U.S. Fish & Wildlife Service

Fulfilling the Promise

The National Wildlife Refuge System

The *U.S. Fish and Wildlife Service* is the principal federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service manages the 93-million-acre National Wildlife Refuge System comprised of more than 500 national wildlife refuges and thousands of waterfowl production areas. It also operates 65 national fish hatcheries and 78 ecological services field stations. The agency enforces federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, administers the Endangered Species Act, and helps foreign governments with their conservation efforts. It also oversees the Federal Aid program which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state wildlife agencies.

Fulfilling the Promise

The National Wildlife Refuge System

Visions for Wildlife, Habitat, People, and Leadership

The National Wildlife Refuge System
U.S. Fish and Wildlife Service
Department of the Interior

March 22, 1999

Cover photo by Don Hultman. Tundra swans at Benton Lake National Wildlife Refuge, Montana

The Mission

"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."

National Wildlife Refuge System Improvement Act of 1997

Table of Contents

Leadership

Preface

For nearly a century, the National Wildlife Refuge System has been the hidden jewel among our nation's public lands. Quietly, with little fanfare and often scant support, it has grown to a System with over 93 million acres dedicated to the unique ideal that the wild creatures of this land deserve their own special places.

This report on the System is an amazing story of dedication, self-reflection, and strategic vision. When I attended the first-ever National Wildlife Refuge System Conference in October 1998, I sensed among the hundreds of Fish and Wildlife Service employees and conservation partners that something special was unfolding. In many ways, the conference and its focus on *Fulfilling the Promise* heralded a new beginning for the Refuge System.

As Secretary, it is a privilege to support, and when needed defend, the hundreds of refuges with names of mystery and magic such as Arctic, Izembek, and Okefenokee. We can also take comfort in knowing the Refuge System is more secure than ever thanks to the landmark Refuge Improvement Act of 1997. This law provides a firm foundation for a system of lands about to enter the challenges and opportunities of a new millennium.

I look forward to seeing the recommendations in this report become reality. I urge everyone, from the unsung heroes in the field to the conservation leaders in Congress, to hold fast to the dream of a Refuge System shining bright for wildlife, habitat, and people. Together, we can all help fulfill the promise of these unique national treasures.

The Honorable Bruce Babbitt
Secretary of the Interior

Foreword

The American character has been molded by its connections with the land, and its spirit fortified by a close connection to the wild creatures of prairie, forest, coast, marsh, and river. Our nation's growth across the continent was in part fueled by trade in fur, fish, and shell. Great inland waters became thoroughfares for exploration and commerce. The American spirit of independence and self-sufficiency became legendary. Resources seemed unlimited as the forests were cleared, the prairies tilled, and rivers tamed. For landless servants and immigrants searching for a new life, the prospect of free land became a beacon of hope. Public land policies of the 19th century spurred this expansion, and sped the settlement of the continent.

Caught in this slipstream of growth was the untempered exploitation of wildlife and its habitat. The thunder from herds of bison was virtually silenced, and the clouds of passenger pigeons disappeared. These losses did not go unnoticed. The early conservation movement was led by people who were angered by the devastation caused by market hunters, and appalled by the slaughter of birds for the vanity of fashion. They intuitively knew the values to the nation of saving its fish and wildlife, and together stepped forward to form organizations of influence including the Boone and Crockett Club, National Audubon Society, Izaak Walton League, Wilderness Society, and Sierra Club. Speaking for nature, they sounded an alarm.

They caught the ears of presidents and other politicians who crafted the principles of modern wildlife conservation: stop market hunting for wildlife; wildlife that cross state and international boundaries are national resources whose management is a federal responsibility; and healthy habitat is the key to healthy fish and wildlife populations. They also recognized the democratic ideal that all citizens should have equal access to the use and enjoyment of fish and wildlife.

It Began with a Promise

It was in the shadow of these ideals that the National Wildlife Refuge System was born. It was born with a promise made by a President named Roosevelt; carried out by a sometime boat builder, cook, and orange grower named Kroegel; and quietly proclaimed on behalf of a nation with an emerging consciousness about the value of things wild and free. It was a promise to preserve wildlife and habitat for its own sake and the benefit of the American people.

The promise began on a small and unassuming island full of pelicans, ibises, herons, and roseate spoonbills in Florida's Indian River, which became the first national wildlife refuge, and the beginning of an idea unique in the world. It was an idea that a network of lands should be set aside for wildlife. From this humble start at Pelican Island would emerge the National Wildlife Refuge System.

Special Places

Nearly a century after Theodore Roosevelt's 1903 Executive Order established Pelican Island Refuge, the System has grown to more than 93 million acres in size. It now includes more than 500 refuges and more than 3,000 waterfowl production areas spread across 50 states and several U.S. territories, a network so vast and sprawling that the sun is almost always shining on some part of it. It is a system providing a lifeline for millions of migratory birds; open spaces for elk, pronghorn and caribou; and wild niches for the rare and endangered. And it is a System which conserves a stunning array of the nation's ecosystems: tundra, deserts, forests, great rivers, vast marshes, small prairie

Wyman Meinzer

John & Karen Hollingsworth

potholes, swamps, mountains, prairies, estuaries, coral reefs, and remote islands are all represented under its canopy of protection.

Refuges are places where the music of life has been rehearsed to perfection, where nature's colors are most vibrant, where time is measured in seasons, and where the dance of the crane takes center stage. They are gifts to ourselves and to generations unborn—simple gifts unwrapped each time a birder lifts binoculars, a child overturns a rock, a hunter sets the decoys, or an angler casts the waters.

Each refuge or waterfowl production area is, above all else, land. They are living, breathing places where the ancient rhythms still beat. To many, they provide a sense of place, a timeless connection to instincts barely discernible, and a tie to a natural world which nourishes the spirit of individuals, and a nation. Refuges, as much as the monuments in Washington, D.C., the boyhood homes of presidents, the sequoias in California, the vast forests of the western mountains, or the expansive swamps of the Everglades, are national treasures in the truest sense. Yet, they are also a tool which has been used effectively to rescue and recover species from extinction, has safeguarded breeding and resting areas for millions of birds, and has staved-off the loss of unique and irreplaceable ecosystems squeezed by a growing country.

White House Photo

A Firm Foundation

The National Wildlife Refuge System occupies a unique niche among federal land management agencies. Rather than having purposes based on scenic or historic values, or on the concepts of multiple use in both recreational and economic terms, refuges focus on wildlife, and most often, those species held in trust for all Americans. Trust species have been defined in laws and treaties passed or ratified by Congress: migratory birds; threatened and endangered species; certain fisheries; and marine mammals. These trust species have played, and will continue to play, a defining role in managing and growing the System.

The System functioned without a true organic act for nearly all of its developmental years. There was no law giving the System a unifying mission, and refuges were a patchwork of Executive Orders and individual refuge or general conservation laws, held together by the vision and fortitude of early leaders. The Refuge Recreation Act of 1962 and the Refuge Administration Act of 1966 helped bring refuges together, but both laws were more concerned with how refuges would be used rather than how they should function as a system.

This all changed, in 1997, with President Clinton's signing of the National Wildlife Refuge System Improvement Act. Building upon a 1996 Executive Order, the Act provided a mission for the System, and clear standards for its management, use, planning, and growth. The Act also calls for continued but expanded involvement from the public, states, Tribes, and others who have a stake in how the System is

administered. Forcefully and faithfully implementing this law will provide a solid foundation as the System approaches its next century of service to wildlife, habitat, and people.

Finally, the System's foundation rests on the seemingly new, but time-proven philosophy of an ecosystem approach to land management and to the stewardship of its fish, wildlife, and plants. In simple terms, this philosophy looks at the health and biological integrity of the land (ecology), takes a view beyond boundaries (landscapes), works shoulder-to-shoulder with the brothers and sisters of the entire Service family (cross-program), views people and society as part of the landscape and the mission (communities and economies), and leverages ideas and resources by working with and through others (partnerships). This approach to overall resource management, and refuge management, is not only the Service's plan, it is perhaps the only plan that offers hope in conserving special places and wild creatures in the face of ever-increasing pressure.

Fulfilling the Promise

The System story is distinctly American. A story of passion and vision, of courage in the face of adversity, of women and men with a noble mission etched across their hearts, of politics and evolving policy, of things done right and some things not so right, and a story of a heritage and culture unique in public service. It is a story as simple and compelling as one man and one boat protecting birds on Pelican Island, and a story as complex and challenging as seeking to understand the intricacies of ecosystems on millions of acres of land.

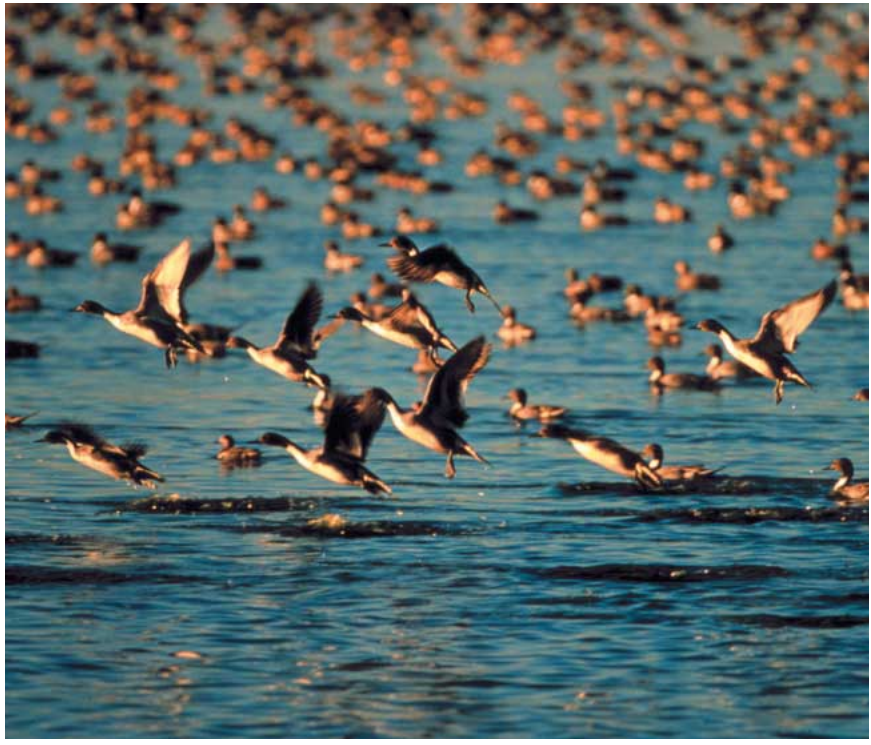
This report is based on the very essence of what the System is all about: leadership in serving wildlife, habitat, and people. These pages look to the future as the System nears its 100th Anniversary. Visions and recommendations outlined will serve as guideposts in the journey to fulfill the promise of America's National Wildlife Refuge System. The ideas and philosophies expressed will fuel reflection, new ideas, and debate, and form the basis of a continuing national dialogue on the future direction of the System. Let the story unfold, the journey begin.

Jamie Rappaport Clark
Director
U.S. Fish and Wildlife Service

Executive Summary

This report on the National Wildlife Refuge System is the culmination of a year-long process involving teams of Service employees who examined the System within the framework of Wildlife and Habitat, People, and Leadership. The report was the focus of the first-ever System Conference held in Keystone, Colorado in October 1998 attended by every refuge manager in the country, other Service employees, and scores of conservation organizations.

The report is a reflection on where the System has been, a review of the present, and a vision for the future. The heart of the report is the collection of vision statements and 42 recommendations which are presented below in paraphrased form. Each recommendation is indexed to the page in the report where the full recommendation, with preceding discussion, can be found.



Wyman P. Meinzer

Wildlife and Habitat

The System contains a stunning array of the nation's fish, wildlife, and plants and has a proud heritage of excellence in wildlife and habitat management. Management philosophies and practices have evolved as the concepts and understanding of biodiversity, ecosystems, and landscape-level ecology have evolved.

Keeping wildlife first in the System will require increased emphasis on sound objective setting, populations and habitat monitoring, and adaptive management. It will also require an increase in biological staff and more attention to their training, networking, and career development. The care and management of 20 million acres of wilderness needs to be elevated within the System, and each refuge must identify and rectify external threats to its soil, water, air, and wildlife.

The growth of the System will need to be more strategic and consistent in the future. Finally, refuges must be managed in the context of, and in concert with, surrounding public and private lands, and become models of land management for others to emulate.

The Vision:

Wildlife Comes First
Anchors for Biodiversity
Healthy Wildlife Habitats
Leaders and Centers of Excellence
Strategic Growth
Models of Land Management

The Recommendations:

WH1 Develop integrated population goals and objectives (p. 19)
WH2 Establish national, regional, and ecosystem habitat priorities (p. 20)
WH3 Define how the System and each unit can contribute to biodiversity (p. 21)
WH4 Develop policy and a national plan for wilderness and other special area management (p. 23)
WH5 Conduct comprehensive assessment of water rights (p. 25)
WH6 Identify and recommend solutions to external threats to refuges (p. 25)
WH7 Review and revise policies to strengthen support for problem species management (p. 26)
WH8 Develop refuge inventory and monitoring plans for species (p. 28)
WH9 Design or use existing databases to analyze and archive information (p. 28)
WH10 Develop systematic habitat monitoring programs (p. 28)
WH11 Ensure an interdisciplinary staff of specialists (p. 29)

WH12 Address inadequate and inconsistent biological staffing (p. 30)
WH13 Develop a program to address career and professional needs of biologists (p. 30)
WH14 Use adaptive management techniques to evaluate effectiveness (p. 31)
WH15 Identify management-oriented research needs for each refuge (p. 32)
WH16 Identify thresholds of wildlife disturbance for public use programs (p. 32)
WH17 Develop a national, coordinated approach for prioritizing lands and waters for acquisition (p. 34)
WH18 Designate Land Management Demonstration Areas (p. 36)
WH19 Develop an outreach and interpretive program to convey the importance of habitat management (p. 37)
WH20 Renew emphasis on conservation of materials, soil, and water on refuges (p. 37)

People

After nearly a century of growth, a System for wildlife *and* people is being realized. It is a System spanning the continent and reaching across oceans. It is a System with refuges visited by thousands of schoolchildren in the shadows of skyscrapers, and refuges visited by only seals and seabirds in the remoteness of the Pacific Ocean. It is a System with a wildlife conservation mission, but whose ultimate benefits are to the people of America today, and for generations to come.

USFWS Photo

To fulfill its mission, the System must have individuals with skills in managing public uses on refuges. The Service must be prepared to invest in visitor services and facilities that are designed to showcase the wildlife treasures within refuges, but which do not intrude upon the habitat or disturb wildlife. Staff at all levels must involve more people, communities, and organizations in the decisions affecting the growth and management of the System. And, the Service must be more strategic in communicating the value of refuges to all Americans. As employees meet these challenges, they can be sure of an idea that has tested true for a hundred years: by sharing a passion for wildlife and habitat, the System's future is more secure.

The Vision:

A Legacy of Wildlife
A Place Where Visitors are Welcome
Opportunities for Public Stewardship
A System to Appreciate

The Recommendations:

P1 Assess the status of public safety and resource protection through law enforcement programs (p. 46)
P2 Update the national public use requirements (standards) (p. 47)
P3 Provide each refuge with access to responsive and professional public use specialists (p. 49)
P4 Develop and implement policy on appropriate and compatible uses of refuges (p. 51)
P5 Establish a national Visitor Improvement Priority System for facilities (p. 52)
P6 Complete improved fee and concession management policies (p. 53)
P7 Forge new alliances through citizen and community partnerships (p. 56)
P8 Strengthen partnerships, develop new policy, and seek authorities to increase relationships with business community (p. 56)
P9 Update and strengthen the System's 100 on 100 Outreach Campaign (p. 62)
P10 Build a broader base of support by reaching out to a larger cross-section of the public (p. 63)

Leadership

Leadership is not simply doing things right, but doing the right things. Without leadership, the System visions for wildlife, habitat, and people cannot be achieved. With effective leadership, they cannot be denied. Every employee has a leadership role and every refuge and wetland management district, and indeed, every Service office, deserves the energy of effective leadership.

The System and the Service have a proud heritage of leadership. Extending this legacy of leadership into the future will require that leadership development be made a higher priority.

Leaders must ensure organizational vitality by seeing that new and diverse talent is brought into the System, that employee pride remains high, and that the System is administered as a true system of lands by paying attention to the consistency of organizational structure and management policies.

Meeting the needs and carrying out the recommendations for improving leadership for the System and the Service will, in the end, pay huge dividends for fish, wildlife, and plant resources. And doing right by the resource is what doing the right thing is all about.

The Vision:

Best and Brightest
Esprit de Corps
System Integrity

The Recommendations:

L1 Make leadership development the priority of the System and Service (p. 70)
L2 Establish a systematic recruitment, training, and mentoring program (p. 73)
L3 Enhance retention and formalize career pathways to develop leadership at all levels (p. 75)
L4 Actively promote opportunities and environment for career-long education and development (p. 76)
L5 Ensure that the System produces a cadre of leaders for senior Service leadership (p. 78)
L6 Recognize the importance of appropriate field experience for senior System leadership (p. 78)
L7 Make the Blue Goose a visible and consistently applied symbol of the System (p. 80)
L8 Articulate core values of the System (p. 82)
L9 Establish a Service policy to address housing needs on refuges (p. 82)
L10 Develop and maintain consistent organizational structures across regions in support of refuges (p. 83)
L11 Fully implement and integrate the provisions of the Refuge Improvement Act (p. 84)
L12 Provide consistent refuge management guidance—restore the Refuge Manual (p. 84)

Introduction

Background

This report is rooted in past work by many Service employees and by outside panels of experts. Substantive reviews of the System and recommendations on its management, growth, and use have been conducted over the past 30 years, and include the 1968 Leopold Report, the 1979 Refuge Study Task Force Report, and the 1992 Defenders of Wildlife report, entitled *Putting Wildlife First*.

In the late 1980s and into the 1990s, the Service spent considerable effort in developing a new Environmental Impact Statement to replace one issued in 1976. The EIS, entitled *Refuges 2003*, took a comprehensive look at System management in the face of growing concerns for the needs of fish, wildlife, and plants in the context of the emerging concepts of biodiversity and ecosystem conservation. However, the effort on *Refuges 2003* was curtailed after a realization that perhaps an EIS was not the most effective way to present a plan for the System.

In 1996, following the issuance of Executive Order 12996, which established a mission for the System and tenets for management, growth, and use, the Service recognized the need for an articulated vision for the System. *The National Wildlife Refuge System—Promises for a New Century* presented a practical and inspiring vision in words and pictures, and outlined challenges facing the System. It listed several actions to address the challenges. Built on the basic foundation of wildlife, habitat, and people, *Promises* became an important rallying point for both action and outreach.

The passage of the landmark National Wildlife Refuge System Improvement Act in 1997 cemented in law a mission and guidance for managing and growing the System, and further underscored the need for the Service to articulate what the System would be in its next century. This organic act provided the foundation and opportunity to build a new future for the System.

The Process

A steering committee of Service employees was established, early in 1997, to guide the development of this report. Workgroups of employees from the System and other Service programs, headed by Regional Directors, began meeting in January 1998, to begin writing the report. Four teams—Wildlife, Habitat, People, and Leadership—developed, debated, and articulated the visions and recommendations in this

John & Karen Hollingsworth

report. The workgroups were asked to answer three key questions in relation to their topical area. Where is the System today? What do we want the System to be in the future? How will the System achieve its mission and vision?

The Wildlife and Habitat teams worked independently and wrote separate first drafts. These drafts were merged during editing of the second draft since the topical areas proved to be so interdependent. Internal review was an integral part of the process, followed by an invitation for comment from those outside the Service, and all leading to a national dialogue on the report at the first-ever National Wildlife Refuge System Conference in October 1998, in Keystone, Colorado.

The Audience

This report, as a guiding vision document, is intended primarily for employees at all levels of the Service who will carry out its tenets. However, the Service has always recognized the keen interest in the future direction of the System from within the Department, other agencies, states, Tribes, conservation groups, and concerned citizens. The Service will need everyone's support to fulfill the System's promise. The report contains background information in the section introductions to ensure that all who read it, from the newest refuge employee to the Executive Director of a national conservation organization, will gain insight and a sense of the System's history and direction.

Scope of the Report

This report will help direct efforts toward the greatest needs and challenges of the System and is intended to be a virtually timeless series of guideposts for a long journey. In reality, many of the recommendations will require continuous and open-ended effort. And perhaps just as important, the report defines a philosophy and culture of management that honors the past but looks optimistically forward to the future.

Although some of the recommendations in the report will take additional human and fiscal resources, the report is not intended to be a budget document. The recommendations and discussions will help form the basis for more strategic budget and policy formulations and proposals in the years ahead. Also, this report was not intended to address many of the specific policy decisions affecting refuges, especially land and wildlife management practices which may be sources of debate among various audiences. Rather, the report seeks to set a framework for detailed planning and policy writing. Finally, although this report focuses on larger System issues, the day-to-day administrative issues facing refuge managers will remain a focus of continuous improvement. These issues include streamlining of procurement and personnel procedures; ensuring adequate discretionary funding for refuge managers; and refinement of the funding allocation process so that refuges receive a share of funds that is reflective of their individual complexity, special management needs, and levels of public use and required outside coordination.

Toward Fulfilling the Promise

To ensure that this report remains a living document for change, an Implementation Team has been established. This team will facilitate action on the recommendations and provide periodic progress reports to employees, the Director and other Service leaders, and various partners. It is expected that this report on the System will become a well-worn document through continual reference and use, and that by the System's 100th Anniversary in 2003, the System will be well on its way toward fulfilling its promise for wildlife,* habitat, and people through effective leadership.

*Note: Often in this report, the term "wildlife" is used alone, and in those cases, is employed as shorthand for all species inhabiting the System, including fish, plants, insects, and other invertebrates.

Wildlife and Habitat

First and Foremost

Introduction

From one-ton bison to half-ounce warblers, the National Wildlife Refuge System contains a priceless gift—the heritage of a wild America that was, and is. If it is a bird, mammal, reptile, amphibian, fish, insect, or plant, it is probably found in the System.

The System supports at least 700 species of birds, 220 mammals, 250 reptiles and amphibians, over 1,000 fish, and countless species of invertebrates and plants. Nearly 260 threatened or endangered species are found on refuges, and it is here they often begin their recovery or hold their own against extinction.

"Wild beasts and birds are by right not the property merely of the people who are alive today, but the property of unknown generations, whose belongings we have no right to squander."

—Theodore Roosevelt

The ways in which the System nurtures this diversity of life and the habitat on which it depends is the very foundation of its mission. Without healthy and diverse habitat, there is no wildlife—without wildlife, the mission set forth in law is not achieved and the trust with the American people is broken.

Caring for fish, wildlife, and plant populations and their habitat is also the essence of the science of wildlife management, and the newer and evolving disciplines of conservation biology and ecosystem management. Just as wildlife populations and habitat conditions have changed dramatically in America since the turn of the century, so has wildlife management in the System. Understanding this history is an important first step in articulating and realizing a vision for the future.

From Preservation to Reconstruction

Simple preservation was the earliest form of wildlife management. In the System's first years, it consisted mostly of posting boundary signs, law enforcement, and periodic counts of wildlife. Despite the early constraints of funding and staff, refuges were formed across the country by Executive Orders and Acts of Congress. If the habitat could at least be made secure at places called Wichita Mountains, National

Bison Range, National Elk, Aleutian Islands, Malheur, Bear River, Sheldon, and Upper Mississippi, it was a start.

As drought and economic depression swept across America in the early 1930s, waterfowl and other wetland wildlife seemed to be blowing away with the soil. Concerned conservation groups and individuals took a moment's pause from the hardships of people to remember the hardships on wildlife. With a Duck Stamp to raise funds, seed money from Congress, and a host of Civilian Conservation Corps camps, the System began an unprecedented crusade for waterfowl and other wildlife through habitat restoration. In 1937, John N. Bruce, engineer of the camp at Tamarac Refuge wrote:

> "Hence, we wake up and live again, in reality, those forgotten pioneer days of our forefathers, to bring back as near as possible, at least in this area, those same abundant conditions of nature as they existed before the advent of civilization."

The machines of exploitation that drained the vast marshes, cleared the pristine forests and plowed the prairie bare now became the tools for restoring habitat. From constructing dikes and water control structures to the purposeful neglect of drainage ditches, the flow of life was restored to the great marshes and swamps of Agassiz, Horicon, Necedah, Okefenokee, and Seney. Trees, shrubs, and grasses were used as sutures to close the gaping scars of abuse at Piedmont and Noxubee. Remnants of vast wetlands in the Klamath Basin and Sacramento and San Joaquin valleys were saved and restored from giant reclamation projects constructed in the name of agriculture. Bare soil was planted to grasses and forbs on scores of prairie refuges from North Dakota to Texas.

With habitat restored, wildlife returned and a national network of habitat began to emerge. The System became the preeminent example of habitat restoration in the country and perhaps the world. Americans took notice. Other countries took notice and came to look, marvel, and learn. Even today, habitat restoration remains a hallmark of the System.

In Alaska, entire ecosystems were set aside as refuges by early Executive Orders and through the passage of the Alaska National Interest Lands Conservation Act in 1980. Refuges the size of states were added to the System including Yukon Flats, Yukon Delta, Arctic, Kenai, and the Alaska Peninsula. These living laboratories of biological diversity (biodiversity) presented a new challenge and a new paradigm of wildlife management. Rather than habitat restoration, the challenge was to maintain intact natural systems through protection, extensive monitoring, and oversight of wildlife-related recreation and subsistence use by native people.

As the System grew, the concepts of biodiversity, ecosystems, landscapes, watersheds, and conservation biology would begin to creep into the vocabulary of researchers, professors, and refuge staffs. An evolution in habitat management occurred—from managing for a few species to managing for many species using more natural processes.

Rather than hold water high in impoundments year-round just for waterfowl, levels could be timed to provide habitat for migrant shorebirds or to accommodate fish passage and spawning. Rather than plant tame grasses and forbs just for ducks, a full array of native grasses and forbs started to become available to help rebuild prairie diversity. Rather than fighting seasonal flood waters on river refuges, dikes could be designed so the floodplain could benefit from the life-giving pulse of the river. Rather than mow and hay lands to set back succession, natural processes like fire could do the work. Rather than farming intensively to provide food for migratory birds, moist soil units could provide abundant natural foods. Rather than fight wildfires, prescribed fire could be used to reduce hazardous fuel loads and restore wildland fire as an ecological process.

Today, many refuges are involved in the actual reconstruction of rare habitats. At the Neal Smith Refuge in Iowa, land that grew corn and soybeans for 150 years is the site of one of the largest tallgrass prairie reconstructions in the United States. Refuge staff, students, and volunteers are collecting seeds from the forgotten roadsides and country cemeteries where prairie plants have avoided extinction, with the hope of returning over 100 prairie plant species to several thousand acres of refuge landscape. At Big Muddy Refuge in Missouri, the river itself will be the habitat manager through its power to create chutes and sandbars, willow thickets, and cottonwoods. It will continue to renew the floodplain of this refuge by periodic scouring in time of flood, effectively managing plant succession on a timetable set eons ago.

One can imagine Aldo Leopold himself looking over the shoulder of managers, smiling and whispering: "take care of the cogs and wheels of the land first and wild things will appear."

Biological monitoring programs evolved as well. Surveys and censuses were expanded beyond the traditional waterfowl and resident game species to encompass the myriad of waterbirds, songbirds, and endangered or threatened species whose welfare is entrusted to the Service on behalf of the American people. Working with colleges and volunteers, more thorough inventories of small mammals, raptors, neotropical migrants, reptiles, amphibians, fish, and invertebrates were undertaken. Research projects on traditional species were expanded to include a broader array of species, including understanding more fully the response of native plant communities to management practices such as water level change and fire.

Galen Rathbun

This evolution in refuge management also included new insights into objective setting. Numeric species population objectives, although still important on many areas, are being replaced by habitat objectives. Today, many refuges are focusing more on the amount of land that can be restored to presettlement vegetation conditions than the sheer numbers of a particular species or groups of species that can be attracted. Thus, the population objectives for certain species are being given a clearer link to habitat objectives, with an eye toward maintaining or restoring native plant communities that sustained America's immense species diversity for thousands of years.

Wilderness and Natural Areas

As early as the 1950s, the System began to focus on preserving unique plant communities. The Service had designated distinct grassland areas on refuges in the Nebraska Sandhills as Research Natural Areas, and in 1959, recommended to the Society of American Foresters that 25 unique forest stands on 17 refuges be added to the Society's list of natural areas. By 1993, the Service had designated 208 areas totaling 1,950,000 acres as Research Natural Areas, 35 areas totaling 211,000 acres as Public Use Natural Areas, and 43 National Natural Landmarks. Collectively, these lands are part of a national network representing a stunning array of North American ecological communities and their biodiversity.

The System has also sought to preserve special places of wildness. Prior to the Wilderness Act of 1964, many areas on refuges were serving as de facto wilderness due to remoteness, inaccessibility, and the protection provided by refuge designation. Beginning in 1968, with the formal designation of the Great Swamp Wilderness Area on Great

Swamp Refuge in New Jersey, wilderness in the System has grown to over 20.6 million acres on 75 designated areas. In addition, National Wild and Scenic Rivers have been designated on five refuges in Alaska and a stretch of the Niobrara River on Fort Niobrara refuge in Nebraska; a total of 1,390 miles of river destined to always run wild and free.

Evolution of Policy

It is debatable whether wildlife management policy was shaped by activities on the ground or if policy shaped the activities. Like any evolutionary or adaptive process, it was probably both. Policy sought to define a balance between the intensive management often needed and the "let nature take its course" management across an ever-growing diversity of lands.

Today, the System seeks to better define, and refine, the often compelling and at times contradictory ideas of how wildlife and habitat should be managed and what new habitat should be brought into the System. Rather than a return to strict preservation, managers seek a balance through natural processes and native species in their habitat restoration and maintenance efforts. As stated in a 1993 memo to managers from an Assistant Regional Director in one region:

> "Our national habitat base has been reduced to a point where we must rely on refuges and other dedicated wildlife lands to produce a larger portion of public wildlife benefits. Hence, manipulating habitats will be imperative for most areas to meet their purposes and approved objectives. You can, however, make your active management practices as "natural" looking as possible. Use a light hand and a fine brush whenever you can as you paint your vision on the land." —S. Haseltine

And in a memo to managers from a refuge supervisor in 1994:

> "We will have the wisdom to know when to manage, and when not to. Some lands and waters will best be left unmanaged to provide a wide array of benefits in rhythm with their own natural history, not man's. On other lands and water, we will need to manage plant succession to provide pioneering through climax communities that accommodate species of all ecological niches. Stations should eventually have a landscape plan that visually depicts their habitat vision, the balance between naturalness and management, and the spatial and biological relationship of the station with surrounding private and public lands." —D. Hultman

An emerging philosophy is also shifting emphasis from traditional, site-specific wildlife population objectives to habitat objectives. This philosophy, culminating in Comprehensive Conservation Plans and holistic Habitat Management Plans, will emphasize habitat and species

population objectives based on a broader view that considers not only refuge purposes, but national, regional, and ecosystem level priorities.

The Refuge Improvement Act also enlarges the canvas for painting a future vision for the System. The Act requires that System growth be planned to contribute to the conservation of ecosystems, and complement efforts of states, Tribes, and other Federal agencies to conserve fish, wildlife, and plant habitats. It also requires that the biological integrity, diversity, and environmental health of the System be maintained for the benefit of present and future generations. Only through sound wildlife and habitat science, and the resources and partnerships to carry it out, will the System remain healthy and grow strategically rather than opportunistically.

Vision for the Future

With the Service's focus on an ecosystem approach to management, and the development of partnerships to accomplish ecosystem conservation goals, the System should provide a model of how to apply good science in wildlife conservation. Clear policies and goals for the System and ecosystems must be developed and stepped down to individual refuges for incorporation in Comprehensive Conservation Plans and other planning documents. Continued coordination with states, Tribes, local governments, and private citizens will be important.

Now and in the future, rigorous approaches to inventorying and monitoring wildlife resources are needed to provide the information critical to devise, evaluate, and refine management strategies implemented to meet refuge goals and objectives. Although conservation plans dictated by the Refuge Improvement Act will not be completed for all refuges for 15 years, there is no need to wait until plans are completed to implement good, scientific techniques. Refuges must use the best information available to develop goals and objectives now, and implement them on the ground. Management reviews must then be implemented and used to evaluate programs and refocus them as necessary. Recommendations for course correction must be supported by the chain-of-command to ensure success. Tantamount to refuges becoming centers of wildlife management excellence is the development of a strong biological program with adequate resources to provide critical information for difficult management decisions in an atmosphere of competing needs and uses.

The wildlife and habitat vision for the System is multi-faceted reflecting the breadth and scope of effective land, water, air, and fish and wildlife stewardship. The vision stresses the basic principles that *wildlife comes first*, that *ecosystems, biodiversity and wilderness* are vital concepts in refuge management, that refuges must be *healthy*, and that

growth of the System must be *strategic*. The vision also recognizes a commitment to *leadership and excellence* in wildlife management, and a responsibility to share this leadership by being *models* for others to learn from and follow.

Wildlife Comes First:	*Refuges are places where wildlife comes first.*
Anchors for Ecosystem Conservation:	*Refuges are anchors for biodiversity and ecosystem-level conservation and the System is a leader in wilderness preservation.*
Healthy Wildlife Habitats:	*Lands and waters of the System are biologically healthy, and secure from outside threats.*
Leaders and Centers of Excellence:	*The System is a national and international leader in habitat management and a center for excellence where the best science and technology is used for wildlife conservation.*
Strategic Growth:	*Strategically located lands and waters are added to the System until, in partnership with others, it represents America's diverse ecosystems and sustains the nation's fish, wildlife, and plant resources.*
Models of Land Management:	*The System is a model and demonstration area for habitat management which fosters broad participation in natural resource stewardship.*

Issues and Needs

Wildlife Comes First

Trust Species—Integrating Objectives. Trust species include endangered and threatened species, migratory birds, interjurisdictional species of fish, marine mammals, and other species listed in individual refuge establishing legislation or Executive Orders. The sheer number of species for which refuges have trust responsibilities creates a challenge for managers faced with what often seems like wildlife management triage.

Of the nation's 1,107 threatened and endangered plant and animal species listed as of October 1998, 257 are found within the System. Fifty-six refuges were created under the authority of the Endangered Species Act, explicitly for conservation of endangered species. Refuges have played an instrumental role in the recovery of several species including the whooping crane, Aleutian Canada goose, Key deer, and

American crocodile. Recovery of at least 90 more threatened or endangered species is dependent in large part on how well they are cared for on refuges, and refuges contribute substantially to international endangered species conservation efforts by providing habitat for species listed under the Convention on International Trade in Endangered Species (CITES). Service policy ensures that conservation of listed species is the highest priority on refuges, and guidance to refuges usually comes through individual recovery plans. Balancing the allocation of available resources among threatened and endangered species, especially when they occur on refuges with purposes for other wildlife such as waterfowl, can be challenging.

Conservation of migratory birds is often considered the central connecting theme of the System. Over 200 refuges were established for migratory birds and more than one million acres of wetlands on 356 refuges and over 3,000 waterfowl production areas are actively managed for the benefit of waterfowl and other wetland-dependent birds. Approximately 50 species of waterfowl and other migratory gamebirds have been Service and System priorities since the 1930s. The System has an outstanding record for contributing to the successful recovery and subsequent support of sustainable hunted populations for many of these species. State-of-the-art waterfowl management is being practiced on many refuges. Additionally, emphasis for migratory bird management has expanded over the past decade to include 700 non-game species of colonial waterbirds, birds of prey, shorebirds, seabirds, and songbirds. Separate, broad-scale plans and programs urge refuges to develop conservation strategies for different groups of migratory birds. These include Flyway Plans, the North American Waterfowl Management Plan, Partners in Flight, the National Shorebird Plan and associated Western Hemispheric Shorebird Reserve Network, and the Colonial Waterbird Plan.

"The language of birds is very ancient, and, like other ancient modes of speech, very elliptical; little is said, but much is meant and understood."

—Gilbert White

A large portion of the country's freshwater and marine fish populations are declining because of overharvest and water quality and quantity problems. Many refuges are important in helping to meet the Service's responsibilities for conservation of interjurisdictional fish, for which management is a partnership between the Service and other Federal, state, tribal, or local jurisdictions.

Marine mammals using coastal refuges include sea otters, walruses, manatees, polar bears, seals, and sea lions. As with interjurisdictional fish, marine mammals require complex management strategies employing partnerships with various groups such as the National

Marine Fisheries Service, Native American commissions, and states. In Alaska, cooperative management of marine mammals with Alaska Natives, who use these animals for subsistence purposes, is underway, and these partnerships are likely to expand in the future. Clear, integrated goals are essential to avoid serious conflicts.

Finally, some refuges have trust responsibilities for large mammals or other species that are normally not identified as trust species for the Service. Examples include pronghorn at Hart Mountain Refuge, elk at the National Elk Refuge, and bison at the National Bison Range.


William Vinje

The Refuge Improvement Act clarifies the intent to manage refuges as a system instead of disparate units. Refuges are faced with the challenge of meeting their establishing purposes, while finding ways to contribute substantially to broader System and ecosystem needs. Individual refuges at times try to manage for too many species groups on each unit based on directives from various plans and programs. There is a clear need to develop and implement biological goals and objectives at various landscape levels including System, individual refuges, and ecosystems, and in the context of regional or national plans. Integration of goals, particularly among Service programs, should reduce inefficiency and frustration that sometimes occurs when refuge staffs and personnel from other Service programs try to focus together on ecosystem priorities. Absent broad System and ecosystem perspectives, it is difficult for managers to resolve conflicting priorities among species groups. Refuge staffs will need clear perspectives on how each refuge can contribute to broader System and ecosystem needs.

Recommendation WH 1: Develop integrated population goals and objectives (as appropriate) at the System, regional, ecosystem, and refuge levels; develop refuge priorities among species or species groups accordingly; and use the priorities to implement appropriate wildlife conservation strategies at each refuge.

Better Habitat Management through Better Planning. Meeting the conservation challenges of the 21st century will require large-scale and long-term planning. To be leaders in this effort, the Service must set

national and regional priorities for habitat protection and management which address the nation's most critical resource conservation needs. Often, international resource issues and needs will shape these priorities.

Collaborating with its conservation partners will greatly enhance the Service's effort. The North American Waterfowl Management Plan and its Joint Venture Plans, Partners in Flight Regional Conservation Plans, and information from the Western Hemisphere Shorebird Reserve Network and The Nature Conservancy's Natural Heritage database are among the many important tools available for use in setting the Service's national and regional habitat priorities. In addition, the resource planning and information databases completed by the states are effective tools for refuge habitat planning. Ecosystem Teams, working with national programs and individual refuges, could have major responsibility for identifying national, regional, and ecosystem habitat priorities.

The role of the System in meeting conservation priorities must be defined through the Comprehensive Conservation Plan and Habitat Management Plan for each refuge. Both the strategic growth and the management of the System must be directed toward these conservation priorities. These conservation priorities should be incorporated into the nationally coordinated approach developed to prioritize lands and waters for acquisition referenced under Recommendation WH 17. Resources to ensure sufficient scope and quality of these plans must be brought to bear. A training program on the development of Habitat Management Plans, similar to what the National Conservation Training Center has done for Comprehensive Conservation Plans, would greatly contribute to quality and consistency. The habitat management programs developed through these planning processes must reflect the mandate of the System to conserve the nation's ecosystems and its fish, wildlife, and plant resources.

Recommendation WH 2: *Establish national, regional, and ecosystem habitat priorities to direct the strategic growth and long-term management of the System. Habitat priorities would be the basis for national, regional, and ecosystem habitat goals and objectives which will be incorporated in refuge Comprehensive Conservation Plans and Habitat Management Plans.*

Anchors for Biodiversity and Ecosystems

Biodiversity. The Refuge Improvement Act mandates conservation of fish, wildlife, and plants on all refuges. Besides providing habitat for specific trust species, refuges provide important habitats for a wide

variety of transient and resident species. These species, including plants, game and non-game vertebrates, and invertebrates, are important contributors to overall biodiversity on refuges. Management of many of these species remains a collaborative effort with states which have primary responsibility for these species off System lands.

The Service has long recognized the importance of maintaining and restoring biodiversity on refuges, but an operational definition of the term has only recently been adopted. The Service Manual definition states: "Biological diversity is the variety of life and its processes, including the variety of living organisms and the genetic differences between them and the communities and ecosystems in which they occur."

In order to maintain or restore biodiversity, management should mimic, where possible, natural systems. Management strategies for desirable successional stages required to maintain or restore biodiversity may range from intensive to passive. There is no standard methodology to identify how each refuge can best contribute to maintaining biodiversity. The System needs information at ecosystem and refuge levels on current and historic biodiversity to determine priorities for management of each refuge. No clear guidance has been forthcoming on how to prioritize efforts to maintain biodiversity compared to other programs aimed at conservation of trust resources.

The concept of restoring and maintaining biodiversity must be applied at the System and ecosystem scales. The challenge will be to set realistic and reasonable goals for contributions by individual refuges toward meeting System and ecosystem goals. Maintaining an ecosystem's biodiversity will most likely lead to conserving additional lands and waters through conservation agreements with partners, or acquisitions from willing sellers.

Recommendation WH 3: Define how the System and each unit can best contribute to maintaining biodiversity, and determine biodiversity objectives and indicators for each refuge within the larger ecosystem and landscape perspective.

Wilderness Preservation. Wilderness, due to its very nature, is extremely important to the conservation of biodiversity within the System. Wilderness on refuges deepens and broadens our perspective of the refuge landscape, compelling our thought beyond managing it as habitat for wildlife species. In the wording of the Wilderness Act, wilderness is "where the earth and its community of life are untrammeled by man." It is a reservoir of biodiversity and natural ecological and evolutionary processes. In the words of Aldo Leopold, wilderness is a laboratory, "a base datum of normality, a picture of how

healthy land maintains itself." In some ways, Research Natural Areas or other special protection status lands of the System provide these same biological values.

But wilderness embodies values that transcend the biophysical. Wilderness is a way of perceiving and valuing; it is as much about a relationship with the land as a condition of it. It provides recreation, although the term surely fails to capture the nature of the experience—the sense of connection visitors find with these primal forces in which their ancestors were surrounded and thus shaped, the adventure, and the feelings of renewal, inspiration, and awe. Central to the experience and awareness of wilderness is humility, with its corollary, restraint; restraint in what is appropriate for visitors to do, as well as managers. Restraint is the reason for the "minimum tool" rule, limiting use of our mechanisms to that which is necessary, and necessary not only to manage these areas, but to manage them *as* wilderness.

Beyond its tangible resources and experiential opportunities, wilderness is a symbolic landscape. It encompasses values and benefits that extend beyond its boundaries, to the millions of Americans who will never visit, but find satisfaction in just knowing these vestiges still exist. Wilderness areas are valued as remnants of our American cultural heritage as well as our universal evolutionary heritage, symbolically enshrining national as well as natural values. Wilderness protection serves as the most visible symbol of our generation's willingness to pass on some natural treasures as we found them. It is the finest example, perhaps, of our sense of stewardship of the System.

"It is easy to specify the individual objects in these grand scenes; but it is not possible to give an adequate idea of the higher feelings of wonder, astonishment and devotion, which fill and elevate the mind."

—Charles Darwin

To meet its long-term stewardship responsibilities, the Service needs to elevate the stature of its 20 million acres of wilderness, both internally and externally. The Service needs to increase its role in the interagency wilderness management community. It needs to expand its commitment to effective management through interaction with other agency managers, partners, and researchers. The Service needs to acknowledge wilderness as a unique resource, the management of which is a specialized discipline.

Internally, the Service needs to enhance understanding of the full spectrum of wilderness values and the means by which they can be protected and made available to the public. Training is needed because many managers have difficulty incorporating even the physical standards of wilderness into the traditional paradigms of refuge

management. Fewer managers are trained to assess and protect the psychological, symbolic, and spiritual meanings wilderness offers. The Service needs to better use the growing body of social sciences literature that supports a land ethic that pairs both the biological and human dimensions and more explicitly incorporates the hard-to-define, but nevertheless real, values of wilderness. Wilderness Areas, Wild and Scenic Rivers, International Biosphere Reserves, Research Natural Areas, and other specially designated lands and waters are special parts of the System requiring special attention.

John & Karen Hollingsworth

National wilderness policy development and planning should address possibilities for expanding wilderness and other special areas within the System. Areas that have been recommended for wilderness but not yet designated by Congress should be managed to preserve their wilderness characteristics. The Service should evaluate lands added to the System since the Service completed its wilderness reviews and recommend suitable areas for designation. In addition, the Service should take a fresh look at areas previously studied for suitability as wilderness that were not recommended. For example, while the Service determined, in 1985, that 52.7 million acres of refuge lands in Alaska qualified for designation as wilderness, only 3.4 million acres were recommended for such designation. On many refuges, circumstances and management may have changed since the recommendations were made.

Recommendation WH 4: Develop national policies and a national management plan which address wilderness values on refuges, wilderness management capabilities, and evaluation of lands for wilderness or other special preservation designation.

Healthy Wildlife Habitats

Lands protected through the System are in public ownership to meet the life-long habitat needs of fish, wildlife, and plant resources. The American public expects that refuge habitat should be protected or enhanced in order to meet those needs for the benefit of current and future generations.

A refuge does not exist in isolation of its surrounding watershed. Habitat on many refuges can be threatened by external factors, such as contaminated air and water; altered or depleted surface and subsurface water supply; and other land, water, and air use factors within the watershed. Given the size of watersheds in which most refuges are located, it is not realistic for the System to contain enough land to ensure lasting integrity for every unit. Thus, to keep refuges healthy, they must be managed in concert with adjacent lands.

"If you are protecting what is inevitably an island in the midst of degradation, you've lost."

—Bruce Babbitt

The Refuge Improvement Act mandates that the health and integrity of System lands be maintained. The Service will prepare Comprehensive Conservation Plans and step-down Habitat Management Plans that will address habitat management priorities on System lands. However, to maintain quality habitat on refuges, the Service must address threats beyond refuge boundaries. Communication and coordination among all Service programs will ensure that these threats are fully addressed. Additionally, all Service employees must continue to communicate and develop progressive working relationships with adjacent and upstream landowners, whose land management perspective may be different from that of the Service. Cooperative partnerships with private landowners and full collaboration with Tribes and state fish and wildlife agencies to comprehensively address fish and wildlife conservation needs in the watershed will be necessary to sustain healthy habitats on refuge lands.

The growing complexity of external threats requires that a systematic, interdisciplinary assessment be conducted at appropriate scales. The scale may be at the level of the individual refuge, on the watershed or ecosystem level, or at the regional level. Collecting the information in a standardized manner will support a national initiative to address external threats to air and water quality and water quantity issues and ultimately will improve the health and integrity of the System as a whole.

Having Adequate Water Quantity. Adequate supplies of surface and subsurface water are necessary to nourish abundant and healthy wildlife. The Service needs to be a strong advocate for fish, wildlife, and plants in the adjudication and allocation of water rights and the protection of natural hydrological systems. Habitat depends not just on the quantity of water, but also on the timing and duration of flows and other factors. To protect this important resource, and ensure that water quantity problems are identified before they become too difficult to remedy, a comprehensive assessment of the available water supply, projected water needs, and status of existing and needed water rights

should be completed for each refuge. Recommended actions to address existing or anticipated water rights/supply problems should be included. The assessment should be undertaken concurrently with Comprehensive Conservation Planning, unless existing issues—such as general stream adjudications—require completion at an earlier date. With clear direction and guidance from the Office of the Solicitor, each region should conduct a comprehensive assessment to determine the status of existing water rights and projected water needs for each refuge. Furthermore, new refuge acquisitions must be secured with existing water rights and the Service must maintain the ability to negotiate for future water needs.

The Service will continue to cooperate with the states on all matters related to water use and water rights, and will seek to resolve conflicts through negotiation to the maximum extent possible in coordination with the Office of the Solicitor.

Recommendation WH 5: Conduct a comprehensive assessment of existing water rights and needs for water quantity and timing in each region to include, where appropriate, remedies to resolve outstanding issues.

Assessing External Threats. Healthy watersheds are necessary to sustain quality habitat on lands in the System. There is an ongoing need to identify potential threats from contaminated air, soil, and water; erosion and sedimentation; and cumulative habitat impacts from land and water resource development activities.

Ecosystem Teams represent many Service programs and have the interdisciplinary capability to identify existing and potential threats to the integrity of System lands, and to recommend solutions. As discussed earlier, each refuge Comprehensive Conservation Plan should include provisions to resolve existing and potential threats identified by the Ecosystem Teams. The Service's Partners for Fish and Wildlife and Challenge Cost Share programs, and other Federal, state, and private programs should be used to address off-refuge threats and provide opportunities for the Service to enter into partnerships to protect refuge resources and interests. Internal capabilities of all Service programs will be necessary to systematically monitor external threats and the effectiveness of actions to resolve them.

Recommendation WH 6: Identify and recommend solutions for external threats to refuge habitats, such as air and water quality and cumulative impacts from watershed development.

Problem and Invasive Species Management. Habitat alteration, particularly through urbanization and agricultural development, has resulted in major changes in abundance and distribution of wildlife populations. Introductions or expansions of animal and plant populations to areas where they are not endemic have caused native species to be displaced or reduced. Feral animals, such as cats, pigs, and goats, also have direct impacts on local wildlife populations, or, as is the case with cats on songbirds, their level of predation may be impacting nationwide populations.

The ecosystem approach to fish and wildlife conservation embraces both the management of wildlife populations and the maintenance of biodiversity in natural systems. Refuges, as oases of high-quality habitat, attract concentrations of wildlife, including those that prey on or compete with trust species or adversely affect biological integrity. On many refuges, the absence of limiting factors on predator populations may create an imbalance that is adverse to maintaining healthy ecosystems. The Service's mandate is to conserve native, endemic populations of fish, wildlife, and plants; however, conflicts in managing native and non-native species are becoming more common. Examples include beavers altering managed wetlands, purple loosestrife choking out native wetland vegetation, leafy spurge displacing native prairie plants, gull populations displacing other native birds, and raccoons preying on endangered sea turtle nests. Management interventions may be necessary to fulfill the Service's mandates for both specific wildlife resources and biodiversity. A clear, biologically sound rationale needs to be documented whenever the Service proposes to control wildlife and plant populations on System lands, particularly when the target may be native species.

As noted in Recommendation WH1, System and individual refuge priorities need to be developed for different kinds of wildlife. Where appropriate and based on agency priorities and objectives, policies need to be developed which provide sound justification for reducing impacts of predators and competitors on other fish, wildlife, and plants. Clear explanations for reducing problem species to restore ecological balance need to be incorporated into strong public educational programs. More research is needed on non-lethal control methods for species that are most frequently of concern.

Recommendation WH 7: Review and revise existing policies to strengthen support and action for problem and invasive species management that is biologically justified and consistent with ecosystem and System priorities.

Leaders and Centers of Excellence

Inventory and Monitoring. System policy requires inventories of plants, fish, wildlife, and habitats; monitoring of critical parameters and trends of selected species and species groups; and basing management on scientifically sound data. Current approaches to inventory and monitoring on refuges are not consistent across the System. Most refuges have inadequate baseline data (inventories), so the consequences of management actions on non-target species are frequently not understood. Currently, systematic monitoring associated with management practices is often lacking, inconsistent, or not focused on target resources. Furthermore, many refuges have volumes of historical biological data that have not been analyzed and are not readily retrievable.

USFWS Photo

Except for a few national surveys, standard protocols for inventorying and monitoring are rarely used, leading to data with limited value beyond the individual refuge level. The System has not yet effectively utilized databases to store and analyze basic inventory and monitoring data. Geographic Information System technology and other standards have not been consistently implemented for refuge information to produce resource mapping data that can be shared across the System, and with other land management agencies. There is a need for better data analysis and for biologists to publish results. Further discussion of these needs can be found in the Service's 1998 *Biological Needs Assessment.*

"Wisdom is not knowledge of many things, but the perception of the underlying unity of seemingly unrelated facts."

—John Burnet

The development of baseline data for all refuges is a task that will take years to accomplish. Development of standard methods for data collection, storage through computer databases, and identification of the most significant resources to survey will be challenging. Refuges will need new computer technology and training, as well as access to staff specialists at either the refuge, complex, or regional or Washington office level to ensure data are collected in an efficient and statistically sound manner. To avoid reinventing methods and database systems, existing national and ecosystem information systems need to be reviewed and used as appropriate.

A further challenge is to better integrate refuges into ecosystem monitoring programs. Refuges need data for specific refuge management purposes, but also need to contribute to the overarching mission of ensuring the biological integrity, diversity, and environmental health of the System. They should contribute to and coordinate with other monitoring efforts of the Service (including international programs), state, Tribal, or other non-governmental programs.

Recommendation WH 8: Develop refuge inventory and monitoring plans to ensure that refuges use standard protocols to develop baseline and trends data for selected species groups and habitats that are indicators of biological integrity, diversity, and environmental health.

Recommendation WH 9: Design or use existing database systems to store, analyze, and archive inventory and monitoring data to evaluate management practices on individual refuges, as well as link with System, flyway, and ecosystem databases.

Habitat monitoring is also critical. If we are to lead the world in habitat conservation, management, and monitoring, it must be by example. Extensive losses of the bottomland hardwood forest of the Lower Mississippi River Valley, the tropical forest of Central and South America, and the old-growth forest of the Pacific Northwest are sad reminders of failure in habitat conservation and management. Only through long-term monitoring can humankind identify and highlight the true effects of our footprint on this earth. The Service must lead in long-term monitoring, evaluation, and habitat conservation. The Refuge Improvement Act specifically directs the Service to "monitor the status and trends of fish, wildlife and plants" on refuges. However, establishing monitoring protocols on refuges is only a small step toward understanding the status and trends of habitat change. A more systematic monitoring system must be developed. The Service will need to take the lead in developing the criteria and protocol at the refuge, ecosystem, national, and international level. The success of this program will hinge on collaboration with partners and the use of up-to-date technology. Much of the direction at the refuge level is outlined in the *Biological Needs Assessment*.

Recommendation WH 10: Develop systematic habitat monitoring programs at the refuge, ecosystem, national, and international levels.

Increasing Interdisciplinary Expertise. Planning and management at the landscape and ecosystem levels have increased the complexity of the System's responsibilities. Maintenance of ecological processes and natural biodiversity, while considering human needs and influences within natural systems, requires a broad spectrum of expertise. An interdisciplinary cadre of specialists (for example, ecologists, physical scientists, and social scientists) is needed at the appropriate organizational level to support refuges.

State-of-the-art technologies, such as Geographic Information Systems and Global Positioning Systems, are highly effective and cost-efficient tools for landscape-level planning. The Service must increase its capabilities to use these tools, and should establish and maintain a national habitat database and metadata management and analysis capabilities to track habitat trends and monitor the effects of its landscape-level management efforts. These capabilities will greatly improve System management.

Sound refuge management decisions demand reliable information about the causal interrelationships between habitat quality and quantity, and fish and wildlife population dynamics. Strategies to achieve an interdisciplinary biological workforce and meet the information needs of the System, from local to landscape level, are outlined in the *Biological Needs Assessment.*

Recommendation WH 11: Ensure an interdisciplinary staff of specialists and increased use of advanced technologies at the refuge, ecosystem, regional and national levels (as appropriate) to provide habitat management and monitoring expertise for the System.

Increasing Staff Expertise and Career Development. The Service's biological program for the System is fundamental to wildlife conservation on refuges. Increasing demand for wildlife-dependent recreation on refuges and continuing environmental threats to refuges are pushing the capability of the current biological program beyond its operational limits. The growing complexity of wildlife conservation management is creating a new demand for biological capability on refuges. Biological staffing on refuges has not kept pace with the added responsibilities. Biological staff have been assigned greater responsibilities, leaving little time to carry out their most important functions: inventories; monitoring impacts of management actions; and designing, implementing, and evaluating management plans and objectives. Also, refuge biologists are often kept out of the field by planning, report writing, environmental assessment preparation, and general refuge administrative duties assigned them due to staff

shortages in other disciplines. Compounding the problem is a shortage of biological staff to assist senior biologists with critical field work.

In order to maintain professional biological program staff within the System, continuing education and active involvement in the larger professional community are essential. There is a perception among managers and biologists that attendance at professional meetings is not encouraged. Patients demand that their doctors stay abreast of the latest developments in medicine—the Service should make it clear that they expect, and encourage, the same from its biologists. Also, and though efforts vary between regions, there are limited means for refuge biologists to communicate within and outside the Service.

The Refuge Improvement Act requires the Service to monitor the status and trends of fish, wildlife, and plants on refuges. To adequately address this mandate, report on impacts of management actions, and respond to the growing complexity of wildlife conservation on refuges, the Service will require additional staff and resources for the System's biological program as outlined in the *Biological Needs Assessment*. In addition, new training specifically tailored to the needs of biologists in the System should be developed, while existing training needs to be continually reviewed to ensure relevancy and reflect changes in technology. The need for expanded opportunities for career development for biologists at all levels of the System will require more strategic staffing plans and additional resources. Opportunities for career advancement in the field beyond the GS-11 level are limited, and it is becoming increasingly difficult to attract the best biologists and keep them in the biologist career series.

Recommendation WH 12: *Address inadequate and inconsistent staffing and allocation of resources for biological programs by increasing biological staffing at all levels of the System (having each staffed refuge served by a field biologist), and funding base biological programs at each refuge as appropriations allow.*

Recommendation WH 13: *Develop a program to address career and professional needs of biological program staff by providing career ladders and by implementing a comprehensive training program.*

Adaptive Management. The basic concept of adaptive management is to use management actions as "experiments" to gather information about their effects on wildlife populations. This information is used to refine approaches and to determine how effectively goals and objectives

are being accomplished. Many refuges are using some aspects of adaptive management, but there is a need to expand its application. Furthermore, evaluations of biological programs are not conducted regularly for all refuges. These evaluations are needed to provide accountability and feedback to ensure wildlife conservation goals are being met. Planned reviews and course corrections need to be timely, and the process needs to be a high priority for the System. To be effective, evaluations must be collaborative processes which include participation from other Service programs and other appropriate stakeholders.

Recommendation WH 14: Use adaptive management to evaluate effectiveness of wildlife conservation programs and periodically evaluate programs to determine if System, ecosystem, and individual refuge goals and objectives are being achieved.

Research for Wildlife and Habitat Management. The System provides a network of outdoor laboratories for wildlife research, and many refuges are being used by independent researchers. Management-oriented research is essential to allow the System to address basic wildlife conservation questions and to maintain leadership in this field. Research is needed to develop predictive models of fish and wildlife habitat relationships. Nevertheless, there is currently no routine mechanism for identifying needs and securing funding. The formation of the Biological Resources Division of the United States Geological Survey resulted in the transfer of Service research personnel and funds. With this transfer, management-oriented research became more difficult to accomplish on refuges.

"When one tugs at a single thing in nature he finds it attached to the rest of the world…"

—John Muir

Management-oriented research needs to be prioritized for the System to provide a basis for determining appropriate research funding levels. A process is needed to identify, prioritize, coordinate, and communicate research needs to the Biological Resources Division and other research organizations. Each refuge must also identify information and research needs in the Refuge Operating Needs System database to articulate funding shortfalls. It is unlikely that the System will be able to retain the vision of refuges as centers of excellence in wildlife conservation without a strong research program, and a challenge will be to ensure adequate funding support.

Recommendation WH 15: Identify management-oriented research needs for each refuge based on System, ecosystem, and refuge goals. Develop an effective process to identify and provide resources required, as well as involve partners to accomplish high priority research.

The Biology of Public Use. Although the first refuges were managed as inviolate sanctuaries with no public use, the System soon changed and allowed more types and levels of public use on refuges. The System is currently managing public use through policies in the Service Manual and compatibility determinations made by each refuge manager. Compatibility has recently been more clearly defined in the Refuge Improvement Act. The Act refers to two main types of general public use: priority wildlife-dependent public uses (hunting, fishing, wildlife observation, photography, and environmental education and interpretation), and other general public uses. Refuges need to facilitate compatible wildlife-dependent public use, but not necessarily other uses. All uses must be judged against a common standard in order to be allowed—whether they materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.

Refuge managers often lack adequate scientific data on the effects of public uses on wildlife populations. There is a need to determine "thresholds" of public use (types and intensity) that can be allowed without adverse effects on wildlife populations. Thresholds for different types of activities could be used to make compatibility determinations that balance wildlife needs and human use needs.

Recommendation WH 16: Identify thresholds of disturbance for public use programs and develop associated standards and mitigative techniques that can be applied, as appropriate, by individual refuges to reduce conflict and achieve balance between public use and wildlife.

Strategic Growth—Land Acquisition

Numerous laws, not including refuge-specific legislation, give the Service authority for acquisition of land and water to conserve fish, plant, and wildlife habitat. The resource purposes of these laws include migratory birds, wetlands, endangered species, fisheries, wilderness, and general fish and wildlife habitat. The new mission statement for the System also includes the conservation of plants that by inference includes acquisition for their preservation. In addition, wildlife-oriented

recreation is one of the purposes for acquisition in the Refuge Recreation Act. In short, the Service has the authority to acquire a tremendous array of lands under the tenets of various laws and treaties or the special requests of Congress.

This open-ended framework for acquisition has presented a challenge to the Service, and for decades it has struggled with the dilemma of which lands and waters should be brought into the System. The 1968 Leopold Report concluded: "The national refuges constitute an open-ended system, and units will doubtless be added and others deleted indefinitely into the future. But these adjustments should follow a systematic procedure aimed at satisfying firmly defined goals." The 1992 Defenders of Wildlife report, *Putting Wildlife First*, recommended that "habitat acquisition, with emphasis on securing representative habitats from each bioregion, should be an integral part of system planning."

John & Karen Hollingsworth

The Land Acquisition Priority System, called LAPS, in use for over 10 years, provides a nationwide biologically-based evaluation procedure to prioritize lands and waters for acquisition. However, perhaps by practice and not design, LAPS is a ranking system sometimes applied after a decision has been made to pursue acquisition of certain lands. LAPS does not tend to answer which areas to acquire, but rather in what order.

The Refuge Improvement Act charges the Secretary of the Interior with planning and directing the growth of the System to accomplish its mission, to contribute to ecosystem conservation of the United States, to complement state and other agency efforts, and to increase support from partners and the public. The door has been opened to the profound issue of the System's role in ecosystem conservation, but the Service has yet to define and articulate that role, especially in the context of continued priorities for trust resource conservation.

The Service recognizes that one of the most important challenges in the land acquisition process is the development of integrated national and regional habitat goals and objectives. Additional data on North American floral and faunal distribution, species conservation status, and land cover information will help focus acquisition priorities. In addition to these efforts a plan should be considered that would link all habitats throughout North America.

National guidance is needed to establish this coordinated approach to ensure that the Service is pointed in the right direction and achieving the maximum possible benefit from land acquisition and protection. This guidance, incorporating national and regional wildlife habitat priorities, will be stepped down to the Service's Ecosystem Teams in order to provide consistent direction in defining the areas of greatest conservation concern. It should also ensure that LAPS and other land acquisition processes reflect the areas of greatest conservation concern and are aligned with this coordinated approach.

Ecosystem Teams should be the primary delivery mechanisms for establishing priorities and identifying areas of greatest conservation concern in their ecosystems. The synergy of the Ecosystem Teams working together with Federal, state, tribal, and private organizations will ensure that the Service protects the most important areas, and reduces acquisition planning redundancies. Working with all available partners will bring more on-the-ground results than any other available method. Additionally, working in partnership with others will increase the Service's base of support and funding at the national level. The Service cannot lead in each and every case, and in many instances its best position should be in support of others. New partnerships, along with comprehensive conservation planning, land acquisition planning, easements, private land enhancement, and other processes will provide the necessary building blocks to strategically locate and protect priority lands and waters of the ecosystem.

Recommendation WH 17: Develop a nationally coordinated approach, involving Ecosystem Teams and partners, for prioritizing lands and waters to support strategic growth in areas of greatest conservation concern.

Models of Land Management

The wide distribution of refuges throughout the country—in every state, along flyways and near urban centers—creates untold opportunities to demonstrate environmentally sound wildlife management to all people. This access to refuges, and the increased understanding of the value of habitat management that results from it, makes a profound difference in how the nation views its remaining undeveloped lands, as well as the potential for restoring damaged lands. In addition, to ensure that fish, wildlife, and plant resource needs are met, the Service must encourage other public and private land stewards to use sound management techniques such as wetland restoration and management, reforestation, and prescribed burning. Promoting land management such as stewardship and protection, while bringing to light the many benefits associated with habitat conservation, benefits all. With appropriate linkages and corridors through private and other public lands, our wildlife and plant heritage

will continue to flourish in an ever-increasing era of land development and growth.

Looking beyond refuge boundaries will not only protect current refuge lands, but will create a healthier environment for all living organisms, including humans. Environmental and human health concerns from contaminants, invasive exotic plants and animals, and declining water and air quality are all areas in which the Service can teach and lead by example. Aldo Leopold's philosophy still holds true today—all stakeholders must engage and realize that the land belongs to all of us.

"…move beyond your boundaries, and set in motion a broad pattern of public understanding and stakeholder support, and ultimately, of restoration in a broad scale in which we can all look back and say: 'it started here.'"

—Bruce Babbitt

Refuge staff certainly have proven they can stretch a dime while continuing to fiercely promote and defend the natural resource cause. However, due to limited funds and staff, and the escalating demands on refuge staff time, keeping abreast of advances in habitat management techniques is difficult. Land Management Demonstration Areas are places where new habitat management techniques and approaches are developed, implemented and showcased—places where professional land managers and others come to learn about cutting edge habitat management techniques and technology, and carry back with them the information and knowledge which allows them to better manage their own lands. The success of these demonstration areas will lead to an expanded ability to solve new resource challenges on other refuges, and on other public and private lands.

Demonstration areas do not preclude the need for *all* refuges to be models of habitat management, illustrating for the American people the irreplaceable values of the System. Indeed, only when our refuges are seen as a coordinated system will Leopold's vision be attained.

Demonstration Areas —Making it Work. Land Management Demonstration Areas would showcase habitat management techniques, increase communication, and promote continued advancements in technology to Service staff and other land managers. Actually walking a site and viewing management techniques and habitat results make an exceptional learning tool for both public and professional audiences. A set of refuges would be selected to serve as centers of excellence for developing and transferring information about land management techniques such as early successional forest management and moist soil management. These designated sites will have the commitment of a

Don Hultman

biological staff responsible for staying abreast of these specific land management practices, maintaining premier field examples of those practices, and developing new approaches to solving habitat management issues. Diligent efforts of the Service to seek support from partnerships, refuge support groups, challenge grants, the Refuge Operating Needs System, and other sources are essential to the success of these areas. Additionally, these sites will be used to train Service and other land managers in the art and science of effective habitat management and conservation. A task force will carry out the development of a plan to meet this need. This team will consider the demonstration potential of all refuges or their special areas including wilderness and Research Natural Areas, develop priorities and criteria for the site nomination process, and determine the number and distribution of sites necessary to fulfill the habitat management information needs of the System.

Recommendation WH 18: *Designate Land Management Demonstration Areas to facilitate development, testing, teaching, publishing, and demonstration of state-of-the-art management techniques that support the critical habitat management information needs for fish, wildlife, and plant conservation within the System and other lands.*

Setting the Example. All refuges have the obligation to set high standards for habitat management. Similarly, most refuges have an opportunity—through an active public use program—to demonstrate and educate the public on sustainable land management techniques and stewardship. Refuge lands perform a significant role in the encouragement of sound management and stewardship of public and private lands. Such lands support ecosystem objectives, joint venture initiatives, and broad-based landscape and biodiversity efforts. Influencing the awareness and the actions of others toward habitat restoration, enhancement, protection, and conservation improves the quality of habitats locally, nationally, and internationally for all species. Refuges throughout the nation will reflect the information and techniques developed and implemented at the Land Management Demonstration Areas, and thereby make a significant contribution to the conservation of natural resources through habitat management and stewardship for fish, wildlife, and plants on all lands.

Even with the best of intentions, funding and staffing limitations make it extremely difficult for the System to effectively reach the American public to promote sound land management techniques and resource decisions. A team will be assembled, involving External Affairs, the National Conservation Training Center, the United States Department of Agriculture, and other appropriate parties to determine the most effective way to proactively communicate land stewardship to the general public. An outreach program specifically targeted at conveying sound land management techniques for fish, wildlife, and plants will complement ongoing initiatives, such as extension programs.

Setting an example in the System also entails setting an example in the use of the earth's resources. Each refuge should become a model of the basic tenets of material conservation: reduce, reuse, and recycle. Our land management practices, from office work to farming, should be environmentally sound and set a standard for conservation and care of soil and water as well as wildlife.

Recommendation WH 19: Develop an outreach and interpretive program on refuges which specifically demonstrates and conveys to the American people the importance of sound land management for the conservation of native fish, wildlife, and plants.

Recommendation WH 20: Renew emphasis on reducing, reusing, and recycling of materials and products used on refuges, and ensure environmentally sound and sustainable management practices.

People

Sharing a Passion for Wildlife

Introduction

From Sanctuary to Showcase

National wildlife refuges in the first decades of the 20th century were true sanctuaries. Many were guarded by citizen wardens who protected them from poachers and plume hunters. Visitors were rare—an occasional scientist, photographer, or bird watcher of means. But as the System grew, in the 1920s and 1930s, some refuges were opened to hunting and fishing. Then, in a move to broaden support for raising the price of the Federal Duck Stamp, a 1949 amendment to the Duck Stamp Act permitted hunting on 25 percent (raised to 40 percent in 1958) of the lands purchased for the System with Duck Stamp funds.

"We need the tonic of wildness—to wade sometimes in the marshes where the bittern and meadow hen lurk, and hear the booming of the snipe; to smell the whispering sedge where only some wilder and more solitary fowl builds her nest."

—Henry David Thoreau

Interest in using refuges for other recreation caught the fancy of the post-World War II generation. Americans loved to travel the nation's back roads, and there, amidst the hot prairies of the plains and the salt marshes of the south, they discovered their National Wildlife Refuge System. In 1951, the first year visitor use records were totaled, refuges hosted 3.4 million people. By the end of that decade, visitation exceeded 10 million.

They came for many reasons, some to fish, and some to hunt. Most came to share with family and friends the sights and sounds of wildlife and the wonders of the living world.

But many also came to recreate in other ways: to sail, swim, camp, water ski, bicycle, ride horses, sun bathe, and rock climb. Although these lands were dedicated to wildlife conservation, incomplete policies and an uncertain mission resulted in uses that were not always in harmony with a refuge's wildlife conservation purpose.

Guidance in the first Refuge Manual (1943) was brief. Conflicts between wildlife and public uses could be forecast, but the door was open to uses for the cause of building public support:

> "Public use of refuge areas will in varying degrees result in disturbances to wildlife populations, but this adverse effect will be offset on many refuges by the public relations value of limited public uses. As a general policy, recreational use on the refuges shall be held to a minimum commensurate with reasonable local demands."

Guidance in the late-1957 Refuge Manual on how to decide which public uses to allow hinted towards a wildlife first priority, but sent mixed signals:

> "While the primary use of National Wildlife Refuges is for the protection of wildlife, these areas are managed on a multiple-use basis insofar as this can be accomplished without defeating the objectives for which the area was established. Opportunities are afforded on many areas for fishing, hunting, picnicking, swimming, and wildlife observation."

The Refuge Recreation Act of 1962 and the Refuge Administration Act of 1966 placed into law the concept that refuges would be closed to all recreation uses, until a manager could determine that a proposed use was compatible with the refuge's establishing purpose and that sufficient funds were available to administer those uses. Refuge managers were responsible for making these compatibility determinations. Usually decisions were made locally, and in many cases, were based on local pressures and interests, likes and dislikes. A garden of different public uses grew from this approach.

Visitor use, which tripled in the 1950s, increased through the 1960s, and by the 1970s, nearly tripled again. Refuge staff, so well-trained and equipped to manage habitat and wildlife, faced new challenges with the task of managing an eager and active public.

The idea took hold that a better informed public could be a positive force in shaping conservation awareness, and thus policy and practice. Recreational facilities were constructed, and interpretive and environmental education activities were highlighted.

Refuges became showcases for wildlife. They became places for children to learn firsthand nature's lessons of adaptation and diversity, places for twilight strolls on the edge of a marsh, and places to pass on to a new generation a love for America's wildlife.

Partnerships in Public Trust

The first refuge was founded by a President, but it was a part-time boat builder who first called attention to the plight of the birds on Pelican Island. The Okefenokee Refuge was established by another Roosevelt, but not before citizens from rural Georgia hounded their legislators to take action to protect the swamp's vast wilderness. From San Francisco Bay to Minnesota Valley, from New Jersey's Great Swamp to Florida's Sanibel Island, citizen activists with a shared vision for wildlife stewardship took the lead in saving their corners of the earth from development and destruction. Dozens of national wildlife refuges were established through the public's push for legislative protection. Citizen action was the impetus for the System; it is still a driving force in its preservation.

And just as the first refuge manager started as a volunteer, volunteers today are a significant part of the System workforce. They account for over a million hours of work on behalf of national wildlife refuges every year, and they participate in every aspect of refuge work: banding songbirds, maintaining trails, monitoring air and water quality, and staffing information desks. If the job needs to be done, chances are good that a volunteer is doing it and doing it well.

Thus, the heritage of the System is intertwined with the will of concerned citizens. While partnerships are today a trendy commodity in government, for the System, they have been a way of life for a hundred years. This past success intensifies the drive to forge new alliances for a stronger System of the future.

In Service to Wildlife and People

Over 75 million Americans enjoy watching wildlife and participating in recreation associated with wildlife, but few really understand how best to provide the habitat essential to wildlife's survival. Refuges therefore, must help increase public understanding of wildlife's needs. When people value something, they are motivated to action. When people understand the connections between land management and larger resource issues in their lives, they are in a better position to make wise resource decisions.

"Suffice it to say that by common consent of thinking people, there are cultural values in the sports, customs, and experiences that renew contacts with wild things."

—Aldo Leopold

The System preserves that part of the American heritage that is as common as a robin and as rare as a condor, as sturdy as cypress and as delicate as an orchid. People will want to see and enjoy this part of their legacy, and be assured of its sound stewardship. Public involvement in refuge management has always been important, but a better educated and informed public has taken on a greater role in

Chuck Bosch

management decisions. New laws require seeking the public's opinion on management decisions; common sense compels us to listen and respond.

The future of wildlife is best assured by raising the public's awareness and understanding in wildlife conservation. This can be done effectively on national wildlife refuges where visitors can see for themselves the connections between people and wildlife, habitat, and land management. Well-designed interpretive signs and exhibits explain wildlife's needs and management actions. Many refuges become learning laboratories where environmental education programs help teach youth about fish and wildlife resources. They are special places where children and adults can link with the land and its resources through hunting and fishing. They are places where the people of today can renew the ties to their cultural heritage by viewing ancient and historic sites. These ties, delivered through the System's public use programs, strengthen the connection between wildlife and people. While helping to instill a land ethic in our youth, refuges can also show landowners how to make sustainable use of their lands and leave room for wildlife. Ever greater numbers of people are being reached through timely and effective outreach efforts.

With a century of experience, the System has learned that people are as much a part of our landscape as the habitat we manage. Our visions for the System are thus painted with the hues of public enjoyment, understanding, and involvement.

Vision for the Future

The National Wildlife Refuge System of the next century will provide the American people a *Legacy of Wildlife*, a *Place Where Visitors are Welcome*, *Opportunities for Stewardship,* and a *System to Appreciate.*

A Legacy of Wildlife: *A strong and vibrant System provides an enduring legacy of healthy fish, wildlife, and plant resources for people to enjoy today and for generations to come.*

A Place Where Visitors Feel Welcome: *Visitors find national wildlife refuges welcoming, safe, and accessible, with a variety of opportunities to enjoy and appreciate America's fish, wildlife, and plants.*

Opportunities for Public Stewardship: *Visitors and local communities recognize refuges as national treasures, actively participating in their stewardship and standing firm in their defense.*

A System to Appreciate: *Americans know that each wildlife refuge is a part of an enduring national system. They understand and support the System's tremendous contribution toward wildlife conservation.*

Issues and Needs

Providing Quality Wildlife Experiences

More than 30 million people visit national wildlife refuges every year. Refuges are the "front yards" for the Service, providing people a first-hand opportunity to experience the Service and its range of activities. Refuges provide visitors with an understanding and appreciation of fish and wildlife ecology and help people understand their role in the environment. Additionally, refuges are places where high-quality, safe, and enjoyable wildlife-dependent recreation connects visitors to their natural resource heritage.

The Refuge Improvement Act recognizes the importance of a close connection between fish and wildlife and the American character, and of the need to preserve America's wildlife for future generations to enjoy. It mandates that compatible, wildlife-dependent recreational uses involving hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation are the priority public uses of System. By enjoying these wildlife-dependent activities, the American public further develops its appreciation for fish and wildlife. The Act calls for the System to provide increased opportunities for

families to experience compatible wildlife dependent recreation, especially opportunities for parents and their children to safely engage in traditional outdoor activities such as fishing and hunting.

Refuges and waterfowl production areas offer visitors countless opportunities to witness some of the world's most amazing wildlife spectacles amidst breath-taking scenery. Brant in numbers that blacken the sky can be seen over the rich eelgrass beds at Izembek Refuge in Alaska. The deafening chatter of a million mallards can be heard among the solemn bottomland hardwoods at White River Refuge in Arkansas. Thousands of sandhill cranes create a spectacle of sight and sound against the backdrop of the Magdalena Mountains at Bosque del Apache Refuge in New Mexico. Over 300,000 Canada geese create a natural drive-in theater for visitors along major highways as the geese return at dusk to the huge marsh at Horicon Refuge in Wisconsin. And millions of horseshoe crabs can be seen lining the tidal shores on Bombay Hook Refuge in Delaware, to be followed by another spectacle as tens of thousands of migrating shorebirds refuel on the billions of eggs left by the crabs.

"For us in the minority, the opportunity to see geese is more important than television, and the chance to find a pasque-flower is a right as inalienable as free speech."

—Aldo Leopold

The habitat that makes refuges attractive for wildlife has also attracted people for over 12,000 years. More than 11,000 archaeological and historical sites have been identified on refuges, while thousands more remain unidentified. These sites provide significant opportunities for linking people to landscapes. Examples include the Spanish settlers who constructed irrigation ditches across the valley that became Alamosa Refuge in Colorado, the people who gather rice on the marshes that are now Rice Lake Refuge in Minnesota, the hunters and mound builders who lived and died in and around the great swamp we now call Okefenokee Refuge in Georgia, and the thousands of settlers in wagon trains who stopped for rest and water at the Green River on what would become Seedskadee Refuge in Wyoming. The System also has an opportunity to link with national historic celebrations such as the bicentennial of the 1803 Lewis and Clark expedition which passed through many present-day refuges.

The cultural resources people left behind, their "footprints on the landscape," provide a historical record of their relationship with natural resources. Learning the history of Americans' relationship to wildlife and the environment, through interpretive and environmental education programs, can be the first step in understanding and developing solutions to current issues.

Quality public use programs will ensure that refuge visits are as special as the places themselves. Ensuring quality means taking care of the details: visitor safety, setting and meeting facility and program standards, providing exemplary customer service, and having sufficient data for monitoring and improvement.

Protecting Refuge Resources and Visitors. Protecting refuge resources and the safety of visitors are the most fundamental responsibilities of refuge managers. Managers are accomplishing this responsibility primarily with staff who have law enforcement as a collateral or part-time duty.

Refuge law enforcement has always been a dangerous job—a job that daily puts refuge officers in harm's way. It is a job which more than once has cost the lives of refuge officers. As crime continues to find its way to rural America—and as refuges become more a part of the urban and suburban landscape—refuges face a larger and more complicated enforcement problem. In addition to over 10,000 natural resource violations every year, serious felonies, including homicides, rapes, assaults, and acts of arson occur on refuges every year.

During the National Wildlife Refuge System Conference (October 1998), a break out session discussion focused on the need to develop national standardized position descriptions and career ladders for full-time and dual-function officers that provided retirement benefits, where justified, and the need to establish full-time regional and national law enforcement coordinators to manage and advocate refuge law enforcement program needs.

John & Karen Hollingsworth

It is vital that the Service solve the dilemma of how to provide basic visitor and resource protection services with limited staff and funding. On some refuges, full-time law enforcement officers are helping meet the increasingly complex task of refuge law enforcement. Yet, most refuges cannot afford a full-time law enforcement position. Can full time officers be shared between refuges? Is the collateral-duty law enforcement officer model viable in the 21st century? Do full-time officers have a career ladder within the Service? Are there ways to contract out enforcement protection? Is training adequate to keep pace with enforcement problems? What is the legal risk to individuals with enforcement responsibilities? A thorough assessment of refuge law enforcement is long overdue. This assessment

should be done by a mix of staff, including full-time officers, collateral-duty officers, regional and national coordinators, the Division of Law Enforcement, and staff from sister agencies who face these same issues.

Recommendation P1: Assess the status of public safety and resource protection provided by refuge law enforcement officers, and make recommendations for the future direction of law enforcement in the System. This assessment will determine appropriate staffing, position classification, training, recruitment, retention, retirement, and career pathways for refuge officers.

Meeting Minimum Standards. The Service recognized the importance of public use as a goal of the System, and in 1984, developed ten National Public Use Requirements as minimum standards for refuge facilities and programs for visitors:

– *set station public use goals;*
– *project a positive attitude;*
– *welcome and orient visitors;*
– *develop key resources awareness;*
– *provide observation opportunities;*
– *provide teacher assistance;*
– *maintain quality hunting programs;*
– *maintain quality fishing programs;*
– *manage cultural resources; and*
– *explore public assistance opportunities.*

In the past, and to varying degrees throughout the country, these minimum public use standards were used in refuge evaluations called Public Use Reviews. In the Great Lakes-Big Rivers Region for example, the public use review has been tied into an overall refuge evaluation. Another option included conducting a more specific and comprehensive public use review separately for refuges with more complex programs. The public use review teams consisted of regional office staff, often including refuge supervisors, as well as field public use staff and the refuge manager and staff. These public use reviews provided complete documentation of the facilities and program improvements needed to attain the public use service identified in that process. The regions need to recommit to the Public Use Review process, and ensure

"Recreational development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind."

—Aldo Leopold

that they are accomplished in conjunction with the preparation of Comprehensive Conservation Plans, and then on a regular cycle.

Although the premises behind the ten National Public Use Requirements are still valid in general terms, they are outdated and do not reflect the Refuge Improvement Act, National Outreach Strategy, National Wildlife Refuge System Volunteer and Community Partnership Enhancement Act of 1998, and directives on accessibility, compatibility, and law enforcement.

In addition, reviews of public use programs will need to include a review of cumulative impacts on the resource from visitor use, an analysis of audience and messages used in interpretive and education programs, interactions between user groups, the refuge's role in outreach, and how the refuge can most effectively meet the needs of visitors with disabilities. These reviews will reinforce a more consistent application of national public use policies leading to a stronger System, and visitors to any refuge will have a clear expectation of the products, experiences, and services available during their visit.

Recommendation P2: Update the National Public Use Requirements. Each region will conduct evaluations of refuge public use programs to aid refuges in meeting new standards, identify deficiencies in the delivery of visitor services, and document needs and set priorities in operational, maintenance, and construction project databases.

Reporting Consistently and Accurately. Public use data are collected by refuges and compiled and reported in the Refuge Management Information System database. While the database provides a strong platform for reporting and compiling visitor use information, the accuracy of the data collected at the field level is of inconsistent quality. Lack of information about how to efficiently measure the number of visitors who use refuges and waterfowl production areas, and the cumbersome process to receive survey approval are obstacles to improving public use counts. The use of existing data to identify trends is valid, but accurate information is needed to document results, evaluate service, and demonstrate accomplishments and results to Congress and the American people. Therefore, the Service should develop a Systemwide visitor counting survey and techniques handbook and train refuge staff to accurately and consistently report visitor use and evaluate the quality of the visitor experience.

Improving Customer Service. In 1996, the Service and the National Park Service developed a new system for evaluating how well they provided quality services and facilities to visitors. A "Customer Bill of Rights" was developed and a pilot survey project conducted to measure

the effectiveness in meeting the following standards: treating visitors with courtesy; responding to visitors in a timely and professional manner; maintaining a professional appearance and positive attitude; helping visitors understand who we are and what we do; keeping public facilities safe, clean, and accessible; and working in partnership with visitors to conserve fish and wildlife resources.

Visitor feedback cards were distributed to the public at selected refuges and evaluation reports were prepared by a Service contractor. While overall visitor satisfaction with basic customer services and facilities was reported as excellent (70%) and good (28%), only about 15% of the individuals who were given copies of the survey responded to the questionnaire. The survey will be redesigned to involve more refuges, contact a greater diversity of refuge visitors, increase the response rate, and improve delivery methods.

Core Competencies—Meeting the Needs of the Field

The System must have professional public use planners and specialists in recreation, interpretation, and education to provide the American people with more and better opportunities to enjoy compatible wildlife-dependent experiences on refuges. The Division of Refuges in Washington, D.C., the regional offices, and refuges must have staff with the core competencies necessary to properly balance the needs of wildlife and people. Landscape architects, environmental educators, interpretive writers, planners, graphic designers, exhibit designers, and other professionals in visitor service management, law enforcement, and volunteer program management, are critically needed. From the field to the regional and Washington offices, this expertise consistently falls short of need.

John & Karen Hollingsworth

The Washington office and most regional offices have only one or two outdoor recreation planners, education specialists, or interpretive specialists to provide nationwide and regionwide oversight and refuge support. None are adequately staffed to get the job done considering the size, complexity, and visitation of the System. Refuges looking for support, guidance, and testing of ideas are too often left on their own.

Refuges, the front line for public service, are similarly understaffed. In 1997, 114 refuges each hosted 50,000 or more visitors. However, less than half of these refuges have a staff person whose sole duties are to

provide public use services. While maintenance, administrative, and biological program staffs often have the greatest amount of face-to-face visitor contact, rarely have they received any customer service training. At most refuges, no one is specifically trained to plan or manage public use programs. Even the most visited refuges have only a skeleton crew to meet the visitor's needs and to take advantage of the Service's best opportunities to inform and educate the public about fish and wildlife resources.

All refuges need access to staff who are trained in managing public uses, and who are responsive to the needs of the field. Some refuges, with relatively lower visitation, might effectively be served by sharing public use staff. Refuges with higher visitation, with greater opportunities to efficiently provide public use benefits, or facing conflicts between public uses and resource values, need full-time public use staff. Refuge Comprehensive Conservation Plans and refuge public use evaluations will clarify field staffing needs. Inter-regional reviews of regional office capabilities and staffing are also needed to identify gaps in staff and skills. Sufficiently skilled and experienced staffs must be in place to fulfill the System's mission and protect its wildlife resources.

Recommendation P3: Provide each refuge with access to responsive, professional, public use management staff. The level of assistance needed at each refuge is identified in Comprehensive Conservation Plans, operational evaluations, and inter-regional reviews. Refuges, regional offices, and the Division in Washington will have public use staffs with the skills and abilities needed to efficiently and effectively meet the needs of the public and fulfill the System mission.

Compatibility of Uses—Raising the Bar

In the 1970s and 1980s, concerns were raised that some public and "secondary" uses of the System may be harmful to wildlife. Uses like waterskiing and power boating had become established on some refuges during the 1950s and 1960s. At first they seemed to be wildlife neutral but later were recognized as obstacles to wildlife management.

Refuge staff struggled to reduce or eliminate recreation that is not wildlife-dependent. Some efforts succeeded, but in other cases, resistance to change was insurmountable. A Wilderness Society survey, a Government Accounting Office audit, a Service-commissioned internal review of secondary uses, a Defenders of Wildlife report, and finally a lawsuit actually helped the Service address and eliminate secondary uses that were incompatible with the System's wildlife conservation purposes.

The Refuge Improvement Act put a finer edge on the principles of public use and compatibility. To ensure that the System's fish, wildlife, and plant resources endure, the law of the land now clearly states that their needs must come first. Thus, uses on a refuge are only to be allowed after they are determined to be compatible with the System mission and with the purpose of the refuge. The Service must now involve the public in compatibility decisions. This involvement is an opportunity to increase public recognition and support, and instill a sense of ownership in the System.

The law further asserts the foundational premise that compatible activities which depend on healthy fish and wildlife populations will be recognized as priority general public uses. There are six wildlife-dependent public uses—hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation—and these are, when compatible, legitimate and appropriate uses of the System and are to receive enhanced consideration over all other general public uses. As the House Report to the Refuge Improvement Act points out, the law is whispering in the manager's ear to look for ways to permit these priority public uses when the compatibility requirement can be met. However, the framers of the Act recognized that it is not feasible to provide all wildlife-dependent uses on all refuges. The decision on which compatible activities to allow on each refuge is a function of refuge purposes, wildlife and habitat objectives, local demographics, and attributes of the land itself.

To implement the Refuge Improvement Act, the development of comprehensively written, consistently applied public use management policies must remain a priority of the Service. New policies should provide specific guidance on whether and when to allow uses that may be compatible but are not one of the six priority uses, or which do not directly support a priority use. Uses that do not directly contribute to the achievement of the System mission or the purposes of the individual refuge are often inappropriate. Evaluating and deciding whether such uses should be allowed may involve a higher standard than compatibility alone. A decision process with criteria for determining which proposed uses are appropriate on a refuge needs to be developed and consistently applied System-wide.

Refuge managers also need better scientific information on which to gauge the immediate and long-term impacts of recreational uses on wildlife and its habitat. This need is addressed in the Wildlife and Habitat section of this report.

Recommendation P4: Develop and implement policy that gives clear guidance to refuge managers for determining appropriate and compatible public uses of the System, and provide clear, consistent guidance and support for the timely phase-out of those public uses not in line with such policy.

Putting The Greatest Needs First

The Service has the opportunity to demonstrate to the American people the beauty and value of the System and to reconnect people with their wildlife heritage. There is an opportunity to provide an experience that moves the visitor to greater understanding and appreciation for wildlife and of our stewardship of the System.

Yet, funding and staffing shortages continue to limit the Service's ability to provide the best quality experiences to the public. Capital development projects, like visitor centers, are funded based on local influences rather than on System or Service priorities. Several of the top ten most visited refuges do not have a visitor center or other facilities appropriate to serving their existing level of recreational public use.

Janet Tennyson

Some refuges with unusually high visitation can effectively enhance their interpretive and educational programs with visitor centers. However, the focus of most refuge public use facilities and programs should not be on creating more vicarious wildlife experiences, but on getting people in closer contact with refuge habitat and wildlife. A long-range strategy and Visitor Improvement Priority System is needed to better describe public use deficiencies and articulate public use priorities, including visitor centers, to Congress.

This Visitor Improvement Priority System would be a subset of the Refuge Operating Needs and Maintenance Management systems, and should be generated through comprehensive planning, refuge evaluations, and annual work planning. This Priority System would provide a national funding process that evaluates each refuge's potential, or demonstrated ability, to provide wildlife-dependent public use. The Priority System's ranking criteria and process would provide the Service with a consistent, mission-based strategy and rationale for establishing budget priorities and would also provide an important tool

for funding basic visitor services as new refuges are planned and acquired.

Finally, the Service should continue to provide the public safe, enjoyable, and accessible wildlife-dependent public use by designating a portion of any overall annual System operational increases (new funding) for completing these priority projects. Renewed public use reviews and a Visitor Improvement Priority System will give the System valuable tools to justify funds to bring each refuge up to national standards for public use.

Recommendation P5: Establish criteria for a national Visitor Improvement Priority System to rank operational, maintenance, and construction projects for public recreational use programs and facilities. Continue to dedicate a portion of project fund increases toward providing priority visitor services.

Making the Most of Fees

The System has multiple sets of rules guiding fee collection from the visiting public. The Land and Water Conservation Fund Act established a process for identifying and collecting recreation user fees. The Emergency Wetlands Resources Act of 1986 expanded the Service's authority to collect refuge entrance fees. Congress further altered the fee program with the Omnibus Appropriations Act of 1996, which initiated a pilot fee program for entrance and recreation user fees. Each of these laws generated new policies and overlapping implementation standards. Confusion and conflicting information has hampered the efficient use of these authorities. Managers frequently report discrepancies between Service Finance Center reports and refuge collection transmittals.

During the System Conference break-out session discussions, there was consensus that fees returning to refuges should not result in a reduction of base operational, maintenance, or other funds. Also, funds from fees should remain with the refuge collecting them to enhance visitor services.

While few refuges use concessions to supplement recreational programs and facilities for the public, they can provide significant enhancements to the Service's ability to meet visitor needs. Yet, existing law limits the Service's ability to require concessioners to upgrade or perform major maintenance tasks on concession facilities, and refuges must often absorb the costs of repairing and maintaining these facilities. Moreover, refuges receive little of the funds generated by the concessions. The government's share of concession revenues is deposited into the Refuge Revenue Sharing account—little is ever

returned to the refuge to defray management costs. Clear authority and better policy is needed on how to recoup revenues generated by concessions.

An evaluation of the pilot fee program, and a hard look at existing concession authorities and policies, should be conducted by a team of refuge managers and Service concession, fee, and finance experts.

Recommendation P6: Complete fee and concession management policies and accounting procedures, and work for clearer authorities regarding fees and concession management, in order to increase funding returned to the collecting refuge.

Weaving the Refuge Support Structure

The System and its wildlife have long relied on the power of an involved public. Citizen activists and conservationists, particularly sportsmen and women, were the first to give voice to the call for protection of land and waters for wildlife. They are still among the System's staunchest supporters.

Today, the System benefits from the work of more than 30,000 volunteers who each year contribute over a million hours, helping with almost every facet of refuge and waterfowl production area management: from teaching school children to repairing roads; from conducting bird surveys to clearing trails; and from writing newsletters to organizing files. Volunteers fortify refuge staffs with skill and energy, and by becoming knowledgeable about the refuge and its wildlife, they become advocates in the local community.

Investing in the volunteer workforce not only helps get much needed work accomplished, but it builds personal relationships and improves the Service's credibility within communities surrounding refuges. Yet, while the Service's enlistment of volunteer help continues to grow, obstacles remain at many refuges. Some refuges are reaching the limit of their ability to properly direct and supervise a comprehensive volunteer program. On other refuges, the limit to volunteer growth might be lack of physical facilities, like housing. On a few refuges, key staff may be reluctant to enlist volunteer help for a variety of management or personal reasons. For the System to realize its full potential, a vibrant corps of volunteers is essential and all obstacles need to be understood and overcome.

The System also benefits from partnerships with citizen groups organized to support individual refuges, or a complex of refuges. Over 150 local refuge support groups, including Friends organizations, cooperating associations, Audubon Refuge Keepers, and other community organizations dedicated to a natural resource cause, are

now affiliated with refuges. While these organizations come with a variety of names, shapes, and organizational structures, they all share one common quality: each is a community of civic-minded people committed to improving and protecting refuge resources.

As these organizations mature, they not only become invaluable to their home refuge, but can assist with watershed or ecosystem-level conservation efforts. By networking and connecting with each other, they can also tighten the fabric of support for the entire System. This network of support will be realized when a refuge in Florida faces a threat, and refuge "friends" across the country feel the tug of concern and are spurred to action.

Both the National Audubon Society and the National Wildlife Refuge Association, working in partnership with the Service, have developed training workshops, mentoring programs, support networks, and guidebooks to help nascent organizations get started. Refuge managers must be up to the task of working with both supporters and non-traditional audiences to forge new partnerships. The Service should invest in training and incentives for community involvement and consider these abilities as significant factors in the selection and promotion of refuge managers.

Experience demonstrates that Service employees who do more than react to the operational tempests of the day, and who take the time to serve as envoys in their communities, can accomplish more for their refuge and the System. They promote a greater understanding of wildlife resource issues, and build personal relationships with key community leaders.

"Never doubt that a small, thoughtful group of concerned citizens can change the world. Indeed, it is the only thing that ever has."

—Margaret Mead

As refuge staff become more involved in community partnerships, they will be better positioned to participate in local and regional planning and development decisions that impact the refuge. Managers need to be more familiar with community decision making processes and with the tools each community uses to manage and regulate land uses—zoning and land use plans, watershed boards, chambers of commerce, and development boards—so that gateway communities see refuges as partners in progress, not roadblocks to growth.

To this end, the Service needs to develop guidance and training for refuge staff on land use planning, zoning, water uses, utility services, clean air and water regulations, and other land regulations so that they can better work as partners with community leaders in managing lands at the landscape level. In this arena, the System has much to gain from

an exchange of Service expertise. Staff from Ecological Services, Fisheries Assistance Offices, Engineering, and others have experience and technical expertise that will help prepare the Service for land use challenges which will affect refuges now and in the future.

Part of a dialogue with communities and their leaders should be a full accounting of the impacts refuges have in local communities, both economially and through intangible contributions to the quality of life. Good, clear documentation of the values of refuges to their community can be a powerful tool for community and refuge planning. The Service needs to develop economic models to assess the benefits of refuges to local residents.

John & Karen Hollingsworth

For instance, refuges provide a draw of customers for local merchants who sell outdoor recreation equipment and for businesses that provide food, lodging, and other commercial services to travelers and tourists. Higher property values of lands adjoining refuges, and the effects of refuge payroll and operational spending all may contribute to local economies. According to the Service's 1997 *Banking on Nature* report, refuge visitors alone spent $400 million in local communities. The Service's Division of Economics should continue to measure and report these economic benefits and make the information broadly available.

Many businesses benefit from refuge operations, and it is with the business community that the prospects for new partnerships hold both tremendous potential and challenge. The Volunteer and Community Partnership Act promotes non-Federal partnerships with refuges and will encourage donations and other contributions to the System.

The Service has for many years enjoyed partnerships with states and Tribes in the stewardship of fish, wildlife, and cultural resources. However, the Service is just beginning to explore relationships with members of local business communities and with the corporate community at large. The System could be an attractive option for corporations seeking ways to serve the community or to improve their global environmental image. Ethical and fairness issues need to be clarified, and potential conflicts of interest resolved. Developing

corporate sponsorship policy is a first step which could facilitate more effective and innovative ways of enhancing resources for the benefit of the System.

For nearly 100 years, the System has tapped into an almost unlimited reservoir of support from individuals, organizations, academia, nonprofit groups, community leaders, and businesses. With the passage of the Volunteer and Community Partnership Act, the System has legislative authority to vigorously address current barriers to engaging volunteers and community partners in our daily work. With encouragement, training, staff support, and clear guidance, new allies will be found, new partnerships developed, and the circle of support will widen and strengthen.

The Volunteer and Community Partnership Act encourages volunteer programs, and establishes a refuge Senior Volunteer Corps. The law encourages refuge education programs that improve scientific literacy and promote understanding and conservation of fish, wildlife, plants, and cultural and historical resources. Further, the law provides new and stronger authorities for the Service to enter into partnerships, using cooperative agreements, which lead to better public facilities and programs.

Recommendation P7: Forge new and non-traditional alliances to broaden support for the System by establishing citizen and community partnerships on all staffed refuges.

Recommendation P8: Strengthen partnerships with states, Tribes, nonprofit organizations, and academia. Develop new policies and authorities for establishing formal relationships with the business community.

Outreach—A Vital Tool for the Future

The Service recognizes the crucial link between public awareness and effective management of the System. The American people cannot appreciate or support what they do not know exists or do not understand. The Service must build a stronger base of public understanding, support, and activism beyond that portion of the American public who visit refuges.

In 1995, the Service began a concerted effort to build public recognition and support for the System by implementing a nationwide communications strategy called the *100 on 100 Outreach Campaign.* The 100 on 100 phrase refers to a goal of having 100 percent of Americans aware of the System by its 100th anniversary. This campaign focuses on communications with five priority audiences (referred to as the "5 C's") considered to have the most influence on the System: Congress, conservation organizations, communities surrounding refuges, the communications (news) media, and corporations. The campaign also includes efforts to increase internal awareness of the System and its role in the Service's mission. The campaign calls for use of consistent messages—the basics of what the public should know about the System—into communications. It identifies the best means and products for delivering these messages to the priority audiences and the general public.

The Service initiated a similar yet broader effort when the *National Outreach Strategy: A Master Plan for Communicating in the U.S. Fish and Wildlife Service* was launched in 1998 to increase public awareness of the agency's leadership in wildlife conservation through all of its programs. The System's 100 on 100 campaign complements the national strategy. Because of its special land management role in the Service's mission, the System is in a unique position to showcase other Service programs to the American public.

"The care of rivers is not a question of rivers, but of the human heart."

—Tanaka Shozo

Assessing the Status. The 100 on 100 campaign and investments in outreach personnel at all levels of the Service have helped bring about several milestones for the System, including passage of the Refuge Improvement Act, the solidification of the 18 sportsmen's and environmental groups making up the Cooperative Alliance for Refuge Enhancement (CARE), and the largest funding increase in the System's history to address its maintenance and operations needs. The Friends Initiative has fostered a surge of support from over 150 community partners. Hundreds of Service offices are now enthusiastically sponsoring National Wildlife Refuge Week, National Fishing Week, International Migratory Bird Day, and other special events to showcase the System to the American public. There is also

more support from upper leadership when refuges or the System face outside threats.

These are just a few reflections of the stars aligning in growing support for the System, resulting, in large part, from the Service's investment in outreach. These new opportunities set the stage for a stronger System to make its debut, performing to its full potential in safeguarding our wildlife heritage, and helping our key constituencies understand and appreciate their role.

The Service is learning to strategically and effectively apply communications in supporting the System, and efforts should be continually refined and improved. Changes in System communications needs and lessons learned since the 100 on 100 campaign was launched call for updating, strengthening, and focusing it in certain areas. In addition, the Refuge Improvement Act and the Volunteer and Community Partnership Act have provisions which have impacts on outreach.

A comprehensive baseline study should be conducted to measure the effectiveness of the outreach campaign and to determine the American public's current level of recognition of the System, where new efforts should be focused, what messages need to be conveyed, and what tools should be used to reach target audiences. The effectiveness of outreach efforts should be monitored in three-year intervals to refine strategies.

USFWS Photo

The 100 on 100 campaign's subtitled goal: "An action plan to achieve 100 percent awareness of the System among all Americans by our 100th birthday," is unrealistic and incongruous with the strategy outlined in the campaign, which actually focuses on the 5 C's, as a means to strategically expand our support base. There is no shortage of enthusiasm for promoting the System, but the Service's challenge is to strategically channel this enthusiasm to achieve the most effective awareness and support of the System.

Presenting a consistent image and consistent messages in outreach products has been a good start to fulfilling the responsibility of managing refuges as part of a larger system of lands. Basic products for communicating the purposes and values of the System have been developed and distributed throughout the Service. These include fact sheets, Internet homepages, videos, press releases, and brochures; more are being developed and improvements in focus and consistency are a priority. Products should be continually evaluated for their effectiveness in meeting national and field level needs.

Reaching Key Audiences. Growing Congressional support for the System is evidenced by passage of the Refuge Improvement Act, the historic $42 million funding increase in 1997, refuge road repair funding provided by the Transportation Equity Act, and annual sponsorship of Congressional receptions in honor of National Wildlife Refuge Week. Raising Congressional awareness of the System's mission and values has been a major focus at the national level, and some regional offices have vigorously sought opportunities to brief Congressional members on the Service and the System. Congressional support also is largely due to efforts by employees at all levels of the Service who document funding needs through the Refuge Operating Needs and Maintenance Management Systems databases. Congressional support is most likely to continue with thorough documentation of how funding increases are applied and through continued support to the CARE group.

Friends groups and volunteer efforts have been successful in broadening support from another 5 C group, communities. Fostering relationships with community leaders, addressed in a previous section, will undoubtedly strengthen this aspect of public support-building. National Wildlife Refuge Week and other special events at refuges also contribute greatly to better community relations and awareness.

The biggest success in growing support among conservation organizations came through the establishment and work of the CARE group. Other major partnerships include memoranda of understanding with the National Audubon Society, leading to that organization's Wildlife Refuge Campaign; the National Wildlife Refuge Association and its support for the Friends Initiative and other grassroots campaigns; Safari Club International; and the North American Nature

Photography Association. The latter two partnerships need more attention to maximize benefits to the System.

Communications through the news media is an important component of the outreach campaign due to its potential for reaching large numbers of Americans. Although media coverage of the System has steadily grown in recent years, coverage has not yet matched the campaign goals or the need for nationwide publicity. Outreach to the media at the local level has grown tremendously, but is hindered at many refuges by a lack of employees with specialized media skills. Coverage could be broadened considerably with support from media specialists, especially in lending their expertise to tailor refuge special events and activities. The System's centennial, in 2003, offers an excellent opportunity to bolster nationwide media coverage.

Corporate partnerships in support of refuge activities abound, especially because of growing support from businesses in communities surrounding refuges and the Service's Challenge Cost-share Program. A special emphasis on pursuing partnerships with national corporations could benefit Refuges nationwide, not only because of the potential for donations, but also in terms of publicity for the System. This support would be especially beneficial to outreach efforts relating to the centennial.

Lastly, the outreach campaign focuses on increasing awareness of the System among all Service employees. A current focus relating to internal awareness efforts involves better informing employees, especially those specializing in communications, about the campaign strategy and how they can more effectively participate in it. For employees not yet involved in outreach, they would be more inclined to embrace it as a critical wildlife management tool if they recognized the link between recent System successes and the investment in outreach. For that reason, internal communications should highlight outreach accomplishments. Although System employees are undoubtedly its best proponents and educators, effectiveness can be increased by broadening knowledge of the System across all Service programs. Greater internal awareness will facilitate cross-program camaraderie and exchange of expertise.

A revised outreach strategy would continue efforts to reach these target audiences, but also expand our vision beyond our neighbors to reach urban and suburban audiences and culturally diverse peoples. One of the keys to reaching these nontraditional audiences is to provide outdoor classroom experiences for students of all ages. The Volunteer and Community Partnership Act requires the Service to "develop guidance for refuge education programs to further the mission of the National Wildlife Refuge System and the purposes of individual refuges through…providing outdoor classroom opportunities for students on national wildlife refuges…, promoting understanding and

Mike Hemming

conservation of fish, wildlife, and plants and cultural and historical resources of the refuges; and…improving scientific literacy…"

The Act further encourages cooperative efforts with state and local education authorities and partners to develop and implement these programs.

Supporting the Service. The refuge outreach campaign can be tailored to better support efforts under the Service's National Outreach Strategy. The System mission and values are relatively easy to communicate and could easily serve as a focal point for the National Outreach Strategy. The System's centennial in 2003 presents a major opportunity to publicize the System and the Service, and specific outreach activities should be planned. System outreach could easily advance the National Outreach Strategy goals to increase awareness and support for the Service among nontraditional constituents and work more with organizations and individuals who manage or own lands.

Adding to our Toolbox. A review of the existing refuge outreach campaign also offers an opportunity to update the communications toolbox. In particular, the Service has made great strides in developing websites to reach out to huge audiences. These efforts must continue to be expanded, improved, and made more consistent in design and message. Our capabilities in other media, such as videography, also are expanding, particularly with new facilities at the National Conservation Training Center and at various regional video labs. Long distance learning opportunities now can bring scientists working on remote or

inaccessible refuges directly into classrooms to show students the wonders of the natural world. The possibilities for communication using these and other new technologies are virtually endless and can greatly enhance our outreach efforts.

Recommendation P9: Update and strengthen the System's 100 on 100 outreach campaign. The revision should incorporate provisions of new legislation, complement the Service's National Outreach Strategy, seek support from nontraditional constituents, and take advantage of the outreach potential of the System's centennial in 2003.

Building a Broader Base of Support

America's population and lifestyles are rapidly changing and the pace of change is likely to accelerate. Long the cultural melting pot, America is becoming even more urban, and more diverse. A report from American Demographics and the National Park Service's 21st Century Task Force predicts:

> "Whites will no longer be a majority group in several states (such as California); Asian and Hispanic populations will dramatically increase, with Hispanics outnumbering African-Americans by 2010. Politics will be altered: by 2000 most mayors in the nation's big cities will be people of color…"

Despite these changes in demographics, the demographics of System visitors and supporters have remained fairly constant. Refuges must adapt to demographic and social changes by finding ways to reach a larger cross-section of the populace, and ultimately raise literacy in wildlife conservation and its importance to a healthy human environment, even among those who may never visit refuges.

The challenge today is to engage the American public at large—from the Beat Generation to Generation X, from the West Indian immigrant to the Cherokee Nation, from the farmer next door to the inner city school child—in a dialogue about the contributions of wildlife to a healthy human environment. Pathways need to be found to communicate the link between conservation of wildlife and quality of life, whether communication is with people in the inner city, in the most affluent suburb, or the small towns across rural America.

The System can build upon this country's proud natural and cultural heritage and traditions to build a common link to all Americans. Programs and outreach efforts that focus on cultural resources, fishing programs for inner city children, environmental education efforts on refuges near large cities, and special hunting programs like Youth Waterfowl Day can provide many tangible links to minority communities.

Diversity is not about numbers or laws; it is about a way of viewing the world. It is enrichment. Through involving a diverse group of Americans in stewardship of wildlife resources, the Service gains new ambassadors who communicate with their peers with feeling and in their own vernacular, and promote the System and the larger conservation cause. A more diverse workforce engaged in a broader public dialogue will bring novel ways of looking at old problems, and perhaps, solutions better suited to the 21st century.

Recommendation P10: Build a broader base of public support for wildlife conservation by reaching out and involving a larger cross section of the American public in our public use programs and community partnership efforts.

Leadership

Courage, Character, and Competence

Introduction

Doing the Right Things

Leadership is the catalyst that turns resources into accomplishments. Without leadership, the dollars and staff of the System never reach their full potential. With leadership, these resources present infinite possibilities.

"Look forward. Turn what has been done into a better path. If you're a leader, think about the impact of your decisions on seven generations in the future"

—Chief Wilma Mankiller

Management experts Peter Drucker and Warren Bennis distinguish management from leadership: "Management is doing things right—leadership is doing the right things." In his book *The 7 Habits of Highly Effective People*, Stephen Covey observes that while blazing a trail through the jungle, those who are just managers are occupied with determining the most efficient way to sharpen machetes. But, according to Covey, it is a leader who climbs the tallest tree, surveys the entire situation and shouts "wrong jungle."

Doing the right things in an environment of constant change will be the hallmark of leadership for the System in the next century. Those who lead the System will require agility, vision, passion, and outstanding communications skills. They will need to reconcile the rapidly changing landscape of politics and public service with the unchanging laws of nature that drive ecosystem functions and values. Like ship captains in a stormy sea, effective leaders will rise to the challenge and steer a steady course to accomplish the System mission.

A Legacy of Leadership

The history of the System is a legacy of leadership. Reflection on this leadership, and the people who provided it, presents a benchmark for those who will lead the System into and through a new century. The leadership legacy of the System and the Service involves both giants in the conservation movement and virtually unknown employees and citizens who, while focused on the resource, cast a shadow of leadership larger than themselves.

Theodore Roosevelt, considered by many to be our greatest conservation President, had great vision in setting aside dozens of areas of the public domain for wildlife conservation. The Roosevelt legacy includes not only refuges, but national forests and national parks. He knew the value of public land to the American people, not just in terms of timber and forage, but in quality of life and spirit. He was the first American President to recognize the value of landscapes and the diversity of life and outdoor experiences they provided.

USFWS Photo

The first refuge manager, Paul Kroegel, petitioned Roosevelt to establish Pelican Island refuge. He went to work protecting the refuge for a dollar per month, providing his own shotgun and boat for patrol duties, and even suffered a lay-off in what must have been the first downsizing in the System. Kroegel and others of the early refuge warden corps were paid a more liveable wage thanks to the fledgling Audubon Society chapters of the time. Several of these wardens died in the line of duty during gun battles with poachers. Kroegel remained active in the conservation movement until his death in 1948.

When J.N. "Ding" Darling became Chief of the Bureau of Biological Survey, the precursor of the Fish and Wildlife Service, he jump-started the effort to purchase and restore habitat for waterfowl and other wildlife using proceeds from the Duck Stamp Act of 1934. Like all good leaders, he assembled the best talent he could, hiring J. Clark Salyer from the prairies of Iowa. Salyer agreed to come to Washington for a year, but stayed over 30. He worked for many conservation giants, including Ira Gabrielson who succeeded Darling and became the first Director when the Service was formed in 1940.

USFWS Photo

As the first Chief of Refuges, Salyer drove across the country evaluating habitat for purchase and then, using his experience as an engineer, guided the restoration and development of these new refuges. He often stayed in the homes of refuge managers during his annual inspections, and in a way, began the sense of family that permeates the culture of refuges and the Service to this day. Because

of Salyer's strong leadership in the growth and development of the System, he is often referred to as the Father of the System.

Over the years, new leaders would emerge, often from the field. At Waubay Refuge in South Dakota during the 1940s, manager Fred Staunton became a leading advocate for wetland conservation. He started a biological monitoring program that not only counted breeding pairs of waterfowl, but documented the value of small prairie wetlands or potholes to the nation's waterfowl resource. His 1949 article, "Goodbye Potholes" in *Field and Stream*, paved the way for the Service's Small Wetland Acquisition Program which has safeguarded entire landscapes of wetlands and associated uplands across the vast prairie pothole country of Minnesota, Iowa, North and South Dakota, and Montana.

"And it is your obligation to… move forward…in a way that does not denigrate, dilute or diminish in the slightest degree that which came before you, because many thousands of men and women gave their careers, and some even gave their lives, for what you are working toward—saving dirt."

—Lynn Greenwalt

Refuge field employees have provided a quiet, unassuming leadership for over 95 years. Clerks, maintenance workers, outdoor recreation planners, park rangers, biologists, and technicians repeatedly threw their position descriptions to the wind to do what was needed on their refuge or wetland management district. Maintenance and administrative people especially have provided continuity to refuge programs during innumerable staff vacancies and manager turnovers, and they made do with little more than determination and innovation in the days when the System was truly poor.

Other Service employees enlarged the leadership legacy. Service biologist and manager Carl Madsen, realizing that refuge lands alone could not provide the habitat needed by waterfowl and other wildlife, articulated and executed a model program for working with private landowners. His vision and persistence led to the establishment of the Service's Partners for Fish and Wildlife Program in 1986. System biologists and equipment operators, side-by-side with their fisheries and ecological services colleagues, poured into the countryside from New England's coast to California's Central Valley and from the Mississippi Delta to the Prairie Pothole Region. Armed with laser levels, elevation stakes, and bulldozers, employees restored tens of thousands of acres of wetland and upland habitat, setting an example for all to emulate. Across the country, others have stepped forward.

San Diego Refuge owes its existence to Service endangered species biologist Nancy Gilbert who recognized that safeguarding habitat was the only way to preserve numerous species being overrun by development. Service ecological service's supervisor and former fisheries biologist Gail Kobetich championed the creation of refuges in Nevada and California that protect endangered fish. Service game agent Jack Watson spearheaded the establishment of a refuge in Florida to protect the diminutive Key deer. Service migratory bird biologist Jake Valentine championed the establishment of the Mississippi Sandhill Crane Refuge. A Minnesota conservation officer organized public support for establishment of Tamarac Refuge. A group of duck hunters in Alabama traveled to Washington and convinced Congressional leaders to establish Eufaula Refuge as an overlay to a Corps of Engineers' water project. Members of the Izaak Walton League successfully petitioned Congress to establish the 250-mile-long Upper Mississippi National Wildlife and Fish Refuge. Virtually every refuge manager today can point to a person or group who made their refuge possible.

USFWS Photo

Leadership has also been provided by many serving in Congress. One example is Congressman John Dingell of Michigan. The Congressman was instrumental in the development and passage of the Refuge Administration Act of 1966, which pulled disparate conservation units together as a system and established the standard of compatibility. His 40-plus years of leadership continues to this day as a member of the Migratory Bird Commission and through continued support of refuge legislative initiatives, including the 1997 Refuge Improvement Act.

These people, and countless more, have endowed America with a System of wildlands unequaled in diversity and beauty. They provided today's employees with a rich culture and a long history of dedication and service. They hurdled adversity after adversity with room to spare, raising the bar for those who follow. Tomorrow's leaders must not only look forward with vision, but glance over their shoulders from time to time to keep pace with the legacy of past leaders.

Vision for the Future

The leadership vision for the System is to identify and develop America's *Best and Brightest* to staff the System, to maintain and build *Esprit de Corps*, and to strengthen the *System Integrity* of refuges and waterfowl production areas.

Best and Brightest: *The Service identifies and mentors America's best and brightest to staff refuges and be future leaders within the System and the Service.*

An Esprit de Corps: *An Esprit de Corps and passion for refuges and the System are embraced by refuge employees and throughout the Service.*

System Integrity: *The Service provides a stable organizational structure and clear policy framework which promote integrity, adaptability, and creativity in managing the System.*

Issues and Needs

The Importance of Leadership

Leadership is about people. Leaders put employee needs for safety, job satisfaction, training, personal growth, and empowerment above all else. Nothing is more essential to mission accomplishment than the motivation and morale of people. Leaders recognize the importance of their decisions not only in terms of politics, media attention, and the ecological effects on land and wildlife, but how those decisions are made and communicated with the people who work for them. Leaders need to articulate a vision, give clear direction, and make tough decisions. Leaders set the example, delegate, and remain responsible. Leaders know the business and know their people through listening. Leaders motivate and mentor.

"A leader is best when people barely know he exists…when his work is done, his aim fulfilled, they will say 'we did this ourselves'."

—Lao Tzu

The mission of the Refuge System is clear: wildlife first. When the Service sets priorities to accomplish that mission, nothing exceeds the importance of leadership. As the System approaches its second century and enters the third millennium, leadership is the unequivocal prerequisite for mission accomplishment. Robust budgets, political support, public trust, and supportive legislation are necessary, but without visionary leadership they will not result in accomplishing the mission. All the money, staff,

technology, and legislation in the world cannot make "wildlife first," and are for naught without effective leadership. Great leadership exists on many refuges and throughout the Service. But, the quality of leadership remains inadequate in too many workplaces. The System and the Service need to make leadership development the top priority, now.

As we strive to develop the leaders of tomorrow, every manager must embrace the value of a diverse workforce. No more lip-service. Today's leaders must recognize that diversity is absolutely essential to mission accomplishment. Leaders at all levels must recognize the richness of ideas and innovations that workforce diversity brings to managing a wildlife heritage for all Americans.

Developing the full leadership potential of every employee should be a priority. As a minimum, the National Conservation Training Center should review current leadership curricula for possible strengthening through new or expanded courses, and consider renaming its Supervision and Management Branch to the Leadership Development Branch.

The Service's current "pass/fail" system of performance appraisal is inappropriate and woefully inadequate for evaluating leadership effectiveness and potential. The agency has no formal way to identify the leadership development needs of current and future leaders. New methods to evaluate leadership effectiveness are needed to provide the feedback managers and supervisors need to improve their leadership skills. Those evaluations should be separate from the supervisory performance appraisal and include input from subordinates and peers as well as supervisors. Likewise, the Service lacks and needs a system to identify and develop the leadership potential of new employees and personnel in non-managerial/non-supervisory positions.

Recommendation L1: Make leadership development the priority of the System and the Service.

Recruiting and Developing the Best and Brightest

The System, like the Service as a whole, is staffed by highly trained and skilled professionals whose dedication is unsurpassed in the Federal Service. The emphasis here on the refuge manager position series does not ignore the critical role of leadership development in all refuge and Service job series and positions. Every employee, in every discipline, has an essential leadership role.

The Service is challenged to develop staffing and leadership initiatives to meet the needs of a System that is expanding in both physical size and responsibilities. Recruiting the best and brightest does not just mean people with the highest IQ or diplomas from the most prestigious schools, but includes people who possess the qualities of determination, persistence, and imagination, and skills in communication.

Actions are needed to ensure that land stewardship improves and the System mission is achieved in the 21st century. This leadership vision reinforces many recommendations of the recent Refuges and Wildlife task force report *Career Progression, Training, Grade Levels and Cross-Program Opportunities Within the National Wildlife Refuge System*: recruit and retain a diverse workforce of high leadership potential, formalize leadership development and continuous learning, and prepare System leaders for senior and executive leadership of the Service.

USFWS Photo

The System and its responsibilities have expanded rapidly in the last two decades. Since the early 1980s, six to seven new refuges, on average, have been established each year. There are many new responsibilities, including planning, contaminants management, work on private lands, outreach, and building partnerships. Staffing has lagged behind these responsibilities, and too few entry-level positions exist on refuges, in part because of needed specialized positions in areas such as law enforcement, fire management, biology, and public use which have replaced traditional trainee positions. At the end of September 1997, there were only 25 refuge manager GS-5/7 positions within the entire System—only 25 people working and training below the journeyman level. These statistics foretell of a dwindling pool of talent for the future. Numerous refuge project leader and deputy project leader vacancies at the GS-12 and even GS-13 levels fail to attract adequate numbers of well qualified candidates. There have been no applicants at all for some refuge manager jobs. Building leaders for tomorrow also requires that the employees of today step up.

"Nothing in the world will take the place of persistence. Talent will not; nothing is more common than unsuccessful men of talent. Genius will not…the world is full of educated derelicts. Persistence and determination alone are omnipotent. The slogan "Press On" has solved and always will solve the problems of the human race."

—Calvin Coolidge

The System also lacks the workforce diversity it needs to thrive and grow in the future. Despite emphasis on women and minorities in

recruitment programs, some groups remain under-represented. Most new professional hires in the last 15 years have come through a cooperative education program. These programs have produced outstanding employees and remarkable new leaders, but not enough to meet System needs. The current Student Career Experience Program (SCEP) improved workforce diversity, but not enough, and has produced too few people interested in refuge manager positions.

The full potential of cooperative education programs to enhance workforce diversity is unrealized. Leadership must work harder to retain the diversity provided by SCEP recruits. SCEP students should be valued not just as summer help, but as potential career employees. More emphasis is needed, especially during initial work assignments, on ensuring that students are coached by mentors and challenged with broad and meaningful duties. However, a formal connection between SCEP and the Cooperative Fish and Wildlife Research Units of the Biological Resources Division, U. S. Geological Survey, is recommended to enhance recruitment of outstanding and diverse candidates.

John & Karen Hollingsworth

There is no shortage of well-qualified people who want to work on refuges, as witnessed by the hundreds who apply for temporary refuge biological technician positions each year and hundreds more who work as volunteers to get a foot in the door. However, reaching this pool of talent has been nearly impossible due to lack of permanent entry-level positions, and recruitment and hiring practices which do not give those outside of Federal government a chance to compete.

Specifically, the Service needs to double the number of permanent GS-5/7 positions on refuges, and recruit groups of entry-level professional employees from all sources. These groups of employees would be trained and mentored following the model used in the Division of Law Enforcement to hire special agents. At a minimum, this program would include annual, nationwide recruitment from all sources including recent graduates, temporary staff, volunteers, other Service programs, and other state and Federal agencies. Upon appointment, the class would be joined by recent SCEP graduates and immediately attend the Refuge Academy. The Academy would be followed by a group field work and training experience on a refuge lasting two to four weeks. Basic fire management and law enforcement training, as appropriate, would be completed prior to initial assignments.

New employees would receive initial two-year assignments to larger refuges with diverse management programs, available government quarters, and capable leaders. Providing a positive experience in the initial assignment is a key to retention. Leaders would emphasize the value of mentoring relationships and provide trainees with opportunities to establish career-long relationships that would continue through subsequent assignments. Recruiting nationally from all sources would produce the most diverse candidate pool possible, while initial group training would provide each employee with a peer group network for personal and career support. All applicants would know the expectations for nationwide assignment and a mobility requirement after two years. This one required reassignment would be made easier by having more refuge quarters available.

Recommendation L2: Establish a systematic recruitment, training, and mentoring program to hire the best and brightest, while creating a diverse workforce.

Keeping the Best and Brightest

Recruiting an outstanding and diverse workforce is only a first step. The System needs to retain greater numbers of its new employees. Employees leave positions for a variety of personal and professional reasons and the Service and the System will not retain every employee. However, leadership can maximize retention by caring, training, mentoring, and helping employees understand how they contribute to accomplishing the mission and what they must do to meet their personal career goals.

Leaders can also eliminate barriers to long-term employee retention. For example, meeting the needs of dual-career couples is an increasingly important challenge. While creating positions solely to accommodate dual-career couples is not routinely justified, the Service can do more to assist dual-career couples, including helping non-Service spouses find employment.

Moving is stressful and difficult for many employees, especially those trying to balance their careers with the needs of spouses and children. It is not realistic for the Service to go back to the standard practice of directed round-robin reassignments which were stressful to families and created a particular hardship for dual-career couples. Higher grades in the field, quicker career ladder promotions, and less use of directed reassignments aid in the retention of employees, but are obstacles to the organization's need for people with technical and leadership skills gained through varied experience. These challenges for both employees and management must be recognized and addressed by open communication and counseling during appraisals and the writing of employee development plans. Leadership must also explore options for developing employees such as short- and long-term details to other refuges or offices.

Just as leaders have a responsibility to ensure that employee promotions are based on merit factors such as past performance, employees have a responsibility to cultivate their potential for future leadership positions. Employees make choices and should not expect unlimited advancement in the absence of mobility. All refuge staff deserve a well-articulated road map for career development and employee mentoring must become systemic in tomorrow's System.

To address these issues and needs, the existing Employee Development Committee composed of Deputy Regional and Assistant Directors should continue to function and describe core competencies for all positions. The National Conservation Training Center has also made good progress on developing training on core leadership competencies in the leadership arena. The Committee's charge should include identification of retention barriers and reconciling those with the barriers to mobility. The Committee's work should result in a Service Manual chapter on career management, applicable to all Service programs, which would provide a road map for employee career and leadership development.

"It is only as we develop others that we permanently succeed."

—Harvey S. Firestone

That road map should be a web, recognizing there are multiple paths to achieve career goals and develop leadership skills. Even today, the Service is too diverse to expect that everyone with similar goals can follow the same route. The career management chapter should identify several suggested pathways for employees to follow to achieve core competencies. As a minimum, expectations for training, reassignments and tenure, details, and cross-program experience at entry, mid-career, and executive career phases should be identified. Equivalencies should be articulated: training and education vs. experience; cross-regional vs. cross-program experience; and multiple details vs. permanent reassignments.

Career pathways should be evident to all employees. The tractor operator whose goal is to be a maintenance supervisor, and the office automation clerk with a vision to be regional chief of contracting and general services deserve clear guidance as much as the assistant manager aspiring to be an Assistant Regional Director. It is critical for the System that the career development needs of its wage-grade and administrative personnel be clear. Maintenance workers, biological technicians, tractor operators, and administrative technicians are the core, the heart and soul, of most refuge staffs and the System cannot achieve its mission without them.

Retention issues for administrative and wage-grade employees should be addressed to ensure the Service becomes or remains competitive with the private sector. The aforementioned task force report on

System career progression contains specific recommendations to upgrade administrative positions through "administrative allocation." That recommendation should be implemented, and an equally rigorous evaluation of wage-grade retention and career development issues is needed.

Finally, the System and the Service need to identify complex and challenging field positions that will prepare leaders for regional and Washington, D.C. assignments. Conversely, the Service should also assess whether the most complex and highest-graded refuges should be led by those who have not only proven their mettle in the field, but have the scope of experience reflected in regional or Washington office assignments.

Recommendation L3: Enhance retention and formalize recommended career pathways to develop leaders at all levels of the System.

Continuous Improvement—Learning Something Every Day

Futurists predict that early in the 21st century, the entire body of human knowledge will double every week. While basic human needs for security, meaningful work, recognition, and empowerment—the things leaders must address to motivate others—may not change, just about everything else will be changing rapidly.

Although the Service is providing new tools for continuing education, evidenced by the new facilities and programs of the National Conservation Training Center, more emphasis is needed. Leadership is challenged to ensure that each employee remains in a learning mode throughout their careers. The Service must continue a paradigm shift from emphasis on short-term training requirements to long-term continuing education.

Jim Kurth

Effective leaders, at all levels, will recognize that there is no better investment than the resources spent on employee training and education. Even during austere budget years, continuous learning must be emphasized. If funds are not available to send a biologist to a distant symposium, the alternatives of coursework at local colleges, videos, on-line remote training, or journal subscriptions should be used.

Employees need to be encouraged to take advantage of the Service policy that makes a minimum of 40 hours of training or continuing education available to them annually. This training should be viewed by employees and supervisors alike as an addition to required annual certification training for fire management, law enforcement, or other specialties. Continuous training and education requirements should be linked to the career pathways need addressed in Recommendation L3, so employees will clearly know what is required to advance to new or more challenging positions.

Leaders must be mentors. Managers and supervisors need to recognize that time spent mentoring trainees, and communicating with their technicians, clerks, and maintenance staff is as necessary as time spent with the local Congressional office or newspaper reporter. Mentoring is an essential part of career-long learning. Systemic mentoring is also essential to developing and retaining a high quality and diverse workforce. Mentoring cannot be achieved simply by making policy and it cannot be forced by simply assigning sponsors for employees. It can only be effective when it is a voluntary and mutually agreeable personal relationship. Like the value of workforce diversity, mentoring must be cultivated and nurtured in Service culture through career-long education and training which constantly reinforces the concept in the total workforce.

Leadership at all levels should encourage and provide resources for more employee participation in a variety of professional development options. These would include certification by professional societies, attendance at technical meetings, off-refuge and cross-program details and temporary assignments, job-related coursework at colleges and universities, and opportunities for employees to earn advanced degrees.

Recommendation L4: Promote opportunities and an environment for career-long education and personal development for all employees.

Rising to the Top

Since 1994, there have been no Regional Directors or Assistant Directors with refuge management field experience. In addition, few Geographic Assistant Regional Directors have refuge experience. This lack of representation in upper management has been a serious concern, both for System employees and the Director. The reasons for the lack of refuge representation have been the subject of speculation and debate. More important is what proactive steps should be taken to provide refuge employees with career pathways, and incentive and opportunity to compete successfully for Directorate positions in the future.

Recent developments offer some hope for positive change. The increasingly complex nature of refuge management is being reflected in

higher-graded field positions. Although these higher grades in the field reduce the financial or promotion incentives for movement to regional or Washington offices, they also result in a larger pool of refuge managers in a position to compete for higher positions. The number of GS-14 positions in the Division of Refuges in Washington, D.C. recently doubled, giving refuge managers more incentive to apply for Washington positions and more opportunities for gaining national program and budget experience. Yet, more needs to be done.

The Service needs to better articulate what it is seeking for many of its senior leadership positions. The armed forces' strong focus on leadership development provides a useful benchmark. They recognize the unequivocal need for staff and line experience at all levels for their most senior uniformed leaders. These officers are developed from the lower ranks through a systematic progression of positions at increasingly higher levels, including mandatory education, and cross-program and Washington assignments.

Within the System, leaders at all levels must continually identify employees with executive leadership potential and encourage them to realize their potential for higher level positions. Refuge managers need to foster the notion that the System needs its best and brightest in regional offices and Washington, as well as in the field, and they need to set examples by stepping into those leadership positions.

What constitutes "national program experience" must be clearly defined in the Service Manual. For example, employees need to know if successful performance in the national program at the Boise Interagency Fire Center does or does not qualify, or if experience in a nonsupervisory staff position in the Washington, D.C. Division of Refuges qualifies for an eventual Assistant Regional Director assignment. Also, the role of regional office experience in developing GS-15 and higher leaders needs to be defined. And the role of cross-program experience as a requirement for GS-15 and higher grades should also be evaluated, articulated, and communicated.

"Leadership is the art of accomplishing more than the science of management says is possible."

—Colin Powell

The existing Career Enhancement Program designed for Washington employees and administered by the National Conservation Training Center should be explained and offered to all Division of Refuges staff with potential and interest. This will help ensure their time in Washington includes true national experience while preparing them for future leadership positions. The program should also be adapted for potential senior leaders in regional offices.

Additional incentives are needed for Washington office assignments. Many of the best refuge managers moved several times over 10-15 years to reach project leader status at a large refuge or wetland management district. Their children are often in their high school years, making moves extremely disruptive to family. These personal disincentives to further moves come at the same time these managers' experience and savvy would be most valuable in both regional and Washington supervisory positions. Spouse employment assistance, relocation bonuses, housing assistance, funded continuing education opportunities for pursuing advanced degrees, or post-assignment education sabbaticals are possible incentives that benefit both the employee and the Service.

Senior leaders need experience at many levels. The current selection process for GS-15 and higher positions gives serious consideration to candidates with national program and budget experience. Field experience should also be viewed as an important part of a candidate's portfolio. For Assistant Regional Director positions and below, field experience is equally as important as Washington experience and should be recognized through ranking factors and associated crediting plans in recruitment packages. And, the Service should ensure ranking factors and crediting plans further reflect the importance of appropriate field experience in the consideration of candidates for the Assistant Director—Refuges and Wildlife, and the Program Assistant Regional Directors for Refuges and Wildlife. Service staff will benefit from senior leadership that has "walked in their shoes."

The System has unique and specialized authorities, functions, and activities. It is one of the most visible programs of the Service and the largest. To effectively lead it, senior leaders of the System must know and understand the program. These recommendations will help ensure that unique land management needs and perspectives are represented in decision-making and send a clear message of System support and advocacy.

Recommendation L5: Ensure that the System produces a cadre of leaders qualified and willing to successfully compete for senior leadership positions in the Service.

Recommendation L6: Reflect the importance of appropriate field experience when developing ranking factors and crediting plans for senior resource program manager positions.

The Blue Goose Flies Again

Employee passion for refuges is a key ingredient in building organizational strength. This passion must be nurtured. Leaders are challenged to restore the unique identity of the System within the Service, display a passion for refuges that will spread to all employees, and maintain and strengthen the feeling of family in the System and the Service.

Whether refuges are a unified system of lands or a patchwork collection of refuges and waterfowl production areas is no longer in doubt. The Refuge Improvement Act is the law of the land. It mandates that refuges are a unified system with a common mission. However, the visible symbols that a unified system needs to identify itself within and outside the larger organization are not used consistently. No other unified Federal land system lacks an official, identifiable, and consistently applied symbol.

Rachel Carson Foundation

For years, the Blue Goose designed by "Ding" Darling graced the entrance signs of all refuges. Later, it was put on refuge boundary signs, thus becoming a recognizable public symbol of the System. In the late 1940s, Rachel Carson penned a beautiful essay about refuges and told the public to watch for "…the sign of the flying goose—the emblem of the National Wildlife Refuges" as they drove the byways of America. In the 1980s, entrance signs were site-tailored to display a species such as a mallard, bison, or alligator, and a new boundary sign design did not include the Blue Goose. While this historic symbol has been returned to most boundary signs, its visibility had been diminished by disuse or inconsistent use on entrance signs. More recently, the Blue Goose was removed from entrance signs and the Service shield became the only approved symbol for use on entrance signs at refuges and on identification signs at other Service stations and offices.

The value of visual symbols in promoting public recognition and identity is recognized by the Service and the Department of the Interior. The Federal Aid Program and the North American Waterfowl Management Plan already have approved symbols that publicly identify the Service's roles in those important programs. Visitors to our national parks—from Yellowstone to Fort Donelson to Truman's boyhood home—all recognize the same arrowhead and bison symbol, and instantly know they are visiting a part of the National Park System. To promote a

consistent image and increase awareness of the System, it is essential that people recognize that the refuge they visit this summer in Texas is part of the same system as the one they visited last year in Maine.

Use of the Blue Goose need not alienate the System from the rest of the Service; it can enhance the relationship. By analogy, the Army is composed of many branches and units, all of which proudly display their own colors and insignia. However, like the various Service programs, they work effectively together; in their case to defend freedom, in the Service's case to promote better conservation of fish, wildlife, and plants. By making the Blue Goose a permanent symbol of the System, it would supplement, not replace, the Service shield. The Blue Goose would remain on refuge boundary signs and be restored to refuge entrance signs. Its use would be incorporated in a standard and consistent manner on refuge-specific and System-specific publications, video jackets, homepages, exhibits and other media going to a standard Service format.

Recommendation L7: Amend the "National Wildlife Refuge System Administrative Provisions" in the Code of Federal Regulations to make the Blue Goose a permanent design element on refuge boundary signs and refuge primary entrance signs. Direct the Service committees for signing and graphic standards to incorporate the Blue Goose in current and future guidelines.

Core Values and Passion for Wild Places and Wild Things

The pioneers of the System endowed the nation with a magnificent wildland heritage and the refuge program with a legacy of dedication, pride, and a strong sense of family. Refuges do have an undeniable feeling of kinship which is an important part of refuge culture. Leadership must be about the stewardship of those legacies, preserving the feeling of family within the System, throughout the Service, and among volunteers and partners.

There is incredible passion for wild things and wild places among today's recruitment pool. The newest refuge staffers of today love the resource as much as any of the pioneers. If tomorrow's best and brightest recruits are less likely to have grown up on the land, or to have a traditional wildlife management education, then it is the critical job of leadership to provide experiences and training that will inspire development of a strong land ethic.

In the System of tomorrow, leaders must ensure that their new operations specialists, biologists, or outdoor recreation planners are taught to operate tools of the land management trade: tractors, drip torches, and cannon nets, as well as laptop computers and global

positioning systems. New employees need time at the shop to listen and gain wisdom from the maintenance staff as well as time with the research biologists from major universities. Only through sharing, caring, and nurturing can leaders expect any employee to develop a sense of organizational pride and camaraderie.

"In short, a land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as a whole."

—Aldo Leopold

In their publication *Built to Last: Successful Habits of Visionary Companies*, James Collins and Jerry Porras identified what makes America's best and long-lasting private companies successful. They discovered that all of the visionary companies knew what business they were in, they articulated core values tied to their business, and they lived those values from top to bottom. Visionary companies have a unity *and* diversity attitude, rather than a unity *or* diversity attitude. Only when every member of the organization is instilled with the core values of the organization will the diversity of those members provide power and synergy to the group.

System core values are not about loss of personal identity and beliefs, or the factors of hiring or retaining employees. They may assist potential employees in knowing whether working in the System is a good personal fit, but most importantly, core values are about the "glue" that ties the System and Service family together—the shared tenets that focus the energy and ideas of a diverse workforce to accomplish the mission. The critical role of leadership is to articulate core values, model them in leadership action, teach them, and recognize and reward the accomplishments of unified teams of diverse people.

The following *draft* core values, once refined and affirmed, will form a unifying thread among diverse personnel and ideas:

> *As land stewards with a sacred trust, we uphold the land ethic of Aldo Leopold, and seek to instill it in our communities.*
>
> *Wild lands and the perpetuation of diverse and abundant wildlife are essential to the quality of the American life.*
>
> *We are public servants. We owe our employers, the American people, hard work, integrity, fairness, and a voice in the protection of their trust resources.*
>
> *Management, ranging from preservation to active manipulation of habitats and populations, is necessary to achieve System and Service missions.*

Wildlife-dependent uses involving hunting, fishing, wildlife observation, photography, environmental education, and interpretation, when compatible, are legitimate and appropriate uses of the System.

Partnerships with those who want to help us meet our mission are welcome and indeed essential.

Employees are our most valuable resource. They are respected and deserve an empowering, mentoring, and caring work environment.

We respect the rights, beliefs, and opinions of our neighbors.

In addition to core values, passion and culture in entry-level employees can be nurtured through the experience of living on a refuge. Land management—on a refuge, farm, or ranch—carries with it around-the-clock responsibilities. Early-career refuge experience dealing with wildlife and the public outside office hours is an important experience for nurturing refuge passion and esprit de corps. Living on the land amidst its rhythms, seasons, wildlife, and plant communities brings formal education to life, and naturally instills a sense of wonder and appreciation for what refuges offer to employees and visitors alike. The availability of housing will also encourage early-career mobility which more fully develops employees, nurtures the concept of a unified System, and increases networking contacts.

"Those who dwell, as scientists or laymen, among the beauties and mysteries of the earth are never alone or weary of life. Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts."

—Rachel Carson

Recommendation L8: Articulate and distribute core values of the System.

Recommendation L9: Establish a Service policy to address housing needs on refuges for entry-level employees.

A Consistent Organizational Structure

The System has accomplished its mission under a plethora of organizational structures in both the Departments of Agriculture and the Interior. A geographic-based organization existed under the area offices of the late 1970s and early 1980s. In recent years, reinventing government initiatives, downsizing, buyout incentives, and regional autonomy on deciding organizational structure below the Assistant Regional Director level took a toll on the refuge support system. In some

regional offices, the buyouts alone virtually wiped clean decades of refuge experience. Unfilled refuge specialist vacancies created a thin line of field support in most regions. As the Service stabilizes its overall organization and rebuilds field support in both the regions and Washington, it is critical to have consistency. Although change is often the only constant, what should not change is strong technical and supervisory support for the System to ensure it is administered as a system.

Basic program support functions required by all refuges must be incorporated in each region. As a minimum, Program Assistant Regional Director staff with expertise in fire management, refuge law enforcement, maintenance and wage-grade trades, cultural resources, and public use must be available to every refuge manager. Those experts can be located in regional offices or the field, but they must be regional programmatic resources and readily accessible to all refuges. Expertise in Comprehensive Conservation Planning and compatibility determinations must also be readily available. Communications between this regional expertise and the Washington, D.C. Division of Refuges must be enhanced to provide for consistent implementation of policy. In this way, the field, regions, and Washington will function as three legs of support for on-the-ground resource work; if one leg is weak, the entire structure is weak. Many regions have established a Division of Refuge Operations to provide field support and this should be the norm. Periodic organizational evaluations should be conducted to assess the delivery of support to the field.

Recommendation L10: Develop and maintain consistent organizational structures across regions, providing a consistent set of basic regional office functions for refuge support.

It's the Law—Let's Get Our Act Together

The Refuge Improvement Act presents challenges and opportunities. Implementation guidance must be clear and consistent to achieve the Act's full potential. The Service's challenge is to develop guidance that provides for Systemwide implementation and allows flexibility to deal with local anomalies and conditions. Sideboards should be wide enough to encourage creative problem solving and adaptation to new science and changing conditions. The sideboards should be the same across regions.

System leadership must demonstrate to Congress and the public that it can leverage its new fiscal and staff resources with the power of the Refuge Improvement Act to enhance delivery on the visions for wildlife, habitat, and people.

Service leaders should ensure that promulgation of Refuge Improvement Act policy and regulations, and training refuge personnel

and other program leaders on the requirements of the Act, remain a priority. Leaders must emphasize outreach to keep partners, stakeholders, and state and local governments informed about the provisions of the Act and its implementation.

Refuge managers will be challenged to think and act in new ways. Developing partnerships to promote wildlife-dependent recreation is now encouraged. Implementation of the Refuge Improvement Act requires refuge managers to make their plans with full public participation and greater involvement of state wildlife agencies. This will require some managers to move out of their "comfort zones." Leadership must respond and provide the mentoring and training needed to successfully implement a new way of doing refuge business.

Effective implementation of the Refuge Improvement Act is critical to the future of the System. Leadership must regularly evaluate how the Service's organizational structure affects the accomplishment of the mission and be prepared to adjust the organization to ensure full implementation. The need to evaluate external impacts is just as important. The Service's efforts must be evaluated with stakeholders, especially state wildlife agencies, early and regularly in the implementation process.

The Refuge Manual should be revived and serve as the principal source of land management policy for the Service. Like the Law Enforcement Manual, the Refuge Manual provides a distinct source of policy for many program-unique functions including the Refuge Management Information System, compatibility, habitat management, public use programs, facility maintenance and management, fire management, and refuge law enforcement. As a supplement to the Service Manual, the Refuge Manual will provide an efficient tool to guide decision-making by refuge managers and resume its role as a source of System integrity.

Recommendation L11: Fully implement and integrate the provisions of the Refuge Improvement Act into operations and activities of the System.

Recommendation L12: Provide consistent refuge management guidance, including Refuge Improvement Act implementation policy, in a new Refuge Manual.

"It is not the critic that counts; not the man who points out how the strong man stumbled or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs and comes short again and again; because there is no effort without error and shortcomings; but who does actually strive to do the deed; who knows the great enthusiasm, the great devotion; who spends himself in a worthy cause; who at best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who never know either victory or defeat."

—Theodore Roosevelt

Theodore Roosevelt Collection
Harvard College Library


Do 2

Acknowledgments

This report would have not been possible without the dedication and thoughtfulness of many people. The Steering Committee, workgroup members, Director, Deputy Director, and Assistant Director for Refuges and Wildlife, and all who provided extensive comments reflect the wonderful dedication that Service employees and many conservation partners display day in and day out. In addition, Management Systems International (MSI) provided professional facilitation to the workgroups and often went above and beyond the scope of their work to ensure the process remained on track. Critical thinking, debate, and effective writing is hard, time-consuming work, and we are grateful to the following for the innumerable evenings and weekends given to *Fulfilling the Promise* of the National Wildlife Refuge System.

Conference and Report Steering Committee

Richard Coleman, Chief, Division of Refuges, Washington, D.C. (Co-chair)

John Doebel, Assistant Regional Director, Refuges and Wildlife, Portland, Oregon (Co-chair)

Aaron Archibeque, Refuge Manager, Togiak NWR, Alaska

Jim Clark, Branch Chief, National Conservation Training Center, West Virginia

Dave Heffernan, Refuge Supervisor, Atlanta, Georgia

Deborah Holle, Refuge Manager, Balcones Canyonlands NWR, Texas

Don Hultman, Deputy Chief, Division of Refuges, Washington, D.C.

Janet Kennedy, Facilitator/Deputy Refuge Manager, Great Meadows NWR, Massachusetts

Anne Marie LaRosa, Refuge Manager, Seedskadee NWR, Wyoming

John Stasko, Refuge Manager, Back Bay NWR, Virginia

Tom Stewart, Refuge Manager, Klamath Basin NWR Complex, California/Oregon

Janet Tennyson, Refuge Outreach Coordinator, Division of Refuges, Washington, D.C.

Terry Villanueva, Refuge Manager/Conference Coordinator, Division of Refuges, Washington, D.C.

Wildlife Workgroup

David Allen, Regional Director, Anchorage, Alaska (Chair)

Kristine Askerooth, Biologist, Tewaukon NWR, North Dakota

*Vernon Byrd, Biologist, Alaska Maritime NWR

Marc Epstein, Biologist, Merritt Island NWR, Florida

John Gallegos, Biologist, Back Bay NWR, Virginia

*Kathy Granillo, Biologist, Refuges and Wildlife, Albuquerque, New Mexico

Chuck Hunter, Biologist, Refuges and Wildlife, Atlanta, Georgia

Jim Larson, Biologist, King Salmon Fisheries Resource Office, Alaska

Ken McDermond, Refuge Manager, Division of Refuges, Washington, D.C.

*Fred Paveglio, Biologist, Refuges and Wildlife, Portland, Oregon

Mike Tansy, Refuge Manager, Seney NWR, Michigan

Pam Thiel, Supervisor, LaCrosse Fisheries Assistance Office, Wisconsin

Steering Committee Liaisons: A. Archibeque and J. Doebel

MSI Facilitator: Janet Tuthill

Habitat Workgroup

Sam Hamilton, Regional Director, Atlanta, Georgia (Chair)

Tom Busiahn, Supervisor, Ashland Fisheries Assistance Office, Wisconsin

*Steve Gard, Manager, Mississippi Wetland Management District, Mississippi

Wayne King, Regional Biologist, Refuges and Wildlife, Denver, Colorado

Andy Loranger, Refuge Manager, Texas Chenier Plain NWR

Edward Merritt, Refuge Manager, Innoko NWR, Alaska

Dave Paullin, Refuge Supervisor, Sacramento, California

Dan Petit, Biologist, Office of Migratory Bird Management, Washington, D.C.

*Dan Stinnett, Chief, Partners for Fish and Wildlife, Twin Cities, Minnesota

Mark Sweeny, Refuge Manager, Moosehorn NWR Complex, Maine

*Jan Taylor, Regional Field Biologist, Division of Refuges, Hadley, Massachusetts

John Taylor, Refuge Manager, Tennessee NWR Complex

*Amy Wing, Ecologist, Division of Refuges, Washington, D.C.

Steering Committee Liaisons: *D. Hultman and J. Stasko

MSI Facilitator: Ed Comstock

People Workgroup

Ron Lambertson, Regional Director, Hadley, Massachusetts (Chair)

Mike Blenden, Refuge Manager, Alamosa-Monte Vista NWR, Colorado

George Constantino, Chief, Division of Refuges, Anchorage, Alaska

Lou Hinds, Refuge Manager, Ding Darling NWR, Florida

*Barbara Maxfield, Public Information Specialist, Refuges/ES, Pacific Islands

Mamie Parker, Special Assistant to the Deputy Director, Washington, D.C.

*Allyson Rowell, Program Analyst, Division of Refuges, Washington, D.C.

Elizabeth Slown, Federal Aid, Albuquerque, New Mexico

Angela Tracy, Outdoor Recreation Planner, Chincoteague NWR, Virginia

*Robin Will, Outdoor Recreation Planner, St. Marks NWR, Florida

Dave Wiseman, Refuge Manager, National Bison Range, Montana

*Tom Worthington, Chief, Branch of Visitor Services, Twin Cities, Minnesota

Steering Committee Liaisons: *A. LaRosa and *J. Tennyson

MSI Facilitator: Judith Light

Leadership Workgroup

Ralph Morgenweck, Regional Director, Denver, Colorado (Chair)

Maggie Anderson, Refuge Manager, Agassiz NWR, Minnesota

Larry Ditto, Refuge Manager, Lower Rio Grand NWR, Texas

Mike Elkins, Special Agent, Division of Law Enforcement

Harris Hoistad, Manager, Valley City WMD, North Dakota

Matt Kerschbaum, Refuge Supervisor, Twin Cities, Minnesota

John Martin, Refuge Manager, Alaska Maritime NWR, Alaska

Skippy Reeves, Refuge Manager, Okefenokee NWR, Georgia

*Dean Rundle, Refuge Manager, San Diego NWR Complex, California

John Schroer, Refuge Manager, Chincoteague NWR, Virginia

Terry Villanueva, Refuge Manager/Conference Coordinator, Division of Refuges, Washington, D.C.

Steering Committee Liaisons: D. Holle and T. Stewart

MSI Facilitator: Larry Cooley

Notes:

*Denotes main authors, although workgroup members provided extensive review and editing.

Since positions and locations are constantly changing in a large group of Service employees, the positions above generally reflect those held at the time of the Conference in October 1998.

References Cited

In Order Cited in Report

"The National Wildlife Refuge System," Report of the Advisory Committee on Wildlife Management, appointed by Interior Secretary Stewart L. Udall, chaired by A. Starker Leopold, 1968.

Final Recommendations on the Management of the National Wildlife Refuge System, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., April 1979.

Putting Wildlife First: Recommendations for Reforming Our Troubled Refuge System, Report of the Commission on New Directions for the National Wildlife Refuge System, commissioned by Defenders of Wildlife, Washington, D.C., March 1992.

Refuges 2003 Draft Environmental Impact Statement—A Plan for the Future of the National Wildlife Refuge System, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., January 1993.

The National Wildlife Refuge System—Promises for a New Century, Vision Publication, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., October 1996.

Biological Needs Assessment—National Wildlife Refuge System, Division of Refuges, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., July 1998.

Wildlife Refuges Manual, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., 1943 and 1957.

Banking on Nature, The Economic Benefits to Local Communities of National Wildlife Refuge Visitation, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., July 1997.

100 on 100, An Outreach Plan for the National Wildlife Refuge System, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., 1995.

National Outreach Strategy: A Master Plan for Communicating in the U.S. Fish and Wildlife Service, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C., August, 1997.

The 7 Habits of Highly Effective People, Stephen R.Covey, Simon and Schuster, New York, NY, 1990.

"Goodbye Potholes," *Field and Stream*, Fred Staunton, 1949.

Career Progression, Training, Grade Levels and Cross-Program Opportunities Within the National Wildlife Refuge System, Task Force Report given to Leadership Workgroup, Fish and Wildlife Service, U.S. Department of the Interior, Hadley, Massachusetts, 1998.

Built to Last: Successful Habits of Visionary Companies, James Collins and Jerry Porras, Harper Business Publishing, 1994.

Full-Page Photo Credits

Page ii: G. Zahm

Page vi: Dean Biggens

Pages viii, 6, 10, 38, 64, 86, 90:
John & Karen Hollingsworth

Page xiv: Sue Matthews

U.S. Fish & Wildlife Service
Division of Refuges
4401 N. Fairfax Drive
Room 670
Arlington, VA 22203

1 800/344 WILD
http://refuges.fws.gov

July 1999