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Fish & Wildlife *News*

Special
Rachel Carson
Centennial Anniversary Issue

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On the cover: *Rachel Carson near her home in Silver Spring, Maryland, 1962.*

ALFRED EISENSTADT / GETTY IMAGES

(ILLUSTRATION) TIM KNEPP

Remembering Rachel

I suspect most of you have seen the famous photo of Rachel Carson leaning against a tree, resting during a hike near her summer home in Southport, Maine. It was taken in 1962, the same year *Silent Spring* was published. Though her face looks weary, she seems at peace in nature—more like a weekend birder than the "mother" of the modern environmental movement. But if you look closely, you can see eyes burning with a sense of purpose.

Silent Spring not only sounded the alarm about the effects of chemical pesticides in our environment and the "web of life," it also ushered in a new era of environmental awareness. The book eventually led to a ban on DDT—which enabled species such as the bald eagle to come back from the brink of extinction—and spurred the creation of the Environmental Protection Agency in 1970. After she died of breast cancer in 1964, Rachel was posthumously awarded the Presidential Medal of Freedom, the highest honor the U.S. government can bestow upon a civilian.

Perhaps the greatest gift Rachel Carson left us is the notion that one person, working with passion and a strong sense of purpose, can indeed make a difference.

In this centennial year of her birth, we not only remember Rachel Carson for her great achievements but we also embrace her as one of our own. As a writer-biologist and chief editor with the Service from 1936-1952, Rachel authored and contributed to dozens of agency publications, including the "Conservation In Action" series, which eloquently described the Refuge System's role in protecting the environment and maintaining our wildlife resources for future generations. *Silent Spring* was informed by nearly two decades of field and laboratory research conducted by Service biologists on the effects of pesticides on wildlife, primarily birds and their eggs.

As Service employees, we continue to embrace the principles she championed—sound science, respect for all living things and the need to connect people, especially children, with nature. But perhaps the greatest gift she left us is the notion that one person, working with passion and a strong sense of purpose, can indeed make a difference.

This issue of *Fish & Wildlife News* is dedicated to Rachel Carson's work and legacy: her ability to transform scientific facts into plain language that spoke to generations of conservationists; her lifelong dedication to instilling a "sense of wonder" in children and all people; and how she continues to inspire Service employees to do the right thing even under the most difficult circumstances. These pages reflect who Rachel Carson was and who we are—a family of people dedicated to the resource, respectful of those who went before us and committed to carrying out our trust responsibilities.

In honor of this centennial, the Service is hosting events around the country and developing special environmental education programs and exhibits. For a complete list of programs and events, visit <**www.fws.gov/rachelcarson**>.

It is fitting that we recognize one of history's greatest conservationists, but Rachel Carson also should be remembered as a compassionate human being. When I look at that photo of her leaning against the tree, I think of Rachel's endless fascination with nature and her gift for sharing it with children. In her book, *The Sense of Wonder*, published a year after her death, she wrote that, "A child's world is fresh and new and beautiful, full of wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood."

I hope our sense of wonder never dims. I hope it fills our work and we pass it on to generations of kids who otherwise may never know nature's blessings. And I hope that Rachel Carson's passion and clear-eyed vision will live on in each and every one of us.

Literary Legacy

rcbookclub.blogspot.com

The Fish and Wildlife Service and Friends of the National Conservation Training Center have launched the Rachel Carson Online Book Club to honor the life, legacy and literary genius of the Service's most famous employee.

Beginning in March and continuing through November 2007, the online book club focuses on the life and work of Rachel Carson including her role as a female leader in science and government. Through the study of her writing, the Book Club will provide an opportunity for dialogue and discussion of current environmental issues in light of Carson's legacy

Several distinguished moderators will participate in the online discussions. Author and Carson biographer, Linda Lear launched the first session in March. Among other moderators in the line-up are: marine biologist and Director of Duke Marine Laboratory, Cindy Van Dover; U.S. Fish and Wildlife Service historian Mark Madison; Houghton Mifflin Executive Editor Deanne Urmy; author and professor of Environmental Studies at Middlebury College, John Elder.

"This online discussion will be such a fabulous way to engage and bring together people from many different communities to focus on the life and legacy of Rachel Carson," said Anne Post Roy, NCTC conservation librarian. "The discussion should be incredibly interesting given the stature of some of our moderators and the depth of knowledge that they will bring to the online chat."

Each month, a moderator will start the book discussion with an opening statement. Then, in dialogue with book club participants, the moderator will provide weekly installments and add comments on the discussion throughout the month. Discussions will encompass current environmental issues like global warming, and will extend to personal attitudes toward the natural world.

Titles in the schedule range from Carson's first book, *Under the Sea Wind*, in which she reveals her unique ability to present intricate scientific material in clear poetic language that captivates readers; to *Courage for the Earth: Writers, Scientists, and Activists Celebrate the Life and Writing of Rachel Carson*, an anthology edited by Peter Matthiessen that was released in April.

Silent Spring, Carson's most well known book which alerted the public to the dangers of pesticides and sparked a firestorm of controversy in its wake, will be showcased as well as some of her lesser known texts on the sea, and the truly inspirational *The Sense of Wonder*.

The Rachel Carson Online Book Club is sponsored by the Friends of the National Conservation Training Center. Participation in the online book club is open to everyone. For more information, please contact Anne Roy, National Conservation Training Center at: <Anne_Roy@fws.gov>, or Nancy Pollot, Oregon Fish & Wildlife Office at: <Nancy_Pollot@fws.gov>. View the book club Web site at: <rcbookclub.blogspot.com>. □

Anne Roy, conservation librarian, National Conservation Training Center, Shepherdstown, West Virginia; Nancy Pollot, information and education specialist, Portland, Oregon.

Natural Laboratory

In her book, *Silent Spring*, Rachel Carson called attention to the harmful effects of the pesticide DDT (dichloro-diphenyl-trichloroethane) on the natural world. The Channel Islands off the southern California coast provide an ideal laboratory in which to study the effects of DDT on wildlife, learn from our past mistakes and restore the delicate balance of nature.

The Channel Islands, sometimes referred to as the Galapagos of North America, are composed of eight islands located within one of the richest marine and terrestrial environments in the world. Home to many endemic plants and animals, these islands offer an insight into the magnifying effects of DDT through the food web. The story of the bald eagle on the Channel Islands offers one of the best illustrations of DDT's profound impact on wildlife.

Historically, there were more than 35 bald eagle nesting areas on the Channel Islands, making it a stronghold for the species in southern California. Beginning in the late 1940s and continuing through the early 1970s, millions of pounds of DDTs and polychlorinated biphenyls (PCBs) were discharged into the ocean off of southern California through a wastewater outfall. Feeding on a steady diet of contaminated marine mammals, seabirds, and fish, the bald eagles on the Channel Islands began showing the effects of DDT, although they were miles away from the outfall. The birds began laying abnormally thin-shelled eggs that broke easily in the nest. By the early 1960s, bald eagles

disappeared from the Channel Islands due to human impacts, primarily the introduction of DDT and other contaminants into the environment.

The disappearance of bald eagles contributed to the ecological imbalance on the islands. Over time, the absence of territorial bald eagles provided an opportunity for the non-native golden eagle to colonize the northern Channel Islands. Golden eagles became established on the northern islands by the 1990s where they routinely preyed upon the diminutive native island fox. Largely as a result of predation, the Fish and Wildlife Service emergency listed the island fox as endangered in 2004.

Seeking to undo the damage caused by DDT and restore ecological balance to the Channel Islands, a multi-agency effort was launched in 1980 to restore bald eagles on Catalina Island. Between 1980 and 1986, 33 eagles taken from wild nests on the mainland were introduced to Catalina Island. In 1987, the first bald eagle eggs were laid on Catalina Island, but they soon broke in the nest. It became apparent that DDTs and PCBs continued to contaminate the marine food web. Since 1989, the reintroduced population of bald eagles on Catalina Island has been maintained only through intensive through human intervention, including the artificial incubation of eggs.

In 1990, the Service's Environmental Contaminants Program undertook an extensive Natural Resource Damage Assessment. Through this effort Montrose Chemical Corporation and the other polluters responsible for discharging the DDTs and PCBs into southern California's marine environment were held accountable. After 10 years of negotiations a settlement was reached, and Montrose and the other defendants agreed to pay a total of $140 million to the government. The Montrose Settlements Trustee Council, a group of state and federal agencies that includes the Service, is responsible for using these funds to restore the natural resources (including bald eagles) injured by the pollutants.

JIM SPICKLER / USFWS

"A-49," the first bald eagle to hatch on the Channel Islands since 1949, shows off her new wing tags on banding day.

As part of the Montrose Settlements Restoration Program, the Trustee Council initiated a feasibility study in 2002, to determine if bald eagles reintroduced to some of the northern Channel Islands that are farther away from the source of contamination might have greater reproductive success than the birds on Catalina Island. The feasibility study has two aspects: 1) releasing captive-bred and translocated wild nestling bald eagles on Santa Cruz Island, and 2) monitoring contaminants in the released birds, their eggs, and their food to determine DDT concentrations. As of January 2007, 61 birds have been released and there are approximately 30 bald eagles remaining on the northern Channel Islands. Each eagle is equipped with satellite telemetry equipment that allows the biologists to track movements within the Channel Islands and along the mainland. Biologists have tracked birds released on Santa Cruz Island as far north as Washington State, and as far east as Yellowstone National Park in Wyoming.

In the spring of 2006, several significant milestones occurred in this restoration effort. First, biologists first confirmed the presence of two bald eagle nests on Santa Cruz Island and then after an anxious 35-day wait during incubation, each of the nests produced a bald eagle chick—the first successful hatches on the islands since 1949.

"The fact that two bald eagle chicks hatched without the help of humans on the northern Channel Islands represents a significant milestone in the recovery efforts for the entire Channel Island ecosystem," says Kate Faulkner of the National Park Service.

Shortly following the first hatching, a live web cam was set up to allow the public to experience the historic moment. A loyal fan base quickly emerged on an Internet discussion forum that included play-by-play accounts of the activities of the parents and chick. Known to biologists as A-49, this chick was affectionately called "Cruz" and "Junior" by the web cam crowd. "We are thrilled to have been able to share the excitement of watching A-49 grow and fledge with viewers from all over," said Dave Rempel, a biologist for the Institute for Wildlife Studies who monitored the nest. Both of chicks fledged successfully and are now exploring the northern Channel Islands.

The Santa Cruz Island live bald eagle nest web cam can be found on-line at: <chil.vcoe.org/eagle_cam.htm>. □

Annie Little, Environmental Contaminants Program and Montrose Settlements Restoration Program, Carlsbad, California.

Lessons by the Sea

Part of Rachel Carson's legacy lives on in the education work of the Maine Department of Marine Resources (DMR), funded in part by a Fish and Wildlife Service Federal Assistance grant. The DMR uses a portion of its Sport Fish Restoration program funds to provide a diverse marine education program that includes a unique island experience for Maine schoolchildren.

The agency acquired the Burnt Island Light Station in 1998 when the U.S. Coast Guard transferred ownership of certain Maine lighthouses. Located just outside Boothbay Harbor, the 5-acre island is a jewel that offers views of the mainland; nearby islands and lighthouses; passing sloops, schooners and lobster boats; and, of course, the sea. The DMR worked with local contractors and hundreds of volunteers to restore the keeper's house and turn the island into an educational and recreational facility for the people of Maine.

Education Director Elaine Jones, a biology major and former classroom teacher, worked with local teachers to develop an educational curriculum focused on topics relating to Maine's maritime heritage, coastal ecology, marine fisheries and conservation. During the spring and fall, the island serves as an exceptional outdoor school for students and teachers from around the state.

Schoolchildren discover the varied life found in and around the rocky shore, sand beach, meadow and maritime forest as they explore the island and participate in experiential learning activities. Local elementary schools enjoy day trips to the island, while middle school students spend up to three days and two nights living on the island.

LIBBY HOPKINS / USFWS

After students are given some tips on how to walk gently and safely around the tide pools, they take their plastic trays and go exploring.

One of the most popular activities is "tide pooling." Even on a foggy day, once the students are given their plastic collecting pans and set free to explore the tide pools, you can feel the excitement. They are immediately absorbed in peering under clumps of hanging rockweed and poking around tide pool rocks and there are squeals of delight when someone finds a crab or young lobster. Afterwards, Jones has the children bring their finds to an artificial tide pool where she describes the life history and adaptations of the plants and animals they've found. Later, the children release the animals back into the tide pools and climb back to high ground as the rising tide begins to reclaim the pools. But the smiles, stories and delight stay with the children long after the field trip. □

Libby Hopkins, Division of Federal Assistance, Hadley, Massachusetts

Rekindling a Sense of Wonder

The Service's "Sense of Wonder" Recognition Program takes its name from a quote by Rachel Carson, the former Service biologist and writer and author of *Silent Spring* who recognized the importance of connecting people—especially children—with nature.

The program—initiated in 2000 by the National Wildlife Refuge System Division of Visitor Services and Communications and National Conservation Training Center's Division of Education Outreach—recognizes outstanding Service contributions in the field of interpretation and environmental education. Service employees are recognized for designing, implementing, or showing visionary leadership in an interpretive program or project that fosters a "sense of wonder" and enhances public stewardship of our wildlife heritage.

One national recipient is recognized each year at the annual National Association of Interpretation conference. Last November, Sherry James, the public program supervisor for the Rocky Mountain Arsenal National Wildlife Refuge, received the seventh annual Sense of Wonder Recognition for her work advocating, developing, and implementing innovative education programs in partnership with various organizations and communities.

In June 2007, regions will be asked to submit nominees for the eighth annual Sense of Wonder Recognition. For more information, contact Matt Gay, Visitor Services Training Specialist, at 304/876 7654. □

STEVE HILLEBRAND / USFWS

Matt Gay, Visitor Services Training Specialist, National Conservation Training Center, Shepherdstown, West Virginia

A+ for Habitat

Last fall, a record number of tundra swans used the Upper Mississippi River National Wildlife and Fish Refuge as a stop-over point during migration. On one day in November, the refuge held 52,070 swans—31,000 in the Wisconsin Islands Closed Area in Pool 8 near Brownsville, Minnesota.

The previous record was 34,730 swans in November 2005. Counts since the mid-1990s ranged from 15,000 to 32,000 birds.

The Upper Mississippi River National Wildlife and Fish Refuge is the most visited refuge in the United States. The refuge extends 261 miles along the Upper Mississippi River from Wabasha, Minnesota to Rock Island, Illinois, protecting and preserving habitat for migratory birds, fish, and a variety of other wildlife. The 240,000 acre refuge was established in 1924.

The refuge plays a crucial role in providing abundant habitat for migrating waterfowl along the Mississippi Flyway. One way of evaluating the habitat is to monitor bird use during weekly aerial surveys. In 2006, surveys began in October and continued through early December, near the end of duck hunting and before open water on the refuge froze up entirely.

Biologists use the survey data to document peak numbers and calculate waterfowl use-days. Peak counts are comparable, but they do not tell the whole story. Use-days reflect how many days the birds stay.

CINDY SAMPLES / USFWS

"We learn from the birds how we're doing," said refuge biologist Eric Nelson. "The more days they stay, the better the food source. The birds wouldn't stay as long if the food and security weren't here."

Waterfowl use-days are calculated by taking the average number of birds counted between two counts multiplied by the number of days between those counts. For example, if the first count has 1,000 birds, and second count eight days later has 2,000 birds there would be 12,000 use-days (average count =1,500 x 8 days).

The number of use-days for all ducks, swans, and geese using the refuge this fall exceeded 19 million.

"It's a huge number because the refuge is a major component of the Mississippi Flyway," said Winona District biologist Lisa Reid. "For example, the arrowhead bed in the Wisconsin Islands Closed Area was fabulous this year, so they had a reason to stay." When Reid finished her calculations there were more than 1.2 million swan use-days on the refuge—many more than previous years.

In the case of tundra swans, peak counts increased 50 percent from 2005 to 2006, while swan use-days increased 150 percent. The bottom line: not only were there more birds but they stayed longer in 2006.

"The birds act like a report card and this year waterfowl seem to be giving the refuge an A+ for habitat in Pool 8," said Refuge Manager Don Hultman. □

Cindy Samples, Upper Mississippi National Wildlife and Fish Refuge, Winona, Minnesota

Awakening Nature's Voice

Kids, Carson, and conservation all intersect in 2007 at the Cape Cod Museum of Natural History, as the U.S. Fish and Wildlife Service unveils the most comprehensive exhibition in the nation on the life and times of scientist and author Rachel Carson in Brewster, Massachusetts.

The public display of original artifacts, photographs, and memorabilia from Carson's work as a Fish and Wildlife Service employee and her career as America's foremost science writer of the last century opened May 18. "Awakening Nature's Voice/Rachel Carson/Centennial" runs through November 30, 2007.

The Cape Cod location was chosen for the Service's largest contribution to the Rachel Carson centennial because of its proximity to the Boston and New York City markets and the influx of visitors to the popular vacation destination each summer. The museum draws 30,000 attendees a year.

The added benefit of partnering with a venue whose focus is introducing children and parents to the natural world was a further reason to locate the Carson exhibition on Cape Cod, according to Service historian Mark Madison, who conceived the partnership venture with local museum officials. The exhibition is a product of the Service's heritage program and NCTC's production division, in cooperation with the Ward Museum of Wild Fowl Art in Salisbury, Maryland. Dr. John Juriga of Elmira, New York, serves as guest curator.

In keeping with the Fish and Wildlife Service's renewed emphasis on "children and nature," the Carson program at the Cape Cod Museum between May and November will include various educational programs for young people, guest lecturers and speakers for parents, and at least two performances of the Kaiulani Lee stage play, "A Sense of Wonder."

Additional information about "Awakening Nature's Voice/Rachel Carson/Centennial" appears on the museum's Web site at <www.ccmnh.org>. □

David Klinger, National Conservation Training Center, Shepherdstown, West Virginia

Shortnose Surprise

No one knows for certain, but the shortnose sturgeon may simply have been a victim of the company it kept. Never a primary target of the 18th century fishing industry, it was swept up anyway, often with schools of its larger cousin, the Atlantic sturgeon. And while the shortnose sturgeon managed to survive in several other waterways, scientists have long since concluded that it disappeared from the Potomac River about 100 years ago.

That makes it easy to understand why U.S. Fish and Wildlife Service biologist Steve Minkkinen was excited last April when a female shortnose sturgeon in the Potomac was captured in a gillnet, full of eggs and probably on a spawning run. Since then, the female was radio tagged and tracked and a second egg-laden female has been tagged.

That, said Minkkinen, is significant. Little information on shortnose sturgeon existed before Minkkinen's project took place. Tracking has revealed where essential seasonal habitats occur and where potential spawning may take place. Minkkinen's work has also shown where shortnose spend their time; that will help pinpoint future sampling in hope of tagging more fish.

This is a fish, after all, that came into great demand decades ago both for its eggs, marketed as caviar, as well as its smoked meat. As happened with many early fisheries, the more sturgeon were caught the more demand increased for still more fish. That level of fishing, coupled with dam construction and the dumping of sewage and other pollutants, took a fast toll.

Now there is at least a glimmer of hope that the shortnose sturgeon could be reclaiming one of its early homes. "They are obviously not abundant, but there are enough to provide hope," said Minkkinen. "I think they have a fighting chance." □

Ken Burton, Public Affairs, Washington, DC

USFWS

Refuges 'Go Zero'

U.S. Fish and Wildlife Service Director H. Dale Hall joined Larry Selzer, The Conservation Fund's president, and John Frampton, director of South Carolina's Department of Natural Resources, at Santee National Wildlife Refuge in eastern South Carolina last March to unveil a national agreement to restore wildlife habitat and offset carbon emissions by planting native trees on national wildlife refuge lands.

"This is a significant step toward forest restoration for the Refuge System nationwide," said Hall. "Having a partner like The Conservation Fund provide trees and funding is a benefit for the environment and wildlife and a great service for the American people. Everybody wins."

From the Santee NWR in South Carolina to the San Joaquin NWR in California, all 547 of the Service's national wildlife refuges can now receive a new source of conservation funding from the Fund's Go ZeroSM program, an initiative that helps companies and individuals calculate and then offset their carbon dioxide footprint by planting native trees in protected areas across the country.

TOM MACKENZIE / USFWS

Service Director Dale Hall participates in the Go ZeroSM tree planting ceremony with Jordan Bleasedale, a senior at Laurence Manning Academy in Manning, South Carolina.

"Through this kind of innovative work, we have added roughly 40,000 acres of land to the refuge system in the Southeast and reforested a total of 80,000 acres with roughly 22 million trees," Hall said. "Those tree-planting efforts have made a great impact on those refuges." □

Tom MacKenzie, External Affairs, Atlanta, Georgia

Crane Program Moves Forward Despite Loss

The Whooping Crane Eastern Partnership (WCEP) is moving forward with the 2007 reintroduction of juvenile cranes despite the loss of the entire ultralight-reintroduced "Class of 2006" this winter.

One juvenile whooping crane from the Class of 2006 initially survived the devastating storms that struck central Florida in February. The remaining 17 cranes that migrated this past fall from Necedah National Wildlife Refuge in Wisconsin to the Chassahowitzka National Wildlife Refuge perished in their enclosed pen. The birds drowned in rising waters, likely after being stunned by a lightning strike.

The eighteenth member of the Class of 2006, a male crane that managed to escape the pen during the storm, lived for two months at a wildlife preserve nearby before being found dead on April 30. Veterinarians at the University of Florida will perform a necropsy to determine the cause of death.

John Christian, co-chair of the Whooping Crane Eastern Partnership, said that while this is a setback for the whooping crane reintroduction project, WCEP has faced challenges in the past and will move forward with its effort to return this highly imperiled species to its historic range in eastern North America.

WCEP

WCEP plans to move forward with its efforts to return the whooping crane to its historic range.

The lone survivor, number 15-06 apparently left the Chassahowitzka pensite before the storms. Biologists with the International Crane Foundation discovered the crane's radio signal near the pensite the day after the storms. On February 4, they tracked the survivor to a remote area of Citrus County, several miles from the pensite, where the juvenile bird was spotted with two sandhill cranes.

A Southwest Florida Water Management District employee found 15-06 dead after its radio signal had become increasingly weak during the last few weeks of April. □

Elsie Davis, External Affairs, Atlanta, Georgia

Where Energy and Conservation Meet

Service employees joined nearly 200 federal and state agency managers and staff at the first annual Interagency Oil and Gas Pilot Office workshop in Denver, Colorado last November.

The Energy Policy Act (EPAct) identifies seven BLM field offices to serve as Pilot Offices for efforts to streamline environmental review and processing of oil and gas permits on federal lands, while ensuring conservation of wildlife resources.

The EPAct also authorizes funding for staff for the Fish and Wildlife Service, Bureau of Indian Affairs, Forest Service, Environmental Protection Agency, U.S Army Corps of Engineers and the states of Wyoming, Montana, Colorado, Utah, and New Mexico to assist in environmental compliance.

Fish and Wildlife Service Director Dale Hall, who attended the workshop, urged participants to address the conservation of all natural resources—not just listed species—as part of efforts to manage energy production.

"The Pilot Office Project gives us a unique opportunity to creatively work together as state, federal and industry partners to make a difference in energy development and conservation," Hall said.

Follow-up work from the session includes developing a set of recommendations for agency directors on how each Pilot Office and the Pilot Project in general could function better; developing a Pilot Office Web site that could be accessed by all agencies for sharing information and ideas; establishing an electronic mail "list-serve" for timely communication between offices and agencies; and developing an award program to encourage and reward innovation. □

Nancy Lee, Advanced Planning and Habitat Conservation, Washington, DC

nature's public ser

vant

Rachel Carson was our century's most articulate voice for a harmonious balance between humans and nature.

By Mark Madison

CARSON FAMILY PHOTO / COURTESY RACHEL CARSON COUNCIL INC.

Carson, approximately age 5, reading to her dog Candy.

Official Service portrait.

This year the Fish and Wildlife Service will celebrate the centennial birthday of one of its most notable employees, Rachel Carson. Carson (1907–1964) is best remembered for her pioneering indictment of pesticides, *Silent Spring*, which inspired the modern environmental movement. Carson's 16 years with the Service (1936–1952) are now largely forgotten. This is unfortunate because many of her ideas and writing skills originated while working for the nation's principal federal wildlife conservation agency.

Rachel Carson writings can be found at <training.fws.gov/history/carson/carson.html>.

Carson had not intended to work for the government, but her hopes of an academic career were derailed by the Great Depression. Faced with supporting her parents and siblings and armed with a master's degree in zoology from Johns Hopkins University, she sought a position with the Service's predecessor agency, the Bureau of Fisheries. In 1936, she was hired by the bureau at the minuscule, but stable, salary of $19.25 a week. She was the first female biologist hired by the bureau and one of only two women in a non-clerical position. She was assigned to write radio scripts explaining marine biology and the work of the Bureau of Fisheries to the American public. Her aptitude for writing blossomed in this position and some of her more ambitious scripts were adapted for popular periodicals of the day like *The Atlantic Monthly* and the *Baltimore Sun*.

Carson's ability to make life under the sea come alive for the American public was evident in her first published book *Under the Sea Wind* (1941). The book was anthropomorphic, albeit engaging, in its clear-headed explanations of life in the sea. Unfortunately it was a commercial flop and Carson remained a writer-biologist for the U.S. Fish and Wildlife Service, the new entity created in 1940 by combining the Bureau of Fisheries with the Biological Survey. Within this new agency Carson rose quickly. Her writing and editing skills allowed her to become chief editor of all publications by 1949, an important position as the Service attempted to explain wildlife conservation for the first time to the broader American public. As part of this effort, Carson was put in charge of an ambitious series called "Conservation In Action"—an attempt to explain the work of the Service through an overarching theme of protecting the environment to maintain our wildlife resources for posterity. The series featured the same down-to-earth explanations of complex ecological principles that were to become a hallmark of her later books.

Carson was also exposed to cutting edge science, including troubling new findings about environmental contaminants. The Service's premiere laboratory in Patuxent, Maryland had begun to study the effects of pesticides like DDT on certain wildlife, primarily birds and their eggs. This research had begun early in 1944, shortly after DDT became widely used as a chemical to fight diseases during World War II. Carson oversaw all the scientific publications emanating from this new research, and as early as 1945 began considering the topic as a source for an article or book. However, she was already at work on her second more successful book, *The Sea Around Us* (1951). It was a bestseller and allowed Carson to leave the "lucrative" field of government service in 1952 and devote herself full time to writing.

Previous page: Carson with young boys near her home in Silver Spring, 1962.

ALFRED EISENSTAEDT / GETTY IMAGES

USFWS

Carson and national wildlife artist Bob Hines conduct marine biology research in Florida, 1955.

VINCENT A. FINNEGAN / COURTESY OF THE LEAR/CARSON COLLECTION, CONNECTICUT COLLEGE

Carson testifying before a Senate subcommittee, 1963.

Carson eventually returned to the germ of an idea, about the role of pesticides in the environment, 10 years after she left the Service. The final result was a pioneering book that ushered in the modern environmental movement, *Silent Spring* (1962). Carson's book would not have been possible without the nearly two decades of field and laboratory research carried out by Service biologists. Amidst *Silent Spring*'s voluminous endnotes are references to the work of her scientist colleagues at Patuxent and refuge managers in places Carson had profiled for her "Conservation In Action" series. The skills Carson had developed in her 16 years as a government writer allowed her to take a complex scientific argument and make a compelling case to the general public in the chemical indictment that was *Silent Spring*.

Although Carson gained prominence for her work outside federal service, all of her work benefited from her important early initiation into public writing, wildlife conservation, and environmental contaminants. Carson gently led her audience through the complexities of natural systems and the need for balance in all her federal and popular writings. Her legacy can be found in the work of the Environmental Protection Agency, the Fish and Wildlife Service's Branch of Environmental Contaminants, the Endangered Species Act, and an increasingly more knowledgeable American public concerned about the health of their local environment.

Perhaps her most enduring legacy is the generations of civil servants she mobilized for conservation. There may be no better role model for federal conservationists than Rachel Carson. Not only did she overcome significant obstacles facing women in science, but she became our century's most articulate voice for a harmonious balance between humans and nature. Carson's life and legacy are an inspiration to public servants who seek to protect our natural resources in perpetuity, and a stinging rebuke to those who would diminish and degrade our children's natural inheritance. She outlined a path for all of us to conduct our work with integrity and ethics and to devote our lives to conservation in action. □

Mark Madison is a historian at the National Conservation Training Center in Shepherdstown, West Virginia

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, "Help Your Child to Wonder," 1956

(BLACK DUCK) FLICKR / HENRY McLIN

The seeds of the Fish and Wildlife Service's Environmental Contaminants program were planted with the publication of Silent Spring.

By Bruce Woods, Philip Johnson and Valerie Fellows

Sounding the

The spring of 1962 was anything but silent. In fact, the publication of sections of Rachel Carson's groundbreaking study of the widespread effects of indiscriminate pesticide use in the June issue of *The New Yorker* sounded an alarm that was heard across the nation.

It can fairly be said that the seeds of the U.S. Fish and Wildlife Service's Environmental Contaminants Program were planted with the publication of Carson's *Silent Spring,* but it is also true that the book itself owed its existence to the years its author spent working for the agency and interacting with federal scientists studying the effects of pesticides on wildlife.

It was at the end of the Second World War, while still working for the U.S. Fish and Wildlife Service, that Rachel Carson first became concerned about the increased use of chemical pesticides. "The more I learned about the use of pesticides, the more appalled I became," she would later write. "What I discovered was that everything which meant most to me as a naturalist was being threatened, and that nothing I could do would be more important." She set herself to the task of accumulating information on the subject and, in 1957, began working on the project that would be published in 1962 as *Silent Spring*.

It was, without exaggeration, a literary bombshell. Carson was attacked by industry and some in government, and saw her science belittled and her politics questioned. She refused to be cowed, however, and testified before Congress in 1963, calling for new government initiatives to protect people and the environment from the hazards of environmental contaminants.

"The beauty of the living world I was trying to save," she wrote in a letter to a friend in 1962, "has always been uppermost in my mind—that, and anger at the senseless, brutish things that were being done. I have felt bound by a solemn obligation to do what I could—if I didn't at least try I could never be happy again in nature. But now I can believe that I have at least helped a little. It would be unrealistic to believe one book could bring a complete change."

Rachel Carson died of breast cancer in 1964 and was posthumously awarded the Presidential Medal of Freedom, the highest honor the U.S. government can award to a civilian. Her legacy lives on in the recovery of species such as the bald eagle and peregrine falcon, and in the ongoing work of Service Environmental Contaminants biologists. Today, more than four decades after *Silent Spring* sounded the alarm, these men and women are increasing our understanding of the long-term impacts of pesticides and other contaminants, and working to minimize the problems that we might, without such knowledge, inflict upon future generations.

In the post-*Silent Spring* era, our need to understand the impact of environmental contaminants on the natural world has not diminished. Biologists in the Environmental Contaminants Program specialize in detecting toxic contaminants in fish, wildlife and environmental samples; understanding and countering the harmful effects associated with these contaminants; and recommending innovative solutions for the restoration of habitats damaged by contamination. They are experts on the effects of oil and chemical spills, pesticides, water quality impairment, hazardous materials disposal, and other aspects of contaminant biology. The challenges they face can perhaps best be summarized in Rachel Carson's own words, from a 1963 interview on CBS television:

"It is the public that is being asked to assume the risks….The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts.

"We still talk in terms of conquest. We haven't become mature enough to think of ourselves as only a tiny part of a vast and incredible universe. Man's attitude toward nature is today critically important simply because we have now acquired a fateful power to alter and destroy nature.

"Now, I truly believe that we in this generation must come to terms with nature, and I think we're challenged as mankind has never been challenged before to prove our maturity and our mastery, not of nature, but of ourselves." □

Bruce Woods is a public affairs specialist in Anchorage, Alaska. Phillip Johnson is Environmental Contaminants Coordinator in Anchorage, Alaska. Valerie Fellows is a public affairs specialist in Washington, DC.

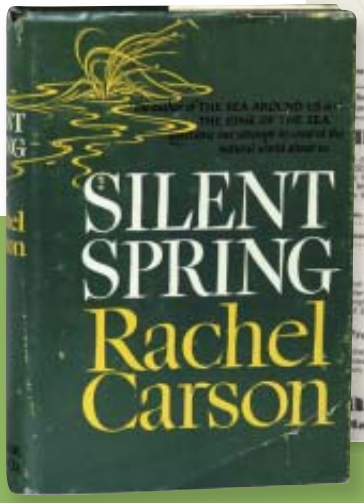
COURTESY RACHEL CARSON COUNCIL INC.

(MICROSCOPE) BROOKS STUDIO / RACHEL CARSON COUNCIL, INC.

An advertisement for DDT as insecticide against household pests from the Tallahassee Democrat, ca. 1946.

FLORIDA STATE ARCHIVES

Alarm



Dust cover of Silent Spring.

...Synthetic pesticides have been so thoroughly distributed throughout the animate and inanimate world that they occur virtually everywhere. They have been recovered from most of the major river systems and even from streams of groundwater flowing unseen through the earth. Residues of these chemicals linger in soil to which they may have been applied a dozen years before....They have been found in fish in remote mountain lakes, in earthworms burrowing in soil, in the eggs of birds—and in man himself." **Rachel Carson, *Silent Spring***

Carson (far left) at meeting of the President's Science Advisory Committee in 1963, addressing pesticide policy in federal government.

'One of Us'

A Defining Experience

Rachel Carson almost did me in. Oh, the death certificate likely would have read lightning strike or drowning, but the truth is that my near demise rests squarely on her shoulders.

On the shores of the Potomac River, 20 miles south of Washington D.C., nature appears most frequently in the form of a well-manicured lawn. Even back in the early 1980s when I was attending high school in Alexandria, Virginia, suburbia had already spread like an invasive weed along the shores of the Potomac.

Seeking respite from the Tudor style split levels, my attention naturally gravitated to the nearby river. From a distance its lazy waters, reflecting pastel-colored sunrises and twilight hues, were a soothing sight.
Up close, however, the Potomac showed a different side. Littered with plastic milk jugs and giving off a foul odor on hot, humid summer days, the river was an ugly urban dumping ground. Filled with the righteous indignation of youth, I was outraged on its behalf.

It was at this crucial juncture that Mr. Patrick, whose monotone voice had lulled me through the entire first semester of high school biology, announced the theme of the 1981 Northern Virginia Science Fair: environmental health. My eyes quickly narrowed with purpose. My project would be the Potomac River. And my role-model in this endeavor would be Rachel Carson.

To be honest, I'd never really read any of Rachel Carson's books. *The Sea Around Us* sat on my bookshelf at home, courtesy of my librarian mother. I'd occasionally flipped through the pictures of breaking waves and fluorescent starfish but I didn't feel particularly motivated to read any text that wasn't subject to a pop quiz. However, I was familiar with Rachel Carson, author of *Silent Spring* and mother of the modern environmental movement. So lacking a consistent net game (my other role model being Martina Navratilova), I vowed to be like Rachel, fighting the scourge of environmental degradation.

With these high-minded thoughts, I trooped off to Sherwood Regional Library to read microfiche. What I learned from squinting at old Washington Post articles was that, thanks to the Clean Water Act and indirectly to Rachel Carson, the Potomac River was actually in better health than it had been in years. It no longer served as a sewer for the nation's capital and, as a result, various fish and bird species were returning to the area. I filled a spiral notebook with quotes and figures then headed home to plan phase two of my science fair project.

This was, of course, the field work. Unlike many of my current Service colleagues, my field experience history is singular and brief. It consists of a single canoe trip across a mile-wide stretch of the Potomac. With a high school friend paddling in the stern, I alternated between fumbling with the water test kit I'd borrowed from Mr. Patrick and dunking a soggy string tied with knots at 10-foot increments to measure depth. We were almost finished with our first pass across the river when dark clouds starting building in the skies above.

The tension between my scientific principles, which demanded a second series of water tests and depth measurements, and my fear of the impending thunderstorm lasted only as long as it took to find my paddle in the bottom of the boat. By then the wind was beginning to rise and I could hear rumbling in the distance. The bright afternoon turned grayish-green, and heavy raindrops begin to fall. I can't say that, paddling frantically for shore, I felt particularly Rachel Carson-like. I suspect that she would have managed to whip out the eyedropper for a couple more coliform tests on the way home. But upon safely reaching the riverbank, (relieved that I was no longer sitting in a small metal canoe), I enjoyed a returned enthusiasm for my new-found mission.

Looking back after 25 years, I realize that my 10th grade Potomac River science project was a defining experience for me. Perched in that tiny boat with the thunder growing louder, I shed any romantic notions about field work and ultimately opted for the comfort and safety of the law library. In that well-lit, climate-controlled environment, however, the inspiration of Rachel Carson stuck with me. Even a subsequent assortment of relocations and job changes could not squelch her call to do good by the environment. I think we bonded over the lightning. □

Jenifer Kohout, Regional Natural Resource Damage Assessment Coordinator, Anchorage, Alaska

RACHEL CARSON: ERICH HARTMANN / MAGNUM PHOTOS

Service employees reflect on Rachel Carson's conservation legacy and how she continues to influence the agency today.

Rachel Carson, Southport Maine, 1962.

'Everything Is Connected'

When I first read Rachel Carson's *Silent Spring* in high school, her message struck a chord. Little did I realize then, I would be carrying on her work 20 years later as a Fish and Wildlife Service Environmental Contaminants (EC) Specialist.

Carson's prophetic warning that contaminants are "the most alarming of all man's assaults upon the environment" continues to resonate with me as I see the effects of contaminants on migratory birds. One of my starkest memories of these effects comes from my second year as an EC Specialist. I was stunned after dissecting an American avocet egg for a selenium study. The misshapen head, missing toes and wings and crossed bill gave the bird embryo a grotesque, almost alien appearance. Were it not for our investigation, the embryo's deformed body would go undocumented and unwitnessed, joining the countless animals poisoned by contaminants that die in the shadows. Rachel Carson and others in the Service pioneered the work on contaminants' effects on fish and wildlife over half a century ago. Today, I feel privileged to carry on her work with my peers.

Since becoming a father, my work has taken on a more personal significance. Last summer, during a family camping trip, I watched my kids using fishing line and bait to catch crawfish. They were soon joined by other kids who also tried their luck. Crawfish unlucky enough to be caught were placed in a small bucket and duly scrutinized by the gawking children only to be tossed back into the lake and caught again. This simple drama of innocent wonder and joy illustrates what it's all about and why we do what we do.

Silent Spring emphasized the interconnectedness of all living things and working in the EC program has reinforced this as my overarching approach to my career and life. Everything is connected. Thanks to the work of Rachel Carson and those that followed, the wild creatures that capture my children's curiosity have not been silenced. Although we have made a good deal of progress in conservation, we still have a lot to do. I believe we must heed Rachel Carson's advice for those that follow: "The road we have been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork of the road—the one 'less traveled by'—offers our last only chance to reach a destination that assures the preservation of our earth." □

Pedro 'Pete' Ramirez, Jr., Environmental Contaminants, Cheyenne, Wyoming

Ramirez's daughter Rita removes a crawfish from a net and into a bucket.

(PARKER RIVER NWR) FLICKR / GAILF548

Carson in Florida, ca. 1950.

SHIRLEY A. BRIGGS, COURTESY OF THE LEAR/CARSON COLLECTION, CONNECTICUT COLLEGE

A Timeless Place

In 1947, Rachel Carson wrote about the Parker River National Wildlife Refuge in her "Conservation in Action" series. The Massachusetts refuge she wrote about 60 years ago remains mostly unchanged and would look familiar if she were to visit today. The land is still vitally important for the American black duck and many other species of waterfowl during migration, particularly as the surrounding landscape has changed from a primarily rural and agricultural setting to one more urban.

Since the refuge was established in 1942, the Service's role has increased so that it now manages for many other species of wildlife, including the threatened piping plover. Parker River was also recently designated a Western Hemisphere Reserve Network Site, reflecting the greater role it plays in protecting shorebirds.

Some of the economic and recreational activities that Carson observed at Parker River continue today. Visitors still go clamming. People still pick beach plums in late summer when the fruit ripens. Salt haying, however, is pretty much a thing of the past, although a few individuals still harvest it nearby.

Each year, more than 250,000 people visit the refuge, one of the most popular bird-watching destinations in the Northeast. The road down the refuge is greatly improved and not the adventure it was when Rachel Carson visited 60 years ago. Refuge improvements enable birdwatchers and many other visitors the opportunity to catch a glimpse of a snowy owl in winter and many other species. Carson wrote about a rare Hudsonian Godwit seen at the refuge in 1946 and in 2006, the sighting of a rare European black-tailed godwit drew bird watchers from all over the region to Parker River.

The landscape of Parker River may not change much over the next 60 years, but I believe its importance to migratory birds and other wildlife will increase much as it has since Rachel Carson visited in 1947. □

Graham Taylor, Refuge Manager, Parker River National Wildlife Refuge, Newburyport, Massachusetts

Beyond Passion

I'm a biologist in the Service's Environmental Contaminants program, and I've never read *Silent Spring*.

There. I've said it. Never read the book, even though I've had a copy in my office, been assigned it in school, and have a nice edition at home. I've read Rachel Carson's other books, studied scholarly and popular biographies, saw the one-woman play about her life. I can't wait for the movie. But I haven't once made it through *Silent Spring*.

Everyone says *Silent Spring* began the environmental movement. Everyone agrees that the careful research, the unbelievable documentation, the voluminous correspondence with scientists researching pesticides, and the attention to detail that characterize all good contaminants work made the book and its conclusions reliable. Some of the papers that Carson used in her research remain cornerstones of understanding the effects of pesticides and other chemicals on wildlife and humans. Research documenting the feminizing effects of DDT in chickens—familiar to Carson—was used by Theo Colborn in a similar effort decades later to summarize and publicize chemically caused endocrine disruption. There's no question that *Silent Spring*, and all of Rachel Carson's other work, was useful—something that she would have been most satisfied to hear.

But there's another element to Carson's work, discernable in the first chapter of *Silent Spring*: emotion. This emotion, so condemned by her industry and government critics, also made her writing lyrical, absorbing, and compelling to the public and to generations of environmental scientists, including many contaminants biologists. This emotion, translated into passion, keeps many of us going to work each day, each week, each year, in spite of the death-by-a-thousand-cuts atmosphere that most of us breathe. Indeed, that passion helps us celebrate when we do achieve something for conservation, because even a band-aid can help a deep cut heal.

But undue emotion, especially in the scientific and regulatory arenas of Service work, is not condoned. We must behave in an objective and dispassionate manner to be heard and believed. And there's the rub for me with *Silent Spring*. Even just scanning the first chapter made me feel as if my hopes and fears were wildly visible, and that I could no longer be objective, no longer dispassionately present you with contaminants facts—the cold, hard kind that make your eyes glaze over with some unconscious but painful memory of a long-ago chemistry class—and help you connect those facts to conservation of the natural world.

If you're one of those Service people who have a grand vision for making the world a better place, please understand that I do too, but mine's specific. I want birds to not die from eating lead shot, or fish to get sick from sewage effluent. I want the knowledge that has been painstakingly gathered during the past 100 years to be used—to be useful—in getting clean water, clean air, clean and plentiful food, for humans and other species. We'll certainly need to use manufactured chemicals, but when we do, I want us to look for safer ones, not just new ones. Above all, I want kids to be healthy.

Even as Rachel Carson inspired millions of people—and maybe you—to think about the environment in a very different, connected, passionate way, she inspired me to think about the pervasive negative effects of chemicals and pollution. She demonstrated to me that research, logic, and attention to detail could help change society for the better. My hope is that you can see why I pester you with chemical details, and try (though often imperfectly) to translate "contaminants" into "plain English." I also hope you understand why I can't read that book. □

Angela Matz, Environmental Contaminants, Fairbanks, Alaska

For more Rachel Carson reflections, visit <www.fws.gov/rachelcarson>.

Continuing the Legacy

A career in fish and wildlife conservation offered me the opportunity to join my vocation with my avocation. I have always loved the outdoors and felt that if I could provide a contribution toward significant fish and wildlife conservation work it would not seem like work at all.

This turned out to be true. I still read books, articles, journals and updates on conservation with the same fervor I did as a youngster. Conservation work is challenging and stimulating and offers opportunities to work with some great people and have fun. To quote Theodore Roosevelt, "Far and away the best prize that life offers is the chance to work hard at work worth doing."

I became interested in fish and wildlife conservation as a young person when a kindly gentleman introduced me to bird watching and taught me some things about bird behavior. He also introduced me to hunting, and when I learned hunting and conservation went hand-in-hand; I knew this was something I wanted to pursue.

I work to continue the legacy of Rachel Carson by discussing fish and wildlife conservation and stewardship with all people, young and old, everywhere I go and every chance I get. □

Brian Braudis, Deputy Project Leader, Edwin B. Forsythe National Wildlife Refuge, Oceanville, New Jersey

Carson at Hawk Mountain Pennsylvania, ca. 1945.

"The beauty of the living world I was trying to save," Carson wrote in a letter to a friend in 1962, "has always been uppermost in my mind…I have felt bound by a solemn obligation to do what I could—if I didn't at least try I could never be happy again in nature…."

SHIRLEY A. BRIGGS / COURTESY RACHEL CARSON COUNCIL INC.

(BACKGROUND) JANE PELLICCIOTTO

A Quiet Leader

Like so many employees who entered the Service back in the 60s and 70s, I was a product of my hunting and fishing family's background. Hunting and fishing with my family were activities that helped me realize that I felt comfortable being "out there" and that I loved spending time with the critters more than anything else. I learned to observe and to appreciate the struggles of our wildlife resources and was taught to respect them and to be sensitive to their needs.

I grew up in a small town in South Dakota near a wildlife refuge. Every morning one of the refuge employees would drive by my house in a shiny, green pickup, with a blue goose on the side of the door. I was impressed by the professional nature of the people who worked at the refuge—I still am.

Rachel Carson was a quiet leader, and through her mere presence inspired many who knew her. Quiet but effective leadership is—or should be—a mantra of the present-day Fish and Wildlife Service. Rachel never took herself too seriously, but considered her contribution in more subtle forms. She did, however, carry the needs of the environment deep within her soul. We need to remember this as we move ahead in our mission, and to urge our newer employees to be more effective by simply adapting the Rachel Carson model of being a quiet leader. □

Jerry Novotny, Grants Specialist and Fisheries Section Chief, Portland, Oregon

The Namesake

My grandmother lived in Coventry, Connecticut. She was a teacher, school principal, and a voracious reader. As a child, my family would typically travel to see grandpa and grandma each summer and spend weeks with them enjoying the woods and fields of then rural Connecticut. I would fish in the old mill pond, catch frogs, snakes and dragonflies, and spend nearly every waking moment outside.

I believe it was the summer of 1963 when I was 10 years old when again we made our annual summer trek to Connecticut. As a child, I had significant speech articulation problems and reading was not easy for me. In addition to my outdoor activities my grandmother would help me with reading each day. That summer she said she had a very special book that we were going to read. She would make me read each day and she would help me with the big words, after a paragraph or two we would discuss what we had read. Sometimes she would read to me when I was tired or the words were just too hard to pronounce. We would sit together with me snuggling in her ample lap in a big wooden Adirondack chair overlooking the pond and read. The book we read that summer was *Silent Spring* by Rachel Carson, which had only recently been published. By the end of our summer visit, we had completed the book. As we were getting ready to leave, she and I spent the last evening sitting together watching the dragonflies dance above the pond and listening to the croaking frogs as the sun started to dip below the horizon. As the day came to a close my grandmother challenged me, she said, "Richard, if you really care about all the creatures you catch and the forests and fields you like to play in then you need to remember what Rachel Carson wrote and do something about what is happening and try to make a difference." I can remember that conversation like it was yesterday.

I am not sure that I can claim that I have made a difference but I have had the great fortune of working in conservation for nearly 30 years, first with the State of Kentucky and for the last 15 years with the Fish and Wildlife Service. I have worked with a great many people who have displayed enormous passion in their efforts to protect our fish and wildlife heritage. When I worked in the Washington Office Division of Endangered Species several years ago, I actually worked out of Rachel Carson's old office in the Main Interior Building from time to time and I always felt humbled and honored to be part of the dedicated team of Service employees trying every day to advance fish and wildlife conservation.

In 1980, when our first child was born I asked my wife to consider naming our daughter, Rachel, in honor of Rachel Carson because of who she was and what she did. I told her that we could only hope that our daughter would be as dedicated and committed to making the world a better place as Rachel Carson did in whatever path she took.

Today, our Rachel is a speech and language pathologist living in Washington State helping children to speak more clearly and to learn how to read books that just someday may challenge them to strive to make this world, our only world, a better place for all life. □

Richard Hannan, Assistant Regional Director for Budget and Administration, Anchorage, Alaska

A True Believer

I spent the first part of my career with the Fish and Wildlife Service as an endangered species biologist in California. I was responsible for several of California's reptiles and amphibians, some of which, like the San Francisco garter snake, are our Nation's most endangered species. There were many nights when I could not sleep. I would lay in the dark knowing that there was always more work than I could ever do and that, if I failed at my job, these unique creatures might become extinct on my watch. It was a burdensome responsibility. I have always believed that all creatures, no matter how ugly, unlikable, or small, have a reason for being on this planet. We may not always know what it is, but they each have a role to play and sometimes those roles are pivotal.

Eight years ago, I accepted a job with the Service's Environmental Contaminants program (EC). I was relieved to move on and let the next generation of young wildlife biologists take on the high-stress, high-stakes

endangered species work. What I did not expect was, in some ways, my job in the contaminants program would be even more daunting. At least in endangered species, we were only responsible for the survival of a limited number of creatures. In contaminants, we are addressing the health and safety of every living thing.

One of the first things I did when I joined the EC program was to read *Silent Spring*. I had heard of the work and knew that it was an inspiration to many of our EC biologists, and I wanted a better understanding of their issues and motivations. I was not prepared for what I read. Her work was moving and her argument sound. It was easy to see why her work had been the catalyst for the environmental movement. She had an ability to explain such a complicated subject in a manner that could be understood by all and to impress upon the reader the need for action. After reading it, I felt I had to do something, just as readers of the book had felt decades before, when it was first released. And now, I am doing something. I am part of the living legacy of *Silent Spring*, the EC program.

Since I joined EC, I have become a true believer in the importance of this program. In fact, there is nothing more important. It doesn't matter how many acres you protect or restore, how many species you list as endangered or threatened, or fish or wildlife you breed in captivity and release into the wild, if these creatures don't have a clean water, land, and air, there continued existence, and ours, is questionable. I don't know if I can ever leave the under-funded, under-appreciated, contaminants program. I have developed a love of its people and an understanding and respect for everything they do. I am truly proud to be in their midst and I only hope that what I do for the program and, thus, for every living thing, makes some small difference. □

Kelly Geer, Environmental Contaminants, Washington, DC

Heroes Among Us

Every organization needs heroes, those who inspire, those who lead, and those who energize. We are fortunate to have a host of true conservation heroes in our past, people who became dirty, wet and tired working afield. Rachel Carson was one of those—she was one of us.

When thinking back on the trials and accomplishments of conservation icons like Carson, J. Clark Salyer and Aldo Leopold, I am left with a question which, for me, has great relevance. Who will be our next conservation hero?

In my mind's eye everything earlier than 1960 is sepia-toned, yet I know the threats and frustrations in motion during the '30s, '40s and '50s were just as real as the minefield we know as "conservation" today.

In an era when prairie sod succumbed to mechanized agriculture and a nation's desire to feed the world, far-sighted conservation pioneers like Salyer laid the cornerstones of wetland protection and staked a rock-solid claim for wildlife and future generations of Americans. Similarly, Carson would, through her writings, awaken the conscience of an entire nation and forever change the way we interact with our environment.

Leopold was my guy. I realize now a borrowed copy of *A Sand County Almanac* in 1974 provided the context for the rest of my life; to be spent developing a curiosity for and an appreciation of all things wild. That I could actually fashion a career along these lines remains a source of deep satisfaction.

But I often wonder who will be the next Aldo Leopold or Rachel Carson? Is that person walking among us today? Is it someone working in the Director's corridor in Main Interior? A project leader on some remote patch of endangered habitat? A bureaucrat slashing away at processes larded with red tape?

Conservation heroes are in short supply today. I have concluded there will never be another Aldo Leopold, perhaps because his work, like Carson's, gave us the tools we sorely needed at those junctures in time and enabled us to overcome our chronic (and at times willful) ignorance of true wildlife conservation and environmental protection. Since then, we have made much progress. But then again, perhaps our current organization, mired in a devilish battle between politics and biology, is simply incapable of producing and nurturing such heroes.

Today, I draw inspiration and encouragement from the small incremental gains we recognize as progress. A snip of red tape here, a new collaboration there—nothing really earth-shaking, but progress nonetheless. When times are really tough I'll pull out a copy of the Keystone Conference speech delivered by former Service Director and current grand old gentleman Lynn Greenwalt. Not familiar with his tenure as Director, I can judge him now only on his wry wit, obvious passion for the resource and his fervent exhortations to continue to fight the good fight with all due speed.

It was, and is, just what I needed to hear. Perhaps there are heroes walking among us still. □

Dan Sobieck, Partnerships and Challenge Cost-Share Grant Coordinator, Fort Snelling, Minnesota.

On Eagle's Wings

The Service's Endangered Species program continues to conserve imperiled wildlife and protect the "web of life."

By Valerie Fellows

(FEATHER) TIM KNEPP SCOTT SMITH / MARYLAND DEPARTMENT OF RESOURCES

Rachel Carson believed that all living things, including humans, are connected to each other in a web of life. Consequently, when the bald eagle became endangered in the lower 48 states because of the use of the dangerous pesticide DDT, it set off alarms for the American public.

For years after World War II, the government sprayed DDT (dichloro-diphenyl-trichloroethane) to control mosquitoes in coastal areas and farmers used DDT to control agricultural pests. When it rained, DDT would wash off the soil and into the waterways. There, it was absorbed by aquatic plants and animals. Fish ate the plants and animals, and then eagles ate the fish.

When DDT broke down, the primary product DDE built up in the fatty tissues of female eagles, preventing the formulation of calcium release necessary to produce strong eggshells. Consequently, eggshells were thin and cracked when an adult tried to incubate the eggs. Widespread reproductive failure followed, causing the eagle population to plunge.

During the 1940s through the1960s, approximately 675,000 tons of DDT were applied to U.S. soil. The peak year for use in the United States was 1959—nearly 80 million pounds were applied.

Rachel Carson had long been aware of the dangers of chemical pesticides but also understood the agricultural community's reliance on these pesticides to support crop production. According to the *New York Times*, "one of the sparks that caused Miss Carson to undertake the task of writing the book was a letter she had received from old friends Stuart and Olga Hutchins. It told of the destruction that aerial spraying has caused to their two-acre private sanctuary at Powder Point, in Duxbury, Mass."

Carson decided to write *Silent Spring* after years of collecting research across the United States and Europe. When excerpts of the book were published in *The New Yorker* magazine, Carson became the focus of a storm of controversy and suffered from numerous attacks on her professional integrity. President Kennedy created a commission to review the government's pesticide policy and Carson was asked to testify before a Congressional committee along with other witnesses.

Six years after Carson's death in 1964, Congress created the Environmental Protection Agency, which banned the use of DDT on December 31, 1972. The Endangered Species Act was passed in 1973, and the bald eagle was listed as an endangered species in most of the lower 48 states, with the exception of Minnesota, Wisconsin, Michigan, Oregon and Washington, where it was listed as a threatened species.

Service biologist Maricela Constantino holds a bog turtle while conducting surveys in connection with the recovery plan for the threatened species.

GARY KRAMER / USFWS

When the bald eagle became endangered in the lower 48 states because of the use of the dangerous pesticide DDT, it set off alarms for the American public.

The Endangered Species Act provided the springboard for the Fish and Wildlife Service and its partners to work together and help the eagle recover. Through captive breeding programs, reintroduction of eagles into their historic habitat, protecting nest sites during the breeding season, conserving roosting habitat for food and shelter and enforcing the law against those people who illegally killed eagles, the Endangered Species Act provided significant protection for our nation's symbol.

The banning of DDT, combined with the habitat protections afforded by the Endangered Species Act set the stage for bald eagle populations to make a remarkable comeback. That is the direct legacy of *Silent Spring*.

But bald eagles weren't the only endangered species harmed by DDT. Peregrine falcons also teetered on the brink of extinction due to eggshell thinning caused by use of the pesticide. Only 25 years after the government banned DDT, the peregrine falcon recovered and was removed from the list of threatened and endangered species.

In addition, the brown pelican, Guam broadbill, Guam Micronesian kingfisher, Guam rail, Mariana crow, northern aplomado falcon, Mariana gray swiflet, California condor, Wood stork and marbled murrelet have all benefited from the ban on use of DDT/DDE.

Besides DDT, a myriad of chemical compounds and pesticides can affect endangered species. Endangered animals can ingest pesticides via contaminated vegetation, seeds or prey. Aquatic species including frogs and salamanders are particularly vulnerable to contaminants because they live some or all of their life cycle in water, making them susceptible to any changes in the environment. Aquatic organisms can be exposed to pesticides entering the waterway from urban runoff, and through groundwater sources. Herbicides are particularly detrimental to pollinators, lethal to butterflies and dragonflies upon contact or its primary food source. As a consequence, an insecticide can indirectly harm an endangered plant that may depend upon a specific insect pollinator.

Because chemical compounds and pesticides can be highly toxic and long lasting, the Fish and Wildlife Service conducts an extensive program of research, education, interagency consultation, and careful management of pesticide use for the conservation of many threatened and endangered species.

Many species face population decline from habitat loss and degradation, competition with non-native species, disease and historical over-hunting, environmental contaminants and pollution in the environment could be the stressor that pushes them towards extinction.

That's why biologists with the Service's Endangered Species program continue to conserve imperiled wildlife across the country. From manatees and panthers to mussels and plants, the Endangered Species program builds on Carson's legacy by protecting the "web of life." □

Valerie Fellows is a public affairs specialist in Washington, DC

As Rachel Carson eloquently expressed in her classic literary series, national wildlife refuges are living 'classrooms' that today are actively managed to provide habitat for a diversity of wildlife species.

By Martha Nudel

Conservation in

"Environmental education programs in a classroom are wonderful," says Mary Timm, winner of the 2003 Sense of Wonder Award and environmental educator at Tetlin National Wildlife Refuge in Alaska. "But when you can get a youngster out on a refuge, or just to wander in the woods, then they start to appreciate the land. That's how you develop stewardship."

Timm's environmental education program has concentrated on the seven schools that make up the Alaska Gateway School District, spanning an area twice as large as New Hampshire. For more than a decade, Tetlin National Wildlife Refuge has had a full curriculum for high schoolers, including summer classes in fire science and ornithology for which students can get academic credit.

Tetlin Refuge is not alone in its environmental education reach. Examples on national wildlife refuges abound.

The Eastern Massachusetts Refuge Urban Education Program teaches youngsters to identify organisms and understand ecosystems and animal adaptations. Maryland's Patuxent Research Refuge holds its popular Geo-Camp at Smothers Elementary School in Washington, DC, bringing the wonders of science to students in the nation's capital. The Prairie Wetlands Learning Center in Fergus Falls, Minnesota, integrates the 5th grade curriculum with environmental education, making math, science and writing instruction come alive right in the field.

Rachel Carson wanted people to appreciate nature with a childlike sense of wonder. National wildlife refuges have taken that approach to heart as they refine and redouble programs that are education and interpretive. Today, the National Wildlife Refuge System—spanning 547 refuges over nearly 97 million acres—reaches more than 775,000 students and teachers annually, bringing to life the philosophy that Carson embodied as author of *Sense of Wonder,* the book from which the National Association for Interpretation took the name of the award so often won by National Wildlife Refuge System employees.

Environmental education is just one place where Rachel Carson's philosophy is seen firsthand on national wildlife refuges. Land management is another.

Managing for Species and the Ages

In 1936, when Carson took her first full-time government position as a junior aquatic biologist with the Bureau of Fisheries, the nation was in the midst of a devastating drought that created a "dust bowl" across much of the country. Fortunately, the wildlife profession was beginning to emerge with new scientific approaches to managing and restoring land for wildlife. Just three years earlier, Aldo Leopold published *Game Management*, the nation's first real textbook on wildlife management.

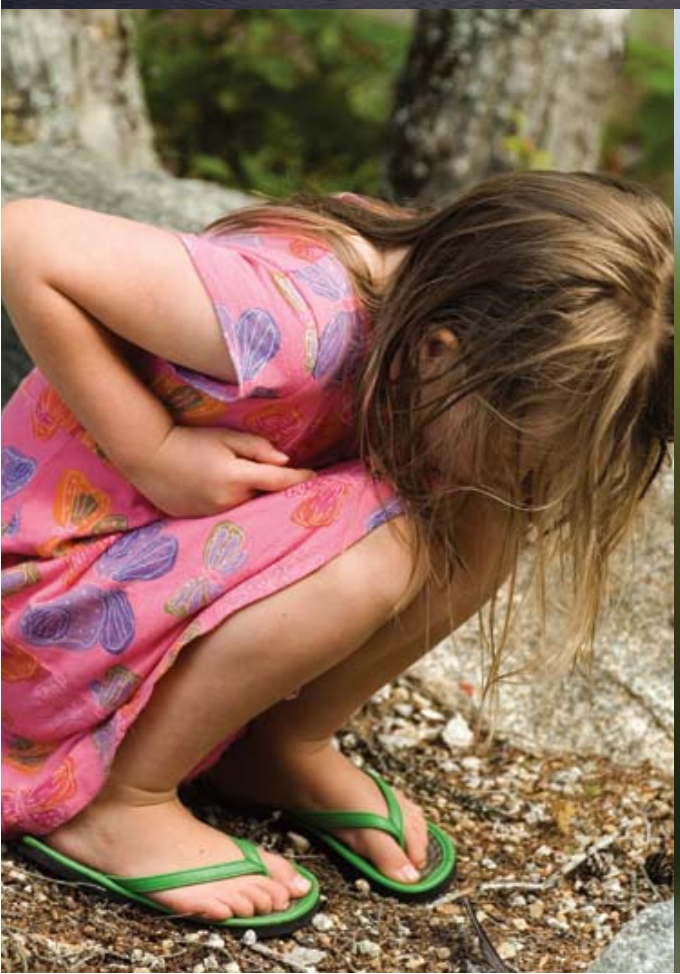
Indeed, Carson's "Conservation in Action" series (see sidebar), in which she wrote about certain national wildlife refuges, was a revolutionary public information document calling on the American people to recognize that the environment is the very foundation of our nation's preeminence. But it was more than simply a public information document that called citizens to action. It was a recognition that national wildlife refuges cannot be left unattended, but often must be actively managed to provide habitat for a diversity of wildlife species. **>>**

FLICKR / LYN ADAMS, SR.

(REFUGE SIGN) FLICKR / ANDY PURVIANCE

Lake Mattamuskeet in Mattamuskeet National Wildlife Refuge, North Carolina.

Action



(ILLUSTRATION) TIM KNEPP

(Conservation, continued)

National wildlife refuges provide habitat for at least 700 species of birds, 220 mammals, 250 reptiles and amphibians, more than 1,000 fish and countless species of invertebrates and plants. More than 280 of the nation's 1,311endangered or threatened species find a home on national wildlife refuges. Fifty-nine national wildlife refuges were established specifically to help imperiled species.

Simple preservation was the earliest form of wildlife management. In the Refuge System's first years, wildlife management consisted mostly of posting boundary signs, law enforcement and periodic counts of wildlife. Some thought it would be sufficient just to secure habitat at renowned places such as Wichita Mountains National Wildlife Refuge, National Bison Range, National Elk Refuge, Malheur National Wildlife Refuge, Bear River Migratory Bird Refuge, Sheldon National Wildlife Refuges and Upper Mississippi National Wildlife and Fish Refuges. The nation learned only too soon that simple preservation was not enough as wetlands were drained, pristine forests cleared and prairies plowed under.

Today, hundreds of refuges are involved in the restoration or reconstruction of rare habitats, enabling species to come back from the brink of extinction. For example, by building dikes and water control structures, the staffs of Agassiz, Horicon, Necedah, Okefenokee and Seney National Wildlife Refuges have brought back the nation's great marshes and swamps. Lands that grew corn and soybeans for 150 years are being restored on Neal Smith National Wildlife Refuge in one of the nation's largest tallgrass prairie reconstruction projects. Laysan albatross chicks have been flown a thousand miles from Midway Atoll National Wildlife Refuge and released in the wild of Kilauea Point National Wildlife Refuge to encourage the bird to re-establish its population in the Hawaiian Islands that were their historic home.

As the National Wildlife Refuge System has grown during its 104 years of existence, the concepts of biodiversity, ecosystems, landscapes, waterbeds and conservation biology have more and more become part of the everyday vocabulary of researchers, professors and refuge staff. An evolution in habitat management has taken place—from managing for a few species to management for hundreds of species by using more natural procedures. Prescribed fires were thought to destroy habitat. Today, we know that well-planned burning is life-giving, and so more than half of all refuge lands outside of Alaska are fire-adapted ecosystems. National wildlife refuges work closely with surrounding communities to make sure residents understand the value of prescribed fire.

Ultimately, Carson's "Conservation in Action" concepts embody all those evolutionary ideas.

Impact of Urbanization

Rachel Carson understood the cumulative effects of pollutants. What she may not have envisioned is just how quickly cities and suburbs have merged into urban corridors—and not just along the East and West Coasts.

The urbanization of America is a seemingly continuous process. Where or when it will stop can be debated by demographers, urban planners and a host of other organizations and individuals. In the real world of habitat conservation, national wildlife refuges are facing challenges—and opportunities—in a nation that grew from 200 million people to 300 million in less than 40 years.

For now, more than 39 million visitors each year find the mountains, valleys, deserts, meadows and wetlands of national wildlife refuges to be some of the most scenic places in America. For those living in big cities—and in smaller cities that are growing bigger all the time—national wildlife refuges are places of solitude and serenity amid the noise and bustle of routine life.

But national wildlife refuges are more than oases in a sea of land use change. They do more than just welcome those who want to hunt, to fish or simply to watch wildlife. They also teach Americans to become conservation constituents by fostering an understanding of the central role of wildlife and wildlife habitat in our daily lives and our nation's traditions. That is one message of Carson's "Conservation in Action" series, and a clear message in the National Wildlife Refuge System Improvement Act of 1997.

Perhaps what Rachel Carson most exemplified is that conservation is not a spectator sport. It takes the combined commitment of government agencies, conservation organizations, local communities and America's people to ensure that our natural resources will be preserved and protected today and for generations to come.

FLICKR / GERALD AZENARO

The Refuge System's 200-plus nonprofit Friends organizations—created by communities who want value the national wildlife refuges that are their neighbors—show that Rachel Carson's message has permeated the America's soul. So do the 34,000 volunteers who last year donated about 1.2 million hours to the U.S. Fish and Wildlife Service—most of those hours on national wildlife refuges.

One of those volunteers is former chemical industry executive Anthony F. Freda, who has volunteered at 10 national wildlife refuges, and has a list of another 100 where he would like to work. "The terrain is varied, and sometimes there is nothing obvious at the end of the road," he wrote about his time at Ash Meadows National Wildlife Refuge in Nevada. "Nevertheless, a walk is invigorating—exciting even—for you might be startled by a fat Chuckwalla or a jackrabbit, or a bunch of Desert Bighorn sheep high in the mountain.

"As the sun begins to set over the Panamint Mountains, the sky becomes a showcase of colors. Blue gives way to orange and then to a brilliant red. The nearest town is 12 miles away. The sky is clear and bright," he continues. "A hush settles over the desert, the silence broken only by the yip of a coyote now and then. The real reward of our wanderings was the beauty and tranquility of the desert." □

Martha Nudel is Chief of the NWRS Branch of Communications

Parker River National Wildlife Refuge in Massachusetts.

Conservation Classics

By Terri Edwards

As a marine biologist who believed that translating science into publications for the general public would encourage conservation, Rachel Carson devised the "Conservation in Action" series in which she and other writers described individual national wildlife refuges as well as the mission of the Refuge System. Today the series still stands as a model of nature writing and an eloquent commentary on the value and purpose of these treasured places.

Carson authored five of the booklets, including four focusing on individual national wildlife refuges. She wrote about three East Coast refuges within the Atlantic migratory bird flyway along the East Coast—Parker River in Massachusetts, Chincoteague in Virginia, and Mattamuskeet in North Carolina—as well as Bear River, a migratory bird refuge in Utah located at the convergence of the Central and Pacific flyways.

Much more than informational guides, the series provides detailed descriptions of each refuge's landscape, conservation challenges and value to wildlife, economic and recreational uses, and cultural history.

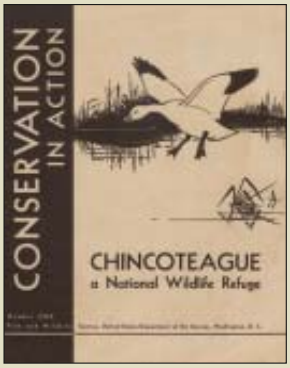
Carson's fifth booklet in the series, "Guarding our Wildlife Resources," offers a broad historic and ecological perspective on wildlife resources in the United States and beyond its borders. In the piece, she makes a strong case for protection of migratory birds, game animals, and fisheries.

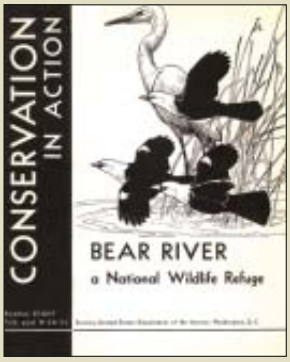
"…Like the resource it seeks to protect," she wrote, "wildlife conservation must be dynamic, changing as conditions change, seeking always to become more effective."

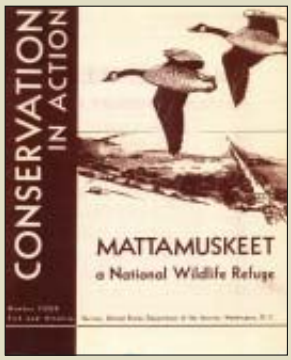
From 1946 to 1947, Carson traveled extensively to gather information and conduct interviews for the series. She was accompanied by Kay Howe, Shirley Briggs, or Bob Hines—Service artists who designed, illustrated, and took photographs for the booklets. In an excerpt from *Rachel Carson: Witness for Nature*, biographer Linda Lear observed that "the two and a half years that Carson worked on the series were her happiest and most fulfilling time in the service. Certainly the trip to the western refuges was one of the highlights of her government career and added immeasurably to her overall ecological perspective."

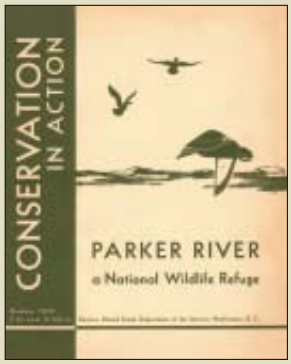
To download the Conservation in Action series, visit <www.digitalrepository.fws.gov>.

Terri Edwards is a public affairs specialist, in Hadley, Massachusetts









returning to the water

Rachel Carson reminded us that water, life's most essential element, is the bond between human health and nature's health.

(BEACH) JANE PELLICCIOTTO

By Valerie Fellows and Joshua Winchell

Although Rachel Carson grew up landlocked in Pennsylvania, she fantasized about the ocean as a child. Her family had a conch shell on their fireplace mantle, and she would hold it to her ear and imagine what happens when the sand meets the sea. Carson first saw the ocean during a summer fellowship at the U.S. Marine Laboratory in Woods Hole, Massachusetts. Curiosity about the ocean and its underwater galaxy of plants and animals would remain with her throughout her life.

When she was originally hired by the U.S. Bureau of Fisheries (now the U.S. Fish and Wildlife Service) Carson created a series of 7-minute radio spots on marine life, called "Romance Under the Waters." She submitted articles on conservation and nature to newspapers and magazines, urging people to consider always the welfare of the "fish as well as that of the fisherman."

In 1936, Carson was appointed as junior aquatic biologist, and was one of only two women employed by the Bureau at a professional level. During the early years of her career, her work took her to visit the Chesapeake Bay, where she spoke to watermen and toured commercial fish processing plants to understand the economics and culture of the area.

During her free time, Carson wrote books about her government work. Her first book, titled *Under the Sea Wind* was published in 1941, and highlighted her unique ability to present scientific material about biological processes and life forms in the ocean, and use poetic language to captivate readers by painting a verbal canvas of nature's underwater fury. In 1943, Carson was promoted to aquatic biologist in the newly formed U.S. Fish and Wildlife Service where she created informational bulletins designed for the American public.

One of the most well-known series, titled "Conservation in Action" was devoted to exploring wildlife and ecology on national wildlife refuges, and focused primarily on the Atlantic coast. Another series was titled "Food from the Sea" and offered information on proper preparation as well as the advantages of a diet including fish and shellfish to a public unused to eating freshwater fish.

Her second book, *The Sea Around Us*, was published in 1951 and remained on the New York Times' bestseller list for 81 weeks. With more than 200,000 copies sold, Carson won the National Book Award in 1952. This book is steeped in biological and geographical information about the earth, moon and tides, but her writing style was rhythmical and poetic—said to mimic the surge and flow of the tides while charming readers with the magic of the ocean.

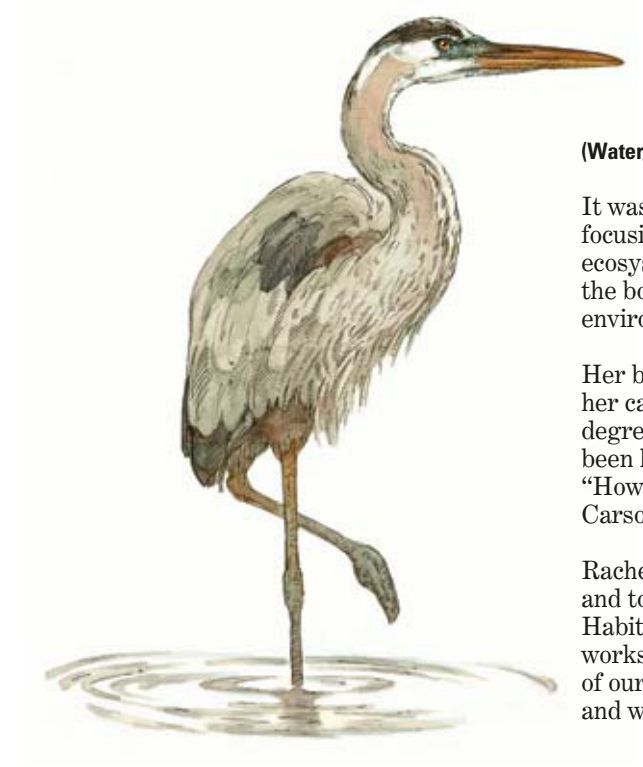
The success from *The Sea Around Us* gave Carson the economic freedom to resign from her position with the government and devote herself full-time to writing. She began summering on Southport Island off the Maine coast. She spent her days studying the Maine coast and tidal pools and collected information for her third book published in 1956. The *Edge of the Sea* was a naturalist's guide to identifying the organisms and creatures of the ocean, tidal marshes, shallows and tide pools. **>>**

EDWIN GRAY / COURTESY RACHEL CARSON COUNCIL INC.

Carson at Woods Hole Marine Biological Laboratory, ca. 1951.

If there is poetry in my book about the sea,
it is not because I deliberately
put it there, but because no one
could write truthfully about the sea
and leave out poetry.

From Rachel Carson's speech accepting the National Book Award for *The Sea Around Us*



FLICKR / NORMAN MAYNARD

(HERON) TIM KNEPP

(Water, continued)

It was only after spending a lifetime focusing on fisheries and coastal ecosystems that Carson decided to write the book that is credited with sparking the environmental movement, *Silent Spring*.

Her books are read, her words quoted, and her call to action heeded to a remarkable degree. But in the year of what would have been her 100th birthday we ask ourselves, "How are we still carrying on Rachel Carson's legacy?"

Rachel Carson's career began in fisheries, and today the Service's Fisheries and Habitat Conservation Program (FHC) works to conserve the intricate ecosystems of our coasts and wetlands, and the fish and wildlife that depend on them.

Brook trout.

ERIC ENGBRETSON / USFWS

Some of FHC's connections with Carson are obvious: the Service's experts on contaminants and pesticides are members of the FHC team. They work closely, and aggressively, with industry to ensure compliance with laws and best management practices. In addition, FHC staff has been tracking wetlands losses and gains since before *Silent Spring* was published. They know that wetlands serve many critical roles ensuring the health of people and the larger environment.

Carson wrote at length about the inherent beauty and value in our native species. And in that same spirit, FHC's invasive species biologists are working to conserve native wildlife—they identify potential threats to our nation's native ecosystems and work to control them through management, education and policy.

Carson reserved a special place in her heart for the beauty of our waters and its inhabitants. Service staff in fish hatcheries and fishery resource offices around the country are committed to producing healthy fish for placement into wild populations, creating habitat for important spawning and rearing grounds and working with partners to monitor native fish populations.

These efforts to preserve and protect our aquatic resources are inspired by Rachel Carson's legacy and belief that water, life's most essential element, is the bond between human health and nature's health.

"To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of year, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be." □

Valerie Fellows and Joshua Winchell are public affairs specialists in Washington, DC

Chincoteague National Wildlife Refuge, Maryland.

USFWS

Carson and national wildlife artist Bob Hines conduct marine biology research in Florida, 1955.

For all at last returns
to the sea— to Oceanus,
the ocean river, like the
everflowing stream of time,
the beginning and the end.

Rachel Carson, *Silent Spring*

Focusing on *Nature*

Rachel Carson is the subject of high school junior Kristin Cronon's documentary film and the inspiration behind her insatiable curiosity about the natural world.

By Terri Edwards

COURTESY KRISTIN CRONON

Kristin Cronin

Kristen Cronon is a high school junior in Winchester, Massachusetts, who describes herself as an environmentalist and naturalist. Rachel Carson has been her inspiration since the third grade.

Cronon's documentary, "Taking a Stand in History: Rachel Carson's *Silent Spring*," was premiered in the student category during the National Conservation Film Festival at NCTC in November. Incorporating archival footage and interviews with contemporary environmentalists and historians, the film tells the story of Carson's pioneering role in creating the modern environmental movement.

Fish & Wildlife News recently interviewed Cronon about her film, Carson's influence on her life and her own passion for conservation.

How were you first inspired by Rachel Carson?

When I was younger, I wondered about those yellow warning signs about pesticides that people post on their lawns. My grandmother used to spray pesticides, and I would ask her what she put on her lawn that made it unsafe for us and the dog to play on it. She told me that she used strong chemicals to kill the weeds.

The summer following third grade, I took a science summer camp at Waquoit Bay on Cape Cod. My class was wading in the estuary when we noticed there was thick, black, mossy-looking vegetation spanning a branch of a marshy stream.

Our teacher explained that the unnatural seaweed growth occurred because of pesticide run-off from the adjacent golf course. It prevented fish from living in the stream. We asked her all sorts of questions: "Is this the same stuff that people with yellow warning signs put on their lawns? Why isn't it illegal for golf courses to use such strong pesticides?" She told us about Rachel Carson's battle against pesticides in the 1960s when our parents were children, and how Carson had made progress toward making some of the strongest pesticides illegal.

I was very affected by my experience at summer camp that day. When I got home, I asked my grandmother to stop using pesticides. I went on to read and write about Rachel Carson for a book report project in the fourth grade.

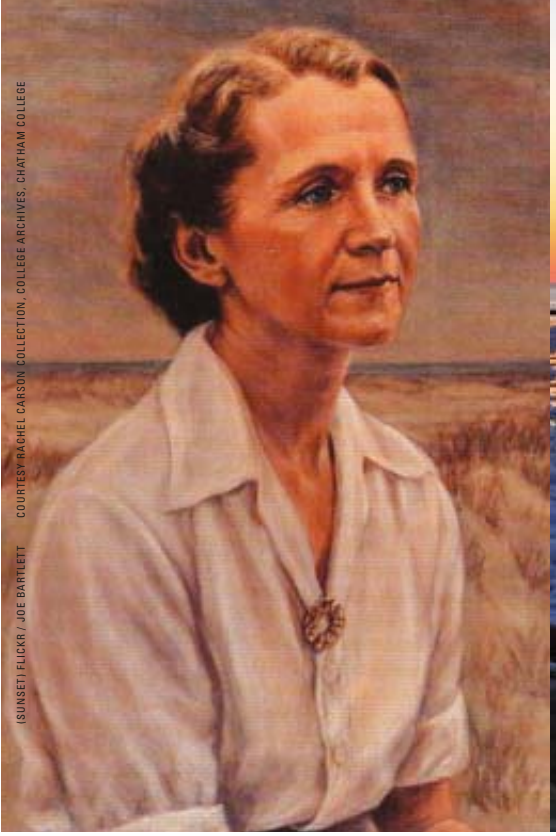
How would you describe your connection to Carson and her work?

My strongest connection to Carson is my love for the natural world and my drive to immerse myself in it, observe it, and learn as much about it as I can.

I think my childhood could be compared to Carson's on her family farm, characterized by playful exploration and curiosity. I've grown up spending summers on Cape Cod, taking classes at the Children's School of Science in Woods Hole. Every day of the summer, I walk by the Marine Biological Laboratory in Woods Hole where Carson worked.

Ichthyology, botany, marine biology, entomology—I've taken all of the life science courses the school offers. During every class, I got out there with nets, binoculars, magnifying glasses; it was really hands-on learning. I just loved it.

Carson and I both share a particular affinity for the sea. It's more than a scientific interest. I love to catch fish in the shallows and dig for mole crabs in the surf, but even more I love to sit at a distance and just watch waves crash and take in the mystery of the sea. I can tell Carson did that, too. Carson captures the intricacy and passion of nature so well in her writing, even when she's describing scientific concepts. Like her, I love to write and communicate ideas. I've seen books she wrote, bound and illustrated as a child. I used to do the same.



(SUNSET) FLICKR / JOE BARTLETT COURTESY RACHEL CARSON COLLECTION, COLLEGE ARCHIVES, CHATHAM COLLEGE

Portrait of Rachel Carson by Minnette D. Bickel in Honor of the 25th Anniversary of Silent Spring.

Swans in the icy surf at Woods Hole, Massachusetts.

My strongest connection to Rachel Carson is my love for the natural world and my drive to immerse myself in it, observe it, and learn as much about it as I can. **Kristen Cronon**

Do you have a favorite among Carson's books?

The Sense of Wonder—my favorite quote comes from it: "Those who dwell…among the beauties and mysteries of the earth are never alone or weary of life."

Describe how you made your film.

Making the film was one of the most challenging and exciting things I've ever done. It actually started out on a very small scale as a school history project. Like the book report in fourth grade, I chose Rachel Carson as my topic and decided to make a documentary because I've always enjoyed making short films.

Once I started gathering footage and writing the script, it quickly grew into more than a school project. I sent away for most of my footage from the Rachel Carson Council, and some from the Kennedy Library in Boston. I e-mailed environmental historians asking if I could interview them for the film. Among the responses, I was fortunate to hear back from Mark Madison, the Fish and Wildlife Service's historian. He was the person who encouraged me to enter my film in the student category of the National Conservation Film Festival. I was very excited when it was selected!

What was it like for you to attend the film festival at NCTC last fall?

It was an incredible experience. I met many professional and amateur film makers who genuinely care about the environment. I was approached by a couple of people who asked if I would send them copies of my film. I am honored that it will be shown as part of the celebration of the centennial of Carson's birth.

Having the opportunity to see the Service's library and archives was one of the high points of the trip for me. I saw many first edition copies of Carson's writings and even got to hold the magnifying glass that she used for research!

If you had a chance to talk with Rachel Carson, is there anything that you'd like to ask her?

I would ask her if she would take me on a nature walk. I'd want to spend time with her and see what she would choose to tell me.

If she was alive today, what do you think Carson would write about?

I am almost certain that she'd write about global warming. □

Terri Edwards is a public affairs specialist in Hadley, Masschusetts

Kristen Cronon's 11-minute film can be downloaded from the Rachel Carson centennial Web site at <www.fws.gov/rachelcarson>.

Ray Vizgirdas

Snake River Fish and Wildlife Office, Boise, Idaho

Ray Vizgirdas, a fish and wildlife biologist with the Service's Snake River Fish and Wildlife Office in Boise, Idaho, has studied mountain environments in the West for more than 25 years.

As a professional biologist, he has worked with numerous imperiled species, including gray wolves, ground squirrels, and rare plants. The courses reflect not only Vizgirdas' vast body of knowledge, but his ability to educate multitudes of people—ranging from the most eager of young learners to the most experienced naturalists and scientists.

During a year when the Service is celebrating Rachel Carson's centennial birthday and remembering her contributions to conservation education, Vizgirdas is a natural example of how the agency is carrying on Carson's legacy.

Vizgirdas leads more than 30 courses. For the past 15 years, academic institutions such as University of California Riverside, Boise State University, the Sawtooth Science Institute in Sun Valley, Idaho, and the Service's National Conservation Training Center have taken advantage of his expertise in the fields of ecology, small mammology, botany, and wilderness survival.

"It's no wonder students are inspired by Vizgirdas' courses—his work is his passion," said Chris Gertschen, director of the Sawtooth Science Institute. "It's impossible not to be touched by his enthusiasm."

Vizgirdas' dedication to fish, wildlife and plant conservation transcends the mountains of paper, a backpack, and an occasional can of tuna in his field office cubicle. Whether he is working on a National Forest biological opinion or meeting with county commissioners and developers about the northern Idaho ground squirrel, his respect for the resource and people is first and foremost.

Vizgirdas balances biology and sociology and values open communication among all partners. He is a strong advocate for public environmental education and citizen involvement, noting that natural resource agencies cannot "do it all" in these challenging times.

In addition to his regular duties as a biologist, Vizgirdas also finds time to run ski patrol at Bogus Basin Ski Resort in the winter and lead spring wildflower walks in the Boise Foothills. He also conducts presentations for the Sawtooth Botanical Garden, Ketchum Environmental Resource Center, local Boy Scout Troops, and outdoor retailers including REI and Benchmark on survival techniques, tracking, and medicinal plants.

Vizgirdas has conducted more than 50,000 "trap nights" for live small mammal trapping including kangaroo rats and ground squirrels and has trained more than 200 people in small mammal detection and trapping techniques, He is also a certified master bird bander.

Vizgirdas (right) demonstrating burrow camera technology at the NCTC Nongame Wildlife Survey Techniques course in June 2006.

Then, there's the "book work." In the wee hours, Vizgardas reviews articles for the *Journal of Mammology,* and writes for *Wilderness Way* magazine. In 2003, he wrote two books, *Useful Plants of the Southern California Mountains* (San Bernardino Natural History Museum Association) and *Useful Plants of Idaho* (Idaho State University Press). The University of Nevada Press published Vizgardas' *Wild Plants of the Sierra Nevada* in 2006, which won an award from the Association of American University Presses in the reference category. Several months later, Idaho State University Press released *Discovering Sawtooth's Butterflies*.

University of Utah Press is currently publishing the soon-to-be-released *Plants of the Yellowstone and Grand Teton National Parks.*

Vizgardas' most important educational endeavor, however, is being a parent to his six-year-old son, Tomas. He is hopeful that one day, Tomas will embrace the Fish and Wildlife Service's mission of working with others to conserve and protect fish, wildlife and plants. After all, he's had a great teacher. □

Meggan Laxalt Mackey, External Affairs, Boise, Idaho

DAVE HOPPER / USFWS

Rachel Carson's Hidden Treasures

By David Klinger

Call her our patron saint—without portfolio.

While she left behind four major works of nonfiction and an abundance of magazine articles, essays, and personal correspondence, the record of Rachel Carson's 15 years within the U.S. Fish and Wildlife Service is remarkably slim. "There's no legacy of field notebooks, specimens, the things we tend to collect," says Service historian Mark Madison. "Carson didn't retire from the agency, but left in mid-career. Since personal records didn't qualify as permanent records, there was no place to put many of her agency papers. And Carson suffers from not having had an immediate family, to which many of her personal things could be passed.

"Most of her career, before she became famous, was as an editor, editing other people's work. Her work is hidden—literally—in the thousands of other scientific papers she edited for others."

Though Rachel Carson's spiritual legacy endures, physical reminders of the woman at her centennial observance remain lamentably few. Her famed "Conservation in Action" pamphlet series… photocopies of her wartime press releases on budget-stretching seafood meals menhaden landings…her wobbly magnifying glass lovingly preserved and passed along by noted long-time Service editor Bill Dryer…a Main Interior office jealously guarded, until dispossessed a few years ago, by the public affairs employees who were her bureaucratic successors.

But perhaps the most interesting relic is a forlorn memo salvaged from the waste bin many years ago that surfaced just recently and, through a twist of fate, reacquainted two of the Fish and Wildlife Service's most storied female employees.

It began one afternoon in 1970 when a third female employee, program analyst Claire Banakos, was told to dispose of old correspondence and memos her superiors had culled from refuge division files. Banakos, 79, now retired and living in Bowie, Maryland, remembers that even as a greenhorn staffer, she recognized the value in what she was being asked to toss. Intermingled in the tissue-thin copies of office memoranda and detritus by obscure and long-forgotten employees were letters composed and signed by Rachel Carson, who, at that time, was six years dead and 18 years resigned from the Fish and Wildlife Service. Banakos saved a few choice morsels for posterity, one of which—a March 8, 1951, memorandum from Carson to the agency's chief of habitat management. The single-page, two-paragraph memo recounts progress on a manuscript outline about trumpeter swans that Carson was editing with a cryptically-referenced "Miss Beard." The memo was typed on blue government stationery and signed in Carson's careful, finely-crafted penmanship.

"This sounds good," Carson wrote in the memo. "Even in the outline, there are encouraging signs that Miss Beard will be able to translate the language of the reports into readable English. I feel that an important aim in writing it is to hold the interest of people who are not management specialists—the people whose support of our program is very important."

While Carson in 1951 had one book under her belt and was on the verge of literary superstardom later that year with her publication of *The Sea Around Us*, a mammoth bestseller, who was the elusive "Miss Beard"? In 2003, upon rediscovery of the original memo, "Miss Beard" reemerged at a Fish and Wildlife Service Retirees Association conclave in Florida, in the personage of Elizabeth Browne Beard Losey of Germfask, Michigan—a 90-year-old woman very much with her own story to tell. It was Losey's reworking of some classic ornithological texts at Red Rock Lakes Refuge that rose to Rachel Carson's editorial review in the early 1950s.

Losey was first hired into the Fish and Wildlife Service as a waterfowl research biologist in 1947 by agency luminary J. Clark Salyer. She became its first female field research biologist. Well into her ninth decade, she served as a waterfowl survey volunteer and resident historian at Michigan's Seney Refuge, inspiring several generations of young women to make their own mark in biology. "Our 20-year-old interns flocked to her like bees to a fragrant flower," reported Seney manager Tracy Casselman when Losey died in 2005 at the age of 92.

The Losey memo—rescued from a trash can—remains the agency's only original piece of government paper on which Rachel Carson signed her name and that is known to have survived from a tenure in the Fish and Wildlife Service we celebrate this centennial year. □

This is the fourth in a series of short features about little-known aspects of the U.S. Fish and Wildlife Service by David Klinger of the National Conservation Training Center in Shepherdstown, West Virginia.

The Poetry of Truth

By Lynn Scarlett

I remember, as a child, learning from my mother to discern the crest of the tufted titmouse, the rasping chatter of a house wren, or the pendent nest of an oriole. Nature, to my mother, unfolded not as an undifferentiated blur of trees, flowers, birds, and bugs, but as a cascade of details. These details intrigued her for their effusion of shapes and colors. They intrigued her, too, for what they imparted of the complexity of life itself.

Rachel Carson's writings convey this duality—this love of nature both as art and function. She writes at once as poet and scientist. Through this blend made familiar to me by my own mother's teachings, Rachel Carson's writings enchanted me growing up.

In *Edge of the Sea*, the coast and seas materialized like an artist's depiction on a canvas. "A moon edging all the waves with silver"—these are the words of a poet. Yet Rachel Carson was an observer of form, function, and physical process, too. Her powers of observation imparted knowledge and insight.

I first read Rachel Carson's work before *Silent Spring* catapulted her to fame for some—and criticism by others. The controversy surrounding *Silent Spring* was, in many ways, unfair. Ever poignant, Carson penned in *Silent Spring* an impassioned plea that the nation consider the effects of chemicals on the world around us. But Carson herself did not embrace the mantle of policy maker.

The policy debate that ensued over DDT anticipated many subsequent environmental policy debates over these past 40 years. How clean is clean enough? How do we evaluate competing risks—risks associated with medical cures, or pesticides, or other technologies that bring benefits to human communities yet, at the same time, carry risks and impacts on waters, lands, and wildlife? These questions today deserve serious deliberation as they did when Rachel Carson wrote *Silent Spring*.

Today, Carson's role in triggering these debates dominates her reputation. Yet my own recollections of Rachel Carson stand apart from those debates. Her poetry enticed me with its rhythms and imagery. But there was truth in her poetry, too. "On all these shores," she wrote, "there are echoes of past and future; of the flow of time, obliterating yet containing all that has gone before—of the stream of life, flowing as inexorably as any ocean current, from past to unknown future." Ours is a dynamic world—from season to season, from year to year, from epoch to epoch.

Rachel Carson, through her writings, helps us to know this dynamic world—and to care for it. She helps us see what we might otherwise overlook. What, she asks, "is the meaning of so tiny a being as the transparent wisp of protoplasm that is a sea lace…?"

Perhaps we cannot plumb its meaning, but we can come to marvel at its place in the universe and lend a caring hand to our lands and waters that it—and a thousand other creatures—might flourish. □

Lynn Scarlett is Deputy Secretary for the Department of the Interior

A Living Trust

By Ward Feurt

It is an honor to be associated with greatness.

In many ways, Rachel Carson's teachings illuminate my conservation beliefs. Importantly, albeit mundanely, working at a refuge named for Rachel Carson means that I hear, say or write her name a hundred times a week.

The most immediate, compelling reminders of Rachel Carson come from the public. Each of our visitors and correspondents has his or her own expectations. Sometimes visitors put the person of Rachel Carson together with the Carson NWR, but more frequently they concentrate on who she is to them. A visitor was displeased and saddened that the refuge visitor center did not have more information on Rachel Carson, that there were no documents or memorabilia. Conversely, a visitor from California was convinced our interpretative material was incorrect. He remembered changing his college selection after reading the book *Silent Spring* so he was sure it was published in 1958.

The most frequent information request is from young girls who are completing an assignment on someone they admire in history. One recent Sunday, a seventh-grade competitor in this year's History Day contest, "Communication in History: the Key to Understanding," came to the refuge to gather information on Rachel Carson. She plans to present both sides of the decision to ban DDT and partnered with an exchange student from Tanzania to present a third world point of view. The girl was 13 years old; her enthusiasm for the project reaffirmed my conservation interest.

During the past 20 some years, I have become used to strangers' reactions when I say I work on a national wildlife refuge. When they learn that I work at Rachel Carson NWR, they talk about Rachel Carson—not the wildlife work. Often the mention of her name manifests as an invitation to expound on her, on *Silent Spring*, or her other writings. Many people have a story, a memory, or a question. Most people who know something seem to want to know more.

Working at the refuge has brought me in close association with Rachel Carson for 11 years. It's a testament to her integrity that familiarity does not breed contempt. I have followed my interest in her as a writer to the papers of her publisher, Paul Brooks housed in the Thoreau Institute near Walden Pond, Massachusetts. This year, I will visit New Haven and see the manuscripts, notebooks, letters, newspaper clippings, photos, and printed material relating to the life and career of Rachel Carson residing at Yale's Beinecke Rare Book Library. I buy her books at second-hand sales and give them away to some curious visitors. I reread her works and stories about her work. Much of my personal commitment to working with others to conserve natural resources comes from her teachings.

Rachel Carson's life has yielded much to be admired. At various periods I have focused on her circumspection concerning pesticides, her pioneering role for women in science, her gifted skill to translate science into readable books and articles, and always her message about the interconnectedness of life. As my years pass, I am more and more impressed by her courage in defending the research behind *Silent Spring*. Unhealthy much of her life, Rachel Carson had been diagnosed with cancer shortly before the maelstrom of criticism struck. The chemical companies attacked her personally, as well as attacking her work. The cancer was progressing by the time she participated in national broadcasts and when she testified before Congress. Although she was neither naive nor immune to the pleasures of praise, she had not been a public figure. Vilified by chemical companies and much of the agricultural community, she did not waiver in defense of her research. Resolute personal courage in the face of sweeping condemnation became a fulcrum to leverage a movement. She started the modern environmental movement. Most powerfully, she presented the science in such a manner that it spoke for itself.

Rachel Carson is the most famous person who has worked for the U.S. Fish and Wildlife Service. In 1970 this refuge was renamed in her honor. A quote from Rachel Carson on the dedication plaque influences and inspires me and all of our work at the refuge:

"…All the life of the planet is interrelated…each species has its own ties to others. And…all are related to the earth.…" □

Ward Feurt is Refuge Manager at Rachel Carson National Wildlife Refuge in southern coastal Maine.

transitions

400 Years of Experience Migrates to Retirement

During the past few months, 10 employees retired from the Service's Migratory Bird Program.

"More than 400 years of experience in migratory birds retired this winter," said Paul Schmidt, Assistant Director for Migratory Birds. "We will miss them and their invaluable perspectives and work ethic, but we with them long and successful retirements."

Recent retirees from the Washington-based Division of Migratory Bird Management are Administrative Officer Sharon Clark, Flyway Representatives Jerry Serie and Ken Gamble, Pilot/biologist Rod King and biologists D. Alan Davenport and John Trapp. The Division of Bird Habitat Conservation lost Secretary Margaret Willis and Division Chief David A. Smith. Regional Migratory Bird Chiefs Bob Leedy (Alaska) and Dr. John Cornely (Denver) also retired.

Sharon Clark retired with more than 41 years of federal service, 39 with the Service. Her Service career began in 1967 with the Division of Wildlife Services-Cooperative Research Units. She then worked for the Division of Management and Enforcement (which later became the offices of Migratory Bird Management and Law Enforcement) in 1968–69, the Division of Program Plans for 10 years, International Affairs for 9 years, and finally the Division of Migratory Bird Management since 1990.

Dr. John Cornely retired after more than 33 years of federal service, more than 26 of which were with the Service. From 1978 to 1988, he was a refuge biologist in Oregon—first at Malheur NWR, then at Western Oregon Refuges. As the Regional Migratory Bird Chief in Denver since 1988, he managed a diverse program that included Migratory Game Birds, Migratory Nongame Birds and the Regional Migratory Bird Permit Office. He also served as the primary regional liaison to the Headquarters Region Division of Migratory Bird Management and the Pacific and Central Flyway Councils. Cornely helped establish five North American Waterfowl Management Plan joint ventures and may be the only biologist to serve simultaneously on four different joint venture technical committees. He represented the Service on trips to China in 1996 and 2000 and Russia in 2001. Since April 2006, Cornely has been acting Assistant Regional Director for Migratory Birds and State Programs. He has authored more than 40 peer-reviewed scientific publications, including a study of dusky Canada geese, whose populations were critically low in the 1980s.

D. Alan Davenport's 40 years with the Service began as a biological technician at Crescent Lake NWR in Nebraska and progressed to a full-time career at the Northern Prairie Wildlife Research Center in the physiology lab. Because of his computer programming skills, Davenport gradually became the major computer support/programming resource for the Center in the 1970s. He returned to graduate school for a computer science degree and then transferred to the Service's migratory bird management program at the Patuxent Wildlife Research Center in 1982. As manager of Systems Design and Programming, he programmed analyses and tabulations of bird banding data and was the first to create a computerized banding schedule program for direct input of banding data. Davenport pioneered the computerization and data collection procedures for the annual Waterfowl Breeding Population and Production Surveys.

Since 1973, **Ken Gamble** served as the Mississippi Flyway Representative, functioning as the primary liaison for migratory bird research and management programs between the Service and the states and provinces within the Mississippi Flyway. Longstanding regional differences in managing waterfowl harvests existed when he began as Flyway Representative and jeopardized the Flyway approach to waterfowl management. Differences in harvest philosophies and interstate battles over the allocation of harvest of the Mississippi Valley Population Canada geese threatened to split the Flyway. Gamble's skills as a mediator were instrumental in reaching solutions acceptable to all parties, preserving the integrity of the Flyway. During his tenure, he helped initiate critically important monitoring programs for several birds of management concern, including Eastern Prairie Population Canada geese, Southern James Bay Population Canada geese, and wood ducks.

Pilot/biologist **Rod King** began his wildlife career as a refuge manager trainee at Salyer National Wildlife Refuge in North Dakota after completing a bachelor's degree in wildlife management/biology at Utah State University in Logan, Utah. After four years working at several refuges and delineating wetlands for the Fish and Wildlife Service in Montana, King migrated north to Alaska in 1976 when he accepted a wildlife biologist position in Cordova with the U.S. Forest Service. He transferred to the Fish and Wildlife Service's Alaska Region a year later and initiated many surveys that today provide the basis for much of the waterfowl database that exists for the state of Alaska. After more than two decades in Alaska, King joined a group of flyway biologists in the Waterfowl Population Survey Section in 1999. Based in California, he flew the Southern Manitoba and Southeastern Saskatchewan areas of the continent wide Waterfowl Breeding Pair and Productivity Surveys. He also flew mid winter surveys in the Sacramento Valley, banded ducks on the Mackenzie Delta, and assisted with swan surveys and telemetry flights in the Northwest Territories and Alaska. During his career with the Fish and Wildlife Service, King flew more than 10,000 hours conducting aerial migratory bird surveys. He retired in January 2007 after almost 40 years of service.

As an undergraduate at Cornell University, **Bob Leedy** found a summer job and began a federal career in 1967 as a Forestry Aide with the U.S. Forest Service in Florida. By the next summer, he was with the Corps of Engineers in Alaska.

He came back for another summer of survey work in 1969 and became hooked on Alaska at that point. After completing his graduate studies, he took his first full-time permanent job as an Environmental Specialist with the Bureau of Reclamation in Salem, Oregon. In 1976, Leedy returned to Alaska and joined the Service's Western Alaska Ecological Services Office. In 1977, Leedy moved to Refuges. In 1979, he became a Supervisory Ascertainment Biologist with Wildlife Operations (later Division of Wildlife Assistance), evaluating migratory bird habitats and developing habitat protection plans. In 1983, he was reclassified as a Subsistence Specialist and devoted his full time to compliance with subsistence provisions of the Alaska National Interest Lands Conservation Act. In 1987, Leedy moved to Migratory Bird Management as a Waterfowl Subsistence Specialist when the Regional Office reorganized. In 1989, he became Chief of the Division of Migratory Bird Management in Alaska. Leedy brought the North American Waterfowl Management Plan to Alaska by helping to create the Arctic Goose, Sea Duck and the Pacific Coast Joint Ventures. Most recently, he helped organize the early detection work for avian influenza in Alaska and participated in field activities associated with this effort.

In 1971, **Jerry Serie** started as a seasonal biological technician with the Service. In 1973, he took a job as a waterfowl research biologist at the Northern Prairie Wildlife Research Center. During the mid-1970s, many were concerned about the status of canvasbacks, a species of duck highly prized by the hunting community. Serie was responsible for several important studies of canvasback breeding biology in Manitoba and of fall migration ecology studies on the Upper Mississippi River in Wisconsin and Illinois. These efforts helped fill substantial gaps in our understanding of the ecology of this species and directly influenced national management programs for canvasbacks. In 1984, he accepted the position of the Atlantic Flyway Representative, functioning as the primary liaison for migratory bird research and management programs between the Service and the states and provinces within the Atlantic Flyway. He worked on issues such as closing of Canada goose hunting seasons, severe restrictions on the harvest of black ducks, and the establishment of tundra swan hunting season in mid-Atlantic states.

David A. Smith spent nearly his entire career in wetlands conservation, beginning as a biologist with the Baltimore District Corps of Engineers, where he helped to enforce the then-fledgling Clean Water Act's regulatory program for three years. In 1974, Smith joined the Chesapeake Bay Field Office in Maryland to review wetland permits and acid-mine drainage issues. In 1981, he moved to Vero Beach, Florida to work on ESA consultations on wetland-associated species. In 1986, Smith moved to Washington, DC to coordinate the Partners for Fish and Wildlife Program. There he helped draft the National Wetlands Priority Conservation Plan under the Emergency Wetlands Resources Act of 1987; assisted in the National Wetlands Inventory; and served as staff to Senator Robert Kasten. On the Hill, Smith worked on provisions of the 1990 Farm Bill. In 1991, he was hired as a wetlands habitat specialist by the North American Waterfowl and Wetlands Office to serve primarily as the national liaison for joint ventures forming under the North American Waterfowl Management Plan. As Division Chief, Smith held leadership positions on the councils and committees that oversee the Division's programs, which included his role as the U.S. Plan Committee Co-chair and the Coordinator for the North American Wetlands Conservation Council. Smith was recently recognized with the first-ever conservation award presented to an individual from the North American Bird Conservation Initiative for his decades of successful work in this field.

After graduating in wildlife biology from Michigan State University, and completing a four-year tour with the U.S. Navy, **John Trapp** began a 33-year career with the Service. At the Aleutian Islands National Wildlife Refuge in 1973, he was involved in early efforts to restore nesting populations of the then-endangered Aleutian Canada goose and initiated avifaunal surveys of the western Aleutians. Trapp became Assistant Refuge Manager at the Kodiak National Wildlife Refuge in 1976, where he conducted aerial surveys of Kodiak brown bears, bald eagles, and waterbirds. As Alaska Regional Assistant Migratory Bird Coordinator in 1978, he completed concept plans for the conservation of priority migratory bird habitats and developed a marine bird management project. In 1986 Trapp moved to Washington, DC, where he assumed responsibility for expanding Birds of Conservation Concern, helped to implement the Migratory Bird Treaty Reform Act , developed biological background for a successful effort to deny Federal protection to introduced mute swans, revised the list of migratory birds, and assessed and resolved conflicts between double-crested cormorants, aquaculture and natural resources.

Steve Wilds began his career in the fish and wildlife management field in 1967 as a fisheries aid for the Indiana Department of Natural Resources. In his first permanent position, Wilds served as a wildlife biologist for the Indiana Department of Natural Resources from 1971-1978. In that role, his duties ranged from overseeing state fish and wildlife management areas to serving as statewide waterfowl management biologist. He accepted a position with the U. S. Fish and Wildlife Service in 1978 in the Atlanta Regional Office as Assistant Migratory Bird Coordinator. Wilds moved to the Midwest Regional Office in the fall of 1979 to serve as Chief of Ascertainment. He later served as Assistant Refuge Supervisor and Regional Refuge Biologist for the northern portion of the Region from 1982-1988. Wilds returned to the Regional Office in 1988 as the Regional Migratory Bird Coordinator. He has been Chief of the Division of Migratory Birds since its formation in 1991.

Margaret Willis started in 1985 at the Public Use Office in Washington, DC. A year later, she moved to the Federal Duck Stamp Office to be the secretary/administrative assistant. When the North American Waterfowl and Wetlands Office moved to Washington from Minneapolis in 1991, Willis was its first administrative assistant. During the years, she was the "institutional common thread" that helped the office and its staff move more seamlessly through significant transitions, such as changes in Executive Directors (from Harvey Nelson, to Bob Streeter, to Ken Williams, to David Smith), physical locations, and even its name—to the Division of Bird Habitat Conservation. Throughout her 23 years in the Service, a phrase often heard in the office was, "I don't know. Go ask Margaret." □

Headquarters Region

Ken Stansell Named Service Deputy Director

Ken Stansell, a 28-year veteran of the Fish and Wildlife Service, has been named deputy director of the agency by Director H. Dale Hall.

"Ken brings a rich and valuable background to this position. He is going to be tremendously helpful to me and to the Service," Hall said. "He will be helping steer this agency through some challenging and rewarding times."

Stansell began his career as a research biologist with the South Carolina Wildlife and Marine Resources Department, where he established one of the first State endangered species conservation programs in the country.

He first joined the Service in 1979, working in the Federal Aid and Endangered Species programs in the Southeast Regional office in Atlanta. In 1987 he entered the Interior Department's Manager Training Program and transferred to Washington.

Following a series of management positions, Stansell began working in the international conservation arena, administering the African Elephant Conservation Act in 1990. That program was so successful it became a model for similarprograms designed to aid rhinoceros, tigers, Asian elephants, great apes and netropical migratory birds.

Stansell eventually became chief of the Division of Management Authority and then the Deputy Assistant Director for International Affairs. In 2002, he was selected for the government's Senior Executive Service program and promoted to Assistant Director for International Affairs.

Stansell holds a bachelor of science degree in wildlife biology from North Carolina State University and a master of science degree in wildlife biology from Clemson University. □

Paul Padding and **Jim Kelley** recently were selected as Atlantic Flyway Representative and Mississippi Flyway Representative, respectively (replacing Jerry Serie and Ken Gamble). Padding has been with the Fish and Wildlife Service since 1991. He has worked primarily with harvest surveys and headed the development and growth of the Harvest Information Program. Most recently, Padding has served as the Chief of Branch of Harvest Information in the Division. Kelley also began has career with the Service in 1991. His responsibilities as a staff biologist in the Division have focused on a number of key issues and activities, including wood ducks and the wood duck population monitoring initiative and the development of an environmental impact statement for management of light goose populations. He recently served as the Service's Eastern Webless Migratory Game Bird Specialist and helped develop a national conservation plan for woodcock.

The Service recently named 27-year Service veteran **Dr. Robert Blohm** as the new chief of the Division of Migratory Bird Management, according to Assistant Director for Migratory Birds Paul Schmidt.

"The Service is pleased to have Dr. Blohm assume this critical position in Service management," Schmidt said. "His extensive background in migratory bird research, monitoring and management, as well as his considerable experience working with the Flyway Councils, will be a great asset to the Service."

As chief of the Migratory Bird Management Division, Blohm will work with the various Flyway Councils to establish annual federal migratory bird hunting regulations and will be responsible for other significant migratory bird management issues, such as managing snow geese and resident Canada geese, cormorant impacts on fisheries, and the effects of powerlines and wind turbines on birds.

Blohm will also oversee the Service's leadership role in Partners In Flight, the U.S. Shorebird Conservation Plan, and the North American Waterbird Conservation Plan; and will lead the Service's role in the implementation of agreements with more than 20 federal agencies to protect migratory birds. He also will guide the Service's many cooperative activities with state wildlife agencies in the management of migratory birds.

"As we continue and further develop the Service's mission to protect migratory birds, I look forward to working with biologists in the Service, States and our conservation partners to fulfill this mission," Blohm said.

A native of Michigan, Blohm received a bachelor's degree from Michigan State University in 1968. Following service in the U.S. Army, he completed Master of Science and Ph.D. Degrees in Wildlife Ecology at the University of Wisconsin. Since 1979, he has worked for the Service in the Division of Migratory Bird Management. During his career, he has been honored with a number of significant national awards including the Conservation Achievement Award from Ducks Unlimited, and has authored numerous professional papers on different topics related to migratory bird research and management.

The Recreational Boating and Fishing Foundation (RBFF) in January announced **Frank Peterson**, Jr. as the organization's new President and Chief Executive Officer. In his new role, Peterson manages all aspects of RBFF operations and assumes responsibility for meeting the strategic goals set by RBFF leadership.

Prior to joining RBFF, Peterson was a vice president and general manager for Marketing General Incorporated (MGI) — one of North America's largest marketing and direct response agencies—where he provided strategic planning, vision, leadership and business development for MGI's Media Sales Division, including list management and brokerage, advertising and media sales. He has been the founder and president of Catalyst Communications, Inc. and The Peterson Group. He also worked at ExxonMobil, where he held a variety of management positions, from managing a sales force to developing new products and services for customers. He holds a master's degree in business administration from Pepperdine University and a bachelor's degree in history and education from Mercy College. Peterson succeeds Bruce Matthews, who joined RBFF in 1999 as the organization's founding President and CEO.

Mark Musaus, Refuge Manager at Arthur R. Marshall Loxahatchee National Wildlife Refuge in South Florida, is the new chief for the Refuge System Division of Visitor Services and Communications. Musaus has helped lead the Refuge Friends movement, is a former Refuge Manager of the Year, and a key leader in the restoration of the Florida Everglades. He replaces Allyson Rowell, who retired March 3.

George Keller is the new chief of the Division of Financial Management. As Deputy Chief Financial Officer, Keller is also responsible for managing and overseeing the Service's key financial management and audit processes. Keller has previous experience with various DOI bureaus and served as the Chief Finance Officer for the Minerals Management Service. He has also participated and led department-wide efforts across Interior to improve financial management, including serving as the Chairman of Interior's Financial Officer's Partnership.

A Meeting of the Minds

The Fish and Wildlife Service held a workshop for Assistant and Regional Directors' Assistants at NCTC (pictured below) last fall that proved to be a productive and inspirational experience for the hard-working professionals who help keep all of our offices running.

During the workshop, the group worked on streamlining processes and sharing guidance in order to create efficiencies and consistency throughout the Service in their policies and procedures. One product of this effort will be an administrative Web page on the Internet that will host information on Service and departmental guidance. The planned site will include instructions, examples, and links to additional resource information on a variety of administrative topics, and will be accessible to all Service employees. In short, it will be a one-stop shopping center for information, with links to related Web sites where possible, and should speed up the production of accurate and consistent work throughout the Service.

Assistant and Regional Directors' assistants at NCTC

Northeast Region

Dave Dobias, chief of the permits branch in the Division of Migratory Birds in the Northeast Region, retired in January 2007 after 14 years with the Fish and Wildlife Service. As permits chief, Dobias was an enthusiastic ambassador for migratory birds and wildlife conservation. He began his Service career as a permit examiner in 1992.

Stan Skutek, a 30-year veteran of the Fish and Wildlife Service, retired in January after serving for the last three years as manager of the Canaan Valley National Wildlife Refuge in West Virginia.

Prior to serving at Canaan Valley, Skutek was formerly the manager of Petit Manan National Wildlife Refuge, recently renamed Maine Coastal Islands National Wildlife Refuge. He joined the Service as an outdoor recreation planner and law enforcement officer at Chincoteague National Wildlife Refuge in Virginia.

During his Service career, he also worked at Shiawassee National Wildlife Refuge, the Madison, Wisconsin, Wetland Management District, and the Northeast Regional Office in Hadley, Massachusetts. He held positions in animal damage control, environmental education and interpretation, law enforcement, wetland management, and administration. Skutek's diverse experience made him an exceptionally well-rounded and capable manager of national wildlife refuge resources and staff.

Barry Brady retired in January after a 30-year career with the National Wildlife Refuge System. Since 2000, Brady has served as the senior refuge policy specialist and wilderness coordinator for the Northeast Region. In this capacity he has guided the development of comprehensive conservation plans, refuge compatibility and appropriate use reviews, wilderness determinations, and other complex national wildlife refuge issues. Brady received the national 2006 Outstanding Planning Staff award in recognition of his outstanding contributions.

A military veteran, Brady served for two years in the U.S. Navy during the Vietnam War and was awarded the Purple Heart. He received his biology degree from Virginia's Old Dominion University, and started his career with the Service working on migratory bird management and research at Montezuma National Wildlife Refuge in New York.

During his career with the Service, Brady was the manager of several national wildlife refuges in the Pacific, including Campbell, Pearl Harbor, Kakahaia, Hanalei, Huleia, and Kauai, where he helped to recover endangered birds. He then managed the unique desert habitats of the Pahranagat National Wildlife Refuge in Nevada. Brady returned to Virginia in the late 1980s to help establish the James River and Rappahannock River Valley national wildlife refuges. He oversaw the wildlife law enforcement, public use, research and facilities maintenance programs at the two refuges, as well as Presquile and Plum Tree Island national wildlife refuges.

Mountain-Prairie Region

Ann Carlson has accepted the position of Listing Coordinator in the Mountain-Prairie Region and will be heading to Denver sometime in early April. During her stints in the listing and recovery branches in the Pacific Region, Carlson was involved with several high-profile issues, including the marbled murrelet. She also spent 21 years with the Forest Service in varied positions from western snowy plovers field researcher to NEPA coordinator.

Amelia Orton-Palmer will soon join the Mountain Prairie Region Ecological Services team serving as the regional technical authority for the Northern Rocky Mountain gray wolf recovery program and providing support for other regional ESA activities. Orton-Palmer currently works in the region's Federal Assistance Branch, where she coordinates the State Wildlife Grants program. Before coming to Denver, she spent 10 years in the Ventura Office of the CNO and the Chicago ESFO, gaining a strong ESA background working on a variety of ESA activities.

Seth Willey has accepted the position of Recovery Coordinator. Willey has been part of the Mountain-Prairie Region since 2003, working on high-profile issues such as grizzly bear delisting, wolf recovery, and Preble's meadow jumping mouse genetics. In his new position, Willey will work with regional field offices, state, federal and local agencies, landowners, and private organizations to implement and coordinate recovery activities for threatened and endangered species. A graduate of Tulane University, Willey came to the Service by way of the Presidential Management Fellows Program.

Southwest Region

Dr. Christopher T. Jones is Deputy Regional Director for the Southwest Region. Jones received his Bachelor of Science degree in Health Sciences from Fairmont State College and Master of Science Degree in Occupation and Environmental Health from West Virginia University. He holds an MBA from Florida Institute of Technology and received his Doctorate of Education from George Washington University's Executive Leadership Program. He has served in key environmental leadership positions in the Department of Defense executing environmental and public health missions of the Deputy Under-Secretary of Defense for Environmental Security and the U.S. Army Surgeon General. In addition, he worked in the Department of Energy's Office of the Assistant Secretary of Environmental Management. He has led environmental management activities related to military base realignment and closures restoration actions, decommissioning of nuclear facilities, environmental restoration of cold war legacy wastes, and evaluation of public health impacts associated with environmental contamination. Since coming to the Department of the Interior in 1999, he has continued to demonstrate strong leadership working to improve delivery of "on the ground conservation" in his role as the Fish and Wildlife Service's Chief Learning Officer at the National Conservation Training Center. In this capacity he has been instrumental in shaping the future of the Service and conservation by expanding the scientific and leadership competencies of employees across the agency.

Mark Ramsey, Division of Budget and Finance, retired In March 2007. Ramsey had 18 years of federal service beginning with a tour of duty with the U.S. Army, then logging in many years at the Denver Finance Center—where Regional finance types knew him as "Mr. IPAC". The Intra-Governmental Payment and Collection Branch processes all the interagency billings and reimbursables. Ramsey transferred to the Southwest Region in 2000 as a Budget Analyst in the Division of Budget and Finance.

Alaska Region

After almost 35 years of federal service, **Bill Knauer** retired from the Fish and Wildlife Service this year.

As a teenager in high school, he was given a copy of Durward Allen's book, Our Wildlife Legacy. From that point on he wanted to be a wildlife biologist and work for the Fish and Wildlife Service. He eventually reached his goal after first teaching science in a junior high school, spending three years on active duty with the Navy (eventually serving 26 years), and working as a fish and wildlife biologist for a research company in Missouri and then the Corps of Engineers. In 1977, he joined the Service in Region 6 (Denver) as a wildlife biologist working on environmental and regulatory issues. Knauer moved to Alaska in 1981, never dreaming he would stay almost 26 years. Initially, he assisted with the refuge planning process, holding public hearings around the State and developing refuge regulations, as well as serving as the Regional Youth Conservation Corps Coordinator and the Regional Volunteer Coordinator. When the issue of federal subsistence management appeared on the radar screen, he was asked to assist with that effort and the Office of Subsistence Management in Region 7 has been his home for the last 17 years. He and his wife will reside near their daughter and grandchildren in the Fort Wayne, Indiana area.

honors

Service Teams, Employees Honored at DOI Convocation Ceremony

Four Fish and Wildlife Service teams and 14 individuals received honor awards at the Department of the Interior's 64th annual convocation ceremony held May 9th in Washington, DC.

Charles K. Baxter, of the Lower Mississippi Joint Venture Center in Vicksburg, Mississippi, and **Dennis J. Widner**, who has worked to conserve wild lands and wildlife on national wildlife refuges throughout the southwestern United States, both received Distinguished Service Awards, the highest recognition an employee may receive within the Department.

The Meritorious Service Award, the second highest honor given to Interior employees, was presented to seven Service employees: **Gail Carmody**, Ecological Services and Fisheries Resources Field Office, Panama City, Florida; **Robert Currie**, Ecological Services Field Office, Asheville, North Carolina; **Megan Durham**, Deputy Assistant Director for External Affairs, Washington, DC; **Steve Hillebrand**, Chief, Production Division, National Conservation Training Center in Shepherdstown, West Virginia; **Larry Mallard**, Project Leader at the White River National Wildlife Refuge, near St. Charles, Arkansas; **Laura Rogers**, Ecological Services Field Office, Asheville, North Carolina; and **Phillip Street**, for his service to the National Wildlife Refuge System.

Four Service teams received the Cooperative Conservation Award, which recognizes achievements that involve "collaborative activity among a diverse range of entities that may include federal, state, local and tribal governments, non-government organizations or individuals."

This year's recipients included the **Florida Keys Invasive Exotics Task Force**, composed of the Service and 26 partners that worked to eradicate invasives on both public and private land; **Nicole Kamins**, who leads a team of federal, state, industry and non-governmental organizations in the protection and restoration of Hegewisch Marsh, a coastal wetland; **Terry and Mary Kohler** and the Windway Capital Corporation Flight team, dedicated to reintroducing wild flocks of endangered migratory birds to Wisconsin and the eastern United States and to international crane conservation; and **Ronald L. Refsnider**, who represented the Service in the Eastern Timber Wolf Recovery Plan, which allowed wolf populations in the Western Great Lakes area to increase from 750 in Minnesota to 4,000 in Minnesota, Wisconsin and Michigan.

Michael Rucinski, of Ocean Springs, Mississippi, was awarded the Department's Citizen's Award for Bravery, given to "private citizens for heroic acts of unusual bravery in the face of danger." Rucinski was fishing with his family in March 2006 when he spotted two young children playing in the spillway of Bluff Lake on Noxubee National Wildlife Refuge, near Brooksville, Mississippi. Both children suddenly slipped and were carried by a strong

current to a spot where the water was about 26 feet deep, and were followed by their mother, who was attempting to save them. Rucinski dove in the water and pulled both boys and the mother back to safety. □

Headquarters Region

Kevin Adams, who served as chief of the Service's Office of Law Enforcement (OLE) from October 1997 through October 2006, received the 2007 Guy Bradley Award from the National Fish and Wildlife Foundation. The award, named after the first wildlife law enforcement officer to die in the line of duty, recognized Adams for his outstanding lifetime contributions to wildlife law enforcement and the conservation of U.S. and global wildlife resources.

Adams was cited for his leadership of the Service's law enforcement program and for improving its management through strategic and workforce planning. As chief, he focused enforcement efforts on the most potentially devastating threats to wildlife; expanded the Service's support to international wildlife protection; secured additional funding for Service Law Enforcement; and improved officer access to forensic and intelligence support.

The Foundation also honored Adams for his contributions as a law enforcement manager, field supervisor, and criminal investigator. His accomplishments in these areas include directing Service law enforcement operations in the Southwest Region in the early 90s and supervising investigations and inspections in Minnesota and Wisconsin in the late 80s. As a covert operative with the OLE's Special Operations unit and field agent in Illinois and Iowa, he exposed black market trafficking in striped bass and completed cases that helped protect waterfowl, mussels, and game resources from unlawful commercialization.

Marshall P. Jones, former deputy director of the Fish and Wildlife Service, received the Wildlife Management Institute's 2007 George Bird Grinnell Memorial Award for Distinguished Service to Natural Resources Conservation. Jones retired from the service in January 2007, ending a 31-year career that included major accomplishments to conserve the world's most imperiled wildlife.

Jones was honored on March 21 during the 72nd North American Wildlife and Natural Resources Conference in Portland, Oregon. The Grinnell Award is WMI's highest honor for individual contributions to conservation in North America. As one of the nation's leading naturalists, Grinnell founded the National Audubon Society, was instrumental in developing the early national park system, and mentored Theodore Roosevelt on conservation issues.

"George Bird Grinnell's conservation philosophy endures with Marshall Jones," says Steven A. Williams, WMI president. "This award goes to a man whose career exemplifies integrity, leadership, foresight and a remarkable work ethic. He has been responsible for a host of successful natural resource management programs dating back to the 1970s. His unselfish commitment shines brightly within the Service and throughout the conservation community."

Northeast Region

The USDA Natural Resources Conservation Service in Maine presented **Mark McCollough**, endangered species biologist in the Maine Field Office, with its 2006 Cooperative Conservation Award. The award recognizes McCollough's work on the Healthy Forests Reserve Program, citing his effective conservation partnerships. McCollough's work on Canada lynx management guidelines and a biological assessment provided the foundation for Maine's Healthy Forests Reserve Program. His work ensures a net conservation benefit for the lynx while providing landowner protections, according to Natural Resources Conservation Service, and his continuing involvement will ensure successful delivery of the program and provide review of habitat restoration plans.

William Giese, a fire control officer at Blackwater National Wildlife Refuge in Maryland, received the 2006 Refuge System Employee of the Year award from the National Wildlife Refuge Association and National Fish and Wildlife Foundation. As Fire Control Officer, Giese's extensive knowledge and technical expertise from his 34 years of service to Blackwater National Wildlife Refuge have led to the protection of Little Blackwater River and the Refuge through the mobilization of more than 35,000 community members to sign a petition opposing mega-development in the region. Giese also works effectively as a biologist, law enforcement officer, equipment operator, and manager. Highly instrumental in developing partnerships with both Maryland Nutria and the Chesapeake Bay Foundation, Giese works to manage wetlands using prescribed fire, protect endangered squirrels and eagles, and eradicate nutria on the refuge.

Passion for bats drives recovery champion

Craig Stihler's passion is bats, especially the Indiana bat and the Virginia big-eared bat. A biologist for the West Virginia Division of Natural Resources in Elkins, West Virginia, Stihler is one of 16 recipients of the U.S. Fish and Wildlife Service's 2006 National Recovery Champions award, which recognizes outstanding contributions of Service employees and their partners toward efforts aimed at recovering threatened and endangered species in the United States.

Craig Stihler, left, receives the National Recovery Champion award from Tom Chapman, right, project leader of the U.S. Fish and Wildlife Service's West Virginia Field office in Elkins, West Virginia.

For more than 20 years, Stihler has worked to protect and conserve endangered species. Stihler is recognized as an expert on several species including the Cheat Mountain salamander, the flat-spired three-toothed land snail and the West Virginia northern flying squirrel.

"Craig's technical expertise and endless enthusiasm for wildlife have made the WVDNR an invaluable partner to the Service in our effort to protect endangered species. We were privileged to nominate Craig for this award," said Tom Chapman, project leader for the Service's West Virginia Field Office.

Southeast Region

Jim Valade of the Service's Jacksonville, Florida Ecological Services Field Office received a 2006 National Recovery Champions award. For more than 20 years, Valade has spearheaded manatee recovery efforts, doing everything from establishing interagency partnerships and developing effective regulations to rescuing injured animals from entanglement or watercraft-related injury. He also has performed necropsies on hundreds of animals that succumbed to red tide brevitoxin.

Midwest Region

Don Hultman, (also pictured at right) manager of the Upper Mississippi River National Wildlife and Fish Refuge in Minnesota, received the Paul Kroegel Refuge Manager of the Year Award from the National Wildlife Refuge Association and National Fish and Wildlife Foundation. With management responsibilities for eleven refuges along the 261 miles of the Upper Mississippi River, Hultman is a passionate communicator and a talented leader. During the past four years, he led a public involvement planning process, hosting 46 public meetings and workshops that resulted in the completion of the Upper Mississippi River National Wildlife and Fish Refuge's Comprehensive Conservation Plan (CCP) in August 2006.

Staff of the Upper Mississippi River National Wildlife and Fish Refuge was recognized by the Service and Director H. Dale Hall for "exceptional contributions made in support of refuge planning," according to Thomas Larson, chief of planning for the Midwest Region.

Under the leadership of Refuge Manager Don Hultman recently completed a planning process that lasted for more than four years and resulted in a Comprehensive Conservation Plan that will guide refuge management for the next 15 years.

During the planning process the refuge hosted 46 public meetings and workshops that were attended by 4,500 people in Minnesota, Wisconsin, Iowa and Illinois. The staff also had numerous meetings with the states' conservation agencies, the Army Corps of Engineers and several conservation and sporting groups. The refuge also received and considered 3,230 written comments on management alternatives described in draft plans.

Staff of the Upper Mississippi River National Wildlife and Fish Refuge.

Midwest Region Honors Ohio State Professor

On January 25, the Midwest Region awarded **Dr. Roy Stein**, a Professor in the College of Biological Sciences and the Director of the Aquatic Ecology Laboratory at The Ohio State University, the prestigious Silver Eagle award. Regional Director Robyn Thorson and Deputy Regional Director Charlie Wooley presented Stein with the award during a joint fisheries research forum at OSU attended by fisheries and conservation professionals and academics from around Ohio.

Dr. Roy Stein (left) receives a Silver Eagle award from Midwest Regional Director Robyn Thorson and Deputy Regional Director Charlie Wooley. (Ohio DNR photo)

The award recognizes people and organizations that have made contributions to conservation and management. The Silver Eagle Award is the highest honor given by the Midwest Region.

During his 30-year career at The Ohio State University, Stein has promoted science-based resource management through a unique combination of applied ecological research, a successful research partnership with the Ohio Division of Wildlife, mentoring students, and service to the Great Lakes Fishery Commission.

Roger Gordon, Assistant Hatchery Manager at the Service's Genoa National Fish Hatchery in Wisconsin, received a 2006 National Recovery Champions award. Gordon was honored for his work with two endangered freshwater mussels, the Higgins eye pearlymussel and the winged mapleleaf mussel.

Two field managers (pictured below) from the Fish and Wildlife Service's Midwest Region were honored March 1 in Washington, DC, during Fisheries and Habitat Conservation's "Hill Week." **Craig Czarnecki**, head of the East Lansing, Mich., Ecological Services Field Office and **Doug Aloisi**, manager of the Genoa National Fish Hatchery in Genoa, Wis., were each presented with a "Project Leader of the Year" award by Director H. Dale Hall at a reception at the Library of Congress.

LAVONDA WALTON / USFWS

Service Director H. Dale Hall (second from right) poses with "Project Leader of the Year" award winners (left to right) Craig Czarnecki, East Lansing Ecological Services Field Office; Gail Carmody, Panama City, Florida, Ecological Services Field Office; and Doug Aloisi, Genoa National Fish Hatchery.

Czarnecki and Aloisi were honored for their leadership in the Service's efforts to conserve imperiled species and their habitats.

As project leader of the East Lansing ES Field Office, Czarnecki has supported efforts by the Michigan Department of Natural Resources to develop a state-wide Habitat Conservation Plan for the endangered Karner blue butterfly, and spearheaded development of a landscape-level prescription for habitat restoration for copperbelly water snake recovery. Through Czarnecki's initiative, project leaders in Michigan now hold recurring meetings to enhance collaboration among agency program areas.

Under Aloisi's leadership, the Higginseye recovery program has put more than 5.5 million animals into six rivers in the upper Mississippi River watershed. More than 300,000 juvenile endangered winged mapleleaf mussels have been released into the St. Croix River, and propagation programs have begun for four other mussel species of concern.

Mountain-Prairie Region

Rob Holm, Project Leader at the Garrison Dam National Fish Hatchery, near Riverdale, North Dakota, received a 2006 Recovery Champions award. Holm was recognized for his contributions to pallid sturgeon recovery. Through his leadership and expertise, significant steps have been made in the development of propagation methods that have contributed to the knowledge of pallid sturgeons and significantly increased the chances for its recovery.

Dr. Chris Servheen, the Service's Grizzly Bear Recovery Coordinator, received a 2006 Recovery Champions award. Servheen's recovery responsibilities include all five occupied recovery ecosystems across the northern Rockies. Working with State agencies, federal agencies, state and county governments, Native American tribes, private citizens, landowners, and nongovernmental organizations, Servheen has effectively promoted a sound vision for recovery of grizzly bears in the Yellowstone ecosystem. On March 22, the Service announced that it is removing the Yellowstone population of grizzly bears from its status of "threatened" on the U.S. list of threatened and endangered species.

Rich Madson, a private lands biologist with the Service in Pierre, South Dakota, recently received the Distinguished Professional Service Award from the Dakota Chapter of the American Fishery Society. Madson was recognized as one of the first biologists to identify the connection between wetlands, sloughs, land use practices, and water quality and quantity as critical to overall production and health of both game and nongame fish species in the Dakotas. He has worked on numerous private lands projects benefiting Dakota's fisheries, including the Topeka Shiner, a state and federally listed endangered species. Madson was also recognized for his volunteer and outreach/education efforts to nonprofit groups and schools.

Southwest Region

Steve Hensley, manager/biologist at Ozark Plateau National Wildlife Refuge in northeastern Oklahoma, received a 2006 Recovery Champions award. Hensley's career has been marked by his special ability to work effectively with agencies and individuals of varying backgrounds and interests to further the conservation and recovery of rare and endangered species and habitats in the Ozark uplift of Oklahoma, Arkansas and Missouri. "The Ozark Plateau National Wildlife Refuge is a direct result of Steve's ability to coalesce efforts," said Benjamin N. Tuggle, PhD, Regional Director of the Service's Southwest Region.

Fire Management Officer **Chris Wilcox** is one of three recipients of the prestigious Paul Gleason Lead by Example Award. The recipients were selected for demonstrating valued leadership traits during or in support of wildland fire operations and management for which Gleason was widely known prior to his death. Wilcox was selected for his motivational and visionary influences on the Service's fire community. Wilcox manages the Service's New Mexico Fire District from Bosque del Apache National Wildlife Refuge.

The award is sponsored by the Wildland Fire Leadership development Committee under the National Wildfire Coordinating Group, an interagency, intergovernmental group that works to improve policy, standards and safety in wildland and prescribed fire management.

Pacific Region

Joanne Stellini, a grants program coordinator with the Service in Lacey, Washington, received a 2006 National Recovery Champions award. Stellini has worked since 2000 to coordinate efforts between the Washington Department of Natural Resources, the Washington Department of Fish and Wildlife and other partners to obtain conservation grants for species in the area. Her efforts led to unprecedented funding for land acquisition programs and will help meet the recovery needs of species such as the Columbia Basin pygmy rabbit and the Columbian white-tailed deer.

California-Nevada Operations

Service employees from the **Carlsbad Fish and Wildlife Office** and the **Red Bluff Fish and Wildlife Office** were selected as recipients of California's 2006 Environmental and Economic Leadership Awards. The Service employees and their partners received their awards at a formal ceremony on December 5 in Sacramento, California.

The Governor's Environmental and Economic Leadership Awards Program is the State of California's highest and most prestigious environmental honor. This year's program recognized 14 individuals, organizations, and businesses in five categories operating in California that demonstrated outstanding environmental leadership. The Service was recognized in two categories: Environmental and Economic Partnerships and Ecosystem and Watershed Stewardship.

As a winner in the Environmental and Economic Partnership category, **Karen Goebel**, **Nancy Ferguson**, **Eric Porter**, and **Jane Hendron** of the Carlsbad Fish and Wildlife Office, along with Vulcan Materials Company and the Riverside Land Conservancy, were recognized for their cooperative effort to establish the Colton Dunes Conservation Bank. In the Ecosystem and Watershed category, Matt Brown of the Red Bluff Fish and Wildlife Office was recognized for his partnership efforts with the Lower Clear Creek Restoration Team.

The Colton Dunes Conservation Bank, established in July 2006, conserves 150 acres of habitat for the critically endangered Delhi Sands flower-loving fly and represents the most significant conservation measure taken for this species since it was listed under the Endangered Species Act in 1993. The creation of the conservation bank provides an economically viable use of Vulcan's land while affording the surrounding communities an opportunity to more easily mitigate impacts to the species from proposed development.

The Lower Clear Creek Restoration Team along with Shasta County and the Bureau of Land Management. Team participants guided the recovery of naturally reproducing salmon and steelhead populations and restored riparian plant and animal communities on the Lower Clear Creek floodplain.

Alaska Region

Judy Jacobs received a 2006 Recovery Champions award for her work with albatross, including her efforts as the primary author of the Draft Short-tailed Albatross Recovery Plan. Perhaps the most important recovery action identified in that document is the establishment of new short-tailed albatross colonies within its formerly-occupied range in Japan. Working toward that goal, Jacobs coordinated an experimental translocation effort for a surrogate species "Laysan albatross" between Midway Atoll National Wildlife Refuge and Kilauea Point National Wildlife Refuge on Kauai. The knowledge gained from this process will accelerate the establishment of new colonies of the endangered short-tailed albatross by many years.

in memoriam

Arthur **Robert Brazda**, 83, a pioneering pilot-biologist with the Service, died February 3, 2007, in Layfayette, Louisiana.

Brazda was born March 30, 1923, in Mandan, North Dakota During World War II, he served in the U.S. Navy as a carrier pilot in the Pacific. He remained active in the U.S. Naval Reserves, retiring as Commander.

He attended Montana State University where he earned a bachelor's degree in Biology and a master's degree in wildlife management. After graduation in 1951, Brazda worked as a big game biologist in both Nevada and North Dakota, the latter of which saw him play a key role in the reintroduction of bighorn sheep and antelope.

In 1957, Brazda began a 38 year association with the Service, studying wolves in Alaska and migratory waterfowl in Minnesota and the Dakotas. In 1962 he moved to Lafayette and as a pilot and flyway biologist. He soon became one of the nation's leading authorities on ducks and geese in the Mississippi Flyway, a region extending from the prairie provinces of Canada to Texas, Louisiana and Mississippi. He also conducted special projects involving extensive study of the Whooping Crane in Canada and Snow Geese in the lower Mississippi Flyway.

After his retirement in 1995, Mr. Brazda spent the next six years supervising a federal and state central flyway banding project in North Dakota, South Dakota, Montana and Wyoming.

He was a member of Ducks Unlimited, the Rocky Mountain Elk Foundation, the Mandan-Bismarck Elks Club, the National Turkey Federation, the Coastal Conservation Association and the American Legion.

Andrea Lee Gaski, 56, chief of international affairs in the Service's Management Authority Division, died January 7, 2007 in Arlington, Virginia.

Gaski, a longtime advocate of wildlife conservation, worked for the Fish and Wildlife Service for about seven years, beginning as a general biologist in early 1999. By the end of that year, she became acting chief of the permits branch in international affairs. Gaski then worked in nearly a half dozen other posts, including chief of the operations branch in the Management Authority Division; acting chief of the Recovery and Delistings Branch in the Division of Habitat Conservation Planning, Recovery and State Grants; and acting special assistant to the assistant director of Fisheries and Habitat Conservation.

She helped shape wildlife conservation policy while serving as a member and, occasionally, as head of U.S. delegations at international meetings of Convention of International Trade in Endangered Species.

A native of Indiana, Gaski earned a biology from Purdue University and served as a research intern and fellow at the World Bird Sanctuary in Valley Park, Missouri, the Oklahoma City Zoo and the Field Museum of Natural History in Chicago. In 1986, she joined the World Wildlife Fund, where she rose from research assistant to director of research.

Don Hankla died April 15 in Anna, Illinois. Hankla was a conservation professional for 35 years, first with the State of North Carolina and then with the Fish and Wildlife Service from 1961 until his retirement in 1986. Most of his Service career was spent in the Division of Refuges, though he also served as Area Manager in Jacksonville, Florida and Deputy ARD for Ecological Services in Atlanta. Hankla was involved in the establishment of numerous refuges in the Southeast. Toward the end of his Service career, he was a driving force behind partnerships in the Cache River watershed in Southern Illinois and was an active volunteer at Cypress Creek NWR.

Alison Haskell, 49, former national federal agencies coordinator for the Partnerships in Amphibian and Reptile Conservation (PARC), died December 2006.

Haskell joined the Service in 1993 as a wildlife research specialist with the Division of Federal Assistance and administered a wide variety of grant programs within the Northeast Region. As was the case in all aspects of her life, Haskell brought to her work a passion for wildlife and the environment, and a natural ability to relate to others.

Thomas Kleppe, who served as secretary of the Interior under President Ford and approved the sale of oil and gas drilling rights off the Southern California coast, died March 9, 2007 at his home in Bethesda, Maryland. He was 87.

Bill Martin, 73, died in Salem, Oregon, after a long battle with pulmonary fibrosis. Bill joined the U.S. Fish and Wildlife Service in 1967, leading the agency's initial efforts to evaluate and regulate pesticides detrimental to fish and wildlife. A stellar career with the Service eventually led to his appointment in 1989 as the deputy regional director, Pacific Region, which he held until his retirement in 1994.

Following the publication of *Silent Spring*, the Service began substantial efforts to test the effectiveness of animal control agents and to examine the hazards that pesticides posed to fish and wildlife in general. Martin helped pioneer the development of lab protocols and new control chemicals, and reviewed and tested the toxicity of chemicals on wildlife. Under Martin's direction, the Service initiated a wildlife monitoring program that led to substantial revisions in all the predator and rodent control guidance; new Service manuals on pesticide use; the analysis and removal of inappropriate animal control chemicals; and the creation of pesticide containment investigations and review.

A Colorado native, Martin received a bachelor's degree in wildlife biology and a master's degree in natural resources management from Colorado State University. He began his career with the Colorado Department of Wildlife as a research biologist, later taking a position with the U.S. Department of Agriculture in Maryland and in Washington, DC, working on pesticide regulation. Bill joined the Service in 1967 as branch chief of pesticide appraisal and monitoring, establishing and administering the newly created pesticide operations program in headquarters. In 1972, he moved to Minneapolis, Minnesota, as regional supervisor of river basin studies and was later was named assistant regional director for that same office. In 1979, Martin moved to the Mountain-Prairie Region to become the assistant regional director for environment and habitat resources. In 1987, Bill accepted the position as that region's assistant regional director for fisheries and federal aid.

As the Deputy Regional Director for the Pacific Region, Martin's knowledge and background in endangered species management, and environmental and water quality were valuable attributes. Marv

Plenert, Regional Director from 1989 to 1994, credits Martin for his many accomplishments, his leadership abilities, management skills, as well as his wit and sense of humor in helping tackle the issues the region faced.

Deborah Melvin, wildlife biologist at Parker River National Wildlife Refuge in Massachusetts, died in September after a brief battle with lung cancer. She was 45 years old.

After serving in Costa Rica with the Peace Corps, Melvin joined the Service in 1987 as a management trainee at Parker River. Her career over the next 17 years took her to three other national wildlife refuges in the Northeast Region—Chincoteague, Great Swamp, and Mason Neck. Melvin returned to Parker River as a wildlife biologist in the summer of 1996.

Melvin served for several seasons as a crew leader at the Quill Lakes banding station as part of the Service's Waterfowl Survey and Banding Program in Canada. Jim Voelzer, chief and a 40-year veteran of the program, spoke to her dedication and professionalism. "Debbie, in her time as a participant in the program, set the gold standard for an example of what a bander, crew leader and international ambassador for the Service should be." In addition to her leadership skills, Melvin set banding records that still stand in Saskatchewan, Canada.

Kate O'Connor, 71, died in February 2007 after a brief illness. Until her retirement in 1998, she worked as travel coordinator in the Northeast Region, helping many employees in the regional office and in the field. She worked in the regional office while it was in Newton Corner,

Massachusetts, and after the 1992 move to Hadley, Massachusetts. Prior to her employment with the Service, O'Connor worked for the National Park Service. Her delightful Irish brogue accompanied a quick sense of humor and a lively spirit.

When **Bob Randall** died January 30 in Bismarck, N.D. at age 91, the Fish and Wildlife Service lost a friend and valued colleague and the birding community lost a pioneer.

Randall supervised Service water projects in the Dakotas from the late 1940s until his retirement in 1973, but he was best known for his birding.

He is credited with organizing the first Bismarck-Mandan Christmas Bird Count in 1948, and compiling the records of those counts for 59 years. Randall was also one of the founders of the Bismarck-Mandan Bird Club in 1953. Among his many birding accomplishments: in l979, he made the first recorded sighting of a house finch in North Dakota. In a l998 interview with the Bismarck Tribune, Randall recalled the incident. "I saw that bird right here in my backyard," he said. "I had to go to the book to make sure I was right. It was a female."

Younger birders found Randall a valuable source of information. "He was one of the few people who was birding in the '40s and '50s," said Ron Martin, former president of the North Dakota Birding Society. "He was one of the few people who had a historical perspective."

Randall was born in Georgetown, Colorado in 1915, and began birding as a teenager. He received a degree in forestry from what is now Colorado State University, and worked for state and federal agencies in Colorado before enlisting in the Army Corps of Engineers during World War II. He joined the Fish and Wildlife Service after his discharge.

As field supervisor of what was then the River Basins Office of the Fish and Wildlife Service, Randall developed the original mitigation plan for the giant Garrison Diversion Project in central North Dakota. Part of that plan called for the establishment of present-day Audubon National Wildlife Refuge.

Dr. Lucille Stickel, former director of the USGS Patuxent Wildlife Research Center whose pioneering studies of wildlife toxicology helped form the basis of Rachel Carson's book *Silent Spring*, died February 22, 2007.

Dr. Stickel published her first contaminant paper, a study with the pesticide DDT, in 1946, and went on to publish 44 scientific papers on the effects of contaminants on wildlife. Her research, in collaboration with her husband, Bill Stickel, on the use of diagnostic tissue residues of contaminants represents one of the major accomplishments in the history of wildlife toxicology. They demonstrated that it was the concentrations of many organochlorine pesticides in the brain of dead birds that could be used to determine whether those chemicals were responsible for the deaths. Under her leadership, Patuxent scientists provided the laboratory proof that DDE, the metabolite of DDT, was the chemical that caused eggshell thinning in birds.

Dr. Stickel's research interests in the plants and animals of the Patuxent Wildlife Research Center extended far beyond contaminants. Her research on box turtle populations on the center spanned several decades, as did her work with her husband on black rat snakes. She also wrote many papers on the population biology of small mammals.

In 1967, Dr. Stickel was awarded the Federal Woman's Award. She also received the Interior Department's Distinguished Service Award (1973) and the Wildlife Society's Aldo Leopold Award (1974). She was the first woman to direct a major Federal laboratory, serving as Patuxent's director from 1973 until her retirement in March 1982. In 1998, more than 50 years after her first publication on contaminants, the Society of Environmental Toxicology and Chemistry presented its prestigious Rachel Carson Award to her.

Stickel's life and work will be profiled in more detail in an upcoming issue of *Fish & Wildlife News*.

STEVE HILLEBRAND / USFWS

A child's world *is fresh and new and beautiful, full of wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring, is dimmed and even lost before we reach adulthood. If I had influence with the good fairy who is supposed to preside over the christening of all children I should ask that her gift to each child in the world be a sense of wonder so indestructible that it would last throughout life, as an unfailing antidote against the boredom and disenchantments of later years, the sterile preoccupation with things that are artificial, the alienation from the sources of our strength.*

Rachel Carson, from The Sense of Wonder, *1965*

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