal Wildlife Grant Program funds by tribes is high and only about 25 percent of applicants are awarded funds each year.

Tribal Wildlife Grant Program funds are used to conserve tribal food sources like Salmon, Walleye, Elk, Caribou, and Bighorn Sheep. The funding also helps tribes assist in the recovery of species that are federally listed under the Endangered Species Act, such as California Condor and Black-Footed Ferret. Since its inception, the competitive Tribal Wildlife Grant Program has awarded more than \$94 million to tribes, supporting over 500 conservation projects throughout Indian Country.

### Wildlife Action Plans: A Nationwide Conservation Blueprint

The use of State Wildlife Grant Program funding is guided by State Wildlife Action Plans. In 2005, fish and wildlife agencies in each of the 56 states, territories, commonwealths, and D.C. sub-

Source: U.S. Fish and Wildlife Service.

## The SWG Program’s Value to America

In 2019, Service managers produced a research paper titled *The State Wildlife Grant Program: Measuring the Value of a Proactive Conservation Program*.

Key findings:

- The SWG Program added \$3 billion in short-term value to local economies and supported the creation of 18,000 jobs between 2001 until 2015.
- American wildlife watchers are willing to pay over \$100 million annually to maintain populations of just one SGCN—the whooping crane.
- A variety of SGCN conserved in part with SWG Program funding provide essential services like pest control and water purification.
- From 2001 to 2015, the SWG Program supported conservation of 55 percent of federally listed species which were later delisted under the ESA, and 24 percent of candidate species later removed from consideration for federal listing due to recovery or sufficient species information.

More Information:

<https://doi.org/10.3996/112017-JFWM-092>

Tiana Sayre and Christy release  
Condor 208.

Photo: Chris West, Senior Biologist, Yurok  
Tribe.

## EIGHT REQUIRED ELEMENTS OF WILDLIFE ACTION PLANS:

1. Abundance of Declining Species
2. Condition of key habitats
3. Threats or data gaps
4. Needed conservation actions
5. Monitoring needs
6. Plan revision schedule
7. Partner coordination
8. Public involvement

More information:

<https://www.fishwildlife.org/afwa-informs/state-wildlife-action-plans>

### Wildlife Benefiting from SWG Program and State Matching Expenditures

2002-2014

Arthropods	5%
Mollusks	6%
Fish	9%
Reptiles	12%
Amphibians	13%
Mammals	21%
Birds	34%

Source: U.S. Fish and Wildlife Service.



mitted their first Wildlife Action Plans to the Service for approval. This marked the first time in history that coast-to-coast comprehensive planning for fish and wildlife conservation was implemented on a national scale.

Each agency is required to address eight planning elements (see sidebar) and must review and revise the plan at least once every ten years. A cornerstone of each plan is the identification of Species of Greatest Conservation Need (SGCN), with input from leading scientists in each state or region. The planning process is informed by citizens, experts from universities, non-profit organizations, and state, federal and local government agencies. Public meetings are held to gather input from wildlife and outdoor recreation enthusiasts, farmers and ranchers, business owners and others. This high level of engagement helps ensure the plans are balanced and are able to leverage the resources and capacity of the public and private sectors.

Wildlife Action Plans provide a framework for national consis-

tency while preserving state-level authority in conservation decision-making. Many states have designated personnel that lead implementation of their plan in coordination with their many partners. Each plan is posted online and some include online tools to make them more accessible to partners and the public.

### A Complementary Approach

The federal Endangered Species Act (ESA), passed in 1973, is a bedrock environmental law that provides a funding and regulatory framework to help prevent the extinction of America's animals and plants. Currently there are over 720 animals listed as threatened or endangered under the ESA in the United States. State Wildlife Action Plans include most of these species as SGCN but also many others that are rare, declining or on a path to possible future ESA listing. The State and Tribal Wildlife Grant Programs support proactive conservation that helps keep management of fish and wildlife in the hands of the states, commonwealths, territories, and tribes. In doing so, the Programs help limit



costs of federal species listing and recovery.

### Enhancing Outdoor Recreation and Local Economies

Our Nation's fish and wildlife are a source of joy and inspiration to millions of people. In an average year, 100 million U.S. residents participate in some form of wildlife-related recreation. In 2016, wildlife watchers spent \$75.9 billion on equipment, travel, and related costs, providing revenues for communities and companies that maintain jobs and support families.<sup>1</sup> The State and Tribal Wildlife Grant Programs help ensure the stability and viability of a vast range of watchable wildlife throughout the United States.

### Demonstrating Our Success

The State and Tribal Wildlife Grant Programs support America's state and tribal natural resources agencies and their many partners in the conserva-

<sup>1</sup> 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. <https://www.census.gov/content/dam/Census/library/visualizations/2016/demo/fhwt16-qkfact.pdf>

tion of species of fish and wildlife that are treasured throughout the United States today. This report provides a sampling of the species, habitats, and people that have benefited from state and tribal conservation initiatives, supported in part with funding from these Programs. Projects and programs designed and implemented by these agencies:

- Launch multi-state, range-wide species conservation efforts highlighting the power of sharing information and collaborating across borders and disciplines.
- Support a wide variety of projects and programs to help tribal communities protect and enhance species of cultural and traditional value.
- Protect and increase populations of species through research, habitat management and improvement, captive rearing and release, and many other actions.
- Improve water quality, provide insect pest control, and protect pollinators



*The Crawfish Frog is one of many unique and beautiful Species of Greatest Conservation Need (SCGN) identified in the State Wildlife Action Plans.*

Photo: Michael Lannoo. Originally published in "The Call of The Crawfish Frog" by Michael J. Lannoo and Rochelle Stiles, Taylor & Francis, 2020 and used with permission of the photographer.



*Learning about raptors during a community event.*

Photo: Texas Parks and Wildlife Department.

that support agricultural production.

- Provide critical information leading to down-listing and de-listing of state threatened and endangered species.
- Contribute significantly to U.S. Fish and Wildlife Service recovery plans for federally listed species, helping to down-list and de-list threatened and endangered species.
- Address species data gaps that help the U.S. Fish and Wildlife Service determine that numerous species are not warranted for listing under the Endangered Species Act.
- Engage community scientists, farmers and ranchers,

university experts, industry stakeholders, and many others to find common ground and leverage Program investments many times over.

- Provide educational opportunities and offer amenities that enhance the quality of wildlife-based experiences for millions of Americans.

The stories in this report demonstrate how a diversity of perspectives, expertise, and resources can make a difference for the conservation of all our Nation's species. These projects show how dedicated, inclusive teams are ensuring that American families throughout the United States have the opportunity to share in *all* of our natural heritage.

## NATIONAL CONSERVATION HIGHLIGHT

# Freshwater Mussel Conservation

North America has the highest diversity of freshwater mussels in the world, with 297 known species and subspecies. About three-quarters of these species are endangered or at risk, and dozens are already extinct. Among the most common threats to America's freshwater mussels are stream fragmentation caused by dams, water quality degradation, aquatic invasive species, and illegal harvesting.

Mussels are filter feeders that live on river bottoms, where they remove contaminants from water including suspended solids, bacteria, and algae. This is an important "ecosystem service" that can help protect water quality for human use, filtering 12 to 15 gallons per mussel per day. Freshwater mussels are also an important food source for a variety of fish and wildlife, including otters, herons, and many sport fish. Midwestern and northeastern states in particular are home to the majority of mussel species identified in the State Wildlife Action Plans. However, many western states including Alaska, California, Hawaii, Texas, Idaho and Oregon also list one or more mussel species as Species of Greatest Conservation Need in their plans.

The State Wildlife Grant Program continues to be a critical resource for state fish and wildlife agencies in addressing this national wildlife crisis. Many states have significantly advanced mussel conservation science lead-

ing to protection and restoration in watersheds across the United States. Here are a few highlights of the many ways State Wildlife Grant Program funding is being used to help recover federally listed species, to help keep other mussels species from declining to levels that require new listings, and to help ensure common mussel species populations remain stable in our Nation's rivers and streams.

### Alabama

The Alabama Aquatic Biodiversity Center (AABC) is the largest state non-game species recovery program of its kind in the United States. The mission of AABC is to promote the conservation and restoration of rare freshwater species in Alabama waters, and in turn, restore cleaner water in Alabama's waterways. The State Wildlife Grant Program has supported the development of the AABC for many years. Recent work has focused on developing culture methods to grow and release aquatic invertebrates into regional waterways. The AABC has cultured and released many thousands of mussels, in some cases establishing new populations of federally listed or candidate species that may positively impact future Service listing decisions.

### Indiana

The Indiana Department of Natural Resources has used

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*Brook Floater, a freshwater mussel native to the eastern United States, was petitioned for federal listing in 2010. Due in part to efforts of multiple states to conserve and restore the species, the U.S. Fish and Wildlife Service determined in 2019 that it is not warranted for listing under the Endangered Species Act.*

Photo: U.S. Fish and Wildlife Service.



Indiana Department of Natural Resources biologist samples for mussels in the Tippecanoe River.

Photo: Indiana Department of Natural Resources.



State Wildlife Grant Program funding and partnered with Purdue University to launch an outreach campaign to increase awareness of freshwater mussels and help foster behaviors that can help protect them. The campaign reached out to boaters and anglers as well as private landowners who reside on or near the Tippecanoe River. Indiana is home to ten federally listed mussels, and six of those species reside primarily in the Tippecanoe River. The campaign has demonstrated to visitors and residents how to promote good water quality to help protect their many imperiled mussel species.

### **Kentucky**

For nearly 20 years, the Kentucky Department of Fish and Wildlife Resources has been developing a conservation program for the state's imperiled freshwater mollusks. The agency's Center for Mollusk Conservation (CMC) is now a world-renowned propagation facility visited by students and professionals from

around the world. The agency has developed new techniques to raise mussels and other freshwater mollusks *in vitro*, without the need for fish hosts. These effective propagation techniques mean that large-scale rearing and release is now possible in Kentucky and neighboring states. The CMC's overall goal is to preclude new state and federal listings of aquatic species, and help recover and restore imperiled species.

### **Massachusetts**

Massachusetts Division of Fisheries and Wildlife has been a leader in the Northeast in launching the Brook Floater Range-Wide Conservation and Restoration Initiative. Using a 2016 Competitive State Wildlife Grant (C-SWG) Program award, the agency established the Brook Floater Working Group, which now represents 13 states where the species is present. This group has achieved key conservation successes including development of standard survey and monitor-

ing protocols, and modelling of habitat suitability across the species' range. Data and analyses on Brook Floater developed by state agencies and partners were used by the U.S. Fish and Wildlife Service in species status assessment and in a final decision in 2019 that listing the species under the Endangered Species Act is not warranted.

## Minnesota

In Minnesota, 28 of the state's 51 native mussel species are listed as endangered, threatened, or of special concern. Three other species have been extirpated, and at least three more species are in imminent danger of extirpation. Minnesota Department of Natural Resource's Center for Aquatic Mollusk Programs (CAMP) is busy re-building populations of threatened and endangered native mussel species through a propagation program. Recently CAMP propagated 14,000 federally endangered Baby Snuffbox mussels. These mussels will continue to grow in the lab over the summer, then placed in containers to overwinter in the river, and will eventually be released in the Mississippi River.

## New York

The New York State Department of Environmental Conservation received pooled State Wildlife Grant Program funds through the northeast states' Regional Conservation Needs Program, as well as additional Competitive State Wildlife Grant (C-SWG) Program funding, for Brook Floater conservation. The agency conducted a status assessment in the state, developed new sampling protocols, and contributed



*Student intern Emma Ceplecha holds several hundred Black Sandshell mussels CAMP is growing in Eastside Lake in Austin, Minnesota, for reintroduction into the Cedar River.*

to the Service's "not warranted" finding in 2019.

## Ohio

The Ohio Department of Natural Resources, Division of Wildlife continues to fund research at Ohio State University and the Freshwater Mussel Conservation Facility located at the Columbus Zoo and Aquarium. New *in vitro* propagation methods will be used for reintroduction of state-listed mussels in Ohio waters. The agency has also translocated federally endangered Northern



*Monitoring for Brook Floater in the Neversink River in southeastern New York.*

Photo: Andrew Gascho-Landis, State University of New York-Cobleskill.

Riffleshell and Clubshell mussels from the upper Allegheny River in Pennsylvania to creeks and rivers in Ohio. The goal is to release enough animals to allow them to reproduce and establish self-sustaining populations.

### **Oklahoma**

The State Wildlife Grant Program has supported targeted surveys for all of the highest ranked freshwater mussel species identified in Oklahoma's Wildlife Action Plan, including Rabbitsfoot, Pyramid Pigtoe, and Southern Hickorynut mussels. A partnership was established including Kansas Department of Wildlife, Parks and Tourism, Missouri State University, the U.S. Fish and Wildlife Service, and the Peoria Tribe to reestablish the Rabbitsfoot in remaining suitable habitat in the Verdigris River. This intermediate outcome helps conservationists move closer to recovering the Rabbitsfoot mussel and potentially down-listing or de-listing the species under the Endangered Species Act.

### **Tennessee**

In Tennessee, the State Wildlife Grant Program partially supports the State Mollusk Recovery Program and the Cumberland River Aquatic Center in their efforts to propagate juvenile mussels. Hundreds of Pale Liliput mussels have been raised, tagged, and released in Tennessee rivers since 2017. Pale Liliput is a critically endangered species that has experienced a major range reduction. The species is now found only in northern Alabama and southeastern Tennessee.

### **West Virginia**

In West Virginia, the Division of Natural Resources' Mussel Survey Protocols are designed to document the potential presence or absence of federally listed mussel species as well as provide for the long-term sustainability of native mussel communities in the state. State Wildlife Grant Program funds support surveys, long-term monitoring, mussel restoration, and data capture from external sources. State wildlife agencies across the country have adapted the West Virginia Mussel Survey Protocols for their use.



*West Virginia Division of Natural Resources staff stocking the federally endangered Northern Riffleshell in the Elk River, West Virginia.*

Photo: Janet Clayton.

# NORTHEAST REGION HIGHLIGHTS







## STATE HIGHLIGHTS

Connecticut

# Bats

### Status

Federally Endangered, Candidate, and At-Risk

### Project Summary

The Connecticut Department of Energy and Environmental Protection participates with northeastern state agencies in an innovative resource-sharing program designed to advance large-scale conservation across jurisdictional boundaries. Since wildlife disease such as White-Nose Syndrome does not respect borders, an effective bat conservation strategy requires cooperation and sharing of information and resources on a regional basis.

In 2017, State Wildlife Grant (SWG) Program funding allocated through the northeast states' Regional Conservation Needs (RCN) Program supported the installation and repair of gates at bat hibernation sites in Connecticut, New Jersey, Pennsylvania, and New Hampshire. Bat-friendly gates are designed to allow bats to freely pass through the gates while preventing unauthorized human entry and associated disturbance. Experts on bat physiology estimate that for each arousal, a bat can burn as much as 10 days' worth of stored body fat. Limiting human disturbance at these regionally important hibernation sites provides benefits to bats that are already devastated by disease.

### Partners

Wildlife Management Institute, Sanders Environmental, Public and Private Landowners, Land Trusts, Municipalities, and other State Agencies

### Methods

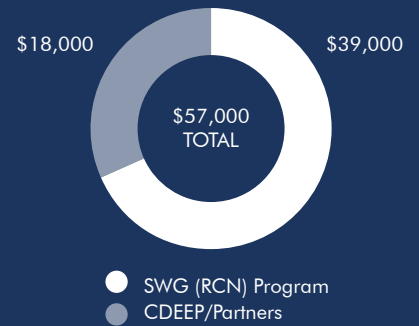
Cave Gating, Coordination

### Results

Bat-friendly cave enclosures are good for bats and people. Installation of gates helps private landowners by limiting trespassing and disturbance at sensitive sites, often resulting in reduced enforcement costs. Gates provide a reduced risk of liability for landowners with caves on their property.



### Program Funding



*A federally-endangered Indiana Bat. Other bat species are undergoing Species Status Assessments by the U.S. Fish and Wildlife Service, including Tri-colored Bat, Little Brown Bat, and Northern Long-eared Bat.*

Photo: Ryan Hagerty, USFWS.



*“This project is critical for the protection of bats decimated by White Nose Syndrome and helps ensure the secondary threat of disturbance is reduced or eliminated. This project also provides additional protection as bat populations begin to recover.”*

*Jenny Dickson*

*Connecticut Department of Energy  
and Environmental Protection*

### **Future Needs**

There is a great need to protect many bat species in the United States, which face serious threats. Massachusetts Department of Energy and Environmental Protection and the northeastern states would direct additional funding toward maintenance of gates, and coordination with landowners and cave organizations for new installations.

### **More Information**

<https://rcngrants.org/content/bat-cave-gating>

### **Connecticut Wildlife Action Plan**

The [Connecticut Wildlife Action Plan](#) was revised in 2015. The plan identifies 567 Species of Greatest Conservation Need associated with river basins, forests, wetlands, caves, and coastal beaches. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and lack of protection. Priority conservation actions identified in the plan include increased monitoring and data collection, enhanced management and protection, and outreach. More than 70 academic, agency, and conservation partners, and hundreds of members of the public, participated in the development and review of the plan. Contact the [Connecticut Department of Energy and Environmental Protection's Wildlife Division](#) to learn more.

Delaware

## Breeding Birds of Delaware



### Status

State-Listed Endangered

### Project Summary

Delaware Division of Fish and Wildlife (DFW) developed the Breeding Bird Atlas to determine current distribution of all bird species breeding within Delaware, including within specially designated conservation areas. The project was supported in part by funding from the State Wildlife Grant (SWG) Program. The Breeding Bird Atlas includes detailed maps and summaries of the breeding habits of these birds. This ongoing effort provides important trend information derived through analysis of changes in species population data. The Atlas provides a permanent record of information on breeding birds and is accessible to many conservation partners in Delaware.

### Partner

U.S. Geological Survey's Patuxent Wildlife Research Center

### Methods

Research, Monitoring

### Results

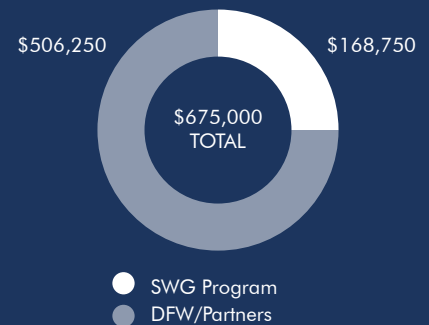
The Atlas helps DFW and partners establish protocols for analyzing population dynamics and assess species population changes relative to the first Breeding Bird Atlas. This information is necessary for developing general and species-specific conservation guidance used to benefit Delaware's birds. As a result of this effort, six species were removed from Delaware's State Endangered Species List including Brown Creeper, Bald Eagle, Cooper's Hawk, Northern Parula, Loggerhead Shrike, and Red-Headed Woodpecker.

### Future Needs

Without additional resources, DFW is limited in its capacity to implement conservation activities identified through this project, including habitat management that could improve breeding bird populations. Future support is necessary to expand



### Program Funding



the scale of current conservation efforts.

### **Delaware Wildlife Action Plan**

The [Delaware Wildlife Action Plan](#) was revised in 2015. The plan identifies 688 Species of Greatest Conservation Need associated with priority forests, beaches, dunes, early successional habitat, marine and freshwater wetlands and rivers. Key threats to species include climate change and severe weather that cause salinity changes and intrusion, invasive species, habitat loss, land

conversion, ditching, extraction, and dams. Priority actions include technical assistance and support to conservation partners and private landowners, developing and implementing adaptation strategies, improving laws and policies, increasing awareness through conservation education, data collection and management, direct management of species and habitats, and land protection. More than 60 conservation partners contributed to the development of the plan. Contact the [Delaware Division of Fish & Wildlife](#) to learn more.

# Northern River Otter

## Status

Species of Greatest Conservation Need

## Project Summary

By the early 1900s, North American River Otter populations had declined throughout large portions of their historic range in North America. In recent decades, improvements in water quality and controls on harvest have permitted River Otters to regain portions of their range in many areas. The Fisheries and Wildlife Division (FWD) of the District of Columbia's Department of Energy and Environment identifies River Otter as a Tier 1 species in its Wildlife Action Plan. FWD has implemented a variety of projects since 2012 to benefit the species in the Anacostia River watershed, with support from the State Wildlife Grant (SWG) Program. These projects have provided benefits to a wide variety of other species, including fish, shore birds, butterflies, and many others. River restoration projects also help improve water quality.

## Partners

U.S. Department of Agriculture, National Park Service, U.S. National Arboretum, Anacostia River Watershed Society

## Methods

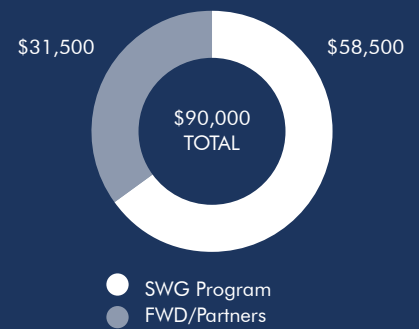
Research, Inventory/Monitoring, Species Management, Stream Restoration

## Results

Due to major stream restoration efforts in several tributaries to the Anacostia River, more sightings of River Otter have been documented by FWD. These and other efforts have resulted in water quality improvements that enhance opportunities for recreation and appreciation of wildlife in the District of Columbia and the surrounding states of Maryland and Virginia. Cleaner water helps FWD move toward their goal of sustainable fishing in the Anacostia, which would also increase revenue from fishing licenses. License revenue is an important source of funding for further species protection, man-



## Program Funding



*North American River Otter at Pelican Island National Wildlife Refuge, Florida, 2012.*

Photo: Keenan Adams, U.S. Fish and Wildlife Service.



*Springhouse Run, a river restoration site completed by the Department of Energy and Environment in the U.S. Arboretum in Washington, D.C. where River Otters are now living.*

Photo: District of Columbia Department of Energy and Environment.



agement, and recovery efforts in the District of Columbia.

### **District of Columbia Wildlife Action Plan**

The [District of Columbia Wildlife Action Plan](#) was revised in 2015. The plan identifies 205 Species of Greatest Conservation Need associated with rivers, streams, riparian and upland forests, bogs, wetlands, mudflats, vernal pools, springs, and seeps. Key threats to species include invasive species, habitat loss, pollution and runoff, ecosystem modifications, and lack of protection. Priority conservation actions include early detection of new invasive species, habitat restoration, deer and goose management, and restoring hydrology. More than 30 conservation partners and many members of the public participated in the development of the plan. Contact the [District of Columbia Department of Energy and Environment, Fisheries and Wildlife Division](#) to learn more.

### **Future Needs**

Additional conservation actions to benefit River Otter in the District of Columbia are needed to build upon new partnerships and to continue improving water quality in the Anacostia and other watersheds. Funding is needed to maintain inventory and monitoring of the species and other listed conservation actions identified in the District of Columbia Wildlife Action Plan.

*“Seeing River Otters present in the Anacostia River has been an encouraging sign that the health of the river is going in a positive direction.”*

*Lindsay Rohrbaugh  
Biologist*

*Department of Energy and Environment*

Maine

# Yellow-Banded Bumble Bee



## Status

Not Warranted for Federal Listing (2019)

## Methods

Research, Species Status Assessment

## Project Summary

The Maine Bumble Bee Atlas (MBBA) began in 2015 utilizing mostly citizen scientists to collect data on bumble bees, a guild of insects with widely reported declines. The Maine Department of Inland Fisheries and Wildlife (MDIFW) seeks to document the current diversity and distribution of the state’s bumble bees and confirm the occurrence of previously reported species. In 2016, the U.S. Fish and Wildlife Service announced a positive “90-day finding” that the Yellow-Banded Bumble Bee warranted a full review and potential listing under the Endangered Species Act. The timeliness of the MBBA initiative could not have been better for informing the Service’s Species Status Assessment of the Yellow-Banded Bumble Bee.

## Partners

University of Maine–Farmington, University of Maine–Orono

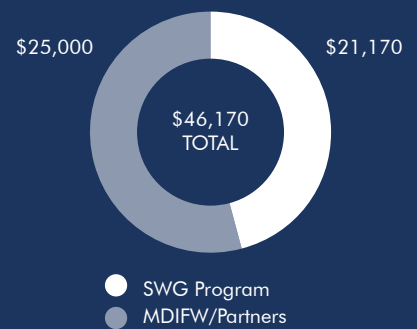
## Results

MDIFW found this species to be relatively widespread and present in higher numbers than in previous years. It was found at more than 250 locations in more than 170 townships in all 16 counties across Maine. In 2019, the Service determined that range-wide listing was not warranted, noting the recent insights that some populations had improved markedly as pivotal to the decision.

## Future Needs

Establishing baseline distributions of Yellow-Banded Bumble Bees and other bumble bee species enables periodic sampling efforts to monitor for potential population changes. Increased knowledge of the status of bumble bees and pollinators is critical to agriculture-related industries and natural resource agencies alike.

## Program Funding



## **Maine Wildlife Action Plan**

The [Maine Wildlife Action Plan](#) was revised in 2015. The plan identifies 378 Species of Greatest Conservation Need associated with salt marshes, northern peatlands, northern hardwood and conifer forests, subtidal mollusk reefs, intertidal mudflats, and alpine habitats. Threats include habitat shifting or alteration due to climate change and sea level rise, invasive species and

diseases, residential and commercial development, and lack of information on species. Priority conservation actions include increasing habitat connectivity, monitoring, control of invasive species, improving mapping, technical assistance, and outreach. More than 100 conservation partners were involved in the development of the plan. Contact the [Maine Department of Inland Fisheries & Wildlife](#) to learn more.



Maryland

# Tiger Salamander

## Status

State-Listed as Endangered

## Project Summary

Tiger salamanders spend most of their lives underground with the exception of the breeding season when they journey to small fresh-water ponds to mate. Declines in tiger salamander populations are largely due to the loss of Delmarva bays and surrounding forests. Delmarva bays are fresh-water wetlands on Maryland's Eastern Shore that usually have standing water in the winter and spring, and then gradually dry out through the summer. These special habitats are home to dozens of rare plants and animals. The Maryland Department of Natural Resources (MDNR) has been working for years to reverse this trend and restore these wetlands on state and private land by returning their hydrology and vegetation to their natural conditions. Through years of intensive management efforts, bays that were previously dark and overgrown are now open, sunny, and full of tiger salamander egg masses.

## Partners

Maryland Department of the Environment, Susquehannock Wildlife Society, Salisbury University



*A Tiger Salamander relaxes with Maryland's biologists, taking a break from an unusually successful breeding season.*

Photo: Andy Adams.

## Future Needs

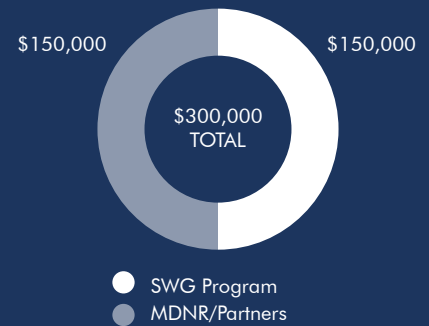
Additional resources are needed to expand habitat restoration for the Tiger Salamander, ensuring numbers will continue to increase and helping meet criteria for de-listing as endangered in Maryland.

## Maryland Wildlife Action Plan

The [Maryland Wildlife Action Plan](#) was revised in 2016. The plan identifies 610 Species of Greatest Conservation Need associated with streams, rivers, bays, ocean, coastal beaches, wetlands, forests, cliffs, and barrens. Key threats include habitat loss and fragmentation, modification of natural processes, invasive species, pollution, and climate-related alterations. Priority



## Program Funding



*Tiger Salamander is state-listed as endangered in Maryland.*

Photo: Andy Adams.

*“It’s great to see [tiger salamanders] having such a great year. They are really responding well to their restored habitat. If they keep this up, one day we hope to declare them recovered and take them off the [Maryland] endangered species list.”*

*Beth Schlimm  
Biologist*

*Maryland Department of  
Natural Resources*



conservation actions include land protection, restoring natural processes, enhanced management, targeted monitoring and data collection, implementing climate adaptation strategies, and education and outreach. More than 50 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Maryland Department of Natural Resources Wildlife and Heritage Service](#) to learn more.

# Brook Floater

## Status

Not Warranted for Federal Listing (2019)

## Project Summary

Competitive State Wildlife Grant (C-SWG) Program funds were awarded in 2016 to Massachusetts Division of Fisheries and Wildlife (MassWildlife) and three other partner states for Brook Floater conservation. MassWildlife has been the lead state in cooperation with the U.S. Geological Survey's Massachusetts Cooperative Fish and Wildlife Research Unit. The primary objective of this regional effort is to begin developing a strategic conservation and restoration plan for the Brook Floater, an imperiled freshwater mussel species, across its range. This initiative builds from a Regional Conservation Needs Grant, which focused on gathering all available information on Brook Floater and assessing threats across its range. Regional Conservation Needs projects are selected by a technical committee staffed by state fish and wildlife agencies in the northeast, and funds are derived from pooled State Wildlife Grant Program funds. Among many objectives for this initiative is the formation of the Brook Floater Working Group (BFWG), a core group of researchers and conservation practitioners engaged in collaborative problem solving toward conservation objectives for this species.

## Partners

U.S. Geological Survey—Massachusetts Cooperative Fisheries & Wildlife Research Unit, Cooperating State Agencies, U.S. Fish and Wildlife Service—Cronin Aquatic Resources Center

## Methods

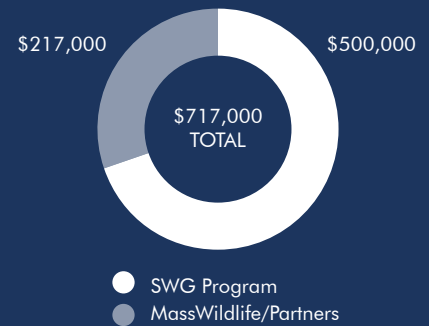
Research, Monitoring, Coordination, Planning, Modeling/Mapping

## Results

MassWildlife and partners expanded the BFWG to more than 30 active participants, representing 13 states, two federal agencies, academic institutions, and one Canadian province. The group has developed and applied standard survey and population monitoring protocols in over seven states, collecting population status and habitat data for



## Program Funding



*A tagged Brook Floater.*

Photo: MassWildlife.



*“While the threats to brook floater are significant and ongoing, what makes conservation success stories are the people behind them, like the collaborators on these projects, working tirelessly together to come up with large-scale solutions. Collectively, these research projects lead partners closer to restoring brook floater populations so the species can persist long into the future.”*

*Ayla Skorupa  
PhD Student*

*University of Massachusetts Amherst*

*From Scientists Without Borders  
– Range – Wide Conservation for  
a Freshwater Mussel At Risk*

Brook Floater and several other mussel species listed as Species of Greatest Conservation Need in partnering states’ Wildlife Action Plans. Other results of this effort include identification of host fishes and propagation methods for population restoration, and habitat needs and suitability across the species’ range. The team has developed conservation decision and planning tools and outreach materials, and conducted citizen science and outreach opportunities in the field. Data, analyses, and contributions from this project on Brook Floater and others funded through the State Wildlife Grant Program were used in the Service’s Species Status Assessment (SSA) and final decision. Collaborative efforts of the BFWG and partner states were noted in the SSA as a contributing factor to the likely persistence of the species.

#### **Future Needs**

Continued land protection and water quality improvements throughout the range of the Brook Floater are needed. Populations are fragmented and small so population restoration including reintroduction and augmentation will be needed in many parts of the range.

#### **More Information**

<https://sterrett.wixsite.com/bfwg>

<https://rcngrants.org/content/conservation-status-brook-floater-mussel-alasmidonta-varicosa-northeastern-united-states>

<https://www.fws.gov/news/ShowNews.cfm?ID=90D449F5-B2B9-4DB6-400EEC6C1DE71A12>

#### **Massachusetts Wildlife Action Plan**

The [Massachusetts Wildlife Action Plan](#) was revised in 2015. The plan identifies 570 Species of Greatest Conservation Need associated with mainstems of the Connecticut and Merrimack Rivers, grasslands, upland forests, and salt marshes. Key threats include habitat loss and fragmentation, lack of appropriate habitat management, and lack of sufficient open space protection. Priority conservation actions include targeted protection and management of species habitats. More than a dozen major conservation partners and many members of the public participated in the development and review of the plan. Contact the [Massachusetts Division of Fisheries and Wildlife](#) to learn more.

New Hampshire

# Technical Assistance and Training



## Status

Numerous Species of Greatest Conservation Need

## Project Summary

Taking Action for Wildlife (TAFW) is a partnership between the University of New Hampshire Cooperative Extension, the New Hampshire Fish & Game Department, and New Hampshire Association of Conservation Commissions. The program provides resources, tools, and training for conserving New Hampshire's wildlife and habitats to communities, land trusts and conservation groups, landowners, volunteers, and others, using the New Hampshire Wildlife Action Plan as a primary resource. Technical assistance includes meetings, workshops, trainings, an e-newsletter and a website with information and resources. Between 2017 and 2019, the TAFW Team enhanced technical assistance to all audiences with a new streamlined web experience that includes a searchable database of actions, audience resource pages, and stories to inspire. The University of New Hampshire Cooperative Extension contributes a significant portion of total project costs in non-federal matching funds.

## Partners

University of New Hampshire Cooperative Extension,

New Hampshire Association of Conservation Commissions

## Methods

Training, Technical Assistance

## Results

Since 2008, the TAFW Program has provided technical assistance to over 90 New Hampshire communities, some of which have received multiple contacts to further their implementation of Wildlife Action Plan priorities. Communities are now engaged in local conservation and are using the New Hampshire Wildlife Action Plan to prioritize efforts. Communities receiving technical assistance from TAFW have prioritized and executed land conservation projects, conducted habitat management and restoration, inventoried wildlife populations, and developed con-

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*Communities like the Town of Campton, New Hampshire are learning how to implement the New Hampshire Wildlife Action Plan through events like this bog walk.*

Photo: Lea Stewart.



*“Taking Action for Wildlife has empowered hundreds of communities, land managers, and landowners to take a meaningful role in implementing New Hampshire’s Wildlife Action Plan, benefiting numerous Species of Greatest Conservation Need and resulting in inspirational stories throughout the state.”*

*Mike Marchand  
Supervisor  
Nongame and Endangered  
Wildlife Program  
New Hampshire Fish and Game  
Member  
Taking Action for Wildlife*

servation plans for town properties. The TAFW team has also produced landowner stewardship brochures for 12 Wildlife Action Plan Habitats (e.g., grasslands, vernal pools) and the following Species of Greatest Conservation Need: Blanding’s Turtle, New England Cottontail Rabbit, Black Racer, Brook Trout, and eight New Hampshire bats. These brochures are used by the TAFW team when providing technical assistance to landowners and brochures can be accessed through TAFW website.

### **Future Needs**

Additional resources are needed to provide financial assistance opportunities to other communities for Wildlife Action Plan implementation.

### **More Information**

Taking Action for Wildlife Website:

<https://takingactionforwildlife.org/>

NH Wildlife Action Plan:

<https://www.wildlife.state.nh.us/wildlife/wap.html>

Blanding’s turtle landowner stewardship brochure:  
<https://extension.unh.edu/resource/blanding%E2%80%99s-turtles-new-hampshire-brochure>

Town of Amherst Grassland Management Planning Project:  
<https://takingactionforwildlife.org/article/guide-grasslands-town-amherst-commits-managing-bird-habitat-o>

### **New Hampshire Wildlife Action Plan**

The [New Hampshire Wildlife Action Plan](#) was revised in 2015. The plan identifies 169 Species of Greatest Conservation Need associated with forests, wetlands, freshwater aquatic, terrestrial, and coastal habitats. Key threats include commercial and residential development, pollution, disease, natural systems modifications (e.g., dams and undersized culverts), and climate change. Priority conservation actions include on-the-ground habitat work, land conservation, research, monitoring, collaboration with partners, and technical assistance. More than 100 conservation partners and many members of the public participated in the development and review of the plan. Contact the [New Hampshire Fish and Game’s Nongame and Endangered Wildlife Program](#) to learn more.



*Residents of the Town of Bath, New Hampshire, participate in a Brook Trout survey with New Hampshire Fish and Game staff.*

Photo: New Hampshire Fish and Game.

New Jersey

# Habitat Connectivity



## Status

Multiple Species of Greatest Conservation Need

## Project Summary

New Jersey Division of Fish and Wildlife (NJDFW) created its Connecting Habitat Across New Jersey (CHANJ) project to make the state's fragmented landscape friendlier to wildlife movement, with support from the State Wildlife Grant (SWG) Program. CHANJ offers an interactive online mapping tool that highlights areas across New Jersey that are critical for wildlife connectivity, and a guidance document that helps many different users make strategic choices about preserving land, restoring habitat, and mitigating the effects of roads on wildlife. Since 2012, over 100 partners from more than 40 different organizations and agencies participated in working groups that informed

the CHANJ mapping, guidance document, and communications plan.

## Partners

New Jersey Department of Transportation, The Nature Conservancy of New Jersey

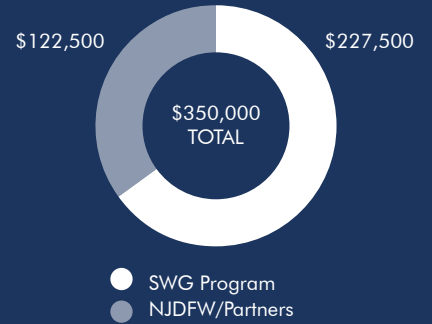
## Methods

Training, Partner Engagement, Land-Use Planning

## Results

Regional Action Teams are in place to mobilize partners when conservation opportunities arise. At least 127 land-based animal species in New Jersey stand to benefit from the CHANJ effort, including 82 Species of Greatest Conservation Need such as Bog Turtle, Bobcat, Blue-spotted Salamander, and Northern Diamond-backed Terrapin.

## Program Funding



*NJDFW Endangered and Nongame Species Program's CHANJ Team, exhibiting at the annual NJ Land Conservation Rally.*

Photo: Liz Silvernail.

*“CHANJ gives us a literal roadmap for focusing our efforts ahead, filling in the gaps, and securing a legacy of healthy, connected ecosystems for the future.”*

*Dave Golden  
Director*

*New Jersey Department  
of Fish and Wildlife*

### **Future Needs**

Significantly greater funding is needed to support strategic implementation actions to secure and restore habitat connectivity across New Jersey’s landscape, including land acquisition, habitat restoration, and road mitigation projects.

### **More Information**

[www.CHANJ.nj.gov](http://www.CHANJ.nj.gov)

### **New Jersey Wildlife Action Plan**

The [New Jersey Wildlife Action Plan](#) was revised in 2017. The plan identifies 656 Species of Greatest Conservation Need associated with forests, wetlands, rivers, and coastal habitats. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and lack of protection. Priority conservation actions include research, monitoring, development of best management practices, and riparian buffer restoration. More than 50 stakeholder groups and many members of the public participated in the development of the plan. Contact the [New Jersey Division of Fish and Wildlife](#) to learn more.



New York

# Eastern Massasauga

## Status

Federally Threatened (2016)

## Project Summary

New York has two remaining populations of Eastern Massasauga, with only one present on public land. Building upon earlier work supported by the State Wildlife Grant (SWG) Program evaluating habitat use by the species, the New York State Department of Environmental Conservation (NYSDEC) initiated a project in 2012 to improve gestation habitat at one of these two sites where habitat has been lost due to succession. NYSDEC's work on Massasauga was initiated well before the species was listed in 2016. The draft recovery plan for the species identifies habitat management, habitat protection, and population monitoring as three of the major recovery

actions necessary to restore the species.

## Partners

State University of New York's College of Environmental Science and Forestry

## Methods

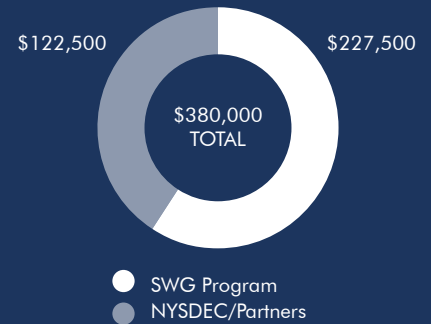
Research, Monitoring, Habitat Creation, Enhancement, and Protection

## Results

In the last seven years, over 32 acres of gestation habitat for Eastern Massasauga have been created and maintained. This habitat management both increases productivity of the rattlesnakes and allows for easier population monitoring of gestating females, with as many as



## Program Funding



*New York State Department of Environmental Conservation (NYSDEC) staff creating new basking habitat for Massasauga.*

Photo: NYSDEC.

*“New York has the good fortune to have the easternmost population of the entire Massasauga range secure on permanently protected land. Work funded through the State Wildlife Grant Program has allowed us to take action to improve habitat at this location to help secure the future of this species both within New York and throughout its range.”*

*Department of Environmental  
Conservation  
New York State*

26 gravid females recorded in the new habitats in just a single season. In addition, all of the habitat improved through this project occurs on permanently protected lands. This ensures that these management actions will be able to provide benefits to the Massasauga for as long as possible. These public areas are also regularly patrolled by state law enforcement personnel, so the areas can be monitored for unauthorized disturbance or collection. New York is at the edge of the current range for the species as well, so maintenance of this population helps maintain the rangewide diversity of the species.

#### **Future Needs**

All created habitats need to be maintained. Recurring management to keep the 32 acres of gestation habitat in excellent condition will be necessary, at an estimated cost of about \$20,000 per year.

#### **New York Wildlife Action Plan**

The [New York Wildlife Action Plan](#) was revised in 2015. The plan identifies 366 Species of Greatest Conservation Need associated with terrestrial, freshwater, and marine habitats. Key threats include habitat loss and fragmentation, invasive species, pollution, and climate change. Priority conservation actions include habitat management and restoration, water quality protection, population monitoring, and public outreach. Development of the plan was guided by an advisory committee made up of 25 partners and comments were received from over 2000 members of the public. Contact the [New York State Department of Environmental Conservation](#) to learn more.

# Golden-winged Warbler

## Status

Under Review for Federal Listing

## Project Summary

The Golden-winged Warbler (GWWA) is a forest-associated songbird and a Pennsylvania Species of Greatest Conservation Need that has experienced long-term population declines. It is currently being considered for Endangered Species Act protection. In 2011, Pennsylvania Game Commission (PGC) used State Wildlife Grant (SWG) Program funding to establish more than 5,000 acres of young forest nesting habitat on State Game Lands, following science-based best management practices developed in 2010 by Indiana University of Pennsylvania and American Bird Conservancy. More importantly, this SWG Program success helped promote the expansion of forest management efforts range wide. Specifically, PGC and partners proposed to the Natural Resources Conservation Services (NRCS) that GWWA should be a focal species for their Working Lands for Wildlife Program. The GWWA was ultimately selected as an NRCS national-level focal species, which brought dedicated funding for technical and financial assistance to private landowners to create GWWA nesting habitat. This partnership-based initiative to recover GWWA demonstrates how SWG Program funds can provide the initial boost needed to launch



*A male Golden-winged Warbler.*

Photo: Halie Parker.

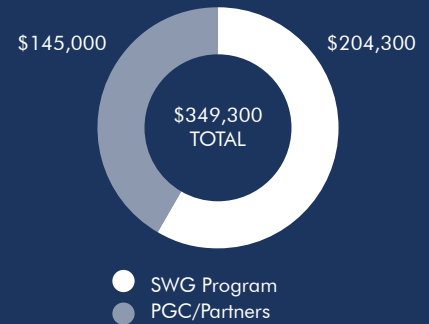
comprehensive long-term recovery efforts for Species of Greatest Conservation Need. Ongoing response monitoring on public and private lands is revealing signs of success.

## Partners

U.S. Fish and Wildlife Service-Partners for Fish and Wildlife, Natural Resources Conservation Service, Pennsylvania Department of Conservation and Natural Resources, Indiana University of Pennsylvania, American Bird Conservancy, Pheasants Forever, National Fish and Wildlife Foundation, National Wild Turkey Federation, Golden-winged Warbler Working Group, Appalachian Mountain Joint Venture



## Program Funding



*“The State Wildlife Grant Program provided critical resources to launch our partnership’s comprehensive effort to help recover Golden-winged Warbler breeding populations on public and private lands in Pennsylvania and beyond.”*

*Dr. Jeff Larkin*

*Professor*

*Indiana University of Pennsylvania*

## **Methods**

Research, Monitoring, Planning, Habitat Enhancement and Management, Private Landowner Agreements, Coordination

## **Results**

The PGC and partners continue to implement large-scale habitat projects that are critical for the species’ recovery. The partners supported a full-time public lands Golden-winged Warbler forester who helped design and implement habitat enhancements for this high-priority species on State Game Lands. Additionally, private lands foresters and planners currently work closely with partners to improve habitats for the species on private lands. Due to these efforts, NRCS has obligated more than \$7 million in financial assistance to landowners enrolled in the Working Lands for Wildlife Program. Between 2012 and 2019, over 11,200 acres were enrolled in the Working Lands for Wildlife Program for GWWA in Pennsylvania.

## **Future Needs**

To help avert the potential federal listing of Golden-winged Warbler, the Pennsylvania Game Commission needs increased and reliable funding to monitor the effectiveness of forest habitat improvements and expand forest management to benefit the species on additional acres of public and, in particular, private lands.

# Native Fishes



## Status

Chesapeake Logperch (State-Listed as Threatened in 2012, Under Review for Federal Listing); Gilt Darter (state delisted in 2015)

## Project Summary

Contemporary, high-quality data are crucial for informing conservation actions to secure Species of Greatest Conservation Need. For the Pennsylvania Fish & Boat Commission (PFBC), State Wildlife Grant (SWG) Program funds have supported surveying and inventory projects to fill data gaps in the distribution and population status of numerous multiple-jurisdictional species.

## Partners

Robert W. Criswell of The Pennsylvania Biological Survey, Dr. Jay Stauffer, Jr. of The Pennsylvania State University

## Methods

Research, Monitoring

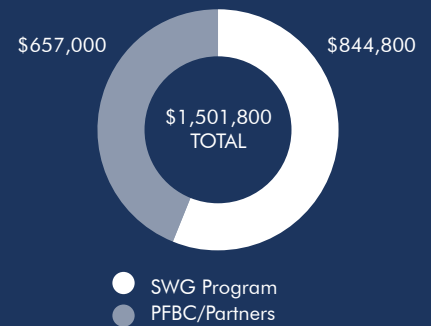
## Results

Data obtained through ongoing efforts of PFBC supported by the State Wildlife Grant Program have contributed to delisting of 22 Pennsylvania endangered, threatened or candidate fish species. Another four species are currently proposed for delisting, but the process is still ongoing as of 2020. Delisting species at the state level reduces administrative and technical burdens of both environmental permit applicants and agency environmental permit review staff.

## Future Needs

Various environmental stressors continue to impact native fish species and their habitats in Pennsylvania. Since 2009, five species have been newly state-listed to the Pennsylvania endangered and threatened lists after exhaustive assessments in Pennsylvania. Additional resources for monitoring are required to evaluate these and other populations for long-term management.

## Program Funding



*Gilt Darter is among the state de-listed Pennsylvania freshwater fishes targeted for surveying and inventory with SWG Program funds.*

Photo: Robert W. Criswell.

“We have made 27 adjustments to our endangered, threatened, and candidate fish lists in Pennsylvania with the vast majority being delistings. These regulatory changes have resulted from intense status assessments and adaptive management made possible by State Wildlife Grant Program funding.”

Doug Fischer  
Ichthyologist  
PFBC

*Pennsylvania fish species delisted between 2009 and 2019 and their designation (i.e., Pennsylvania Endangered, Threatened, or Candidate) prior to delisting. Information gained through State and Tribal Wildlife Grant projects were instrumental in these state de-listings.*

Common Name	Scientific Name	Endangered	Threatened	Candidate	De-listed	RULEMAKING DATE	PA BULLETIN ISSUE
Gravel Chub	<i>Erimystax x-punctatus</i>	X			X	03/16/2019	<a href="#">49.Pa.B.1323</a>
Central Mudminnow	<i>Umbra limi</i>			X	X	03/16/2019	<a href="#">49.Pa.B.1323</a>
Eastern Mudminnow	<i>Umbra pygmaea</i>			X	X	03/16/2019	<a href="#">49.Pa.B.1323</a>
Banded Sunfish	<i>Enneacanthus obesus</i>	X			X	03/16/2019	<a href="#">49.Pa.B.1323</a>
Mountain Brook Lamprey	<i>Ichthyomyzon greeleyi</i>		X		X	09/03/16	<a href="#">46 Pa.B. 5731</a>
Ohio Lamprey	<i>Ichthyomyzon bdellium</i>			X	X	09/03/16	<a href="#">46 Pa.B. 5731</a>
Bowfin	<i>Amia calva</i>			X	X	09/03/16	<a href="#">46 Pa.B. 5731</a>
Bluebreast Darter	<i>Etheostoma camrum</i>		X		X	07/18/15	<a href="#">45 Pa.B. 3841</a>
Spotted Darter	<i>Etheostoma maculatum</i>		X		X	07/18/15	<a href="#">45 Pa.B. 3841</a>
Tippecanoe Darter	<i>Etheostoma tippecanoe</i>		X		X	07/18/15	<a href="#">45 Pa.B. 3841</a>
Gilt Darter	<i>Percina evides</i>		X		X	07/18/15	<a href="#">45 Pa.B. 3841</a>
American Brook Lamprey	<i>Lampetra appendix</i>			X	X	12/22/12	<a href="#">42 Pa.B. 7684</a>
Silver Chub	<i>Macrhybopsis storeriana</i>	X			X	07/03/10	<a href="#">40 Pa.B. 3664</a>
Mooneye	<i>Hiodon tergisus</i>		X		X	07/03/10	<a href="#">40 Pa.B. 3664</a>
Skipjack Herring	<i>Alosa chrysochloris</i>		X		X	07/03/10	<a href="#">40 Pa.B. 3664</a>
Goldeye	<i>Hiodon alosoides</i>		X		X	07/03/10	<a href="#">40 Pa.B. 3664</a>
Brook Silverside	<i>Labidesthes sicculus</i>			X	X	07/03/10	<a href="#">40 Pa.B. 3664</a>
Smallmouth Buffalo	<i>Ictiobus bubalus</i>		X		X	03/07/09	<a href="#">39 Pa.B. 1202</a>
Longhead Darter	<i>Percina macrocephala</i>		X		X	03/07/09	<a href="#">39 Pa.B. 1202</a>
Channel Darter	<i>Percina copelandi</i>		X		X	03/07/09	<a href="#">39 Pa.B. 1202</a>
River Redhorse	<i>Moxostoma carinatum</i>			X	X	03/07/09	<a href="#">39 Pa.B. 1202</a>
Longnose Gar	<i>Lepisteus osseus</i>			X	X	03/07/09	<a href="#">39 Pa.B. 1202</a>

## Pennsylvania Wildlife Action Plan

The [Pennsylvania Wildlife Action Plan](#) was revised in September 2015. The plan identifies 664 Species of Greatest Conservation Need associated with over 66 key habitats, including streams and rivers, forests, wetlands, caves, and Great Lakes shoreline. Key threats to species include habitat loss and fragmentation, pollution, invasive species, and disease. Priority conservation actions identified in the plan include increased monitoring and data collection, habitat management and acquisition, and technical assistance to private landowners. More than 100 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Pennsylvania Game Commission](#) or [Pennsylvania Fish & Boat Commission](#) to learn more.



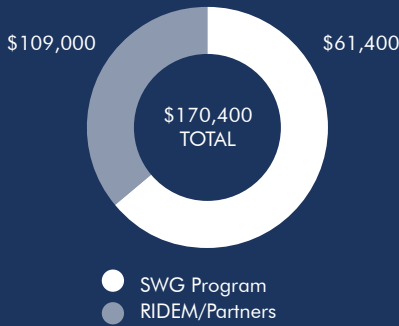
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*Chesapeake Logperch.*

Photo: Doug Fischer, Pennsylvania Fish and Boat Commission.



### Program Funding



Jonah Crab.

Photo: National Oceanic and Atmospheric Administration (NOAA).

## Rhode Island

# Jonah Crab

### Status

Species of Greatest Conservation Need

### Project Summary

The Jonah Crab has long been harvested as bycatch in the United States American lobster fishery. In recent years, however, targeted fishing of Jonah Crab has increased in concurrence with the decline of the southern New England lobster fishery. Scientific research efforts have lagged behind the growth of the Jonah Crab fishery—the status of the resource remains unknown and the biology of the crab is poorly understood. The Rhode Island Department of Environmental Management (RIDEM) executed this project using State Wildlife Grant (SWG) Program funding and state resources to directly address knowledge gaps in the Jonah Crab fishery in order to develop management guidelines to prevent overfishing.

### Partners

University of Rhode Island, Rhode Island Department of Environmental Management, Division of Marine Resources

### Methods

Research, Modeling, Stakeholder Engagement

### Results

The information collected in these studies was published

in peer-reviewed journals and will be incorporated into future assessments of the species. Data products from this project have expanded current knowledge of the Jonah Crab, allowing for informed, sustainable management of its fishery moving forward.

### Future Needs

Data gaps remain which must be addressed to support informed, sustainable management of the fishery in the future. These data gaps are related to Jonah Crab geographic distribution and movement patterns, fishery dynamics, and reproductive cycles.

### Rhode Island Wildlife Action Plan

The [Rhode Island Wildlife Action Plan](#) was revised in 2015. The plan identifies 454 Species of Greatest Conservation Need associated with forest communities, freshwater wetlands, streams, estuaries, marine systems, and other habitats. Key threats include habitat loss and fragmentation, human disturbance and take, invasive species, and pollution. Priority conservation actions include land and water protection, land and water management, stronger laws and policies, and increased education and awareness. Nearly 175 conservation professionals, stakeholders and members of the public participated in development of the plan. Contact the [Rhode Island Department of Environmental Management's Division of Fish and Wildlife](#) to learn more.



Vermont

# Spiny Softshell Turtle

## Status

State-Listed as Threatened

## Project Summary

The Spiny Softshell Turtle survives winters under the ice of Lake Champlain, the only New England location where it is a native species. Widespread shoreline development has greatly restricted the Spiny Softshell's nesting habitat, and mammal predators are a continuous threat on remaining nesting beaches. For over 20 years, the Vermont Fish and Wildlife Department (VFWD) has been working with partners on both sides of the international border to protect and manage the turtle's remaining nesting sites, with support from the State Wildlife Grant (SWG) Program. The partners are enhancing habitat and reducing depredation to increase nesting success and hatchling emergence.

Partners contribute through raising late hatchlings in captivity until they are larger in size and more likely to survive after release.

## Partners

ECHO Leahy Center for Lake Champlain, U.S. Department of Agriculture Wildlife Services, Wildlife and Fisheries Society at the University of Vermont

## Methods

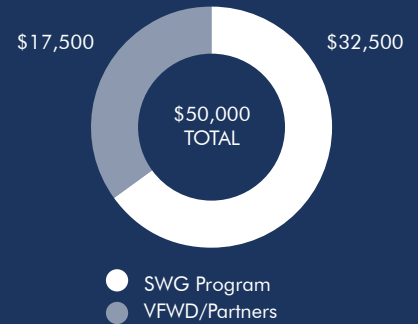
Habitat Management, Captive Rearing and Release, Training, Landowner Partnerships

## Results

The number of successful nests increased from nine in 2004, to 97 in 2018. VFWD and partners are observing more nests with small clutches, which may indi-



## Program Funding



*Lake Champlain's Spiny Softshell turtle population, and this hatchling, are growing thanks to an international partnership of agencies, organizations and individuals and the State Wildlife Grant Program.*

Photo: Tom Rogers.

*“We’re proud to help conserve the softshell turtle.”*

*Partnering Private Landowner*

cate the recruitment of young nesters. Although the species is not federally listed, these proactive conservation efforts can help preclude the need for listing if species numbers continue to decline.

### **Future Needs**

The small number of communal nesting sites require ongoing care and management. Vegetation must be cleared annually from the shale beach so turtles can dig nests to deposit their eggs. Monitoring is required while eggs are incubating to keep skunks, raccoons, foxes and other predators at bay.

### **More Information**

<https://vtfishandwildlife.com/learn-more/vermont-critters/reptiles/eastern-spiny-softshell-turtle>

### **Vermont Wildlife Action Plan**

The [Vermont Wildlife Action Plan](#) was revised in 2015. The plan identifies 977 Species of Greatest Conservation Need. Key threats include loss and degradation of habitat, impacts from roads and transportation systems, pollution and sedimentation, invasive species, information needs and data gaps, and climate change. Priority conservation actions include education and technical assistance to landowners and land managers, financial and economic incentives, and promoting wildlife-compatible resource use. More than 50 conservation partners assisted with development of the plan. Contact the [Vermont Fish & Wildlife Department](#) to learn more.

Virginia

## River Restoration

### Status

Numerous Aquatic Species of Greatest Conservation Need

### Project Summary

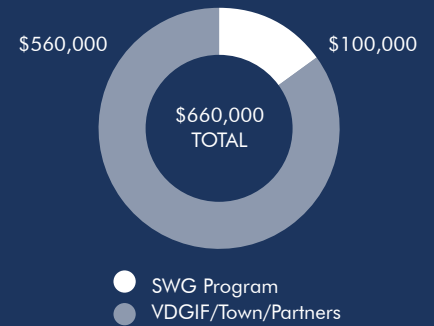
The South Fork of the Shenandoah River flows through the Town of Elkton in Rockingham County, Virginia. During the last several decades, the river's course has shifted, causing the loss of the eastern floodplain and the creation of a vertical cut bank. At its worst, the cut bank extended more than 500 feet and was up to 15 feet high. Annually, this site contributed several hundred cubic yards of sediment into the river and the Chesapeake Bay watershed. The problem was compounded as the area being eroded contained a buried, early 20th century garbage dump. As

the stream migrated, more refuse was washed downstream.

In this part of Virginia, the 2015 Wildlife Action Plan prioritizes efforts to enhance, maintain, and restore aquatic and riparian habitats specifically by reducing sediment, nutrients, pesticides, and other pollutants that enter waterways. Using \$100,000 of State Wildlife Grant Program funds as seed money, the Virginia Department of Game and Inland Fisheries (VDGIF) formed a partnership with the Town of Elkton, the Central Shenandoah Planning District Commission, the U.S. Fish and Wildlife Service, and other agencies to raise an additional \$560,000 to restore the site to a safe and stable condition—benefitting both wildlife and people.



### Program Funding



*After completion of this partnership effort, the cut bank has been protected, creating a stable condition that benefits both wildlife and people.*

Photo: VDGIF.

## Partners

Town of Elkton, Virginia, Central Shenandoah Planning District Commission, U.S. Fish and Wildlife Service

## Methods

Monitoring, Coordination, Construction

## Results

The cut bank has been stabilized, the erosion has ceased, and additional plantings are underway to further secure this conservation investment. Numerous species of greatest conservation need benefited from this restoration including the mussels Green Floater, Brook Floater, and Triangle Floater. Other aquatic species benefiting from the reduction in sedimentation include American Eel, Pearl Dace, Long-Ear Sunfish, and scores of other downstream species occurring between the restoration site and the Chesapeake Bay. Boaters and anglers also benefit since erosion from the site had previously degraded a boat ramp located just downstream from the cut bank.

## Future Needs

VDGIF would utilize additional funding to continue pursuing their Wildlife Action Plan goal to enhance, maintain, and restore aquatic and riparian habitats in other watersheds in Virginia.

## Virginia Wildlife Action Plan

The [Virginia Wildlife Action Plan](#) was revised in 2015. The plan identifies 883 Species of Greatest Conservation Need associated with beaches, dunes, mudflats, wetlands, riparian zones, open habitats, forests, and subterranean habitats. Key threats include land use changes, invasive species, climate change, and pollution. Priority conservation actions include monitoring and research, land acquisition, invasive species control, water quality improvements, and habitat and grazing management. Over 50 conservation partners and many members of the public assisted with development and review of the plan. Contact the [Virginia Department of Game and Inland Fisheries](#) to learn more.

# Pollinator Initiative

## Status

Rusty-Patched Bumble Bee—Federally Endangered (2016), Monarch Butterfly—Under Review for Federal Listing

## Project Summary

The West Virginia Wildlife Action Plan identifies habitat loss, widespread insecticide use, disease, and invasive species as major threats to pollinators in West Virginia. To assess the threats to pollinators, the West Virginia Division of Natural Resources (WVDNR) participated in a five-state effort that included a wetland butterfly assessment and assembly of the Atlas of West Virginia Butterflies and Moths, supported in part by the State Wildlife Grant (SWG) Program.

In April 2018, WVDNR’s Wildlife Diversity Unit convened a Monarch Summit to develop a strategy for advancing Monarch conservation in the Mountain State. Stakeholders included naturalists, farmers, city managers, oil and gas industry representatives, forestry professionals, highway planners, and wildlife professionals. Participants shared their concerns and challenges, and what they are doing to create or provide habitat for Monarch Butterfly and other pollinators.

The Wildlife Diversity Unit also partnered with West Virginia University Extension to host pollinator workshops where

wildlife biologists and technical specialists demonstrated the importance of pollinators, habitat creation, safe and effective herbicide use, site preparation, appropriate seed mixes, and different planting techniques.

## Partners

Natural Resources Conservation Service, West Virginia University Extension, West Virginia Department of Agriculture, U.S. Fish and Wildlife Service—Partners Program

## Methods

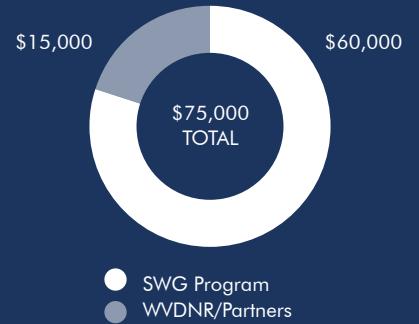
Research, Coordination, Planning, Outreach and Education

## Results

A key output of this project is the West Virginia Monarch and Pollinator Strategic Plan. Several hundred people have attend-



## Program Funding



*Private landowners and other land managers learn how to create and enhance pollinator habitat in a workshop co-hosted by WVDNR’s Wildlife Diversity Unit and West Virginia University Extension.*

Photo: WVDNR.



ed workshops to learn about enhancing habitat to benefit pollinators in the Mountain State. WVDNR also supports a pollinator habitat specialist that designs pollinator management plans on private lands. Landowners, agencies and industry now embrace pollinator conservation and look to the Wildlife Diversity Unit for guidance and leadership. This transfer of knowledge and technology is resulting in management changes to benefit Monarch Butterfly and other pollinators on thousands of acres of habitats in West Virginia. With efforts of other states, these proactive strategies may help avert the need to list the Monarch, and contribute to recovery and potential future de-listing of Rusty-Patched Bumble Bee.

Agricultural producers benefit from large-scale implementation of pollinator friendly practices, including increased pollination leading to better yields over time. A more diverse insect community also results in less pesticide use on farms.

### Future Needs

Additional resources are needed to maintain the pollinator habitat specialist position so that

more private landowners who are willing to restore and enhance pollinator habitat on their lands can be served. Ongoing funding would help WVDNR conduct additional monitoring used to develop and refine monitoring protocols and species distribution models for pollinator species.

### More Information

<https://www.wvmonarch.org/>

### West Virginia Wildlife Action Plan

The [West Virginia Wildlife Action Plan](#) was revised in 2015. The plan identifies 1,233 Species of Greatest Conservation Need associated with rivers, forests, barrens, wetlands, and caves. Key threats include habitat loss, habitat degradation, disease, competition, and predation. Priority conservation actions include collaboration with the forest management community and Division of Highways, and identification of conservation focus areas to direct conservation actions. Eight conservation partners, agency staff, and members of the public participated in development and review of the plan. Contact the [West Virginia Division of Natural Resources](#) to learn more.

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*Monarch Butterfly helps pollinate wildflowers. This celebrated butterfly is currently under review by the U.S. Fish and Wildlife Service for potential listing under the Endangered Species Act.*

Photo: Brett Billings, U.S. Fish and Wildlife Service.



## REGIONAL CONSERVATION HIGHLIGHT

# Blanding's Turtle

### Partners in the Northeast Collaborate for Lasting Turtle Conservation

Despite the clichés about their kind, Blanding's Turtles, a species native to 15 states and maritime Canada, are known for getting around.

“They can move miles in the course of a season,” said Michael Marchand, Wildlife Diversity Program Administrator at the New Hampshire Department of Fish and Game. “A female might travel half a mile just looking for a place to make a nest.”

For an animal that's less than 10 inches long, that's a long way to go.

For a wildlife biologist like Marchand, it's also a conservation challenge.

Blanding's Turtles' high mobility puts them in conflict with ours. “Crossing roads is a big threat for this species,” Marchand said. “Their habitat overlaps some of the highest population density areas in New England—southern Maine, southeastern New Hampshire, and eastern Massachusetts.”

But this species' penchant for moving around the landscape also provided incentive for collaboration. “We recognized that the challenges facing this species crossed boundaries, and that we could do more to address its needs by working together,” Marchand said.

In 2004, New Hampshire Fish and Game convened a meeting of biologists involved in Blanding's Turtle conservation from the New England states where it occurs—Massachusetts, New Hampshire, and Maine. They discussed needs, challenges, and charted a path forward together. With support from the State Wildlife Grant Program and the Regional Conservation Needs Program, that path has turned into a roadmap for collaborative turtle conservation across the Northeast region.

Today there are also Regional Working Groups led by state agencies for Wood Turtle, Spotted Turtle, Bog Turtle, and Eastern Box Turtle, that are producing species status assessments, conservation plans, maps of high priority sites, and habitat improvements.



*The Blanding's Turtle Working Group, with representatives from northeastern state fish and wildlife agencies and other partners.*

Photo: Mike Marchand, 2018.



## The Regional Conservation Needs Grant Program

### Innovating for Range-Wide Species Conservation

State Wildlife Action Plans deal with rare species, hard-to-count species, habitats that cross state boundaries, and resources that are conserved most effectively on a regional scale. A mechanism to share expertise and funding to address these landscape-scale issues greatly enhances collaboration and likelihood of success, resulting in more effective conservation of these species.

Working across state lines with a mix of state and federal dollars is extremely difficult. It requires adequate structural and personnel resources to coordinate, implement, monitor, and report on complex projects.

State fish and wildlife agency directors in the northeast portion of the U.S. support a coordinated regional approach and in 2006, developed a cooperative program to address issues and opportunities of regional concern. The Regional Conservation Needs (RCN) Grant Program was approved in April 2007, supported by a voluntary contribution from each northeastern state in the amount of 4% of each agency's annual State Wildlife Grant Program apportionment. The purpose of the RCN Program is to develop, coordinate, and implement conservation actions that are regional or sub-regional in scope and that incorporate and build upon the many existing regional initiatives.

“Blanding’s Turtle felt like a turning point,” said Mike Jones, the state herpetologist for the Massachusetts Division of Fisheries and Wildlife, who has been involved in conservation planning, supported by the State Wildlife Grant Program, for several species. “It demonstrated that states recognized the value in finding common ground in their work on this species.” Although Blanding’s Turtle was considered a species of concern in New England, New York, and Pennsylvania, at the outset of the collaboration each state was at a different stage in management. “Some had been working on Blanding’s Turtle for years and were already funding work on the ground,” said Liz Willey, a professor of Environmental Studies and Sustainability at Antioch University New England, who co-authored the conservation plans for Blanding’s and Wood Turtle with Jones.

“But they wanted to know: what did it all add up to for the species as a whole?” she said. “With a combined approach, they could share information to address challenges across state lines.”

Once the Blanding’s Turtle working group had gained momentum, one of the first steps toward collaborative conservation was a standard sampling protocol. With input from biologists in each state, the working group combined key elements from different survey methodologies within a statistical framework. The goal was to figure out: what data did they all need to collect in order to understand the species’ big-picture needs?

“We wanted to focus on not just where the population is now, but

where it will be over the course of the next 100 years,” Willey said.

That’s important because Blanding’s Turtle habitat is also highly dynamic. These turtles often rely on beaver wetlands, an impermanent landscape feature that succeeds into forest when beaver abandon a site. “We wanted to capture long-term succession on the landscape, to make sure turtles could move around as they needed,” she said.

That landscape perspective revealed that New Hampshire had a larger role in Blanding’s Turtle conservation than expected. “Prior to the survey, we knew we had some Blanding’s Turtle habitat here and there,” Marchand said. “Afterwards, we found that New Hampshire represents 40 percent of the overall distribution of species in the Northeast.”

The initial State Wildlife Grant Program-supported project also included a genetic component that revealed something new about some of the known populations of Blanding’s Turtles. “It helped us identify high priority populations from a genetic standpoint—those with genetic diversity or distinction,” Willey said, adding, “Populations that may not have been prioritized originally, but could have a unique evolutionary capacity that we want to preserve.”

With a second project, supported this time with Competitive State Wildlife Grant (C-SWG) Program funding, the partners focused on targeted implementation to protect and enhance the priority populations.



While strategic land protection and technical assistance to landowners and land managers are top priorities at many sites, the best conservation opportunities varied from state to state, and across priority sites. The prime habitat for Blanding's Turtle in Massachusetts occurs in areas most vulnerable to development. Equipped with the regional conservation plan, Jones said, "The states and their partners have been able to direct millions of dollars toward conservation activities within Blanding's Turtle core areas, leveraging effort across several state and federal agencies."

For Marchand, that's the added value of collaboration. "Our goal is to make the most effective and efficient decisions to advance the conservation of the species," he said, noting that historically, conservation on behalf of Blanding's Turtle in New Hampshire was more opportunistic. "Now we can target collective funding and effort to the best sites, to make sure they stay that way."

## Conservation Crisis

### Turtle Trafficking

Native turtles are disappearing from lands and waters across the country at the hands of domestic and international wildlife traffickers. In the past three years alone, wildlife inspectors with the U.S. Fish and Wildlife Service have intercepted outbound shipments containing more than 10,000 individual turtles representing 13 different native turtle species.

Alarmed about the ecological consequences of this growing threat for both rare and common turtle species, staff from state and federal agencies along with nonprofit partners are taking action: establishing multi-agency and multi-disciplinary collaboratives, identifying information gaps and scientific needs, and forming a united front against criminals who are trafficking in our natural heritage.

The turtle-trafficking crisis touches every part of our country — no turtle species is safe from this threat, and we all have a role to play in protecting them. By supporting scientific tools, turtle housing capacity, repatriation protocols, and partner networks, we can optimize our response, and help offset the population damage with evidence-based approaches.

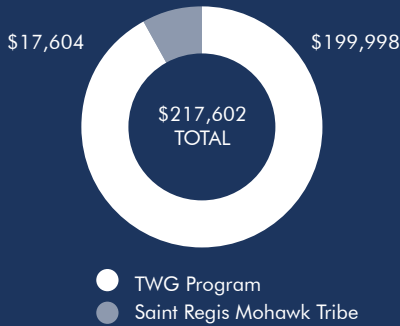


## TRIBAL HIGHLIGHTS

Saint Regis Mohawk Tribe of New York

# Native Plant Restoration

### Program Funding



*The Saint Regis Mohawk Tribe is using Tribal Wildlife Grant Program funding to construct a native plant facility to help restore plant communities and provide habitat for many species, including bumble bees.*

Photo: U.S. Fish and Wildlife Service.

### Project Summary

The Saint Regis Mohawk Tribe’s Native Plants Restoration and Capacity Building Project uses the Tribal Wildlife Grant Program to help develop tribal capacities to operate and manage a native plant nursery operation. Native plant species will be grown for use in habitat enhancement efforts that benefit fish and wildlife species of tribal cultural and traditional importance. Native plant restoration sites will benefit habitats by reducing sediment loading and improving water quality for fish and other aquatic organisms affected by turbidity and nutrients caused by power dam impacts. Many species of culturally important fish and wildlife have suffered the negative effects of degraded habitats within the Saint Regis Mohawk Tribal Territory. Some of the species that will benefit include Muskrat, Snapping Turtle, Yellow Perch, Walleye, Lake Sturgeon, Ruffed Grouse, Deer, and Wilson’s Snipe. Tribal clans value these species as sources of food and organic materials for leather preservation, skin moisturizer, and other purposes.

### Project Cost

Tribal Wildlife Grant Program—\$199,998; other resources are provided by the Saint Regis Mohawk Tribe as voluntary cost share

### Partners

New York State Department of Environmental Conservation’s

Saratoga Tree Nursery, Mid-Atlantic Regional Seed Bank, Confederated Tribes of the Grand Ronde Community of Oregon, Natural Resources Conservation Service, Franklin Soil and Water Conservation District, Akwesasne Cultural Center, Akwesasne Task Force on the Environment, Akwesasne Freedom School

### Methods

Plant Propagation, Habitat Restoration, Coordination, Training, Facility Development

### Results

This project will result in new infrastructure and capacity building for the Saint Regis Mohawk Tribe’s ongoing conservation efforts. Funding will be used within the next year to build a greenhouse, which enables long-term benefits to conservation and habitat restoration on tribal lands. Additionally, the Saint Regis Mohawk Tribe is gaining hands-on training from key partners in the facility.

### Future Needs

Future funding will help the Tribe expand habitat restoration efforts to include additional species of cultural and traditional importance, including River Otter, Beaver, Northern Pike, Muskellunge, Tiger Muskellunge, Bobcat, and Hermit Thrush.

# Aquatic Species Conservation

## Project Summary

A primary goal of the Seneca Nation is to protect and preserve Seneca lands and natural resources to benefit all Seneca members and future generations. The Seneca Nation utilized support from the Tribal Wildlife Grant Program to conduct long-term fish and wildlife habitat improvement on tribal lands, including conservation focused on Blanding's Turtle, Eastern Brook Trout, and Eastern Hellbender. Funding was used to build a tribal fish hatchery, as well as a Blanding's Turtle rearing facility. These facilities, and the Nation's educational outreach activities, help provide long-term benefits to tribal lands and families through species conservation and restoration.

## Project Cost

Tribal Wildlife Grant Program—\$199,480; more than \$80,000 in other resources

provided by the Seneca Nation of Indians

## Partners

The Buffalo Zoo, New York State Department of Conservation, U.S. Fish and Wildlife Service, Pennsylvania Conservancy, New York State Department of Transportation, Natural Resources Conservation Service, National Fish and Wildlife Foundation

## Methods

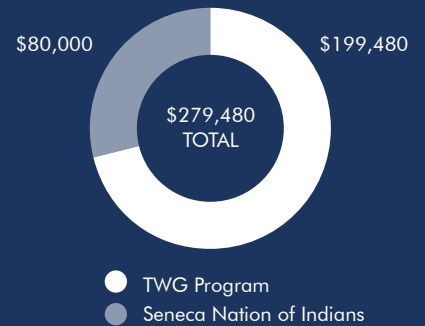
Facility Development, Plant Propagation, Habitat Protection and Restoration

## Results

The Seneca Nation implemented over five miles of in-stream restoration including placement of natural habitat structures, bank stabilization, and in-stream pooling structures. Five acres of wetland were preserved and



## Program Funding



Eastern Brook Trout.

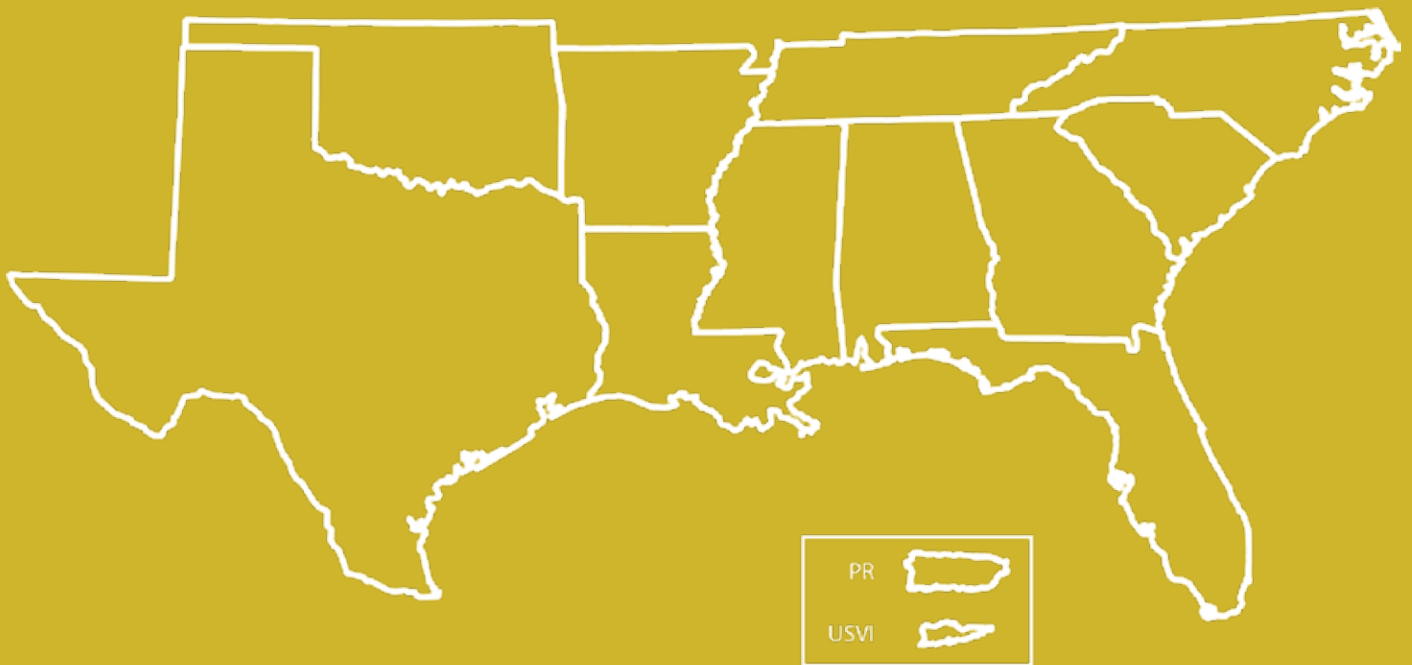
Photo: U.S. Fish and Wildlife Service

protected for threatened species living within the Seneca Nation Territories. Two miles of riparian buffer plantings were installed using native indigenous species. These restoration efforts created a natural buffer and filter for streams within tribal lands. The restoration also provided bank stabilization, resulting in wildlife habitat enhancement and protection.

### **Future Needs**

Future funding would help the Seneca Nation continue to protect and restore habitats for species that are important to tribal members, while also contributing to regional conservation efforts implemented by state fish and wildlife agencies that benefit at-risk species, such as Blanding's Turtle and Eastern Hellbender.

# SOUTHEAST REGION HIGHLIGHTS





## STATE HIGHLIGHTS

Alabama

# Eastern Indigo Snake

### Status

Federally Threatened (1978)

### Project Summary

In 2010, the Alabama Division of Wildlife & Freshwater Fisheries (ALWFF) started an Eastern Indigo Snake repatriation project at Conecuh National Forest in Covington County, Alabama. The last known documented report of this species in the wild was in 1954. This large-scale initiative was the impetus for establishing the species' own breeding facility, The Orianna Center for Indigo Conservation, in Eustis, Florida. A monitoring program is in place to track project success through snake health, movements, behaviors, and survival. These efforts have been supported in part by the State Wildlife Grant (SWG) Program.

### Partners

Auburn Museum of Natural History, U.S. Forest Service, Orianna Center for Indigo Conservation, Birmingham Zoo, Zoo Atlanta, Zoo Tampa, Welaka National Fish Hatchery

### Methods

Monitoring, Captive Rearing, and Release

### Results

To date, 191 Eastern Indigo Snakes have been released, with

more scheduled for release in the spring of 2020. Breeding has been documented by observing gravid females and through game camera monitoring. In January 2020, the first wild Eastern Indigo Snake was observed in almost 60 years in Alabama. This hatchling was verification that released snakes were breeding and behaving as wild snakes, and reproduction is taking place.

### Future Needs

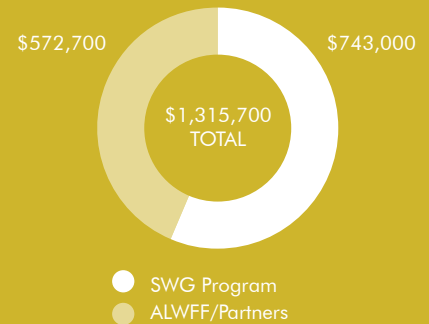
Additional resources are needed to continue reintroduction of this species. With additional funding, partners can monitor for the emerging snake disease, cryptosporidium, as well as maintain genetic diversity and support breeding facility operations.

### More Information

<https://www.outdooralabama.com/node/3479>



### Program Funding



*The first evidence of reproduction of the Eastern Indigo Snake in the wild in Alabama was recently discovered in Conecuh National Forest.*

Photo: Francesca Erickson.

## **Alabama Wildlife Action Plan**

The [Alabama Wildlife Action Plan](#) was revised in 2015. The plan identifies 366 Species of Greatest Conservation Need associated with river basins, forests, wetlands, caves, and coastal beaches. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and lack of protection.

Priority conservation actions include increased monitoring and data collection, enhanced management and protection, and outreach. More than 40 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Alabama Department of Conservation and Natural Resources](#) to learn more.

*“It’s a huge testimony to the State Wildlife Grant Program and working toward the recovery of a federally listed species.”*

*Traci Wood*

*Habitat & Species  
Conservation Coordinator*

*Alabama Wildlife & Freshwater Fisheries*



Arkansas

# Red-cockaded Woodpecker

## Status

Federally Endangered (1970) under the Endangered Species Preservation Act

## Project Summary

The Arkansas Game and Fish Commission (AGFC) uses State Wildlife Grant (SWG) Program funds along with state resources to improve habitat for a wide variety of Species of Greatest Conservation Need identified in the Arkansas State Wildlife Action Plan. AGFC has made investments over several year for species, such as the Red-cockaded Woodpecker, that require open grassland and open woodland habitats. Recent conservation work for this and other species has been conducted at the Warren Prairie Natural Area located in southeast Arkansas.

This project is a good example of restoring habitat to benefit Species of Greatest Conservation need and the potential of these projects to benefit threatened and endangered species.

## Partners

Arkansas Natural Heritage Commission, The Nature Conservancy, Potlatch Forest Holdings, Inc.

## Methods

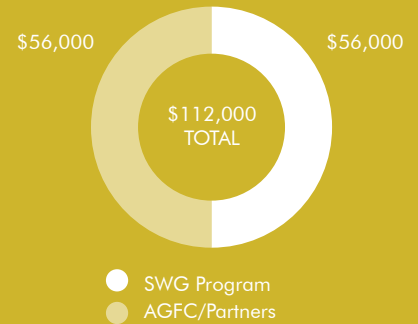
Research, Monitoring, Habitat Management

## Results

Habitat restoration included the use of prescribed fire and mechanical thinning treatments on 1,375 acres to create a more



## Program Funding



*A Red-Cockaded Woodpecker at Warren Prairie, Arkansas.*

Photo: Bill Holimon, Arkansas Natural Heritage Commission.

*Henslow's Sparrow is a Species of Greatest Conservation Need in 30 states. Many of these states list the species as threatened or endangered.*

Photo: Chris Young. Data: U.S. Geological Survey, [https://www1.usgs.gov/csas/swap/species\\_view.html](https://www1.usgs.gov/csas/swap/species_view.html).

*“These endangered birds are benefiting greatly from the State Wildlife Grant Program and we are very appreciative of our state and federal partners who oversee the grant program for their part in this project’s ongoing success.”*

Bill Holimon  
Director

Arkansas Natural  
Heritage Commission



open structure favored by several bird species, including Red-cockaded Woodpecker. Monitoring showed that Henslow's Sparrows, Brown-headed Nuthatches, and Red-headed Woodpeckers, all species of concern in Arkansas, increased in abundance in response to these treatments. After the completion of this project, habitat quality at Warren Prairie was determined to be suitable for the endangered Red-cockaded Woodpecker. Five pairs of sub-adult birds were reintroduced to the site in October 2010. The following year, three of these pairs were breeding. In 2019, nesting and fledging success were at an all-time high for the area.

#### **Future Needs**

AGFC needs additional support for continued maintenance of open woodland habitat structure and monitoring of Red-cockaded Woodpecker clusters.

#### **More Information**

<https://www.fws.gov/rcwrecovery/rcw.html>

<https://www.fws.gov/rcwrecovery/files/rcwoodpecker.pdf>

#### **Arkansas Wildlife Action Plan**

The [Arkansas Wildlife Action Plan](#) was revised in 2015. The plan identifies 380 Species of Greatest Conservation Need associated with prairies, caves, wetlands, rivers, and streams. Key threats include habitat loss and fragmentation, incompatible habitat practices, aquatic passage barriers, and urban development. Priority conservation actions identified in the plan include habitat restoration, habitat protection, threat abatement, and fire management. A diverse group of conservation partners and many members of the public participated in the development and review of the plan. Contact the [Arkansas Game and Fish Commission](#) to learn more.

# Manatee

## Status

Federally Reclassified from Endangered to Threatened (2017)

## Project Summary

The Florida Manatee is an iconic native species found in many of Florida’s rivers, bays, canals, estuaries and coastal areas. The population has grown to a minimum of [7,520 animals today](#) and as a result, in early 2017 was reclassified from an endangered to a threatened species under the Endangered Species Act. The State Wildlife Grant Program has contributed to the successful and continued recovery with a multitude of conservation actions to benefit this species. Projects to help sustain a healthy Florida Manatee population include spring conservation, seagrass restoration, mapping, research, and monitoring, and estuarine habitat enhancement. The Florida Fish and Wildlife Conservation Commission (FWC), along with other partners and stakeholders, manages and protects Florida’s seagrass and warm water habitat resources favored by Manatees. Today, Manatees are considered one of Florida’s keystone species whose behavior can alert researchers to the environmental and habitat changes that may otherwise go unnoticed in Florida’s waterways.

## Partners

Southwest Florida Water Management District, St. Martins Marsh Aquatic Preserve, Big Bend Seagrasses Aquatic Preserve, Suwannee River Water Management District, The Nature Conservancy, NOAA Center for Coastal Fisheries and Habitat Research, Lippincott Consulting LLC

## Methods

Research, Monitoring, Habitat Protection, Enhancement, and Management

## Results

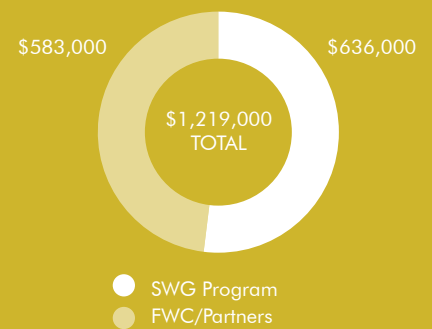
As a result of FWC’s and their many partners’ efforts, the Florida Manatee population has grown to a minimum of 7,520 animals today. In early 2017, the Florida Manatee was reclassified from an endangered to a threatened species under the Endangered Species Act. This change in the species status is based on an increasing population and the establishment of effective protection measures to ensure the continued conservation of the species.

## Future Needs

Ongoing monitoring and other conservation to benefit Florida Manatees could help the species fully recover if population trends continue and additional habitat is permanently protected.



## Program Funding



*After Hurricane Hermine in September 2016, seven Manatees were stranded in the golf course pond at the Plantation on Crystal River. At the start of the February FWC Commission Meeting, Chairman Brian Yablonski recognized Inn staff members who assisted in the rescue.*

Photo: Karen Parker, FWC. Attribution license: <https://creativecommons.org/licenses/by-nd/2.0/legalcode>.



*“Florida Fish & Wildlife Conservation Commission continues to protect and conserve Manatees and their habitat through programs operated in the Division of Habitat and Species Conservation, the Fish & Wildlife Research Institute, and the Division of Law Enforcement.”*

*Florida Fish & Wildlife  
Conservation Commission*

## **More Information**

<https://myfwc.com/wildlifehabitats/wildlife/manatee/how-to-help/>

## **Florida Wildlife Action Plan**

The [Florida Wildlife Action Plan](#) was revised in 2019. The plan identifies 690 Species of Greatest Conservation Need associated within terrestrial, freshwater, and marine habitats, and urban and working lands. Key threats to species include residential and commercial development, human disturbance, invasive species, and climate change. Priority conservation actions identified in the plan include increased monitoring and data collection, habitat restoration, and outreach. Over 100 conservation partners and members of the public participated in the development and review of the plan. Contact the [Florida Fish and Wildlife Conservation Commission](#) to learn more.

Georgia

# Gopher Tortoise

## Status

Federal Candidate

## Project Summary

Since 2009, the State Wildlife Grant (SWG) Program has been a primary resource for tortoise conservation led by the Georgia Department of Natural Resources (GDNR). The goal of the Georgia Gopher Tortoise Conservation Initiative (GTCl) is to protect and manage 65 viable gopher tortoise populations in Georgia to help preclude listing of this keystone species under the Endangered Species Act. Multiple projects utilize a proactive approach, investing in habitat that protects both the economic viability of the state and many species of conservation concern. Many sectors of the Georgia economy, including forestry, agriculture, transportation, commercial development, and activities on military bases could be negatively affected by a federal listing.

## Partners

U.S. Department of Defense, U.S. Forest Service, The Nature Conservancy of Georgia, Private Foundations

## Methods

Monitoring, Prescribed Fire and Other Habitat Management, Forest Restoration



*Juvenile Gopher Tortoise.*

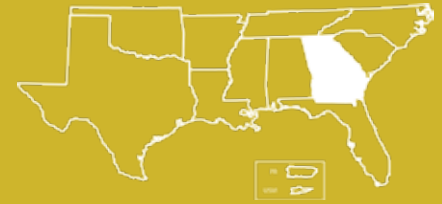
Photo: Georgia Department of Natural Resources.

## Results

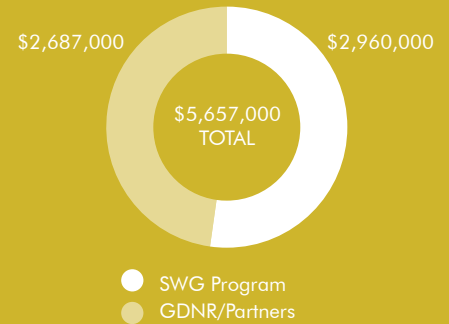
When the GTCl started, 36 of Georgia's 123 known viable tortoise populations were permanently protected. At present GDNR has protected 53 populations, and projects in progress will lead to permanent protection of seven additional populations. In addition to these conservation outcomes, the GTCl also improves and makes available large public land areas for hunting, fishing, hiking, camping, and wildlife watching.

## Future Needs

Additional and ongoing funds are needed for protecting at least six more viable populations, outreach to private landowners, and establishing stewardship endowments and developing long-term management plans, especially for recently protected properties.



## Program Funding



*An adult Gopher Tortoise.*

Photo: Georgia Department of Natural Resources.

*“We all have the same objective: can we save this critter without more regulation? We’re all smart enough to see that more regulations could be the future if we don’t work this out.”*

*Doug Miell  
Energy and Natural  
Resources Consultant  
Georgia Chamber of Commerce*



### **More Information**

<https://www.georgiaconservancy.org/gophertortoise>

### **Georgia Wildlife Action Plan**

The [Georgia Wildlife Action Plan](#) was revised in 2015. The plan identifies 640 Species of Greatest Conservation Need associated with calcareous flatwoods, mountain bogs, granite outcrops, longleaf pine savannas, caves, maritime forests, and other habitats. Key threats to species include habitat loss and fragmentation, altered hydrology, invasive species, and altered fire regimes. Priority conservation actions identified in the plan include increased monitoring and surveys, habitat restoration, rare species recovery, environmental education, and outreach to private landowners. Over 100 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Georgia DNR Wildlife Resources Division](#) to learn more.

Louisiana

# Louisiana Black Bear

## Status

Federally De-Listed Due to Recovery (2016)

## Project Summary

The Louisiana Black Bear is the state mammal of Louisiana, and occurs in Louisiana, east Texas, and western Mississippi. By 1980, biologists estimated that more than 80 percent of the bear's habitat had been modified or destroyed. In 1992, Louisiana Black Bear was listed as threatened by the U.S. Fish and Wildlife Service under the Endangered Species Act. For nearly 10 years, the Louisiana Department of Wildlife and Fisheries (LDWF) has utilized State Wildlife Grant (SWG) Program funding and other resources to implement a broad suite of conservation actions to benefit this unique species.

## Partners

University of Tennessee, Black Bear Conservation Committee, St. Mary Parish

## Methods

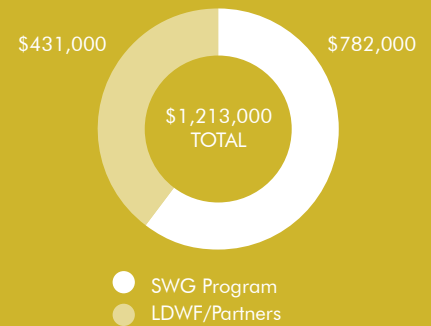
Research/Genetic Analysis, Habitat Restoration, Training, Outreach/Education, Technical Assistance

## Results

The U.S. Fish and Wildlife Service establishes de-listing criteria to determine how and when a species may be removed from federal listing. Reforestation was one of the criteria for the Louisiana Black Bear. LDWF restored nearly 800 acres of bottomland hardwood forest, a major contribution to the recovery of the species. Outreach and Technical Assistance have resulted in fewer



## Program Funding



*Louisiana Black Bear has staged a major comeback due in large part to efforts of LDWF and its partners, using funding from the State Wildlife Grant Program.*

Photo: U.S. Fish and Wildlife Service.

human/bear conflicts. The Service de-listed the Louisiana Black Bear in 2016.

### **Future Needs**

Louisiana Black Bear will require periodic monitoring and ongoing management to ensure its long-term recovery. In addition, LDWF's Wildlife Action Plan includes many other priority conservation actions that are necessary to help recover other federally listed species and avert future listings through proactive measures.

### **More Information**

<https://www.wlf.louisiana.gov/subhome/louisiana-black-bear>

### **Louisiana Wildlife Action Plan**

[The Louisiana Wildlife Action Plan](#) was revised in 2015, with a minor revision completed in 2019. The plan identifies 345 Species of Greatest Conservation Need associated with grasslands, savannahs and woodlands, barrier islands, forests, and ephemeral ponds. Key threats include habitat loss and fragmentation, disturbance, invasive species, and climate change. Priority conservation actions include increased monitoring and data collection, development of best management practices, protection, creation, and maintenance of high-quality habitat, and stewardship. More than 100 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Louisiana Department of Wildlife and Fisheries](#) to learn more.

*"I know the actions we have taken as a Department with our partners in conservation have been key to the relatively rapid recovery of our Louisiana Black Bear."*

*Maria Davidson  
Louisiana Department of  
Wildlife and Fisheries*



Mississippi

# Frecklebelly Madtom

## Status

Petitioned for Federal Listing (2010)—Listing Averted

## Project Summary

The Frecklebelly Madtom was petitioned for federal listing in 2010 due to declines across the range of the species in the Pearl and Mobile Rivers. The low presence at historic sites coupled with low relative abundance demonstrated a need to reassess the status of the species. In coordination with the U.S. Fish and Wildlife Service, the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) and Louisiana Department of Wildlife and Fisheries sampled nearly 180 sites in the Pearl and Mobile Rivers for presence of this small freshwater catfish. Support for this effort was provided by

the State Wildlife Grant (SWG) Program. In partnership with the Service’s Private John Allen National Fish Hatchery, MDWFP collected broodstock for propagation. The agency is planning a reintroduction in a 40-kilometer stream within the Tombigbee River along with three years of monitoring.

## Partners

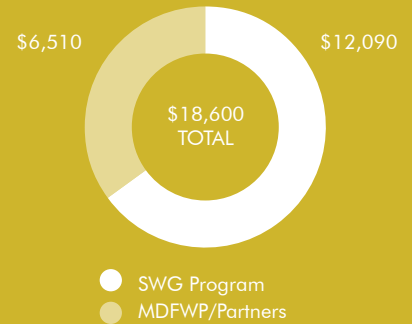
U.S. Fish and Wildlife Service, Louisiana Department of Wildlife and Fisheries

## Methods

Research, Monitoring, Captive Breeding and Release



## Program Funding



Mississippi Department of Wildlife, Fisheries, and Parks staff collecting Frecklebelly Madtom on the Pearl River with the U.S. Fish and Wildlife Service and private landowners.

Photo: MDWFP.

*“The quality work we receive from the State Wildlife Grant Program is invaluable for us to meet our agency’s mission.”*

Amy Carson  
Biologist

Mississippi Ecological  
Services Field Office  
U.S. Fish and Wildlife Service

## Results

Species monitoring determined a presence of 81 to 89 percent in the Pearl and Mobile Rivers at sampled localities. This project established that the species status is stable throughout its range in the Pearl River in Mississippi and Louisiana and the tributaries to the Mobile River in Mississippi.

## Future Needs

The species is still absent from 68 percent of its overall historic range in the Mobile River in Mississippi inundated by the Tennessee–Tombigbee Waterway. Additional resources are needed to continue raising and releasing the fish in its historic range to ensure Frecklebelly Madtom does not require federal listing in the future.

## Mississippi Wildlife Action Plan

The [Mississippi Wildlife Action Plan](#) was revised in 2015. The plan identifies 310 Species of Greatest Conservation Need associated with river basins, forests, wetlands, caves, and coastal beaches. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and lack of protection. Priority conservation actions include increased monitoring and data collection, enhanced management and protection, and outreach. More than 189 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Mississippi Department of Wildlife, Fisheries and Parks](#) to learn more.



*Project partners sampled nearly 180 sites in the Pearl and Mobile Rivers for presence of Frecklebelly Madtom, a small freshwater catfish.*

Photo: Matthew D. Wagner, State Ichthyologist/Curator of Fishes, Mississippi Department of Wildlife, Fisheries, and Parks; Mississippi Museum of Natural Science.

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North Carolina

# Carolina Pygmy Sunfish

## Status

Petitioned for Federal Listing (2010)—Listing Averted

## Project Summary

The Carolina Pygmy Sunfish is a small fish, less than 1.5 inches long, found only in streams, ditches, and wetlands in five counties in North Carolina. The isolation of the Carolina Pygmy Sunfish makes it vulnerable to development, pollution, and habitat alterations. Urbanization has been associated with local disappearances. The North Carolina Wildlife Resources Commission (NCWRC) has used State Wildlife Grant (SWG) Program funds in combination with agency resources to conduct surveys to determine the abundance of the fish in an effort to address a petition for federal listing in 2010. This species was previously considered imperiled but much of this perception was due to a lack of dedicated survey work on this species. Pygmy Sunfish is hard to collect and needs targeted efforts to detect. This species underscores the need to have dedicated funding to be able to undertake concentrated survey and conservation work for species that have few other funding sources.

## Partners

South Carolina Department of Natural Resources, U.S. Fish and Wildlife Service, NOAA Fisheries, Three Oaks Engineering

## Methods

Research, Monitoring, Habitat Protection and Enhancement

## Results

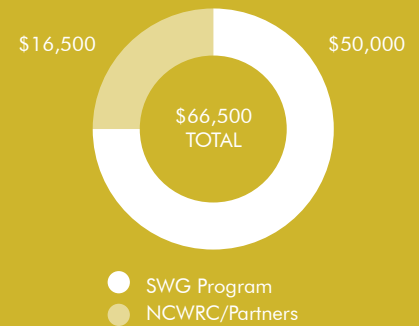
The Carolina Pygmy Sunfish was petitioned for federal listing in April 2010. Prior to this petition, the Carolina Pygmy Sunfish was a Category 2 Candidate for listing. Following this survey work, the petition was withdrawn by the petitioner.

## Future Needs

The North Carolina Wildlife Resources Commission will continue to monitor the species to determine if additional conservation actions are warranted. This species is being included in a state-wide Safe Harbor/Can-



## Program Funding



*Pygmy Sunfish was petitioned for federal listing, but the North Carolina Wildlife Resources Commission determined the abundance of the fish which resulted in withdrawal of the petition.*

Photo: U.S. Fish and Wildlife Service.



*“[The Carolina Pygmy Sunfish] is one of those species that shows the importance of getting accurate and complete information. When it was petitioned, I was sure it would need listing. But after doing more thorough survey and monitoring work, it looked a lot more secure than I originally thought. It also shows the value of working as a region.”*

Todd Ewing  
North Carolina Wildlife  
Resources Commission

didate Conservation Agreement with Assurances so the species can be stocked in unoccupied suitable habitat if necessary at some point in the future. Additional resources may be necessary to implement stream restoration and other habitat enhancement or management activities to help avert the need for federal listing.

### **North Carolina Wildlife Action Plan**

The [North Carolina Wildlife Action Plan](#) was revised in 2015. The plan identifies 457 Species of Greatest Conservation Need associated with rivers and streams,

freshwater and marine wetlands, forests, grasslands, beaches, and caves. Key threats include habitat fragmentation, land conversion, habitat loss, invasive species, disease and pathogens, and climate change. Priority conservation actions include land protection, population monitoring and data collection, habitat management, education and outreach, and species propagation. The plan was developed in coordination with more than 40 organizations and many members of the public. Contact the [North Carolina Wildlife Resources Commission](#) for more information.

Oklahoma

# Ozark Emerald



## Status

Petitioned for Federal Listing (2010)—Listing Averted

## Project Summary

State Wildlife Grant (SWG) Program funds were used by the Oklahoma Department of Wildlife Conservation (ODWC) to support a multi-species status survey over a three-year period for a group of endemic dragonflies in eastern Oklahoma that are identified in the Oklahoma Wildlife Action Plan. The least common of the three species is the Ozark Emerald, which has been documented in Oklahoma fewer than ten times since it was described in the 1930s. Immediately prior to the initiation of this project, the Ozark Emerald was petitioned for listing under the ESA due to its rarity and limited geographic range. Ozark Emerald also benefitted from a land

*Ozark Emerald near the Kiamichi River in Le Flore County Oklahoma.*

Photo: Oklahoma Biological Survey.

acquisition project using SWG Program funds. The ODWC purchased the 180-acre Girdner Tract for addition to the Cookson Hills Wildlife Management Area. The Girdner Tract encompasses a small spring-fed watershed where Ozark Emeralds have been found and are presumed to breed.

## Partners

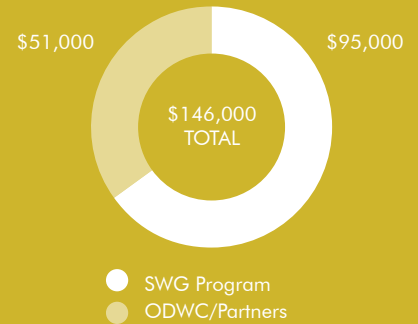
Oklahoma Natural Heritage Inventory

## Methods

Research, Monitoring, Real Property Acquisition



## Program Funding



*“The State Wildlife Grant Program was instrumental in helping to preclude the need to list the Ozark Emerald under the Endangered Species Act. It gave Oklahoma the resources to support a comprehensive status survey and to conserve the habitat supporting one of the newly discovered populations.”*

*Mark Howery  
Wildlife Diversity Biologist  
Oklahoma Department of  
Wildlife Conservation*

## **Results**

The project increased the number of sites known to support Ozark Emeralds to 32 within Oklahoma. As a result of the surveys, the petition to federally list the Ozark Emerald was withdrawn before a 12-month finding was developed by the Service. Precluding the need to list Ozark Emerald helped ODWC and partners avoid potential regulatory constraints.

## **Future Needs**

Periodic monitoring of selected watersheds is needed and additional information about this species' life cycle is critical for informing ongoing management and conservation of Ozark Emerald.

## **More Information**

<https://www.wildlifedepartment.com/sites/default/files/Final%20Report%20T-73-1%20Ozark%20Emerald%20F13AF01188.pdf>

## **Oklahoma Wildlife Action Plan**

The [Oklahoma Wildlife Action Plan](#) was revised in 2015. The plan identifies 310 Species of Greatest Conservation Need that are associated with bottomland hardwood forest, tallgrass prairie, shinnery oak shrubland, gypsum and limestone caves, and streams. Key threats identified in the plan include habitat loss and fragmentation, the disruption of historic fire and grazing cycles, the alteration of stream channels, and invasive species. Priority conservation actions include restoration and conservation of key natural communities, increased monitoring and data collection for rare wildlife species, restoration of stream channel and floodplain habitats, and re-establishment of periodic fire and seasonal grazing. More than 135 conservation partners representing 40 organizations and agencies contributed to the development and review of the plan. Contact the [Oklahoma Department of Wildlife Conservation](#) to learn more.

Puerto Rico

# Puerto Rican Parrot

## Status

Federally Endangered (1967, 1973)

## Project Summary

Recovery actions to benefit the Puerto Rican Parrot include a five-year effort to enhance and create parrot habitat corridors in the areas between two state forests in Puerto Rico—the Rio Abajo and Maricao forests. The Puerto Rico Department of Natural and Environmental Resources (PRDNER) also utilizes State Wildlife Grant (SWG) Program and other partner funds to support the captive breeding and release of the Puerto Rican Parrot. Captive-bred individuals are reintroduced to the wild, helping them maintain a viable population size despite the regular threats of hurricanes, habitat loss and fragmentation, and invasive predators. PRDNER monitors the wild population and manages their nests to increase parrot survival.

## Partners

U.S. Fish and Wildlife Service,  
U.S. Forest Service

## Methods

Research, Monitoring, Habitat Protection, Enhancement and Management, Captive Rearing and Release

## Results

To date, populations of Puerto Rican Parrot have survived despite the hurricanes and other natural disasters that have affected the territory. PRDNER and State Wildlife Grant Program funding have played complementary roles in preventing extinction of this rare and beautiful bird.

## Future Needs

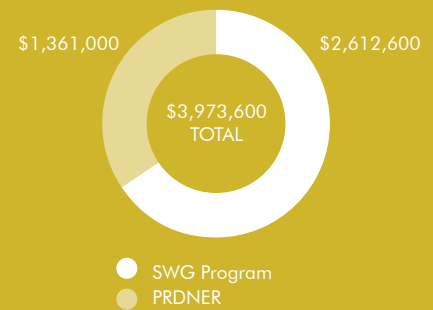
The population still relies on captive breeding and release, so ongoing funding to support this critical conservation work is needed.

## Puerto Rico Wildlife Action Plan

The [Puerto Rico State Wildlife Action Plan](#) was revised in 2015. The plan identifies 283 Species of Greatest Conservation Need within an array of habitats. Key threats and stressors include development, forest fragmentation,



## Program Funding



*Puerto Rican Parrot.*

Photo: Tom MacKenzie, U.S. Fish and Wildlife Service. 2007.

wildfires, hurricanes, climate change, invasive species, pests, and diseases. Priority conservation actions include development of a strong private lands program, strengthening of the existing natural heritage program, identification of waterfowl focus and critical wildlife areas, conserving working forest landscapes, and protecting forests and wildlife. Over 40 agency staff and partners from academia and private organizations assisted with development of the plan. Contact the [Puerto Rico Department of Natural and Environmental Resources](#) to learn more.



South Carolina

## Diamondback Terrapin

### Status

Petitioned for Federal Listing (2011)—Listing Averted

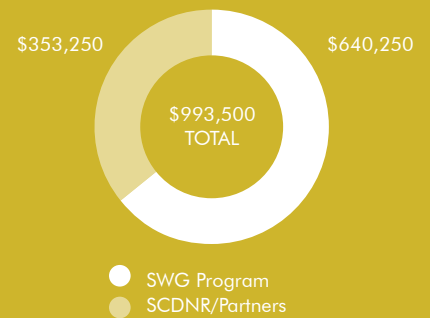
### Project Summary

Over the last 12 years, the South Carolina Department of Natural Resources (SCDNR) and its partners have used State Wildlife Grant (SWG) Program funds along with agency and partner resources to study the aquatic Diamondback Terrapin's life history traits and habitat use. These Terrapins live in brackish water in coastal salt marshes and eat snails, fiddler crabs, and other invertebrates. They are important to the marsh ecosystem because they keep certain problematic snail populations under control. Terrapins are a long-lived species—over 30 years in captivity—but this means it takes a long time for individuals to become adults and start

breeding. SCDNR documented declines in Diamondback Terrapin populations related to habitat loss and destruction, vehicular mortality, and predation of eggs and young. In response, the agency has implemented a variety of research, monitoring, and protection measures to understand the species' occurrence and movements and help reduce mortality related to bycatch in crab traps. SCDNR staff have also investigated the feasibility of head-starting Terrapins. Husbandry studies provide SCDNR the opportunity to be proactive by establishing the steps needed to assist Terrapin populations in the event of further declines. This method may be used to culture Terrapins in captivity to supplement depleted wild populations. More recent studies have focused on assessing Terrapin habitat to understand factors in nest success and to identify locations for future reintroduction efforts.



### Program Funding



*Jeff Schwenter, Wildlife Biologist with South Carolina Department of Natural Resources (SCDNR), Marine Resources Division holds a Diamondback Terrapin.*

Photo: SCDNR.

*“A decade of reliable SWG Program support enabled us to systematically address multiple critical aspects of Diamondback Terrapin life history, which in turn led to improved approaches for managing known threats.”*

*Mike Arendt  
Assistant Marine Scientist  
Marine Resources Division  
South Carolina Department  
of Natural Resources*

## **Partners**

U.S. Fish and Wildlife Service,  
College of Charleston,  
Charleston Water System

## **Methods**

Research, Monitoring, Bycatch  
Reduction Device Development,  
Habitat Analysis

## **Results**

Projects using citizen science sightings have been successful with over 400 reports documented over the past four years. Valuable information has been obtained, including information on verified mating behavior and nesting females. These nest locations are being used to augment access to eggs for hatching success, survival, and growth of hatchlings in relation to nest temperatures.

## **Future Needs**

Widespread adoption of bycatch reduction devices is required before significant conservation benefits for the Diamondback Terrapin can be realized. SCDNR will continue outreach and education efforts in pursuit of this goal. Future work will also need to evaluate variability in Terrapin and Blue Crabs to ensure

that device design is appropriate throughout South Carolina. SCDNR requires ongoing support to continue the study of hatching and juvenile habitat needs and survival, identification of prime nesting locations along the coast, and development of density and abundance estimates.

## **More Information**

<http://www.dnr.sc.gov/swap/conserves/diamondterrapin.html>

## **South Carolina Wildlife Action Plan**

The [South Carolina Wildlife Action Plan](#) was revised in 2015. The plan identifies 828 Species of Greatest Conservation Need associated with upland and bottomland forest, freshwater wetlands, rock outcrops, coastal beaches, and estuarine and marine systems. Key threats include habitat loss and fragmentation, disturbance, invasive species, and climate change. Priority conservation actions include increased monitoring and data collection, enhanced management, land acquisition, and outreach. More than 70 conservation partners participated in the development and review of the Plan. Contact the [South Carolina Department of Natural Resources](#) to learn more.

Tennessee

# Pale Lilliput

## Status

Federally Endangered (1976)

## Project Summary

Pale Lilliput is a critically endangered freshwater mussel that is facing an extremely high risk of extinction in Tennessee and throughout its range, which includes portions of Alabama. The Tennessee Wildlife Resources Agency is utilizing State Wildlife Grant (SWG) Program funding along with state funds, the Service's Cooperative Endangered Species Conservation Fund, and other resources to ensure the species does not disappear from Tennessee or become extinct.

## Partners

U.S. Fish and Wildlife Service, Tennessee Technical University, Alabama Department of Conservation and Natural Resources

## Methods

Research, Monitoring, Habitat Management, Captive Rearing and Release

## Results

With ever-improving husbandry techniques, the survival rate of Pale Lilliput juveniles reached 99 percent—an exceptional growth rate for propagated mussels. Approximately 400 tagged mussels were released in the Duck

and Elk Rivers where they will be monitored and maintained.

## Future Needs

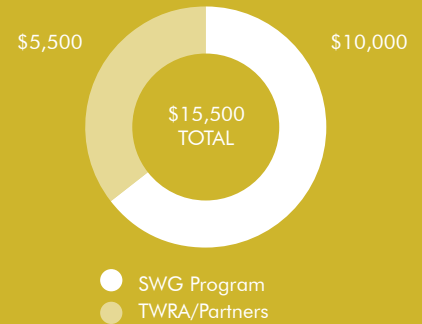
Continued funding for the Cumberland River Aquatic Center is needed to increase production of Pale Lilliput mussels in captivity for release in Tennessee Rivers. Support is also necessary for ongoing monitoring and other activities needed for active participation in species recovery at the state level.

## Tennessee Wildlife Action Plan

The [Tennessee Wildlife Action Plan](#) was revised in 2015 in collaboration with The Nature Conservancy. The plan identifies 1,499 Species of Greatest Conservation Need within 59 priority terrestrial ecological systems and 12 priority aquatic subregions.



## Program Funding



*Pale Lilliput.*

Photo: Dick Biggins.



Key threats include urbanization, agricultural land management, forestry practices, water management, energy development, transportation and utility corridors, and climate change. Priority conservation actions include improving habitat quality and quantity, restoring species populations, invasive species management, control of pathogens, climate change abatement, partnership

development, effective environmental review and regulatory programs, expanded habitat acquisition and management, private landowner incentives and engagement, education, research, and monitoring. Over 40 experts and more than 30 agency and nonprofit partners assisted with development of the plan. Contact the [Tennessee Wildlife Resources Agency](#) for more information.

*“Success in conservation by propagation is a long journey of saving the species from going extinct and is impossible to achieve without the support from State Wildlife Grant Program.”*

Dan Hua  
Malacologist

Tennessee Wildlife Resources Agency

Texas

# Guadalupe Bass

## Status

Species of Greatest Conservation Need

## Project Summary

Guadalupe Bass, the State Fish of Texas, are endemic to the clear, spring-fed rivers of the Texas Hill Country. Populations are threatened with local extirpation from habitat degradation, flow alteration, and hybridization with non-native Smallmouth Bass. Recent restoration of Guadalupe Bass led by the Texas Parks and Wildlife Department (TPWD) in the Blanco, Llano, and San Antonio Rivers demonstrates what can be achieved when partners rally around a shared conservation vision. Ongoing projects center on the preservation of intact populations of Guadalupe Bass in Brushy and Gorman creeks and the Pedernales and lower Colorado Rivers. State Wildlife Grant (SWG) Program funding has supported Guadalupe Bass conservation in Texas since 2009. A 2015 study conducted by TPWD and Texas Tech University showed that stream fishing in Texas Hill Country rivers generated an economic value of over \$71 million during a 16-month period.

## Partners

Hill Country Alliance, Llano River Watershed Alliance, The Nature Conservancy, San Antonio River Authority, Southeast Aquatic Resources

Partnership, Texas Council of Fly Fishers International

## Methods

Conservation Stocking, Habitat Restoration, Invasive Species Management, Monitoring

## Results

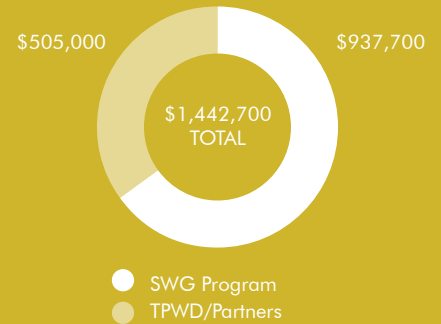
The TPWD strategic plan goal of establishing and maintaining 10 genetically pure, self-sustaining populations throughout the species' native range was achieved in 2018.

## Future Needs

Additional funding is needed to assess the status of populations of Guadalupe Bass in several other Texas creeks and rivers. Additionally, continued investments are needed for restoration and preservation of aquifer levels,



## Program Funding



## Guadalupe Bass Release.

Photo: Chase A. Fountain, Texas Parks and Wildlife.

*“To catch a Guadalupe Bass from one of the rocky, spring-fed rivers of the Texas Hill Country should be on the bucket list of every Texan. Concerted efforts are being made by TPWD and an extraordinary network of public and private partners to ensure that current and future generations are able to experience this storied fish.”*

Tim Birdsong  
Chief of Habitat Conservation  
Texas Parks and Wildlife Department

springs, instream, and riparian habitats throughout the Texas Hill Country.

### **More Information**

[https://tpwd.texas.gov/publications/pwdpubs/media/pwd\\_rp\\_t3200\\_2079\\_19.pdf](https://tpwd.texas.gov/publications/pwdpubs/media/pwd_rp_t3200_2079_19.pdf)

### **Texas Wildlife Action Plan**

The [Texas Conservation Action Plan](#) was revised in 2012. The plan identifies 1,309 Species of Greatest Conservation Need associated with forests, woodlands, shrublands, grasslands, marine and freshwater wetlands, rivers, deserts, and coastal beaches. Key threats include habitat loss and

fragmentation, invasive species, disease and pathogens, power development and transmission, resource extraction, forest management, infrastructure, water and land management, lack of information, and disturbance. Priority conservation actions include direct management, habitat restoration and creation, land protection, conservation area designation, environmental review, planning, technical assistance, data management, education, and incentives. Nearly 200 agencies and organizations and many members of the public participated in the development of the plan. Contact the [Texas Parks and Wildlife Department](#) to learn more.

U.S. Virgin Islands

# St. Croix Ground Lizard

## Status

Federally Endangered (1977)

## Project Summary

Maintaining self-sustaining populations of threatened and endangered species through management action may require experimental approaches. The U.S. Virgin Islands (USVI) Division of Fish and Wildlife (DFW) is working to repatriate the St. Croix Ground Lizard to habitats within its historic range where the species was once common, prior to introduction of the Mongoose to the USVI. Locations for lizard reintroductions were determined based on partner input, and special predator-proof cages will be used in raising and observing the species prior to release.

## Partners

Private Landowners, U.S. Fish and Wildlife Service, University of the Virgin Islands, USVI Port Authority

## Methods

Planning, Stakeholder Engagement, Habitat Management/Protection, Translocation

## Results

The program is ongoing, but the partners have already achieved significant results through stake-

holder meetings and building and testing habitat structures.

## Future Needs

After completion of this experimental project, DFW will develop a plan with guidelines and protocols for raising and releasing St. Croix Ground Lizard into historic habitats.

## More Information

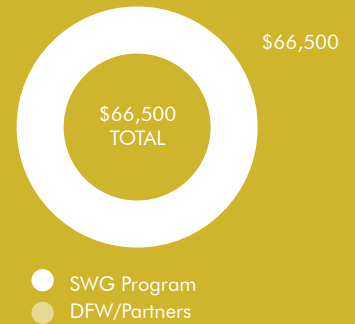
<https://www.fws.gov/uploaded-Files/St.%20Croix%20Lizard%20ENG%20fact%20sheet.pdf>

## U.S. Virgin Islands Wildlife Action Plan

The [Virgin Islands Wildlife Action Plan](#) was revised in 2018. The plan identifies 139 Species of Greatest Conservation Need associated with forests, mangroves,



## Program Funding



*U.S. Virgin Islands is exempt from State Wildlife Grant Program matching requirements.*

*Endangered St. Croix Ground Lizard.*

Photo: Nicole F. Angeli



coral reefs, freshwater ponds, and salt flats. Key threats to species include habitat loss, invasive species, wildlife disease, and climate change. Priority conservation actions include increased habitat and species protection, habitat and species management protection, research, and outreach. Development and review of the plan included many conservation partners and public participation. Contact the [Virgin Islands Department of Planning and Natural Resources](#) to learn more.



## REGIONAL CONSERVATION HIGHLIGHT

# Gopher Frog

### States

North Carolina and South Carolina

### Status

Petitioned for federal listing (2012). The U.S. Fish and Wildlife Service determined that the Gopher Frog may warrant protection, pending a Species Status Assessment.

The Gopher Frog resembles a toad in many ways—from its warty skin to its large head and chunky body. It has prominent, cobblestone-like warts and distinct folds along the sides of its body. Color ranges from pale gray to tan to nearly black with numerous dark spots. Its belly is mottled with dark pigment and it has yellow or orange on the concealed surfaces of the thighs and groin. These rare frogs occur in scattered localities in the Sandhills and Atlantic Coastal Plain in the Carolinas. Biologists know little about their natural history outside the breeding season. Adults spend much of their time underground. Gopher Frogs commonly use the burrows of the Gopher Tortoise as hiding places in the deep south, including in South Carolina. In North Carolina, Gopher Frogs hide in stump holes, root tunnels and mammal and crayfish burrows since Gopher Tortoises are not found in the state. Ongoing threats to Gopher Frog include fragmentation and loss of habitat and road

mortality, as well as diseases such as *Chytrid* fungus and *Ranavirus*.

To contribute substantially to the Service's Species Status Assessment of Gopher Frog, North and South Carolina agencies must continue to seek new populations and monitor known populations, particularly for evidence of successful reproduction and recruitment. Additional resources are needed to estimate population sizes and densities, continue restoration of uplands and wetlands, and continue population augmentation through head-starting. Additional support for evaluating head-starting programs and ongoing genetic analysis of restored populations is needed to assist the agencies in making translocation decisions. The two states are working to provide technical guidance and outreach to constituents and the public, so that conservation efforts can be expanded to other lands within the Gopher Frog's range.



*Gopher Frog, a species currently under review for listing as threatened or endangered under the Endangered Species Act.*

Photo: Jeff Hall.

*North Carolina Wildlife Resources Commission's Gopher Frog head-starting tanks.*

Photo: Jeff Hall.

*“The partnership between the North Carolina Zoo and North Carolina Wildlife Resources Commission has led to early success in helping with the recovery efforts of the Gopher Frog. We’ve conducted numerous surveys, tracked dozens of froglets, and released more than 1,000 of these endangered pineland inhabitants.”*

*Mr. Dustin Smith  
North Carolina Zoo*

*The Carolina Gopher Frog resembles a toad in many ways—from its warty skin to its large head and chunky body. It has prominent, cobblestone-like warts and distinct folds along the sides of its body.*

Photo: Andrew Grosse, South Carolina Department of Natural Resources.

## North Carolina

The North Carolina Wildlife Resources Commission (NCWRC) has been working with many partners for 12 years to conserve the Gopher Frog in North Carolina, with support from the State Wildlife Grant Program and partner contributions. Surveys for the Gopher Frog have detected a decline in this species from 23 to 7 populations within the state. Partners in Gopher Frog conservation in North Carolina include the U.S. Forest Service, Department of Defense, North Carolina Zoo, North Carolina Aquariums, North Carolina Plant Conservation Program, several universities, and other state agencies. Conservation actions have included surveys for new populations and monitoring of existing populations, genetic analyses, restoration and creation of ponds, restoration of uplands, and head-starting to augment populations. Biologists collect Gopher Frog eggs from the wild and raise tadpoles in captivity, which protects them from predators, habitat degradation, and other environmental factors. When the tadpoles metamorphose into juvenile frogs, they are returned to the ponds where the eggs originated. Genetic analyses may help direct future translocation of frogs among populations. Since the releases began in 2011, more than 3,200 frogs have been released in southeast-



ern North Carolina. Some of the frogs released to the wild have been outfitted with transmitters, and they are being monitored with radio-telemetry to learn more about their movements, habitat needs, and survival.

## South Carolina

The South Carolina Department of Natural Resources is working in the state’s coastal plain to conserve this state-endangered species identified in the South Carolina Wildlife Action Plan as a “species of highest concern.” The agency has identified extirpations and strongholds of Gopher Frogs in South Carolina. This monitoring work has led to additional conservation activities for Gopher Frog such as wetland restoration, which benefits numerous species identified in the Wildlife Action Plan. Through seed funding from the State Wildlife Grant Program, additional funding opportunities to address conservation concerns such as habitat restoration have been leveraged. The agency has also initiated artificial population augmentation through head-starting.

## More Information

<http://www.dnr.sc.gov/swap/supplemental/reptilesandamphibians/pondbreedingamphibians-guild2015.pdf>

<https://www.ncwildlife.org/Learning/Species/Amphibians/Carolina-Gopher-Frog>

[https://www.fws.gov/charleston/pdf/ARS%20fact%20sheets%20for%20web/carolina%20gopher%20frog%20fact%20sheet\\_SC\\_2016.pdf](https://www.fws.gov/charleston/pdf/ARS%20fact%20sheets%20for%20web/carolina%20gopher%20frog%20fact%20sheet_SC_2016.pdf)

## TRIBAL HIGHLIGHTS

Catawba Indian Nation of South Carolina

# Habitat Enhancement

### Project Summary

The Catawba Indian Nation of South Carolina utilized Tribal Wildlife Grant Program funding to develop tribal capacity for food production and wildlife habitat management. The overarching goal of the Catawba Wildlife Preserve Enhancement Project is to ensure that effective land and wildlife habitat conservation activities and culturally-relevant tribal traditions are practiced and preserved. The use and conservation of tribal land will help to ensure member well-being and natural resource protection through land and wildlife habitat stewardship. The project supports healthy, self-sustaining wildlife populations that will be shared with Catawba Indian Nation tribal members for generations to come.

### Project Cost

Tribal Wildlife Grant Program—\$174,500

### Partners

Gary Peters, Biologist, National Wild Turkey Federation, and a USDA certified Technical Service Provider

### Methods

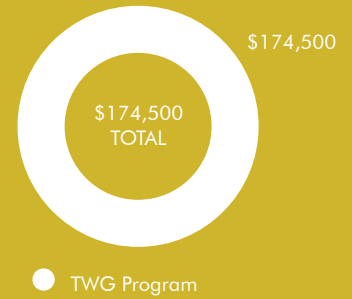
Monitoring, Coordination, Habitat Creation, Enhancement, and Management

### Results

Prescribed burning was planned and conducted in-house with tribal staff in early 2016. Approximately 17 acres of pine stands were burned and cleared of undergrowth to increase the health of the pine forest and



### Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*



*The Catawba Wildlife Reserve Enhancement Project restored a wide array of flowering plants that will benefit pollinators like Monarch Butterfly.*

Photo: Ryan Hagerty, U.S. Fish and Wildlife Service.

*“The Catawba Indian Nation is honored that we were chosen for this opportunity and we’re beyond proud of the work we were able to accomplish for the preservation of our tribal wildlife.”*

*Catawba Nation Tribal Leader*

create new foliage for wildlife. Approximately five acres of land were plowed, disked, limed, fertilized, and planted for wildlife food plots. Over 160 trees were planted adjacent to many of the existing fields and food plots on the Catawba Preserve including Gobbler Sawtooth Oaks, American and Common Persimmons, Apples, Crabapples, and Chickasaw Plums. These trees provide a source of food both for tribal members and for wildlife such as butterflies, birds, and mammals that the Tribe seeks to attract and sustain. Students also utilize

the Catawba Preserve for education on historic and traditional environmental practices such as the traditional use of indigenous plants and animals for subsistence and physical well-being.

### **Future Needs**

The Tribe has plans for ongoing wildlife monitoring and habitat assessment. Naturalized plots are being established to benefit Monarch Butterfly, with the hope that additional funding can be secured to further this work.

# Protecting Natural Heritage and Livelihoods

## Project Summary

The Cherokee people possess a long history of natural resource stewardship dating back thousands of years. Sustaining fish and wildlife populations in a changing world is an integral part of maintaining Cherokee livelihood. Cherokee lands and waters support diverse communities of fish, mammals, birds, amphibians, reptiles, and invertebrates. This biological diversity is intricately tied to Cherokee culture with thousands of species playing critical roles in subsistence, arts, medicine, ceremonies, and stories. The Eastern Band of Cherokee Indians has relied on the Tribal Wildlife Grant Program over the past 12 years to help build the capacity of its Fisheries and Wildlife Management Office for monitoring, regulating, and maintaining the Band's fish and wildlife resources for current and future generations.

## Program Cost

Tribal Wildlife Grant Program—\$1.3 million over a 12-year period; other resources provided by the Eastern Band of Cherokee Indians—\$650,000

## Partners

North Carolina Wildlife Resource Commission, Great Smoky Mountains National Park, Western Carolina University

## Methods

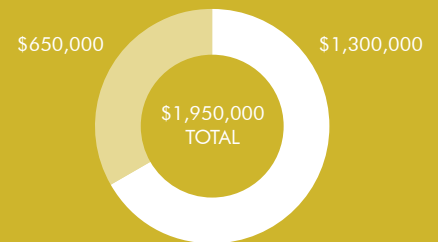
Research, Monitoring, Coordination, Training

## Results

A critical component of the Cherokee tourist economy is tied to the work of the Band's Fisheries and Wildlife Management Office. This includes management



## Program Funding



- TWG Program
- Eastern Band of Cherokee Indians



*A White-Tailed Deer restoration project made possible through collaboration between the Eastern Band of Cherokee Indians (EBCI), the North Carolina Wildlife Resources Commission, North Carolina State Parks, and the Great Smoky Mountains National Park.*

Photo: EBCI.

*The Eastern Band of Cherokee Indians has used Tribal Wildlife Grant Program funding to support monitoring of Black Bear (YoNa) and other science-based management actions.*

Photo: EBCI.



efforts to sustain wildlife populations and provide tourists with viewing opportunities for species such as Elk. Projects focused on fisheries monitoring and aquatic ecosystem restoration also help to support a lucrative recreational fishing program for the Eastern Band of Cherokee Indians.

### **Future Needs**

Ongoing support is needed for translating new knowledge into science-based management of a wide variety of species. To adequately manage its abundant fish and wildlife resources, the Band must conduct more research and partner with state, federal and academic institutions. Additional funding would help the Band obtain more training for in-house research, species monitoring, and analysis.

# Pollinator Conservation

## Project Summary

For the Tonkawa Tribe of Oklahoma, bees are the symbol of honesty, pure thinking, willingness, and drive. Many tribes consider butterflies to be symbols of good luck, and some have taboos against killing them.

The Tonkawa Tribe is creating a medicine wheel garden at Chiloco Boarding School north of Newkirk, Oklahoma. The garden will include pollinator-friendly plants like Indian Paintbrush, Coneflower, and Prairie Sunflower, as well as a water source. The Medicine Wheel, known as the Sacred Hoop, has been used by generations of various Native American tribes for health and healing. This medicine wheel garden will provide bee- and butterfly-friendly flowers, herbs and shrubs. Community education on the importance of maintaining habitat for pollinators will include publication of eight articles about bees and butterflies in the tribal newspaper. Brochures will be created and distributed in the community to promote the importance of pollinator conservation.

## Project Cost

Tribal Wildlife Grant Program—\$149,000; other resources provided by Johnson O'Malley, Tonkawa Tribal Committee

## Partners

U.S. Department of Agriculture, U.S. Fish and Wildlife Service, The Learning Center of the Euchee Butterfly Farm

## Methods

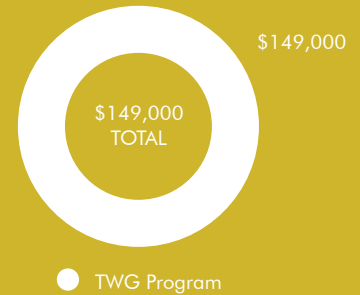
Planning, Habitat Creation, Enhancement and Management, Education/Outreach

## Results

Greater community awareness of pollinator conservation efforts and how to support them is a key anticipated benefit of the project. Both the school garden and other pollinator habitat created and enhanced by tribal members will benefit Black Swallowtail and Monarch Butterfly, the latter of which is under review for listing



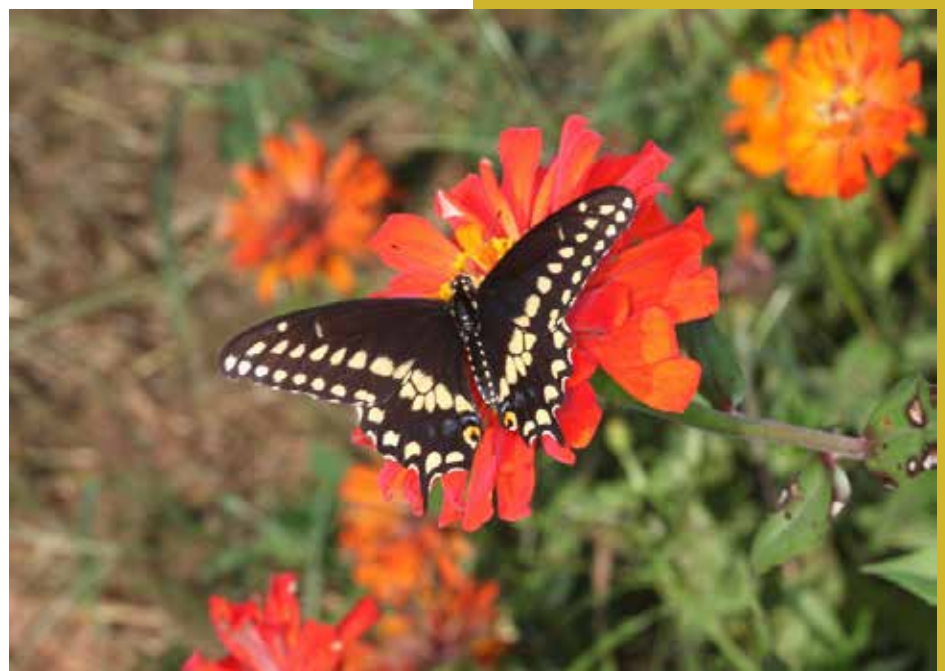
## Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

*Black Swallowtail is one pollinator species that will benefit from this project.*

Photo: John Flannery, Creative Commons / Flickr. License: <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode>.



*Monarch butterfly on a flower on Oklahoma.*

Photo: Carolyn. Creative Commons / Flickr.  
License: <https://creativecommons.org/licenses/by-nd/2.0/legalcode>.



*“The Tribal Wildlife Grant Program helps many species, even pollinators. Grants that support tribal sovereignty, culture and language are additional benefits from the program.”*

*Mary Elder  
Assistant Regional Director—  
External Affairs  
U.S. Fish and Wildlife Service*

under the Endangered Species Act.

#### **Future Needs**

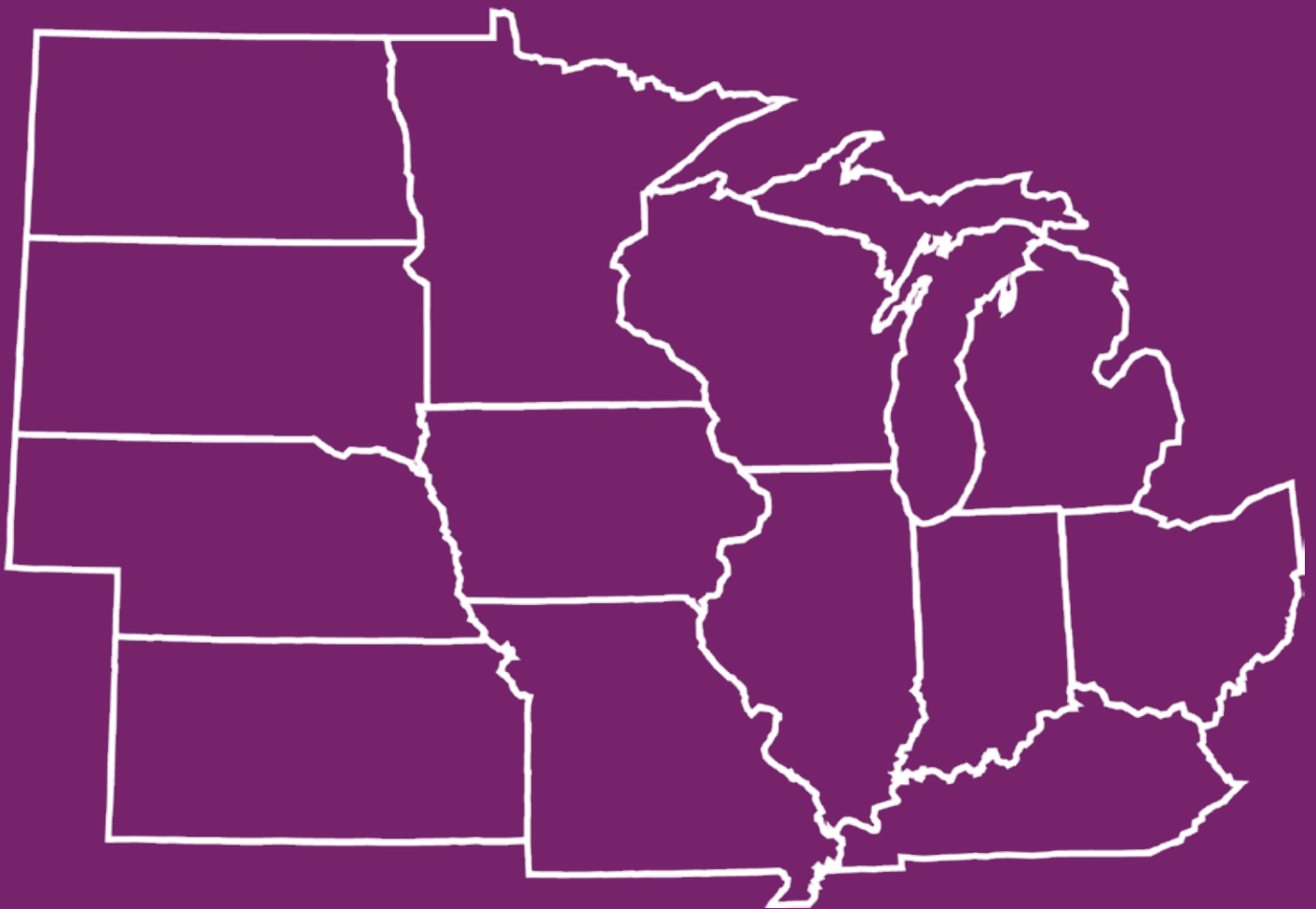
Additional support would be important in assisting tribal members and partners with research, monitoring, and habitat creation and enhancement for pollinators.

#### **More Information**

<https://www.fws.gov/savet-hemonarch/>



# MIDWEST REGION HIGHLIGHTS





## STATE HIGHLIGHTS

Illinois

# Jefferson Salamander

### Status

State-Listed as Threatened

### Project Summary

Jefferson Salamander is native to the northeastern United States and Canada. In Illinois, it is listed as threatened and also identified as a Species of Greatest Conservation Need in the state's Wildlife Action Plan. In Ontario, Canada, it has been classified as an endangered species since 2011. The Illinois Department of Natural Resources (IDNR) used State Wildlife Grant Program funding along with state resources to construct ephemeral ponds in State Parks to create breeding habitat for a variety of rare and declining amphibians. IDNR has also continually monitored use of the ponds by a variety of species. Ephemeral ponds can be easily

built across a range of Illinois habitats and provide a fairly cost-efficient and easily replicated conservation tool for common and rare species alike.

### Partners

Illinois Natural History Survey, National Great Rivers Research and Education Center

### Methods

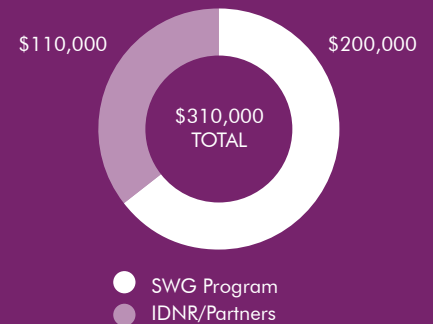
Habitat Restoration/Management, Monitoring/Assessment, Applied Research

### Results

The Illinois Department of Natural Resources found that the ponds created for new habitat were colonized by a number of Species of Greatest Conserva-



### Program Funding



*Jefferson Salamander is listed as threatened in Illinois, and is a Species of Greatest Conservation Need in the Illinois Wildlife Action Plan.*

Photo: John Crawford, National Great River Research and Education Center.

*“The Illinois Department of Natural Resources continues to conduct critical work restoring and enhancing at-risk wildlife populations and their habitats that is only possible due to the presence of the State Wildlife Grant Program.”*

*Leon C. Hinz Jr., Ph.D.  
Wildlife Action Plan Coordinator  
Illinois Department of  
Natural Resources*

tion Need, including Jefferson Salamander, which is found in only two counties in Illinois. As a result of these efforts, IDNR now considers the species more stable in Illinois. Other species that benefit from construction of ephemeral ponds include Wood Frogs, Spring Peepers, and Spotted Salamanders.

### **Future Needs**

Ongoing habitat maintenance and expansion of availability of ephemeral pond habitats is needed to ensure populations of Jefferson Salamander and other Species of Greatest Conservation Need can be stabilized and any requirement for future listing under the Endangered Species Act can be avoided.

### **Illinois Wildlife Action Plan**

The [Illinois Wildlife Action Plan](#) was revised in 2015. The plan identifies 421 Species of Greatest Conservation Need and 309 Watch List species associated with grasslands, forests, woodlands, streams, and wetlands. Key threats include habitat fragmentation, climate change, invasive species, hydrologic change, and pollution. Priority conservation actions include habitat management using natural disturbance regimes, developing resiliency and connectedness within habitats, and fostering a connection to SGCN and their habitats among the public. More than 220 individuals from 81 partnering organizations and many members of the public participated in the development and review of the plan. Contact the [Illinois Department of Natural Resources](#) to learn more.

# Outreach Campaign for Endangered Mussels

## Status

Six Federally-Listed Mussel Species

## Project Summary

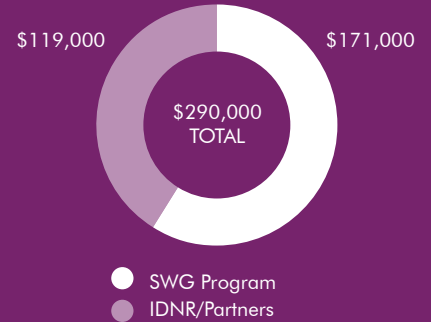
More than half of the mussels in the midwestern United States are endangered, threatened, or a state species of concern. In Indiana, the Clubshell is one of six federally-listed mussels that now reside primarily in the Tippecanoe River, which is the only place in Indiana where a reproducing population of Clubshell is still found. Mussels are filter feeders that can live for many years on the bottom of a river, traits that make them excellent indicators of water quality and overall river health. Because of the benefits mussels provide and their imperiled status, the Indiana Department of Natural Resources (IDNR) partnered with Purdue

University to develop an outreach campaign to increase awareness of mussels and foster positive behaviors to benefit them. The State Wildlife Grant (SWG) Program provided key funding, along with resources from the Service's Cooperative Endangered Species Conservation Fund, Purdue University, and IDNR.

The “Heart of the Tippy” campaign identified two stakeholder groups: recreational users (canoeists, anglers) and landowners along the Tippecanoe. Outreach strategies used community-based social marketing to develop messages to help improve water quality. Floating keychains, bobbers, and other items with key messages were distributed at community events, bait shops, and local properties. The website (<https://www.purdue.edu/extension/mussels/>) has activities for river residents, children, recreationists, and



## Program Funding



These Purdue University students are spreading the message to protect mussels and their habitats by “Taking the Pledge” at a community event.

Photo: Belyna Bentlage, Purdue University.

*“Effective species management and conservation incorporates the beliefs and values of citizens and stakeholders.”*

*Brad Feaster  
Division of Fish and Wildlife  
Indiana Department of  
Natural Resources*

anglers as well as downloadable brochures and lesson plans.

### **Partners**

Purdue University, U.S. Fish and Wildlife Service—Cooperative Endangered Species Conservation Fund

### **Methods**

Online, Mail, and In-Person Surveys

### **Results**

The campaign increased public awareness and appreciation of mussels and instilled positive behaviors among stakeholders. More than 400 people pledged to improve water quality and protect mussel habitat in and along the Tippecanoe River.

### **Future Needs**

Within the Tippecanoe River drainage, future support would help IDNR implement conservation actions to improve water quality and investigate the underlying factors contributing to the continuing decline of several SGCN freshwater mussel species in Indiana. Additional funding would be directed toward further augmentations and reintroductions of freshwater mussels identified in the Indiana Wildlife Action Plan.

### **More Information**

<https://www.fws.gov/endangered/grants/>

### **Indiana Wildlife Action Plan**

The [Indiana Wildlife Action Plan](#) was revised in 2015. The plan identifies more than 150 Species of Greatest Conservation Need and associated with natural lakes, hardwood forests, shrub wetlands, caves, and grasslands. Key threats include habitat loss and degradation, modification of natural systems, disturbance, and invasive species. Priority conservation actions include land and water protection, restoration of natural habitats, invasive species control, and increased education and public awareness. More than 150 conservation partners and many members of the public participated in the development and review of the plan. To learn more contact the [Indiana Department of Natural Resources](#).

Iowa

# Regal Fritillary

## Status

Proposed Federally Threatened (2015), Scheduled for Federal Listing Review (2022)

## Project Summary

The Regal Fritillary is a prairie-specialist species which has two known larval hostplants that are native to Iowa: Prairie Violet and Bird's Foot Violet. Hostplant availability is a potentially limiting factor for the Regal Fritillary, so the Iowa Department of Natural Resources (IADNR) is working to ramp up production of these violets for inclusion in planting mixes for prairie restorations. The agency also provides funding to landowners for habitat improvements benefitting Regal Fritillary on private lands. Partial support for these timely conservation efforts is provided by the State Wildlife Grant (SWG) Program.

## Partners

Private landowners, Iowa State University, Pheasants Forever, Nebraska Game and Parks Commission, Minnesota Department of Natural Resources

## Methods

Prairie Restoration and Management, Development of Guidance for Land Managers, Modeling/Mapping; Private Landowner Conservation Agreements



Monitoring technician holds a Regal Fritillary caught at Stone State Park

Photo: Thomas Hennessey.

## Results

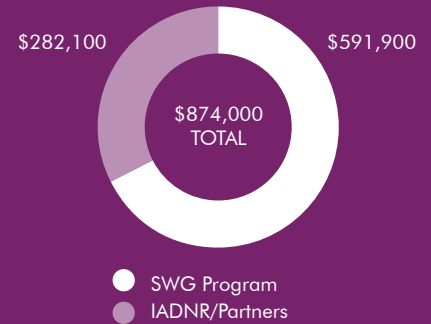
Regal Fritillary is on the U.S. Fish and Wildlife Service's National Listing Workplan. IADNR is planning and implementing proactive conservation of the species in advance of a listing decision in 2022 in an effort to avert the need for listing under the Endangered Species Act.

## Iowa Wildlife Action Plan

The [Iowa Wildlife Action Plan](#) was revised in 2015. The plan identifies 405 Species of Greatest Conservation Need associated with grasslands, forests, wetlands, lakes, and rivers. Key threats to species include habitat loss and fragmentation, degradation of habitat from



## Program Funding



“The funding provided to Stone State Park played a critical role in managing for rare and sensitive species such as the Regal Fritillary.”

Jason Dykstra  
Stone State Park  
Sioux Fall, Iowa



invasive species and modification of natural systems, and lack of protection. Priority conservation actions include monitoring, use of adaptive management, and increased habitat management and protection. Representatives from over 50 conservation partners and members of the public participated in the development and review of the plan. Contact the [Iowa Department of Natural Resources](#) to learn more.

*Bird's-Foot Violet is one of two larval hostplants of the Regal Fritillary.*

Photo: M. Larson, MassWildlife.



# Fish Passage Construction and Post-Construction Monitoring



*The Silver Chub is a large very silvery minnow with a small mouth and overhanging snout. They have no distinct spots or other markings on the body and have a very small barbel at the rear edge of the upper jaw in each corner of the mouth.*

Photo: Sam Stukel, U.S. Fish and Wildlife Service.

## Status

Native Fish Species of Greatest Conservation Need

## Project Summary

Riverine habitat in Kansas has been highly fragmented in part because of barriers such as low-head dams. This fragmentation has led to the decline of several native fish species and very dissimilar fish assemblages above and below impoundments. A fishway was constructed as part

of the renovation of the Lincoln Street Dam on the Arkansas River in the City of Wichita, with consultation from Kansas Wildlife, Parks, and Tourism. The fishway was the first of its kind, built for passage of smaller-bodied fishes including multiple Species of Greatest Conservation Need recognized in the Kansas Wildlife Action Plan. Engineers were able to incorporate aesthetic improvements and canoe and kayak passage as well. A project of this scope requires considerable funding, as well as permits and zoning across multiple jurisdictions. Post construction monitoring was funded through the State Wildlife Grant Program.

## Partners

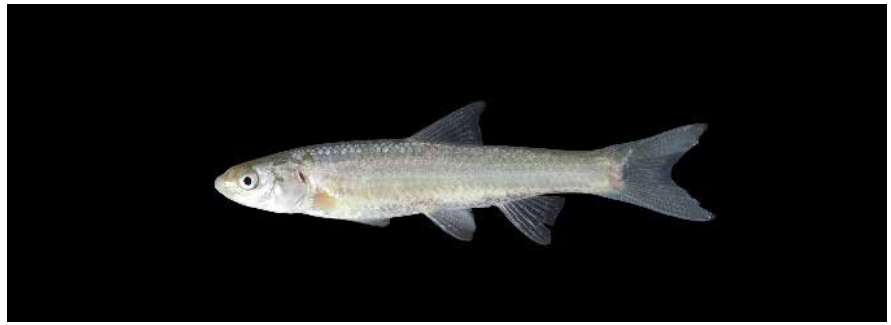
City of Wichita, U.S. Fish and Wildlife Service, MKEC Engineering, Federal Highway Administration, Kansas Department of Transportation, U.S. Coast Guard, University of Illinois—Ven Te Chow Hydrosystems Laboratory, Kansas State University

## Methods

Fish Passage Design and Construction, Coordination

## Results

Species benefitting from the construction of the dam include the Plains Minnow, Silver Chub, Peppered Chub, Arkansas River Shiner, and Arkansas Darter. Emerald



*Plains Minnow is one of several native fishes benefiting from the fishway constructed by Kansas Wildlife, Parks, and Tourism on the Arkansas River.*

Photo: Matt Wagner ©SDGFP & SDBOR.

Shiners were found upstream of the dam for the first time in 20 years. Post-construction monitoring of the fish community in the Arkansas River adjacent to the fish passage has documented 27 species of the fish using the passageway. The upstream fish assemblage more resembled the downstream assemblage not long after completion of the passageway.

#### **Future Needs**

Additional funds would allow Kansas Wildlife, Parks, and Tourism to build upon their fish passage construction expertise and remove other barriers to fish passage within the state.

#### **Kansas Wildlife Action Plan**

The [Kansas Wildlife Action Plan](#) was revised in 2016. The plan identifies 285 Species of Greatest Conservation Need associated with prairies, shrublands, forests, woodland floodplains, wetlands, streams, and caves. Key threats include habitat loss and fragmentation, natural systems modifications, invasive and non-native species, and climate change. Priority conservation actions include increased monitoring and data collection, enhanced management and protection, and expanded outreach. More than 67 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Kansas Department of Wildlife, Parks and Tourism](#) to learn more.

Kentucky

# Center for Mollusk Conservation

## Status

Various Federally- and State-Listed Mussel Species

## Project Summary

The Kentucky Department of Fish and Wildlife Resources (KDFWR) began investing in freshwater mollusk conservation nearly twenty years ago. When State Malacologist Dr. Monte McGregor was hired, he was given the task of creating a conservation program for Kentucky's imperiled freshwater mollusks. With only some empty garage bays and no water source, Dr. McGregor and his team managed to set up a work space and begin the arduous task of understanding mollusk reproductive biology, dietary needs and animal husbandry techniques critical to meeting this conservation challenge. In addition to traditional propagation measures using fish hosts, Dr. McGregor and his team have developed cutting-edge techniques to raise animals *in vitro*. This highly successful technique has led to critical conservation successes with federally endangered species such as the Purple Catpaw, Golden Riffleshell and Pink Mucket.

Today, KDFWR's Center for Mollusk Conservation (CMC) is a premier freshwater mussel propagation facility. Students, conservation professionals, and others have visited from around the world to learn and help trans-

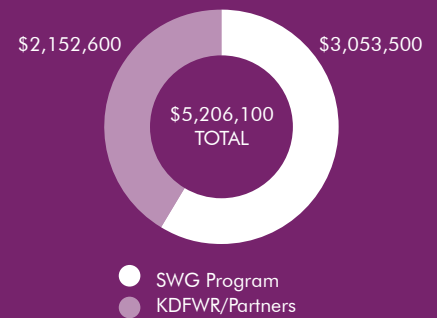
fer knowledge to other states and countries where it is urgently needed. The CMC has utilized State Wildlife Grant (SWG) Program funding for facility construction, management and mussel propagation. The CMC's goal is to preclude listings and help recover and restore imperiled aquatic species.

## Partners

U.S. Fish and Wildlife Service Wolf Creek National Fish Hatchery, U.S. Fish and Wildlife Service Kentucky Field Office, U.S. Fish and Wildlife Service Ohio Field Office, Minor Clark Hatchery (KDFWR), Kentucky Waterways Alliance, Mussel Mitigation Trust, Mammoth Cave National Park, ACORPS



## Program Funding



*Mussel culture and propagation at the Center for Mollusk Conservation includes advanced techniques for handling juveniles and their food.*

Photo: Kentucky Department of Fish and Wildlife Resources.





*Thousands of Pink Muckets have been reared and released from efforts at the Center for Mollusk Conservation.*

Photo: Kentucky Department of Fish and Wildlife Resources.

*“Conservation and restoration of imperiled freshwater mussels is the primary mission of the Center for Mollusk Conservation.”*

*Kentucky Department of Fish and Wildlife Resources*

### **Methods**

Research, Monitoring, Captive Rearing and Release, Coordination

### **Results**

To date, there have been tens of thousands of animals of more than thirty species released back into the waters of Kentucky and partnering states, contributing significantly to the recovery and management of freshwater mussels. With KDFWR’s structured long-term monitoring program, scientists are seeing solid signs of natural reproduction and recruitment into populations. This conservation success shows that an early investment can help prevent listing of animals under the Endangered Species Act. This legacy would not be possible without critical funding from the State Wildlife Grant Program.

### **Future Needs**

Because the CMC is operational year-round, scientists stand ready to receive and propagate animals when opportunity arises. For example, only three individuals of the Golden Riffleshell were located in a neighboring state and the CMC was able to produce 1,600 individuals for release. Mussel declines across the United States are resulting in federal listing at an increasing rate. Additional and ongoing funding for the CMC is needed to help de-list, down-list, and avert future listings of mussels in Kentucky and many other states.

### **Kentucky Wildlife Action Plan**

The [Kentucky Wildlife Action Plan](#) was revised in 2013. The plan identifies 301 Species of Greatest Conservation Need associated with upland forests, grasslands, wetlands, rivers, streams, and karst topography. Key threats to species include habitat loss and degradation, pollution and siltation, species and habitat fragmentation, and competition from invasive species. Priority conservation actions include habitat protection and restoration, increased survey, monitoring and research, and partnerships designed to promote habitat connectivity. Many conservation partners, wildlife professionals, and members of the public participated in development of the plan. Contact the [Kentucky Department of Fish and Wildlife Resources](#) to learn more.

Michigan

# Kirtland's Warbler

## Status

Recovered and Federally De-Listed (2019)

## Project Summary

Kirtland's Warbler is a small yellow songbird that overwinters in the Bahamas but returns each year to Michigan, Wisconsin and Ontario for summer breeding in jack pine forest habitats. Due to fire suppression, competition from cowbirds, and other threats, Kirtland's Warbler numbers fell to under 170 breeding pairs in the 1970s and 80s. Since 2008, the Michigan Department of Natural Resources (MDNR) has utilized State Wildlife Grant (SWG) Program funding along with revenues from timber sales, which help offset the cost of jack pine habitat restoration.

## Partners

American Forest Foundation, Arbor Day Foundation, U.S. Fish and Wildlife Service, U.S. Forest Service, Kirtland's Warbler Alliance

## Methods

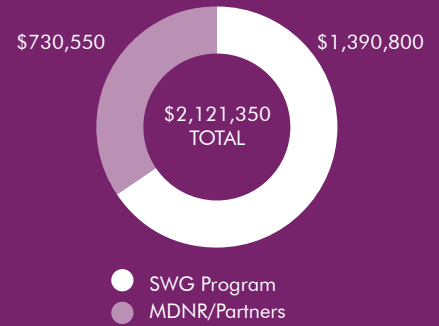
Timber harvest and reforestation, Brown-headed Cowbird control

## Results

Due to the efforts of MDNR and its many partners, Kirtland's Warbler was removed from the list of federal threatened and endangered species in 2019. Currently, there are an estimated 2,300 breeding pairs. The population has exceeded the goals identified in the U.S. Fish and Wildlife Service Recovery Plan



## Program Funding



*Kirtland's Warbler.*

Photo: U.S. Fish and Wildlife Service.

*“The [Kirtland’s Warbler’s] recovery provides dramatic testimony to what conservation organizations, governments and businesses can accomplish when they come together for the good of the resource.”*

*Dan Eichinger  
Director  
Michigan Department of  
Natural Resources*

for the past 17 years and continues to expand.

### **Future Needs**

Despite recovery and removal of the Kirtland’s Warbler from protection under the Endangered Species Act, actions are still needed to ensure their continued success. Partners will continue to manage for their habitat, and the Michigan DNR will continue to manage Cowbirds as needed.

### **Michigan Wildlife Action Plan**

The [Michigan Wildlife Action Plan](#) was revised in 2015. The plan identifies 301 Species of Greatest Conservation Need associated with rivers, streams, inland lakes, wetlands, forests, grasslands, and the Great Lakes. Key threats to species include habitat fragmentation and disturbance, toxicants, invasive species, and lack of awareness about species. Priority conservation actions include surveys and monitoring, habitat protection and restoration, and outreach. More than 38 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Michigan Department of Natural Resources](#) to learn more.

Minnesota

# Leonard's Skipper

## Status

Species of Greatest Conservation Need / Species of Concern

## Project Summary

As one of North America's most important natural resources, the ancient Driftless Area supports a diversity of plants and animals unique to the Upper Midwest. Private land makes up the majority of this unglaciated region, and these properties are essential for successful regional species conservation. Since 2011, Minnesota Department of Natural Resources (MNDNR) has partnered with both Iowa and Wisconsin to manage multiple awards through the Competitive State Wildlife Grant (C-SWG) Program. With additional support from Minnesota's Nongame Wildlife Fund, Outdoor Heritage Fund, and the Environmental and Natural Resources Trust Fund, MNDNR is working to restore and enhance both public and private lands using prescribed burning, conservation grazing, invasive plant control, and prairie plantings. These activities benefit numerous Minnesota Wildlife Action Plan species including Leonard's Skipper, Rusty Patched Bumble Bee, Blanding's Turtle and Whip-Poor-Will.

## Partners

Iowa Department of Natural Resources, Wisconsin Department of Natural

Resources, The Nature Conservancy

## Methods

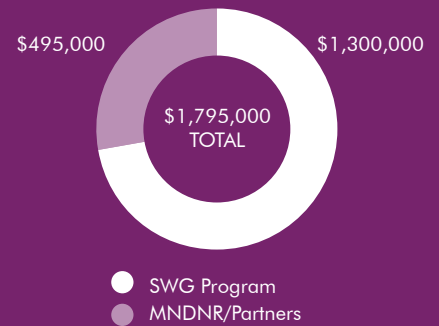
Habitat Restoration and Enhancement, Landowner Agreements, Technical Assistance, Coordination

## Results

MNDNR's work has helped increase the habitat available for the state's Species of Greatest Conservation Need and increased connectivity between public and private lands. Their work has resulted in significant habitat enhancement and protection across the Driftless Area. In Minnesota alone, MNDNR has worked to improve or restore over 7,000 acres of public and private



## Program Funding



*Leonard's Skipper, a Minnesota species of special concern, can benefit from bluff prairie restoration. More than 7,000 acres have been improved through projects supported by the State Wildlife Grant Program.*

Photo: E. Hoaglund, MN DNR.



*Goats get the best view from a bluff prairie near Rushford, Minnesota. MNDNR uses goats for invasive species control in key habitats where they graze on plants like European and Glossy Buckthorn.*

Photo: J. Micheel, Chimney Rock Forestry, LLC.



lands, conducted over 250 site visits with private landowners to help guide species management, and provided public workshops to others on at-risk species needs and habitat management. The agency has demonstrated through surveys and monitoring that targeted species presence has increased on many sites benefiting from habitat management. For example, Leonard's Skipper, a state-listed species of special concern, was found at four actively managed prairies in the southeast. Likewise, Dusted Skipper, a species that has disappeared from the western prairie range, was also found at multiple sites.

### **Future Needs**

MNDNR needs ongoing funding for conservation of bluffland prairies through prescribed burning, conservation grazing and habitat restoration efforts. Long-term species response monitoring needs to be conducted in order to determine species population trends associated with habitat management.

### **More Information**

<https://blogs.mprnews.org/state-wide/2013/08/goats-have-an-appetite-for-buckthorn-in-se-minnesota/>

<https://www.brainerddispatch.com/news/science-and-nature/4038255-DNR-needed-help-managing-prairies-on-steep-hill-sides.-They-called-on-goats.>

### **Minnesota Wildlife Action Plan**

The [Minnesota Wildlife Action Plan](#) was revised in 2015. The plan identifies 345 Species of Greatest Conservation Need associated with forests, prairies, and wetlands. Key threats include habitat loss and degradation, fragmentation, invasive species, and climate change. Priority conservation actions include habitat management, restoration, protection, monitoring, and data management. Approximately 45 conservation partners assisted with development of the plan. Contact the [Minnesota Department of Natural Resources](#) to learn more.



# Regal Fritillary

## Status

Proposed Federally Threatened (2015), Scheduled for Federal Listing Review (2022)

## Project Summary

The Upper Osage Grasslands is one of the largest and best landscapes for focused native prairie and grasslands conservation in Missouri. During a three-year period beginning in 2014, the Missouri Department of Conservation (MDC) retired cropland and old pasture, then removed hard woody cover and invasive species. These areas were restored with diverse native prairie plantings. In addition, each year the Department conducts field surveys and inventories to determine the presence, condition, conservation need, and recovery management actions for many different species of concern. These essential coordination efforts and the surveys and inventories critical to informing them would not be possible without the support of the State Wildlife Grant (SWG) Program. The MDC also uses SWG Program funds to support coordination efforts with staff, landowners, and other partners that are essential to focusing limited resources on the highest priority needs. Funding from the SWG Program also supports habitat and species surveys and inventories necessary for effective species management.

## Partners

Farm Service Agency, Missouri Prairie Foundation, Natural Resources Conservation Service, Pheasants Forever and Quail Forever, St. Louis Zoo WildCare Institute, University of Missouri, The Nature Conservancy, and Private Landowners

## Methods

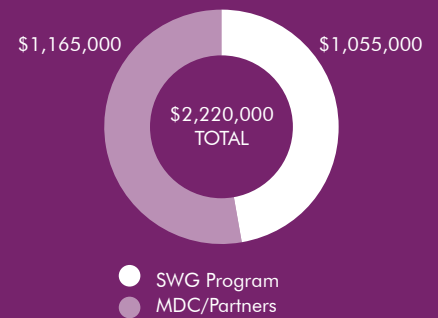
Habitat Creation, Enhancement, and Protection, Research, Monitoring, Coordination

## Results

The Upper Osage Grasslands currently includes more than 7,000 acres of native tallgrass prairie. An additional 2,100 acres of public land was restored to upland prairie or wet prairie systems. In addition to many plant Species of Greatest Conservation Need that were restored via



## Program Funding



*A researcher explains the effects of management at a workshop for managers and landowners.*

Photo: Missouri Department of Conservation.

*A Regal Fritillary is one of multiple species of greatest conservation need to be documented within the prairie restorations.*

Photo: Missouri Department of Conservation.

*“The coordination needed to implement these projects, and the survey and inventory data essential to focusing limited resources effectively, was supported largely by the State Wildlife Grant Program.”*

Bob Merz

Assistant Director, WildCare Institute  
Director, Center for American  
Burying Beetle Conservation  
Saint Louis Zoo



planting on these sites, monitoring detected the recolonization of the Blue Sage Bee—a prairie-obligate found for the first time on a reconstructed prairie. Federally endangered American Burying Beetles released at Wah’Kon-Tah Prairie were found to be using prairie restorations in this project at two other Conservation Areas 10 miles away.

Prairies in this geography are included in an ongoing state-wide population survey of Regal Fritillary to inform the proposed listing decision. Previous efforts by Kansas and Missouri have provided sufficient information to help determine that federal listing of Regal Fritillary was not warranted in the early 2000s.

### Future Needs

Native grasslands and prairies are one of the most imperiled ecosystems in Missouri. Sustaining these ecosystems also helps to improve recovery chances for equally imperiled species such as the Blue Sage Bee, Henslow’s Sparrow, Monarch Butterfly, Blacknose Shiner, Mead’s Milkweed, and many more. Additional support is needed for habitat management, species restoration, and monitoring, and technical assistance. With sufficient resources, Missouri can help recover a greater number of species,

and help avert the need for future listings.

### More Information

<https://mdc.mo.gov/property/priority-geographies/upper-osage-grasslands>

<https://www.stlzoo.org/conservation/wildcare-institute/americanburyingbeetleconse>

<https://mdc.mo.gov/property/priority-geographies>

### Missouri Wildlife Action Plan

The [Missouri Wildlife Action Plan](#) was revised in 2015 and is currently being updated. The plan identifies 166 conservation opportunity areas (COAs) that represent the most important places to sustain Missouri’s primary natural communities on which 678 Species of Greatest Conservation Need depend. Nine of these COAs have been designated as priority geographies with increased conservation focus and investment, including special teams and partners that develop and implement operational plans. Key threats include habitat loss and fragmentation, disturbance and altered function, and invasive species. Priority conservation actions include increased landowner assistance, monitoring and data collection, enhanced and prioritized public land management, and outreach and citizen engagement. More than 40 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Missouri Department of Conservation](#) to learn more.

Nebraska

## North American River Otter

### Status

State-Listed as Threatened (2000)

### Project Summary

Once a common mammal in Nebraska, River Otters had been extirpated from the state by the early 1900s. River Otters were state-listed as endangered in 1986, and a reintroduction program started the same year. In 2000, the species was down-listed by Nebraska Game and Parks Commission (NGPC) to threatened because of substantial progress towards recovery. Since then, NGPC has utilized funding from the State Wildlife Grant (SWG) Program to help maintain and increase River Otter numbers in the state. Biologists continue to monitor the expansion of the species. The recovery of the River Otter in Nebraska demonstrates the strength in conservation

partnerships among organizations and landowners.

### Partners

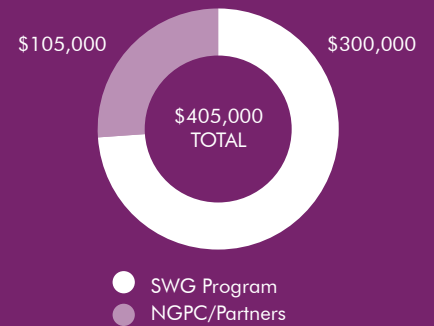
Nebraska Cooperative Fish and Wildlife Research Unit, University of Nebraska–Lincoln, The Nature Conservancy, The Crane Trust, Lincoln Children’s Zoo, Missouri Department of Conservation, Fur Trappers, Private Landowners

### Methods

Translocation and Reintroduction from Alaska and Louisiana to Nebraska Restoration Sites, Research, Monitoring, Habitat Management, Genetic Testing, Modelling



### Program Funding



*Once extirpated from Nebraska, North American River Otters were returned to their native waters in 1986 and have been successful on their journey to recovery.*

Photo: Nebraskaland.

## Results

River Otters in Nebraska are now healthy and nearly self-sustaining because of these conservation efforts. The data collected clearly demonstrate a healthy, reproductively viable, and expanding population of River Otters in Nebraska. In recognition of the current status of this species, NGPC is in the process of delisting the North American River Otter under the Nebraska Nongame and Endangered Species Conservation Act.

## Future Needs

Basic periodic monitoring may still be needed but the population is now secure in Nebraska. Monitoring of the River Otter population would include locations of observations from the public and NGPC, federal agencies, and non-governmental agencies. In addition, carcasses of incidentally trapped River Otters will still be collected. Sign surveys at bridges, trail camera based surveys, or searches by kayak/canoes will be used as needed to assess changes in distribution.

## Nebraska Wildlife Action Plan

The [Nebraska Wildlife Action Plan](#) was revised in 2011, with a minor revision in 2018. The plan identifies 735 Species of Greatest Conservation Need associated with over 35 Biologically Unique Landscapes that include river basins, prairies, forests, bluffs, and wetlands. Key threats to species include invasive species, alteration of natural disturbances like burning and grazing, altered hydrology of rivers and streams, wetland drainage, habitat conversion and fragmentation, and lack of awareness and knowledge about biodiversity. Priority conservation actions include increased collaboration, environmental education, conservation incentives, and management and expansion of public and private conservation lands. Approximately 50 conservation partners and organizations were involved in the last revision of the plan. Contact the [Nebraska Game and Parks Commission](#) to learn more.

North Dakota

# American Marten

## Status

Species of Greatest Conservation Need

## Project Summary

Using State Wildlife Grant (SWG) Program funds along with state and other resources, North Dakota Game and Fish Department (NDGFD) conducted a survey of meso-carnivores to document a rising population of River Otters and Fishers in North Dakota. The project was a special success because NDGFD was also able to document a previously unknown breeding population of American Martens in the Turtle Mountains region of north-central North Dakota.

## Partners

Frostburg State University

## Methods

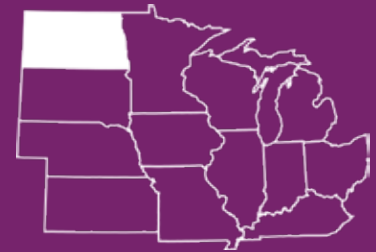
Research, Monitoring

## Results

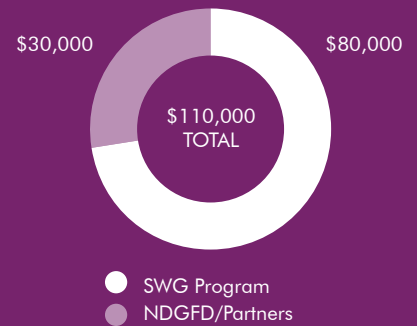
This project led to inclusion of American Marten as a Species of Greatest Conservation Need in NDGFD's Wildlife Action Plan. It resulted in increased interest among wildlife watchers and as a potential future game species. This visibility is attracting new conservation partners with additional conservation resources.

## Future Needs

Further study of American Marten in North Dakota is needed to better understand the population dynamics of the species. With this new information, NDGFD will be able to protect and man-



## Program Funding



Trail camera photo of Marten from survey. The project partners were able to document a previously unknown breeding population of Marten, and increased interest in the species among wildlife watchers.

Photo: North Dakota Game and Fish Department.

*“Without State Wildlife Grant Program funding we would not have been able to know as much about these unique mammals as we do now. It continues to be our best tool to help those species that are most in need of conservation in North Dakota.”*

*Patrick Isakson  
Conservation Biologist  
North Dakota Game and  
Fish Department*

age the species for the benefit of North Dakotans.

### **More Information**

<https://gf.nd.gov/wildlife/id/carnivores/marten>

### **North Dakota Wildlife Action Plan**

The [North Dakota Wildlife Action Plan](#) was revised in 2015. The plan identifies 115 Species of Greatest Conservation Need associated with grasslands, rivers and streams, riparian areas, wetlands, and badlands. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and development. Priority conservation actions include, wildlife friendly land management, land protection, outreach to private landowners, research, and monitoring. More than 50 conservation participated in the development and review of the plan. Contact the [North Dakota Game and Fish Department](#) to learn more.

Ohio

# Cerulean Warbler



*Cerulean Warblers prefer interior forest with canopy gaps.*

Photo: Nina Harfmann.

## Status

State Species of Concern

## Project Summary

Cerulean Warblers have declined by about 70 percent over the last several decades. Large southeastern Ohio woodlands support some of the best remaining breeding populations in the state. Wherever mature deciduous woodlands—particularly oak-hickory forests—occur in Ohio, Cerulean Warblers should be members of the nesting fauna. These warblers prefer interior forest with canopy gaps and normally avoid isolated woodlots in open landscapes. For 10 years, the Ohio Division of Wildlife (ODOW) has engaged in numerous ongoing management

projects for forest habitat which benefit a variety of birds, including the Cerulean Warbler. Project funding has included grants through the State Wildlife Grant (SWG) Program, along with state and other partner resources.

## Partners

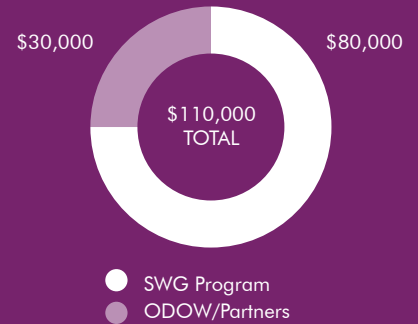
Ohio State University, Appalachian Mountains Joint Venture, Ohio Bird Conservation Initiative

## Methods

Research, Monitoring, Habitat Management, Outreach/Education, Technical Assistance, Landowner Agreements



## Program Funding



*“The long-term success of [Cerulean Warbler] will depend on continued large-scale coordination and efforts to work with landowners to manage habitats on privately owned property.”*

*Matthew Shumar  
Program Coordinator  
Ohio Bird Conservation Initiative*

## Results

ODOW was instrumental in supporting research and management activities in southeastern Ohio to benefit Cerulean Warblers and other small-scale disturbance specialists. In addition, the agency supports the Ohio Bird Conservation Initiative, the Appalachian Mountains Joint Venture, and the Upper Mississippi River/Great Lakes Region Joint Venture to promote migratory bird conservation planning and management actions across the state and region.

## Future Needs

Additional funding is needed for continued sustainable forest management, outreach/education, coordination, and technical assistance to benefit the Cerulean Warbler.

## Ohio Wildlife Action Plan

The [Ohio Wildlife Action Plan](#) was revised in 2015. The plan identifies 405 Species of Greatest Conservation Need associated with 15 key habitats, including forests, grasslands, wetlands, Lake Erie, and the Ohio River and its tributaries. Key threats to species include habitat loss and fragmentation, pollution, and invasive species. Priority conservation actions identified in the plan include monitoring, management, education, and outreach. More than 130 conservation partners and members of the public participated in the development and review of the plan. Contact the [Ohio Division of Wildlife](#) to learn more.



South Dakota

## Greater Sage-Grouse

### Status

Not Warranted for Federal Listing (2015)

### Project Summary

South Dakota Game, Fish and Parks (SDGFP) and its partners have been active participants in the effort to inventory and monitor the state's sagebrush habitats and the wildlife associated with these areas, including Greater Sage-Grouse and other Species of Greatest Conservation Need. Using State Wildlife Grant (SWG) Program funds, the agency has spent over a decade leading the first comprehensive mapping of remaining big sagebrush in western South Dakota. The agency also has worked with partners during this period to assess habitat conditions in core sagebrush habitat, including at Greater Sage-Grouse leks. Most recently, SWG Program funds have supported a PhD research project to better understand factors that influence survival, nest success and nest site selection in a species that is declining and on the periphery of its range in South Dakota. In addition to this critical research and mapping effort, SDGFP supports a Farm Bill Biologist dedicated to implementing the Natural Resources Conservation Service's Sage Grouse Initiative and to assisting landowners in managing and restoring rangeland habitats to benefit Greater Sage-Grouse.

### Partners

Bureau of Reclamation, South Dakota State University, U.S. Forest Service, Bureau of Land Management, Natural Resources Conservation Service

### Methods

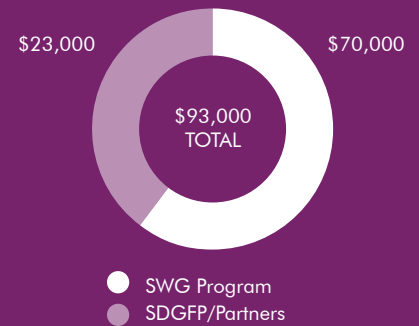
Research, Monitoring, Habitat Analysis, Modeling, Mapping, Landowner Agreements

### Results

SDGFP learned that mammals are the leading suspected cause of mortality on Sage-Grouse hens. The agency's studies also found that broods favor areas with higher abundance of beetles and areas with high sagebrush canopy cover and tall grass, while avoiding areas with high amounts of grass and litter cover. Sage-Grouse with broods selected areas near water and away from roads and forests. SDGFP's



### Program Funding



*SDGFP biologist capturing and tagging Greater Sage-Grouse for a study on reproductive ecology and habitat selection in Harding County, South Dakota.*

Photo: Lindsey Parsons.

*“Although South Dakota is on the fringe of the range of the Greater Sage-Grouse, we have spent significant time and resources on sagebrush habitats and sage-associated wildlife to better understand and manage these components of South Dakota’s natural heritage.”*

*Eileen Dowd Stukel  
Senior Wildlife Diversity Biologist  
South Dakota Game, Fish and Parks*

identified Sage-Grouse core areas were adopted by the Bureau of Land Management as Priority Habitat Areas, receiving additional resources for conservation. Resource Selection Models and associated maps have been developed and will be used to refine the designated Sage-Grouse core area in the state. The Service’s 2015 decision not to list the species helped SDGFP and partners avoid additional environmental review clearances which would have added to the complexity of working directly with Greater Sage-Grouse.

### **Future Needs**

SDGFP needs to continue monitoring South Dakota’s small, isolated Greater Sage-Grouse population and assessing impacts of continued mining and wind energy development within the range of this species in South Dakota. Additional resources would help the agency manage and preserve sagebrush habitats on public lands and encourage sagebrush maintenance on private lands in the face of conversion for agricultural uses, invasion of weeds and annual grasses, and overgrazing.

### **More Information**

South Dakota Wildlife Action Plan Explorer: <https://apps.sd.gov/gf43wap/>

### **South Dakota Wildlife Action Plan**

The [South Dakota Wildlife Action Plan](#) was approved in 2015. The plan identifies 104 Species of Greatest Conservation Need with strong association to grassland habitats, prairie pothole wetlands, and riparian streams. Threats include habitat conversion, invasive species, suppression of natural disturbances, aquatic impacts from adjacent land practices, and flood control and channelization. Conservation actions include collection of biological information on species abundance and distribution, and development of voluntary partnerships with governmental agencies, tribes, farmers and ranchers. Fifty-six species experts and 55 governmental entities assisted with development of the plan. Contact [South Dakota Game, Fish and Parks](#) for more information.

# Rusty Patched Bumble Bee

## Status

Federally Endangered (2017)

## Project Summary

In 2018, the Wisconsin Department of Natural Resources (WDNR) started the Wisconsin Bumble Bee Brigade (B3) citizen science project to answer questions on species distributions, habitat requirements, phenology, and population status. State Wildlife Grant (SWG) Program funds were used to offer 10 trainings to 198 people. WDNR will also develop additional online resources to engage and retain volunteers and to continue to document and monitor populations of Rusty Patched Bumble Bee.

## Partners

University of Wisconsin (UW)—Madison Arboretum, UW—Madison Entomology, UW—Green Bay, Bumble Bee Brigade Volunteers, Xerces Society

## Methods

Research, Monitoring, Training

## Results

In two seasons, B3 volunteers have spent over 1,000 hours afield and greatly expanded WDNR's knowledge of the distribution of this species in Wisconsin. B3 volunteers and WDNR staff surveys have found Rusty Patched

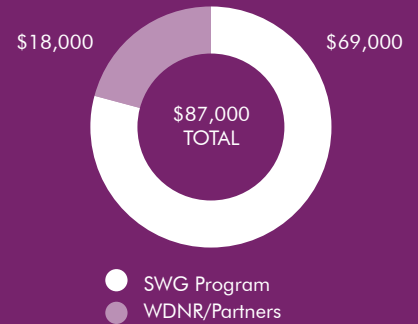
Bumble Bee at sites in 12 new counties, as well as an additional 266 locations of the other seven bumble bee Species of Greatest Conservation Need found in the state. This information will improve conservation planning and management actions for these important pollinators and their habitat. Data gathered by B3 volunteers and WDNR staff have been entered into the Natural Heritage Inventory (NHI) database. NHI data are used for the WDNR's Endangered Resources Review program to implement best management practices to benefit Rusty Patched Bumble Bee.

## Future Needs

Locating new sites occupied by Rusty Patched Bumble Bee in Central and North Central Wis-



## Program Funding



*Volunteers taking photos of bumble bees during a Wisconsin Bumble Bee Brigade training at Schlitz Audubon Nature Center.*

Photo: Eva Lewandowski.



*Rusty Patched Bumble Bee on Joe Pye Weed at Wapello Land and Water Reserve.*

Photo: Angella Moorehouse, Natural Areas Preservation Specialist, Illinois Nature Preserves Commission.



*“Thank you for putting this important project together! I really enjoyed learning more about this fascinating subject!”*

*Wisconsin Bumble Bee  
Brigade Volunteer*

consin will be important to fill in knowledge gaps due to a lack of existing survey data.

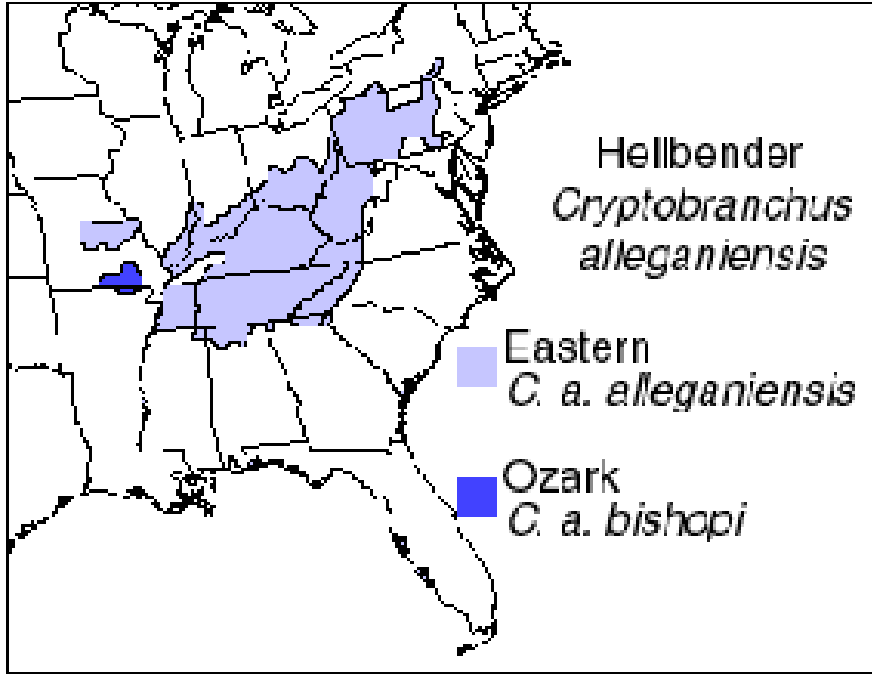
### **Wisconsin Wildlife Action Plan**

The [Wisconsin Wildlife Action Plan](#) was revised in 2015. The Plan identifies 417 Species of Greatest Conservation Need associated with 104 [natural community types](#). Key threats include invasive species and disease, habitat loss, fragmentation and degradation from development and resource use, and modification

of environmental processes such as water extraction. Changing precipitation, temperature, and extreme weather events exacerbate these threats. Priority conservation actions include integrated and comprehensive policy, management and best practices, and public awareness and participation. The plan was developed with input from 30 organizations and 235 conservation and species experts. Contact the [Wisconsin Department of Natural Resources](#)—Bureau of Natural Heritage Conservation to learn more.

## REGIONAL CONSERVATION HIGHLIGHT

# Hellbender



Range of the two Hellbender subspecies.

Map: U.S. Geological Survey.

### Range

Southern New York to Northern Georgia and westward to Missouri

### Status

Eastern Hellbender was petitioned for listing under the Endangered Species Act in 2010. The U.S. Fish and Wildlife Service found the Hellbender may warrant protection pending a Species Status Assessment, which was conducted in 2017–2018. In 2019, the Service announced it had determined not to list the subspecies as a whole, but did propose to list the populations in Missouri as endangered. The

Ozark Hellbender was federally listed as endangered in 2011.

Eastern Hellbenders are a large, long-lived aquatic salamander species that inhabit highly oxygenated cold-water streams and rivers from southern New York State to northern Georgia (see map). This fully aquatic salamander is a prehistoric survivor that lived at the same time as Mastodons. Due to their sensitivity to environmental factors and slow rate of maturation, Hellbenders are especially vulnerable to decline and potential extirpation or extinction. Hellbenders are listed as a Species of Greatest Conservation Need in the Wildlife Action Plans of every state in which they occur.



*Biologists with the New York State Department of Environmental Conservation (NYSEC) monitor Eastern Hellbender in New York.*

Photo: Anne Rothrock, NYSDEC.

The following summaries highlight work undertaken by state fish and wildlife agencies and their partners in a sampling of states where Eastern Hellbender occur. In addition to monitoring and research, these and other state agencies have been working for years together to actively support this unique species. State agencies and their partners work to improve river and stream water quality to ensure suitable habitat, expand Hellbender populations through head-starting to ensure redundancy, and maintain and expand captive-rearing capacity to increase opportunities for population establishment and reproduction.

These significant investments—along with those of other state and federal agencies, private landowners, universities, zoos, and other organizations—likely played a role in the Service’s 2019 decision not to list the entire Eastern Hellbender subspecies under the Endangered Species Act.

## Indiana

More than a decade ago, the Indiana Department of Natural Resources (DNR) partnered with Purdue University to develop a comprehensive model for Hellbender conservation. Without prompt action, this ancient amphibian was destined to disappear from Indiana. The agency and its many partners have invested State Wildlife Grant Program funds and other resources in researching various methods of captive-rearing to help increase survival after release. Partners are continuing to evaluate habitat throughout southern Indiana to determine suitable release sites outside of the Blue River. To date, Purdue University and the Indiana DNR, in partnership with various Indiana zoos, the Ohio Department of Natural Resources, and the Kentucky Division of Fish and Wildlife Resources, have collected over 1,000 eggs, released 200 Hellbenders into the Blue River, and plan to release nearly 500 additional juveniles by 2023. Now, after years of population



*Project partners releasing a juvenile Hellbender in the Blue River of Indiana.*

Photo: Indiana Department of Natural Resources.

and habitat assessments, public outreach, and expanding partner involvement, Hellbenders have a fighting chance in Indiana.

## Missouri

Eastern and Ozark Hellbenders are state-listed as endangered in Missouri. The Missouri Department of Conservation (MDC) began working in 2002 with partners including the Saint Louis Zoo, other state fish and wildlife agencies, and various federal agencies including the U.S. Fish and Wildlife Service to establish a long-term monitoring, captive propagation, and augmentation program for both Eastern and Ozark Hellbenders. Using State Wildlife Grant Program funding and other resources, Hellbender captive-breeding and collection of eggs in the wild has continued to be successful, with more than 8,000 animals released in seven rivers since 2010. MDC also implements surveys to monitor populations of Eastern and Ozark Hellbenders throughout their range in Missouri, and establish population trends. Artificial nest boxes were designed and installed in streams with mature Hellbender populations to increase suitable shelters for nesting. This innovative design has been successful, producing 62 clutches of eggs since 2010. Although Missouri's Hellbender populations continue to be at risk, the innovative efforts of MDC and partners have succeeded in changing the trajectory of these species from "imminent danger of extinction" to "likely to recover."

## New York

Since 2008, the New York State Department of Environmental Conservation (NYSDEC) has used State Wildlife Grant Program funding along with expert knowledge and other technical and financial support from zoos, universities, and conservation organizations to evaluate head-starting as a means of increasing recruitment of Eastern Hellbenders. Egg masses were collected from wild breeding Hellbenders and reared in captivity for periods ranging from 3–8 years prior to release back into the watersheds the eggs were collected from. Monitoring of released Hellbenders has helped identify the role of *chytrid* fungus in limiting survivorship of head-started animals. NYSDEC has evaluated the benefit of habitat enhancement efforts such as the placement of large flat rocks and manufactured "Hellbender Huts" to improve nesting habitat for the species. The agency has demonstrated that habitat enhancements are being used by breeding Hellbenders.

## North Carolina

The North Carolina Wildlife Resources Commission (NCWRC) has used State Wildlife Grant Program funding over the past 13 years to monitor Eastern Hellbender populations, conduct applied research, and address threats to the species at each life stage. The agency has employed new methods such as environmental DNA and artificial nesting habitats, and recently is focused on determining prevalence of various amphibian diseases among Hellbenders. NCWRC has produced technical guidance,

*"Our community knows that the health and well-being of our Hellbenders are a valued reflection of the health and vigor of our river ecosystem and our community."*

Ranger Bob  
O'Bannon  
Woods State Park  
Indiana

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*Hellbender eggs inside an artificial nest box.*

Photo: Jeff Briggler.



*Eastern Hellbenders can be difficult to spot amid the cobble of river bottoms.*

Photo: Lori Williams.



*“This ‘head-starting’ program will enable us to release young Hellbenders back to the wild at a life-stage that may enable them to survive and thrive in New York.”*

*Patricia Riexinger  
Division of Fish and Wildlife  
New York State Department of  
Environmental Conservation*

augmented habitat features, and improved water quality through stream restoration projects. The agency and its partners have initiated the North Carolina Giant Salamander Network to bring together experts, researchers, advocates, and land managers to enhance communication, data sharing, and further Eastern Hellbender conservation efforts.

### **Ohio**

The Ohio Department of Natural Resources, Division of Wildlife has partnered with The Ohio State University, Ohio University, Columbus and Toledo Zoos, PENTA Career Center, Soil and Water Conservation Districts

in Columbiana, Jefferson, and Belmont Counties, and others to form the Ohio Hellbender Partnership. Using State Wildlife Grant Program funds and other state and partner resources, the Partnership released 1,120 captive-reared Eastern Hellbenders into ten watersheds over an eight-year period. Along with efforts to restore stream habitats and provide community outreach, the Hellbender head-start program is working to reverse the precipitous decline of this rare amphibian by establishing multiple self-sustaining populations in Ohio. The Partnership is continuing to monitor populations and identify factors responsible for the low levels of recruitment.



## TRIBAL HIGHLIGHT

Leech Lake Band of Ojibwe

# Snowshoe Hare and Fisher Conservation

### Project Summary

In 2015, the U.S. Fish and Wildlife Service provided the Leech Lake Band of Ojibwe with a Tribal Wildlife Grant Program award to research the influence of forest structure and composition on the space use, survival, and interactions of Snowshoe Hare and Fisher. As part of this research, tribal biologists trapped and used radio telemetry collars to study Snowshoe Hares and Fishers to understand how the two species interact in reservation forests. The project was intended to inform forest management practices, helping the Leech Lake Band of Ojibwe manage sustainable populations of the two interrelated species. The project helped the Band find solutions to the declining Hare and Fisher populations and allow tribal members to continue their subsistence living by hunting Snowshoe Hare for traditional meals. Snowshoe

Hares are also a prey species for many predators. Keeping their populations healthy benefits the entire food web.

### Project Cost

Tribal Wildlife Grant Program—\$196,400; other resources provided by the Band and partners—\$130,000.

### Partners

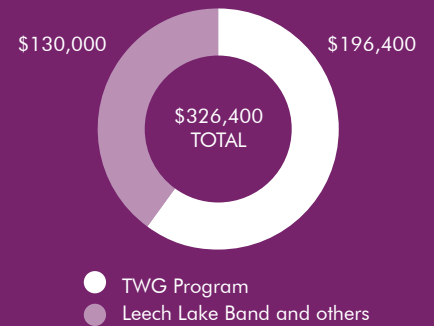
University of Minnesota, North Carolina State University, Minnesota Department of Natural Resources, U.S. Forest Service—Chippewa National Forest

### Methods

Research, Monitoring, Coordination



### Program Funding



*This Snowshoe Hare was trapped and collared by the Leech Lake Band of Ojibwe Division of Resource Management.*

Photo: Alejandro Morales, U.S. Fish and Wildlife Service.

*The Fisher (Martes pennanti), also referred to as fisher cat, is a medium-sized mammal native to North America.*

Photo: Ron Dunnington, 2010. Flickr Creative Commons License: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.



### **Results**

The Leech Lake Band of Ojibwe is using science and their traditional ecological knowledge to assess Snowshoe Hare and Fisher populations on their reservation located in north-central Minnesota. The Snowshoe Hare is a traditional and cultural resource for its meat and fur, playing an integral part of subsistence living.

### **Future Needs**

Ongoing funding for the Leech Lake Band of Ojibwe is important for future actions that use new information obtained in this project to improve survival of Snowshoe Hare on tribal lands. Additional resources are needed for further investigations that can help the Band identify specific strategies that will ensure abundant populations of the species for the benefit of future generations.

### **More Information**

<https://www.fws.gov/midwest/insider3/June16Story16.htm>

# WESTERN REGION HIGHLIGHTS





## STATE HIGHLIGHTS

Alaska

# Little Brown Bat

### Status

Scheduled for Federal Listing Review (2023)

### Project Summary

Eastern and Midwestern populations of the Little Brown Bat (LBB) have been devastated in recent years by white-nose syndrome, a fungal disease that attacks hibernating bats. Due to a lack of information about the overwintering behavior of LBB in the western portion of its range, Alaska Department of Fish and Game (ADF&G) is unable to assess and manage the potential impacts of the disease. The agency has used State Wildlife Grant (SWG) Program funds for nine field seasons to identify and characterize the structures and microclimates the bat uses for hibernation and to develop new methods for identifying hibernacula and overwintering habitat.

### Partners

U.S. Forest Service, National Park Service

### Methods

Monitoring Via Radiotelemetry, Scent Dogs, Trail Cameras, and Bat Detectors

### Results

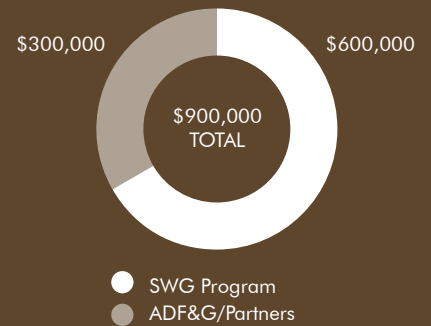
ADF&G's efforts have confirmed non-cavernous hibernacula and swarming behavior at these sites. Their new methods will enable ADF&G to model bat winter habitat in southeast Alaska and conserve critical bat habitat.

### Future Needs

Additional resources are needed to help ADF&G identify specific overwintering habitats, expand acoustic monitoring, and identify and increase protections for



### Program Funding



*Little Brown Bat (Myotis) with band.*

Photo: Alaska Department of Fish and Game.

*Wildlife biologist Laura Beard removes a bat from a mist net.*

Photo: Alaska Department of Fish and Game.



foraging and summer roosting habitats.

### **Alaska Wildlife Action Plan**

The [Alaska Wildlife Action Plan](#) was revised in 2015. The plan identifies 326 vertebrates as Species of Greatest Conservation Need associated with sea ice, tundra, glacially influenced rivers, streams and fjords, permafrost associated wetlands, beaches and sea cliffs, temperate rain forest, and marine nearshore and shelf. Key threats include climate change, oil spills, and invasive species. Priority conservation actions include increased monitoring and data collection, research to understand species declines, surveys of high use areas to inform management and land use planning, and invasive species control. Overall, Alaska has very healthy habitats and abundant wildlife populations due to its location, large size, small human population, and minimally modified lands. The plan was developed with input from agencies, private conservation organizations, academic institutions, and the public. Contact the [Alaska Department of Fish and Game](#) to learn more.

# Habitat Mapping and Classification

## Status

Multiple SGCN and Federally Listed Species

## Project Summary

The American Samoa Wildlife Action Plan identified a need for updated and detailed habitat maps for the territory's islands. The plan noted that previous mapping was outdated or too generalized to meet the needs of wildlife biologists. The goal of the American Samoa Department of Marine and Wildlife Resources (DMWR) Habitat Mapping Project was to produce detailed and accurate habitat maps throughout American Samoa using a classification scheme specific to the vegetation of Samoa. The resulting map products provide an important dataset to facilitate the monitoring and management of wildlife and wildlife habitat in American Samoa.

## Partners

U.S. Fish and Wildlife Service—State Wildlife Grant (SWG) Program and Wildlife Restoration Program

## Methods

Mapping Using Remote Sensing and LIDAR, Field Sampling

## Results

Information obtained through habitat classification and map-

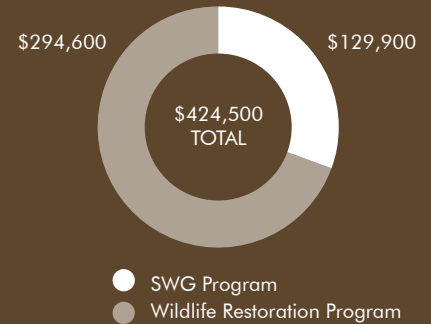
ping is essential for targeting high-value conservation areas for future protection. For example, this project determined that the Island of Aunu'u is comprised of 30 percent wetland habitat and 61 percent marsh wetland habitats, while wetlands cover less than one percent of the major islands of American Samoa. Wetlands provide important habitat for several at-risk species identified in the American Samoa Wildlife Action Plan.

## Future Needs

Additional funding is needed to continue monitoring of at-risk species and protection of important habitats such as those identified in this project. Ongoing support will help DMWR collaborate with other federal agencies and partners.



## Program Funding



*American Samoa is exempt from the State Wildlife Grant Program matching requirement. Additional funds for this project were provided through the U.S. Fish and Wildlife Service's Wildlife Restoration Program.*

*Coastline of the Island of Tutuila, American Samoa.*

Photo: National Park Service.



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*The Fruit Bat is a Species of Greatest Conservation Need in the American Samoa Wildlife Action Plan.*

Photo: National Park Service.



### **American Samoa Wildlife Action Plan**

The [American Samoa Wildlife Action Plan](#) was revised in 2015. The plan identifies 60 Species of Greatest Conservation Need associated with terrestrial and marine ecosystems throughout the Territory. Key threats to species include habitat loss and fragmentation, invasive species, disease, and climate change.

Priority conservation actions include partnerships with other conservation agencies and organizations to establish connected habitats, engagement in large-scale watershed planning, and expansion of data collection and monitoring for Species of Greatest Conservation Need. Many conservation partners and members of the public participated in the development of the plan.



Arizona

# Chiricahua Leopard Frog

## Status

Federally Threatened (2002)

## Project Summary

For 15 years, the Arizona Game and Fish Department (AGFD) has taken a lead role in managing the recovery of several federally listed species in Arizona, including the Chiricahua Leopard Frog. Among eight land units identified in the U.S. Fish and Wildlife Service's recovery plan for the Chiricahua Leopard Frog, seven lie all or partially in Arizona. The Chiricahua Leopard Frog has declined in this range mainly due to amphibian disease, habitat loss, and invasive

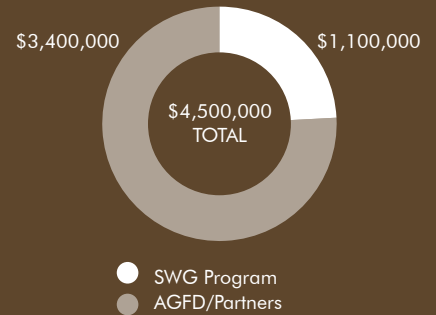
species. Like other threatened or endangered species listed under the Endangered Species Act, the frog has required intensive efforts for many years and has only been successful due to the combined efforts of state, federal, and private partners. Multiple State Wildlife Grant (SWG) Program awards have been combined over these 15 years along with state matching resources to support this recovery program.

## Partners

U.S. Fish and Wildlife Service, U.S. Forest Service, The Phoenix Zoo, University of Arizona,



## Program Funding



Arizona Game and Fish biologist releases a Chiricahua Leopard Frog.

Photo: Arizona Game and Fish Department.

*“Management for a single species, whether that be cattle or an endangered species, is flawed. It is the management of an entire ecosystem that creates the best functioning system, and yields the best results for all species.”*

*Arizona Rancher and Chiricahua Leopard Frog Safe Harbor Participant*

Private Landowners including Livestock Ranchers.

### **Methods**

Captive Propagation and Release, Habitat Restoration, Invasive Bullfrog Eradication, Private Landowner Agreements

### **Results**

AGFD’s efforts include removal of invasive bullfrogs from hundreds of square miles of Chiricahua Leopard Frog habitat. Tens of thousands of frogs, tadpoles, and egg masses have been released in over 400 translocations to 149 sites. Monitoring of these sites has shown a 400 percent increase in occupancy. AGFD and partners have met the recovery plan goals for one of the land units located in or partially in Arizona.

### **Future Needs**

Although AGFD and their partners have made great strides toward recovery of this species in Arizona, more must be done before the U.S. Fish and Wildlife Service may consider de-listing Chiricahua Leopard Frog. The agency is using State Wildlife

Grant Program funds to support a genomics study that is expected to improve translocation success. Continued surveying of more remote sites along with ongoing bullfrog removal are necessary to continue making progress toward recovery.

### **Arizona Wildlife Action Plan**

The [Arizona Wildlife Action Plan](#) was revised in 2012 and is currently being updated. The plan identifies 528 Species of Greatest Conservation Need associated with desert scrub, grasslands, woodlands and forests, and aquatic and riparian areas. Key threats to species include human population growth, altered hydrological and fire regimes, invasive species, disease, and climate change. Priority conservation actions include partnerships with land managers to establish resilient connected habitats, engagement in large scale watershed planning, expansion of citizen science and volunteer programs for data collection and monitoring, and partnerships with industry to minimize impacts to wildlife. More than 60 conservation partners and many members of the public participated in the development of the plan. Contact the [Arizona Game and Fish Department](#) to learn more.



*Conservation of the Chiricahua Leopard Frog has required intensive efforts for many years and has only been successful due to the combined efforts of state, federal, and private partners.*

Photo: Allison Leigh Smith.

# Sierra Nevada Red Fox

## Status

Not Warranted for Federal Listing (2015)

## Project Summary

The California Department of Fish and Wildlife (CDFW) is investigating the health, reproductive biology, habitat use, and causes of mortality of the Sierra Nevada Red Fox in the Lassen Peak area. This rare fox is state-listed as threatened and is also described as a Species of Greatest Conservation Need that is highly vulnerable to climate change in California's 2015 State Wildlife Action Plan. Sierra Nevada Red Fox distribution has declined significantly over the past century, and little is known about its ecology or population size. CDFW used State Wildlife Grant (SWG) Program funds over the past three years to address these data gaps, and to better understand potential factors limiting the fox's expansion into unoccupied but seemingly suitable habitat in the Sierra Nevada and Cascade Ranges.

## Partners

Lassen Volcanic National Park, University of California–Davis, U.S. Forest Service—Lassen National Forest

## Methods

Research, Monitoring Including Satellite Telemetry, Planning, Coordination

## Results

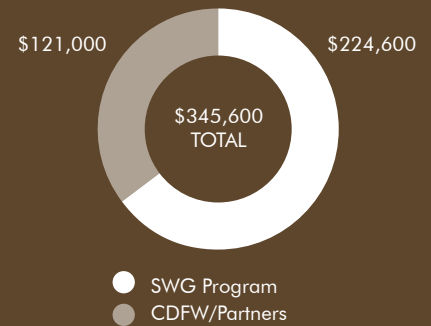
This project is yielding significant new information on the basic biology and ecology of the Sierra Nevada Red Fox. This information will be included in a Conservation Strategy currently under development and will help guide future research needs and management actions.

## Future Needs

Although the species as a whole was determined Not Warranted for listing under the Endangered Species Act in 2015, the Sierra Nevada Distinct Population Segment of the fox was proposed for listing by the Service in 2020. CDFW needs continued funding for basic research, including investigations of population size



## Program Funding



A male Red Fox is released by CDFW employees after being examined and fitted with a satellite tracking collar. February 13, 2018. Lassen National Forest.

Photo: Corrie McFarland.

*“This project has yielded significant insights into the ecology of these foxes which will help the Department and other managers conserve the population.”*

California Department of  
Fish and Wildlife

and trend, survival/mortality, habitat use, interactions and competition with other carnivores, and related work. This ongoing research provides essential scientific information that will inform future U.S. Fish and Wildlife Service listing decisions.

#### **More Information**

<https://www.fws.gov/news/ShowNews.cfm?ref=service-proposes-federal-protections-for-california-population-of-one-of-&ID=36508>

#### **California Wildlife Action Plan**

The [California Wildlife Action Plan](#) was revised in 2015. The plan identifies 1,153 Species of Greatest Conservation Need associated with 55 key habitats/ecosystems. Key threats include habitat loss, conversion and fragmentation due to various human activities that are coupled with other drivers such as invasive species and issues related to climate change including wild-fire, drought and ocean acidification. Priority conservation actions encompass various topics including science and technology, outreach, partnership-building, law and policy, and integrated planning and management. Over 380 individuals assisted with development of the plan and its nine companion plans which summarize actions needed for implementing the plan. Contact the [California Department of Fish and Wildlife](#) to learn more.

Colorado

# Lesser Prairie-Chicken

## Status

Under Review for Federal Listing

## Project Summary

The Lesser Prairie-Chicken is the iconic prairie grouse of the southern Great Plains. However, numbers have declined drastically in a portion of the Sand Sagebrush Ecoregion near the Cimarron National Grasslands in southwestern Kansas and the Comanche National Grasslands in southeastern Colorado. Colorado Parks and Wildlife (CPW) and Kansas Department of Wildlife, Parks and Tourism (KDWPT) partnered with Kansas State University and the U.S. Forest Service to implement a three-year translocation project. The goal of this partnership is to secure the long-term persistence, resiliency, and distribution of Lesser Prairie-Chicken populations within the Sand Sagebrush Ecoregion by restoring core populations. Three graduate students from Kansas State University assisted with this project. State Wildlife Grant

(SWG) Program funds were combined with Wildlife Restoration Program funding from the U.S. Fish and Wildlife Service and various sources of non-federal matching resources from the two states and their university partners to make this project possible.

## Partners

Kansas Department of Wildlife, Parks, and Tourism, Kansas State University, U.S. Forest Service

## Methods

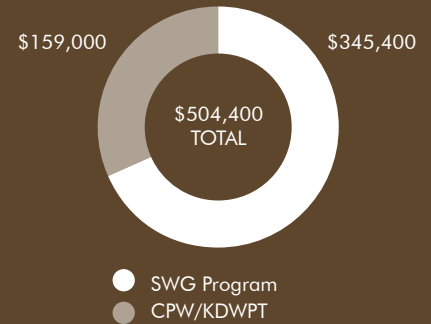
Research, Monitoring, Translocation, Coordination, Landowner Agreements

## Results

Between 2016 and 2019, the partnership conducted four month-long trapping and translocation operations requiring many hours at remote field stations in western Kansas. The partnership trapped and trans-



## Program Funding



Colorado Parks and Wildlife biologists release Lesser Prairie-Chicken on the Comanche National Grasslands in southeastern Colorado.

Photo: Colorado Parks and Wildlife.

*“This multi-state partnership, focused at a landscape scale, demonstrates what collaborative management efforts can do to restore a species to an area. However, agency partnership is just one component of the project. Landowner support and access to private lands was critical for capture of birds and continues to be essential for long-term monitoring. Recovery of this amazing species requires all of us working together.”*

*Liza Rossi  
Bird Conservation Coordinator  
Colorado Parks and Wildlife*

*Colorado Parks and Wildlife biologists and a Kansas State University Graduate Student apply a transmitter to a Lesser Prairie-Chicken.*

Photo: Colorado Parks and Wildlife.

located 411 Lesser Prairie-Chickens from the Short-grass Prairie Ecoregion in Kansas to the Sand Sagebrush Ecoregion. In early May of 2020, one full year after the last bird was released, Colorado and Kansas biologists and technicians found 115 male birds and 20 active leks on or near the Comanche and Cimarron National Grasslands. These leks, established by the translocated birds and their offspring, indicate that the Lesser Prairie-Chicken has once again returned to the region's prairie.

This partnership effort to restore resiliency to the Lesser Prairie-Chicken population in the Sand Sagebrush Ecoregion seeks to increase long-term redundancy and representation across the species' range. Combined with similar efforts in the West, these proactive strategies can positively impact the Service listing decision for Lesser Prairie-Chicken.

### **Future Needs**

Broad-scale funding will be necessary to further incentivize conservation and restoration of prairie grasslands for species such as the Lesser Prairie-Chick-

en. Farm Bill programs, non-governmental organization support, investment from renewable and nonrenewable energy industry partners, and dedicated state and federal habitat funding are all necessary to maintain the southern Great Plains and its cherished species.

### **More Information**

[https://youtu.be/xG\\_7hajky-Q](https://youtu.be/xG_7hajky-Q)

### **Colorado Wildlife Action Plan**

The [Colorado Wildlife Action Plan](#) was revised in 2015. The plan identifies 159 Species of Greatest Conservation Need associated with river basins, forests, wetlands, grasslands, and shrublands. Key threats to species include habitat loss and fragmentation, disturbance, invasive species, and lack of protection. Key conservation actions include increased monitoring and data collection, enhanced management and protection, and outreach. More than 20 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Colorado Division of Parks and Wildlife](#) to learn more.



# Micronesian Gecko



*Micronesian Gecko.*

Photo: Eric Hileman, U.S. Geological Survey.

## Status

State Threatened and Endangered

## Project Summary

In 2018, the Commonwealth of the Northern Mariana Islands (CNMI) Division of Fish and Wildlife (DFW) and the U.S. Geological Survey (USGS) partnered to implement the first landscape-scale survey of herpetofauna on Saipan, the largest and most populated of the Northern Mariana Islands. The Micronesian Gecko, a CNMI-listed species, was a particular focus. Project funding was provided by the State Wildlife Grant (SWG) Program. This effort was the first large-scale collaboration between DFW and USGS on an applied research project. The partners

used the information to develop a model of Micronesian Gecko distribution on Saipan. USGS provided technical expertise and other resources that were essential to the success of this project.

## Partner

U.S. Geological Survey

## Methods

Research, Monitoring

## Results

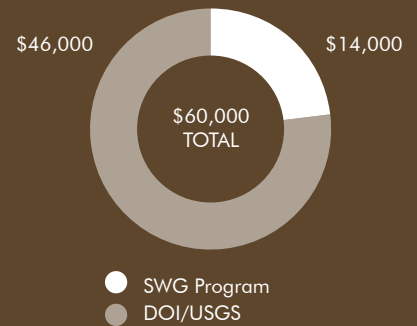
This project showed that Micronesian Geckos are more common than previously thought and that they are currently found only at higher elevation locations away from Saipan's coastal areas where development pressure is highest. Data will be used for future habitat and species management to benefit the Gecko and other at-risk species. From this experience, DFW and USGS know and value what each other brings to a partnership. This project directly led to a partnership on a larger project to control feral ungulates on the island of Alamagan for the benefit of the federally endangered Mariana Skink.

## Future Needs

Priority needs for future conservation activities include: validating the Gecko distribution model, conducting similar studies on two other islands, implementing long-term monitoring of ter-



## Program Funding



*The Commonwealth of the Northern Mariana Islands is exempt from State Wildlife Grant Program matching requirements.*

*“Our agency has extremely limited funding available for reptile conservation. This was our first major project addressing the conservation needs of any terrestrial reptile, so I am very pleased with the successful outcome.”*

*Manny M. Pangelinan  
Director*

*CNMI Department of Fish and Wildlife*

restrial reptiles, and acquiring easements or real property where Micronesian Gecko hotspots are vulnerable to development.

### **Commonwealth of the Northern Mariana Islands (CNMI) Wildlife Action Plan**

The [CNMI Wildlife Action Plan](#) was revised in 2015. The plan identifies 60 Species of Greatest Conservation Need associated with forests, grasslands, wetlands, caves, shorelines, coral reefs, seagrass beds, and open ocean. Key threats to species include invasive species, develop-

ment, climate change, military expansion, pollution, unsustainable harvest or hunting, tourism and recreation, natural disasters, and wildfires. Priority conservation actions identified in the plan include invasive species prevention, improving effectiveness of conservation regulations, increased monitoring and data collection, continued adaptive management, and public outreach. More than 20 conservation partners and numerous members of the public participated in the development and review of the plan. Contact the [CNMI Division of Fish and Wildlife](#) to learn more.



Guam

# Green and Hawksbill Sea Turtles



*Hawksbill Sea Turtle.*

Photo: U.S. Fish and Wildlife Service.

## Status

Federally Endangered

Oceanic and Atmospheric Administration, U.S. Department of Defense

## Project Summary

The Guam Division of Aquatic and Wildlife Resources is implementing an island-wide sea turtle nesting habitat assessment. The agency is working to identify active sea turtle nesting habitat, identify threats to sea turtles, and determine nesting success through on-going monitoring. Project funding is provided by the State Wildlife Grant (SWG) Program.

## Partners

Hagaan Watch (a volunteer monitoring group), National

## Methods

Monitoring; landowner outreach and education

## Results

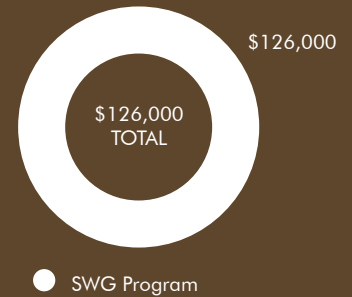
Using information acquired through this project, the Guam Division of Aquatic and Wildlife Resources will develop management strategies to increase recruitment of sea turtles from Guam beaches.

## Guam Wildlife Action Plan

The Guam Wildlife Action Plan was revised in 2015. The plan



## Program Funding



*Guam is exempt from the State Wildlife Grant Program matching requirements.*

*Tatiana Perez Borja, left in bright green, and Josefa “Sefa” Muñoz, right in blue, both formerly of the University of Guam Sea Grant Program, assist Guam Department of Agriculture’s Division of Aquatic and Wildlife Resources with a green sea turtle nest inventory.*

Photo: Cristian “CJ” Cayanan, Biologist, Guam Division of Aquatic and Wildlife Resources.



identifies 77 invertebrate and vertebrate Species of Greatest Conservation Need associated with habitats from limestone forests, savannas, beach strand forests, wetlands, to sea grass beds, lagoons, and coral reefs. Key threats to species are introduced invasive plants and animals, land development and use patterns contributing to habitat loss, and climate change. The introduced predatory Brown Tree Snake is, perhaps, the single major contributor to extinctions of many of Guam’s native birds. Control or

eradication of introduced species, captive breeding and translocation of federally endangered or locally extirpated species, designation of protected terrestrial and marine conservation areas, increasing scientific information of species, and community education and outreach are identified as key priority conservation actions. The plan was developed in consultation with many subject matter experts from federal and state agencies, academic institutions, and non-governmental organizations, along with public input. Contact the Guam Department of Agriculture and its Division of Aquatic and Wildlife Resources to learn more.

Hawaii

# Kiwikiu (Maui Parrotbill)

## Status

Federally Threatened (2017)

## Project Summary

Hawaii Division of Forestry and Wildlife's (HDFW) Maui Forest Bird Recovery Project has conducted forest recovery actions in Nakula Natural Area Reserve (reserve) since 2012 in preparation for a planned reintroduction of the endangered Kiwikiu to this portion of the species' former range. Hawaii Division of Forestry and Wildlife has conducted research and restoration actions on 100 acres of the Wailaulau Unit of the reserve. These include experimental research on the best restoration practices, extensive planting of native seedlings, erosion control, enhancement of natural regeneration, and removal of non-native grasses. Planting native seedlings involves thou-

sands of hours of seed collection from within the reserve and other protected lands, propagation of seedlings at nurseries, and finally transportation and planting in the reserve. In total, project managers planted over 69,000 native seedlings of 22 species in the reserve. These join over 200,000 planted by the State of Hawaii in the greater reserve areas. Community volunteers contributed to the restoration of the reserve, providing at least 45 percent of the overall field hours planting and conducting other restoration activities. These community volunteers leave their experience with a personal stake in the project and in the overall conservation of the forest and its inhabitants. The contributions of volunteers and other resources from project partners were used as match to secure State Wildlife Grant (SWG) Program funding from the U.S. Fish and Wildlife Service.

## Partners

University of Hawaii Pacific Cooperative Studies Unit, American Bird Conservancy, Na Koa Manu Conservation

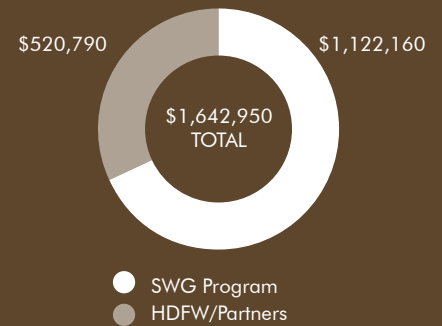


*Young Ohia trees to be planted in Nakula Natural Area Reserve, Maui, Hawaii.*

Photo: Hawaii Division of Forestry and Wildlife.



## Program Funding





*Kiwikiu was listed by the U.S. Fish and Wildlife Service as threatened in 2017.*

Photo: Zach Pezzillo, Maui Forest Bird Recovery Project.

*“Before humans came to Hawaii, there were no rats that ate the birds’ eggs, and no mosquitoes that spread diseases to which the birds have no immunity. Since we are at the root of these problems, it is our duty to save these birds from extinction.”*

Hanna Mounce  
Coordinator

Maui Forest Bird Recovery Project

## Methods

Research, Monitoring, Habitat Creation, Enhancement and Management

## Results

The conservation actions that have taken place in the reserve have transformed the habitat from highly degraded and fragmented remnant forest to an increasingly dense, diverse, and connected forest. Experimental trials indicated that natural regeneration was limited to a few common species in the first few years after fences were erected and non-native ungulates were excluded. While these species continued to make up the majority of new trees recruited through 2019, natural germination is now being observed in numerous additional species. Many of the planted and naturally germinated seedlings are beginning to reach maturity, exponentially increasing the overall reproductive output of native plant species within the preserve. Forest restoration is essential for supporting an increase in Kiwikiu abundance and distribution on Maui.

## Future Needs

While natural regeneration continues to take hold in the reserve and surrounding areas, the diversity that will be needed to make the area fully functional habitat will require continuing planting of native species. There is a need for landscape-scale mosquito control and disease management. Although the reserve habitat is more degraded than currently occupied Kiwikiu habitat, the released birds responded very well to the available restored habitat.

## More Information

[www.mauiforestbirds.org](http://www.mauiforestbirds.org)

<https://wildlife.org/conservationists-race-to-save-hawaiian-kiwikiu-honeycreeper/>

<https://www.audubon.org/magazine/september-october-2015/how-scientists-are-racing-save-rare>

[Roberts, C. 2019. Restoring A Native Hawaiian Ecosystem. Maui No Ka Oi Magazine November 2019](#)

## Hawaii Wildlife Action Plan

The [Hawaii State Wildlife Action Plan](#) was revised in 2015. The plan includes 6,252 Species of Greatest Conservation Need, including many endemics that are associated alpine, subterranean, streams, estuaries, and marine habitats. Key threats to species are habitat loss and fragmentation, disturbance, invasive species, lack of protection, climate change, lack of information, lack of compliance with laws and regulations, overharvesting, and excessive extraction and use. Priority conservation actions include managing and protecting native species, controlling invasive species, management and recovery of species, monitoring and data collection, supporting partnerships, outreach and education to improve understanding of native wildlife, policy changes and enhancing funding. Nearly 70 conservation partners and citizens participated in development of the plan. Contact the [Hawaii Division of Forestry and Wildlife](#) to learn more.

Idaho

# Fisher—Northern Rocky Mountain Distinct Population Segment

## Status

Not Warranted for Federal Listing (2011 and 2017)

## Project Summary

State Wildlife Grant (SWG) Program funds helped catalyze a multi-year, multi-organization effort to better understand the habitat needs of Fishers in north-central Idaho. Prior to this work the Fisher had received little conservation attention and its low densities and presumed association with mature and old-growth forest types meant there was high probability of future petitions for listing under the Endangered Species Act (ESA). To proactively address this knowledge gap, Idaho Fish and Game (IDFG) initiated a project to better understand the distribution and habitat requirements of the

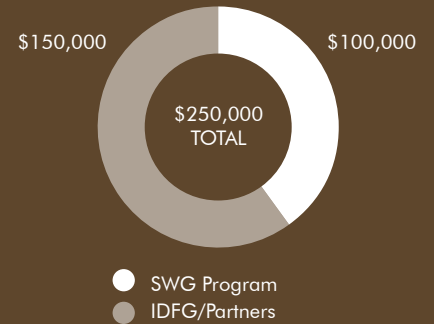
species. The agency used DNA hair snaring as well as satellite radio collars to collect occurrence and movement data. These data were used to produce models of Fisher distribution and habitat preference. Over time, numerous partners joined the effort and brought considerable funds and resources to expand and support the project.

## Partners

University of Idaho, PotlatchDeltic Corporation, U.S. Forest Service—Nez Perce—Clearwater National Forest, Yellowstone to Yukon Conservation Initiative, Idaho Conservation League, National Council for Air and Stream Improvement



## Program Funding



*“The Idaho Fisher project has provided the needed science to maintain state management of the species and provide the information for future planning efforts to support a balanced approach between the economic vitality of the State and its wildlife.”*

Joshua Uriarte  
Terrestrial Species Program  
Manager and Policy Advisor  
Idaho Governor’s Office of  
Species Conservation

*Dr. Joel Sauder of IDFG conducts vital sign monitoring of Fisher while attaching a satellite-based radio collar.*

Photo: Chris Claire.



Survey stations employed a remote camera, a hair-snaring device, a bone and an automated scent pump to attract and document the presence of Fishers.

Photo: Idaho Department of Fish and Game.

*“The Idaho Fisher project has been a great example of large private landowner collaboration and has ensured all affected stakeholders will be involved in the long-term conservation of this species.”*

Mike Houser  
Manager  
Certification & Environment  
PotlatchDeltic

## Methods

Research, Monitoring, Modeling, Coordination

## Results

This project generated Fisher habitat preference information that contributed to the Service’s Not Warranted finding for the Northern Rocky Mountain Distinct Population Segment. As a result, the state of Idaho retained management authority for the species, thereby helping to preserve timber-based jobs and benefiting local economies of north-central Idaho. This understanding of habitat requirements and suitable habitat constitutes the best available science on Fishers in Idaho and continues to shape conservation actions and local forest management into the future. State Wildlife Grant Program funding has distinctly influenced the forthcoming Nez Perce–Clearwater National Forest Plan, and provides essential information for IDFG’s Fisher conservation and management plan, which is currently under development.

## Future Needs

Since the distribution and preferred habitat of Fishers overlaps with forests managed for multiple uses including timber production, there will be a long-term need to monitor populations to ensure Fishers remain secure and ESA protections are not required in the future.

## More Information

Significant translocation work has occurred to restore Fisher to its historic range in the State of Washington. See the Washington State Fisher project description for more information on this related effort.

## Idaho Wildlife Action Plan

The [Idaho State Wildlife Action Plan](#) was revised in 2016. The plan identifies 205 Species of Greatest Conservation Need associated with alpine and high montane, aspen forest and woodland, dry and mesic forest, riverine–riparian, sagebrush steppe, caves, and wetlands. Key threats include native habitat conversion due to noxious weeds and invasive annual grasses as well as development and related infrastructure, altered fire regimes, and wildlife disease. Priority conservation actions include the use of American Beaver to improve stream health for working landscapes and wildlife, mitigating impacts of invasive plant and animal species, restoring natural fire intervals that promote historical forest and rangeland conditions, and addressing impacts of disease and pesticides on fish and wildlife. More than 90 conservation partners and many members of the public participated in the development and review of the plan. Contact the [Idaho Department of Fish and Game](#) to learn more.

Montana

# Trumpeter Swan

## Status

Species of Greatest Conservation Need

## Project Summary

Trumpeter Swans were classified as Tier 1 Species of Greatest Conservation need in Montana's original State Wildlife Action Plan, which was published in 2006 and has been updated regularly since then by Montana Fish, Wildlife, and Parks (FWP). The habitat needed by nesting Trumpeter Swans includes wetlands and riparian areas. Since 2004, FWP, the Blackfoot Challenge, the U.S. Fish and Wildlife Service and a host of partners including private landowners have been working cooperatively to restore Trumpeter Swans to wetlands in the Blackfoot watershed. The goal of the program is to restore

the population until seven pairs of swans successfully fledge cygnets (young swans) for two consecutive years. State Wildlife Grant (SWG) Program and FWP funds used in this project have been supplemented with partner funds, volunteer support, and other resources that amount to many thousands of dollars over the past sixteen years. New releases are occurring in the Madison Valley of Southwest Montana with similar resources.

## Partners

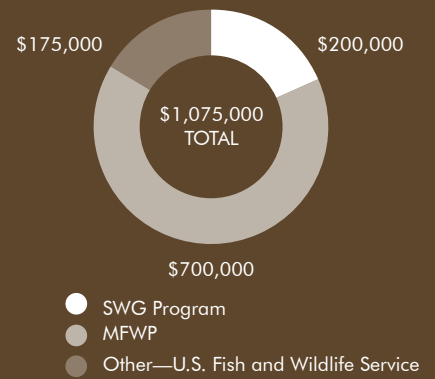
Blackfoot Challenge, U.S. Fish and Wildlife Service, Blackfoot Valley landowners

## Methods

Monitoring, Reintroduction, Wetland Restoration, Coordination



## Program Funding



*Trumpeter Swans.*

Photo: Tom Koerner, U.S Fish and Wildlife Service, Mountain-Prairie Region.

*“Trumpeter Swans tug at the heartstrings of people in this valley. When I have coffee at a local café or meet with a local landowner, I hear their stories about swans flying over their land and how incredible that experience was.”*

Greg Neudecker  
U.S. Fish and Wildlife Service

## Results

In 2011, Trumpeter Swans successfully nested and fledged cygnets in the Blackfoot watershed for the first time in potentially two centuries. Since then, the population has continued to rebound. Blackfoot wetlands hosted a record number of 13 Trumpeter Swan pairs, five of which produced 20 cygnets, in 2018. In addition to Swan recovery, FWP has found that wetlands restoration and protection has contributed to significant community pride in healthy habitats and wildlife populations.

## Future Needs

Trumpeter Swans are being reintroduced in other wetlands to build similar support for wildlife and to achieve successful species recovery. Additional support would allow FWP to expand these efforts to other watersheds with suitable habitat.

## More Information

[https://issuu.com/montanaoutdoors/docs/cskt\\_swans1](https://issuu.com/montanaoutdoors/docs/cskt_swans1)

## Montana Wildlife Action Plan

The [Montana Wildlife Action Plan](#) was revised in 2015. The plan identifies 128 Species of Greatest Conservation Need associated with streams, rivers, lakes, reservoirs, wetlands, forests, grasslands, and sagebrush. Key threats include habitat loss or change, disease, pollution, climate change, and invasive species. Priority conservation actions include collaboration and outreach, habitat protection and management, planning and review, and technical assistance. Many agency staff, conservation partners and the public participated in the development of the plan. Contact [Montana Fish Wildlife and Parks](#) to learn more.



Nevada

# California Spotted Owl

## Status

Not Warranted for Federal Listing (2019)

## Project Summary

After receiving a petition to list the California Spotted Owl, the U.S. Fish and Wildlife Service issued a positive 90-day finding in 2015. In Nevada, California Spotted Owls occur in a single mountain range, the Carson Range, and were first confirmed to nest there in 2009. Nevada Department of Wildlife (NDOW) has been conducting surveys for the species since then, with more than 330 surveys throughout its range. In addition to support from the State Wildlife Grant (SWG) Program, field work was supported in part by the Lake Tahoe Environmental Improvement Program which contributed \$46,000 toward the cost of survey crews and NDOW staff salaries.

## Partners

Great Basin Institute, U.S. Forest Service, Nevada Department of Conservation and Natural Resources

## Methods

Research, Monitoring, Coordination, Habitat Management, Technical Assistance

## Results

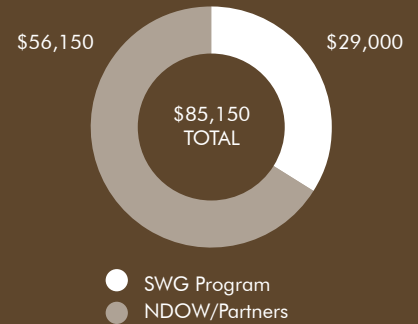
This project determined that the Carson Range can support breeding pairs which is critical new information. Knowing the locations of Spotted Owl nests is essential to protecting them. NDOW used survey results to work with forestry and land-management partners to minimize nest disturbance and ensure that suitable habitat is conserved. Data obtained in this project contributed to the 2019 U.S. Fish and Wildlife Service finding that the species is not warranted for federal listing.

## Future Needs

A large portion of the Carson Range remains unsurveyed for California Spotted Owl. Additional survey work is needed in



## Program Funding



*Female and juvenile California Spotted Owls photographed near their nest in Nevada's Carson Range in July 2015.*

Photo: Mark Enders, NDOW.



*“California Spotted Owls are tied to some of the most pristine habitats in Nevada’s Carson Range, and the management decisions we make today will benefit a suite of important species in Nevada for generations to come.”*

*Mark Enders  
NDOW Biologist*

roadless and wilderness areas to gain a better understanding of the species’ distribution in the Carson Range and to protect additional active territories from disturbance.

### **Nevada Wildlife Action Plan**

The [Nevada Wildlife Action Plan](#) was revised in 2012. The plan identifies 256 Species of Greatest Conservation Need associated with sagebrush, Mojave warm desert shrub, aspen woodland, marshes, and sand dunes. Key threats include habitat loss and fragmentation, wildfires, invasive species, disease, and climate change. Priority conservation include increased monitoring and data collection, enhanced management and protection, and outreach. Eight formal partners and many informal partners and the public assisted with development of the plan. Contact the [Nevada Department of Wildlife](#) to learn more.

New Mexico

# Peñasco Least Chipmunk

## Status

Candidate for Federal Listing

## Project Summary

The Peñasco Least Chipmunk is listed as endangered by the State of New Mexico and is a candidate for federal listing under the Endangered Species Act (ESA). It is only known to persist in the Sierra Blanca subrange of the Sacramento Mountains, New Mexico. Surveys conducted by researchers at New Mexico State University under a contract with the New Mexico Department of Game and Fish (NMDGF) in 2016 were the first to document the presence of this species in the Sierra Blanca subrange. The goal of further research conducted between 2018 and 2019 was to evaluate the chipmunk's distribution, habitat selection, and ecological interactions based on camera traps

and radio telemetry. Basic information on the distribution and habitat associations of the chipmunk is a data gap that must be addressed for conservation and management of the chipmunk to proceed. Both distribution and habitat association data collected with the support of State Wildlife Grant (SWG) Program funds are very important in informing the final listing decision that will be made for this candidate for federal listing under the ESA.

## Partners

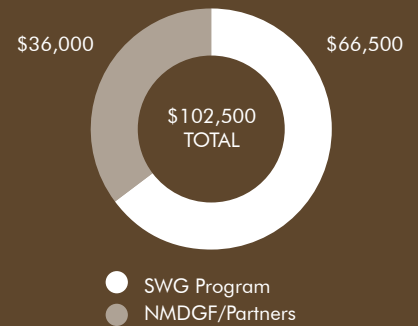
New Mexico State University, Frey Biological Research, U.S. Forest Service

## Methods

Research, Monitoring



## Program Funding



*Peñasco Least Chipmunk with an ear tag for monitoring.*

Photo: Jim Stuart.

*“The information being gathered by researchers at New Mexico State University regarding the Peñasco Least Chipmunk is crucial to furthering the conservation of this candidate species and making a well-informed decision regarding its listing at the federal level.”*

*Ginny Seamster  
Program Coordinator  
Share with Wildlife Program*

## Results

This project documented the species in new locations and highlighted a previously unrecognized part of the Sacramento Mountains as an important area for future conservation. In addition, the researchers demonstrated that Peñasco Least Chipmunk could be distinguished from the similar Gray-Footed Chipmunk using photographs. They placed camera traps at 239 locations throughout the Sierra Blanca subrange, based on land cover type and elevation. The researchers radio-tracked 16 chipmunks at the Lookout Mountain–Ice Springs study area. Data obtained by NMDGF contractors suggest that Peñasco Least Chipmunks are habitat specialists and that conservation of the Lookout Mountain–Ice Springs subpopulation should focus on maintaining old growth Engelmann’s spruce forest and a shrub understory.

## Future Needs

Additional resources are needed to retain old growth stands of spruce, which are threatened by disease and wildfire in synergy with climate change. NMDGF will also need to implement conservation actions to protect chipmunk cover provided by shrubs and other understory species, which may be impacted by grazing or browsing.

## More Information

Report on Peñasco Least Chipmunk monitoring by Dr. Jennifer Frey: <http://www.wildlife.state.nm.us/download/conservation/share-with-wildlife/reports/2016/Survey-for-the-Pe-nasco-least-chip-munk-Tamias-minimus-atristriatus--Jennifer-Frey.pdf>

## New Mexico Wildlife Action Plan

The [New Mexico Wildlife Action Plan](#) was revised in 2017. The plan identifies 235 Species of Greatest Conservation Need associated with 41 key terrestrial and aquatic habitats. Key threats include development, agriculture, energy production, and natural system modifications. Priority conservation actions include research and monitoring, improved threat assessment, project review, collaboration, and outreach. Over 42 federal, state, and education institutions, agency staff, and many members of the public participated in development of the plan. Contact the [New Mexico Department of Game and Fish](#) to learn more.

Oregon

# Western Pond Turtle

## Status

Scheduled for Federal Listing Review (2021)

## Project Summary

The Western Pond Turtle is currently under review for federal listing. If implemented in a timely manner, conservation actions identified in the Western Pond Turtle Range-Wide Management Strategy could preclude the need to list Western Pond Turtles under the Endangered Species Act (ESA). The Oregon Department of Fish and Wildlife (ODF&W) is working with the states of Washington and California to contribute key data toward the U.S. Fish and Wildlife Service's listing decision and identify priority conservation areas for future protection. Funding from the State Wildlife Grant Program, along with state and partner resources, has supported this timely, proactive conservation work.



## Partners

The Oregon Wildlife Foundation, Cities of Albany, Eugene, and Salem, Salem Audubon Society, Port of Portland, Oregon Zoo, Washington Department of Fish and Wildlife, California Department of Fish and Wildlife, Center for Natural Lands Management, U.S. Fish and Wildlife Service

## Methods

Nesting Area Enhancement and Protection, Overwintering and Foraging Habitat Improvement, Invasive Non-native Turtle Removal, Standardized Occupancy Surveys to determine status and distribution in Oregon

## Results

Timely monitoring and information sharing using standardized survey methods may help the U.S. Fish and Wildlife Service determine the species is not warranted for listing under the ESA in 2021. Additionally, project funds are supporting local jobs and providing an opportunity for citizen scientist involvement.

## Future Needs

To help ensure long-term viability of Western Pond Turtles in

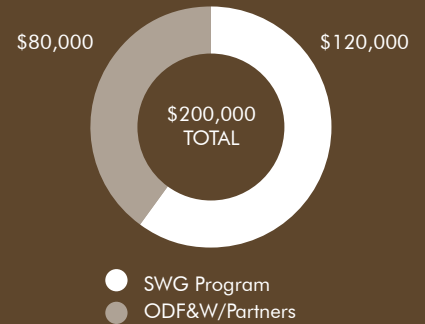
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*A Western Pond Turtle hatchling just emerged from its nest in the Willamette Valley.*

Photo: Courtesy of Samara Group.



## Program Funding



*“State Wildlife Grant Program funding, along with a strong partnership with Oregon Department of Fish and Wildlife, has allowed the City to take Western Pond Turtle conservation work to a level that we couldn’t easily achieve on our own.”*

*Lauri Holts  
Ecologist*

*City of Eugene Parks and Open Space*

the wild, additional funding is needed to research genetic variability and threats, implement best management practices, and conduct outreach and education.

### **Oregon Wildlife Action Plan**

The [Oregon Wildlife Conservation Strategy](#) was revised in 2016. The strategy identifies 294 Species of Greatest Conservation Need associated with late successional forests, sagebrush habitats, grasslands, estuaries, and wetlands. Key threats include climate change, land use changes, invasive species, and barriers to animal movement. Priority conservation actions include managing impacts from climate change, monitoring, research, improving connectivity, outreach, education, urban area conservation, planning and regulations, and voluntary conservation. More than 200 conservation partners assisted in the development and review of the strategy. Contact the [Oregon Department of Fish and Wildlife](#) to learn more.

Utah

# Boreal Toad

## Status

Not Warranted for Federal Listing (2017)

## Project Summary

In Utah, Boreal Toad conservation began more than 20 years ago with inventory and monitoring of the species. At that time, little was known about the natural history and distribution of Boreal Toad in the state. Utah Division of Wildlife Resources (UDWR) first developed a baseline understanding of the species, then began implementing habitat protection and restoration. Eventually, some hatchery and augmentation activities produced results for the weakest population. Similar work is occurring in other states including neighboring Colorado, using State Wildlife Grant (SWG) Program funds along with state and many other partner resources. In Utah, state funding has largely been contributed from the Endangered Species Mitigation Fund and the Watershed Restoration Initiative.

## Partners

iNaturalist, U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, Hogle Zoo, Denver Zoo, Wild Utah Project, Private Landowners

## Methods

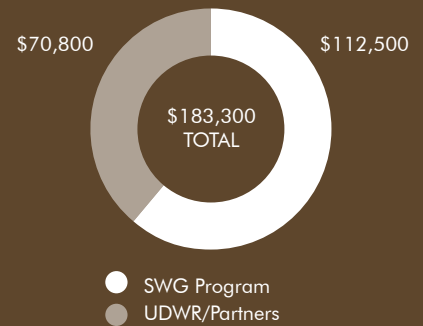
Surveys / Monitoring, Habitat Protection, Enhancement and Management, Captive Rearing and Release

## Results

UDWR is presently analyzing 23 years of Boreal Toad monitoring data. Using the data in population modeling and viability analyses, the agency has determined that many of the state's Boreal Toad populations are stable and even slightly increasing. This information will be essential to the U.S. Fish and Wildlife Service and other conservation partners in future status reviews and for direct management of Boreal Toad and its habitat.



## Program Funding



*Boreal Toad.*

Photo: Utah Division of Wildlife Resources.

“Our State Wildlife Grant Program allocation, along with Utah’s matching funds, supports the essential core of our Endangered Species Act listing-prevention program: our staff. I doubt we would have been able to complete the long-term Boreal Toad conservation work, or much other ESA listing-prevention work, without the SWG Program allocation and the permanent staff that this funding enables us to recruit and retain.”

Drew Dittmer

Herpetologist and Native  
Species Coordinator

Utah Division of Wildlife Resources

Species	USFWS Decision	Year Decided
Southwestern willow flycatcher	Listed—Endangered	1995
Columbia spotted frog	Not warranted for ESA listing	2002
Yellowstone cutthroat trout	Not warranted for ESA listing	2006
Colorado River cutthroat trout	Not warranted for ESA listing	2007
Bonneville cutthroat trout	Not warranted for ESA listing	2008
Pygmy rabbit	Not warranted for ESA listing	2010
American pika	Not warranted for ESA listing	2010
Northern leopard frog	Not warranted for ESA listing	2011
Northern leatherside chub	Not warranted for ESA listing	2011
Gila monster	Not warranted for ESA listing	2011
American bison	Not warranted for ESA listing	2011
Gunnison’s prairie dog	Not warranted for ESA listing	2013
Yellow-billed cuckoo (western DPS)	Listed—Threatened	2014
Gunnison sage-grouse	Listed—Threatened	2014
Least chub	Not warranted for ESA listing	2014
Greater sage-grouse	Not warranted for ESA listing	2015
Boreal toad	Not warranted for ESA listing	2017
Bifid duct pyrg	Not warranted for ESA listing	2017
White-tailed prairie dog	Not warranted for ESA listing	2017
Virgin River spinedace	Under review	Under review
Wolverine	Under review	Under review

*During the last 25 years, 21 species with Utah populations have been petitioned for federal listing, but the vast majority were found Not Warranted, largely due to State Wildlife Grant Program funding.*

From: “The Power of Proactive Conservation,” a report published by the Utah Department of Natural Resources. November 2018. Available at <https://wildlife.utah.gov/pdf/WAP/follow-up-report.pdf>.

### Future Needs

Even though the Service’s 2017 Not Warranted decision ensured that Boreal Toad was not federally listed as threatened or endangered, biologists are still monitoring Utah populations and tracking toad sightings.

### More Information

[https://www.youtube.com/watch?v=xjC\\_54Ei69M&t=6s](https://www.youtube.com/watch?v=xjC_54Ei69M&t=6s)

### Utah Wildlife Action Plan

The [Utah Wildlife Action Plan](#) was revised in 2015. The plan identifies 141 Species of Greatest Conservation Need associated

with forests, grasslands, sagebrush, shrub, rivers, and wetlands. Key threats include water use and development (exacerbated by increasingly variable temperatures and precipitation), invasive species, departure from natural fire regimes, data gaps, inadequate understanding of species, and insufficient inventory and assessment. Priority conservation actions include habitat and species management and protection, water conservation and management, grazing management, corridor conservation, recreation management, and monitoring. Approximately 20 conservation partners and stakeholders assisted with development of the plan. Contact the [Utah Division of Wildlife Resources](#) to learn more.



Washington

# Fisher

## Status

State-Listed Endangered

## Project Summary

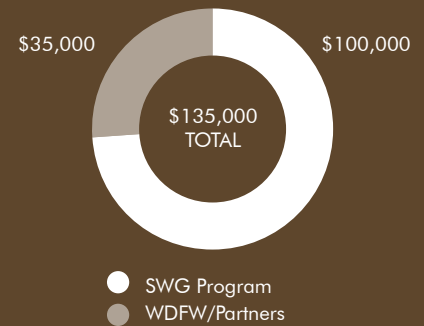
To recover Fishers in Washington, a group of conservation partners including Washington Department of Fish and Wildlife (WDFW) have reintroduced 260 Fishers from 2008 to 2020 in three recovery areas in Washington State, including the Olympic, South Cascade, and North Cascade Mountains. In 2020, the partners reached Fisher release goals in all three recovery areas. WDFW used State Wildlife Grant (SWG) Program funds to support this effort, which complemented funding from the National Park Service and other partners. Reintroduction efforts also depended on assistance from Canadian partners in British

Columbia and Alberta to provide healthy Fishers for release in Washington. Released Fishers have been monitored via telemetry to determine the early success in each reintroduction area, and success over a longer period has also been assessed in the Olympic Recovery Area. Complementing reintroduction actions, WDFW and the U.S. Fish and Wildlife Service worked with non-federal forest landowners to develop and implement a Candidate Conservation Agreement with Assurances (CCAA) for the Fisher.

By investing early in proactive conservation actions including the CCAA, WDFW and partners have jump-started Fisher recovery before the species was considered for listing under the Endangered Species Act. The CCAA has facilitated the participation of owners of private and com-



## Program Funding



*Project funding represents only the portion of this overall reintroduction effort that was supported with funding from the State Wildlife Grant Program and WDFW.*

*Fisher being released by National Park Service partners in the North Cascades Ecosystem of Washington, October 2019.*

Photo: K. Rine, National Park Service.

*“People have been working tirelessly to restore this mysterious and rare carnivore to the Cascades, and now that we’ve met our release goals, we anticipate that Fishers will continue to settle into the recovery areas, find mates, and provide the foundation for a large, healthy population in Washington.”*

*Jeff Lewis*

*Mesocarnivore Conservation Biologist  
Washington Department  
of Fish and Wildlife*

mercial working timber lands to continue working and managing their lands in concert with Fisher recovery. Ultimately, a recovered Fisher population could lead to a well-managed and responsible trapping program in Washington.

### **Partners**

National Park Service, Conservation Northwest, U.S. Forest Service, U.S. Fish and Wildlife Service, Point Defiance Zoo and Aquarium/Northwest Trek Wildlife Park, Calgary Zoo, National Fish and Wildlife Foundation

### **Methods**

Monitoring, Species Reintroduction, Landowner Agreements

### **Results**

While it is too early to know if the Fisher reintroductions have been successful in reestablishing self-sustaining populations, there have been positive indications based on results from the long-term monitoring efforts in the Olympic Recovery Area, as well as monitoring in the South Cascades. Fishers are widely distributed and there is evidence of reproduction. Initial telemetry monitoring of released Fishers is still ongoing in the North Cascades reintroduction area, and a long-term monitoring project is being planned for the entire Cascades Recovery Area. To date, over 60 landowners have enrolled their lands protecting over 3.3 million acres of forests habitats.

### **Future Needs**

Further monitoring is needed to ensure that the translocations have resulted in established populations in the Olympic and Cascade Recovery Areas, and to inform any need to augment reintroduced populations. Additional funding could enable WDFW to expand Fisher restoration efforts within its historic range.

### **Washington Wildlife Action Plan**

The [Washington Wildlife Action Plan](#) was revised in 2015. The plan identifies 268 Species of Greatest Conservation Need associated with bogs, dune, riparian woodland, conifer swamp, marshes and mudflats, prairie and savannahs, shrub-steppe, and oak and pine woodlands. Key threats include habitat loss and fragmentation, disturbance, invasive species, lack of protection, and climate change. Priority conservation actions include population assessments and inventory, habitat protection and restoration, and species-specific threat abatement. Approximately 250 individuals and organizations provided input during development of the plan. Contact the [Washington Department of Fish and Wildlife](#) to learn more.

Wyoming

# White-Tailed Prairie Dog

## Status

Not Warranted for Federal Listing (2017)

## Project Summary

Due to a 90 percent decline in the historic range of the White-Tailed Prairie Dog, the species was petitioned for federal listing. The U.S. Fish and Wildlife Service published a 12-month finding of Not Warranted in 2010. After a 2014 court order to reevaluate the species' status, a Species Status Assessment was initiated. The Wyoming Game and Fish Department (WGFD), in coordination with the state fish and wildlife agencies of Colorado and Utah, performed range-wide species mapping to determine occupancy, with support from the State Wildlife Grant (SWG) Program. New information was compared to data from previous efforts to determine population status of the Prairie Dog in Wyoming. Additional support and funding was provided by the Service's Wyoming Ecological Services Field Office. In 2017, the Service again determined the White-Tailed Prairie Dog is not warranted for federal listing. SWG Program funding was an important resource impacting this decision.

## Partners

Wyoming Natural Diversity Database, Colorado Parks and



*White-Tailed Prairie Dog.*

Photo: Tom Koerner, U.S. Fish and Wildlife Service.

Wildlife, Utah Division of Wildlife Resources

## Methods

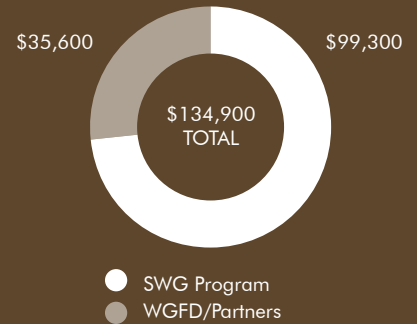
Research, Monitoring, Range-Wide Mapping

## Results

Work conducted as part of this project helped the U.S. Fish and Wildlife Service determine that the species was not warranted for federal listing in 2017. Federal listing would likely impact development in western Wyoming, and the Wyoming economy.



## Program Funding



*“Many species of Conservation Need are linked to habitat provided by Prairie Dogs in Wyoming. Understanding populations through time allows the Department to better manage for this species and ensure their persistence.”*

*Wyoming Game and Fish Department*

### **Future Needs**

Additional resources are needed for monitoring and mapping efforts to contribute to future federal listing decisions affecting the species.

### **More Information**

[https://wgfd.wyo.gov/WGFD/media/content/PDF/Hunting/JCRS/JCR\\_NONGAMEACR\\_2016.pdf](https://wgfd.wyo.gov/WGFD/media/content/PDF/Hunting/JCRS/JCR_NONGAMEACR_2016.pdf)

### **Wyoming State Wildlife Action Plan**

The [Wyoming Wildlife Action Plan](#) was revised in 2017. The plan identifies 229 Species of Greatest Conservation Need associated with 11 terrestrial habitat types and 6 aquatic basins. Key threats include rural subdivision and development, energy development, invasive species, climate change, and disruption of historic disturbance regimes. Priority conservation actions identified in the plan include increased monitoring and data collection, enhanced management and protection, and outreach. Many conservation partners and members of the public participated in development and review of the plan. Contact the [Wyoming Game and Fish Department](#) to learn more.

## REGIONAL CONSERVATION HIGHLIGHTS

# Wolverine

### States

Idaho, Montana, Washington, and Wyoming

### Status

Proposed Threatened (2013)

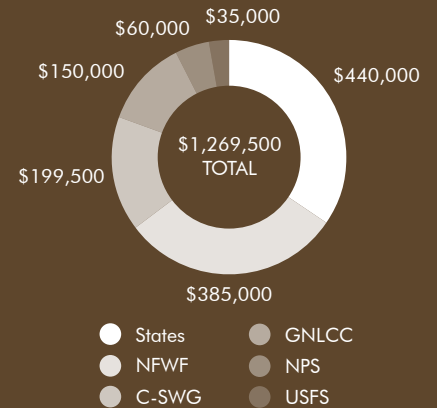
### Project Summary

Idaho, Montana, Washington, and Wyoming partnered with federal, tribal, university, and non-government entities to address contemporary issues concerning Wolverine across the western United States. The Western States Wolverine Conservation Project focuses on connecting the landscapes where Wolverines currently exist, restoring the species to areas of historical distribution, and monitoring this uncommon inhabitant of remote wilderness with camera surveys. Beginning

in 2015, the four state wildlife agencies collaborated to leverage Competitive State Wildlife Grant (C-SWG) Program funding with state and other resources to address information needs. A camera survey established a baseline of Wolverine occurrence across the four states for future monitoring planned at five-year intervals. Connectivity modeling that included analysis of climate change scenarios helped the partners evaluate opportunities for conserving priority areas that connect populations. The concept of a pre-listing “10j” (experimental non-essential) population was advanced to facilitate reintroductions to restore populations. These actions of the partnering state fish and wildlife agencies are a proactive approach that may prevent the need to federally list the Wolverine.



### Program Funding



*The Western States Wolverine Conservation Project has developed a proactive plan for Wolverine conservation, pooling resources and skillsets to identify and fund beneficial actions on a continental scale.*

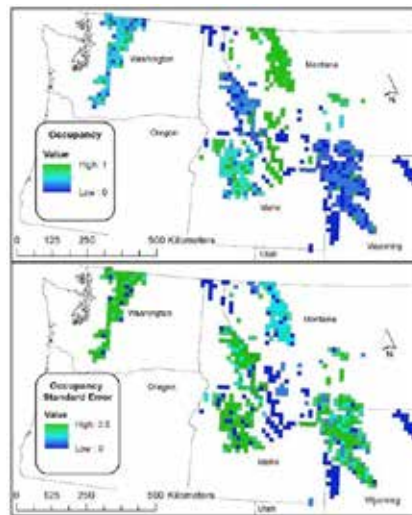
Photo: Mark Packila, Montana.

*"I've never seen such extensive collaboration among agencies and NGOs in my entire career"*

Bob Lanka  
Wyoming Game and Fish (retired)

*"Knowing that the species is here and recovering gives us additional incentive to learn more about what factors affect where Wolverines can and can't occur"*

Robert Long  
Woodland Park Zoo



*Detections from the camera survey were used to model the probability of Wolverine occupancy across the northwestern US, illustrating regional differences in likelihood of Wolverine occurrence and establishing the baseline to which future surveys will be compared.*

Map: Western States Wolverine Conservation Project.

## Partners

Idaho, Montana, Washington, and Wyoming State Fish and Wildlife Agencies, National Genomics Center for Wildlife and Fish Conservation, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, University of Montana and Montana State University, Northern Arapaho, Eastern Shoshone, and Confederated Salish and Kootenai Tribes, Woodland Park Zoo

## Methods

Research, Monitoring, Modeling

## Results

During the winters of 2015–2016 in Wyoming and 2016–2017 in all four states, the camera survey documented presence of Wolver-

ines across their known range, an area of nearly 55,000 square miles. Wolverines were confirmed with remote cameras and hair snares at roughly one-third of the cells sampled but modeling suggests they likely were present in roughly half of the entire survey area. The monitoring effort will be repeated in 2021 across an expanded study area including eight western states to assess whether the distribution of Wolverines, and potentially other forest carnivore species, is shrinking, expanding or holding steady. Some large areas of the historical Wolverine distribution remain unoccupied in Colorado and California, and progress was made in developing a program to provide regulatory assurances for states under section 10j of the Endangered Species Act, if they were to reintroduce Wolverines prior to a future listing. The project used previously-collected telemetry data to identify likely dispersal routes between mountain ranges, with the aim of providing maps to land trusts working on securing easements with willing private landowners to connect the public lands of the Rocky Mountain West. Together, these conservation elements are key to conserving Wolverines across the western United States. Conservation actions for Wolverines can also result in large-scale conservation of many other sensitive species.

## Future Needs

The Western States Wolverine Conservation Project would benefit from additional funding to conduct analyses to inform the effects of human and environmental activities on changes in Wolverine occupancy.



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*Wolverine distribution in Idaho, as defined by the camera survey, was as expected, but information at the individual level was added value. Four individuals known from previous studies were confirmed as still present on the landscape.*

Photo: Idaho Department of Fish and Game.



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*Female F39 and male M40 at a camera station on the Okanogan-Wenatchee National Forest in Washington. The camera survey indicated a broader distribution of wolverines than expected in the Cascade Range, notably south of Interstate 90.*

Photo: Washington Department of Fish and Wildlife.



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*A female wolverine detected in the Wind River Mountains in Wyoming at the southern edge of current wolverine distribution. Her identify was confirmed by DNA collected at the site. She was 12 years old and still residing in the same area where she was last documented in 2007.*

Photo: Wyoming Game and Fish Department.

### **More Information**

<https://idfg.idaho.gov/species/bibliography/1911590>

<http://fwp.mt.gov/mtoutdoors/HTML/articles/2018/wolverine-project.html>



# Arkansas Darter



*The Arkansas River from its source in Colorado to its confluence with the Mississippi River.*

Source: [https://commons.wikimedia.org/wiki/File:Arkansas\\_river\\_basin\\_map.png](https://commons.wikimedia.org/wiki/File:Arkansas_river_basin_map.png).

## States

Arkansas, Colorado, Kansas, Missouri, and Oklahoma

## Status

Federal Candidate Species (1989–2016), Determined Not Warranted in 2016

## Colorado

Colorado Parks and Wildlife (CPW) relies on State Wildlife Grant Program funding to support captive rearing of Arkansas darter at the Native Aquatic Species Restoration Facility near Alamosa, Colorado. The hatchery has been in operation since 2002, and currently maintains three

Arkansas darter broodstocks. CPW has stocked the Darter in 12 locations, establishing three new populations and augmenting several others in decline. The existence and success of this captive rearing program played a role in the U.S. Fish and Wildlife Service's 2016 finding that the species is not warranted for federal listing. Video feature: <https://www.youtube.com/watch?v=GrXsrRVv22I>.



*Male Arkansas Darter.*

Photo: Ryan Waters, Kansas Department of Wildlife, Parks, and Tourism.

Biologists from The Nature Conservancy and Arkansas Game and Fish Commission (AGFC) surveying for Arkansas Darter in a restored stream at Wilson Springs Conservation Area.

Photo: Arkansas Game and Fish Commission.



*“The State Wildlife Grant Program has been absolutely critical for the continued operation and success of the Native Aquatic Species Restoration Facility, which has contributed significantly to “not warranted” findings for two candidate species and the recovery of numerous other state-listed fishes.”*

Harry Crockett  
Fisheries Biologist  
Colorado Parks and Wildlife

## Kansas

Arkansas Darter occurrences have been tracked by the Kansas Department of Wildlife, Parks, and Tourism Stream Survey Program for 25 years. The removal of invasive red cedar trees in riparian and upland areas where Arkansas Darters habitat occurs has resulted in increased stream flow, with some perennial streams flowing for the first time in years. Once flow was restored to these prairie streams, the Arkansas Darter was typically one of the first species to reappear. Additionally, funding was provided for fish passage for dam replacement on the Arkansas River, allowing for connection of up- and downstream populations of Arkansas Darters. See the Kansas State Highlight in this report for more information.

## Oklahoma

Between 2014 and 2016, the Oklahoma Department of Wildlife Conservation conducted surveys to revisit most of the historic sites for Arkansas Darters across northern Oklahoma. Darter populations persisted at more than 80 percent of these locations and this survey data will serve as the basis for a long-term monitoring program. Additionally, funding from the State Wildlife Grant Program were used to purchase the McKinny Ranch in 2010, which protects a series of spring-fed pools along West Anderson Creek that support a robust and stable population of Arkansas Darters.

## Missouri

Although the Arkansas River flows directly through Oklahoma

into Arkansas, upper portions of the river’s watershed begin in Missouri. These tributaries to the Arkansas River provide habitat for Arkansas Darter as well, and the Missouri Department of Conservation (MDC) has surveyed for the species in the southwestern part of the state. MDC used other funding sources for this monitoring and did not spend State Wildlife Grant Program funds for this purpose. However, information on the species’ range and abundance was shared with the other state fish and wildlife agencies working together to support Arkansas Darter populations.

## Arkansas

The Arkansas Game and Fish Commission is restoring native prairie and riparian habitats for the Arkansas Darter, one of the rarest fish in Arkansas. Optimal habitat for this species is spring-fed streams that run through undisturbed prairie. Land-use changes have led to an overgrowth of woody and invasive plant species completely shading previously sunlit streams. At Wilson Springs Conservation Area, restoration activities focused on the removal of non-native Amur Honeysuckle and other vegetation from the Wilson Spring riparian zone and surrounding 19-acre savannah. This treatment successfully opened the canopy, helping provide conditions most suitable to the Arkansas Darter. During an October 2014 survey, 52 Darters were netted and quickly released in the newly restored habitat. Surveys in an unrestored tributary at the same property yielded only seven Darters.

## TRIBAL HIGHLIGHTS

Chickaloon Native Village of Alaska

# Salmon Conservation

### Project Summary

The Chickaloon Native Village of Alaska (CNV) implemented a juvenile salmon research project in the Matanuska Watershed to obtain important data on salmon that is necessary for effective resource management. This project described temporal and spatial distribution of juvenile Chinook and Coho Salmon in Moose Creek using passive integrated transducer (PIT) tag technology, and described growth rates of juvenile Chinook and Coho Salmon using fork length measurements. Tribal Fisheries Technicians collected baseline water quality data on Moose Creek and other tributaries of the Matanuska River. CNV Fisheries staff also worked to build and strengthen cooperative partnerships with federal and state agencies, and watershed and fish habitat coalitions. This project benefits several anadromous species, including culturally significant Chinook Salmon and Coho Salmon.

### Project Cost

Tribal Wildlife Grant Program—\$179,500; other resources provided by CNV and the Bureau of Indian Affairs

### Partners

U.S. Fish and Wildlife Service—Anchorage Field Office, Alaska Department of Fish and Game—Palmer Office, Bureau of Indian

Affairs—Alaska Subsistence Division

### Methods

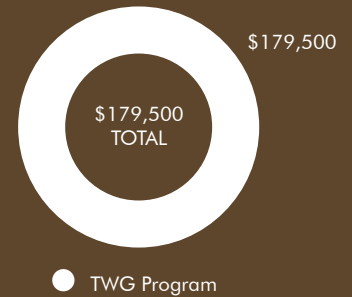
Research, Monitoring, Coordination, Training

### Results

This project provided Chickaloon Native Village and the regional conservation community with new data about juvenile salmon. This data is being used to protect salmon habitats during important salmon life stages and demonstrate the importance of salmon habitat diversity. The information will help educate youth in the tribe and the greater community about the species, and help ensure that this culturally-significant resource is preserved for generations to come. This project provided



### Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

*Chickaloon Native Village Fisheries Technicians PIT tagging juvenile salmon.*

Photo: Chickaloon Native Village.



*Chickaloon Native Village Fisheries Technician collecting juvenile salmon in a minnow trap.*

Photo: Chickaloon Native Village.



*“We are grateful to the U.S. Fish and Wildlife Service and the Tribal Wildlife Grant Program for providing funding for projects that protect important cultural species. Additionally, we appreciate the ease of reporting and communicating with the Service for this project.”*

*Chickaloon Native Village Member*

economic benefits of training and employment for several community members. Additionally, the project demonstrated that Chickaloon Native Village conducts credible salmon research and utilizes partnerships with federal and state agencies. An important result is improved understanding and protection of a subsistence and cultural resource upon which many Alaskan residents depend.

#### **Future Needs**

Ongoing funding is needed to support CNV staff engagement in community, regional, and state conservation organizations and efforts.

Sitka Tribe of Alaska

# Shellfish Conservation

## Project Summary

Shellfish are an important subsistence food for Native peoples of Southeast Alaska and an integral part of Native culture, identity and tribal sovereignty. In 2018, the Sitka Tribe of Alaska worked with the Southeast Alaska Tribal Research Group (SEATOR) partners to conduct an assessment of subsistence shellfish, to help ensure sustainable management of this important traditional resource. This partnership of 14 Southeast Alaska tribes collected data on biomass, abundance, growth, and distribution of important subsistence populations of butter clams, littleneck clams, and cockles. This project provides information and resources for participating tribes to make decisions that impact their traditional foods, food security, and tribal sovereignty. The project promotes education, monitoring, and ownership of shellfish resources by southeast Alaska tribal communities.

## Project Cost

Tribal Wildlife Grant Program—\$200,000; other resources were provided by SEATOR members and the Environmental Protection Agency, National Oceanic and Atmospheric Administration, Bureau of Indian Affairs, and others

## Partners

The Tribes of SEATOR are: Central Council Tlinglit and Haida Indian Tribes of Alaska, Chikoot Indian Association, Craig Tribal Council, Hoonah Indian Association, Hydaburg Cooperative Association, Ketchikan Indian Association, Klawock Cooperative Association, Organized Village of Kake, Organized Village of Kasaan, Petersburg Indian Association, Skagway Traditional Council, Wrangell Cooperative Association, and Yakutat Tlingit Tribe

## Methods

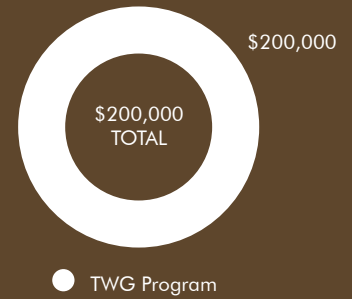
Research, Monitoring, Coordination, Training

## Results

Since 2018, the Sitka Tribe of Alaska has provided training, supplies, and support for



## Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

*Finding Butter Clams at Point Louisa, Juneau, Alaska.*

Photo: Lindsey Pierce of Central Council Tlinglit and Haida Indian Tribes of Alaska.

*“There is a Tlingit saying that goes, ‘when the tide is out the table is set.’ Our oceans are our gardens and produce many nutrient-dense foods that have nourished our communities, physically and spiritually, since time immemorial. The surveys provide us with an additional lens to better understand our relationship with our traditional foods. This data will help our people stay resilient and healthy in an ever-changing world.”*

*Jennifer Hanlon  
Yakutat Tlingit Tribe*



*SEATOR partners at the 2018 shellfish survey demonstration workshop in Sitka, Alaska.*

Photo: Sitka Tribe of Alaska.

SEATOR partners and their tribal communities to conduct 35 population assessments of key subsistence shellfish on beaches throughout Southeast Alaska. This effort complements existing SEATOR harmful algal bloom monitoring and biotoxin testing in shellfish, enabling tribes to sustainably manage their own resources and confirm when shellfish may be unsafe to harvest.

### **Future Needs**

Future funding for the Sitka Tribe of Alaska and SEATOR partners is needed to continue shellfish monitoring, partner collaboration, and to help build capacity for additional science-based species monitoring and analysis.

### **More Information**

Hoonah Indian Association Biomass Survey Story is available at

<https://www.hia-env.org/2018/07/25/trayls-crew-blazes-way-to-community-subsistence-resource-assessment/>

Hopi Tribe of Arizona

# Golden Eagle Conservation

## Project Summary

The Hopi Tribe, in coordination with the Navajo Nation, American Eagle Research Institute, Jicarilla Apache Tribe and the U.S Fish and Wildlife Service, initiated a joint study of the ecology of Golden Eagles nesting in the Four Corners Region of the Colorado Plateau. This 12-year research study is not yet fully funded. The Tribal Wildlife Grant Program assisted the Hopi in gathering data for use in future planned research.

## Project Cost

Tribal Wildlife Grant Program—\$200,000; other non-federal resources and funding—\$127,800

## Partners

Navajo Nation, Jicarilla Apache Tribe, American Eagle Research Institute, U.S Fish and Wildlife Service

## Methods

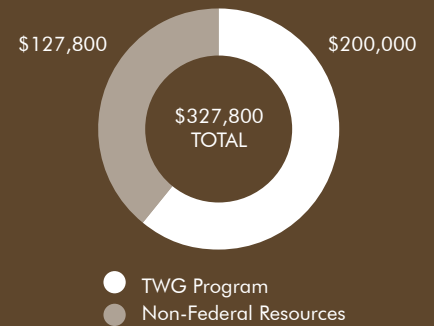
Research, Monitoring, Coordination

## Results

The Hopi achieved their research goals through implementation of occupancy and reproductive assessment surveys, a prey population assessment, and by tagging breeding young males for presence and absence surveys telemetry.



## Program Funding



Golden Eagle on top of his prey.

Photo: yrjō jyske, Creative Commons. License: <https://creativecommons.org/licenses/by-nc-nd/4.0/>

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*Adult Golden Eagle feeding their offspring.*

Photo: Mick Thompson. Creative Commons.  
License: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.



### **Future Needs**

This larger research study has been designed for a 12-year term. A Tribal Wildlife Grant Program award in 2019 helped to ensure initial data collection, but ongoing support is essential to completion of the research.

*“The Service is glad the Tribal Wildlife Grant Program can help the Hopi Tribe study the Golden Eagle’s ecology for the continuing benefit for their culture.”*

*Mary Elder  
Assistant Regional Director  
of External Affairs  
U.S. Fish and Wildlife Service*



Yurok Tribe of California

# California Condor Recovery

## Project Summary

*Prey-go-neesh* (California Condor) once lived among the giant trees and pristine rivers in the Greater Yurok Ancestral Region of northern California. By the mid-20th century, Condor populations had dropped dramatically, and by 1967 the California Condor was listed as federally endangered. Today, the Yurok Tribe is combining funding from the Tribal Wildlife Grant Program with the Tribe's resources and support from other partners to implement three key actions contributing to Condor recovery. Tribal specialists and partners conducted outreach to hunters to provide education on reducing lead ammunition when hunting in northern California. The Tribe also used Tribal Wildlife Grant Program funds and resources from their many partners to design and build a Condor management facility to protect and treat them for chronic lead exposure. Finally, the Tribe developed a plan for reintroducing California Condors into the Greater Yurok Ancestral Region and Redwood National Park in late 2020. Reintroductions require close coordination with federal, state, and non-governmental partners to jointly address permitting, infrastructure and logistics, management strategies, and data collection and continuity.

## Project Cost

Tribal Wildlife Grant Program—\$200,000; other resources provided by partners—\$39,800

## Partners

U.S. Fish and Wildlife Service, National Park Service

## Methods

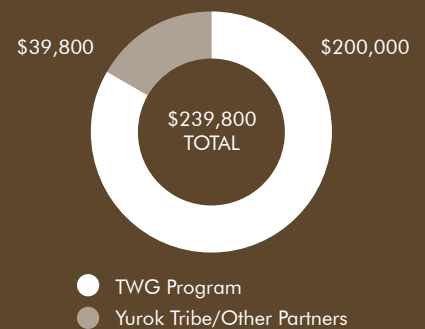
Outreach/Education, Monitoring, Facility Construction and Management, Translocation

## Results

The Yurok Tribe conducted vital communications, education, and outreach with hunters, helping them understand how lead ammunition can be harmful to the Condor and other species. Tribal Wildlife Grant Program funding was integral in the planning and development of the Yurok Tribe's



## Program Funding



*Tiana Williams-Claussen, Director of the Yurok Tribe Wildlife Department, restrains a California Condor so that an Oregon Zoo veterinarian can perform a health assessment in preparation of release to the wild.*

Photo: Chris West, Senior Biologist.



*Yurok Council member and Yurok spiritual leader, Richard Myers, reaches out to Condor 139, being held by lead LA Zoo Condor keeper, Mike Clark.*

Photo: Chris West, Senior Biologist.



Condor management facility, a necessary investment before the Tribe could meet its ultimate goal of reintroducing California Condor on ancestral lands. The Tribe and partners are anticipating Condor release in late 2020, a major achievement highlighting the power and value of partnerships in effective conservation.

### **Future Needs**

Additional funding is needed for the new facility for continued Condor protection and monitoring. Various partners have committed to future support based on a Memorandum of Understanding that the Yurok Tribe signed along with the U.S. Fish and Wildlife Service, National Park Service, and other private and non-profit organizations.

Nez Perce Tribe of Idaho, Oregon and Washington

## California Condor Conservation



California Condor became extinct in the wild in 1987 but has been reintroduced.

Photo: Ian Shive, U.S. Fish and Wildlife Service.

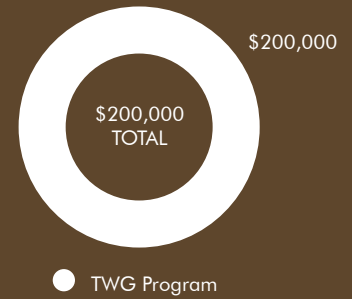
### Project Summary

The California Condor is the largest North American land bird. It has been federally protected as an endangered species since 1967. Threats to this unique species include exposure to lead, wind energy development, transmission lines, and socio-political factors. The Nez Perce Tribe used Tribal Wildlife Grant Program funding to assess habitats and plan for the reintroduction of condors in Hells Canyon. The greater Hells Canyon area of the Blue Mountains Ecoregion contains high quality nesting, roosting and foraging habitat for Condors in close proximity. This area represents one of the best available habitats for an inland Pacific Northwest Condor population. The Hells Canyon area is largely comprised of remote

public lands characterized by extensive canyons, grazing lands, and mixed forest lands. This target for Condor restoration by the Tribe is defined by areas of high topographical relief that promote soaring conditions with constant wind and thermal activity. Elevation changes provide for seasonal habitat use by the Condor, as well as an abundance of caves which provide suitable release sites with year-round crew access. Both Phase 1 and 2 of this project focus on determining the best reintroduction sites in Hells Canyon, and drafting a coordinated management plan for Condors. This project also supports the work of the Yurok Tribe in California on Condor reintroduction.



### Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

**Project Cost**

Tribal Wildlife Grant Program—\$200,000; other resources provided by the Nez Perce Tribe and Oregon Zoo

**Partners**

The Oregon Zoo, Greater Hells Canyon Council, Oregon Wild

**Methods**

Research, Monitoring, Coordination, Planning

**Results**

Returning *qú'nes* (Condor) to the *Nimiipuu* homeland represents a spiritual and cultural renewal for the Tribe and provides another safeguard for continued existence of *qú'nes* in the face of a future increasingly impacted by extreme weather events.

**Future Needs**

Future funding is needed to continue work on reintroduction of the Condor on tribal lands in Oregon, Washington, and Idaho.

Pyramid Lake Paiute of Nevada

## Bighorn Sheep

### Project Summary

The Pyramid Lake Paiute Reservation's historic population of Bighorn Sheep was extirpated 150 years ago due to deadly livestock-borne diseases. Building upon partnerships and new capacity, the Tribe applied for and received Tribal Wildlife Grant Program funding to restore this culturally important species on tribal lands. This project included translocation of Bighorn Sheep to the Pyramid Lake Paiute Reservation. Tribal staff also monitored and documented ungulate distribution, density and health in accordance with standardized procedures. The Tribe established regulations and ordinances for ungulate management and protection in order to ensure Bighorn Sheep thrive and grow on tribal lands.

### Project Cost

Tribal Wildlife Grant Program—\$200,000; matching funds provided by the Pyramid Lake Paiute Tribe—\$47,000

### Partners

Nevada Department of Wildlife, University of Nevada—Reno Natural Resources and Environmental Sciences Department

### Methods

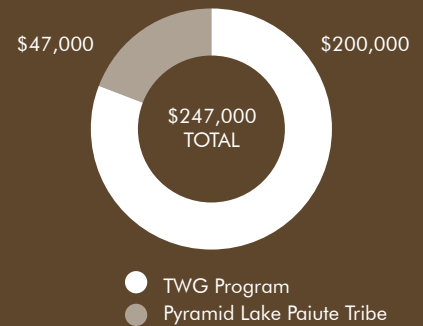
Research, Monitoring, Coordination, Translocation

### Results

Through this project, the Pyramid Lake Paiute Tribe translocated 22 Bighorn Sheep to the reservation. Tribal staff collaborated



### Program Funding



*The Pyramid Lake Paiute Tribe and partners release Bighorn Sheep on the Reservation.*

Photo: Nevada Department of Wildlife.

“No individual sovereign can manage wildlife; all sovereigns have to work together to ensure conservation for future generations. Accomplishing and expanding mutual goals boils down to communicating with Tribes in a meaningful way. Seeing the Tribe’s ability to not only operate independently, but in concert with state and federal agencies is enriching to see as a tribal member myself. This type of coordination was a missing component in the past, so I’m hoping to see more collaborative efforts like this in the future.”

*Tribal Member and U.S. Fish and Wildlife Service Biologist*



with the Nevada Department of Wildlife on Bighorn Sheep conservation actions and developed a Bighorn Sheep Management Plan to guide future management on tribal lands.

*The Pyramid Lake Paiute Tribe relocated 22 Bighorn Sheep to tribal lands. This culturally important species had been extirpated from reservation lands 150 years ago due to wildlife disease.*

Photo: Ryan Hagerty, U.S. Fish and Wildlife Service.

### **Future Needs**

Additional funding is needed for monitoring and supporting best management practices to help prevent deadly outbreaks of local livestock-borne diseases. Ground surveying will be conducted throughout 2020 to ensure the sustainability of the species into the future.

# Conservation Corps

## Project Summary

The Taos Pueblo used Tribal Wildlife Grant Program funds to develop and sustain the Taos Pueblo Conservation Corps. This Conservation Corps has been implemented with Rocky Mountain Youth Corps and Trout Unlimited. Conservation Corps members have worked on environmental monitoring of native Cutthroat Trout and other species, and non-native fish species removal. These objectives were accomplished by recruiting, hiring and training a Taos youth conservation crew that performed project conservation actions, including monitoring and research, along the Rio Jemez River. The Cutthroat Trout is a popular sport fish species within the Taos Pueblo tribal community.

## Project Cost

Tribal Wildlife Grant Program—\$136,500; other resources provided by Rocky Mountain Youth Corps and Trout Unlimited

## Partners

Rocky Mountain Youth Corps, Trout Unlimited, New Mexico Department of Game and Fish

## Methods

Monitoring, Coordination, Training, Species Management

## Results

The project helped the Taos Pueblo tribal community protect the Rio Grande Cutthroat Trout, a species that is valuable to the Pueblo for cultural, environmental, and recreational purposes. All Conservation Corps members were enrolled tribal members of Taos Pueblo and the project took place entirely within Taos Pueblo trust lands.

## Future Needs

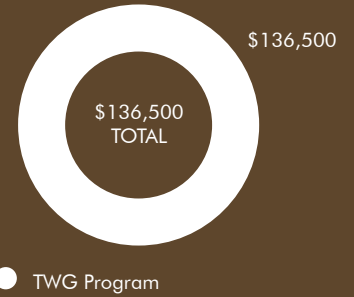
Ongoing support for the Taos Pueblo Conservation Corps would allow this program to continue to benefit tribal youth, as well as provide key information to inform management of Cutthroat Trout in the Rio Grande.

## More Information

<https://www.taospueblo.org/cms/natural-resources>



## Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

*Taos Tribal Member fishing in the Rio Grande River.*

Photo: New Mexico Wildlife Federation.



*Southwest Tribal Youth paddling on the Rio Grande River.*

Photo: New Mexico Wildlife Federation.

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# Pacific Lamprey

## Project Summary

Pacific Lamprey return to rivers along the West Coast to spawn, where they are used by the Confederated Tribes of Coos, Lower Umpqua, and Suislaw Indians as a vital traditional food source. Substantial declines of Pacific Lamprey are linked to restricted river and stream passage, reduced flows, and water quality degradation. The Confederated Tribes used funding from the Tribal Wildlife Grant Program to develop a 30-Year Lamprey Conservation Plan that aims to restore Pacific Lamprey in the waterways and lakes of the Tenmile Lakes Basin. Pacific Lamprey are listed as a state sensitive species in Oregon and are considered a “first-food” to the Confederated Tribes with important links to tribal culture.

## Project Cost

Tribal Wildlife Grant Program—\$220,000 awarded in two grants; other resources provided by the Confederated Tribes

## Partners

Tenmile Lamprey Group, Oregon Department of Fish and Wildlife, Tenmile Lakes Basin Partnership

## Methods

Research, Monitoring, Planning, Coordination

## Results

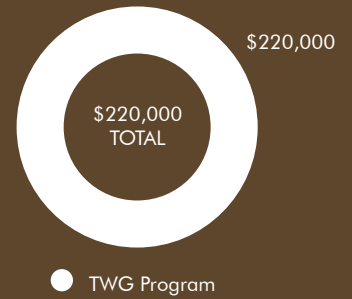
Tribal conservationists conducted an in-stream survey and documented Lamprey spawning habitat conditions and passage impediments. Once identified, staff focused on mitigating Lamprey passage impediments, in part through constructing a Lamprey passage structure at the Eel Creek Dam to allow for Lamprey access to Eel Lake. Tribal staff also developed and tested monitoring and reporting protocols to provide baseline data on which future initiatives can be evaluated.

## Future Needs

The need for Pacific Lamprey conservation on tribal lands in Oregon is ongoing. Activities in Phase 2 of this project will be focused on monitoring and evaluating the effectiveness of the



## Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*

*A Pacific Lamprey rests in swift current by suctioning onto bedrock.*

Photo: Jeremy Monroe, Fresh Waters Illustrated. Creative Commons / Flickr.  
License: <https://creativecommons.org/licenses/by-nc/4.0/legalcode>.



NAIAD.org

Jeremy Monroe © FI

lamprey passage structure and its effect on Pacific Lamprey distribution within the Eel Lake Basin. Additional removal of barriers to Pacific Lamprey movements are needed.

### **More Information**

[https://www.fws.gov/pacificlamprey/Documents/Fact%20Sheets/LampreyCI%20Fact%20Sheet\\_01\\_01\\_2017.pdf](https://www.fws.gov/pacificlamprey/Documents/Fact%20Sheets/LampreyCI%20Fact%20Sheet_01_01_2017.pdf)

# Prairie and Oak Savannah Restoration

## Project Summary

Historic upland prairie and oak savanna habitats and other habitats have rapidly decreased in the Willamette Basin due to residential and agricultural development. This imperiled habitat, of ancestral significance to the Grand Ronde Tribes, supports unique and significant biological diversity. However, over 95 percent of potential and existing habitat is unprotected and in private ownership. Of the remaining acreage, only a small percentage is managed for conservation. The native plants and animals of the Willamette Valley are essential resources to the Confederated Tribes as they form the foundation of historic traditions and values. The partnerships developed from this restoration project support tribal cultural values and provide conservation benefits to the Willamette Valley Region.

## Project Cost

Tribal Wildlife Grant Program—\$200,000; additional resources provided by the Grand Ronde Tribes and others

## Partners

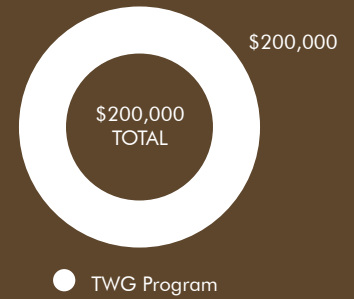
U.S. Fish and Wildlife Service—Willamette Valley National Wildlife Refuge, U.S. Fish and Wildlife Service—Partners for Fish and Wildlife Program, Institute of Applied Ecology, Lomakatsi Restoration Project, Benton County Soil and Water Conservation District, Long Tom Watershed Council

## Methods

Research, Monitoring, Coordination, Habitat Restoration, Conservation Easements



## Program Funding



*This chart does not depict additional tribal and other resources contributing to the success of this project.*



*Columbian White-Tailed Deer is listed as threatened under the Endangered Species Act.*

Photo: U.S. Fish and Wildlife Service.

## Results

The Confederated Tribes of Grand Ronde used Tribal Wildlife Grant funding to conduct habitat assessments on 172 acres of Rattlesnake Butte 3, and developed conservation treatment prescriptions for restoration of approximately 97 acres of oak habitat. These lands are home to a wide variety of rare and declining species, including Columbian White-Tailed Deer, which is listed as threatened under the Endangered Species Act. The Grand Ronde Tribe is also protecting Rattlesnake Butte 3 in perpetuity with a conservation easement agreement with the Bonneville Power Administration's Willamette Wildlife Mitigation Program.

## Future Needs

Continuous restoration of the Confederated Tribes' historic lands and habitats is vital to reestablishment of functioning ecosystems supporting the needs of tribal members. The Grand Ronde Confederated Tribes were awarded Tribal Wildlife Grant Program funding for a second phase of this work and will continue its partnership with the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program and others working on recovering and enhancing this important habitat.



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*One of the last remaining oak savanna habitats on Bald Top at William L. Finley National Wildlife Refuge, Oregon.*

Photo: George Gentry, U.S. Fish and Wildlife Service.

Lower Elwha Klallam Tribe of Washington

# Pacific Lamprey

## Project Summary

The primary objective of this project was to document the recolonization of the Elwha River drainage by Pacific Lamprey following the removal of two dams in what remains the world's largest dam removal effort. Pacific Lamprey have long been a celebrated species among the Tribe as a cultural and traditional resource. Tribal staff documented successful adult migration to spawning sites, nest building, and larval rearing using radiotelemetry and passive integrated transponder (PIT) tags. Nest surveys confirmed successful spawning.

Electrofishing surveys and analysis of larvae also demonstrated successful larval rearing and evaluated the colonization rates in the Elwha River drainage.

The Tribe collaborated with other scientists, agencies, and students, giving tribal staff the knowledge and tools necessary to continue monitoring Lamprey beyond the funding period. Technical support from the National Oceanic and Atmospheric Administration, the Olympic National Park, and U.S. Geological Survey scientists broadened the knowledge base of tribal biologists. Working with other agencies fostered relationships resulting in long-term partnerships and future opportunities to collaborate. Mentoring local students helped the Tribe recruit future employees and will pro-

vide advancement opportunities for tribal youth.

## Project Cost

Tribal Wildlife Grant Program—\$187,300; other resources including other federal and non-federal matching funds and resources—\$250,000

## Partners

National Marine Fisheries Service, Olympic National Park, U.S. Geological Survey, Peninsula College, Western Washington University, Huxley College

## Methods

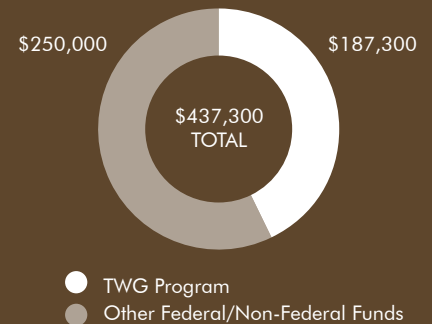
Research, Monitoring, Coordination, Training

## Results

Armed with the results of this research, the Tribe will be able to make adaptive management decisions that will increase the overall success of their ecosystem restoration efforts benefiting Pacific Lamprey and other species. An additional benefit from this research is that training and equipment obtained in the course of this project will position the Tribe in its goal to reclaim management and stewardship of its cultural and natural resources.



## Program Funding



*Lower Elwha Klallam Tribal elder and Fisheries Technician Ernest "Sonny" Sampson releasing a newly radio tagged Pacific Lamprey into the Elwha River.*

Photo: Tiffany Royal, Northwest Indian Fisheries Commission.



### **Future Needs**

The Lower Elwha Klallam Tribe would benefit from ongoing support for research on the long-term recolonization of the Pacific Lamprey into reaches of rivers that are now accessible to this important tribal food source.



