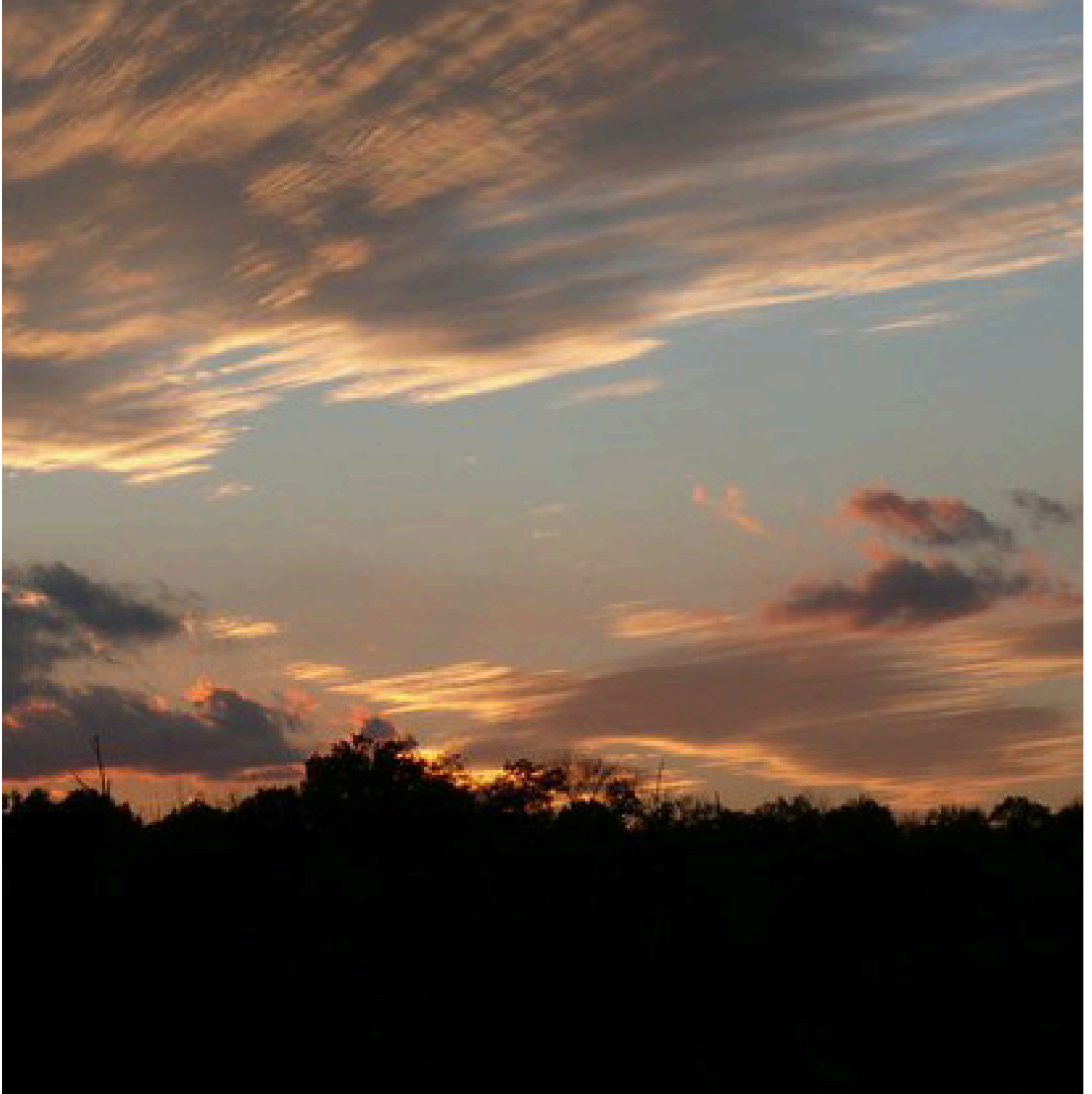


U.S. Fish & Wildlife Service

# National Wildlife Refuge System Land Protection Projects

*An Assessment of Land Protection Projects;  
A Plan for Strategic Growth*



*The U.S. Fish and Wildlife Service, along with our partners, is charting a course for the future of the National Wildlife Refuge System.*

*What follows is an assessment of our land protection projects and an overview of both challenges and options to consider as we plan for the continued growth of the Refuge System, ensuring it is directed in a manner that accomplishes our mission and contributes to the conservation of fish and wildlife and their habitats.*

**Opportunities, Challenges, and Options**  
The Refuge System is the largest and most diverse collection of lands and waters in the world dedicated to wildlife conservation. It continues to grow in size through a land acquisition program that secures the highest quality habitats, or those that could be restored to high quality habitats. The methods used by our predecessors to identify and protect land for the Refuge System resulted in the conservation of iconic and essential wildlife habitats across America. The road ahead, however, is not without challenges.

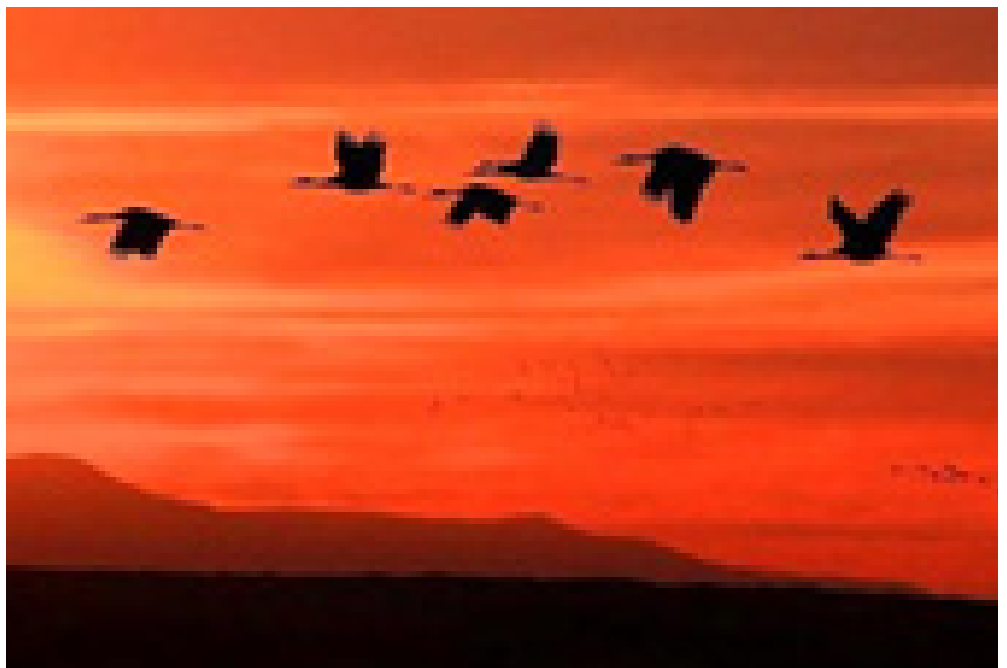
How we currently add lands to the Refuge System is unsustainable and may not reflect the highest priority acquisitions that contribute to landscape conservation. To date, we have identified

over five million acres of fee lands for refuge purchase at a projected cost of \$10 to \$25 billion, which would take several decades to complete. Add to this other land not yet identified, but that could potentially be added to the Refuge System, and we find ourselves in need of a revitalized strategic plan to guide us into the future.

This report shares a history of acquisition and how it may shape our future direction. It establishes a baseline from which our work in creating new policy flows. Given the costs and time factors to expand refuge lands, we must ensure that what we do add to the Refuge System is valuable and the right choice made on behalf of the American people.

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*Sandhill Cranes at Bosque del Apache NWR, NM; photo by Marvin de Jong/USFWS*

## Our Mission and a Vision for the Future

The mission of the National Wildlife Refuge System 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.

To accomplish this mission we have followed the vision set forth in Fulfilling the Promise, a groundbreaking effort put into motion as a result of the National Wildlife Refuge System Improvement Act of 1997. As mandated by the Act, plans were developed to strategically grow the Refuge System. Working with partners, we developed a more focused approach to identify and prioritize lands with the greatest value and that were most appropriate for addition to the Refuge System. Great strides were made toward creating a Refuge System that grows wisely in habitat quantity and quality and with due respect to fiscal responsibilities and the effects of growth.

But the world is changing and with it the conservation landscape. Human demands on the environment combined with environmental stressors have created new challenges that require science-driven conservation choices.

Beginning in 2010, at the direction of the late Sam Hamilton, the Service began a process to update our vision for the Refuge System. Our new vision will guide

the management of the Refuge System during the next decade and beyond; it is summarized in Conserving the Future: Wildlife Refuges and the Next Generation and is built upon Fulfilling the Promise. The new vision seeks to further our mission and realize the full potential of the Refuge System. It embraces a scientific, landscape-level approach to conserving, managing, and restoring refuge lands and waters, and works to facilitate conservation benefits beyond our boundaries.

## Our Responsibility

Conserving the Future offers a series of recommendations that address important issues including but not limited to, strategically growing the Refuge System. To implement these recommendations, teams consisting of Service employees were formed. The Strategic Growth Implementation Team (SGIT) was assigned three recommendations. This report addresses Recommendation 3, which is to:

*Undertake a rapid top-to-bottom assessment of the status of all Refuge System land protection projects and complete a report that will inform development of a plan for the strategic, future growth of the Refuge System.*

While the focus of this report is to address Recommendation 3, information contained herein will be used to implement the other recommendations for which the SGIT is responsible (#4: “Ensure land protection efforts are based

on explicit priorities, rigorous biological planning and conservation design that support achieving quantifiable conservation . . . .”; and #5: “Use all of the Service’s conservation tools . . . achieving mutually shared and scientifically sound restoration and protection goals around refuges”). Our responsibility now is to determine if and how we are to complete acquisitions within approved refuge boundaries, and if and how we expand existing refuge boundaries, with the assurance that what land we do acquire and protect is the most valuable.

## Our History

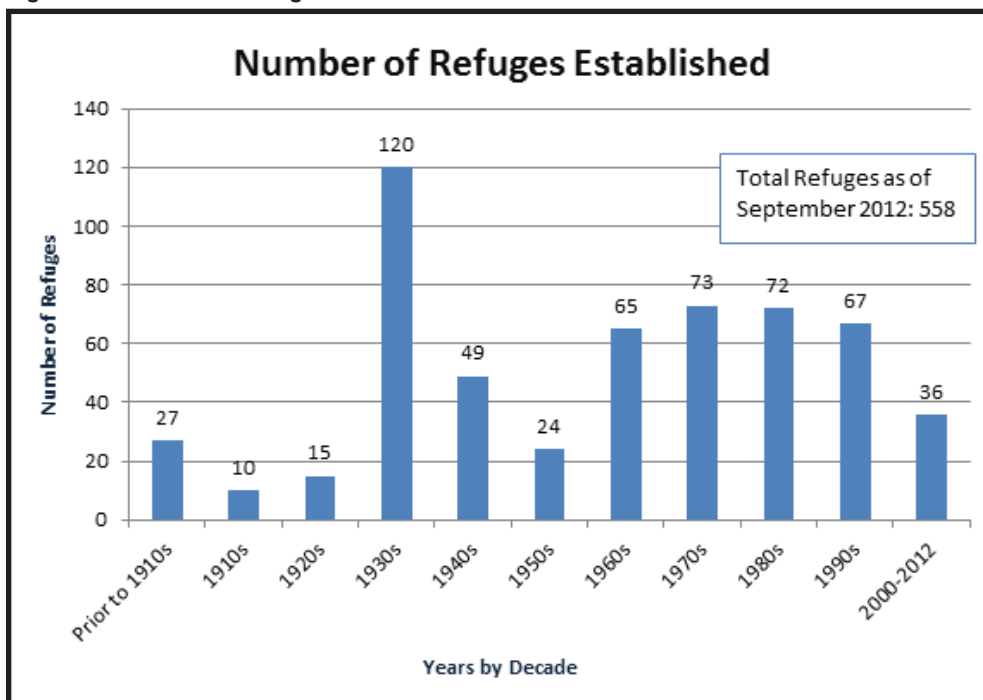
The Refuge System is a network of lands and waters established to conserve America’s fish, wildlife, and plants. The Refuge System is part of the U.S. Fish and Wildlife Service, the primary federal agency responsible for conserving, protecting, and enhancing the Nation’s fish and wildlife populations and their habitats.

The Refuge System had its beginning in 1903 when President Theodore Roosevelt used an Executive Order to set aside tiny Pelican Island in Florida as a refuge and breeding ground for birds. In its first 100 years the Refuge System grew from this one 5-acre parcel of land to a nationwide network that includes remote coral atolls, expansive wilderness, and wildlife oases near our largest cities. From that small beginning, the Refuge System has become the world’s largest collection of lands and waters specifically set aside for wildlife conservation, including more than 550 national wildlife refuges covering over 150 million acres, plus 38 wetland management districts (Figure 1).

As Figure 1 illustrates, establishing refuges over the years has been at times prolific or has waned, often depending on the circumstances of the times. On occasion and for assorted reasons, the Service has even divested land.<sup>1</sup> It is undeniable, however, that the Refuge System has grown. In the last five decades alone, just over \$2 billion has been expended to acquire 2,485,320 refuge acres. On average, nearly 500,000 acres have been purchased each decade since 1960.

The cost of land has risen nearly ten-fold from an average of \$162 per acre in the decade of the 1960s to \$1,515 per acre in the decade of the 2000s. See Tables 1, 2, and 3 for the acquisition status of Refuge System land, Waterfowl Production Areas, and easements.

Figure 1: Number of Refuges Established



**Table 1: Status of Refuge System Acquisition by Decade (Data from LRS and Annual Lands Report)**

Decade	Number of Units	Purchased Refuge Fee Acres	Cost for Refuge Fee	Est. Acres Acquired by Decade	Est. Cost per Acre by Decade	Total Refuge System Acres
1960	275	1,336,175	\$14,583,332	357,508	\$162	17,298,870
1970	332	1,693,683	\$72,571,699	349,375	\$445	30,261,683
1980	421	2,043,058	\$228,296,016	527,192	\$764	71,500,914
1990	492	2,570,250	\$631,201,277	823,960	\$985	91,155,588
2000	530	3,394,210	\$1,442,647,844	427,285	\$1,515	93,624,027
9/30/2010	552	3,821,495	\$2,090,167,635			148,709,309

**Table 2: Status of Waterfowl Production Area Acquisition by Decade (Data from LRS and Annual Lands Report)**

Decade	Number of WPA Counties	Purchased WPA Acres	Cost for WPA Fee	Est. Acres Acquired by Decade	Est. Cost per Acre by Decade
1960	2	1,015	\$102,033	242,959	\$70
1970	110	243,974	\$17,056,010	222,666	\$217
1980	141	466,640	\$65,284,031	107,630	\$403
1990	161	574,270	\$108,707,705	90,491	\$734
2000	201	664,761	\$175,086,361	34,221	\$2047
9/30/2010	206	698,982	\$245,139,001		

**Table 3: Status of Easement Acquisition by Decade (Data from LRS and Annual Lands Report)**

Decade	Acres of Purchased Easements	Cost for Easements	Est. Acres Acquired by Decade	Est. Cost per Acre by Decade
1960	0	-	773,554	\$14
1970	773,554	\$10,531,011	360,334	\$59
1980	1,133,888	\$31,698,948	125,803	\$159
1990	1,259,691	\$51,759,776	699,970	\$95
2000	1,959,661	\$118,517,788	520,176	\$253
9/30/2010	2,479,837	\$249,928,167		

*Our smallest national wildlife refuge is Mille Lacs NWR, which consists of two small islands (0.57 acres) in Lake Mille Lacs in central Minnesota and was added to the Refuge System in 1915. Our largest unit, Arctic NWR, was first established as an 8.9 million-acre wildlife range in 1960. In 1980, Arctic NWR was renamed and expanded to over 19 million acres.*

# A Legacy of Conservation

“Trust species” and “trust resources” describe wildlife and habitat for which the Service has statutory responsibilities to conserve, particularly regarding land protection. Trust species typically refers to federally-listed threatened or endangered species, migratory birds, and certain marine mammals and fish; trust resources include wetlands. The Refuge System has conserved two major groups of traditional trust species: migratory birds and threatened and endangered species in addition to wetlands.<sup>2</sup>

## Migratory Birds

Migratory birds have been a focus of Refuge System land conservation since Pelican Island NWR was established in 1903. Migratory bird populations benefit from refuge lands, especially protection of breeding, migration, and wintering habitat. The following activities and measures suggest a strong emphasis on bird conservation by refuges.

One indicator that migratory birds are an important component of the Refuge System land protection strategy is the number of refuges whose establishing purpose(s) refer to bird conservation. Refuge purposes are key to decisionmaking, not only for habitat management actions and land acquisition, but for important legal concepts such as compatibility. As of August 31, 2012, 77 percent of all refuges include the phrase “migratory bird” and/or the word “bird” in their purpose statements.<sup>3</sup>

The importance is also evident by the number of refuge projects that protect habitat for birds as a regional or national priority. Migratory bird conservation is measured on refuges using the Refuge System’s Land Acquisition Priority System (LAPS), which scores four components tied to trust resources including bird conservation. Projects that can document support for a major percentage (>5%) of the overall North American population of any single species are awarded additional points. Table 4 shows the score for the 97 refuge projects ranked in the 2014 LAPS analysis for birds listed as regional or national priorities. Of these 97 refuge projects, 52 are credited with protecting more than five percent of the North American population of one or more species.

**Table 4: LAPS Migratory Bird Score**

LAPS Migratory Bird Component Score	# of Refuge Projects
0–50	10
51–100	40
101–150	16
151–200	31

## Threatened and Endangered Species

Citing several examples individually do not necessarily and with complete specificity define the important role land protection has within the Refuge System in conserving threatened and endangered species. However, viewed as a whole, the following items suggest a strong link between refuge acquisition and threatened and endangered species conservation.

- Nearly one-fifth of all refuges (98) list the Endangered Species Act as one of their land acquisition authorities. The most recent data available (2005) finds that 61 refuges were established specifically for endangered species; however, some refuges could have used the Endangered Species Act as an acquisition authority after being established for other purposes and under different authorities.
- A refuge’s contribution to supporting plant and animal species listed as endangered, threatened, or candidates is measured using the endangered species component of LAPS. Of the 97 projects included on the 2014 LAPS list, 11 received the maximum Endangered Species Component Score of 200 points. Of these, seven were critical to a single species and four received the maximum score due to large number of species supported (Table 5).

**Table 5: Endangered Species Score**

LAPS Endangered Species Component Score	# of Refuge Projects
0–50	31
51–100	29
101–150	11
151–200	26

**Table 6: Wetland Classification**

Wetland Classification	Acres
No active management needed (Class 1A)	20,657,588
Receiving needed management (Class 1B)	1,147,646
Management deferred (Class 2)	1,493,186
Restoration deferred (Class 3)	705,824
<b>Total wetlands</b>	<b>24,004,244</b>

• The Refuge Annual Performance Plan (RAPP) shows that in 2011, 211 refuges reported implementing a total of 1,822 conservation activities for threatened or endangered species as recommended in recovery plans. While management actions, as opposed to land protection, make up the majority of these activities, these data illustrate the importance of the Refuge System land base to listed species.

• The Service’s Environmental Conservation Online System (ECOS) is another source of information related to Refuge System contributions to threatened and endangered species conservation. One component of ECOS lists recovery plan actions and responsible parties. The Refuge System or individual refuges were listed as being solely or partially responsible for accomplishing 628 actions in recovery plans. Where land protection was listed as a conservation strategy in a recovery plan, refuges were listed 56 times as one of the responsible parties.

## Wetlands

In addition to managing the Refuge System, the Service has several responsibilities including the restoration of wildlife habitat such as wetlands. Wetlands are important to the ecosystem, because they provide functional habitats for a wide variety of wildlife and plants, and they provide many ecosystem services for humans. In 2011, refuges reported 24,004,244 acres of wetlands within the Refuge System. The condition of these wetland acres were classified as shown in Table 6.

The Refuge System, including refuges, waterfowl production areas and coordination areas—but excluding the minor outlying islands, American Samoa, and Hawaii—contains approximately 94.5 million acres. Wetlands comprise 25 percent of that total area, and of that, 86 percent of wetlands are considered to be in Class 1A condition where no management is needed.

# Conserving Ecosystems

Some members of the conservation community support a broader description of the Refuge System's conservation mandate, arguing that the Improvement Act provides statutory direction beyond species and wetlands to include conservation of biodiversity and ecosystem functions. The following examples illustrate the Service's responsibilities—and opportunities—for conserving ecosystems.

## Alaska is Different

In 1909 President Theodore Roosevelt by Executive Order created six Federal Bird Reservations (FBRs) in the Territory of Alaska, forming the foundation of what would later become the Refuge System. Today, after years of adjustments, additions by legislation, and Executive Orders, Refuge System land in Alaska totals 76.8 million acres, including 18.7 million acres of Service-controlled wilderness.<sup>10</sup>

Within this vast expanse of refuge land are an assortment of landscapes with varying degrees of development and usage. In many ways the Alaska refuges are different from those in other states and territories. The remoteness of the lands, harsh climate, difficult topography, low human population density, and the lack of roads and other transportation infrastructure are just some of the circumstances that buffer the natural resources from development and over-exploitation. Legislative provisions, too, affect strategic growth. The Alaska Native Claims Settlement Act of 1971 (ANCSA) addresses the land rights of indigenous people, putting in place a federal conservation estate of national forests, parks, and wildlife refuges;

wild and scenic rivers, and designated wilderness areas. The Alaska National Interest Conservation Lands Act (ANICLA) “. . . provides sufficient protection for the national interest in the scenic, natural, cultural, and environmental values on the public lands in Alaska.

## Marine Environments—A New Wave

Though the intentions and legal authorities for most refuge acquisitions have focused generally on migratory birds, and more recently endangered species and wetland habitats, marine resources have been important components of the Refuge System from the beginning. Of the 51 FBRs established by President Theodore Roosevelt, 27 were principally coastal marshes and beaches or marine islands, including many of their deepwater surroundings. Seabird conservation, and the open ocean habitats they depend upon, played an important influence for their establishment. For the most part these environments protect the important interface that ecologically links marine and upland habitats and species. Many refuges' jurisdictional boundaries stop at the water's tideline, but others extend miles into the sea as recognition of this critical ecological link. More recently, some new refuges include only marine habitats, with no upland component. Throughout the Refuge System there is an enormous variation in boundaries and jurisdiction with regard to water bottoms according to state, territorial, and federal law.

To strengthen and expand the conservation of marine environments, President Bill Clinton issued an Executive Order to establish a

comprehensive national system of Marine Protected Areas (MPAs) to coordinate marine areas managed under disparate jurisdictions. Six federal departments and a number of agencies within them were charged to undertake science-based evaluations and protective actions for marine environments. A marked period of growth in the Refuge System's marine resource conservation occurred in the Central Pacific region with the establishment of various national wildlife refuges and other protections around remote Pacific refuges conserving 125 million acres (more than 147,000 square nautical miles) and delegating overall management responsibility of these vast areas to the Department of the Interior. They offer a relatively unspoiled predator-dominated atoll ecosystem that is home to tens of millions of seabirds and shorebirds, endangered sea turtles, a wide variety of marine mammals, untold invertebrate communities, giant clams, and healthy reefs. Additional presidential proclamations have extended or established refuge boundaries, many of which protect and conserve remote areas that offer a window into coral reef ecosystems and the effects of global climate change and ocean acidification on marine systems in the absence of human-induced stressors such as overfishing or land-based sources of pollution.

Altogether, these recent designations expanded the Refuge System by more than 52.8 million acres—or roughly one-third of the entire Refuge System. The designations also added significant responsibilities and opportunities to the Service for cooperatively managing more than 125 million acres and conserving the Nation's marine wildlife and habitats.



*Mt. Peulik and Island Arm, Becharof Lake; photo by USFWS*



*Red fish –  
Papahānaumokuākea  
Marine National  
Monument; photo by  
James Watt*

# Status of Refuge System Acquisition

Of the more than 550 units of the Refuge System, 350 have unprotected lands within their approved acquisition boundaries. Of these, 225 are considered to have an active land acquisition program, which is defined as a refuge that has had at least one land purchase since 1997. These 225 refuges have a total of 21.7 million acres of inholdings. There are 16 Alaskan refuges with inholdings totaling 12.9 million acres, leaving 8.8 million unprotected acres within existing refuge boundaries in the lower 48 states and Hawaii. This can be further broken down by those refuges that are only approved for easement acquisition. Unprotected land within the easement-only refuges totals 3.7 million acres, all outside of Alaska (Table 7).

Table 7 also shows the amount of unprotected acres within existing refuge boundaries under various completion scenarios, ranging from 100 percent completion to 60 percent completion for those refuges with an active acquisition program, excluding Alaskan refuges. Even at the relatively modest completion rate of 60 percent, there are over 4 million acres remaining to be protected on 95 refuges with active land acquisition programs.

In light of long-standing Service policy, completing any land acquisition project is dependent on the willingness of landowners to negotiate the sale of their properties or interests therein.

*“The practice of conservation must spring from a conviction of what is ethically and aesthetically right, as well as what is economically expedient.” — Aldo Leopold*

**Table 7: Unprotected Land within Existing Refuges Boundaries**

% Complete	Total Acres Remaining – Refuges with Active Acquisition Programs*	Fee Acres Remaining	Easement Acres Remaining	Number of Refuges Remaining with Active Acquisition Programs*
100% with Alaska	21,713,939	17,969,567	3,752,635	225
100% without Alaska	8,821,865	5,077,493	3,752,635	209
90% without Alaska	7,283,193	3,927,011	3,356,628	168
80% without Alaska	6,049,653	3,083,286	2,967,573	145
70% without Alaska	4,958,525	2,384,307	2,574,218	115
60% without Alaska	4,031,619	1,853,174	2,181,568	95

\*Refuges with Active Acquisition Programs are those that have executed a fee or easement purchase since 1997.



*Sequoiah National Wildlife Refuge/USFWS*

# Our Capacity

For the purposes of this report, we focus on the financial resources and time that would be required to achieve various levels of completion for refuges in the lower 48 states and Hawaii. This is based on the assumption that Alaskan refuges, due to their size, are relatively functional as they exist today. This is not to suggest that land acquisition in Alaska should not be considered when crafting a vision for strategic growth of the Refuge System, but even without Alaska in the equation, the numbers are daunting.

Table 8 displays two sets of data, one that encompasses refuges with the flexibility to use all land protection methods including fee title acquisition and one for easement-only refuges. For the categories listed as “fee title” it is possible that other means of land protection such as easements could be employed, but there are no easement-only restrictions as there are on those refuges included in the lower half of the table (“Easements Only”).

As noted in Table 8, depending upon level of refuge completion (60–100 percent), it would take from 37 to 101 years to complete acquisition of existing fee lands identified for refuge purchase if the Service can average 50,000 fee acres purchased per year. It would take from 44 to 75 years to achieve the same levels of completion for easement only refuges based on the same 50,000 acres protected per year.

We also looked at costs based on a range of \$2,000 to \$5,000 per acre for fee acquisitions and \$300 to \$750 per acre for

easement acquisitions. Depending on cost and completion percentage, the Service would require between \$3.7 billion and \$25.4 billion to complete acquisition of currently identified refuge fee lands and between \$655 million and \$2.8 billion to complete acquisition of currently identified refuge easement lands.

The following two examples help demonstrate the challenge of completing current land protection projects:

**Example 1 – Traditional Refuge: Edwin B. Forsythe National Wildlife Refuge in southern New Jersey**

This refuge was established in 1939 to protect and manage coastal habitats for wintering waterfowl. This area has long been a stronghold for wintering black ducks. The boundary was expanded several times, most recently in 1994, and currently contains over 72,000 acres, of which almost 48,000 acres, or 66 percent of the total, are protected. Over 40,000 of these acres are protected in fee title, at a cost of nearly \$50 million from both the Land and Water Conservation Fund (LWCF) and the Migratory Bird and Conservation Fund (MBCF). Since 2001, approximately 2,000 acres were purchased at an average cost of \$4,500 per acre. To achieve 80 percent completion, the refuge would need to protect an additional 10,000 acres. At the rate of 200 acres per year, which has been the rate over the past 10 years, it would take 50 years to reach 80 percent completion, and using the most recent 10-year average cost per acre, it would require \$45 million.

**Example 2 – Landscape-Level Conservation: Dakota Grassland Conservation Area**

In recent years, the Service placed an emphasis on landscape-level conservation. Established in 2011, the Dakota Grassland Conservation Area acquisition boundary contains 29,600,000 acres in North and South Dakota, with Director’s approval to protect up to 1,940,000 acres in easement only. Since establishment, the Service has purchased 2,263 acres at a cost of nearly \$1.3 million, or approximately \$570 per acre of easement. To reach an 80 percent completion level, the Service would need to protect an additional 1,550,000 acres. At the rate of 25,000 acres per year, and at a 2011 cost of \$573 per acre, it would take 62 years and over \$888 million to reach an 80 percent completion level at the Dakota Grassland project.

The primary sources of funding for refuge land acquisition nationwide are the LWCF and the MBCF. These sources are often supplemented by grants, Natural Resource Damage Assessment funds and other mitigation funds. Mitigation funds can be substantial and could far exceed traditional sources in certain circumstances such as funding contemplated to mitigate for the Deepwater Horizon oil spill.

LWCF appropriations for refuge land protection, not including acquisition management, averaged \$52 million annually from 2002 to 2011. Receipts from Duck Stamp sales and other revenue total approximately \$50 million annually.

**Table 8: Time and Funds Required under Various Completion Scenarios for the Refuge System**

All Land Protection Methods including Fee Title					
Level of Completion (%)	Acres	Cost - \$2000/acre	Cost - \$3000/acre	Cost - \$5000/acre	Years to complete @ 50,000 acres/year
100	5,077,493	\$10,154,986,000	\$15,232,479,000	\$25,387,465,000	101.5
90	3,927,011	\$7,854,022,000	\$11,781,033,000	\$19,635,055,000	78.5
80	3,083,286	\$6,166,572,000	\$9,249,858,000	\$15,416,430,000	61.7
70	2,384,307	\$4,768,614,000	\$7,152,921,000	\$11,921,535,000	47.7
60	1,853,174	\$3,706,348,000	\$5,559,522,000	\$9,265,870,000	37.1
Easement Only					
Level of Completion (%)	Acres	Cost - \$300/acre	Cost - \$500/acre	Cost - \$750/acre	Years to complete @ 50,000 acres/year
100	3,752,635	\$1,125,790,500	\$1,876,317,500	\$2,814,476,250	75.1
90	3,356,628	\$1,006,988,400	\$1,678,314,000	\$2,517,471,000	67.1
80	2,967,573	\$890,271,900	\$1,483,786,500	\$2,225,679,750	59.4
70	2,474,219	\$742,265,700	\$1,237,109,500	\$1,855,664,250	49.5
60	2,181,568	\$654,470,400	\$1,090,784,000	\$1,636,176,000	43.6

*On average, nearly 500,000 fee acres have been purchased each decade since 1960. The best decade for purchasing refuges was the decade of the 1990s when 823,960 fee acres were added to the Refuge System.*



# Conclusion

We have many reasons to be proud of our National Wildlife Refuge System, the largest and most diverse collection of lands and waters in the world dedicated to wildlife conservation. The methods used by our predecessors to identify and protect land for the Refuge System resulted in the conservation of iconic and essential wildlife habitats across the Nation. The value of the Refuge System to migratory birds, threatened and endangered species, the conservation of wetlands, and Alaskan and marine ecosystems is undeniable. It is equally obvious that our current trajectory for adding lands to the Refuge System is unsustainable and may not reflect the highest priority acquisitions that contribute to landscape conservation.

We should recognize that the projections in this report rely on traditional funding sources, primarily the LWCF and MBCF. Other significant sources of funding are available in certain parts of the country, such as mitigation funds on the Gulf Coast and elsewhere, and must be factored into the decisionmaking process. New sources of funding may become available in the future, and LWCF could reach its full potential—both of which could reduce the existing backlog of refuge acquisitions. However, our optimism about the future should be tempered by the challenges of the present.

One issue that should be front and center of this discussion involves the vision of the Refuge System as a contributor to landscape conservation. There are at least two possible directions the Refuge System might take: 1) refuges as anchor points and portals to conservation actions that could be accomplished in collaboration with communities and partners; or 2) attempting to conserve major components of a landscape within the Refuge System.

An example of the first option might be a refuge like Rappahannock River Valley in Virginia, with a modest acquisition authority of 20,000 acres within a boundary of 270,000 acres. The refuge footprint is relatively small when compared to the landscape, but by being a presence in the landscape, we have a positive influence on conservation in that part of Virginia and the Chesapeake Bay region. In addition to protecting and managing valuable habitat for target species, we hold workshops for landowners about invasive species control, we conduct environmental education on and off refuge, we provide wildlife-oriented recreational opportunities, and we have a voice on local land use decisions. Our impact goes well beyond the acres we protect and manage, and our land protection goal is achievable.

Alternatively, the Dakota Grasslands Conservation Area mentioned previously seeks to protect nearly 2 million acres within a landscape boundary of nearly 30 million acres. The land protection goal, expressed as a percentage of the entire boundary (7 percent) is about the same for both projects, yet the scale is significantly different. The conservation benefits that can be achieved beyond the boundary are also present in both circumstances. Ultimately, if we successfully protected 2 million acres, the habitat conservation benefits would be tremendous. The main differences, therefore, are the time and funding needed to complete the projects and the ultimate size of the area incorporated into the Refuge System.

These options are not exclusive to one another since currently both are in play. Looking forward, we should employ methods that result in achievable land protection goals that are directed at priority conservation targets, with positive impacts within and outside refuge boundaries.



Sandhill cranes over Bosque National Wildlife Refuge/J.N. Stuart, Creative Commons©

# Notes

<sup>1</sup> Although not commonly known, the Refuge System has a history of refuge modifications and divestiture. Much of this history is documented in a report issued in December 1975 by Philip A. DuMont and Henry W. Thomas entitled: *Modification of National Wildlife Refuges*. Their report acknowledges that up through 1975, the “revocation or termination of national wildlife refuges has been a continuing process.” The authors also remind us that refuges have come into the Refuge System in many forms including leases, easements, and as secondary uses of lands and waters administered primarily by other agencies. More specifically, they documented the removal of 32 refuges from the Refuge System through 1952, and an additional 18 by 1955. The reasons for removal include the following: 1) It was determined that the lands were not owned by the United States; 2) upland game areas were discontinued, because waterfowl operations funds could not be spent on them; 3) Department of Defense requirement necessitated turning over land for their use; 4) small and isolated units could be better managed by the state; 5) easement refuges were either acquired as fee waterfowl production areas or others had lost their value to wildlife; and 6) refuges were transferred to other federal agencies. The primary tool used to establish national wildlife refuges up through 1942 was use of the Presidential Executive Order whereby most refuges were withdrawn from public domain. In 1942, authority to establish refuges was delegated to the Secretary of the Interior through Public Land Orders. Between 1942 and January 1, 1975, the primary tool used to modify, revoke, and/or divest a national wildlife refuge was the Public Land Order. In limited cases before and after January 1, 1975, Acts of Congress have also been used to change the status of refuges. Under the authority of Public Law 94-223; 90 Stat. 199, commonly referred to as the Game Range Act, the use of Public Land Orders for refuge divestiture ceased. The Act required that all areas in the Refuge System on or after January 1, 1975, “shall be administered by the Secretary through the United States Fish and Wildlife Service” and cannot be transferred or disposed of unless otherwise directed by Acts of Congress.

Exceptions are provided for areas managed under cooperative agreements and transferred or disposed of through exchange.

<sup>2</sup>Legislative authorities relating to refuge land acquisition include the Migratory Bird Conservation Act, the Migratory Bird Hunting and Conservation Stamp Act, and the Endangered Species Act. Other legislative authorities are broader, such as the Fish and Wildlife Act, the Refuge Recreation Act, and the Emergency Wetlands Resources Act. The latter Act extends the concept of “trust resources” beyond species to include wetlands.

<sup>3</sup>A total of 394 refuge purposes contain the phrase “migratory bird,” and an additional 36 units contain the word “bird” in their purpose statements. These 430 refuges comprise 77% of the total number of refuges in the Refuge System (556) as of August 31, 2012. The 2011 Annual Report by the Migratory Bird Conservation Commission lists 370 migratory bird refuges and 206 waterfowl production areas.

<sup>4</sup> The bird conservation component of LAPS incorporates waterfowl and migratory bird species lists for the BCRs from the North American Bird Conservation Initiative, a coalition of government agencies and private organizations. BCRs are ecologically distinct regions in North America with similar bird communities, habitat, and resource management issues that provide a consistent spatial framework for bird conservation across the landscape. The LAPS bird conservation component scores a project’s contribution toward bird conservation by weighting the importance of the project to populations, species, and diversity at the BCR level and national level. The component measures a refuge’s contribution to supporting priority bird species in its local BCR, and its contribution to supporting national avian diversity, though an avian population importance index and an avian diversity index. It uses species lists developed with assistance from the Service’s Migratory Bird Program.

<sup>5</sup>These figures do not account for refuges that were established before 1973 when the Endangered Species Act was made into law.

<sup>6</sup>The component uses population trend and recovery priority information provided by the Service’s Endangered Species Program, for each species supported by the project, to calculate a score. Scoring criteria include such measures as listing status, recovery priority, and nature of use by the species (resident, seasonal, etc.). In cases where a refuge has been documented as critical to de-listing or preventing the extinction of a species, it is awarded the maximum 200 component points for such a significant contribution.

<sup>7</sup>All lands owned or managed by the Service, including wetlands, are categorized in two ways—first by habitat type, then by habitat condition. Wetlands include all freshwater, estuarine, and saltwater wetlands but not large (i.e., greater than 100 acres) bodies of open water.

<sup>8</sup>U.S. Fish and Wildlife Service. 2010. *Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service*.

<sup>9</sup>Fischman, Robert L. and Robert Adamcik, “Beyond Trust Species: The Conservation Potential of the National Wildlife Refuge System in the Wake of Climate Change” (2011). Faculty Publications. Paper 172.

<sup>10</sup>Wilderness Act of 1964 (16 U.S.C. §§ 1131–1136, 78 Stat. 890)—Public Law 88-577. Nearing the end of his term as president, on February 27, 1909, Theodore Roosevelt established by executive orders five Federal Bird Reservations (FBRs) in the Territory of Alaska. A sixth was added a few days later. Together with most of the other 45 FBRs and three of four National Game Ranges that he established in the other states and territories, they formed the foundation of what would become the Refuge System and further solidified Mr. Roosevelt’s position as our greatest conservation president. By 1980 following 70 years of adjustments, renaming, additions by legislation, and executive

orders there were seven nation wildlife refuges in Alaska encompassing 23.7 million acres. These refuges occurred in a remarkable landscape: unique with regard size, wildness, pristine character, healthy populations of herd animals and large predators-as near as we come to complete, naturally functioning ecosystems. In 1980 the Alaska National Interest Conservation Lands Act (ANICLA) was passed and signed into law by President Jimmy Carter. This was the culmination of efforts to apportion lands following Alaska statehood, allowing growth and economic development for the State and her citizens, implementing and reinforcing provisions of the Alaska Native Claims Settlement Act of 1971 (ANCSA) that addressed the land rights of indigenous people, and putting in place a completed federal conservation estate of national forests, parks, and wildlife refuges, wild and scenic rivers, and designated wilderness areas. With the enactment and signing of this legislation December 2, 1980 the 68 year-old Refuge System was immediately tripled in size. Nine new NWRs were created, and six of the existing seven were increased in size. Altogether about 53.7 million acres were added, and the 16 Alaska NWRs, about 3% by number of units in the Refuge System, contained 81% of all its lands.

<sup>11</sup>The Department of the Interior and the Department of Commerce were assigned the principal roles in coordinating and managing the establishment of this national system. A new "Marine Protected Areas (MPAs) Center" was established at Commerce's National Oceanic and Atmospheric Administration to serve as the coordinating home of the MPA system. The MPA Center compiled a current inventory of 1,680 federal, state, and territorial marine managed areas (MMAs) of various management regimes in the United States. These MMAs vary widely in degree of protection and use restrictions. The MMAs were gauged against defined criteria to filter out those MMAs that did not meet Executive Order 13158 definition of MPA. The remaining 355 federal, state, territorial and local sites (including 107 of the 180 Refuges with marine resources) now comprise the completely voluntary national system of MPAs ([www.mpa.gov](http://www.mpa.gov)). National MPA system partners work together to enhance protection of United States marine resources by providing new opportunities for regional and national cooperation.



*Libby Lighthouse at Maine Coastal Island National Wildlife Refuge/USFWS*

*The mission of the U.S. Fish & Wildlife Service is working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.*

*The mission of the National Wildlife Refuge System 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*



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