

Chapter 2: Florida's First Five Years of Action Plan Implementation

Upon completion and approval of Florida's State Wildlife Action Plan (Action Plan) in 2005, the Florida Fish and Wildlife Conservation Commission (FWC) worked with partners to establish goals to guide implementation. This chapter explains how the goals were developed, revised and implemented, and describes some of the conservation efforts that the FWC and partners have accomplished together during the first five years of Action Plan implementation.

The conservation of the great diversity of wildlife in Florida cannot be achieved by any one agency or organization alone. Florida has many excellent conservation programs and partnerships involving a variety of public and private entities. The following summaries of the implementation goals give examples of some of the hundreds of conservation, restoration and research efforts that have been conducted over the past five years to address threats and actions and fill data gaps associated with these priority implementation goals. The FWC would like to recognize all of the many partners who, with or without State Wildlife Grant (SWG) support, have contributed to the conservation of Florida's wildlife and habitats.

Establishing and Revising Goals

The FWC worked with more than 25 partners and stakeholders to cooperatively prioritize specific goals from the many actions outlined in the Action Plan (FWC 2005). From 2006-2009 implementation efforts were targeted toward [five priority goals](#) including:

- Coordinate Natural Resource Conservation
- Habitat Conservation
- Data Gaps
- Monitoring Species and Habitats
- Cooperative Conservation Blueprint

In 2009, Florida's Wildlife Legacy Initiative (Initiative) engaged with more than 100 partners to review and revise the goals in a process similar to that used for original goal development. While significant progress had been made toward reaching each goal, substantial benefits could be realized through continued work. Therefore, the goals were extended through 2011, and two new objectives were added (see [Climate Change](#) and [Coastal Wildlife Conservation Initiative](#) in Goal 1 below).

The following sections describe the implementation goals and highlight actions that the FWC and partners have taken toward their achievement.

Goal 1: Coordinate Natural Resource Conservation

Goal - Use Florida's Wildlife Legacy Initiative framework to coordinate natural resource conservation by (1) implementing and revising the 2005 State Wildlife Action Plan; (2) developing and maintaining partnerships; and (3) managing the State Wildlife Grants Program.

Coordination is critical for successful implementation of many of the actions needed to conserve Florida's natural resources. Effective coordination is a formidable challenge because of the broad array of existing responsibilities and priorities among different agencies and organizations. The Initiative has successfully coordinated conservation efforts by using the Action Plan as a platform to engage partners in implementation of projects throughout Florida. Goal 1 provides a framework for implementing the Action Plan through establishing and maintaining partnerships with the assistance of SWG funds. Cooperative implementation of the Action Plan and use of SWG funds has strengthened existing partnerships and has created new opportunities to expand existing resources for wildlife conservation.

The FWC set an objective to increase the number of state and federal agencies,

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organizations and partners involved in collaborative conservation efforts utilizing the Action Plan to 40 by 2009. Through the Initiative, the FWC has exceeded this objective by working with more than 100 partners to secure \$33 million in funding and matching contributions to undertake approximately 150 projects that include habitat restoration, research, surveying and monitoring, and other conservation projects on both public and private lands. Information gathered through expanded survey and monitoring efforts has helped guide management of populations of invertebrates, fish, amphibians and coastal shorebirds. Other activities supported included controlled burn teams, coral monitoring and mapping, springs working

groups, and seagrass restoration and monitoring. A more complete list of projects is available on the Initiative website [Funded Projects page](#).

Since the completion of the Action Plan in 2005, SWG has provided more than \$18 million to wildlife conservation projects statewide. These grant funds have been matched by \$15 million in resources from partners and the FWC. To date, public partners have included federal, state and local governments and several major Florida universities. Nongovernmental organizations such as Defenders of Wildlife, The Nature Conservancy (TNC) and Tall Timbers Research Station also have been active partners. Implementation of the Action Plan has been a cooperative effort that transcends the FWC (Table 1A).

Table 1A. A list of entities by type of affiliation cooperating in SWG-funded projects since 2006.

Federal and state agencies	Local government	Universities	Non-governmental agencies	Private
Alabama Department of Conservation and Natural Resources Century Commission for a Sustainable Florida Department of Defense Florida Department of Agriculture Florida Department of Environmental Protection Florida Department of Military Affairs Florida Museum of Natural History Florida Regional Planning Councils Georgia Department of Natural Resources Jacksonville Port Authority National Coral Reef Institute National Oceanic and Atmospheric Administration National Park Service Northwest Florida Water Management District South Carolina Department of Natural Resources South Florida Water Management District Southwest Florida Water Management District St. Johns River Water Management District Suwannee River Water Management District U.S. Geological Survey U.S. Fish and Wildlife Service U.S. Forest Service	Alachua Co. Environmental Protection Dept. Broward Co. Environmental Protection Dept. Charlotte County City of Gainesville City of Jacksonville City of Sanibel City of Tampa Coral Shores High School Escambia County Flagler County Lake County Lake County Water Authority Loxahatchee River District Manatee County Miami-Dade County Palm Beach Co. Environmental Resource Mgt. Palm Beach Co. Reef Research Team Pinellas County Polk County Sarasota County Seminole County St. Johns County Volusia County	Carleton University Florida Atlantic University Florida Institute of Technology Florida International University Florida State University Gulf Coast Community College Massachusetts Institute of Technology Nova Southeastern University Old Dominion University Pasco-Hernando Community College Sanibel Captiva Community College Stetson University Stony Brook University University of Central Florida University of Florida University of Missouri-Columbia University of South Florida	1000 Friends of Florida Alachua Conservation Trust Archbold Biological Station Ashton Biodiversity Research & Preservation Institute Avian Research and Conservation Institute, Inc. Audubon of Florida Central Florida Zoological Park Collins Center for Public Policy Coastal Plains Institute and Land Conservancy Conservation Trust for Florida Daytona Museum of Arts & Sciences Defenders of Wildlife Florida Earth Foundation Florida Natural Areas Inventory Florida Scrub-Jay Consortium Florida State Collection of Arthropods Florida Trail Association Joseph W. Jones Ecological Research Center Hawk Watch International Mote Marine Laboratory National Museum of Natural History National Wild Turkey Federation Native Plant Society Natural History Museum of L.A. County Nature Serve North American Butterfly Association Shedd Aquarium Tall Timbers Research, Inc. Tampa Bay Estuary Program The Coral Restoration Foundation, Inc. The Florida Aquarium The Gopher Tortoise Council The Nature Conservancy West Florida Resource Conservation and Development Wildlife Foundation of Florida	Andrew Rasmussen Bok Tower Gardens Dynamac Corporation Family Lands Remembered, Inc Karst Environmental Services Lippincott Consulting, LLC Pathobiology Consulting Services PBS&J Progressive Water Resource, Inc Rinker Corporation Seagrass Recovery, LLC Vanguard Partnership, Inc. Wetland Solutions, Inc.

In 2009, the FWC added two new objectives under Goal 1 to address emerging issues that impact multiple habitats and require statewide coordination among many partners. The first objective was to identify and create strategies to address climate change issues that will impact Florida's wildlife. The second was to partner with the Coastal Wildlife Conservation Initiative.

Climate Change

Climate change has become a state, national and international priority. Climate change was formerly addressed as climate variability in the Action Plan (FWC 2005). Florida will likely be one of the states most impacted by the effects of climate change, primarily through sea level rise. With increased knowledge regarding climate change, it was decided to revise the Action Plan to include an assessment of fish and wildlife species vulnerability and adaptation actions to abate the threat of sea level rise. In a unique partnership with the Massachusetts Institute of Technology, Defenders of Wildlife and the Florida Wildlife Federation, the FWC utilized a first-of-its-kind, hybrid approach in the development of a species vulnerability assessment. The results of this innovative work are detailed in Chapter 4: Florida Adapting to Climate Change.

Coastal Wildlife Conservation Initiative

The Coastal Wildlife Conservation Initiative (CWCI) is an FWC-led multi-agency effort to ensure the long-term conservation of native wildlife in coastal ecosystems throughout Florida in balance with human activities. The CWCI provides a vehicle for developing a regional partnership network among the FWC, other agencies and stakeholders to leverage existing resources to advance conservation goals. The purpose of this work is to seek opportunities to address local and regional coastal wildlife conservation issues of concern. One strategy of the CWCI is the Beach Habitat Conservation Plan, which is a joint effort between the FWC and the Florida Department of Environmental Protection (FDEP) to minimize and mitigate the take of federally listed species. Additional information about the CWCI is provided on the [FWC website under Special Initiatives](#).

Goal 2: Habitat Conservation

Goal - Facilitate habitat conservation efforts on the following high-priority habitat categories to improve their health and resiliency and to achieve their long-term ecological sustainability statewide:

Sandhill	Spring and Spring Run
Scrub	Coral Reef
Softwater Stream	Seagrass

Eighteen of the 45 habitat categories identified in the Action Plan were classified as highly threatened (see Introduction). In developing goals to guide initial implementation efforts, the FWC and partners narrowed the focus to six of the most threatened: two terrestrial, two freshwater and two marine. By doing so, the FWC and partners were able to more effectively address the threats and actions associated with a subset of the highly threatened habitat categories while working in all three systems. In terrestrial systems, two fire-dependent upland

habitat types were selected: sandhill and scrub. Among freshwater systems, the two most threatened habitat categories that did not overlap with terrestrial and marine systems were chosen: softwater stream and spring and spring run. Coral reef and seagrass were selected from the marine habitat categories.

Approaches to addressing the conservation needs vary according to the threats and actions identified in the Action Plan. Partners with appropriate expertise participated in identifying and prioritizing projects that would address the major threats.

Sandhill and Scrub

Sandhill and scrub are declining, fire-dependent upland habitats primarily threatened by altered fire regimes and habitat conversion (FWC 2005). Much of Florida's original sandhills and scrub have been converted to urban areas, agricultural lands and commercial forestlands because of their high, dry soils (Kautz et al. 2007, Kautz 1998, Myers 1990). In addition, these habitats require fire to maintain their characteristic vegetation structure and species composition (Myers 1990). Much of the remaining sandhill and scrub are in poor condition as a result of historic fire suppression and the many challenges of managing these habitats in Florida's modern landscape (Outcalt 2000, Miller and Wade 2003, Menges 1999). These habitat categories are addressed together because of their similar threats and management needs.

Statewide, public land managers at the federal, state, and local government level have been actively engaged in scrub and sandhill restoration for decades. Sandhill restoration activities vary depending on the history and need of individual properties, but can include

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removing invasive and undesirable species, planting longleaf pines, planting wiregrass and other groundcover species, and reducing overgrown hardwoods through controlled burns sometimes accompanied by mechanical and chemical methods. Scrub restoration primarily consists of the use of controlled burns, sometimes preceded by mechanical treatments such as mowing and roller chopping, to control overgrown vegetation. The goal of restoration efforts in both habitats is to restore a functioning ecosystem that can be periodically maintained through the application of safe, controlled burns.

To increase statewide restoration efforts, the FWC has supported several recent sandhill and scrub restoration projects with SWG funds. To date, projects funded through Florida's SWG Program have supported restoration efforts on more than 162,000 acres of upland habitat including more than 32,000 acres of sandhill and 8,500 acres of scrub, which is often much harder to burn than other upland communities. For example, SWG funds have partially supported the [Upland Ecosystem Restoration Project](#) (UERP) and the [Multistate Sandhill Restoration Project](#). The UERP is a cooperative project between Tall Timbers Research Station, state and federal agencies, and other conservation groups to prioritize, design and implement on-the-ground management of upland ecosystems in the state. The Multistate Sandhill Restoration Project is a collaborative effort to restore more than 38,500 acres in Alabama, Florida, Georgia

and South Carolina. SWG funds also supported a project in 2009 to restore degraded scrub and sandhill on four FWC Wildlife Management Areas.

Efforts to restore degraded sandhills and scrub on private lands also are ongoing. Since 2006, SWG grants have supported the [Common Species Common Program](#), a program in the [FWC's Landowner Assistance Program](#) that provides cost-share assistance for private landowners to conduct habitat restoration on sandhill, scrub and dry prairie habitats within focal areas. Sandhill and scrub restoration on private lands also is supported by financial and technical assistance provided by other programs, such as the Florida Forest Service's (FFS) [Forest Stewardship Program](#), the U.S. Fish and Wildlife Service's [Partners for Fish and Wildlife Program](#), and several U.S. Department of Agriculture Natural Resources Conservation Service programs.

To overcome the large backlog of lands in need of fire and other restoration efforts, several organizations have created fire "strike teams," which provide additional equipment and trained personnel to assist public and private land managers in the safe implementation of controlled burns. In Florida, TNC currently operates four fire [Ecosystem Restoration Teams](#) that have been partially supported by SWG grants over the past five years (see case study). In addition to TNC, two other state agencies operate fire strike teams. In 2005, the Florida Park Service created district fire strike teams to increase the efficiency of the state park fire management program and to reduce the amount of backlogged acres in fire-suppressed upland habitats. Four regional wildfire mitigation teams also were recently created by the FFS to assist with fuel reduction in urban interfaces. Together, these teams have greatly increased the capacity of Florida landowners to manage their uplands.

Case Study: Northeast Florida Resource Management Partnership

The Northeast Florida Resource Management Partnership (NEFRMP) is a land management partnership supported by cooperative efforts between The Nature Conservancy, the University of Florida, the FWC, and public and private land managers in northeastern Florida. In order to support the restoration and management of sandhill and other upland habitats, the NEFRMP was formed in 2008 using State Wildlife Grant funds. The partnership is served by an Ecosystem Restoration Team that provides additional trained personnel and equipment to support area land managers with controlled burns and other land management activities. Teams such as these enable land managers to burn larger areas or even areas that would have been too dangerous to burn without the additional support.

For example, in 2008, this team assisted on three difficult sandhill burns in Wekiwa State Park that would not have been possible without the support of the team. Between April 2008 and December 2010, this team assisted on more than 150 controlled burns comprising close to 20,000 acres at 43 different sites.

FWC Photo



A fire strike team crew watching over a prescribed burn.

Several important partnerships also benefit scrub and sandhill and address threats identified in the Action Plan for these habitats through fostering communication and collaboration among land managers and key stakeholders. SWG grants have provided support to several of the upland working groups across the state. These working groups invite stakeholders and partners to learn about scrub and sandhill management and ecology and to share land management experiences through discussions or field trips. In addition to efforts supported directly by SWG funding, other key partnerships should be recognized as furthering conservation efforts in these habitats. The FWC's Scrub-Jay Conservation Coordinator helps coordinate scrub working groups and directs funding to scrub restoration and management projects. In addition, the [Jay Watch](#) program initiated by TNC enlists volunteers to collect data that help guide management decisions. Other important partnerships include the state's three prescribed fire councils and regional Cooperative Invasive Species Management Areas, which bring together land managers and other stakeholders to address key management issues.

Recent SWG projects and FWC efforts also have advanced the knowledge of how to address important issues in upland management. For example, with SWG support, Archbold Biological Station's project "[Conservation Status and Management of Lake Wales Ridge Arthropods](#)" builds partnerships and suggests management actions for conservation of threatened arthropods. Additionally, the FWC's hardwood control position statement addresses stakeholder concerns about upland restoration (FWC 2010c). FWC's Strategic Plan for Northern Bobwhite Restoration in Florida outlines a plan for landscape-scale habitat restoration activities for the benefit of the northern bobwhite and other upland species (FWC 2007).

Statewide sandhill and scrub restoration is moving forward steadily. The conservation community has made great strides to form partnerships, acquire and restore land, and provide guidance for managing scrub. Despite these accomplishments, additional conservation efforts are needed to address the large backlog of overgrown and degraded areas. Fire "strike teams" have increased the capacity of public and private land managers to return frequent fire to their lands, but these teams do not yet cover all parts of the state and many of these teams lack dedicated funding. Future conservation efforts would benefit from increased resources for upland restoration and management.

Springs and Spring Runs

Florida springs support numerous endemic species, many of which are sensitive to water quality and flow conditions that have been declining statewide since the 1940s (Debra Childs Woithe, Inc. and PBS&J 2010). Because springs are managed by multiple agencies and are highly valued by the public, the principle need identified by the FWC and partners was improved coordination and cooperation among stakeholders. An improved understanding of the current status of springs and the effects of spring degradation on the wildlife they support also was identified as a critical need.



Photo courtesy Wetland Solutions, Inc.

A manatee inhabiting a Florida spring.

In 1999, the Florida Department of Environmental Protection (FDEP) formed the Florida Springs Task Force to determine the status of Florida's springs and develop strategies for their protection. Recommendations outlined in "Florida's Springs: Strategies for Protection & Restoration" (Florida Springs Task Force 2000) became the foundation for the [Florida Springs Initiative](#) (FSI). FSI funded coordination of four spring basin working groups that have worked with a wide range of local community members to implement non-regulatory spring protection projects. For example, participants in the Silver Springs Working Group learned that 4,552 acres of mostly forested land in the Silver Springs springshed was proposed for immediate development. Their efforts resulted in purchase of this land, which is now a state forest.

In 2006, the FWC convened a meeting with partners working in spring habitats to identify and prioritize projects that would address threats outlined in the Action Plan. Highest priority was given to coordination of additional spring working groups based on the successful model established by FSI. The Fanning and Manatee Springs and Volusia-Blue Spring were considered most in need of improved communication among stakeholders.

FWC Photo



A spring run located in Manatee Springs State Park, taken during a Fanning and Manatee Springs Working Group Meeting Field Trip.

Case Study: The Fanning and Manatee Springs and Volusia-Blue Spring Working Groups

The springs working groups established by the Florida Springs Initiative have successfully facilitated cooperation among many stakeholders for the conservation of springs. Since 2007 the FWC and the Florida Department of Environmental Protection have cooperated in supporting two new springs working groups based on this successful model: the Fanning and Manatee Springs and Volusia-Blue Spring Working Groups. More than 150 people from diverse backgrounds have attended working group meetings, which help participants better understand complex springs-related issues. Additionally, local newspapers cover most meetings and often print informative articles on springs' issues. Participants in the Volusia-Blue Spring Working Group have focused on public outreach opportunities such as speaking with community groups and producing a public service announcement video about protecting the spring. Three Rotary Clubs started the Tri-County Springs Promise to motivate people to take action for the

benefit of Fanning and Manatee Springs. The Fanning Springs City Council has a representative at nearly every meeting, resulting in a better understanding of the problems caused by elevated nitrates in spring water and more informed decisions regarding the design of the city's new wastewater treatment facility. Ongoing outreach and increased participation in springs working groups will result in improved water quality and habitat conditions for the diversity of wildlife inhabiting Florida's springs (Lippincott 2009 and Carol Lippincott, personal communication).

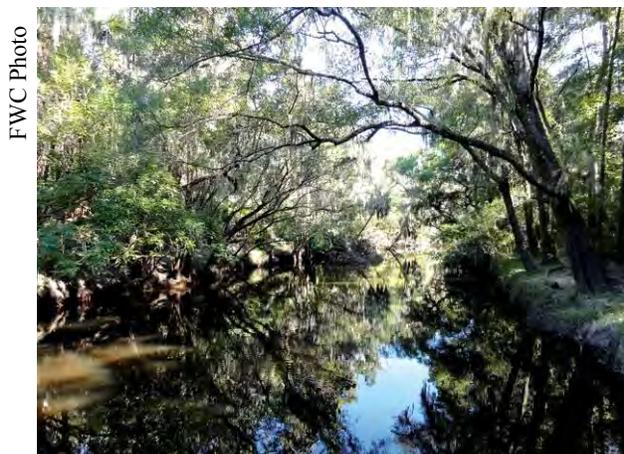
State Wildlife Grant funds were used to support the establishment and coordination of both new working groups in cooperation with FDEP. More than a dozen quarterly meetings have been held by each workgroup since they were established in 2007 to educate stakeholders and facilitate collaboration on projects that protect these springs, with an emphasis on fish and wildlife diversity and habitat (See case study).

Several SWG-funded research projects have resulted in a better understanding of the current condition of Florida's springs and the effects of threats to spring habitat upon the wildlife communities they support. An ecosystem-level study of Florida's spring systems established an ecological baseline for 12 of Florida's principle springs and identified factors adversely affecting their health and productivity (Wetland Solutions, Inc. 2010). A study by the University of Florida (UF) examined the effects of increased nutrient loading on wildlife in spring runs. Results will be used to improve the incorporation of wildlife habitat needs into the development and implementation of Total Maximum Daily Loads and Minimum Flows and Levels in spring runs (Frazer 2010). Another UF project evaluated the effects of spring degradation on populations of small fish associated with aquatic vegetation. Because many people who recreate in spring systems have a negative opinion of aquatic vegetation, it is important to understand its value to wildlife in order to effectively balance the needs of both wildlife and people (Pine 2010).

The FWC and partners have worked to better understand the threats to wildlife in spring habitats and how such threats may be addressed. Additionally, the efforts of two new springs working groups have increased awareness of the value of Florida's springs and how they may be conserved. In the long-term, these efforts are expected to result in improved conditions that will benefit spring habitats and associated wildlife.

Softwater Streams

Softwater streams are impacted by a myriad of threats depending on where they occur in the state. Creeks and small rivers are particularly vulnerable to loss of riparian and floodplain areas because of incompatible land use. Naturally low nutrient systems, softwater streams are vulnerable to even modest levels of nutrient loading. Additional threats include stream channelization, operation of dams or control structures and the impacts of sedimentation caused by road crossings and boat wakes (FWC 2005). The prioritization of softwater streams by the FWC marked the start of a coordinated effort in this habitat statewide.



One of Florida's softwater streams.

To develop an approach for implementing conservation efforts in softwater streams, a team of stream experts was formed to identify and prioritize potential projects. Team members included representatives from the U.S. Fish and Wildlife Service, U.S. Geological Survey, TNC

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and the FWC. The top project identified by this team was the “Inventory and Prioritization of Impaired Sites in the Yellow River Watershed in Florida” (See case study below).

The FWC has continued its successful partnership with TNC by working cooperatively to build capacity for stream restoration. Because of the engineering and permitting involved, stream restoration is complex and expensive. A new project funded by the SWG program will enable TNC to develop conceptual restoration plans for focal areas directly identified by the Yellow River project and other efforts. These projects will greatly benefit many species of greatest conservation need (SGCN) by improving their habitat conditions.

In addition to the need for habitat restoration, the FWC and partners also identified a need for better understanding of the impacts of stream habitat degradation on wildlife. To address this need, the FWC conducted a fish assemblage study on the Peace River in Southwest Florida in partnership with the Southwest Florida Water Management District (SWFWMD). The FWC is concerned about changes to the fish community because of the many threats impacting this river, including increases in exotic species, habitat changes from Hurricane Charlie, extensive land-use changes in the basin such as mining, agriculture and development, and extensive groundwater withdrawals. Support from the SWG program and SWFWMD have enabled FWC staff to conduct a three-year investigation of the entire Peace River. The data will be used to improve species management in softwater streams and to evaluate management of the Peace River, benefiting a diversity of wildlife.

Much progress has been made in identifying conservation needs for softwater

Case Study: Inventory and Prioritization of Impaired Sites in the Yellow River Watershed in Florida

In partnership with The Nature Conservancy, the FWC used State Wildlife Grant funds to support an inventory of impaired sites in the Yellow River watershed. The goal is to develop a prioritized list of areas on the Yellow and Shoal rivers in need of restoration. TNC staff used small boats and canoes to survey the entire watershed and drove to every bridge crossing to document potential threats such as stream bank erosion, sedimentation, dams or culverts and many more. These areas were photographed, the location identified with a GPS and descriptive field notes were taken. Seven focal areas in the watershed have been identified as needing restoration based on level of degradation. TNC will now utilize SWG and other funding sources to conduct restoration projects identified in these focal areas, which should result in improved habitat conditions for wildlife associated with this watershed (Herrington 2010).

Photo courtesy of Steve Herrington, TNC



Riverbank degradation and point source discharge impact a tributary of the Yellow River.

streams. The evaluation of impaired sites in these systems has proven to be an effective technique for determining potential restoration projects. It is also important to monitor the fish and wildlife populations in these systems as demand for water use increases and land-use changes occur. As a result of experiences over the past five years, the FWC has determined that prioritizing basins rather than habitat categories may increase the effectiveness of its conservation efforts in freshwater habitats statewide. These basins will benefit from the same work that has been completed in softwater streams. This new approach is described in Chapter 5: Basin Approach to Conserving Florida's Freshwater Habitats and Species.

Seagrass

Seagrass experts identified many threats to seagrass habitat during development of the Action Plan including reduced water quality, propeller scarring, coastal construction, hydrological modifications, dredging and filling activities (FWC 2005). Multiple conservation actions needed to abate those threats also were identified.

Many partnerships among government agencies, universities and non-profits existed prior to the development of the 2005 Action Plan. Those partnerships have continued during the past five years, along with the development of additional collaborative efforts. The [Southwest Florida Seagrass Working Group](#) is a collection of scientists, resource managers, stakeholders and local officials from the Springs Coast to Charlotte Harbor who are dedicated to the protection and conservation of seagrass resources; they meet in person once or twice annually. The group serves as a forum for the seagrass community to share the findings of their monitoring, mapping and restoration studies as well as providing time to plan for future projects and coordinate collaborative efforts. Working groups and statewide programs such as the [Seagrass Integrated Mapping and Monitoring](#) (SIMM) program will help to further coordinate various entities in the quest to increase the understanding, conservation and restoration of seagrass habitat and associated fauna (See case study).

Case Study: Seagrass Integrated Mapping and Monitoring (SIMM)

An official, FWC-sponsored program led by Paul Carlson was established to protect and manage seagrass resources in Florida. The SIMM project aims to produce an annual report documenting seagrass cover and species composition changes at monitoring stations located throughout the state. Additionally, a comprehensive report will be produced every six years combining site-intensive monitoring data and trends with statewide seagrass cover estimates and maps showing seagrass gains and losses. The data are provided by multiple organizations, agencies and universities. The success and usefulness of the SIMM report relies on the contributions of many seagrass scientists willing to share information about their research. The combined seagrass mapping and monitoring information contained in the SIMM reports will give seagrass scientists and managers a better understanding of where seagrasses are healthy and increasing in acreage, as well as where more effort and resources need to be applied. (Yarbro and Carlson 2010)



Reduced water quality was identified as the most serious threat to Florida's seagrass habitats with a corresponding conservation action of reducing land-based nutrient inputs to coastal habitats (FWC 2005). The [Tampa Bay Estuary Program](#) (TBEP) has been instrumental in bringing partners and stakeholders together to restore and conserve seagrass habitat. Its development of the Tampa Bay Nitrogen Management Consortium in 1996 is one example of successful collaborative work aimed at reducing the impact of poor water quality on estuarine seagrass habitats. The Consortium is composed of voluntary and non-regulatory entities including government participants, local phosphate companies, agricultural interests and electric utilities working

together and taking collective responsibility for reducing nitrogen loads entering Tampa Bay. Seagrasses in Tampa Bay have responded to the resulting improvements in water quality by expanding by more than 11,000 acres since 1982 (Figure 1E, SWFWMD 2011).

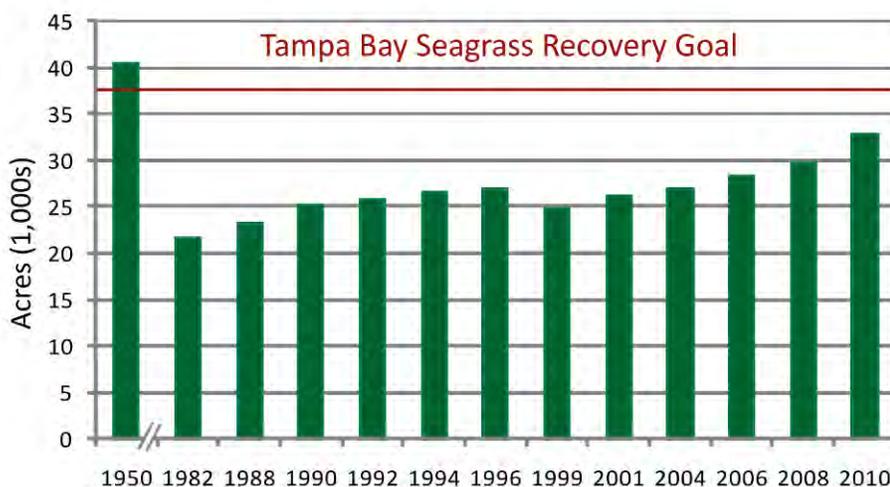


Figure 1E. Seagrass recovery in Tampa Bay since 1982.

Another serious threat to seagrass habitat is propeller scarring. Many seagrass scientists throughout Florida have studied the impacts of propeller scars on seagrass habitat and the associated species and also have researched ways to restore propeller scars. Since 2005, two SWG-funded studies on the effectiveness of sediment tubes in the restoration of these scars. One has been completed and another is ongoing. The completed project (Gudeman et al. 2010) found that sediment tubes help to accelerate the healing of the scars in St. Andrews Bay and initial results from the ongoing project (Hall 2010) appear to be confirming those results in Florida Bay.

Additional conservation actions listed in the Action Plan include, 1) improving public knowledge of the ecological importance of, and the impacts of damage to, seagrass; and 2) improving environmental awareness and boating safety around seagrass habitat. Gudeman et al. (2010) coupled their restoration study with the use of non-regulatory seagrass signs around seagrass beds and educational kiosks at boat ramps in an effort to address both of these actions and to study the impact of educational and environmental awareness signage. They found their use of signage was not successful in preventing boaters from causing new scars to form in the study area. In another study, Baumstark et al. (2009) found mixed results in the ability of regulatory seagrass signage to prevent the formation of new propeller scars. The effectiveness of regulatory signage appeared to be dependent on the characteristics of each location, including the location of boat ramps, marinas, channels, regulation areas and seagrass habitat.

Multiple SWG-funded projects have provided a better understanding of the threats impacting Florida’s seagrass habitats and the actions needed to reduce these threats. Approximately half of the SWG-funded seagrass projects have involved collaborations of two or more partners from the FWC, TBEP, TNC, SWFWMD, FDEP, UF, St. Johns River Water Management District, Suwannee River Water Management District, National Oceanographic and Atmospheric Association, Seagrass Recovery Inc., National Park Service, Florida Institute of Technology, University of South Florida, Florida Museum of Natural History, Natural History Museum of L.A. County, and the National Museum of Natural History. These interagency cooperative efforts have led to the expansion of knowledge in regards to mapping and monitoring of Florida’s seagrass, developing protocols to restore seagrass habitat, and understanding seagrass affiliated fauna. These projects also have provided more information on the effects of stressors such as harmful algal blooms, anthropogenic nutrient loading and the effects of genetics on the vulnerability of seagrasses to stress events.

Seagrass scientists were already working to address multiple threats to seagrass habitat prior to the development of the Action Plan and have continued to make great strides over the past five years. The FWC has used the Action Plan and SWG funding to further support the building of key partnerships and implementation of important seagrass research projects that will help to conserve and restore this valuable marine resource.

Coral Reefs

The Florida coral reef ecosystem is one of the Nation’s most unique natural treasures. Coral reefs are under increasingly destructive pressures from various sources as identified in the Action Plan. These include climate variability, inadequate stormwater management, coastal development, nutrient loads, vessel and boating impacts, parasites and pathogens and incompatible fishing pressure (FWC 2005). Hundreds of species of birds, mammals, fish and invertebrates designated as SGCN are associated with this habitat.

Florida’s partners, stakeholders and coral experts convened in 2006 to identify and prioritize projects that address threats to coral reefs. Coral experts recognized that effective marine resource management begins with knowing the distribution of resources. Partners worked together to build upon existing mapping efforts and have mapped more than 1,000 sq km of previously unmapped benthic habitat stretching from Martin County south to the Marquesas Islands (See case study, next page). The maps and survey data will provide critical information needed to fill gaps identified in estuarine and marine habitat maps and will support the development of conservation actions as identified in the Action Plan. Updating the existing maps

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also is essential for monitoring changes to the resources and providing current data for management decisions. Existing maps have proved extremely useful to natural resource managers who need to know the location and extent of different habitats to make decisions on issues such as permitting, damage assessment, water quality sampling, and even the delineation of marine protected areas. Continued coral monitoring efforts will assist with long-term ecological

sustainability of coral reef habitat and the thousands of fish, invertebrates and sea turtles that rely on it.

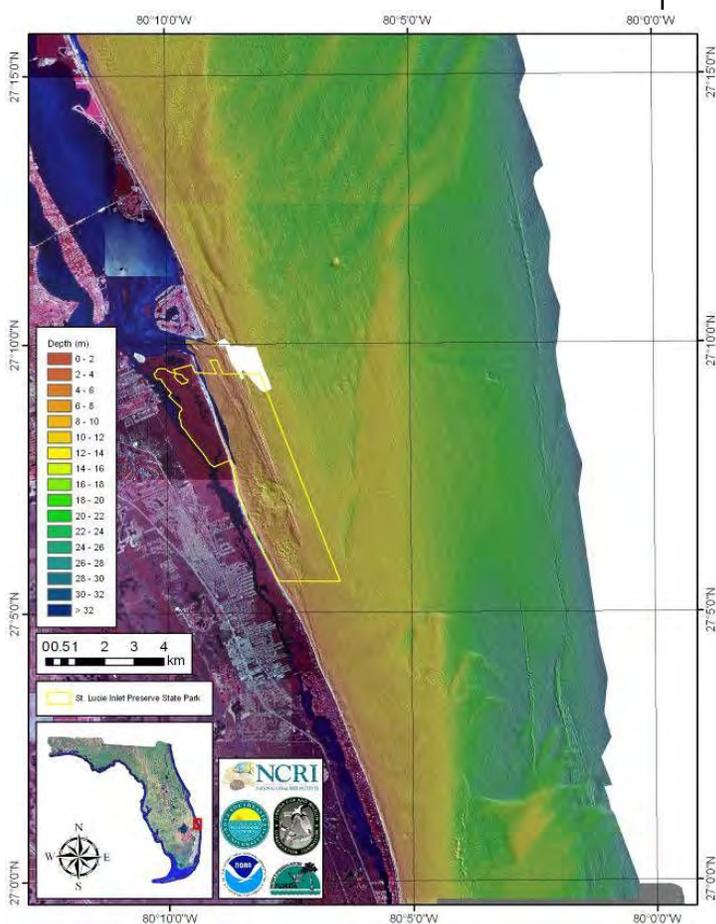
Habitat restoration and conservation also were identified as high-priority needs. The SWG program has funded studies of aquacultured corals, filling critical data gaps regarding coral restoration techniques and leading to improved coral reef habitat in Florida. In order to reduce boating and anchor impacts, other projects have developed vessel anchor management plans and installed mooring buoys to protect reef resources and associated species.

Partners also are working in conjunction with the Comprehensive Everglades Restoration Plan in a SWG-supported effort to determine the impacts of inadequate stormwater management – a high priority threat identified in the Action Plan – to coral reefs (Beal and Smith 2010).

Case Study: Characterizing and Determining the Extent of Coral Reefs and Associated Resources in Southeast Florida

Dr. Brian Walker from the National Coral Reef Institute at Nova Southeastern University partnered with the Florida Department of Environmental Protection, Cyriacks Environmental Consulting Services, Inc. and **Blom Aerofilms Ltd.** to characterize and determine the extent of coral reefs in Southeast Florida. Martin County is the northern limit of shallow water reef building corals along the Southeast Florida reef tract and has been given little attention in the past. Minimal data, and thus limited knowledge, exists about these reef resources. To fully

understand and manage these benthic resources, the marine benthic habitats need to be mapped to characterize and quantify the distribution of coral and other benthic communities. A high resolution Light Detection and Ranging (LIDAR) bathymetric survey was conducted to survey the sea floor in December 2008. Habitat mapping will soon commence to outline and define the features within the survey. The final phase will map the densities of organisms within the features. The maps created from this project will provide critical information needed to understand the extent of the coral reef habitat throughout Martin County and the Southeast Florida region. They will enable managers to enforce impact avoidance and assist in the development of action strategies to conserve reef resources for future generations (Walker 2010).



Martin County LIDAR bathymetry hill-shaded topographic map of the December 2008 survey colored by elevation.

Climate variability was identified as the highest ranked threat to coral reef habitat in the Action Plan. SWG funds have supported research, including surveys of large-scale coral bleaching and disease response. A study of organismal measures of resilience in the South Florida reef tract is examining the use of parasites as indicators of estuarine and marine health (Johnson and Bergh 2009). More recent studies are exploring the spatio-temporal dynamics of sea temperature on Florida's outer reef tracts. Data will assist with understanding and more accurately predicting climate change-related impacts to coral reefs (McEachron 2010).

The FWC has brought together a diverse group of stakeholders and experts to guide activities, allowing collaborators to partner in coral reef conservation and help build upon and advance actions that have positive impacts for coral reefs. The FWC has collaborated with large scale initiatives, such as the Southeast Florida Coral Reef Initiative, as well as state and federal agencies, counties, universities, the National Coral Reef Institute, the Coral Restoration Foundation, Mote Marine Laboratory, the Wildlife Foundation of Florida and many volunteers. Data from these coral reef projects will be shared with partners statewide and nationally. Inter-agency cooperation and statewide collaboration have been essential to the successful implementation of these projects.

Goal 3: Data Gaps

Goal - Obtain information on the life history, status, trend, population dynamics and management needs for Species of Greatest Conservation Need.

Maintaining up-to-date information on the life history, status, trend, population dynamics and management needs for all species, particularly SGCN, is a constant challenge. Continuing research and monitoring is needed if practical and effective conservation measures are to be developed, implemented and assessed for effectiveness. Invertebrate groups in particular have received little research in the past because of a lack of awareness and funding. While these groups tend to include smaller species, many perform critical ecosystem functions that need to be better understood.

Information addressing data gaps has been collected on more than 250 species through 47 SWG-supported projects, significantly surpassing the target.

In developing an implementation goal to address these various data gaps, the FWC and partners focused during the first five years primarily on obtaining information on the life history, status, trend, population dynamics and management needs for SGCN having a low or unknown status and a declining or unknown trend. A total of 631

SGCN originally met this criterion (FWC 2005, [Table 2A](#)). The FWC and partners set an objective to fill data gaps on 140 SGCN by 2011. The target for this objective was significantly surpassed, with information addressing data gaps collected on more than 250 species through 47 SWG supported projects. These projects have contributed to species conservation and habitat management and to the revision of the SGCN list. To track the progress of SGCN conservation, the FWC is further developing its species ranking system to include a wider range of taxa and SGCNs. More information on [species monitoring](#) is provided below under Goal 4.

Table 2A. Number of SGCN with Low or Unknown Status and Declining or Unknown Trend According to Taxon.

Fish	Amphibians/ Reptiles	Birds	Mammals	Invertebrates	Total
243	34	51	43	260	631

The case studies highlight three of the projects that have received SWG support for filling data gaps about herpetological, avian and invertebrate SGCN. To learn about other data gap projects funded through SWG, please visit the Wildlife Legacy Initiative website [Funded Projects page](#).

Case Study: Status, Distribution, and Biology of Florida's Rare Invertebrates

Florida Natural Areas Inventory (FNAI) is building a database about rare and endangered invertebrates, including information about their degree of endangerment, distributions and life histories. Information was collected from many sources, including field surveys by staff and volunteers. This approach collated information that was previously scattered and not readily available or retrievable, and combined it with new information from new surveys. FNAI processed 1,489 site-specific occurrence records for 215 invertebrate taxa. They added 61 taxa to their Tracking List, which is now comprised of 522 taxa. One notable discovery was an undescribed scarab beetle, the Auburndale scrub scarab beetle (*Polyphylla starkae*), which is only known from one tiny patch of scrub habitat. Recommendations resulting from the species tracking efforts include surveying for invertebrates, regularly monitoring populations of conservation concern and informing land managers about rare invertebrates that should be included in their management plans. The data collected may be used to inform land acquisition and management for the protection of invertebrate species considered to be rare or of conservation concern (Jackson and Almquist 2010, SWG project report).



Auburndale scrub scarab beetles: the reddish females (left) are flightless, but the greenish/mottled males (right) fly for a few weeks during spring and use large antennal clubs to locate females. Photos by D.T. Almquist, FNAI

Case Study: Shore-dependent Bird Monitoring Corps

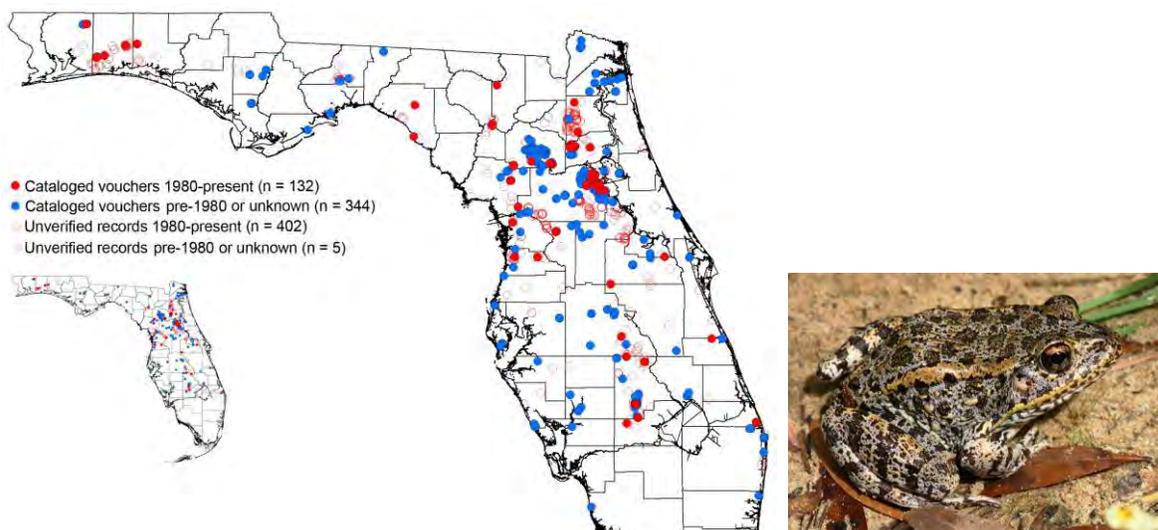
The majority of Florida's shore-dependent birds are declining. Reversing these declines has been challenging because of a lack of site-specific information and staff resources. Audubon of Florida developed a volunteer corps to study the abundance, distribution and nesting success of Florida's shore-dependent birds in four northeastern counties. Volunteers have assisted managers in implementation of management recommendations, and their contributions have aided managers in applying better management practices. Notable successes were migrating red knots feeding undisturbed under the protection of stewards, diminished chick mortality at three sites where car-free areas were established on public driving beaches near nesting birds, and greater public outreach in the region with the increased bird steward coverage (Borboen and Wraithmell 2010, SWG project report). Audubon of Florida will continue supporting the volunteer monitoring corps and coordinating efforts with partners, including the FWC, Florida State Parks, and U.S. Fish and Wildlife Service, after SWG support has ended.



Volunteer corps collecting shorebird data.
Photo courtesy: Audubon of Florida

Case Study: Amphibian and Reptile Distributions

Researchers are working to document the distributions of amphibians and reptiles in Florida. A project conducted by the University of Florida will determine the locations of all Florida's amphibians and reptiles that are identified in museums and scientific literature. Distribution maps will be created for each species and published in an "[Atlas of the Amphibians and Reptiles of Florida](#)." The atlas will provide valuable information for conducting research, managing lands and assessing potential impacts of proposed developments (Krysko et al. 2010, SWG project report).



Occurrences of Gopher Frog (*Lithobates capito*)

Goal 4: Monitoring Species and Habitats

Goal – Enhance monitoring of priority species and habitats by developing a tracking system for species and habitats identified in the Action Plan.

Monitoring, performance measurement and adaptive management are integral components of Florida’s strategic vision for wildlife conservation. Monitoring provides the critical link between implementing conservation actions and revising management goals, including the data needed to understand the costs, benefits and effectiveness of planned conservation actions and the management projects undertaken to address them (Wilhere 2002). The Action Plan serves as the guiding framework in this adaptive management process.

Developing a comprehensive adaptive management scheme for a system as large as Florida is a challenging task. Therefore, the approach outlined in the Action Plan is flexible and targets multiple levels and systems. Much has been learned during the development of the monitoring systems over the past five years, and the approach has been adapted accordingly. Efforts have focused on developing systems for tracking the status and trends of SGCN and priority habitats statewide. Existing monitoring programs and resources form the backbone of these systems in accordance with Action Plan guiding principles. An effective tracking system for SGCN and priority habitats should, over time, reflect the impacts of conservation actions that benefit those species and habitats. The work described here is the foundation upon which Florida plans to build a comprehensive, statewide system for monitoring the status and trends of all SGCN and their habitats in order to evaluate the effectiveness of conservation actions and adapt management strategies accordingly. This is a very ambitious goal that will take many years to complete and will be adapted as more is learned. Success will be dependent upon cooperation and partnering at many levels by many organizations and individuals.

Species Monitoring

Species performance measures are key to evaluating the success of Florida’s State Wildlife Grants Program and to linking the habitat-based conservation approach of the Action Plan back to tangible benefits to wildlife species on the ground. The FWC’s species ranking system (Millsap et al. 1990), developed to prioritize efforts for vertebrate conservation, is being used to track the status of SGCN. The system ranks taxa (species, subspecies, and in some cases, populations) according to their biological vulnerability to extinction and the degree of their research and management needs. The biological score is a sum of seven variables reflecting global distribution, abundance, population trend and life history traits. Action scores are the sum of four Florida-specific variables assessing current knowledge of the taxon’s distribution, population trend, limiting factors, and the current extent of conservation effort benefiting the taxon. The system also includes five supplemental variables not used directly in the ranking process, but that do provide useful additional information; the variable Trend in Taxon’s Florida Population in



Mottled duck banding.

particular was used as a component of the Wildlife Species indicator for Sandhill and Scrub habitats (see Habitat Monitoring below). The FWC regularly re-evaluates and updates the species ranking scores, allowing state biologists and managers to track the status of species over time. By using the FWC's species ranking system, Florida will be able to determine changes in the biological vulnerability and conservation needs of SGCN and to link these changes back to the SWG program and other conservation efforts.

When the Action Plan was originally developed, only terrestrial vertebrates and freshwater fish were tracked by the FWC's species ranking system. However, since Florida's SGCN list includes numerous invertebrate and marine species, a high priority action was to incorporate these taxa groups into the system. Currently, the FWC is in the process of incorporating all SGCN species into the FWC's species ranking system. This effort will not only allow the FWC to track the status of all SGCN species over time, but will also ensure that the conservation needs of Florida's marine and invertebrate species receive adequate consideration. The FWC plans to provide a report on the status of SGCN in Florida based on this work.

Additionally, the FWC is currently exploring the possibility of using the NatureServe Conservation Status Assessment tool to score all SGCN and track their status over time. The NatureServe system is designed to score the full diversity of plant and animal life, and is suitable for incorporating all SGCN. Furthermore, this system is used by many other states to track SGCN, allowing comparisons of scores among states.

Habitat Monitoring

In order to prioritize conservation efforts and measure the effects of conservation actions it is necessary to understand the status of each habitat category identified in the Action Plan, and to have a system for tracking changes in habitat status over time. The Action Plan identified the need to measure the quality and condition of habitat categories as well as the percentage of the landscape that is protected (FWC 2005). No tool like the FWC's species ranking system was available for monitoring or prioritizing all Florida habitats in a coordinated manner, but Florida was fortunate to already have a number of monitoring programs in place at a state, regional or local scale. Therefore, an important monitoring objective was to assess the possibility of compiling existing monitoring programs to evaluate the status of specific habitat categories at the state and regional level. The development of such a comprehensive monitoring system is a large undertaking, so the FWC began by focusing on the six priority habitat categories. The Statewide Habitat Reporting System (SHRS) met this objective by providing, for the first time, a coordinated statewide habitat monitoring reporting system for tracking the health of the six priority habitats statewide.

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Beginning in 2008, more than 100 scientists and managers, representing more than 40 conservation partners, participated in developing the SHRS. A series of workshops was held to bring together partners with the appropriate expertise to identify the most important indicators of the health of each of the habitat categories,

Table 2B. Indicators used in the Statewide Habitat Reporting System 2010 Report.

Habitat	Indicator	Definition
Coral Reef	Percent Cover	Relative area covered by live stony corals, octocorals, sponges and macroalgae by subregion (Dry Tortugas, Florida Keys and Southeast FL) from 1996-2008
	Species Richness	Number of stony coral species present by subregion between 1996-2008
	Bleaching and Disease	Percent of corals bleached, paled or diseased by subregion from 2005-2008
	Water Quality	Analyses of multiple water quality parameters affecting corals
Seagrass	Aerial Coverage	Compilation of Statewide seagrass cover trends for 30 sites from various surveys
Springs and Softwater Streams	Flow	Percent of stations with current median flow in the lower, middle or upper long-term flow percentiles; short-term trend in flow by region
	Water Quality	Compiled analyses of multiple water quality parameters by region from various sources
	Surrounding Land Use	Proportion of stream in conservation; land use in springshed/basin by region
	Community Structure	Stream Condition Index – composite macroinvertebrate index comprised of 10 biological metrics summed to determine overall score of biological health. Habitat Assessment – average of 8 habitat attributes known to have potential effects on stream biota.
Sandhill and Scrub	Fire Interval	Proportion of habitat that managers report as meeting / not meeting target fire return interval.
	Landscape Pattern	Percent of historical habitat remaining, percent of current habitat in conservation, core patch size and connectivity of current habitat
	Wildlife Species	Vulnerability to Extinction and Florida Population Trend (species ranking system scores, see Species Monitoring above) for vertebrate SGCN associated with sandhill / scrub.

identify existing monitoring programs that could provide data on each indicator, and provide ongoing feedback on design, implementation and presentation of the SHRS. Data from existing monitoring programs were compiled and analyzed at state and local scales. The resulting first report of the SHRS was released in June 2010 and is available on the FWC website under Special Initiatives, on the [Habitat Monitoring Page](#) (Debra Childs Woithe, Inc. and PBS&J 2010);

FWC 2011b). The SHRS and 2010 Report fulfill the habitat monitoring component of the monitoring element required by the U.S. Fish and Wildlife Service of all Wildlife Action Plans.

The SHRS 2010 Report presents a statewide view of the overall condition of priority habitats, identifies gaps in available habitat monitoring data and makes recommendations for improving statewide monitoring and reporting. Although the best available data were used, most data sources compiled for this report have limitations affecting the ability to draw strong conclusions. Complete statewide monitoring data are not available for any habitat. Nevertheless, the report is a valid resource for state-level planning and prioritization and for tracking changes over time when the results are interpreted in context.

The SHRS will improve as monitoring programs continue and expand to better meet long-term, statewide monitoring needs. In some cases, existing monitoring programs most likely already provide sufficient information for statewide reporting, and the challenge is simply in overcoming discrepancies in how these data are collected or recorded, and in finding ways to share these data in an efficient and effective manner. The FWC will continue working with partners to improve Florida's collective ability to understand the condition of key habitats and to track changes over time. This project demonstrates the value of Florida's current habitat monitoring programs and the importance of maintaining and expanding these programs. There are still many challenges to be overcome before a complete picture of the condition of Florida's habitats can be drawn.

Goal 5: The Cooperative Conservation Blueprint

Goal - Develop a Geographic Information System (GIS) application that identifies the most important cooperative conservation focal areas for Florida’s terrestrial, freshwater, and marine ecosystems. Merge the various existing GIS planning applications in order to generate an integrated land and water cover map for Florida. Make it available on Arc Internet Mapping Service.

Even with the recent economic downturn, Florida’s human population is expected to reach 25 million residents by the year 2035 (Bureau of Economic and Business Research 2010). A study sponsored by 1000 Friends of Florida (Zwick and Carr 2006) concluded that if we continue to develop as we have in the past, the space needed to accommodate the expected growth through 2060 will equal an area larger than the state of Vermont – about 7 million acres (FWC 2008). The loss of so much rural, agricultural and natural lands will have important consequences for fish and wildlife. Consequently, during development of the Action Plan, experts identified the need to develop a statewide, cooperative “ecological network” (Gordon et al. 2005) as a “Very High” or “High” ranked conservation action.

Florida abounds with geographic data sources and planning tools that focus on identifying areas important to fish and wildlife conservation. Some of the most significant conservation planning efforts for statewide biodiversity have been the FWC’s Wildlife Habitat Conservation Needs in Florida (Endries et al. 2009), UF’s Ecological Network Project (Hector et al. 2000), FNAI’s Florida Forever Conservation Needs Assessment (Knight et al. 2000), and TNC’s Ecoregional Priorities in Florida (see FWC 2010a, The Center for Urban and Environmental Solutions 2007, and LandScope America 2011, for more examples).

There also are numerous planning programs in Florida that work on regional or statewide strategic planning. The Regional Planning Councils have initiated nine regional visioning initiatives covering 48 of Florida’s 67 counties. TNC has focused its Northern Everglades

The Cooperative Conservation Blueprint Steering Committee (2010)

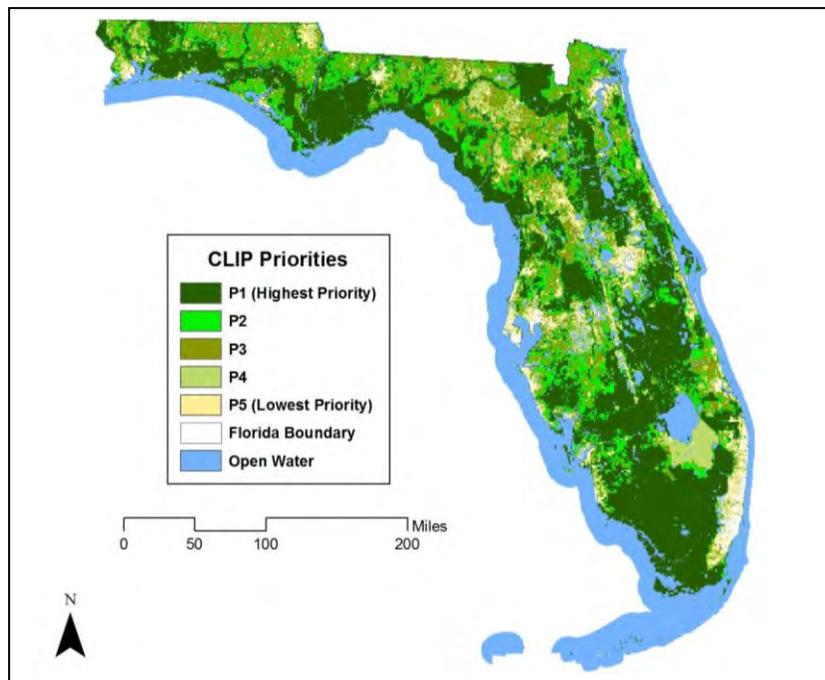
Andy McLeod, The Nature Conservancy
 Ernie Cox, Family Lands Remembered
 Gary Knight, FNAI
 Georgianne Ratliff, WilsonMiller
 Tony Carvajal, Fla. Chamber of Commerce Foundation
 Laurie Macdonald, Defenders of Wildlife
 Ron Edwards, Evan’s Properties
 Staci Braswell, Florida Farm Bureau
 Steve Bohl, Florida Forest Service
 Steve Seibert, Collins Center for Public Policy
 Thomas Eason, FWC
 Tim Center, Century Commission for Sustainability
 Tom Hector, UF

Initiative on conserving still largely undeveloped areas from east central to southwest Florida. An emerging program is the U.S. Fish and Wildlife Service's Landscape Conservation Initiative which intends to provide an adaptive conservation management framework for the peninsula of Florida through the Peninsular Florida Landscape Conservation Cooperative. While diverse governmental agencies, nongovernmental organizations and businesses use different tools and approaches, to date there is no single agreed upon comprehensive and unified future statewide vision for all of Florida. Having such a "blueprint" now would assist in conservation, development, legislative policies and business sustainability.

The Cooperative Conservation Blueprint (Blueprint) is a major multi-partner strategic planning process initiated in 2006 by the FWC as part of implementing the Action Plan. The process is bringing together landowners, businesses, governmental and conservation organizations to collectively build agreement for a unified statewide vision and to enact policies and incentives to achieve that vision. The goal is to conserve wildlife and maintain a sustainable economy and a wide range of agriculture and nature-based opportunities, as well as provide clean air and water for the benefit of all Floridians. Diverse perspectives and organizations comprise the Blueprint Steering Committee and multiple agencies are involved in the Blueprint Interagency Task Force. Creative Incentive Working Groups involved landowners, conservation organizations and business interests in the process of developing and vetting conservation incentive ideas.

A Statewide Conservation Vision

While the FWC was moving forward with developing the Blueprint, the Century Commission for a Sustainable Florida worked with the FWC, FNAI and UF's GeoPlan Center and Center for Landscape and Conservation Planning to develop the Critical Land and Waters Identification Project (CLIP). The CLIP is a fully integrated set of GIS data layers of priority statewide conservation areas, working landscapes and development areas. The CLIP uses science and the best statewide spatial data to identify Florida's



An example of aggregated CLIP data showing Florida classified into five priorities.

critical environmental resources in a database that can be used as a decision-support tool for collaborative statewide and regional conservation and land-use planning. Since 2006, the SWG program has continued funding development of the CLIP to include more data and future updates.

The CLIP can provide science-based data to build a shared understanding of the most vital natural resources important for the state's economic and environmental future. The Blueprint aims to use the CLIP as the basis of a statewide common vision all can work from.

Incentive-Based Conservation

Private landowners have been and continue to be excellent stewards of Florida's landscapes. The current pattern of land ownership, with large tracts of important natural lands owned by a relatively small number of landowners, provides a timely opportunity for the strategic use of incentives to conserve large areas. A core component of the Blueprint process was to facilitate working groups focused on voluntary, incentive-based conservation. The groups' purpose was to develop ideas for incentives that would reward private landowners for conserving priority conservation land, and in doing so, make owning those lands an economic asset. The groups focused on potential incentive areas related to carbon markets, land use and water. The ideas are intended to be more fully assessed and developed as the Blueprint process evolves. Close coordination with state, regional and local agencies with an interest in the incentive ideas will be essential. The goal is to create a win-win for landowners, the public and the environment.

Additionally in 2008 and 2009, the Florida Earth Foundation and the FWC convened six roundtable discussions with representatives of industrial owners of large landholdings and members of the Florida Cattlemen's Association, citrus land owners,

Federal, state, regional and county-level use of the CLIP data include:

- The U.S. Department of Agriculture's Natural Resources Conservation Service uses the CLIP criteria to rank projects for funding under its Wildlife Habitat Incentive Program, a voluntary program for landowners who want to maintain, restore and improve wildlife habitat on their land.
- The Florida Department of Transportation uses elements of the CLIP in its Efficient Transportation Decision Making System Environmental Screening Tool.
- Several water management districts, the Heartland 2060 project, Highlands County, and Northeast Florida Regional Planning Council use the CLIP data to develop regional conservation priorities, identify priority habitats and wildlife corridors, and in regional visioning.
- The East Central Florida Regional Planning Council modified the CLIP maps into a region-specific model (called Natural Resources of Regional Significance [NRORS]) that can be used to meet the state statute requirement that the council identify and protect "a natural resource or system of interrelated natural resources, that due to its function, size, rarity or endangerment retains or provides benefit of regional significance to the natural or human environment, regardless of ownership."

The current pattern of land ownership, with large tracts of important natural lands owned by a small number of landowners, provides a timely opportunity for the strategic use of incentives to conserve large areas.

the Florida Fruit and Vegetable Association, and the Florida Forestry Association Environmental Committee. The aim was to help identify and test new incentives that would be of interest to private landowners. A workshop was also incorporated into a conference on ecosystem services sponsored by the U.S. Geological Survey.

As part of its Blueprint work, Defenders of Wildlife led an initiative to identify and evaluate existing conservation incentives. “The Conservation Incentives Toolkit: Current Incentive Mechanisms for Biodiversity Conservation, Federal and State of Florida” is a

compendium of Florida and federal government-sponsored land conservation incentive programs that, in addition to conserving natural resources, would bring higher value to working lands, such as ranches and forests, and help retain a healthy agricultural industry. The report describes existing federal and Florida conservation incentives and spending levels and includes an extensive glossary of terms, links to program information and administrators, and a reference chart to programs and uses (Mullins et al. 2008).

Florida’s Cooperative Conservation Blueprint

The development and application of the CLIP represent significant progress toward creating a unified science-based conservation vision for Florida. Additionally, the strides made toward developing non-regulatory, incentive-based policies have brought together numerous entities to work toward common goals. The Blueprint aims to demonstrate the benefits of the large landscape design approach needed to strategically conserve the interconnected natural places essential to Florida’s economic, community and environmental health. In such an approach, Florida’s natural capital (clean air, water, open space and wildlife) receive the same kind of pre-planning and management attention as is given to the built environment (e.g. cities, roads, power lines, and bridges). Because landowners receive economic value for providing environmental services, they are able to continue as stewards of critical lands, water and wildlife resources.

Current Blueprint efforts are focusing a landowner-based approach on a smaller scale pilot area that covers a 13-county section of south central and southwest Florida. Large expanses of intact natural systems and working lands in the area have the potential to form critical interconnected greenways for natural resource and wildlife habitat conservation. By scaling down from a statewide to a regional range, this effort can focus resources and partner with existing initiatives, groups and programs with similar goals. For up-to-date information and more detailed summary reports of the Blueprint visit the [Initiative website Blueprint page](#).

The Next Five Years

The FWC and partners have made substantial progress toward the accomplishment of ambitious goals over the past five years. Much has been learned during this initial period of

Action Plan implementation. The Initiative began reassessing the implementation goals in 2011 as a component of the adaptive management process (see Introduction). The results of this assessment are being used in the development of new implementation goals to guide efforts during 2012-2017. More information is available on the Initiative website [Taking Action page](#). As stewards of the Action Plan, the FWC follows an open rigorous process based on input from experts, stakeholders, tribes, and the public. Future review, revision, and implementation will maintain this approach and commitment.