

Activity: National Wildlife Refuge System

		2011 Actual	2012 Enacted	2013			Change From 2012 Enacted (+/-)
				Fixed Costs & Related Changes (+/-)	Program Changes (+/-)	Budget Request	
Wildlife and Habitat Management	(\$000)	226,963	223,439	+1,336	+8,889	233,664	+10,225
	FTE	1,562	1,538	0	+2	1,540	+2
Refuge Visitor Services	(\$000)	75,631	74,225	+424	+128	74,777	+552
	FTE	640	630	0	+0	630	0
Refuge Law Enforcement	(\$000)	38,071	37,373	+199	+1,039	38,611	+1,238
	FTE	250	246	0	+1	247	+1
Conservation Planning	(\$000)	11,862	11,704	-3,378	+189	8,515	-3,189
	FTE	80	80	-20	+0	60	-20
Refuge Operations	(\$000)	352,527	346,741	-1,419	+10,245	355,567	+8,826
	FTE	2,532	2,494	-20	+3	2,477	-17
Refuge Maintenance	(\$000)	139,532	138,950	+313	0	139,263	+313
	FTE	712	709	0	0	709	0
Total, National Wildlife Refuge System	(\$000)	492,059	485,691	-1,106	+10,245	494,830	+9,139
	FTE	3,244	3,203	-20	+3	3,186	-17
<i>Other Major Resources: Recreation Fee Program</i>	(\$000)	5,189	5,000	0	0	5,000	0
	FTE	32	32	0	0	0	32

Program Overview

The Service's National Wildlife Refuge System (Refuge System) embodies our Nation's commitment to conserving wildlife populations and biological diversity for the benefit of present and future generations of Americans. The Refuge System comprises approximately 150 million acres of land and waters, including 54 million acres of submerged land in five Marine National Monuments. These lands and waters provide habitat for thousands of species of fish, wildlife, and plants, sanctuary for hundreds of threatened and endangered species, and secure spawning areas for native fish. The 556 refuges range from the relatively small, half-acre, Mille Lacs National Wildlife Refuge, encompassing two rocky islands in Minnesota's Lake District, to the vast Arctic National Wildlife Refuge spanning 19.6 million acres of boreal forest, tundra, and estuary in Alaska. The Refuge System also encompasses 4.2 million acres managed under easement, agreement, or lease, including waterfowl production areas in 206 counties within 38 wetland management districts and 50 wildlife coordination areas. Thus, the Refuge System uses a variety of tools and legal arrangements to protect our Nation's fish, wildlife, plants, and the habitats on which they depend.

While their benefits to wildlife are measured in many ways, refuges play crucial roles in human communities, too. Through efforts to conserve migratory birds, protect endangered species, restore and manage habitats, and combat invasive species, the Refuge System supports the conservation, management, and restoration of fish, wildlife, plants, and their habitats. The Refuge System also provides major societal benefits through ecosystem services such as improving air and water quality, improving

soil quality and groundwater retention, reducing coastal impacts from hurricanes, sequestering carbon, and moderating flood impacts. These benefits are increasingly valuable in light of current worldwide challenges associated with climate change.

These and other economic benefits of wildlife refuges are undeniable. Refuges attract visitors who come to hunt, fish, and photograph or observe wildlife, and these visitors spend money at local businesses. According to a Department of the Interior Economic Contributions 2011 report, in 2010 national wildlife refuges generated more than \$3.98 billion in economic activity and created more than 32,000 private sector jobs nationwide. In addition, property values surrounding refuges are higher than equivalent properties elsewhere. Most importantly, in an increasingly urban world, these sanctuaries of natural beauty offer Americans priceless opportunities to connect with nature.

Passage of the National Wildlife Refuge System Improvement Act of 1997 provided the Refuge System with a clear comprehensive mission, which is: “...*to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.*”

The Refuge System fulfills this mission through the implementation of programmatic activities in five broad areas: Wildlife and Habitat Management, Visitor Services, Refuge Law Enforcement, Conservation Planning, and Refuge Maintenance. Through these programs, the Refuge System monitors, restores, and protects wildlife, fish, plants and habitat; maintains facilities; supports wildlife-dependent recreation; and conducts other activities to achieve strategic goals.

The programs of the Refuge System support Service goals for resource conservation, protection, recreation, and service to communities. Through the Refuge System, the Service works with other Federal agencies and many other partners to conduct vital conservation projects to achieve these goals. For example, the Service is working with the U.S. Geological Survey and other partners to develop best methods to conduct ongoing biological monitoring of wildlife populations and habitat to improve management of refuge resources.

The Refuge System is committed to four foundational elements for conservation science: application of sound science to refuge management, robust inventory and monitoring; conducting research to solve management problems, and expanding communication and collaboration within the Service and among partners. Dedication to these principles helps maintain credibility; promotes leadership in the conservation community; and helps address problems such as counting populations accurately, determining how to manage wildlife species with limited acres and budget, and determining which factors may be limiting a wildlife population.

The Refuge System is crucial to the President’s America’s Great Outdoors (AGO) initiative. The AGO initiative is a grassroots approach to protecting our lands and waters and connecting all Americans to their natural and cultural heritage. AGO seeks to empower all Americans – citizens of all ages; community groups and other nonprofit organizations; the private sector; and local, state, and tribal governments – to share in the responsibility to conserve, restore, and provide better access to lands and waters to leave a healthy, vibrant outdoor legacy for generations to come.

Refuges are laboratories for partnership and adaptive management; pioneering new concepts in landscape conservation. The Refuge System has unique authorities and flexible programs that can deliver landscape level conservation while simultaneously providing compatible outdoor recreation. Millions of acres of refuge lands are owned outright and managed by the Service as core habitat for fish and wildlife. However, to meet the challenge of conserving highly mobile fish and wildlife populations, the Refuge

System also uses easements and partnership programs that protect important habitat features on working, private land. Conservation in the future must include the important roles of working ranches, farms and forests, as well as privately owned recreational properties with conservation provisions that can link and buffer protected areas. For example, the Refuge System must find ways to grow the Partners for Fish and Wildlife program, which often works to accomplish its goals by helping to restore high-priority habitats on private lands and perpetually protecting them with conservation easements. This model effectively links the purpose of the partners program with the needs of landowners and priorities of the Refuge System.

In the AGO listening sessions and online forums, many Americans asked for more projects like Montana's Blackfoot Challenge and South Carolina's ACE Basin Project, which accomplished conservation through community-level collaboration and use a network of core protected areas combined with conservation easements. The Refuge System is heeding this request. The recently established Flint Hills Legacy Conservation Area in Kansas will conserve up to 1.1 million acres of tallgrass prairie through voluntary, perpetual conservation easements. These easements will protect habitat for more than 100 species of grassland birds and 500 plant species, and sustain the region's ranching culture - which directly supports conservation of the tallgrass prairie.

Similarly, the proposed Everglades Headwaters National Wildlife Refuge and Conservation Area is now being designed with partners to protect approximately 150,000 acres of important environmental and cultural landscapes in the Kissimmee River Valley south of Orlando, Florida. The project area includes 50,000 acres for potential purchase from willing sellers, and an additional 100,000 acres that could be protected through conservation easements and cooperative agreements, while keeping the land in private ownership. In addition to improving water quality in the local area and in downstream sites such as Lake Okeechobee and ultimately the Everglades, and providing outdoor recreational opportunities, the proposed refuge and conservation area would protect important habitat for 88 Federal and State listed species, including the Florida panther, Florida black bear, Florida Grasshopper sparrow, Everglades snail kite and the Eastern indigo snake. It will also link to approximately 690,000 acres of partner-conserved lands.

The Everglades Headwaters NWR and Conservation Area will bring together a coalition of Federal, State, and private land owners to protect important habitat for 88 Federal and State listed species, including the Florida panther.



The Refuge Maintenance program helps achieve the Refuge System mission by supporting a complex infrastructure including habitat, visitor, administrative, and maintenance facilities as well as a fleet of vehicles and heavy equipment necessary to conduct wildlife and habitat management activities and to provide our 45.7 million visitors with wildlife dependent recreation opportunities.

The Refuge System considers costs and benefits when allocating maintenance funding for these assets. Through the Service Asset and Maintenance Management System (SAMMS) the Refuge System identifies assets that can most effectively be maintained by simultaneously applying an Asset Priority Index (API) and a Facility Condition Index (FCI). These factors provide valuable information on the importance of the asset to the mission and the condition of the asset. With this information, scoring mechanisms are applied that take factors into consideration such as critical health and safety whenever an asset is entered into SAMMS, enabling managers to see where they should apply funding to most efficiently manage the entire asset portfolio. This insight into asset management enables managers to make better cost/benefit decisions about related matters like lease space and new construction projects.

Regular condition assessments of assets and their contribution to the Refuge System mission assure that information used to allocate funding will contribute to effective asset management. By completing assessments for all facilities, the Refuge System improved its ability to provide maintenance, repair, and, where required, replacement costs with greater accuracy. Annual Operations and Maintenance (O&M) cost data for each asset has been collected since 2005 in the Federal Real Property Profile. Collecting this data has helped the Service identify opportunities for energy efficiency, disposal of unneeded assets, replacement, and other cost saving measures. Asset managers are also identifying opportunities to employ energy conservation and renewable energy strategies within the Refuge System. Energy conservation and renewable energy opportunities are a regular part of planning and completing deferred maintenance projects.

In addition, in response to Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and the Service goal of becoming a Carbon neutral agency, the Service is assessing its energy use and opportunities for investments to boost energy efficiency and implement renewable energy sources in many of its locations. Energy audits will help us identify needed actions and performance measurements such as return on investment, reduced O&M costs, and reduced energy intensity as measured in BTU's/Gross Square foot. The identified needed actions will help the Service prioritize the actions it will take.

Refuges - Performance Overview Table

Performance Goal	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Plan	2013 PB	Change from 2012 Plan to 2013 PB	Long Term Target 2016
1.2.1 # of NWRS riparian (stream/shoreline) miles achieving desired conditions (GPRA)	65,115	310,032	310,003	310,009	309,958	309,958	0	310,032
2.0.1 # of NWRS wetland, upland, and coastal/marine acres achieving desired condition (GPRA)	87,299,000	88,066,834	138,479,026	140,205,769	140,421,921	140,421,921	0	140,334,342
2.10.1 # of NWRs/WMDs with a Comprehensive Conservation Plan completed - cumulative	318	430	402	437	494	494	0	580

Refuges - Performance Overview Table

Performance Goal	2008	2009	2010	2011	2012 Plan	2013 PB	Change from 2012 Plan to 2013 PB	Long Term Target 2016
	Actual	Actual	Actual	Actual				
2.10.3 # of NWRs/WMDs with a Comprehensive Conservation Plan completed (during the year)	59	34	44	36	57	57	0	31
CSF 11.1 Percent of baseline acres infested with invasive plant species that are controlled (GPRA)	15% (341,467/2,329,450)	6% (146,938/2,312,632)	6% (140,935/2,508,387)	4% (95,621/2,442,235)	5% (125,949/2,409,758)	5% (125,949/2,409,758)	0%	6% (146,938/2,312,632)
CSF 12.1 Percent of invasive animal species populations that are controlled (GPRA)	6% (283/4,387)	8% (298/3,900)	7% (285/3,844)	8% (292/3,849)	16% (295/1,847)	16% (295/1,847)	0%	8% (298/3,900)
CSF 13.1 Percent of archaeological sites and historic structures on FWS inventory in good condition	14% (2,892/20,743)	13% (2,916/21,608)	20% (3,335/16,812)	18% (3,033/16,923)	18% (3,038/16,831)	18% (3,038/16,831)	0%	13% (2,917/21,608)
CSF 13.2 Percent of collections in DOI inventory in good condition (GPRA)	30% (658/2,199)	30% (669/2,205)	35% (689/1,947)	36% (693/1,948)	36% (695/1,955)	36% (695/1,955)	0%	30% (667/2,205)
15.2.2 % of NWRs/WMDs that have quality hunting programs, where hunting is compatible	94% (364/388)	95% (366/385)	75% (291/388)	81% (295/366)	81% (295/365)	81% (295/365)	0%	95% (366/385)
15.2.4 % of NWRs/WMDs that have quality fishing programs, where fishing is compatible	93% (348/374)	93% (347/373)	59% (216/368)	64% (218/341)	64% (221/345)	64% (221/345)	0%	93% (347/373)
15.2.6 % of NWRs/WMDs that have quality wildlife observation programs, where wildlife observation is compatible	97% (469/484)	98% (473/483)	73% (353/486)	77% (361/468)	78% (363/466)	78% (363/466)	0%	98% (473/483)
15.2.8 % of NWRs/WMDs that have quality environmental education programs, where interpretation is compatible	79% (376/474)	81% (384/473)	58% (278/483)	75% (292/389)	76% (300/394)	76% (300/394)	0%	81% (384/473)

Refuges - Performance Overview Table

Performance Goal	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Plan	2013 PB	Change from 2012 Plan to 2013 PB	Long Term Target 2016
15.2.10 % of NWRs/WMDs with quality interpretative programs that adequately interpret key resources and issues, where interpretation is compatible	88% (429/485)	90% (433/482)	63% (309/490)	73% (318/437)	73% (319/437)	73% (319/437)	0%	90% (433/482)
15.2.23 Total # of visitors to NWRS - annual	41,255,144	42,592,992	44,482,399	45,733,179	44,937,153	44,937,153	0	42,592,992
52.1.1 # of volunteer hours are annually contributed to NWRS	1,389,886	1,382,990	1,449,707	1,505,114	1,351,814	1,351,814	0	1,382,990

Activity: National Wildlife Refuge System
Subactivity: Wildlife and Habitat Management

	2011 Actual	2012 Enacted	2013			Change From 2012 Enacted (+/-)
			Fixed Costs & Related Changes (+/-)	Program Changes (+/-)	Budget Request	
Wildlife and Habitat Management (\$000)	219,140	215,629	+1,336	+3,425	220,390	+4,761
Healthy Habitats and Populations (\$000)	4,833	4,825	0	0	4,825	0
Challenge Cost Share (\$000)	150	150	0	+3,600	3,750	+3,600
Alaska Subsistence (\$000)	2,840	2,835	0	-636	2,199	-636
Cooperative Recovery (\$000)	0	0	0	+2,500	2,500	+2,500
Total, Wildlife and Habitat Management (\$000)	226,963	223,439	+1,336	+8,889	233,664	+10,225
FTE	1,562	1,538	0	+2	1,540	+2

Summary of 2013 Program Changes for Wildlife and Habitat Management

Request Component	(\$000)	FTE
• Challenge Cost Share	+3,600	0
• W&H - Climate Change/Inventory and Monitoring (I&M)	+3,000	0
• Cooperative Recovery	+2,500	0
• W&H – General Program Operations	+1,423	+2
• Alaska Subsistence	-636	0
• W&H - Feral Swine Eradication	-998	0
Total, Program Changes	+8,889	+2

Justification of 2013 Program Changes for Wildlife and Habitat Management

The 2013 budget request for the Wildlife and Habitat Management (WHM) program is \$233,664,000 and 1,540 FTE, a net program change of +\$8,889,000 and +2 FTE from the 2012 Enacted.

Challenge Cost Share (+\$3,600,000/+0 FTE)

The requested funding will re-establish the Wildlife and Habitat Management Challenge Cost Share program which funds a variety of small-scale projects with local partners and volunteer groups. The Challenge Cost Share program leverages Service funding needed to complete projects such as habitat restoration, species survey and monitoring, and eradication of invasive species. In 2011 challenge cost share programs were suspended across the Department of the Interior while reforms could be made to address the recommendations of the Interior Inspector General, which included requiring accurate reporting of program accomplishments to Congress, and requiring periodic management control reviews for all bureaus to ensure policy compliance.

Climate Change/Inventory and Monitoring (+\$3,000,000/+0 FTE)

The \$3 million increase requested will be used to further the national Inventory and Monitoring (I&M) initiative launched by the Refuge System in 2010. The purpose of the initiative is to increase the Service's collective ability to inventory and monitor wildlife and habitats and inform conservation actions. The I&M program addresses critical information needs to plan and evaluate the effectiveness of conservation strategies implemented by the Service and conservation partners. These data collection

efforts are essential in the face of accelerating climate change and growing threats from other environmental stressors. The I&M program is establishing consistent inventory and monitoring of environmental parameters, such as sea level rise, drought, shifting temporal and spatial patterns of wildlife migration, habitat loss, disease, and invasive species. These data collection efforts are coordinated with the National Park Service, U.S. Geological Survey, and other federal and state efforts.

To date inventories have been conducted on more than 30 refuges and the I&M data management system has been used to mine and catalogue the wealth of scientific information that already exists on refuges and in FWS regions. To date, over 100 field stations have been catalogued, which will allow the Refuge System to identify what inventories are being conducted across regions and landscapes and to identify data gaps.

The I&M initiative has provided funding and staff support in projects that will result in products directly relevant to refuge management as well as long-term strategies for managing in a rapidly changing landscape. These include funding 43 HydroGeomorphic (HGM) analyses, 38 Water Resource Inventory Assessments, 69 Sea-level rise modeling for Coastal Refuges, Integrated Invasive Species Mapping, and Investments in upgrades to the National Wetland Inventory (NWI). There are currently 13 refuges with established phenological monitoring partnerships, and 69 have conducted sea-level rise modeling. These activities will allow refuge managers to establish biological baselines as the basis to conduct vulnerability assessments and protect and restore natural landscapes with native vegetation and provide increased connectivity for use by at risk species.

Cooperative Recovery (+\$2,500,000/+0 FTE)

Funding will support a cross-programmatic partnership approach to complete planning, restoration, and management actions addressing current threats to endangered species on and around wildlife refuges. The focus of the funding for this initiative will be on national wildlife refuges. The National Refuge System (NWRS) comprises approximately 150 million acres of land and waters, including 54 million acres of submerged land in five Marine National Monuments. These lands and waters provide sanctuary for hundreds of threatened and endangered species. With over 100 years of experience in “on-the-ground” conservation delivery and with refuges in all 50 states (as well as many territories), the NWRS plays a vital role in landscape-level endangered species recovery implementation. The NWRS will partner with Fisheries, Endangered Species, Partners for Fish and Wildlife, the Science program, and Migratory Birds to work under the Strategic Habitat Conservation framework, and in consultation with LCCs, to fund endangered species recovery projects on refuges and in surrounding ecosystems. As part of this process, the partnership will develop evaluation criteria for determining how priority funds will be allocated and spent. Actual performance targets will be identified when priority areas are selected.

General Program Operations (+\$1,423,000/+2 FTE)

The Service requests an increase of \$1,423,000 and 2 FTE for general operations in Wildlife and Habitat Management. This increase will enhance management capability on refuges by funding non-personnel operations on refuges, such as rent and utilities, and enable the Refuge System to address the vision of the President’s America’s Great Outdoors initiative, using the Refuge System’s unique authorities and flexible programs to deliver landscape level conservation and provide compatible outdoor recreation.

Alaska Subsistence (-\$636,000/+0 FTE)

This reduction, in combination with a proposed \$2.3M reduction in the Fisheries budget, represents a 22% reduction to the Alaska Subsistence program. The Service serves as the lead agency in administering the Federal Subsistence Management Program for the Departments of the Interior and Agriculture. This program coordinates the regulation and management among federal land managers of subsistence harvests by rural Alaskans on 237 million acres of land. It provides information and analysis for the regulatory

function of the Federal Subsistence Board and support for the advisory functions of the 10 Regional Advisory Councils.

The reduction will require that the Alaska Federal Subsistence Board work with the Service to prioritize workload within the program and achieve efficiencies through changes in staffing, as well as eliminate some wildlife and fisheries studies and support to the Alaska Department of Fish and Game. The proposed funding decrease also will reduce the funding support the Service provides to the State of Alaska to help reimburse its activities associated with the subsistence program and the work of the Federal Subsistence Board. In addition, one program which utilizes local youth in fish and wildlife research and study efforts, would be eliminated. Even with the reduction, the total funding provided in the budget is adequate to ensure that subsistence harvest of fish and wildlife by rural Alaskans continues and will allow for the implementation of some of the higher priority recommendations of the Secretary's Alaska Subsistence Review.

Feral Swine Eradication Program (-\$998,000/+0 FTE)

The budget provides no funding for the FY 2012 congressionally-directed feral swine eradication program.

Program Overview

The Wildlife and Habitat Management (WHM) program element addresses the ecological condition of Refuge System lands, employing actions such as inventory and monitoring of plant and animal populations and habitats; restoration of wetland, forest, grassland, and marine habitats; active management of habitats through manipulation of water levels, prescribed burning, haying and grazing; identification and control of invasive species; air quality monitoring; investigation and cleanup of contaminants; control of wildlife disease outbreaks; and assessment of water quality and quantity. These activities are integral for the Refuge System to conserve, manage and restore fish, wildlife, and plant resources and their habitats at local, landscape, and national scales. These activities are vital to supporting fish and wildlife adaptation to climate change by providing healthy and productive habitats, reducing non-climate environmental stressors, and providing scientific information needed to inform management decisions.

The Service works closely with state fish and wildlife agencies, recognizing the shared authority and responsibility for managing fish and wildlife on national wildlife refuges. This federal-state partnership, grounded in mutual respect, is essential to effective conservation work.

Much of the conservation work done on refuges is accomplished in partnership with adjacent landowners, community volunteers, non-governmental organizations, states, and other Federal agencies. Working with partners at landscape scales adds to the effective conservation achievements of the Refuge System and allows individual refuges to respond more effectively to climate change and other environmental challenges. Of the more than 590 units of the Refuge System, nearly 350 are supported by organized groups of volunteers, known as Friends groups. These invaluable volunteers help refuges meet public use and resource management goals. Friends groups and other volunteers annually contribute approximately 20 percent of the work hours performed on refuges to restore habitat, maintain buildings, greet and educate visitors, answer phones, survey and map invasive plant species, and a host of other activities.

The Refuge System embraces a scientific, landscape-level approach to conserving, managing and restoring refuge lands and waters, and works to project conservation benefits beyond its boundaries. Coordinated inventory and monitoring of biological resources, ecological processes, and components of the physical environment are conducted by the Natural Resource Program Center (NRPC).

Consistent inventory and monitoring are critical to meeting the Refuges System's mission and supporting wildlife adaptation strategies in the face of climate change and other environmental stressors. Collected data is crucial for accurate vulnerability assessment to climate change and to guide the development and implementation of adaptive management at the refuge and landscape scale. The Refuge System, NRPC, and NatureServe are finishing a prototype effort to conduct Refuge Vulnerability Assessments, which allow refuge staff and partners to examine how threats, opportunities, and climate change may affect management alternatives across more than 50 years and entire landscapes. A guiding handbook is in final draft with prototype applications at Sheldon-Hart Mountain NWR Complex and Eastern Shore of Virginia National Wildlife Refuge.

In 2010, the Refuge System launched a national effort to increase its collective ability to inventory and monitor wildlife and habitats and inform conservation actions. The Inventory and Monitoring (I&M) program addresses critical information needs to plan and evaluate the effectiveness of conservation strategies implemented by the Service and conservation partners. These data collection efforts are needed in the face of accelerating climate change and growing threats from other environmental stressors. The I&M program is establishing consistent inventory and monitoring of environmental parameters, such as sea level rise, drought, shifting temporal and spatial patterns of wildlife migration, habitat loss, disease, and invasive species. These data collection efforts are coordinated with the National Park Service, U.S. Geological Survey, and other federal and state efforts. This program will directly support the Landscape Conservation Cooperatives (LCCs) to inform efficient conservation delivery and expenditure of funds. The I&M program will ensure that all survey design, data storage and analysis, and reporting are consistent with the draft 701 FW2 Inventory and Monitoring Policy (U.S. Fish and Wildlife Service 2009).

A changing climate interacts with other ongoing environmental threats and stressors and often manifests as destructive wildfires, water shortages, spreading invasive species and disease transmission. The Service is committed to taking a holistic approach to assessment and management that accounts for interactions between climate change and other stressors. For example, the Refuge System ran a Sea Level Affecting Marshes Model (SLAMM) at 123 refuges to examine how sea level rise will likely affect the coastal landscape. The SLAMM model provides managers with science-based information in order to consider long-term risks with managing and restoring habitat types, location and protection of facilities, and identifying the most appropriate lands to protect for conservation purposes.

WHM funding is also used to manage lands and waters with special designations for their unique values, including 75 Wilderness areas, 1,088 miles of refuge rivers within the National Wild and Scenic Rivers System, tens of millions of acres of marine managed areas, and 6 National Monuments, including 5 Marine National Monuments.

Refuge Wildlife and Habitat Management

The Wildlife and Habitat Management program element includes management of a broad array of fish, wildlife, plants, and habitat management and restoration on millions of acres of refuge lands every year. Through the Refuge System the Service conserves key habitats across broad landscapes spanning all four North American migratory bird flyways, providing protected areas across the entire range of many endangered species, and conserving expansive marine and Arctic ecosystems. Effective management of the Refuge System will be critical to support adaptation by fish, wildlife, and plants to changing environmental conditions driven by a changing climate system and other environmental stressors.

Management activities include restoring wetlands, riparian areas, and uplands; conserving, maintaining, and restoring coastal, estuarine, and marine ecosystems; managing extensive wetland impoundments and other bodies of water; managing vegetative habitats through farming, prescribed burning, mowing, haying, grazing, forest harvest or selective forest thinning; and control and management of invasive plants

and animals. Such activities are carried out with operational funding, particularly for managing extensive wetland impoundments requiring water management facilities, such as dikes, levees, pumps, spillways, and water level control structures. Water resources are vitally important to wildlife and their habitats, making water rights protection and adjudication an ever-increasing endeavor as demand for water grows. Management actions for wildlife populations include reintroducing imperiled species, erecting nest structures, controlling predators, banding or radio tracking wildlife, and inventorying and monitoring species and habitats, and many other techniques.

Restoring Habitat & Recovering Species: Ash Meadows Speckled Dace Returned to Carson Slough

The Carson Slough, located in the northern portion of the Ash Meadows National Wildlife Refuge, was once the largest wetland in southern Nevada. However, in 1966, a commercial peat mining enterprise began draining the slough and exhausting its rich peat reserves. After only three years of mining, the peat in the entire slough was gone and the land was subsequently sold to a ranching corporation that cleared large-scale agricultural fields and installed an extensive network of irrigation ditches. Altered by ditches, roads, and water storage impoundments, its surface leveled and overgrown with invasive weeds, the slough was forever changed.

In 2009, Ash Meadows NWR staff began the difficult task of restoring the upper portion of the Carson Slough starting at Fairbanks and Soda springs. Successful restoration would restore the slough's natural processes once again; water would flow along historic pathways, creating and maintaining a diversity of habitats for native plants and wildlife. One species in particular, the endangered Ash Meadows speckled dace, a small fish, would greatly benefit from the restoration, as it had been extirpated from the slough for nearly 50 years. Reestablishing a speckled dace population in the northern portion of Ash Meadows to safeguard against extinction is a top priority for the refuge.

To date, more than 24,000 feet of new naturalized stream channel have been constructed, connecting the outflows from Fairbanks, Rogers, and Longstreet springs, just north of Peterson Reservoir. Ash Meadows speckled dace were reintroduced into the Fairbanks stream for the first time since the 1950s. The newly constructed stream channels, which incorporate a combination of fast-flowing runs, riffles, and slower-flowing marsh habitats, have more than doubled the speckled dace's habitat on the refuge. Ongoing surveys are finding juvenile and larval dace in the streams, proving that they are, in fact, reproducing — a sign that the restoration is working.

With the help of volunteers and contractors, staff planted and seeded native grasses, rushes, sedges, and trees along the new outflow channels to stabilize the soils and prevent the invasion of weeds. Today, native plants are reestablishing along the new stream banks and Springloving Centaury, a federally threatened plant endemic to Ash Meadows, has come back all on its own along the Fairbanks outflow.



Fairbanks stream bank before revegetation



Fairbanks stream bank after revegetation

Invasive Species

Invasive species management activities are also critical and include preventing the introduction and spread of invasive species, and controlling or eradicating invasive species where they are established. Integrated pest management techniques are used wherever feasible with mechanical removal or herbicides sometimes needed for extensive infestations. Rapid response and eradication of emerging invasive species populations is attempted wherever possible to limit establishment, to limit range expansion, and to prevent the need for more costly ongoing treatments, which are inevitably required once invasive species become established. Climate change is projected to exacerbate infestations-- as rapidly changing ecological conditions are expected to favor many invasive species-- making early detection and rapid response even more critical. Funds are provided to inventory, map, monitor, treat, control, and eradicate invasive species from refuge lands in order to protect and restore native ecosystems.

Invasive species continue to alter wildlife habitat and pose challenges to management of the National Wildlife Refuge System. According to FY2011 data, approximately 2.5 million acres of the Refuge System lands are infested with invasive plants. In FY2011, the Refuge System was able to treat only approximately 246,000 of these acres. In addition, there are more than 3,800 invasive animal populations residing on refuge lands. Invasive species are the most frequently mentioned threat in the National Wildlife Refuge System Threats and Conflicts database. Instead of focusing on native habitat protection or enhancement, refuge management operations are becoming more frequently tied to battling invasive species. Federally-listed threatened and endangered species are also experiencing more direct impacts from exotic invasions.

To leverage funds and increase effectiveness, the Service utilizes partnerships, volunteers, Friends groups, and other stakeholders. Controlling invasive species results in native habitat improvement and the conservation of numerous native threatened and endangered species. Between 2004 and 2009, approximately 5,600 volunteers spent more than 86,000 hours working with refuge staff to manage invasive species and restore native plants on more than 415,000 acres of refuge land. The Refuge System also has highly trained, professional staff coordinated into Invasive Species Strike Teams that are working to protect refuges in key geographic locations. These teams respond rapidly to new infestations and offer technical expertise to refuges. The Refuge System hopes to implement more teams in the future.

The Service also uses Wildlife and Habitat Management funding to review and manage lands and waters with special designations, such as wilderness areas, wild and scenic rivers, areas proposed as marine

protected areas, western hemisphere shorebird reserves, and world heritage sites. The Service manages wilderness areas to preserve their natural and undeveloped character, and manages wild and scenic rivers to protect their outstanding values. This element also funds employees who review projects funded or permitted by the Service per the National Historic Preservation Act (NHPA). The NHPA reviews typically include field surveys, archaeological investigations, and site evaluations. The Refuge System employs a majority of the Service's cultural resource specialists and provides compliance reviews for projects funded by other programs, such as grants issued by the Ecological Services program.

Marine Monuments

Presidential Proclamations established 4 new Marine National Monuments in the Pacific between 2006 and 2009. Together, the monuments increased FWS responsibility in the Pacific Islands from 4,400 to 220,000 square miles. The monuments span an area larger than the continental United States, and include 12 marine national wildlife refuges covering more than 20 islands, atolls, and reefs scattered around the tropical Pacific, over 3 hemispheres, and across 5 time zones.

At 54 million acres, the marine monuments now constitute one-third of the National Wildlife Refuge System, are the most unspoiled tropical ecosystems under U.S. purview, provide habitat for wildlife, are experiencing the direct effects of global climate change impacts, and are our Nation's last frontiers for wildlife conservation and scientific exploration. Meeting their respective missions will provide diverse options for sustaining resilient ecosystems and helping to maintain biodiversity and environmental health across the Pacific.



*The National Wildlife Refuge System is responsible for administration, natural resources management, and law enforcement of approximately 54 million acres of lands and waters in the Pacific.
(photo of Palmyra Atoll NWR courtesy of A. Meyer/USFWS)*

Wilderness Areas

The 1964 Wilderness Act established the National Wilderness Preservation System (NWPS). Today the System includes more than 109 million acres, of which 20.7 million acres (19% of the entire NWPS) are within 65 national wildlife refuges and one fish hatchery.

While the term "wilderness" typically brings to mind vast forests, the definition of "wilderness" contained in The 1964 Wilderness Act is, "an area where the earth and its community of life are untrammelled by man." This definition includes a variety of ecosystems, such as the desert in Imperial National Wildlife Refuge pictured below.

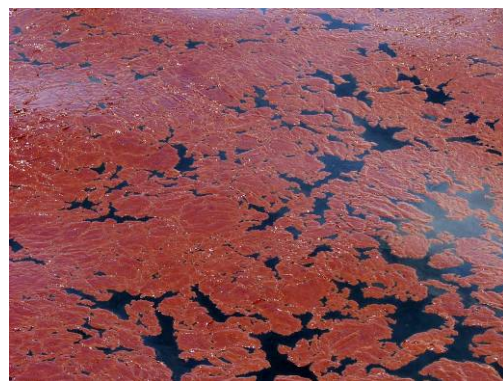


The desert at Imperial National Wildlife Refuge is included in the National Wilderness Preservation System.

Healthy Habitats & Populations

The Healthy Habitats & Populations program element directs funds to environmental contaminant investigations and clean-up on refuges; managing mineral resources during all phases of exploration, drilling, production, clean-up and restoration, as well as for addressing wildlife diseases found on refuges, such as chronic wasting disease. Reducing these non-climate stressors is a key component of supporting fish and wildlife adaptation across the Refuge System.

Managing the extraction of oil, natural gas, and other mineral resources continues to be a challenge for refuges, with more than one-fourth (155 refuges) of all refuges having mineral extraction activities within their boundaries. Past and current activities include exploration, drilling and production, pipelines and hard rock mining, all of which have a direct impact on wildlife and their habitat. This element funds the management and oversight of mineral activities to ensure refuge resources are protected and that Best Management Practices are employed during resource extraction.





Protecting Land - Oil Spill Cleanup

Three of the 8 national wildlife refuges comprising the Southeast Louisiana National Wildlife Refuge Complex were impacted during the MC-252 oil spill. In 2010 and 2011, refuge staff spent more than 10,000 hours responding to the spill. Approximately one million pounds of oiled substances were removed from Breton NWR. In addition, Delta NWR has 50 active oil wells presently producing, 3 new wells were drilled and over 20 small oil spills occurred on the refuge in 2011.

Restoring Habitat – Mollicy Restoration Project

In 2010, the U.S. Fish and Wildlife Service (FWS), The Nature Conservancy (TNC), and Tennessee Valley Authority (TVA) started the largest floodplain restoration project in the US. The Mollicy Restoration Project consisted of breaching a 16-mile long, 30-foot high earthen ring levee that protected 19,000 acres from flood waters of the Ouachita River. This project was a two phase process that included FWS personnel working on two breaches while TVA worked on three breaches. In the summer of 2010, FWS personnel completed one 600-foot breach and assisted TVA with a second breach. The FWS removed approximately 140,000 yards of levee material. TVA completed three breaches removing approximately 1,370,000 yards of material, creating breaches of 1,000 feet, 800 feet, and 150 feet each. TVA completed the project in February of 2011. Funding for the wetland restoration project came from FWS Challenge Cost Share, TNC, Fish Passage, and \$2.1 million from the American Recovery and Reinvestment Act (ARRA) to contract with TVA. The completion of these levee breaches has restored the hydrology to over 19,000 acres allowing the Ouachita River to reconnect to its flood plain. This project will benefit hundreds of thousands of waterfowl and other migratory birds, the resident wildlife, as well as create new spawning areas for fish, and relieve downstream flooding for local communities.



The Mollicy Restoration project-- a joint effort between the Refuge System, The Nature Conservancy, and the Tennessee Valley Authority-- is the largest floodplain restoration project in the United States.



Alaska Subsistence

The Alaska Subsistence program manages subsistence uses by rural Alaskans on 237 million acres of Federal lands by coordinating the regulation and management of subsistence harvests among five Federal bureaus (the U.S. Fish and Wildlife Service, the National Park Service, the Bureau of Land Management, the Bureau of Indian Affairs, and the U.S. Forest Service), coordinating with the Alaska Department of Fish and Game, and providing technical and administrative support for 10 rural Regional Advisory Councils. Also, by coordinating with the Alaska Department of Fish and Game, the bureaus provide technical and administrative support for ten rural Regional Advisory Councils. Fisheries and Refuge program staff manage subsistence fisheries and wildlife harvests in season and conduct fish and wildlife population assessments on National Wildlife Refuges to ensure that population objectives are met and provide for long-term subsistence harvests.

2013 Program Performance

The 2013 budget request would be used to build upon the landscape-scale, long-term, inventory and monitoring program that began in 2010. This program would contribute to the success of the Landscape Conservation Cooperatives and provide critical information for planning and management decisions in the context of climate change adaptation and mitigation. With this funding the Refuge System would be able to complete additional inventory and monitoring actions; a critical first step for the Refuge System to more effectively help species and habitats adapt to environmental changes.

The Refuge System intends to restore tens of thousands of wetland, open water, and upland acres. These activities not only benefit wildlife and habitat, but also support high-quality, wildlife-dependent recreation opportunities for more than 45 million annual visitors.

In addition to less intensive wildlife and habitat management practices, the Refuge System would continue traditional management activities, such as water level manipulation, prescriptive grazing, and selective timber harvesting. In FY 2013, the Refuge System expects to actively manage about 3.5 million acres of habitat which would include treatment of nearly 275,000 acres infested with invasive plants. Invasive species management includes the continuing operation of five Invasive Species Strike Teams operating across the country and focusing on early detection and rapid response to recently established infestations.

NWRS - Wildlife and Habitat Management - Performance Change Table

Performance Goal	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Plan	2013 PB	Program Change Accruing in 2013	Program Change Accruing in Out-years
2.1.1 # of NWRS wetlands acres restored - annual (GPRA)	24,869	61,693	30,054	73,597	23,352	24,602	0.05%	
Comments:	Performance increase in wetland acres restored is a result of a new cross-program initiative for habitat restoration with treatments such as: invasives control, weed management, hydrology restoration, native plantings, and stream stabilization.							
2.2.1 # of NWRS upland acres restored - annual (GPRA)	93,470	575,957	237,819	64,212	65,588	66,838	1.9%	
Comments:	Performance increase in upland acres restored is a result of a new cross-program initiative for habitat restoration with treatments such as: invasives control, weed management, hydrology restoration, native plantings, and stream stabilization.							

Activity: National Wildlife Refuge System
Subactivity: Visitor Services

		2011 Actual	2012 Enacted	2013			Change From 2012 Enacted (+/-)
				Fixed Costs & Related Changes (+/-)	Program Changes (+/-)	Budget Request	
Refuge Visitor Services	(\$000)	73,923	72,520	+424	+128	73,072	+552
Volunteer Partnerships	(\$000)	1,708	1,705	0	0	1,705	0
Total, Refuge Visitor Services	(\$000)	75,631	74,225	+424	+128	74,777	+552
	FTE	640	630	0	0	630	0
<i>Other Major Resources:</i>							
Recreation Fee	(\$000)	5,189	5,000	0	0	5,000	0
Program	FTE	32	32	0	0	32	0

Summary of 2013 Program Changes for Visitor Services

Request Component	(\$000)	FTE
• Youth and Careers in Nature	+128	0
Total, Program Changes	+128	0

Justification of 2013 Program Changes

The 2013 budget request for the Visitor Services program is \$74,777,000 and 630 FTE, a program change of +\$128,000 and +0 FTE from the 2012 Enacted.

Youth and Careers in Nature (+\$128,000/+0 FTE)

The requested increase in Youth and Careers in Nature will restore the program to full funding at \$2 million for FY2013. The Youth and Careers in Nature program offers employment, education and recreation opportunities that connect youth with the outdoors. These connections foster understanding and appreciation of the need to conserve America’s natural resources. These youth programs provide opportunities to educate youth about career opportunities and promote public service as part of a life-long commitment to natural resource conservation. These programs are managed through mentoring and partnerships with Friends organizations, volunteers, educational institutions, and local conservation organizations. The Refuge System offers the following programs to provide youth with experience in conservation and wildlife management: the Youth Conservation Corps (YCC), the Student Temporary Employment Program (STEP), the Student Career Experience Program (SCEP), and the Career Diversity Internship Program (CDIP). Some students who have participated in these programs have chosen a permanent, full-time career with the US Fish and Wildlife Service.

Program Overview

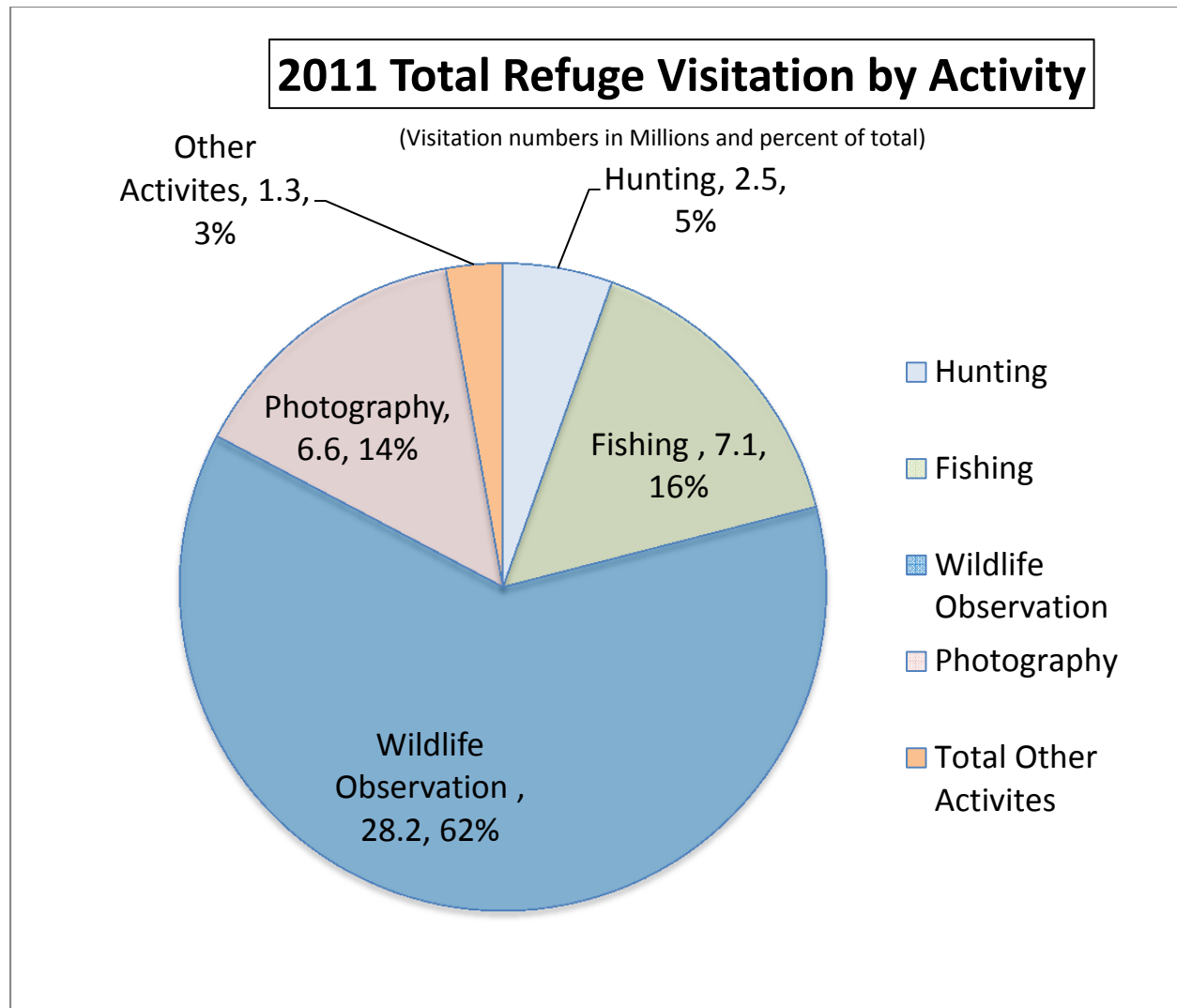
Though the fundamental mission of the Refuge System is wildlife conservation, the Service recognizes that to be successful we must involve the American people, providing them with opportunities to connect to their wildlife heritage and participate as stewards of the System. The Refuge System’s visitor services program offers unparalleled opportunities for millions of Americans and thousands of communities to make a direct connection to the natural world, thereby developing an appreciation and commitment to the Fish and Wildlife Service’s conservation mission. Ensuring that all citizens benefit from refuges is part of the Service’s mission, and helps sustain strong support for the Refuge System. The Service’s goal must be to inspire Americans to become part of a conservation constituency. Americans agree that

spending time in nature is vital to health and mental well-being. The psychological, ecological and economic amenities that nature provides are a boon for Americans from all walks of life, including those who may never visit a national wildlife refuge.

The Refuge System Improvement Act of 1997 (Improvement Act) clarified that providing wildlife-dependent recreation is a prominent and important goal for the Refuge System. The Improvement Act recognizes the importance of a close connection between wildlife resources, the American character, and the need to conserve wildlife for future generations of Americans. The Refuge System embraces the Act and incorporates those mandates into its daily work to provide greater access to Refuge System lands, when appropriate and compatible with the purpose for which a refuge was established.

The Refuge System's priority public uses-- as established in the Improvement Act-- are hunting, fishing, wildlife photography, wildlife observation, environmental education, and interpretation. The Refuge System Visitor Services program also includes cultural resource protection and interpretation, an accessibility program, volunteers and Friends programs, special use permits, recreation fees, concessions management, and a host of other activities designed to welcome and orient visitors to the Refuge System.

The Visitor Services program creates quality experiences for the American public through access to knowledgeable staff, as well as through interpretive signs and brochures, while supplying safe and accessible facilities. The program also manages recreation fees in a manner that provides the government with a fair return on investments and visitors with exceptional value for fees paid. Local communities that have the ability to enjoy quality wildlife-dependent recreational experiences on refuges often carry those experiences to the next level, by making a personal commitment to and involvement in meeting the Refuge System's mission. Of the more than 45 million annual Refuge System visitors in FY2011, more than 2.5 million came to hunt, 7.1 million to fish, and 28.2 million to observe wildlife from trails, auto tour routes, observation towers, decks, and platforms. In addition, 6.6 million visitors came to photograph wildlife. Nearly 675,000 teachers and students used refuges as "outdoor classrooms" to benefit from the Service's environmental education programs, and thousands of young Americans were provided jobs and career-building experiences.



Source: FY 2011 Refuge Annual Performance Plan (RAPP).

Hunting, fishing, and other outdoor recreation activities contribute an estimated \$730 billion to the U.S. economy each year, and one in twenty U.S. jobs are in the recreation economy. Therefore, the Refuge System Visitor Services program has a direct impact on the local economies of communities where refuges are located. Recreational visits to refuges generate substantial retail expenditures in the local area, for gas, lodging, meals, and other purchases. According to the Department of the Interior Economic Contributions 2011 report, in 2010 national wildlife refuges generated more than \$3.98 billion in economic activity and created more than 32,000 private sector jobs nationwide. The 2006 Banking on Nature report revealed that each \$1 investment in the National Wildlife Refuge System returned approximately \$4 to the local economies where refuges are located. The quantity and quality of recreational programs available at refuges affect not only direct retail expenditures, but also jobs, job-related income, and tax revenue. On a national level, each \$5 million invested in the Refuge System’s appropriations (salary and non-salary) impacts an average of 83.2 jobs, \$13.6 million in total economic activity, \$5.4 million in job-related income and \$500,000 in tax revenue. Each one percent increase or decrease in visitation impacts \$16.9 million in total economic activity, 268 jobs, \$5.4 million in job-related income, and \$608,000 in tax revenue. Therefore, maintaining a healthy visitor program at national wildlife refuges is vital to the economic well-being of communities all across the nation.



Environmental education and interpretation are essential elements of the Refuge System Visitor Services function.

Visitor Services program elements include:

Refuge Visitor Services - This element includes the salary and base funding that supports recreational activities, with priority given to wildlife-dependent recreation as required by the Improvement Act. The Refuge System provides wildlife-dependent recreation that is compatible with the purposes for which a particular refuge was established. Non-wildlife-dependent recreation (e.g. swimming, horseback riding, etc.) is considered to be a lower priority and must be determined to be both appropriate and compatible with the Refuge System mission and individual refuge purposes to be allowed on a refuge. Interpretive activities include interpretive programs, tours, staffed and un-staffed exhibits and workshops to learn about bird watching and natural resource management programs. Environmental education involves structured classroom or outdoor activities that help provide awareness and direct connections with wildlife and natural resource issues. Teacher workshops, which are particularly effective at reaching local school districts, provide a service that teachers can use in developing course materials and instruction for their students. The Visitor Services Program also funds staff that review projects funded or permitted by the Service for compliance with the National Historic Preservation Act (NHPA). The NHPA regulatory reviews may include field surveys, archaeological investigations, site evaluations and mitigation. The Refuge System employs a majority of the Service's cultural resource specialists and provides compliance reviews for projects funded by other programs, such as permits and grants issued by the Ecological Services program.

Visitor Facility Enhancements – Small scale visitor facilities on refuges are overall very limited and are inadequate to provide for a quality visitor experience at many refuges. In an effort to get more people out on the ground to experience refuges first-hand, in FY 2003, the Refuge System launched a new initiative to construct kiosks and other modest visitor facilities designed to provide greater access for wildlife-dependent recreation on refuges and to help interpret refuge resources.

In FY 2003, the House Appropriations Subcommittee added funding to the Refuge System construction budget to build a minimum of 27 small outdoor facilities and kiosks; “visitor facility enhancements.” With this funding, the Refuge System was able to construct 58 kiosks on 53 national wildlife refuges in

FY 2003 through partnerships with Friends organizations and other cooperators. This trend of leveraging available funding to build small outdoor facilities has been the trademark of this highly successful and efficient program to deliver quality visitor services to tens of millions of Americans each year over the last decade.

Based on the results of the FY 2003 funding, in FY 2004 Congress included \$2 million in funding for small visitor facilities. Funding was devoted to building or improving modestly scaled visitor facilities such as boat ramps, boardwalks, and interpretive signs. This additional funding was also leveraged for the construction or enhancement of small visitor facilities, continuing Refuge System efforts to provide a cost-effective way of improving visitors' experiences on refuges.

Since the Visitor Facility Enhancements program was initiated in FY 2003, the Refuge System has been able to leverage funding approximately 1:1 by partnering with refuge Friends groups, other organizations, and volunteers. As a result the Refuge System has been able to build hundreds of visitor facilities such as boardwalks, boating ramps, fishing piers, hunting blinds, and trails all across the country. Since most refuges do not charge an entry fee, most of these visitor facility enhancements are available free of charge to local residents as well as out-of-town refuge visitors.



Refuge visitors viewing wildlife from an observation platform; one of hundreds of small-scale visitor facilities made possible by the Visitor Facility Enhancements program.

Volunteers and Community Partnerships- This element encompasses activities directed by the Volunteer and Community Partnership Enhancement Act of 1998. In FY 2011, the Refuge System benefitted from the hard work and commitment of more than 42,000 volunteers who contributed nearly 1.5 million hours of volunteer service. This equates to roughly 8 volunteers for every Refuge System employee. Volunteers contribute nearly 20 percent of the work hours performed on refuges and more than 225 non-profit Friends organizations are critical to building effective community partnerships, leveraging resources, and serving as conservation ambassadors in their communities.

Managing a refuge's partnership with the Friends and Volunteers Program requires developing projects and activities suitable for volunteers; maintaining communication and an organizational framework to ensure that partner's skill sets are matched to appropriate jobs; and training and outfitting volunteers with

the proper equipment to perform quality work in a safe manner. In addition, Friends and Volunteers facilitate big six activities, as well as educate the youth on the importance of conservation.

Welcome and Orient Visitors

The Refuge System clearly identifies all wildlife refuges that are open to the public, and ensures that visitors understand who we are, what we do, and how to enjoy their visits to refuges. Welcoming and orienting visitors provides a unique brand identity that helps the public distinguish between the Service, including the Refuge System, and other land management entities. This identity recognition can be heightened through clear and accurate signage, brochures, interpretive materials, uniforms, adequate and accessible recreational facilities, and knowledgeable staff or volunteers available to answer questions and describe the role of an individual refuge within the context of the Refuge System's mission.

Provide Quality Wildlife-Dependent Recreation and Education Opportunities

Opportunities for compatible wildlife-dependent recreation (wildlife observation, hunting, fishing, nature photography, environmental education, and interpretation) are provided and evaluated by visitor satisfaction surveys to ensure that we offer quality experiences for the public to enjoy America's wild lands, fish, wildlife, and plants. When those recreational activities are managed according to the principles of sound fish and wildlife management and administration on national wildlife refuges, they stimulate stewardship and a conservation ethic within the public.

Quality interpretation and environmental education programs engage the public in, and increase community support for the conservation mission of the Refuge System; making fish, wildlife, plants, and wildlife habitat relevant, meaningful, and accessible to the American public. Interpretation is often misunderstood and frequently confused with environmental education. However, the two are very different. An interpretive program on a wildlife refuge is designed to facilitate meaningful and memorable visitor experiences and encourage stewardship of the wildlife and habitat of the visited refuge and the Refuge System as a national network of conservation lands. Through the use of interpretation, the Refuge System can create a personal, emotional connection with visitors.

The interpretation program should include four components. First, it must increase visitors' enjoyment and understanding of wildlife refuges. Second, it must be delivered in multiple formats, utilizing technology to maximize effectiveness. Third, it must reach multiple audiences; connecting with people of any age, ethnicity, gender, culture, class and lifestyle. Fourth, the interpretation program must include an evaluation component that will let us determine the effectiveness of the Service's efforts.

The Refuge System has increased recreation and education opportunities in several high priority areas, including climate change, citizen science, and youth initiatives. A Climate Change Education Partnership was recently started to explore the best ways to communicate to refuge visitors and community stakeholders about the effects of climate change on treasured landscapes. The well-established National Wildlife Refuge System Birding Initiative continues to expand in scope and popularity among refuges in every region, in an effort to better serve the many Americans who enjoy bird watching at home and on refuges. Birding programs and festivals generate significant revenue and create jobs for local economies, as documented in the Refuge System's Banking on Nature 2006 study. A recent report, Birding in the United States: A Demographic and Economic Analysis, shows that one of every five Americans watches birds, and that birdwatchers contributed \$36 billion to the U.S. economy in 2006, the most recent year for which economic data are available. The report also shows that total participation in bird watching is strong at 48 million, and has remained at a steady 20 percent of the U.S. population since 1996. In partnership with Cornell Lab of Ornithology, the National Fish and Wildlife Foundation, and several retail companies, the Birder-friendly Refuge System Incentives Program was launched in late 2010 to share existing, successful birding program elements among field stations and improve recreation

opportunities for visitors who connect to nature and conservation through bird watching. More than 500 sets of binoculars, 100 spotting scopes, hundreds of backpack kits and GPS units, and thousands of field guides to loan to visitors and school groups were distributed to 100 Refuge System units through this initiative. Birds and birding programs have also been catalysts for offering more citizen science opportunities on refuges. Public monitoring programs such as The Big Sit! and Christmas Bird Count for Kids, targeted at families and youth, are increasing in quality and quantity annually.



*Refuges are some of the most popular bird watching locations in the United States.
Approximately 48 million Americans identify bird watching as a favorite recreational activity.*

Nearly 675,000 students and teachers annually visit national wildlife refuges, which provide substantial environmental education programs to introduce young people to the precepts of natural resource conservation and the idea of natural resources conservation as a career path. Moreover, youth are hired on scores of national wildlife refuges through term and seasonal jobs, often through the collaboration of the Service with nongovernmental organizations whose mission is to reach diverse audiences. The Service also works in partnership with a range of citizen science programs that engage young people in natural resource programs that not only heighten scientific knowledge nationwide, but also raise the awareness of young people from diverse backgrounds about the importance of natural resource protection.

The visitor facility enhancement program supports the development, rehabilitation, and construction of facilities such as parking areas at trailheads, wildlife observation platforms, kiosks, and other projects that are necessary for interpretation and environmental education on refuges.

The Refuge System continues to support volunteers and Friends groups through on-site training, mentoring, workshops, and awards. New efforts are underway to build a suite of Refuge System citizen science programs for participation by Friends organizations, volunteers, and visitors. These programs offer volunteers and visitors new, meaningful opportunities to contribute data that would help the Service understand the causes and consequences of climate change on refuges and adjacent landscapes.

In addition to all of the above, wildlife-dependant recreation also addresses the concern of childhood obesity and the health benefits associated with getting children and families outdoors. The American people, especially children, spend less time playing outdoors than any previous generation. Recent research shows that our nation's children are suffering from too much time inside. Children today spend an average of 6.5 hours per day with television, computers and video games. In fact, a child is six times more likely to play a video game than to ride a bike. What does this mean? If children are raised with little or no connection to nature, they may miss out on the many health benefits of playing and exploring outdoors. Nature is important to children's development; intellectually, emotionally, socially, spiritually, and physically.

Children who play outdoors regularly enjoy better motor skills, physical fitness and general health.

- Children who interact with nature have better cognitive and creative skills than their more housebound counterparts;
- Interaction with the environment can help children deal with stress;
- Children with symptoms of ADHD may have their symptoms and need for medication alleviated through regular outdoor interactions; and
- Children who interact regularly with nature tend to show improved academic test scores.

"If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in."

Rachel Carson USFWS



"Enter into the Prairie" pageant engages visitors in marveling at the beauty and mysteries of the prairie. Photo by Jack Pearson.

Enter into the Prairie – Engaging Visitors in Environmental Education and the Arts

The Prairie Wetlands Learning Center hosted the "Enter into the Prairie" environmental education pageant during the 2011 Return to Prairie Days in Fergus Falls, Minnesota. With nearly 500 visitors attending the four-hour event, visitors of all ages learned about duck banding, monarch tagging, and had the opportunity to view two productions of "Enter into the Prairie." The pageant was performed in the outdoor amphitheater. As the narrator described the life cycle of the prairie, giant puppets were erected in synchronization with the story, creating a wonderful fusion of education and the arts.

Cultural and Historic Resources Are Protected and Interpreted

As a part of the Visitor Services Program, the Service ensures that significant cultural and historic resources are protected, experienced by visitors, and interpreted in accordance with authorizing legislation and policies. The Refuge System protects many significant cultural and archaeological sites including 89 resources listed on the National Register of Historic Places, ten of which have been designated National Historic Landmarks. These Landmarks include World War II battlefields (Attu and Midway) and historic lighthouses. The Refuge System has identified more than 20,000 archaeological and historical sites within its borders to date, with more yet to be discovered. The Refuge System museum collections consist of approximately 6.2 million objects maintained in Service facilities or on loan to more than 200 non-Federal repositories, such as qualified museums and academic institutions, for scientific study, public viewing, and long-term care.



Volunteers help maintain a gun at the World War II Midway battlefield, a National Historic Landmark, located at Midway Atoll National Wildlife Refuge.

Youth in Natural Resources

Under this initiative, the Refuge System is building upon existing proven programs with new and creative approaches to offer public service opportunities, support science based education and outdoor learning laboratories, and engage young Americans in wildlife-dependent recreation such as hunting, fishing, wildlife observation, and wildlife photography. Hundreds of national wildlife refuges offer employment, education and recreation opportunities that connect youth with the outdoors. These connections foster

understanding and appreciation of the need to conserve America's natural resources. These youth programs also provide opportunities to educate youth about career opportunities and promote public service as part of a life-long commitment to natural resource conservation. These programs are managed through mentoring and partnerships with Friends organizations, volunteers, educational institutions, and local conservation organizations.

Refuges offer multiple entry points to connect children and youth with nature and develop interest in a career in natural resource management. Specific programs benefiting from this funding include:

Environmental Education, involving approximately 675,000 students and teachers, provides outdoor laboratories that adhere to curriculum standards.

Wildlife-Dependent Recreation programs, such as hunting, fishing, wildlife observation, and photography offer outstanding opportunities for youth to enjoy the natural world and build stronger relationships with their families, peers, and communities.

Youth Conservation Corps provides opportunities for young adults from varied backgrounds to work together on conservation projects, such as maintenance and construction, habitat management, and visitor services. Enrollees learn about potential career opportunities and are offered guidance and training.

Impacting Youth for Conservation at Lake Andes NWR

It is hard to predict what will happen when young adults are exposed to conservation work. Many great conservation leaders tell of a touchstone experience when they were young. This is typically some experience outdoors, in nature, when they get an epiphany, or a calling to do whatever they can for conservation. This newly discovered purpose can ignite and fuel a lifelong interest in nature. Lake Andes National Wildlife Refuge hosted a five-person work crew from Conservation Corps Minnesota. The Refuge provided lodging, some training, a little support, and a bit of conservation education. The youth provided nearly 400 hours of hard work, improving wildlife habitats on National Wildlife Refuges and Waterfowl Production Areas. One Lake Andes National Wildlife Refuge employee commented, "The work they do is inspiring to those of us that have been in this business for many years. It is nice to see such youthful energy. Will one of them become the next Aldo Leopold? I guess we'll have to wait and see."



Conservation Corps Minnesota youth working at Lake Andes National Wildlife Refuge

Career Discovery Internship Program (CDIP)

The Southeast Region implemented a successful Conservation Discovery Internship Program (CDIP) in partnership with the Student Conservation Association (SCA) in which 11 students were selected for the program. The program is designed to provide opportunities for freshman and/or sophomore college students from ethnically, racially and economically diverse backgrounds to learn about conservation science, management and careers through “real world” experiences on national wildlife refuges. In conjunction with Regions 3 and 5, a three-day intern orientation/training was held at the National Conservation Training Center before interns reported to their field stations for the 12 week internship. The students were provided a mentor from the region during their work experience. Several of the students who participated in the program are being considered for Student Temporary Employment Program (STEP) appointments and are volunteering at field stations around the Southeast.



Students in the Southeast Region's Career Discovery Internship Program

Volunteer and Community Service Programs involve tens of thousands of Americans each year on refuges. The Service's volunteers work with school and youth groups and support organizations, such as the Scouts. Volunteers often serve as important role models and mentors for youth.

Student Temporary Employment Program (STEP), which is designed to introduce talented students to the advantages and challenges of working for the Federal Government, combines academic study with actual work experience on a refuge.

The Student Career Experience Program (SCEP) was established to recruit high quality employees into Federal service, to support equal employment opportunity objectives, to provide exposure to public service, and to promote education.

Student Conservation Association (SCA) works with refuges to offer conservation internships and summer trail crew opportunities. The SCA focuses on developing conservation and community leaders while accomplishing important work supporting the Service mission.

2013 Program Performance

The 2013 budget request would allow the Refuge System to continue to welcome more than 45 million visitors to enjoy educational and interpretive programs, hunting, fishing, wildlife observation, and photography. Funding will be used to develop visitor programs, materials, and services that improve upon visitor satisfaction rates, which are currently at 85 percent. Satisfaction rates will soon be reassessed with a comprehensive new survey.

Refuge System staff aim to train and supervise approximately 42,000 volunteers that contribute more than 1.5 million hours to conservation and recreation programs. The Refuge System will continue to support training programs for volunteer coordinators and provide support for refuges working with Friends organizations. In addition, the Refuge System will provide support for the many Friends groups across the country that help each refuge meet its mission.

Activity: National Wildlife Refuge System
Subactivity: Refuge Law Enforcement

		2011 Actual	2012 Enacted	2013		Change From 2012 Enacted (+/-)	
				Fixed Costs & Related Changes (+/-)	Program Changes (+/-)		Budget Request
Refuge Law Enforcement	(\$000)	36,496	35,801	+199	+1,039	37,039	+1,238
Safe Borderlands	(\$000)	1,000	998	0	0	998	0
IMARS	(\$000)	575	574	0	0	574	0
Total, Refuge Law Enforcement	(\$000)	38,071	37,373	+199	+1,039	38,611	+1,238
	FTE	250	246	0	+1	247	+1

Summary of 2013 Program Changes for Refuge Law Enforcement

Request Component	(\$000)	FTE
• General Program Activities	+1,039	+1
Total, Program Changes	+1,039	+1

Justification of 2013 Program Changes

The 2013 budget request for the Refuge Law Enforcement program is \$38,611,000 and 247 FTE, a net program change of \$1,039,000 and +1 FTE from the 2012 Enacted.

General Program Operations (+\$ 1,039,000/+1 FTE)

The requested increase will fund one additional FTE and allow Service Law Enforcement to continue to respond to drug production and smuggling, wildlife poaching, illegal border activity, assaults and a variety of natural resource violations.. Law enforcement workload is increasing as the number of refuges grows and the number of refuge visitors increase. The funds also are used to provide additional capability to respond to natural disasters and events such as hazardous spills.

Funds are also used to monitor compliance with a recent increase in conservation easements. Law enforcement staff on refuges have also seen recent increases in illegal activities such as drug activities.

Included in the increase are expenses of the newly formed Refuge System Honor Guard and restore to Refuge Law Enforcement. The United States Fish & Wildlife Service Honor Guard is a ceremonial unit tasked with rendering honors to Service employees who have been killed in the line of duty. These honors are rendered on behalf of the U.S. Fish & Wildlife Service and provide formal recognition of the service an employee has performed on behalf of the government of the United States. This unit is comprised of highly trained professionals from within the ranks of the Service who provide support and assistance at funerals for the family and co-workers of the fallen.



Refuge System Law Enforcement officers play a vital role in the community. In the above picture, Refuge Law Enforcement officers were assisting with search and rescue missions and community patrols immediately after Hurricane Katrina. In the picture below, a Refuge Law Enforcement officer assists in teaching youth how to fish.



Program Overview

The Refuge System employs a professional cadre of law enforcement officers dedicated to natural resource protection and public safety. Refuge law enforcement officers also contribute to community policing, environmental education and outreach, protection of native subsistence rights, as well as other activities supporting the Service's conservation mission. Refuge law enforcement officers are routinely involved with the greater law enforcement community in cooperative efforts to combat the nation's drug problems, addressing border security issues, and other pressing challenges.

While the Refuge System continues to improve its law enforcement operations through the hiring and training of full-time officers, dual-function officers continue to play a critical role in meeting law enforcement needs. Dual-function officers dedicate 25 to 50 percent of their time to law enforcement activities and spend the balance of their time on traditional conservation and wildlife dependent recreation programs. The Refuge System began to reduce dependency on dual function officers in 2002 to improve effectiveness and efficiency of refuge law enforcement operations. As the Refuge System loses dual function officers, full-time officers need to be added which will allow current dual function officers to focus on their primary duties. Refuges also rely on partnerships through Memorandums of Understanding with local, county, state, and other Federal agencies for mutual law enforcement assistance for the purpose of protecting lives, property, and resources.

A 2005 analysis by the International Association of Chiefs of Police (IACP) detailed the urgent need for more law enforcement (LE) officers to respond to drug production and smuggling, wildlife poaching, illegal border activity, assaults and a variety of natural resource violations. IACP recommended that 845 full-time LE officers were necessary to adequately protect visitors and natural resources. Since the report was completed in 2005, Refuge Law Enforcement responsibilities have increased significantly as the Refuge System has expanded by approximately 50 million acres with the addition of eight new national wildlife refuges and the Pacific monuments. Since 2005, the Refuge System has also added approximately 1,000 miles of roads and 300 miles of trails. Visitation to national wildlife refuges has increased by approximately 6.5 million visitors since 2005, a 15% increase.

The Refuge System has also instituted a Zone System to provide critical law enforcement planning, deployment, and support to multiple wildlife refuges with maximum efficiency through experienced officers. A Zone Officer provides refuges within his or her designated zone with technical assistance on law enforcement, institutes reliable record keeping and defensible reviews, enhances training, and promotes communication and coordination with other law enforcement agencies.

The Refuge System remains concerned about the current situation on the southwest border, and directed a significant portion of previous funding increases to regions with refuges located along the border. These management increases continue to enhance the law enforcement programs within the regions, including all officers along the southwest border.

Refuge Law Enforcement

This program element includes funding for the Refuge Law Enforcement Program and the Service's Emergency Management Program. Included under the funding are emergency managers, zone officers, regional refuge law enforcement chiefs, field officers, training, equipment, and supplies. Officers play an integral part of the Department-wide strategy of drug interdiction and marijuana eradication on public lands. The Refuge System applies various operational activities to combat illegal marijuana cultivation on refuge lands such as aircraft usage, training, equipment, and any associated environmental clean-up activities.

Incident Management Analysis Reporting System (IMARS)

The Refuge Law Enforcement program is working with the DOI to develop and implement the Department-wide Incident Management Analysis Reporting system (IMARS). The program will document all law enforcement related incidents occurring on refuges, and will be accessible at all levels of the organization. It will track not only different types of crimes, but also locations which will allow us to be proactive in crime prevention. This information is necessary to prioritize law enforcement officer needs and to deploy officers where they are needed in emergencies.

2013 Program Performance

The Division of Refuge Law Enforcement would continue to pursue its goal of protecting human lives, wildlife, and properties. The FY2013 budget request would support FTE within the Law Enforcement program. These officers would provide for the security and safety of 45 million refuge visitors and employees, government property, and the wildlife and habitats the Refuge System strives to protect. Refuge officers anticipate documenting more than 50,000 natural, cultural, and heritage resource crimes, in addition to more than 48,000 other crimes such as drug abuse, burglary, assaults, and murders.

The budget request includes \$575,000 for the completion and implementation of the critically-needed Incident Management, Analysis, and Reporting System (IMARS). Several years in the making, IMARS would allow for more effective law enforcement through more accurate data reporting, tracking of trends, and information sharing.

Refuge Law Enforcement would continue to help monitor approximately 33,200 conservation easement contracts with non-federal landowners, with a goal of ensuring that the terms are met on at least 95 percent of the contracts.



Zone Officer showing some young hunters how to make sure the birds are dead and not crippled.

Activity: National Wildlife Refuge System
Subactivity: Conservation Planning

		2011 Actual	2012 Enacted	2013 Request			Change from 2012 (+/-)
				Fixed Costs & Related Change s (+/-)	Program Changes (+/-)	Budget Request	
Refuge Planning	(\$000)	7,438	7,288	+93	+189	7,570	+282
*Land Protection Planning	(\$000)	3,440	3,434	-3,434	0	0	-3,434
Comprehensive Conservation Plans	(\$000)	984	982	-37		945	-37
Total, Conservation Planning	(\$000) FTE	11,862 80	11,704 80	-3,378 -20	+189 0	8,515 60	-3,189 -20

*Note: The FY 2011 Actual and FY 2012 Enacted for Conservation Planning include \$3,440,000 and \$3,434,000 respectively and 20 FTE for Land Protection Planning, which the Service requests to be transferred to Land Acquisition for FY 2013.

Summary of 2013 Program Changes for Conservation Planning

Request Component	(\$000)	FTE
• Refuge Planning	+189	0
Total, Program Changes	+189	0

Justification of 2013 Program Changes

The 2013 budget request for the Conservation Planning program is \$8,515,000 and 60 FTE, a net program change of +\$189,000 and +0 FTE from the 2012 Enacted.

Refuge Planning (+\$189,000/+ 0 FTE)

The modest increase requested in Refuge Planning will help offset increased expenses related to preparation of refuge planning documents such as habitat management and visitor services plans developed for individual refuges by conservation planners and refuge personnel with extensive input from the public, states, tribes, and other partners.

Land Protection Planning (-\$3,434,000/-20 FTE)

Land Protection Planning directly supports the Refuge System's Land Acquisition program. In the FY 2013 budget request, \$3,434,000 and 20 FTE will be funded under the Land Acquisition Appropriation instead of Conservation Planning within the Resource Management Appropriation.

Program Overview

The Service's ability to conserve fish, wildlife and their habitats for future generations of Americans begins with its commitment to conservation planning. Planning documents guide on-the-ground stewardship of threatened and endangered species, migratory birds, inter-jurisdictional fish and other species of special concern entrusted to us by the American people. The Service develops plans using an interdisciplinary approach, to ensure management activities address the diversity of current biological and socioeconomic issues.

Conservation plans must integrate the conservation needs of the larger landscape (including the communities they support) and ensure that we function well as a "System." Second, they must be flexible

enough to address new environmental challenges and contribute to the ecological resiliency of fish and wildlife populations and their habitats. Third, the plans must be written so those who read them will clearly understand what is expected and be inspired to take action to become a part of the Service's conservation legacy. Fourth, they should explore ways to increase recreational opportunities, working closely with regional recreation, trails and transportation planners to leverage resources that make refuges more accessible to the public.

Refuge Planning - Comprehensive Conservation Plans (CCPs) and step-down management plans, such as Habitat Management and Visitor Services plans, are developed for individual refuges by conservation planners and refuge personnel with extensive input from the public, states, tribes, and other partners. Effective refuge planning requires integration of multiple data points. For example, targeted restoration is necessary in many wildlife refuges to bring altered landscapes back into balance. Restoration efforts should create landscape-level habitats or habitat complexes capable of supporting viable populations of target species; be resilient to short-term climate fluctuations and long-term climate change; restore as many ecosystem processes as possible on the landscape; integrate partnerships with other agencies, groups and private landowners; and integrate with future acquisition efforts. This subactivity supports funding for these plans, as well as for geographic information system capability and other related support tools.

Comprehensive Conservation Plans – The Service uses Comprehensive Conservation Plan (CCP) development as the primary method to conduct citizen-centered government. Developing these long-term plans relies on public participation and input. Local communities, state conservation agencies, and other partners help guide refuge management through the development of each CCP. Diverse private organizations, such as the National Rifle Association, Defenders of Wildlife, and many others, also participate in the CCP planning process to complete projects.

The CCPs ensure that each refuge unit is comprehensively managed to fulfill the purpose(s) for which it was established. Developing a CCP facilitates decision making regarding management issues. Completed CCPs allow refuge managers to implement resource management actions that support State Wildlife Action Plans, improving the condition of habitats at a landscape scale and benefiting wildlife.

CCPs provide an opportunity to improve and increase wildlife-dependent recreation opportunities which are critical to connecting people, particularly children, with nature.

The 1997 National Wildlife Refuge System Improvement Act (Improvement Act) was passed into law on October 9, 1997. The Improvement Act mandated that the Service complete a comprehensive conservation plan (CCP) for every unit of the Refuge System within 15 years (by October 9, 2012). There were 551 units of the refuge system, including wetland management districts, at the time of the passage of the Act. Since then, Congress mandated that the Service also complete CCPs for three newly established field stations before the 2012 deadline. Thus, 554 field stations require completed CCPs by October 9, 2012. In addition, the Improvement Act requires that a CCP be developed for every new unit that is created (within 15 years of its creation) and that every CCP must be revised every 15 years (or more often if conditions warrant).

The Service has made significant progress toward meeting the goal of completing CCPs for 554 units by October 9, 2012:

- Through the end of FY 2011, CCPs for 427 of these units have been completed.
- CCP development is underway for an additional 109 of these units.
- CCPs for 18 of the required units are yet to be started.

CCPs for 8 of the 427 completed units are currently being revised. The Service has also completed CCPs for 9 units that were created after the Improvement Act.

Despite this progress, there is a reasonable chance that that a CCP will not be completed for all of the original 554 units by October 9, 2012. The current schedule indicates that CCPs for 42 of the required 554 Refuge System units will not be completed by that date. All of these plans, however, should be under development on that date.

The CCPs ensure that each refuge unit is comprehensively managed to fulfill the purpose(s) for which it was established. Developing a CCP facilitates decision making regarding issues such as allowable wildlife-dependent recreation, the construction of facilities, and the development of biological programs. The process of completing a CCP also helps refuge managers address any conflicting uses that may exist or be proposed. Once a refuge finishes its CCP, it may develop subsequent step-down management plans to meet the CCP's goals and objectives. Issues addressed by these step-down management plans include habitat management, visitor services, fire management, wildlife inventorying and monitoring, and wilderness management plans. Completed CCPs allow refuge managers to implement resource management actions that support States Wildlife Action Plans, improving the condition of habitats at a landscape scale and benefiting wildlife. Refuge personnel also have the ability to improve and increase wildlife-dependent recreation opportunities which are critical to connecting people, particularly children, with nature.



The refuge planning process gives local citizens the opportunity to participate in the planning process; thereby giving local citizens a strong voice in how the refuge in their community will be managed.

2013 Program Performance

Through Comprehensive Conservation Planning and other Refuge planning efforts, we guide the decisions of the Refuge System. The Refuge System planning process also provides an opportunity for the public to engage in the decision making process. In FY2013, we plan to complete 37 CCPs and start 11 new efforts. We will also plan for refuge management and public use activities to include, but not be limited to, hunting and fishing plans, public use and visitor management plans, and habitat management plans. We comply with National Environmental Policy Act through the delivery of an Environmental Assessment or Environmental Impact Statement.

Activity: National Wildlife Refuge System
Subactivity: Refuge Maintenance

		2011 Actual	2012 Enacted	2013 Request			Change from 2012 (+/-)
				Fixed Costs & Related Changes (+/-)	Program Changes (+/-)	Budget Request	
Maintenance Support	(\$000)	55,482	55,393	-291	0	55,102	-291
Annual Maintenance	(\$000)	27,581	27,537	0	0	27,537	0
Small Equipment and Fleet Management	(\$000)	5,981	5,971	0	0	5,971	0
Heavy Equipment Management	(\$000)	5,783	5,774	0	0	5,774	0
Deferred Maintenance	(\$000)	38,589	38,527	+604	0	39,131	+604
Deferred Maintenance WO/RO Support	(\$000)	6,116	5,748	0	0	5,748	0
Total, Refuge Maintenance	(\$000)	139,532	138,950	+313	0	139,263	+313
	FTE	712	709	0	0	709	0

Summary of 2013 Program Changes for Refuge Maintenance

The 2013 budget request for the Refuge Maintenance program is \$139,263,000 and 709 FTE, no program change from the 2012 Enacted.

Program Overview

The Refuge Maintenance Program supports a complex infrastructure including habitat management; visitor, administrative, and maintenance facilities; and a fleet of vehicles and heavy equipment necessary to conduct wildlife and habitat management activities. This support provides access to Refuge System lands in support of wildlife and habitat management programs as well as enabling more than 45 million annual visitors to enjoy our nation’s diverse fish and wildlife heritage. Refuge maintenance staff actively manages about 3.5 million acres of habitat each year. The overall facility infrastructure is valued at nearly \$26.5 billion as indicated in the table below. The small equipment fleet consists of about 15,600 items valued at \$337 million, and the heavy equipment fleet consists of about 2,000 items valued at \$183 million.

Nationwide portfolio of Refuge System constructed facility assets as of October 1, 2011

Asset Groupings	Asset Count		Replacement Value		Deferred Maintenance	
	Number	% of Total	\$ millions	% of Total	\$ millions	% of Total
Buildings (admin, visitor, housing, maintenance, storage, etc.)	5,189	16%	2,854	11%	408	16%
Water Management Structures	7,340	23%	9,042	34%	409	16%
Roads Bridges and Trails	12,125	38%	12,000	45%	1,430	56%
Other Structures (visitor facilities, radio systems, fencing, others)	6,923	22%	2,551	10%	297	12%
Total	31,577	100%		100%		100%

To meet wildlife habitat and visitor services goals; refuge lands, facilities, and equipment must be serviceable and properly maintained. There is a direct link between adequate Refuge System

maintenance funding and healthy wildlife habitats and populations. Sufficiently maintained facility and equipment assets enable the Service to accomplish habitat management, refuge operations, and visitor services goals. Without sufficient maintenance, much-needed wildlife management facilities such as water control structures for wetlands or breeding facilities for endangered species would not operate properly; office and maintenance buildings needed to conduct core refuge operations would not be functional; and roads, trails and other facilities would be inadequate to allow access for management purposes or for visitation by the public. Without Annual and Deferred Maintenance funding, wildlife and habitat management activities such as mowing fields to enhance habitat, removing unwanted woody vegetation from wetland impoundments, and controlling invasive plants and animals, could not be completed, which would negatively impact the quality of wildlife habitat and reduce wildlife populations.

Adequately maintained facility and mobile equipment assets enable the Service to achieve its conservation mission. The Service uses a strategic, portfolio based approach to manage these assets in a manner that informs decision making and maximizes efficient and effective mission delivery with an emphasis on prioritizing mission critical assets and assuring long-term protection of investments through long-term life cycle management. To further this goal the Service strives to accurately:

- account for what it owns;
- determine the costs to operate and maintain each individual asset;
- track the condition of assets and the associated costs to correct deficiencies;
- plan and prioritize budgets to most effectively meet mission needs
- understand and plan life cycle costs for both existing and proposed new assets and
- dispose of any extraneous assets

Using principles outlined in Executive Order 13327, Federal Real Property Asset Management, the Department's Capital Asset and Investment Control policy, and the Department's guidance for deferred maintenance and capital improvement plans, the Refuge System is managing its portfolio of facility and mobile equipment assets in a manner that focuses on accomplishing the Service's legislative mission using the most cost effective means possible. Developing a full inventory of what the Service owns, understanding annual Operations and Maintenance costs, and regularly assessing the condition of assets and their contribution to the mission, all contribute to effective management of assets. In managing assets, the Service also strives for environmentally friendly and sustainable business practices and seeks mechanisms for reducing energy use and applying renewable energy strategies.

To apply available resources in the most cost effective manner we are taking the following actions:

For constructed facility assets:

- Focus available resources on the highest priority needs in 5 year plans
- Strengthen the Service's use of mission dependency identification to assure that the most critical facility assets receive priority funding
- Apply standard facility design components to reduce the costs of project design
- Minimize facility development in accomplishing mission goals
- Manage and replace assets taking into account life-cycle management needs
- Apply energy conservation and renewable energy options to lower long-term operating costs
- Seek innovative new options and authorities for constructing and managing facility assets
- Work with volunteers and partners to maximize the conservation benefits of facility assets

For mobile equipment assets:

- Reduce petroleum consumption for vehicles
- Increase use of alternate fuel vehicles
- Use equipment sharing across multiple locations where feasible
- Use equipment rental when more cost-effective than ownership
- Provide reliable transportation and equipment to the full range of permanent and temporary staff as well as volunteers and cooperators
- Provide safety training to maximize safe operation

In addition to achieving performance targets for assets using the Facility Condition Index (FCI), proper support of Refuge System infrastructure is critical to achieving other performance targets for the entire range of mission accomplishments. These include wetland restoration, wildlife monitoring, and providing recreational opportunities for the public. The Service uses the FCI, which is a measure of the ratio of the repair cost to the current replacement cost for each asset, in combination with the Asset Priority Index (API), which indicates the relative importance of an asset to accomplishing its mission, to prioritize the use of maintenance funding. The Service continues to prioritize maintenance needs through improved data, which underlies development of five year budget plans. The FCI for conservation/water management facilities, for example, is currently 0.045, which industry standards rate as acceptable condition. The Refuge System is using its Service Asset and Maintenance Management System (SAMMS) as the system of record to document assessments, facility maintenance histories, and maintenance schedules to improve its overall FCI and to reduce out year project costs.

Energy conservation, reduction of energy costs and application of renewable energy sources is a current priority associated with management of Refuge System facility assets. Approximately \$8,000,000 was devoted to renewable energy measures in the American Recovery and Reinvestment Act of 2009 (ARRA). As ARRA and deferred maintenance projects are completed, sustainable energy measures are incorporated to reduce annual Operations and Maintenance costs and to help reduce dependence upon petroleum based energy. These efforts also reduce the carbon footprint of the Refuge System in furtherance of goals established in the Service's January 2011 Carbon Mitigation Report.



These solar panels at Cibola NWR (AZ) were installed with funds from the American Recovery and Reinvestment Act of 2009.

The Service is using financial and performance data to improve its management of facility infrastructure and its mobile equipment fleet. The Service has developed an asset management plan to aid in

management of assets, based on workload drivers including General Services Administration useful life standards, geographic location, utilization patterns, and generally accepted asset management principles.

In addition to managing an extensive facility infrastructure with 31,577 assets valued at nearly \$26.5 billion (as of September 30, 2011) the Service owns and maintains a variety of traditional and specialized mobile equipment items necessary to achieve its strategic goals. Most of the 5,000 vehicles used on refuges are four wheel drive trucks and utility vehicles used for firefighting, wildlife and habitat surveys, transporting equipment and tools to remote sites, and law enforcement. Considering approximately 90% of refuge roads are gravel or native surface, much of the vehicle use is on gravel roads. Extensive off-road use is also required. Thousands of refuge volunteers rely on refuge vehicles to accomplish their volunteer tasks. Agricultural, earthmoving, and construction equipment are used to maintain wetland impoundments and roads; enhance areas for wildlife habitat; control invasive plants; and maintain and construct modest visitor facilities such as boardwalks, observation platforms, tour routes, and nature trails. Smaller, specialized equipment such as all-terrain vehicles, aircrafts, boats, small tractors and snowmobiles are needed to access remote or rugged areas. Vehicles are also crucial on most refuges for law enforcement, public safety and wildlife surveys.



Most vehicles on refuges are four wheel drive trucks and utility vehicles used for firefighting, wildlife and habitat surveys, transporting equipment and tools to remote sites, and law enforcement.

Watershed on Wheels (WoW Express) Takes to the Road

The Silvio O. Conte NFWR (Conte Refuge) created a WoW experience for 19,000 people in the Connecticut River watershed this past fiscal year. Conte's latest Outreach, Environmental Education and Interpretive tool is the Watershed on Wheels Express, known as WoW Express.

Former Congressman Silvio O. Conte's vision, along with the Service, was to forge relationships with as many people as possible to realize a healthy watershed and instill a stewardship ethic. To contribute to that vision, Refuge staff, along with partners and volunteers traveled the interstates and back roads of Vermont, New Hampshire, Massachusetts and Connecticut to reach 30 schools and approximately 4,000 students. Eighteen major events showcased the traveling visitor center reaching another 15,000 people.



The immersion experience, with sounds of wildlife, earth smells and 44 different animal models provided all who entered the trailer, an opportunity to understand the variety of flora and fauna that thrives in the watershed. The trailer contains dioramas of wetlands, vernal pools and forested habitats ending in a suburban neighborhood illustrating a sampler of the Connecticut River watershed with its 7.2 million acres and 2.3 million people and almost 400 communities.

The 7 interactive kiosks highlight the Service, the Refuge System and the Conte Refuge. It shares messages related to threatened and endangered species, invasive species, challenges to the environment, the web of life and more.

The WoW Express was a huge success; schools and events hosts are already reserving dates for the next fiscal year. It even made an appearance at the 2011 Refuge Visioning Conference in Madison, Wisconsin.

The Refuge Maintenance budget includes six program elements:

Refuge Maintenance Support

Refuge Maintenance Support includes salaries and associated funding for maintenance staff at refuge field stations. Maintenance staff support all refuge programs both indirectly, by maintaining functional facilities and reliable equipment, and directly, by performing tasks such as mowing fields to enhance habitat, removing unwanted woody vegetation from wetland impoundments, and controlling invasive plants. Ongoing maintenance of visitor facilities including roads, trails, and a variety of small facilities needed to provide visitors with appropriate access to refuge lands is vital to enabling a positive experience for more than 44 million annual visitors.



Refuge Maintenance Support and Annual Maintenance include funding for refuge staff to maintain and repair assets and equipment necessary for wildlife habitat management activities. In the above photo, a refuge maintenance employee is mowing invasive cocklebur at Sacramento NWR.

Annual Maintenance

Adequate maintenance funding is a critical budget element that must be in place throughout the life cycle of facilities and mobile equipment. According to the *Sustainable Building Technical Manual*, over a 30 year period, initial building costs amount to only about one-third of a building's total operations and maintenance costs. Annual maintenance encompasses all ongoing non-staff expenditures needed to keep the Service's facility portfolio and mobile equipment fleet functioning for its intended purpose. Annual maintenance includes such items as: 1) utilities, custodial care, and snow removal for offices, administrative, and visitor center buildings; 2) repairing system failures in the year they occur; and 3) preventive and cyclic maintenance. Preventive maintenance-- including scheduled servicing, repairs, and parts replacement-- results in fewer breakdowns and is required to achieve the expected life of facilities and equipment. Cyclic maintenance is preventive maintenance scheduled in periods greater than one year. Annual maintenance addresses problems cost-effectively, before they grow in expense. The Youth Conservation Corps, a temporary employment program for high school youth, is also included under this category since much of their work supports annual maintenance.



Turnbull NWR Youth Conservation Corps crew installing a new gate.

Small Equipment and Fleet Management

This program element facilitates the acquisition, repair, and disposal of equipment valued from \$5,000 to over \$25,000 including passenger vehicles and pickup trucks. The Small Equipment and Fleet Management program also includes a rental and leasing program that provides a cost-effective alternative to purchasing equipment, particularly for short-term needs. In many cases, renting or leasing allows refuge staff to complete vital projects while limiting the maintenance cost of the equipment fleet.

Funds in this program element optimize the management of equipment to meet mission needs, environmental mandates, and to serve as an example for the efficient use of public assets. Because it is difficult to access a wide variety of off-road areas to include remote and rough terrain, and all types of water bodies, the Service needs a wide variety of vehicles and equipment to achieve its mission. This includes about 9,000 small equipment items including all-terrain vehicles, boats and motors, pumps, generators, trailers, agricultural implements, and similar equipment. Most of the 5,000 refuge vehicles are used for firefighting, wildlife and habitat surveys, transporting equipment to remote work sites, and transporting volunteers. About 1,600 units of agricultural equipment are used to manage habitats, maintain roads and levees and preclude growth of undesirable vegetation.

Federal mandates require all federal agencies to reduce petroleum fuel use by two percent per year, as compared to their levels in 2005, through the year 2020, thereby reducing petroleum fuel use by 30%. Petroleum fuel reduction mandates, more than any other factor, will drive fleet management practices through 2020. Therefore, the Refuge System is attempting to replace older, inefficient vehicles, with more fuel efficient models. American Recovery and Reinvestment Act (ARRA) funding from the General Services Administration made it possible for the Refuge System to replace more than 400 of its vehicles in 2009. Combined with normal vehicle acquisitions, the Service replaced 10% of its fleet which was the largest single vehicle acquisition and replacement year ever for the Service. As a result, the Service’s petroleum fuel use decreased by approximately 185,000 gallons per year.

Inventory of Refuge System Small Equipment and Vehicles as of September 30, 2011

Small Equipment and Vehicles	Total Units	Original Cost (millions)	Current Replacement Cost (millions)	Average Year of Purchase	# Units Exceeding Useful Life	% Units Exceeding Useful Life
Ag/Construction	1,610	\$21.2	\$23.3	1995	775	48%
Implements/ Attachments/Traile rs	4,039	\$35.5	\$42.6	1999	1,561	39%
Off Road Utility Vehicles	2,171	\$17.2	\$20.7	2001	1,183	56%
Pumps / Power Units	331	\$5.4	\$6.8	1991	184	58%
Boats	970	\$33.7	\$40.5	1987	154	16%
Vehicles – Passenger	195	\$5.2	\$6.0	2001	73	38%
Vehicles – Trucks & Tractors	6,287	\$189.7	\$218.1	2000	3,875	62%
Total	15,603	\$307.9	\$357.9		7,805	

Heavy Equipment Management

This program element, formerly named Heavy Equipment Replacement, facilitates the acquisition, repair, and disposal of heavy equipment which is any equipment item exceeding \$25,000 in replacement cost, excluding passenger vehicles and light trucks. This program element also includes a rental and leasing program to provide a cost-effective alternative to purchasing new equipment. Equipment rental allows completion of vital projects while limiting the size and cost of the heavy equipment fleet.

Heavy Equipment Management funds are used to optimize the management of equipment to meet mission needs, environmental mandates, and to serve as an example for the efficient use of public assets. The Refuge System owns more than 2,002 heavy equipment assets with a combined replacement value of about \$183 million. The Refuge System depends on reliable heavy equipment since 3.5 million acres are managed each year through water control, tillage, mowing, invasive species control, or farming for habitat management, wildfire prevention, and other goals. Providing access to refuge lands and facilities by maintaining a variety of access roads is vital to all aspects of conservation land management. Visitor programs rely on heavy equipment for maintenance of roads, trails, boat ramps, and facilities, as well as enhancing habitat for wildlife in particular areas.



Heavy equipment used in dike repair at Audubon NWR

Heavy Equipment Inventory as of September 30, 2011

Small Equipment and Vehicles	Total Units	Original Cost (millions)	Current Replacement Costs (millions)	Average Year of Purchase	# Units Exceeding Useful Life	% Units Exceeding Useful Life
Bulldozers	403	\$39.7	\$48.8	1991	252	63%
Backhoes	355	\$19.7	\$25.1	1997	91	26%
Cranes	18	\$1.6	\$2.1	1986	12	67%
Excavators	152	\$21.7	\$26.7	1999	28	19%
4WD Loaders	176	\$12.0	\$15.9	1992	39	23%
Graders	228	\$21.8	\$26.8	1991	91	40%
Compact Track Loader	131	\$7.0	\$8.2	2001	10	8%
Skid Steer	119	\$3.5	\$4.3	1999	19	16%
Specialty Wheeled	43	\$2.3	\$2.9	1990	23	51%
Specialty Tracked	122	\$11.8	\$14.5	1992	39	33%
Forklifts	255	\$6.5	\$7.9	1993	151	60%
Total	2,002	\$147.7	\$183.2		755	



The Refuge System regularly uses heavy equipment such as road graders to maintain roads and bull dozers to create and maintain wildlife habitats such as wetlands.

Deferred Maintenance Projects

Deferred Maintenance projects include repair, rehabilitation, disposal, and replacement of facilities. Only those projects that have already been delayed beyond their scheduled maintenance or replacement date are included in Deferred Maintenance. Projects that have not reached their scheduled date are not included in Deferred Maintenance. Major building components such as roofs have a scheduled replacement date; if funds are not available for the component to be replaced as scheduled, the project falls into the Deferred Maintenance category. The Service maintains an inventory of Deferred Maintenance and capital improvement needs for all field stations consistent with Federal Accounting Standards. Available funds are directed to the highest priority projects based upon Facility Condition Index (FCI), a ratio of repair cost to replacement cost, and Asset Priority Index (API), an indicator of individual assets’ contribution to the refuge system mission, in accordance with the DOI guidance on Deferred Maintenance and capital improvement plans. Ranking scores are currently derived from ten DOI-wide priority ranking factors. The Deferred Maintenance category funds both Service engineers and temporary staff working on Deferred Maintenance projects.

The Refuge Roads program has provided \$29,000,000 per year from the Federal Highway Administration over the last 5 years to assist in maintaining refuge public use roads (defined as public roads, bridges, and parking areas). This program is reauthorized every 5 years and is currently pending Congressional reauthorization.

Deferred Maintenance Backlog Reported in CFO Audit (Actual Dollars)

End of Fiscal Year	DM Backlog	Increase/Decrease
2002	1,300,000,000	NA
2003	1,180,000,000	-120,000,000
2004	1,510,500,000	330,500,000
2005	2,040,500,000	530,000,000
2006	1,530,773,712	-509,726,288
2007	2,482,588,534	951,814,822
2008	2,495,752,018	13,163,484
2009	2,710,782,879	215,030,861
2010	2,706,402,236	-4,380,643
2011	2,544,517,841	-161,884,395

The Refuge System effectively manages its maintenance backlog by continuing to refine its condition assessment process, using maintenance action teams, actively pursuing local partnerships, carefully prioritizing budgets, and disposing of unneeded assets. The Service decreased the backlog by \$0.2 billion during FY 2011 with funding it received as part of the American Recovery and Reinvestment Act.

Impacts of Natural Disasters

Between FY 2005 and FY 2011, the National Wildlife Refuge System sustained more than \$600 million in storm damages from federally declared natural disasters. This amount does not include damages from localized natural disasters such as floods or tornados that were not federally declared natural disasters. Most of the damages were caused by major hurricanes.

Congress allows the Refuge System to submit a request for Emergency Supplemental funding. However, Congress approved less than \$257 million in Emergency Supplemental funding of the \$612 million in natural disaster damages between FY 2005 and FY 2011. The remaining \$355 million is now included in the Refuge System Deferred Maintenance backlog. The cumulative appropriation for Deferred Maintenance from FY 2005 through FY 2011 was \$297 million.



In recent years, natural disasters have added hundreds of millions of dollars to the deferred maintenance backlog. The above photo shows the destruction of a maintenance shop at Pea Island NWR (NC) from Hurricane Irene in 2011.

CHALLENGES – FLOODING and REPAIRING DAMAGES

For the third year in a row, Long Lake NWR sustained severe spring flooding resulting in substantial damage to refuge roads/dikes and historical buildings. Portions of three primary access roads were closed during the entire year (2011). In addition to high spring runoff and flooding, high water levels experienced throughout the year due to heavy rainfall produced wave action during periods of high wind that further eroded and damaged roads and infrastructure.



Flooding at Long Lake NWR forced closure of roads and other facilities in 2011.

Regional and Central Support

The regional and central office support element includes management and coordination of the facility and equipment maintenance and improvement effort at the regional and national level. Primary support activities include:

- Management and technical support for implementing the corporate data system of record, the Service Asset and Maintenance Management System (SAMMS). Costs include maintaining and refining software, managing databases and servers, providing support via a help desk, and training personnel to use the software.
- Completing condition assessments of 20 percent of capitalized facilities at field stations each year to ensure that real property data is accurate and complete. This program supports decision making for facility management, and provides technical support and short term assistance for deferred maintenance projects.
- Developing and implementing 5-year maintenance plans, including coordinating and reporting on project completions.
- Planning and implementing major maintenance and capital improvement efforts including development of budget plans, monitoring annual O&M costs, executing deferred maintenance projects and related costs, coordinating energy conservation initiatives, prioritizing needs across multiple field locations, responding to major health and safety issues, and identifying and disposing of assets that are not mission-dependent.
- Managing a heavy equipment program including operator safety training, budget planning, consolidated purchasing of replacement equipment, and coordination of equipment rental.

Impact of ARRA Funding on Requested Deferred Maintenance Projects

The American Recovery and Reinvestment Act (ARRA) of 2009 provided the Service with a unique opportunity to accelerate work on Deferred Maintenance projects and brought much needed facility infrastructure funding to the Refuge System. A total of nearly \$210 million in facility repair or improvement projects were funded. They included \$132 million for deferred maintenance projects, \$10 million for repair of public use roads, \$8 million for energy improvements, and \$60 million for capital improvements. ARRA funds contributed to the Refuge System's goal of improving the condition of its facility assets; however, the scope of Deferred Maintenance is so large that significant needs remain.

Tewaukon NWR Complex: Alternative Energy Project (ARRA)

Using funding from the American Recovery and Reinvestment Act (ARRA), Tewaukon NWR Complex in North Dakota upgraded existing heating and cooling systems in three key refuge structures: refuge quarters #1, fire cache, and the main refuge shop. Considering that winter temperatures often dip well below 0°F from December through March, with a corresponding heating bill typically in excess of \$2,000/month, the refuge chose to replace the existing system with energy efficient geothermal ground source heat pump units (GSHP) with the objective of cutting heating costs in half. The addition of a 112 cell photo voltaic array on the stations southernmost facility not only helped offset costs during spring – fall, but excess energy can be sold back to the power grid at approximately 7¢/Kwh. This direct savings has been applied towards future bills, which further reduces station energy costs. Local contractors were used for various phases of development so the majority of the funding was spent in the local community. Dakota Valley Electric was instrumental in setting up the electrical panels necessary to deliver energy back to the power grid and has helped the refuge track energy savings during the initial phases of operation. It is anticipated that the system will pay for itself within 20 years.

2013 Program Performance

The 2013 budget request would support maintenance staffing for field stations, as well as provide annual preventive maintenance, including funds for supplies, materials, and contracts. These funds would allow the Refuge System to repair facilities and equipment, and perform regular annual maintenance on schedule.

The budget would also support replacement of mobile equipment assets and allow initiation of approximately 225 deferred maintenance projects which would improve the condition of Service assets as measured by the FCI. These funds would allow the Refuge System to fund projects to repair facilities and equipment within the year in which deficiencies occur and perform cyclical maintenance on schedule, ensuring that cyclic projects do not become deferred maintenance.

The Refuge System would use its ongoing condition assessment program to focus maintenance activities on highest priority needs. By completing an assessment of all facilities every 5 years, the Refuge System improves its ability to apply maintenance, repair, and where required, replacement funds with greater accuracy. Under this subactivity, the Refuge System would also continue use of the SAMMS database to reduce these costs through improved management.

The Refuge System would continue to use maintenance funding to support refuge operations. The facilities and equipment utilized on refuges contribute to wildlife and habitat management goals, and help maintain the vast majority of Refuge System acreage in desirable condition. Maintenance funding would also support Visitor Services by enabling visitors to access refuge lands and ensuring the safety of visitors using observation decks, trails, hunting blinds, fishing piers, and more. These facilities would help provide more than 45 million visitors with high quality, wildlife-dependent recreation opportunities.