



Migratory Bird Conservation in the Middle East

by Dr. Yossi Leshem, Jennifer Peterson, and Christopher Soriano

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Each year, half a billion birds make a miraculous journey from their breeding grounds in Europe and Asia to wintering grounds in Africa's Great Rift Valley. People along the way see a variety of winged migrants, including Eurasian cranes, corncrakes, red-footed falcons, spotted eagles, and pelicans. These birds traverse harsh desert landscapes fraught with peril, partly due to increasing pollution, diminishing food and water resources, and changes in vegetative cover. Three northern bald ibis, a highly imperiled species, were recently found dead in Jordan—unintended victims of agricultural pest control.

Partners in the Middle East are working hard to ensure safe passage for these

sentinel species. Migratory birds depend on stopover points such as wetlands, protected areas, coastal zones, and water treatment ponds.

Migratory bird conservation can promote peace in the Middle East by bringing people together around shared goals. Through organizations as diverse as Tel Aviv University, the Palestinian Wildlife Society, the Amman Center for Peace and Development, and the Society for the Protection of Nature in Israel, farmers have united across the Jordan Valley to share best practices in integrated pest management. Barn owls and kestrels, for example, are now being used for rodent control, with researchers calculating the economic benefits of using barn owl nesting boxes rather than rodenticides in farmfields.

The Forest Service, U.S. Department of Agriculture (USDA), has joined such international efforts to protect the Great Rift Valley Flyway, drawing on lessons learned in conserving migratory flyways in the Americas. The agency supports initiatives that pair conservation benefits

with regional partnerships. For example, Israeli and Egyptian biologists are being trained in bird monitoring techniques at PRBO [Point Reyes Bird Observatory] Conservation Science in California through Forest Service support. The Forest Service has also supported a range of programs in the Middle East to rehabilitate degraded rangelands, promote integrated watershed management practices, and advance holistic approaches to protected area management. Agency specialists link conservation objectives with community development through capacity building, environmental education, and shared best management practices. By conserving the natural resource base and stimulating community and economic development, the Forest Service works with local partners to rehabilitate habitat and mitigate pressures on migratory birds.

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THIS BARN OWL, ALONG WITH OTHER SPECIES THAT MIGRATE ALONG THE GREAT RIFT VALLEY, IS THE FOCUS OF CONSERVATION EFFORTS BY THE FOREST SERVICE AND ITS PARTNERS IN THE MIDDLE EAST.

DR. YOSSIE LESHEM, TEL AVIV UNIVERSITY

The Mystery of Migration: Conserving Migratory Species

by Scott Weidensaul

*Scott Weidensaul is the author of more than two dozen books on natural history, including *Of a Feather: A Brief History of American Birding*.*

Every spring, the world pours through my backyard. Maybe not the whole world—just most of the Western Hemisphere. I can walk outside and find bits of the humid jungle of the Orinoco Basin or the Maya Mountains of Belize; the cool highlands of the Sierra Madre de Oriental or the elfin cloud forest of the eastern Andes. If I know where to look, I can find the windswept tundra of the Ungava Peninsula and the boggy muskeg of Newfoundland. On a single day, the Arctic coastal plain, the sandy beaches of the Carolinas, and the grasslands of the Argentine pampas may pay a visit.

I'm speaking, of course, of the birds that crisscross the hemisphere, stitching the world together, linking distant and exotic lands at either ends of their epic migration routes, and weaving those strands through the dogwood thickets and fencerows of our small plot of land, here in the mountains of eastern Pennsylvania.

Migration is the most astounding of all natural events (see the article by David King on page 3). It's remarkable enough that a blackpoll warbler weighing less than half an ounce will fly from the boreal forests of the Northwest Territories to the Amazon basin—but it will do so by traversing Canada west to east, departing Cape Cod on a blustery night and making a 90-hour, nonstop flight across the western Atlantic to Guyana or Venezuela.

And a dove-sized shorebird from Alaska, the bar-tailed godwit, puts even that feat to shame. Last year, using satellite technology, scientists followed a godwit that left Alaska and flew nonstop more than 7,000 miles across the entire Pacific to New Zealand—a journey that took 8 days.

Nor are there only birds awing and aloft. Monarch butterflies drift like confetti on the wind, but they navigate thousands of miles as deftly as any falcon (see the article by Janet Ekstrum and Karen Oberhauser on page 4). The large bugs that feed on the pale greenish seed pods of the milkweeds in our meadow will migrate to the Gulf Coast for the winter, then return in spring. Migratory tree bats of several species pass south on migrations only dimly understood (see the article by Dennis Krusac and Bob Locke on page 5).

Borders and boundaries mean nothing to winged migrants, and partnerships are needed on every scale to protect migratory habitat (see the article by Jim Chu, Michael Rizo, Margee Haines, and Guadalupe del Río Pasado on page 6). Americans spend tens of billions of dollars each year on bird-related activities such as hunting, photography, and birdwatching. Through the Duck Stamp alone, more than \$700 million has been raised since 1934 and used to acquire more than 5 million acres of bird habitat on national wildlife refuges. This money would be wasted without complementary partnerships to protect habitat for migratory birds outside the United States.

Wings Across the Americas—the overarching Forest Service program for

migratory species protection—mobilizes resources across its various departments, coordinating with partners to help protect breeding grounds, wintering areas, and flyway stopover points for migratory species. These partnerships reach across continents, connecting northern Michigan with the Bahamas (for Kirtland's warbler) or Chicago with Michoacán, Mexico (for monarch butterfly), just to name a few.

Such partnerships hold the key to a future where children will still see birds flocking and butterflies swarming and be able to wonder where they are going. Perhaps even then no one will know for sure. That's part of the allure of migration, that whiff of mystery—not only how they do it, these small scraps of life borne up on the wind, but why. Whatever the answer, they carry us along with them. Look up. The world is passing by, if only we stop to notice.

What Is *Wings Across the Americas*?

Through the *Wings Across the Americas* program, the Forest Service—National Forest System, State & Private Forestry, Research & Development and International Programs—works with a wide range of partners here in the United States and overseas to conserve habitats and populations of birds, bats, and butterflies.

Together, the partners support habitat conservation activities across landscapes, ownerships, and boundaries; assist in national and international assessments of conservation needs and opportunities; provide training opportunities for biologists, land managers, and administrators; and share knowledge about global conservation needs.



THE BAR-TAILED GODWIT LEAVES ALASKA AND TRAVELS NONSTOP ACROSS THE PACIFIC TO NEW ZEALAND—AN 8-DAY JOURNEY OF MORE THAN 7,000 MILES.



Migratory Birds Tie the World Together

by David King

David King is a research wildlife biologist for the Forest Service, Northern Research Station, University of Massachusetts, Amherst, MA.

Winging your way across the ocean at 35,000 feet in a passenger jet, you might marvel at the human ingenuity that made such travel possible—and yet birds have been doing it since time immemorial. For many birds, migration is the secret to reproductive success, giving them access to rich seasonal resources in temperate regions. Access to these resources makes larger broods and greater nesting success possible, as well as offsets the hazards of travel.

In the United States, migratory birds range from waterfowl, to owls and hawks, to the familiar thrushes, warblers, and other songbirds. Migration strategies vary. Whereas many larger species travel by day, most small birds fly at night, when air conditions are more settled and the bird-eating hawks are asleep. As they travel, they emit characteristic “contact calls” to help keep the flock together.

Although birds are designed to withstand migratory rigors, long flights can

Conservation Achievements Recognized: Wings Across the Americas 2009 Awards Ceremony

In March 2009, at its annual *Wings Across the Americas* awards ceremony, the Forest Service recognized outstanding achievements in bird, bat, and butterfly conservation. Birds provide key ecological, recreational, and economic benefits throughout the Americas, but many bird species are declining. Bats are important pollinators, seed dispersers, and insect predators, but they too are in steep decline, mostly due to habitat destruction. The transcontinental migration of monarch butterflies is one of nature’s wonders, but habitat loss threatens the monarch as well. Interregional and international partnerships are vital in conserving migratory birds, bats, and butterflies; and the Forest Service has fostered them for years. The *Wings Across the Americas* awards ceremony brought partners together to recognize their outstanding achievements.

The Butterfly Conservation Award went to the *Butterfly Inventory and Habitat Recovery Project on the Ottawa National Forest in Michigan*; the Bat Conservation Award went to the *Bat Inventory and Habitat Improvement Project in the Forest Service’s Northern Region*; the Research and Management Partnership Awards went to projects called *Status and Trends of Northern Spotted Owls and Ecology and Population Dynamics of Marbled Murrelet in the Pacific Northwest*; the Habitat Management and Partnership Award went to the *Glade Wetlands Restoration Project*; and the International Cooperation Award went to a project known as *Migratory Bird Conservation Using Alternative Coffee Cultivation and Processing Methodologies*. For more information, see <http://www.fs.fed.us/global/wings>.

put them at risk. Migrating birds sometimes arrive onshore in a state of exhaustion, without enough energy to find food or escape predators. They desperately need stopover areas. For example, the future of North America’s shorebirds could hinge on initiatives to protect stopover habitats through the Western Hemisphere Shorebird Reserve Network.

The success of migratory bird conservation in North America also depends on the system of national wildlife refuges for additional stopover areas. Also important are the national forests and grasslands as well as other Federal lands and State and local parks. For example, Central Park in New York City becomes a birdwatcher’s paradise in spring. Private lands, including individual backyards, also furnish critical habitat if properly managed, especially for songbirds.

Migratory birds help tie the world together, from north to south, through the species we share and our mutual stake in conserving their habitats. Habitat conservation through local, regional, and international partnerships can help protect the timeless wonder of bird migration.



THE FOREST SERVICE AND ITS PARTNERS ARE LOOKING AT ALTERNATIVE METHODOLOGIES FOR CULTIVATING AND PROCESSING COFFEE IN ORDER TO CONSERVE MIGRATORY BIRDS SUCH AS THE GOLDEN-WINGED WARBLER.



THIS INNER-CITY STUDENT AND HER CLASS ARE LEARNING CONSERVATION THROUGH BUILDING AND MAINTAINING A BUTTERFLY GARDEN.



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Reaching Across Borders To Conserve the Monarch Butterfly

by Janet Kudell-Ekstrum and Karen Oberhauser

Janet Kudell-Ekstrum is the district biologist at the Rapid River/Manistique district, Hiawatha National Forest, Michigan. Karen Oberhauser is an associate professor of Fisheries, Wildlife, and Conservation Biology at the University of Minnesota, St. Paul, MN.

A tree shimmering with butterflies is a wonder to behold. Each year, monarch butterflies make a 2,000-mile trip from the central plains of Canada and the United States to overwinter on trees in central Mexico. How a butterfly as light as a paper clip can make the epic journey is not completely clear; its ability, year after year, to leave an area from Maine to Minnesota and to arrive, generations later, at the same few spots in central Mexico remains a mystery.

The oyamel fir forests in Mexico's Sierra Madre provide ideal overwintering habitat. The monarchs cluster on individual trees, surrounded by forests that serve as both umbrellas, sheltering from downpours, and blankets, protecting from freezing temperatures. Whereas the monarch's normal lifespan is 4 to 6 weeks, the overwintering butterflies can survive for 7 to 8 months, as their metabolism is slowed by the cool mountain air. In spring, they fly north, mating and laying eggs on milkweed plants. The new generation emerges from emerald-green chrysalids and continues northward to recolonize southern Canada and the northeastern quarter of the United States, where they continue to breed throughout the summer. Adults emerging in late August and September strike southward again.

Migrating monarchs need flowering plants for a continuous supply of nectar. They also need milkweed, the only plant



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their larvae will eat. In the United States, prairies and savannas have given way to monocultures of corn and soybeans on the central plains, with few remaining patches of wildflowers. Others have been converted to urban use or overrun by invasive weeds and herbicides, as well as pesticides.

Habitat has dwindled accordingly for monarchs and other organisms that share their biological needs.

Such organisms provide a key ecosystem service: pollination. The Forest Service has been working with partners to recover their habitat, planting native wildflowers on national forest land at 16 sites across the Upper Midwest. At such sites, visitors can learn how to support pollinators; even a small backyard garden can attract breeding and migrating butterflies. The Forest Service International Programs is planning partnerships with schools, nonprofit organizations, and other agencies to conserve and restore pollinator habitat wherever possible. Working with partners in Michigan, for example, International Programs launched volunteer "citizen science" programs to monitor monarch migration and breeding on national forest land, providing researchers with much-needed data. In

MonarchLIVE: A Distance Learning Adventure

Forest Service International Programs is working with partners to save the butterfly, partly by spreading the news about its wonder—and its plight. In September 2008, Forest Service International Programs and Conservation Education, the Prince Williams School Network in Virginia, and other partners launched *MonarchLIVE: A Distance Learning Adventure*, an electronic interactive field trip for students, educators, and communities. The program connected classrooms across Canada, Mexico, the United States, and other countries through the Internet, trailing the monarch migration in real time and showcasing related research and conservation efforts. Highlights included a look at winter habitat in Mexico, butterfly gardens in Chicago, and summer behavior in Minnesota. For more on *MonarchLIVE*, as well as archived broadcasts, go to <http://monarch.pwnet.org>.

spring 2008, the Hiawatha National Forest hosted a monarch monitoring and habitat restoration workshop, piloting a program that will be repeated elsewhere across North America.

On an even broader scale, International Programs has been key to developing the North American Monarch Conservation Plan. The plan provides a framework for local and regional conservation activities to protect monarch habitats. International Programs is also working with partners to conserve habitat around the Monarch Butterfly Biosphere Reserve in Michoacán, Mexico, and supporting the newly formed Monarch Joint Venture, which is a collaborative effort to coordinate actions throughout the United States to implement the North American Monarch Conservation Plan.

Any species as charismatic as the monarch butterfly offers teachable *continued on p. 7...*



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Bats and Ecosystems: A Critical Connection

by Dennis Krusac and Bob Locke

Dennis Krusac is an endangered species specialist for the Forest Service, Southern Region, Atlanta, GA. Bob Locke is the director of publications and grants coordinator for Bat Conservation International, Austin, TX.

Bats have gotten a bad rap. In myth and fairytale, from Transylvania to Pennsylvania on a Halloween night, bats are often portrayed as blood-sucking fiends. Actually, bats play vital ecological roles as insect predators, pollinators, and seed dispersers. Many bats migrate seasonally, helping to sustain the ecosystems they depend on.

The world has more than 1,100 species of bats, most of which live in the tropics. Only three bat species, all in Latin America, consume blood. Ironically, saliva from the dreaded vampire bat helps save human lives: It provides a crucial glycoprotein called draculin—the strongest blood thinner known, used for patients suffering from strokes and heart attacks.

Many bats feed on nectar and pollinate countless important plants. Others eat fruit, playing a pivotal role in seed dispersal. Bat-dependent plants include banana, guava, papaya, mango, cashew, durian, dates, and figs. Many medicinal plants also rely on bats.

Fruit bats are also valuable allies in combating deforestation, a major element in climate change. Millions of acres of rainforest are cleared each year, and the first step in reforestation is the emergence of fast-growing, heat-tolerant pioneer plants in clearings. Tropical fruit bats, which favor the fruit of pioneer plants, are major dispersers of their seeds.

In North America, most bats eat insects. Each night, they consume up to their own body weight in insects, including such forest pests as gypsy moth and spruce budworm moth. They help control corn earworm moths, which cost American farmers about \$2 billion a year. Researchers have estimated that 100 million Mexican free-tailed bats roosting in Texas consume about 1,000 tons of insects every summer night. That's tens of millions of pounds of insects that Texas doesn't have to mess with each year!

Many bats migrate seasonally, including bats that feed on nectar. Their spring migration route from central Mexico to the Southwestern United States is called the "nectar corridor," a thousand-mile stretch of cacti and agaves blooming in sequence from south to north. Bats pollinate these plants as they go, making the migration

as important to the Mexican economy as tequila, which is made from agaves.

Despite their ecological importance, bats are threatened worldwide as their colonies and habitats are destroyed, mainly due to ignorance and misinformation. The two main agave pollinators, the Mexican long-nosed bat and the lesser long-nosed bat, are listed by the U.S. Government as endangered.

The good news is that awareness is growing that bats are in trouble—and that it matters. Forest Service International Programs is working with partners such as Bat Conservation International to protect bat habitat by building the necessary scientific knowledge and training natural resource managers in bat conservation.

International Programs' support has allowed Bat Conservation International to fund special scholarships for bat conservation research in developing countries over the past 3 years. These awards are helping prepare students to become future leaders in bat research and conservation.

In January 2009, International Programs and Bat Conservation International jointly conducted a Spanish-language workshop in Nicaragua, with hands-on training for land managers and biologists from throughout the region. A similar workshop is planned in Paraguay. Such training promises far-reaching benefits for neotropical bats facing a host of threats.

So the next time you raise a margarita to your lips, you can thank the bat for the tequila you are about to drink—and the conservationists who are protecting bat habitat.

BATS PLAY VITAL ECOLOGICAL ROLES AS INSECT PREDATORS, POLLINATORS AND SEED DISPERSERS; IN FACT, THEY SERVE AS THE MAIN RE-SEEDERS IN DEFORESTED TROPICAL AREAS.



MERLING TUTTLE, BAT CONSERVATION INTERNATIONAL

WORKING WITH PARTNERS IN INNOVATIVE WAYS, THE FOREST SERVICE IS CONSERVING THE GRASSLAND HOMES OF MANY BIRDS IN SOUTH AMERICA. A GOOD EXAMPLE IS CURRENT WORK TO EXPAND AN ORGANIC BEEF CAMPAIGN IN ARGENTINA, BRAZIL, AND URUGUAY.



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Community Partnerships Get It Right

by Jim Chu, Michael Rizo, Margee Haines, and Guadalupe del Río Pesado

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"A thing is right," Aldo Leopold wrote, "when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." These words are true for the human community as well. Partnerships based on conserving migratory species strengthen human bonds by building biotic communities.

Take, for example, Alaska's Copper River delta, one of the world's richest feeding grounds. Each spring, up to 5 million shorebirds pass through the delta on their way to summer breeding grounds, some coming from as far away as Chile and New Zealand. The Copper River International Migratory Bird Initiative—founded by Ducks Unlimited and Forest Service International Programs, Pacific Northwest Research Station, and Chugach National Forest—is based on the belief that migratory bird habitat should be protected throughout the birds' range. The partners have funded shorebird surveys, habitat restoration, capacity building, and conservation education.

Another example is the Grassland Bird Initiative, designed to protect birds that come from the pampas of Argentina to breed on the Great Plains of Canada

and the United States. Partners include Forest Service International Programs, and Northern, Rocky Mountain, and Southwestern Regions; The Nature Conservancy; Pronatura; and Birdlife International. Projects have included survey/monitoring and conservation education in Mexico and expansion of an organic beef campaign in Argentina, Brazil, and Uruguay. Such programs bring communities together across borders to protect the birds they care about in their own backyards.

In yet another example of an international partnership for migratory species protection, the Forest Service brought a community group in Chicago together with a group in the Mexican State of Michoacán, the winter home of the monarch butterfly. El Valor, a nonprofit organization that serves the Latino community in Chicago, and the Forest Service's Midewin National Tallgrass Prairie have been helping connect Latino youth and their families to the land.

El Valor takes a keen interest in monarch butterfly conservation because the species migrates in the summer through Chicago neighborhoods where many immigrant families from Michoacán reside. In 2008, a group of four Mexican-American students and two instructors from the Chicago area spent a week in Michoacán near the Monarch Butterfly Biosphere Reserve, an oyamel fir forest, where the butterfly overwinters on trees. Their host was Alternare, a local nongovernmental organization that trains community members in conserving butterfly habitat while honing such skills

Western Hummingbird Project

Hummingbirds are the feathered jewels of the migratory bird world, but some species appear to be in decline. In response, the Forest Service worked with the Hummingbird Monitoring Network to develop the Western Hummingbird Project, to protect hummingbirds and their habitats across Western North America. The project will include monitoring, research, education, and outreach through a broad coalition of universities, nonprofit organizations, and State/provincial, as well as Federal, agencies in Canada, Mexico, and the United States. In April 2009, the first Western Hummingbird Project workshop was held in Arizona to create a common understanding of hummingbird conservation, identify knowledge gaps, and recommend actions and projects that might best advance hummingbird conservation.

as raising livestock, growing organic fruits and vegetables, reforesting cutover lands, building energy-efficient stoves, and constructing buildings from homemade adobe bricks rather than wood. The group formed lasting friendships with their Mexican hosts while gaining a new appreciation for monarch conservation and its connection to rural development. Later, Alternare sent five community instructors and a project coordinator to Chicago as part of their training to be future conservation leaders.

In Seattle, WA, the International District Housing Alliance, formed to meet the housing needs of low-income Asian immigrants, also seeks leadership opportunities for young people from the Asian community.

In the nearby Cascade Mountains, the Housing Alliance joined the Forest Service in a partnership to connect Asian youth

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IT IS IMPERATIVE TO CONSERVE HABITAT AND STOPOVER SITES RANGING FROM SOUTH AMERICA TO THE COPPER RIVER DELTA IN ALASKA. THEY ARE CRITICAL TO THE SURVIVAL OF MILLIONS OF SHOREBIRDS, INCLUDING THIS PLOVER.



Visit these Web sites for more information related to articles in this issue:

Forest Service's Wings Across the Americas—<http://www.fs.fed.us/global/wings/>
 Forest Service Monarch Butterfly Web site—<http://www.fs.fed.us/monarchbutterfly/index.shtml>
 MonarchLIVE—<http://monarch.pwnet.org/>
 North America Monarch Conservation Plan—
http://www.fs.fed.us/monarchbutterfly/news/conservation_plan.shtml
 Monarch Watch—<http://www.monarchwatch.org/>
 Alternare, A.C.—<http://www.alternare.org>
 El Valor—<http://www.elvalor.org/>
 Bat Conservation International—<http://www.batcon.org/>
 PRBO Conservation Science—<http://www.prbo.org/cms/index.php>
 International Center for the Study of Bird Migration, Latrun—<http://www.birds.org.il>
 Palestine Wildlife Society—<http://www.wildlife-pal.org/>
 Hula Valley Birding Center—<http://www.hula-birding.com/>

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Migratory birds are charismatic enough to win support on their own, offering excellent opportunities for economic development through bird-related tourism. In Israel's Hula Valley, for example, the Forest Service is working with land managers to balance agriculture against bird conservation and ecotourism. Agency specialists are also helping Egypt's Wadi El Gemal National Park develop recreational programs based on birds, both resident and migratory.

It is commonly said in the Middle East that birds know no boundaries. Information sharing and cooperative conservation programs all along the Great Rift Valley Flyway are critical to restoring habitat, sustaining migratory birds, and promoting ecosystem health. The Forest Service is committed to such international efforts—to promoting bird conservation, cross-cultural dialogue, and economic development throughout the Middle East.

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moments. International Programs is working with partners to establish inner-city butterfly gardens at schools in metropolitan areas such as Chicago, Houston, and St. Paul and to support associated science and educational activities. Programs such as Monarch Watch, Monarchs in the Classroom, and Journey North utilize monarchs to convey science and conservation concepts to young people. In collaboration with and support of programs like these, International Programs initiated *MonarchLIVE*, a remote learning project for 500,000 children in classrooms across Canada, Mexico, and the United States.

The monarch is one of nature's few migratory insects—and the only butterfly to make such a long two-way migration. A truly amazing creature, the monarch is well worth every effort to save. By working together across borders and boundaries, we can give future generations the opportunity to marvel at butterflies clustered on trees, year after year.

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with their elders, giving both the learning experience of a lifetime. The focal point is the bald eagle, a magnificent migratory bird that gathers seasonally on the Mt. Baker-Snoqualmie National Forests to catch migrating salmon. By capitalizing on Seattle's rich outdoor heritage and its wealth of migratory species, the partnership is not only building community ties, but also strengthening community interest in conservation.

Partnerships like these, whether spanning continents or communities, help preserve the "integrity, stability, and beauty" of the biotic community while doing the same for the human community.

2010 International Seminar on Watershed Management

Dates: Spring 2010

Arizona, USA

The International Seminar on Watershed Management will be held in Southwestern United States. Because of the increasing demand, legal conflict, and competing uses and practices that place tremendous pressures on its extremely scarce water supply, the Southwestern United States is an excellent case study for watershed managers. The seminar is designed for mid-career watershed management professionals who desire to take part in an interactive and intensive training and exchange program on integrated watershed management. The program is sponsored by the Forest Service International Programs. For details, visit <http://www.fs.fed.us/global/is/watershed/welcome.htm>.

2009 International Seminar on Protected Area Management

Dates: July 13–August 1, 2009

Missoula, Montana, USA

This seminar—jointly offered by the University of Montana, University of Idaho, Colorado State University, and Forest Service International Programs—is geared for senior-level managers and policymakers working in protected areas. The program examines and stimulates debate on management strategies, policies, and innovative institutional arrangements to address the conservation and use of the world's most special places. For application details, visit <http://www.fs.fed.us/global/is/ispam/welcome.htm>.

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2009 International Field Course on Wildlands and Protected Area Management

Dates: July 7–August 9, 2009

Fort Collins, Colorado, USA

Co-hosted by the Center for Protected Area Management and Training at Colorado State University and Forest Service International Programs, this course, held in Spanish language, presents key concepts and methods of protected area management while emphasizing field-based practical exercises. For application details, visit http://www.fs.fed.us/global/is/field_course/welcome.htm.

2009 Latin America Seminar on Forest Administration and Management

Dates: June 14–27, 2009

Santa Cruz de la Sierra, Bolivia

Offered by the University of Florida, in collaboration with U.S. Agency for International Development, Forest Service International Programs, and other partners, this seminar is designed to promote the transfer of knowledge and examine ideas and approaches to improve the management of forests resources in Latin America. For application details, visit <http://www.fs.fed.us/global/is/lasfpm/welcome.htm>.

The Global Leaflet presents highlights of policy, research, technical cooperation, development, and conservation activities in which the Forest Service is involved worldwide. Its purpose is to demonstrate the breadth and importance of international collaboration on natural resource management issues and to share information within the Forest Service and with our partners in the United States and around the world.

International Programs applies the wealth of skills within the Forest Service to foster sustainable forest management globally. We help to link the agency's researchers, foresters, wildlife biologists, hydrologists, policymakers, and disaster specialists with partners overseas to collaborate on technical assistance, policy and disaster coordination, and mitigation. In more than 70 countries around the world, we focus on mitigating climate change, promoting sustainable natural resource policy, conserving and restoring migratory species and their habitats, and protecting the United States from destructive invasive species. International cooperation results in improved natural resource practices in partner countries as well as domestically, develops the skills of Forest Service personnel, and brings back knowledge and innovations to the United States.

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Chief of the USDA Forest Service: Thomas Tidwell

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