



A Miami blue butterfly alights in the wilderness at Key West National Wildlife Refuge in Florida. There are 75 Congressionally designated wilderness areas on 63 national wildlife refuges in 25 states. (Molly McCarter/USFWS)



A common tern tends a chick in the wilderness at Monomoy National Wildlife Refuge on Cape Cod in Massachusetts. (USFWS)

Designated Wilderness Is “a Remarkable Concept”

By Bill O'Brian

Conservationists around the world and this issue of *Refuge Update* are celebrating the 50th anniversary of the Wilderness Act of 1964. But the idea of legally protecting wilderness in the United States did not magically arise that year. The law represents a half-century-long struggle that began with people like John Muir and culminated with people like Olaus Murie and Howard Zahniser.

“Passage of a bill preserving wilderness was not easy,” according to *Wilderness.net*, a collaborative Web site of the Wilderness Institute at the University of Montana, the Arthur Carhart National Wilderness Training Center and the Aldo Leopold Wilderness Research Institute. “Zahniser wrote the first draft of the Wilderness Act in 1956. The journey of the Wilderness Act covers nine years, 65 rewrites and 18 public hearings” before being signed into law by President Lyndon B. Johnson on Sept. 3, 1964.

“That a society would decide to set aside lands and waters and not actively manage them was a remarkable concept for a country founded on western socioeconomic traditions,” says National Wildlife Refuge System wilderness coordinator Nancy Roeper.

The Wilderness Act established the National Wilderness Preservation System, which today includes 757 Congressionally designated wilderness areas comprising about 109.5 million acres in 44 states and Puerto Rico.

The U.S. Fish and Wildlife Service manages more than 20 million acres of wilderness in the Refuge System—



Facts & Figures

- The U.S. Fish and Wildlife Service manages more than 20 million acres of wilderness in the National Refuge System. There are 75 wilderness areas on 63 refuges in 25 states.
- About 90 percent of Refuge System wilderness is in Alaska.
- The largest Refuge System wilderness area is the 8-million-acre Mollie Beattie Wilderness at Arctic National Wildlife Refuge in Alaska.
- The smallest Refuge System wilderness area is the six-acre wilderness at Pelican Island Refuge in Florida.
- The most recent additions to Refuge System wilderness areas came in 1994—3,195 acres at Havasu Refuge and 5,836 acres at Imperial Refuge. Both refuges straddle the Colorado River, which forms the California-Arizona border.
- There are 21 proposed wilderness areas (all managed as wilderness)



The 8-million-acre Mollie Beattie Wilderness at Arctic National Wildlife Refuge in Alaska is the largest designated wilderness area in the National Wildlife Refuge System. (Cathy Curby)

and another dozen wilderness study areas under consideration in the Refuge System.

- Much of Leadville National Fish Hatchery lies within a 30,500-acre wilderness in Colorado. The Mount

Massive Wilderness is co-managed by the U.S. Fish and Wildlife Service and the U.S. Forest Service. 

about one-fifth of all the designated wilderness areas in the nation. There are 75 wilderness areas on 63 refuges in 25 states. The Service is one of four federal agencies with stewardship responsibilities; the others are the Bureau of Land Management, the U.S. Forest Service and the National Park Service.

“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain,” the Wilderness Act states. “An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent

improvements or human habitation, which is protected and managed so as to preserve its natural conditions ...”

Managing designated wilderness requires a light touch and special care—so much so that the Carhart training center has developed “four cornerstones of wilderness stewardship”:

- Manage wilderness as a whole.
- Preserve wildness and natural conditions.
- Protect wilderness benefits.
- Provide and use the minimum necessary.

This issue of *Refuge Update* includes articles detailing how refuges monitor and manage wilderness. It’s not necessarily easy. Molly McCarter, a 26-year-old 2011-13 Refuge System wilderness fellow, recognizes that—but she thinks it’s worth it.

“One of the toughest balancing acts of wilderness management is figuring out how to balance wilderness preservation with other refuge management activities. What action (or non-action) is best for the wilderness resource? This is a question that I, and refuge managers, struggled with at every single wilderness that I visited,” she says. “To me, wilderness preservation is tied to national pride—it’s a part of our history. The idea of wilderness is an inherent part of American culture—wild spaces, existing in their own right, are what make the United States unique among countries. Wilderness preservation is cultural preservation.” 

For more about Refuge System wilderness, including a map, fact sheet, blog and short video essay, go to <http://www.fws.gov/refuges/whm/>

Characterizing Wilderness on Refuges

By Bill O'Brian

The Wilderness Act of 1964 mandates that Congressionally designated wilderness areas be managed to provide for “the preservation of their wilderness character.” Before such character can be preserved, it must be defined and its current status must be gauged.

That is where the National Wildlife Refuge System’s wilderness character monitoring program comes in.

Since 2011, wilderness character baseline assessments have been conducted on 50 of the 63 national wildlife refuges that have at least one wilderness area. The rest are to be done in 2014.

“If we don’t know if, or how, wilderness character is changing, then we can’t apply adaptive management techniques and strategic habitat conservation to ensure its preservation,” says Refuge System wilderness coordinator Nancy Roeper. “With baseline assessments in hand, managers can now monitor wilderness character over time and make better decisions.”

Refuge System wilderness fellows—recent college graduates or graduate students—have done the bulk of the wilderness character assessment work. In recent years, 20 wilderness fellows have been funded by the Refuge System Natural Resource Program Center in cooperation with the Aldo Leopold Wilderness Research Institute, the Student Conservation Association and American Conservation Experience.

One fellow, Molly McCarter, helped conduct assessments in wilderness areas at 11 refuges: Imperial and Cabeza Prieta in Arizona; Great White Heron, Key West, National Key Deer, St. Marks, Pelican Island, J.N. “Ding” Darling and Island Bay in Florida; Bosque del Apache in New Mexico; and Hawaiian Islands.



Refuge System wilderness fellow Molly McCarter helped conduct assessments in wilderness areas at 11 national wildlife refuges, including Bosque del Apache Refuge in New Mexico. (USFWS)

“Working in remote wilderness areas teaches you about yourself,” McCarter says. “It inspires independence, creativity and reflection.” It also provides the Refuge System with a benchmark.

Echoing Wilderness Act language, a baseline assessment evaluates five qualities of a given wilderness:

- **Natural.** Is it free from the *effects* of modern civilization?
- **Undeveloped.** Is it without permanent improvement or human habitation?
- **Untrammeled.** Is it free from the *actions* of modern human control or manipulation?
- **Solitude or primitive or unconfined recreation.** Does it have outstanding opportunities for same?

- **Other features.** Does it have other ecological, geological or other features of scientific, educational, scenic or historical value?

Then, using comparative data already collected by the refuge for other purposes or data that can be collected easily in the future, wilderness fellows and/or refuge staff identify prioritized measures that best represent the refuge’s wilderness character. When the wilderness character is assessed again in a few years, managers can determine which way—better, worse or stable—those five qualities are trending.

The process is relatively simple, McCarter said, and it provides on-the-ground information to assess trends and make defensible decisions; it provides regional and national information to evaluate policy effectiveness; it helps managers understand consequences of decisions and actions in wilderness; it provides solid information for planning; and it synthesizes data into a single, holistic assessment.

“If we want to ensure that there continue to be wild, untamed lands and waters that are not subject to the resource management priorities of the hour,” says Roeper, “then we need the information that the baseline assessments provide to make decisions on a local and national scale that will prevent degradation of these special areas.”

Wilderness fellow Nyssa Landres takes a more philosophical view. She recognizes that designated wilderness embodies both tangible and intangible aspects of land conservation. The tangible is the biological integrity of the habitat untrammelled by humans. The intangible is the “feeling of freedom, of self-reliance, of being one with nature away from civilization,” she says. “The [baseline] assessment gets only at the tangible, but it creates the opportunity for the intangible to exist.”



In the 4,600-acre designated wilderness area at Fort Niobrara National Wildlife Refuge in Nebraska, whenever conditions allow, bison are moved from pasture to pasture using herders on horseback, not motorized vehicles. (USFWS)

Managing Habitat—as Invisibly as Possible

By Susan Morse

When refuge manager Steve Hicks has to move 350 bison from winter to spring pastures at Fort Niobrara National Wildlife Refuge in Nebraska, he often uses herders on horseback, though ATVs are safer, easier and less labor-intensive.

When shrubs encroach on Okefenokee Refuge's popular canoe trails in Georgia, staff members often send in crews with hand clippers, though chainsaws chew up swamp growth faster.

When Gerry McChesney airs plans to rid California's Farallon Refuge of invasive house mice, the refuge manager cites several ways to protect gulls from rodenticide, though scaring the birds with sound and light has worked well in other island eradications.

In these cases and others, the easier, time-tested or more efficient actions are not off the table, but they're not Plan A. That's because the places in question are designated wilderness—areas where the Wilderness Act of 1964 intends man's hand to be invisible, or nearly so.

To preserve wilderness character, refuge managers must show their actions are "the minimum require[d] for administering the area as wilderness and necessary to accomplish the purposes of the refuge, including Wilderness Act purposes." What that generally means: no heavy machinery; no cars, trucks or

aircraft; no easy-access roads or landing pads; no loud noises.

But rigid adherence isn't always possible, even the law concedes. The trick for wilderness managers is knowing when to bend—and when to stand firm, despite the inconvenience.

In Nebraska's 4,600-acre Fort Niobrara Wilderness, the choice of bison herding method may hinge on herd position. Horses are less intrusive. But four-wheelers can cover more ground and wield more clout. "Bison seem to respect a single vehicle pressuring them to move much more than several horses and riders," says Hicks.

Herding bison on horseback also takes longer. "In an ideal world, that would be a good thing," says Hicks, "because we could go slow and look at the habitats we are managing. Unfortunately, we live in a fast world where the duties are many, and time is short." Still, he says, "we try to respect wilderness standards."

In Georgia, managing the 350,000-acre Okefenokee Wilderness also involves tradeoffs. Hand tools suffice for some jobs—but not downed trees blocking trails or shelters needing quick repair.

Surveys of endangered red-cockaded woodpeckers that nest at Okefenokee also follow wilderness guidelines. Says biologist Sara Aicher, "With most of the islands accessible only by helicopter, we monitor every other year to reduce

disturbance, and do not band the birds or install artificial cavity boxes," as is common elsewhere.

Sometimes, the choice in managing wilderness is not whether to permit an intrusion, but how to deal with it.

That's the case in the Farallons, where non-native mice have made the islands less hospitable to rare seabirds, including the ashy storm-petrel. The swarming of mice each fall coincides with burrowing owl migration. Instead of continuing their flight, the owls stay to feast—first, on the mice, and then, on the storm-petrels.

The proposed mouse eradication—which, if approved, could occur as early as fall 2015—involves potential wilderness intrusions, including mouse bait and the helicopters to drop it. Managers must also decide whether proposed gull-hazing techniques are the minimum necessary to protect the gulls.

McChesney concedes, "To eradicate the mice will involve some short-term impacts on wilderness character. But mice are having long-term impacts ... because they're affecting native wildlife of the islands. Our decision must weigh the short-term impacts against the long-term benefits." 

Susan Morse is a writer-editor in the Refuge System Branch of Communications.

1st DOI Wilderness Could've Been an Airport

Had it not been for Marcellus Hartley Dodge, Helen Fenske and the activists they inspired, Great Swamp National Wildlife Refuge and its designated wilderness in New Jersey would have become the New York metro area's fourth (and largest) airport.

In the late 1950s, Dodge, a conservationist and Remington Arms Co. chairman, "injected momentum" into the effort to save the Great Swamp, according to current refuge manager Bill Koch. In the 1960s, Fenske, a housewife and mother of three, became a tireless promoter of the effort.

Even though the refuge had been established in 1960, transportation officials continued to propose the jetport on the land 25 air miles west of Times Square. But Dodge and Fenske, who lived nearby, did not give up. Dodge worked behind the scenes and brought in the North American Wildlife Foundation. Fenske was "one of many activists," says Koch. "She was the face of it."



Refuge System wilderness fellow Nyssa Landres prepares to use a zipline to go from non-wilderness Southeast Farallon Island to designated wilderness West End Island at Farallon National Wildlife Refuge off California. (Nora Livingston)



Two visitors enjoy the wilderness at Great Swamp National Wildlife Refuge in New Jersey. In the 1960s, the land 25 air miles west of Times Square was proposed as the site for New York City's fourth airport. (USFWS)

Dodge died in 1963, the Wilderness Act was enacted in 1964, and transportation officials still sought the airport. Fenske, Rep. Peter Frelinghuysen Jr. and others used the act to full advantage. In 1968, part of Great Swamp Refuge became the Department of the Interior's first designated wilderness—on the condition that a road and structures be removed and wetlands be restored.

"It's more wilderness today than it was in 1968," says Koch. "It's actually striking. Many visitors are really surprised. You don't know you're still in New Jersey when you come to the refuge."

The 1978 book "Saving the Great Swamp: The People, the Power Brokers and an Urban Wilderness" by Cam Cavanaugh recounts the saga. Fenske became a major environmental advocate in New Jersey and promoted the establishment of Wallkill River and Cape May Refuges before her death in 2007.

A Zipline to Wilderness

At Farallon National Wildlife Refuge off the coast of California, when conservationists need to go from

Southeast Farallon Island to West End Island, they get there via a zipline.

They do so because rocky West End Island is designated wilderness and the zipline enables the refuge to comply with the Wilderness Act of 1964's prohibition of motorized transportation in wilderness areas. In accordance with the act, no boat is used, no helicopter, just a zipline.

"It makes a statement about wilderness," says Refuge System wilderness fellow Nyssa Landres. "A small anchor in the rock is as far as we're going to go."

The distance is just 50 or 60 feet, and "it's actually more of a haul line than a zipline," says Landres, who helped install a new line last summer. "It creates this mentality of separation" that didn't exist when a footbridge crossed the water decades ago.

Because it is wilderness, refuge staff members visit 70-acre West End Island infrequently and don't stay long—seven times a year and a total of 20 person hours annually, Landres estimates. When



they do go, though, the zipline is the mode of transport.

“It’s not as glamorous as it sounds, but it’s still pretty cool,” Landres says. “There are waves crashing underneath you, and there are sea lions playing. It’s not for everybody, but I love it.”

Wilderness Review As Part of CCP

Maine Coastal Islands National Wildlife Refuge is the only refuge without designated wilderness to have completed a wilderness review of its habitat as part of its comprehensive conservation plan (CCP) and recommended designating wilderness as a result. The Director of the U.S. Fish and Wildlife Service, the Secretary of the Interior and members of Congress have followed suit in recommending that 13 of the refuge’s islands be designated as wilderness.

“To qualify for wilderness designation, an area generally has to be at least 5,000 acres and roadless, or any sized roadless island,” says Maine Coastal Islands Refuge manager Beth Goettel, who arrived after the 2005 CCP was completed. “Obviously, we had lots of islands to consider—42 at the time of the CCP. The first step was to inventory all the areas that might qualify, then evaluate them for naturalness and opportunities for solitude or primitive or unconfined recreation. We also considered whether the islands could be managed successfully to retain their wilderness values.”

However, Goettel notes, wilderness areas may be established only by Congress. As recently as April 2013, Rep. Mike Michaud introduced legislation to



A volunteer crew at Okefenokee National Wildlife Refuge in Georgia received an award for adhering as closely as possible to the principles and protocols of the Wilderness Act of 1964 while maintaining canoe trails. (USFWS)

designate the 13 islands—Outer Heron, Outer White, Little Marshall, John’s, Bois Bubert, Inner Sand, Halifax, Cross, Inner Double Head Shot, Outer Double Head Shot, Mink, Scotch and Old Man—as cumulative 3,125 acres of wilderness.

The Wilderness Society and the Friends of Maine’s Seabird Islands both support such a designation at Maine Coastal Island Refuge, but the legislation has not yet been passed.

Clearing Trail, Respecting Wilderness

A volunteer crew at Okefenokee National Wildlife Refuge received a U.S. Fish and Wildlife Service Southeast Regional Director Honor Award last year for adhering as closely as possible to the principles and protocols of the Wilderness Act of 1964 while maintaining canoe trails through the Georgia refuge’s 350,000-acre designated wilderness area.

The crew, known as the Okefenokee Trail Team, was composed of six men and four women. They were overseen by then-refuge manager Curt McCasland, who has since become a supervisor in the Service’s Pacific Southwest Region.

“Some donated three months of their time to cut out fallen trees and overgrown shrubs that blocked many of the refuge’s 120 miles of paddling trails,” the Southeast Region said in announcing the award. “They battled icy dawns and lingering drought conditions that exposed huge logs hidden beneath the tannic-acid water for more than a century. These logs had to be lifted out of the canoe trails with cables and hand-powered winches because the refuge is a Class 1 Wilderness area. One cypress log weighed between 15,000 to 18,000 pounds and took five people a half-day to remove it. The team observed all wilderness area protocols utilizing hand tools wherever possible and keeping trips to and from the worksite to an absolute minimum.”

More than 40,000 visitors use the water trails annually at Okefenokee Refuge, where they might see alligators, turtles, snakes, wading birds, butterflies, dragonflies and other wildlife in a vast wilderness setting. 

Distinctive Hunting, Lasting Memories

By Robin West

It was a warm August evening more than 25 years ago, but I remember it vividly.

I had finished a day of smoking and drying meat from a Dall sheep ram that I had harvested two days earlier and was hovering over a small camp stove waiting impatiently for water to boil for my freeze-dried dinner. I glanced across the Kongakut River and watched a special event of nature unfold in the heart of the Congressionally designated wilderness at Alaska's Arctic National Wildlife Refuge.

A male grizzly bear was lumbering downstream while a pack of wolf pups and one parent moved playfully upstream—the adults' view blocked from each other by low willows along the river's edge. I watched intently as they reached each other. There was immediate surprise, and then the adult wolf bit the bear in the butt and ushered the pups over the mountain at a rapid pace. The bear exited in the direction it had come with equal zeal.

Nearly an hour passed when I heard a wolf howl. The mate of the other wolf had returned from hunting and was calling for its family. I voiced a howl in return and was surprised to see the wolf run to the river's edge and swim to my camp, only to discover its mistake mere feet from my tent and return across the river to follow the scent of its family.

That is one of countless memories I hold from wilderness hunting trips. Wilderness areas on national wildlife refuges provide such memories for many hunters every year and, with proper protection, will do so for generations to come.

Hunting is a traditional use of wild lands throughout the United States and is supported by the Wilderness Act of 1964 and the National Wildlife Refuge System Administration Act.



The author with his hunting bow at Georgia's Blackbeard Island National Wildlife Refuge, one of 63 refuges that include Congressionally designated wilderness. (USFWS)

Wilderness hunting is not for everyone. The restrictions on access and use of wilderness areas—no permanent roads, no mechanized transportation, etc.—make the experience more difficult than some hunters will undertake. I once walked 59 miles on a successful eight-day sheep hunt in Alaska's Kenai National Wildlife Refuge, most of it with a heavy pack. Yet I and many other hunters would have it no other way.

A Cherished Experience

The restrictions required by law to protect wilderness values also protect the quality of the game and the experience cherished by many hunters. I witnessed this most recently on a hunt at Georgia's Blackbeard Island National Wildlife Refuge, which just marked 67 years of providing for a bow hunt for deer, and more recently to help manage a growing population of feral hogs. Approximately one-third of the hunters chose to hunt the island's designated wilderness area, even though they would have to pack out any harvested game

rather than hauling it out on a motorized ATV. This choice is important.

I believe that, over time, the added level of legal protection afforded designated wilderness will benefit hunting opportunities by providing large areas of natural habitat that can support healthy populations of all wildlife—hunted and non-hunted species alike. That is not to say I believe that all lands suitable for wilderness should be so designated. Many social and economic factors must come into play as society decides how to manage the larger landscape into the future.

From a hunter's viewpoint, though, having a variety of remote designated wilderness areas serves our interests well. What is good for wildlife will always be good for hunters. 

Robin West recently retired after 35 years with U.S. Fish and Wildlife Service. During that time, he managed Refuge System designated wilderness in Alaska, Oregon and Washington.