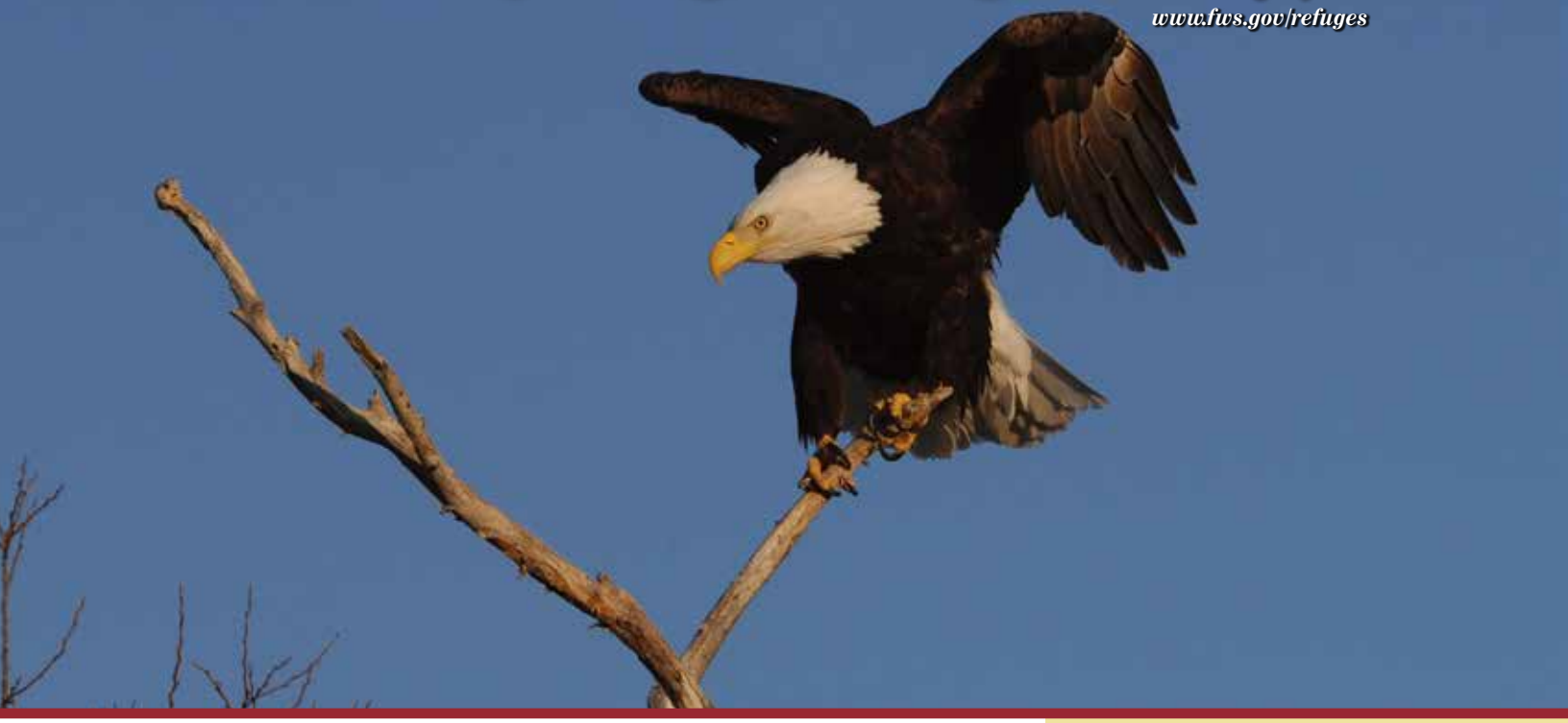
U.S. Fish & Wildlife Service

November/December 2013 | Vol 10, No 6

RefugeUpdate

National Wildlife Refuge System

www.fws.gov/refuges



INSIDE: The Klamath Basin of Oregon and California has one of the highest concentrations of wintering North American bald eagles in the Lower 48 states. Since 1978 three national wildlife refuges have collaborated to keep the concentration high. See Page 4. (Dave Menke/USFWS)

Study: Refuge Visitor Spending Has Major Economic Impact

National wildlife refuges continue to be strong economic engines for communities across the country, pumping $2.4 billion into the economy and supporting more than 35,000 private-sector jobs in fiscal year 2011, according to a report released this fall by the U.S. Fish and Wildlife Service.

"Our National Wildlife Refuge System is the world's greatest network of lands dedicated to wildlife conservation but is also an important contributor to our economy, attracting more than 46 million visitors from around the world who support local restaurants, hotels and other businesses," said Secretary of the Interior Sally Jewell. "Every dollar we invest in our Refuge System and other public lands generates huge dividends for our country."

The report, titled *Banking on Nature*, finds refuges contributed an average $4.87 in total economic output for every $1 appropriated and produced nearly $793 million in job income for local communities in fiscal 2011.

"This study shows that national wildlife refuges repay us in dollars and cents even as they enrich our lives by protecting America's natural heritage and providing great recreation," said Service Director Dan Ashe.

continued on pg 11

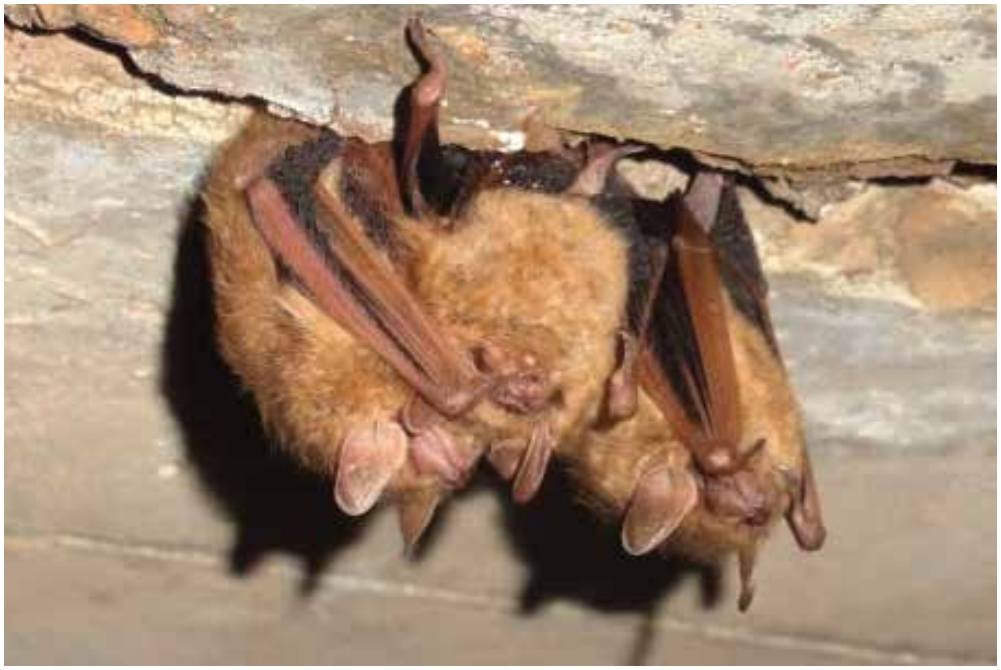
Director Signs Order Authorizing Urban Partnerships

The U.S. Fish and Wildlife Service took important steps in late September toward realizing a major objective of the *Conserving the Future* vision: to connect urban Americans with nature and the conservation mission of the National Wildlife Refuge System.

On Sept. 25, Service Director Dan Ashe signed a Director's Order that authorizes and encourages all Service programs to conduct cooperative fish and wildlife conservation, education and outreach in urban communities.

On the same day, the Refuge System announced the establishment of eight pilot urban wildlife refuge

continued on pg 10



More than 40 national wildlife refuges are contributing data to the Southeast Region's mobile acoustical bat monitoring project. Above: tricolored bats hibernating. (USFWS)

Listening for Bats on a Landscape Scale

By John Pancake

With a plague sweeping through North America's bats, biologists at more than 40 national wildlife refuges in the Southeast have been cruising back roads and forest trails to map bat populations and assess the malady's impact.

Bats aren't easy to study. They emerge at night. Even if you are lucky enough to glimpse them silhouetted against the night sky, they're tough to identify. And their chitter-chatter is too high for the human ear to hear.

How can you count animals you can't hear and can barely see? David Richardson says the key is a bat detector – called an Anabat SD2 – that records the ultra-high frequency clicks and squeaks that bats use to navigate.

Richardson is a U.S. Fish and Wildlife Service terrestrial ecologist in Grenada, MS. He is the field coordinator for the mobile acoustical bat monitoring project, which is being managed by the National Wildlife Refuge System's Southeast Region Inventory and Monitoring (I&M) Network.

The project involves biologists mounting an Anabat, a box not much bigger than a paperback, on a vehicle roof before starting a 10- to 30-mile census run. As the Anabat records, a synchronized global positioning system (GPS) plots the location of every call. After downloading the digital recordings into a computer, special software programs make it possible to count and, in most cases, identify the bat species.

Janet Ertel, deputy chief of the Southeast Region I&M Network, says this long-term monitoring effort has two goals. One is to discover what bats are out there using refuge habitat.

The second is to track the impact of deadly white-nose syndrome as it moves into the Southeast. The fungal infection, which typically appears as white fuzz on the face and wings of bats, spread to the United States from Europe. It was found first in New York in 2006, but it has proliferated rapidly since, killing more than 5.7 million North American bats. Experts consider it one of the most devastating threats to wildlife in eastern North America. In the Southeast,

continued on pg 10

Refuge Update

Sally Jewell
Secretary
Department of the Interior

Dan Ashe
Director
U.S. Fish and Wildlife Service

Jim Kurth
Chief
National Wildlife Refuge System

Martha Nudel
Editor in Chief

Bill O'Brian
Managing Editor

Address editorial inquiries to:
Refuge Update
USFWS-NWRS
4401 North Fairfax Dr., Room 634C
Arlington, VA 22203-1610
Phone: 703-358-1858
Fax: 703-358-2517
E-mail: RefugeUpdate@fws.gov

This newsletter is published on recycled paper using soy-based ink.

PRINTED WITH SOY INK

Inside

Exporting Expertise

National energy program coordinator Scott Covington recently took his oil and gas expertise to the west Africa country of Gabon. Page 6

Cinematic History

Known today for free-range bison, wilderness and short-grass prairie, Wichita Mountains Wildlife Refuge in Oklahoma was the setting in the 1920s for a ground-breaking Native American film. Page 7

Help From Our Friends

The Friends of Tualatin River National Wildlife Refuge and co-plaintiff Northwest Environmental Defense Center won an important lawsuit settlement in Oregon. Page 8

Note to Readers

Because of the federal government shutdown in October, this issue of *Refuge Update* is abbreviated. We plan to produce a full issue as usual for January/February 2014.

Honoring a Hero, Conserving Her Landscape

By Tylar Greene

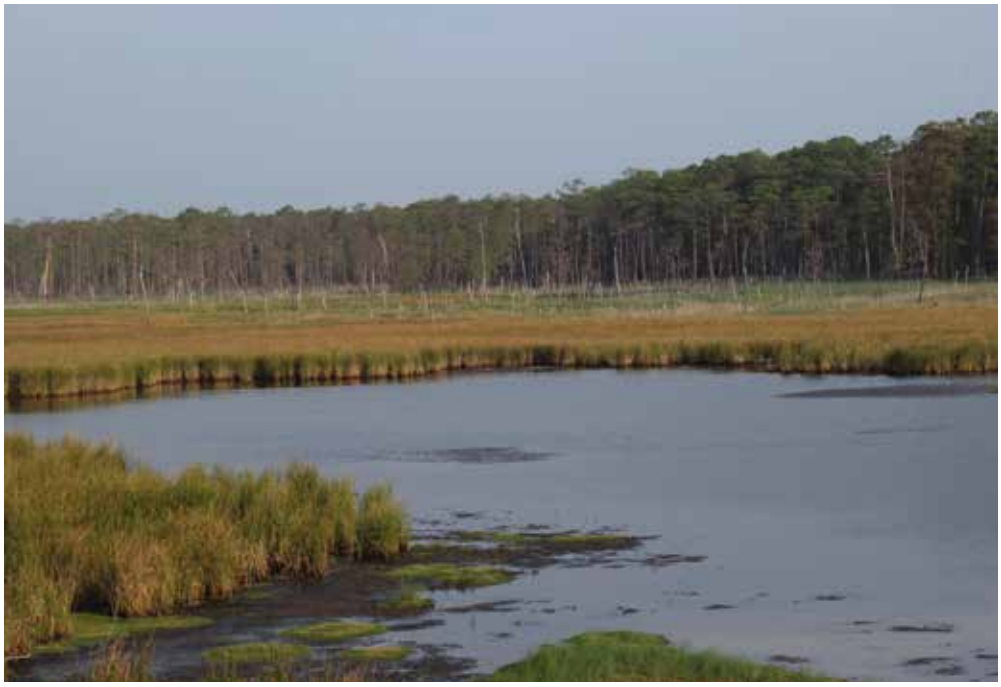
Harriet Tubman spent her childhood as a slave working on farms near and within what is now Blackwater National Wildlife Refuge. As a young adult she was a timber laborer on the north side of the Blackwater River. She traveled throughout the refuge area to visit family. She helped with muskrat trapping, which is still a way of life on Maryland's Eastern Shore.

Blackwater Refuge is celebrating the history and life of Tubman, the African-American abolitionist and humanitarian who escaped slavery at age 27 and whose heroic actions helped at least 70 other slaves reach freedom via the Underground Railroad.

Through its vast habitats of wetlands, waterways, swamps and upland forests, the refuge is working with local, state and federal partners to commemorate the most famous conductor of the Underground Railroad. In March 2013 – precisely 100 years after Tubman's death – ground was broken at the Maryland Park Service's Harriet Tubman Underground Railroad State Park. A few weeks later, President Obama established the Harriet Tubman Underground Railroad National Monument, which encompasses some refuge land.

"We see this partnership with the National Park Service, Maryland Park Service, the Harriet Tubman Organization, Dorchester County Tourism and others as a win-win opportunity," says refuge manager Suzanne Baird. "The National Monument designation provides another layer of protection for refuge habitats, gives the [U.S. Fish and Wildlife] Service an opportunity to highlight the importance of these habitats to the conservation of the historic and cultural resources, and will provide an opportunity to have people visit a national wildlife refuge who may not normally come."

Now a place for migratory birds, the refuge was once part of the landscape where Tubman was born and raised. Much of the landscape has sustained the character it had during the 1800s.



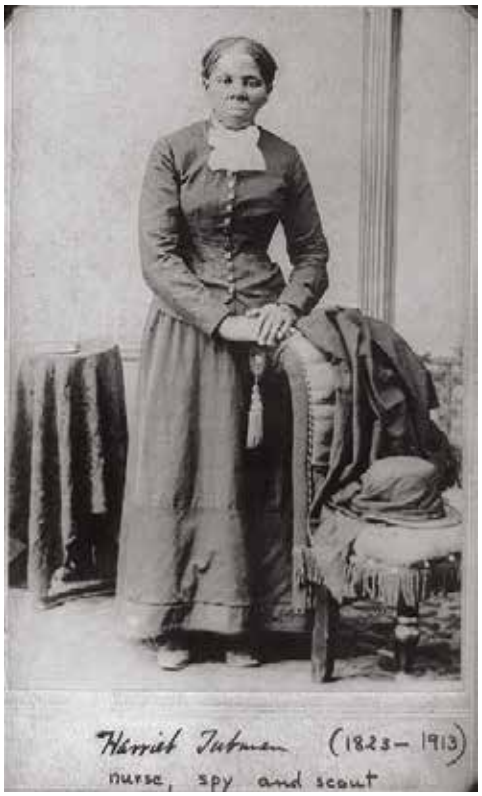
Blackwater National Wildlife Refuge on Maryland's Eastern Shore is celebrating the life of Harriet Tubman. The abolitionist and humanitarian escaped slavery at age 27 and helped at least 70 other slaves reach freedom via the Underground Railroad. (Ray Paterra/USFWS)

The Greenbriar, Kentuck and Russell swamps and the tidal marshes at the refuge are typical of Maryland's coastal plain and, while they exhibit more open water than they did 150 years ago, their essence is largely unchanged.

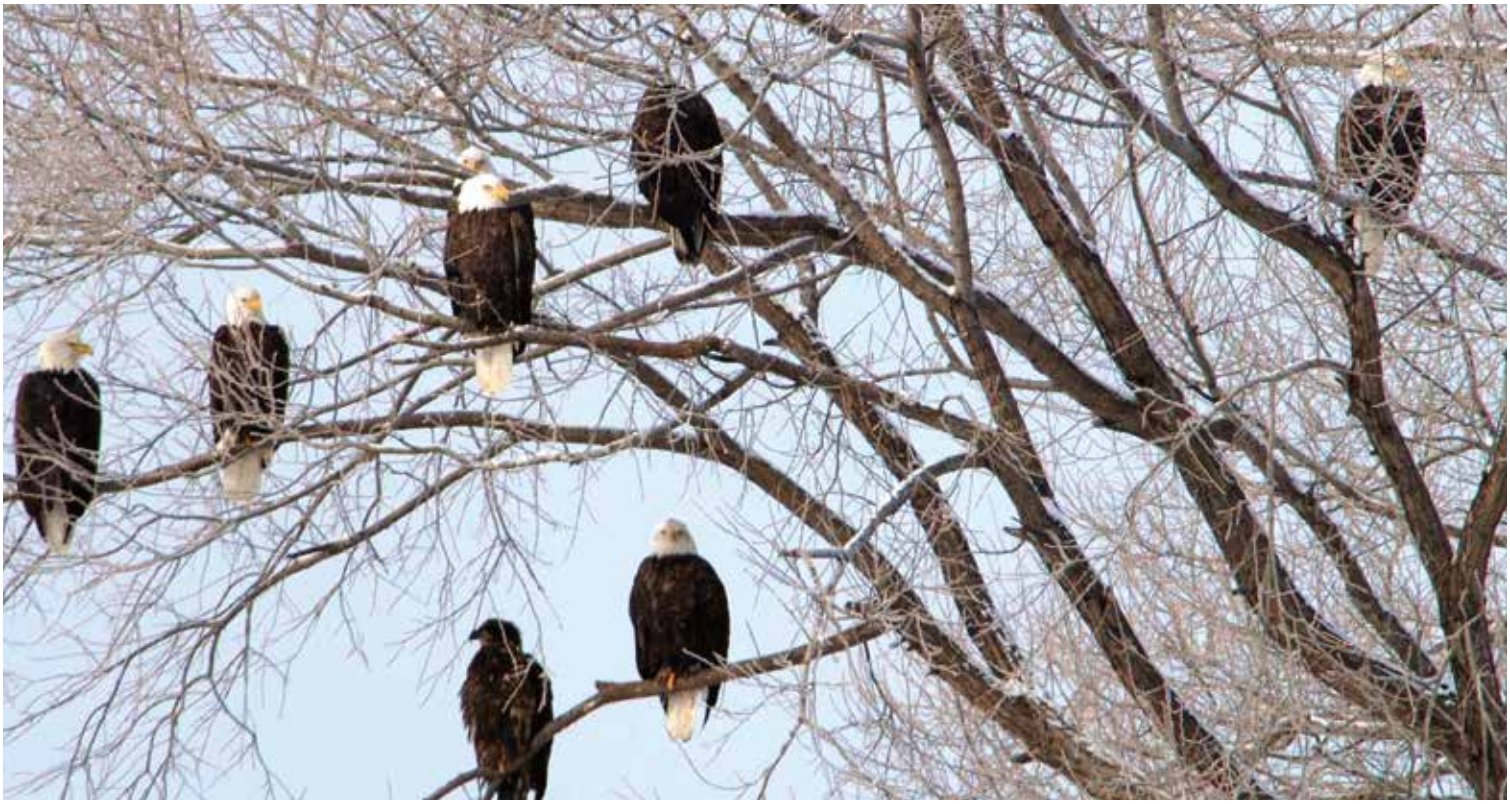
The mixed hardwood and pine forests have undergone constant harvest and regrowth since the European settlement, but the current woodland habitats represent the forested communities that sustained the economy during Tubman's life. The refuge manages the woodlands using silvicultural practices similar to those used in her time. The refuge also maintains much of the agricultural landscape that Tubman grew up in. But today, instead of tobacco, the major crops are corn and wheat, and mechanized equipment rather than hand labor is used.

Tubman's early experiences in the refuge area helped her develop a

continued on pg 11



(Library of Congress)



As these eight North American bald eagles perching in one tree at Lower Klamath National Wildlife Refuge attest, the Klamath Basin of Oregon and California is an extraordinarily popular spot for wintering eagles. (Dave Menke/USFWS)

Three Refuges Work in Tandem for the Bald Eagle

By Bill O'Brian

The Klamath Basin of Oregon and California has one of the highest concentrations of wintering North American bald eagles in the Lower 48 states. Since 1978 – through the eagle's endangered species listing period and its 2007 delisting – three national wildlife refuges have collaborated to keep the concentration high. And since 1978, basin residents have celebrated the United States' national bird with a February gathering.

The refuges are Bear Valley, Lower Klamath and Tule Lake. The gathering is the Winter Wings Festival, based at the Oregon Institute of Technology in Klamath Falls.

Bear Valley Refuge is 4,200 acres of old-growth forest high above the basin. It was established in 1978 to protect a vital night roost site for wintering eagles. Research and monitoring there has been (and remains) important to eagle recovery.

Lower Klamath and Tule Lake Refuges, together almost 90,000 acres in the basin below, are where those roosting eagles often perch and feed on winter days.

The relationship among the refuges' habitats helps ensure that, from November to March, the Klamath Basin is a great place for eagles.

The three refuges are not the only local winter roosting and feeding areas for eagles. There are scores of others. But the relationship among the refuges' habitats helps ensure that, from November to March, the basin is a great place for eagles.

Bear Valley Refuge is closed to the public in deference to the eagles and adjacent private landowners. However, on auto tour routes at Lower Klamath and Tule Lake Refuges visitors in winter can almost always see eagles. That's because, in winter, the eagles' food is there.

Eagles typically roost at night in wooded areas. Bear Valley is ideal because its large coniferous trees shield resting eagles from wind. Klamath Basin National Wildlife Refuge Complex manages that habitat to keep it ideal.

With the U.S. Fish and Wildlife Service fire program and the Bureau of Land Management, the refuge complex has overseen commercial timber harvest of small trees and removal of overgrown brush to protect the roost from wildfire.

"We just finished the last sale, and it's amazing," says complex manager Ron Cole. The habitat is "just much more open, much more diverse now. We're

Bear Valley National Wildlife Refuge, 4,200 acres of old-growth forest high above the Klamath Basin in southern Oregon, provides ideal nighttime roost habitat for wintering bald eagles. (Bill O'Brian/USFWS)

seeing a lot of different native plants coming back. And the most important thing is that we protected the roost."

On a typical winter day, the eagles descend at dawn in search of waterfowl. Eagles fish in summer. But in winter, when wetlands are frozen, they scavenge. They will sit for hours on branches, utility poles or other perches at Lower Klamath and Tule Lake Refuges.

"They will watch a bird go through the throes of avian cholera until the bird is completely helpless and not able to move hardly at all, but if it is not dead that eagle will not go over and touch it," says Cole. "It will wait until death takes over and then go over and start having breakfast." Eagles feed a couple times a day before returning to the roost around dusk.

Cole estimates the winter eagle population in the Klamath Basin at 500, but it can reach 1,000. One winter (2008-2009) the number included "Stephen Colbert Jr.," a banded eagle adopted by the Comedy Central television show host.

Each February, eagles are featured at the Winter Wings Festival. The festival, which traces its 35-year lineage to a more technical bald eagle conference, is set for Feb. 13-16, 2014. Last year, it drew 1,500 participants and included 60 field trips, workshops, talks and receptions.

"We've evolved to be one of the most popular festivals on the West Coast," says Diana Samuels, a coordinator of the event. Last year, attendees "identified more [avian] species than ever before – more than 130 species. Much of the draw is related to the diversity and numbers of raptors."

Eagles are the main attraction, though. Last year, roughly 140 people awoke before dawn to see eagle flyouts from usually-closed Bear Valley Refuge.

And beyond the festival, the eagles' effect on visitation at Lower Klamath and Tule Lake is "huge," says Cole. "You can't not stop and look at them. This is a really big, big bird, and since you were a kid it was probably one of the first birds that you ever knew the name of … People come every year, and they just look at them. I haven't gotten tired of seeing them. I get a little bit immune to their presence when they're at a distance, but when one comes by I don't care what I'm doing I stop and kind of go, 'Wow, that's cool'."

Video Online

A video related to this article, "Winter at Klamath Basin National Wildlife Refuges," is on the U.S. Fish and Wildlife Service YouTube page: *http://youtu.be/m7Mp3EEt9Yk.*

Exporting Oil and Gas Knowledge

By Scott Covington

"I realized what I wanted to do when I was about 10 years old: work for the government," Roger-Francois Azizet said last spring in a National School of Forestry classroom in Cap Esterias, Gabon. "That was when I realized the impacts that oil and gas were having on my country, and they weren't all positive. The actual moment struck me when the fish we had eaten my whole life – that used to sustain our family – suddenly tasted like oil."

Hydrocarbon oil – not peanut or canola oil.

Azizet is a 30-year-old-ish oil and gas inspection team leader for Gabon's national park system, which includes the equivalent of 13 national wildlife refuges. The economy of Gabon, a small sub-Saharan former French colony on the Equator in west Africa, is heavily dependent on oil production and exportation.

Oil and gas specialists – including Roger-Francois Azizet (holding orange hat) – check out a well site in Gabon. The author went to the west Africa nation to train newly hired national park system inspectors about oil and gas operations. (Scott Covington/USFWS)

Azizet was one of 10 students in a class I was teaching. I was there under the auspices of the U.S. Agency for International Development (USAID) and the MENTOR-FOREST Program, a partnership between the U.S. Fish and Wildlife and the government of Gabon.

I was invited to train students and Parcs Gabon's newly hired inspectors about oil and gas operations from start to finish, and about how to reduce such operations' impacts on wildlife and habitat. I was also asked to visit several seismic, development and operational sites, and to recommend how to reduce environmental impacts in places where oil and gas work was just starting, in development or long completed.

I spent four weeks in Gabon – three in the field with government-contracted biologists working on oil and gas issues (inspections/surveys, negotiations with oil and gas companies, reviewing plans and proposals) and one teaching the class in Cap Esterias.

During that time, I learned that, while Parcs Gabon has few experienced oil and gas specialists, the agency faces challenges similar to those that the National Wildlife Refuge System faces. Just as we often are powerless to stop oil and gas development on or near a refuge, Parcs Gabon is powerless to stop it. All we can do – and all Parcs Gabon can do – is work to minimize the impacts and habitat fragmentation. Like us, Parcs Gabon sometimes has difficulty gaining access – because of remote locations and industry opposition – to do inspections that ensure compliance with the few existing environmental regulations. Like us, Parcs Gabon has too much land to cover and too few staff specialists to cover it.

I also learned that Gabon is more than 80 percent rainforest, that some locales get more than 10 feet of rain per year and that the nation supports an array of wildlife from elephants, gorillas, mandrills and bonobos to endemic tropical plants and birds.

I met with several oil and gas operators who appeared willing to consider adopting newer, less environmentally impactful technologies to conserve that wildlife. We discussed threats to wildlife that oil and gas operations can pose, including erosion, habitat fragmentation, spills and poaching access. The conversation led to the notion that, if the Gabonese oil and gas industry does not take action to reduce environmental impacts, humans could be affected, too – by brine or chemical spills, improperly abandoned wells/infrastructure and long-term damage to drinking water aquifers.

I sense it will take a long time to see significant changes in operations in Gabon. However, by providing consultation services to committed individuals like Roger-Francois Azizet and helping Parcs Gabon build the internal capacity to address large-scale oil and gas mitigation projects, the Service will gain insight into its own projects, too. It's a win-win for both agencies and both countries.

Scott Covington is the Refuge System's national energy program coordinator.

The Daughter of Wichita Mountains

By Art Needleman

Wichita Mountains Wildlife Refuge is famous for incredible fall colors, views from Mount Scott, free-range bison herds, old mountain wilderness and short-grass prairie. It pre-dates Pelican Island National Wildlife Refuge as conserved habitat by two years. It is recognized as the historic home of Native Americans, buried treasure, bandits and a mining camp.

Lesser known is that it served as an outdoor movie set for a film with an all-Native American cast. *The Daughter of Dawn,* an 80-minute silent film, was shot at the refuge in the summer of 1920, an era when Hollywood was only beginning to develop its current story, editing and camera practices.

The film marked the first time Native Americans were used to tell a cinematic story about themselves. There were no actors in makeup, no indistinguishable/inaccurate tribal wear or objects. Members of the Native American cast brought their own clothes, tepees, horses and cultural/religious artifacts to tell the tale of Dawn, the daughter of an Indian chief.

A Love Story

It's a basic Hollywood love story wherein trials and tribulations lead to a happily-ever-after ending. However, the stars and 300-plus extras all belong to Comanche and Kiowa tribes.

The film was written and directed by West Virginian Norbert Myles and produced by Texan Richard E. Banks. Banks had lived and worked with Native Americans for a quarter-century. He brought authenticity to the script.

The Comanche were nomadic. They separated from the Shoshone tribe and migrated southward in the 1600s. They roamed the southern Great Plains in the 18th and 19th centuries. Their range included parts of New Mexico, Colorado, Kansas, Oklahoma and Texas. The name Comanche is derived from a Ute word meaning "anyone who wants to fight me all the time." Their staple was buffalo meat. They were excellent horsemen known for raids against other tribes and settlers.

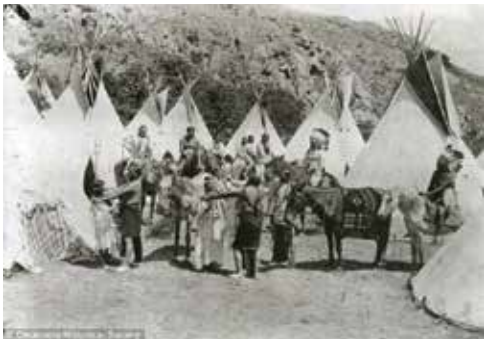
Wichita Mountains Wildlife Refuge is revered for its wilderness. In 1920, it made cinematic history, too. (Kirk Rogers)

The film showcases Comanche culture, including dress, use of sign language and bareback horse riding. It includes a battle sequence, village scenes, tribal dances and two sequences in which hunters chase down the fabled buffalo herds of Wichita Mountains. Little is known about the actual shoot or refuge involvement with it.

The cast features Ester LeBarre as Dawn. White and Wanada Parker play supporting roles. They were the children of Quanah Parker, the Comanche chief who surrendered his people at Fort Sill, OK, south of Wichita Mountains Refuge, in 1875 after years of battle with U.S. Cavalry.

A sneak preview was shown in October 1920 in Los Angeles. But, for unknown reasons, the film was never distributed and thought to be lost.

In 2003, a private investigator in North Carolina ended up with a print of the film. He contacted Brian Hearn of the Oklahoma City Museum of Art in 2005 to offer to sell the film. Through Hearn, the Oklahoma Historical Society purchased it. A fully restored *The Daughter of Dawn* with a score by David Yeagley premiered at deadCENTER Film Festival in Oklahoma City in June 2012. There are plans to broadcast the film and offer it on DVD, and it is making the rounds of U.S. and international film festivals.



A scene from The Daughter of Dawn, *a silent film shot at the refuge almost a century ago. (Oklahoma Historical Society)*

Art Needleman is a visual information specialist in the Southwest Region office in Albuquerque.

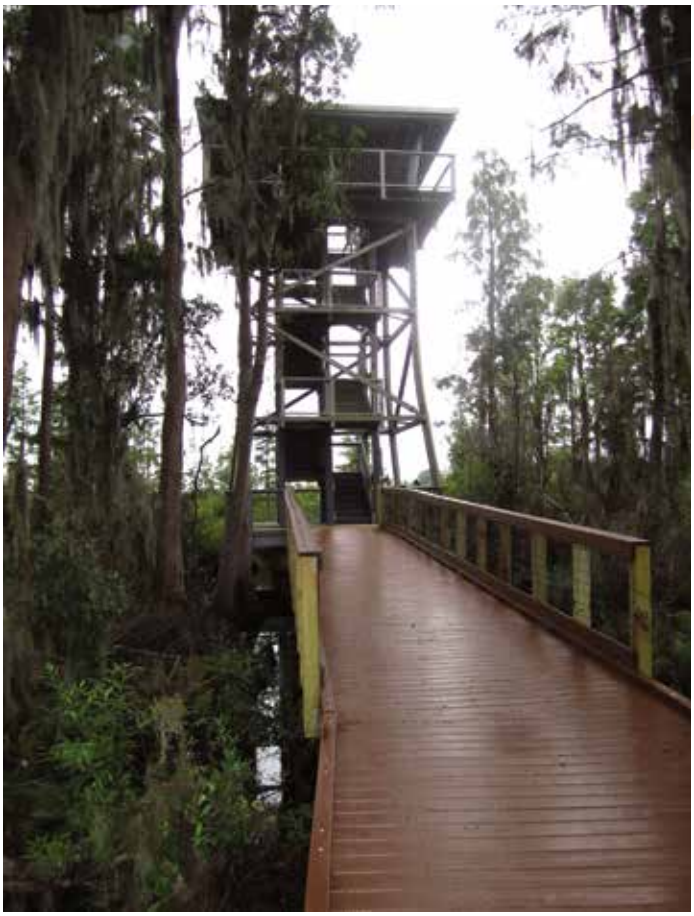
Around the Refuge System

Oregon

The Friends of Tualatin River National Wildlife Refuge and co-plaintiff Northwest Environmental Defense Center won an important lawsuit settlement this summer that will help conserve healthy habitat at and near the refuge. The case involved an unlined landfill that for years had been leaching into the Tualatin River, which flows through the refuge outside Portland. Under the settlement, operators of the now-closed landfill will pay $7 million to the state Department of Environmental Quality to hire contractors to clean up contamination from the landfill. It's "an incredible story that epitomizes all that our Friends can do, not just at Tualatin River Refuge but across the country," said Tualatin River Refuge project leader Erin Holmes. "The Friends stood up and fought for clean water and protection of the Tualatin Rivershed. They took an organizational risk but did so because they strongly believed in what they were doing and in the protection of our natural resources. They demonstrated the 'beyond the boundaries' impact that Friends can have, and I am so proud of them."

Georgia

The new Chesser Island boardwalk at Okefenokee National Wildlife Refuge has been repaired and improved. The original boardwalk, built in the late 1960s, was a treasured asset on the refuge for decades. In June 2011, the boardwalk was destroyed during the Honey Prairie Fire. The new boardwalk follows nearly the same path as the original. It leads out to the Owl's Roost observation tower, which overlooks Seagrove Lake in the vast Okefenokee Wilderness. The boardwalk has been rebuilt to include three covered pavilions. It uses an environmentally friendly wood-alternative product made of materials, such as plastic grocery bags, that might otherwise end up in a landfill. The new boardwalk is eight feet wide and, like the old one, does not have a railing most of the way – providing an unobstructed experience with the swamp landscape and wildlife. A pioneering sprinkler system is in place to prevent destruction by all but the hottest fires. A 3,700-foot waterline services 88 sprinkler connections placed every 40 feet. The Owl's Roost observation tower at the boardwalk's end has been repaired, too, and it affords visitors a glimpse into Okefenokee Swamp, one of the largest intact freshwater wetlands in the world. The federal government shutdown in October forced the postponement of a grand reopening ceremony for the boardwalk until later this fall.



The Owl's Roost observation tower at the end of the recently repaired Chesser Island boardwalk at Okefenokee National Wildlife Refuge in Georgia affords visitors a glimpse into one of the largest intact freshwater wetlands in the world. (Susan Heisey/USFWS)

Texas

The Friends of Laguna Atascosa National Wildlife Refuge, with sponsorship help from the Texas Parks and Wildlife Department, have arranged that the state Department of Motor Vehicles will issue a specialty license plate featuring the endangered ocelot. There are only about 50 known individual ocelots in the wild in the United States – all at Laguna Atascosa Refuge or on other land in South Texas. The specialty plates, which are expected to be available late this year, will read "Save Texas Ocelots." They will cost $30 apiece, with $22 going to the Friends group to support ocelot conservation efforts. New refuge manager Boyd Blihovde, who was not involved in the specialty plate effort, expects that the revenue will help fund ocelot-monitoring interns, research projects, educational programs, ocelot translocation and perhaps landscape scale initiatives such as land acquisition and management.

Minnesota

- Historically, one of the Midwest's predominant habitats was a fire-dependent upland habitat in which prairie grasses and wildflowers grow under and around scattered oak trees, known as oak savanna. Now, a mere .02 percent of oak savanna remains. Sherburne National Wildlife Refuge, 45 miles northwest of downtown Minneapolis, has begun a three-year project to restore approximately 200 acres of this rare oak savanna habitat. The project's first phase was the removal of downed trees and thinning of standing trees by a local logging company. Encroaching shrubs in the understory will be mechanically

removed prior to conducting a prescribed fire in the spring of 2014. These steps will release the native forbs and grasses that are found in the soil. To supplement natural regeneration, other native species will be planted to increase diversity. The overall goal is to provide a diverse oak savanna habitat for the many species that are dependent on it, including red-headed woodpeckers, wild turkeys and Blanding's turtles.

- To the delight of hikers, bikers and outdoors enthusiasts, the Bloomington City Council has agreed to renovate the Old Cedar Avenue Bridge, which crosses Long Meadow Lake in Minnesota Valley National Wildlife Refuge. The 1920s-era bridge has been closed to motor vehicle traffic since 1993 and to pedestrians and bicyclists since 2002. The bridge has fallen into disrepair, despite being on the National Register of Historic Places. Before it was closed, the bridge was a popular spot to observe migrating waterfowl and birds on the lake. It also served as an important regional link for refuge trails. Under the renovation plan, the bridge is scheduled to reopen to foot and bike traffic in 2015.

A study published in the journal Science *and co-authored by Necedah National Wildlife Refuge biologist Richard Urbanek found evidence that young whooping cranes learn their migration route from older cranes, and get better at it with age. (Joe Duff/Copyright Operation Migration USA Inc.)*

Whooping Crane Study

A study titled "Social Learning of Migratory Performance" published in the journal *Science* in late August found evidence that young whooping cranes learn their migration route from older cranes, and get better at it with age. The study analyzed data from the eastern flock of whooping cranes. Most of those cranes were hatched at Patuxent Wildlife Research Center in Maryland, trained to migrate south in the fall by following ultralight aircraft, and then returned north in the spring on their own. The flock generally migrates between Necedah National Wildlife Refuge, Horicon Refuge or other sites in Wisconsin and Florida's Chassahowitzka Refuge or other sites in the Southeast. Necedah Refuge biologist Richard Urbanek was one of the study's four co-authors. Urbanek, who has researched cranes for three decades, says that the study confirmed that breeding whooping cranes in captivity, rearing them via interaction with costumed biologists, reintroducing them into the wild, and training them to migrate via ultralight aircraft works. "First, the results indicate that the reintroduction techniques used were successful," he says. "Second, the findings indicate that the developing population is adapting for most efficient use of the migration route and seasonal distribution." The population of the captive-bred flock is about 100 birds. The continent's last wild flock of whooping cranes, which winters at Aransas National Wildlife Refuge in Texas and breeds at Wood Buffalo National Park in northern Canada, numbers more than 250 birds.

Nevada

An August 2013 survey found a 46 percent increase in the number of endangered Moapa dace in the headwaters of the Muddy River near Moapa Valley National Wildlife Refuge. The survey found 1,727 Moapa dace, 546 more than an August 2012 survey did. The minnow-size fish is adapted to thermal spring waters in the Mojave Desert that can reach 90 degrees and have low oxygen levels, but the species has been struggling for survival because of habitat destruction and non-native competitors. The dace population declined as nearby springs and streams were converted into resort swimming pools and hot tubs, or degraded from ranching use. The population dropped from 3,800 in 1994 to below 500 in 2008. As the refuge and its partners acquired acreage, removed resort structures and non-native palm trees, and restored stream channels to natural conditions, the fish gradually have reclaimed the waterways. An article about Moapa dace recovery appeared in the January/February 2013 issue of *Refuge Update*.

Director Signs Order Authorizing Urban Partnerships — *continued from page 1*

partnerships – in Chicago, Houston, Baltimore, Seattle, Los Angeles, Albuquerque, Providence, RI, and New Haven, CT.

"These are not Service-owned lands, nor are they governed by Departmental or Service regulations or policies," the Director's Order says of the eight pilot partnerships. "Instead, these are lands that are owned and managed by others who share our interest in establishing National Urban Wildlife Refuge Partnerships. These partnership lands are located in urban areas so people can enjoy outside experiences that foster connections with fish and wildlife and their habitats."

The pilot partnerships enable the Service to work with key community organizations to connect with audiences that have not been active in wildlife conservation. More information about the partnerships is available on the Refuge System Web site (*http://go.usa.gov/DGSh*).

The partnerships were formed in response to *Conserving the Future* Recommendation 13, which calls for the creation of "an urban refuge initiative that defines excellence in our existing urban refuges, establishes the framework for creating new urban refuge partnerships and implements a refuge presence in 10 demographically and geographically varied cities across America by 2015." Two other urban wildlife refuge partnership designations are scheduled to be announced by 2015.

A boy learns about snakes – and about nearby national wildlife refuges – at a kids' day event co-sponsored by the Buffalo Bayou Partnership in Houston. (Pete Romph)

The Director's Order was signed in conjunction with the first-ever Urban Academy, where Service staff and partners learned about cultural diversity and how to engage new audiences to foster a new conservation constituency.

Participants in the academy also helped the *Conserving the Future* Urban Wildlife Refuge Initiative implementation team refine the "Standards of Excellence for Urban National Wildlife Refuges." The standards are aimed at refuges within 25 miles of urban areas with 250,000 people or more, but also can benefit refuges serving rural communities. They are designed to help refuges engage urban Americans in new, effective ways.

The initiative and the partnerships are part of the Service's determination to make its programs far more relevant to millions of Americans – 80 percent of whom live in big and small cities.

Listening for Bats on a Landscape Scale — *continued from page 2*

biologists are especially concerned about the gray, Indiana, small-footed, little brown, Northern long-eared, hoary, silver-haired and Eastern red bats as well as the Eastern pipistrelle.

The disease has crept as far south as Fern Cave National Wildlife Refuge, in northern Alabama, and as far west as northwest Arkansas. The fungus weakens bats and travels quickly through communal winter roosts. Some species, Richardson says, are in danger of becoming regionally extinct. So far, there's no cure.

The picture is just coming into focus, according to Richardson and Nick Wirwa, a wildlife biologist who surveys bats at St. Catherine Creek, Cat Island and Bayou Cocodrie Refuges in Mississippi and Louisiana. Preliminary data show that some forests have a lot more bats than others.

For example, surveys near Fern Cave Refuge detected a dozen bats per mile, while those at other refuges found only two or three per mile. And bats appear to prefer forest edges and openings. The surveys – done in the first half of summer – also detected more bats in July than in June, probably because young of the year are on the wing.

Mobile acoustical bat monitoring project researchers hope they'll end up with a clearer picture of how landscape-level factors such as habitat change, forest condition, climate change, wind farms and agriculture affect bats. They are also gaining a better understanding of bats on each refuge.

Ertel, who spent years studying bears, notes that bats are important predators, too. They may be small, she says, but they're "a critical piece of our web of life."

John Pancake is a freelance writer who lives in Goshen Pass, VA.

Study: Refuge Visitor Spending Has Major Economic Impact — *continued from page 1*

Wildlife-related recreation fuels much of this economic contribution. The National Survey of Fishing, Hunting and Wildlife-Associated Recreation, which informs the *Banking on Nature* report and is published every five years by the Service, found that more than 90 million Americans spent nearly $145 billion pursuing outdoor recreation in 2011.

Among other key findings from *Banking on Nature:* Spending by refuge visitors generated nearly $343 million in local, county, state and federal tax revenue. Refuges are seen as travel-worthy destinations; 77 percent of refuge spending was by non-local visitors. Non-consumptive activities, such as wildlife viewing, photography and hiking, accounted for 72 percent of visitor spending. Among consumptive uses, fishing accounted for 21 percent and hunting, 7 percent.

Refuges showing standout economic returns include:

- Laguna Atascosa Refuge, TX, where recreational visits produced nearly $30 million in economic effects on a budget of $801,000 – roughly $37 for every $1 in budget expenditure.
- Wichita Mountains Refuge, OK, where recreational visits produced $174 million in economic effects on a budget of $3.9 million – about $44 for every $1 in budget expenditure.
- Upper Mississippi River Refuge, MN/WI/IA/IL, where recreational visits generated $226 million in economic effects on a budget of $4.9 million – about $46 for every $1 in budget expenditure.

Canoeists enjoy Upper Mississippi River National Wildlife and Fish Refuge, where recreation visits generated $226 million in economic effects on a budget of $4.9 million, according to a U.S. Fish and Wildlife Service report. That's about $46 for every $1 in budget expenditure. (USFWS)

Refuges that supported the greatest number of jobs were Upper Mississippi River Refuge (1,394 jobs); Wichita Mountains Refuge, OK (1,053); Kenai Refuge, AK (907); and Merritt Island Refuge, FL (467).

The Southeast Region had the most visits (12.4 million) and generated the most jobs (9,455) of any region in fiscal 2011.

The report used 92 refuges for its economic sampling. Per-person spending data were drawn from the 2011 fishing, hunting and wildlife-associated recreation survey and the Service's fiscal 2011 Refuge Annual Performance Plan (RAPP).

Researchers examined visitor spending in four areas – food, lodging, transportation and other expenses (such as guide fees, land-use fees and equipment rental). Local economies were defined as those within 50 miles of each of the 92 refuges studied. The national estimate was reached by extrapolating results for these 92 refuges to the Refuge System as a whole.

Honoring a Hero, Conserving Her Landscape — *from page 3*

familiarity with and understanding of the natural landscape she drew on during her escapes.

The Harriet Tubman Underground Railroad State Park visitor center, which is scheduled to open in summer or fall 2015, will serve as a hub for visitor activities. It will be connected physically and culturally to the refuge visitor center through programming, multi-use trails and roads. The refuge visitor center's interpretive exhibits are being updated to incorporate Tubman into their storytelling. The Harriet Tubman Underground Railroad National Monument is also working with partners to accommodate visitors.

"It is definitely a park site in progress, and in the coming years services will be added in cooperation with Maryland's planned Harriet Tubman Underground Railroad State Park," says Cherie Butler, the superintendent of the national monument. "This national monument exemplifies a new model for park units. There is cooperative management from the beginning."

So, soon visitors will be able to enjoy more than what meets the eye – both ecologically and culturally – at Blackwater Refuge.

Tylar Greene is a public affairs specialist in the Northeast Region office in Hadley, MA.

RefugeUpdate

USFWS-NWRS
4401 North Fairfax Dr.
Room 634C
Arlington, VA 22203-1610

STANDARD PRESORT
POSTAGE AND FEES
PAID
U.S. DEPARTMENT OF THE INTERIOR
PERMIT G-77

Meet us at *www.fws.gov/refuges*

A Look Back . . . Clarence Rhode

By the time he was 15, Clarence Rhode was a deputy game warden in Washington state and knew he wanted to spend his life working with wildlife. He moved to Alaska to work for the U.S. Forest Service and earned a commercial flying license. He told friends he had three loves in life – family, Alaska fish and game, and flying.

Rhode worked as a commercial pilot during World War II, flying the first Grumman Goose for Alaska Coastal Airlines. After the war, he secured a fleet of the planes from military surplus for the U.S. Fish and Wildlife Service in Alaska, where he was named regional director.

Rhode decided early that the airplane was vital to the protection of Alaska's wildlife. He recruited wildlife biologists and trained them to be pilots who could make aerial game surveys. In *Forgotten Heroes: Police Officers Killed in Alaska 1850-1997,* William Wilbanks wrote that "in scarcely a decade, the Fish and Wildlife Service in Alaska progressed from dog teams and month-long waits for mail and messages to lightning-swift radio communications statewide and fast, far-roaming airplanes that allowed agents to cover hundreds of miles literally overnight."

Clarence Rhode (1913-1958) was a pioneer as a pilot and a conservationist in Alaska, where he died in a plane crash. (USFWS)

Despite not having a college degree, Rhode helped establish the Department of Wildlife Management at the University of Alaska in Fairbanks in 1949. He later earned Department of the Interior and *Congressional Record* citations for his air rescue work.

In the end, however, he was not able to rescue himself and died doing what he loved and valued so much. Rhode took off in a Grumman Goose amphibious aircraft from Fairbanks on Aug. 20, 1958, on a routine flight to look over the proposed Arctic wildlife area and count Dall sheep. He was joined by his eldest son, Jack, and colleague Stan Fredericksen.

The plane disappeared, prompting one of the largest air and ground searches in Alaska history, but it was not until 1979 that two women backpacking in the Brooks Range found a small plane destroyed by fire. It had exploded on impact with a rock wall.

To honor his pioneering work as a pilot and conservationist, the Kuskokwim Wildlife Range in southwestern Alaska was renamed the Clarence Rhode National Wildlife Range in 1961. In 1980, the range became part of Yukon Delta National Wildlife Refuge.

Follow the National Wildlife Refuge System on Facebook at *www.facebook.com/usfwsrefuges* and Twitter@USFWSRefuges.

Send Us Your Comments

Letters to the Editor or suggestions about *Refuge Update* can be e-mailed to RefugeUpdate@fws.gov or mailed to *Refuge Update*, USFWS-NWRS, 4401 North Fairfax Dr., Room 634C, Arlington, VA 22203-1610.