



THE STATE OF THE BIRDS 2013
REPORT ON PRIVATE LANDS
United States of America





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COVER PHOTOS (CLOCKWISE FROM TOP LEFT): WOOD DUCK PAIR BY ROY LAMMLE; SAGE-GROUSE AND COWS BY JANE ELLIOT; RED KNOT BY GREG GARD; GRASS PHOTO BY JASON JOHNSON, USDA-NRCS, IOWA; HENSLOW'S SPARROW BY JOSHUA CLARK, WWW.MOMENTSINATURE.COM

THIS PAGE: MONTANA RANCHER DENNIS MERCER, BY CONSERVATION MEDIA FOR SAGE GROUSE INITIATIVE; DICKCISSEL BY PHIL HAUCK; WWW.FLICKR.COM/PHOTOS/DHARMA_FOR_ONE

FOREWORD

"When land does well for its owner, and the owner does well by his land; when both end up better by reason of their partnership, we have conservation."

—Aldo Leopold, *The Farmer as a Conservationist*

Legendary conservationist Aldo Leopold began his career in the U.S. Forest Service in the Southwest, where he learned about resource management on public lands. But as he returned to the Midwest where he was raised—and observed the tragedy of the Dust Bowl and a raft of New Deal programs aiming to restore farmlands—he came to understand how conservation of complete ecosystems is inextricably linked to conservation on private lands. Leopold wrote, "All the regulations in the world will not save our game unless the farmer sees fit to leave his land in a habitable condition for game."

Today Leopold's words could be adapted more broadly to all private landowners and all wildlife, especially for birds. Half of the more than 200 American bird species analyzed in this report have 50% or more of their distributions on private lands. About 90% of the Prairie Pothole Region (our nation's most productive waterfowl breeding grounds) is in private ownership. The story is similar for grasslands and eastern forest lands—both 85% privately owned, with greater than 80% of bird distributions on private lands.

This fourth State of the Birds report is the nation's first review of bird distribution and conservation opportunities on private lands. In this report, you'll read about threatened bird populations supported almost entirely by private landowners, like the endangered Golden-cheeked Warbler of central Texas. You'll also read about new models of win-win conservation on working lands, such as the Sage Grouse Initiative, where more than 700 landowners have joined an effort to manage ranchlands across 2 million acres in ways that conserve habitat—and create more nutritious forage for livestock in the process.

This report celebrates the many landowners across our nation who are exemplary stewards of habitat for birds, as well as clean air and water for their fellow Americans. Our report comes at a time when private lands conservation policy and funding is being considered for the future, and we hope our information and analysis will contribute to those efforts.

Private lands conservation takes many forms, such as incentives from government programs, technical assistance from university extension services, and easements brokered by nonprofit groups. In all cases, though, the most crucial component is the eager, conservation-minded landowner. Thankfully, private landowners are volunteering to protect and restore the habitat



NORTHERN HARRIER BY MELISSA GROO

functions of their lands. The demand from landowners willing to partner in conservation efforts is so great, in fact, it far outstrips the current availability of programs and initiatives. Government budgets may be tight, but this report demonstrates that private lands conservation is cost-efficient. Indeed, when government resources are paired with local and private resources in partnership with landowners, the result on the ground is often magnified—that ideal outcome where $1+1=3$.

This report appeals to America's land ethic. "The landscape of any farm is the owner's portrait of himself," wrote Leopold. This report shows that private lands have critical conservation value, and that landowners can measure their yield not only in bushels and head and cords, but also in bluebirds, hawks, and canvasbacks.

North American Bird Conservation Initiative, U.S. Committee
American Bird Conservancy
Association of Fish and Wildlife Agencies
Cornell Lab of Ornithology
Ducks Unlimited
Klamath Bird Observatory
National Audubon Society
National Council for Air and Stream Improvement, Inc.
The Nature Conservancy
Rocky Mountain Bird Observatory
University of Idaho
U.S. Fish and Wildlife Service
USDA Forest Service
USDA Natural Resources Conservation Service
U.S. Geological Survey

OVERVIEW

The State of our Nation's Birds on Private Lands

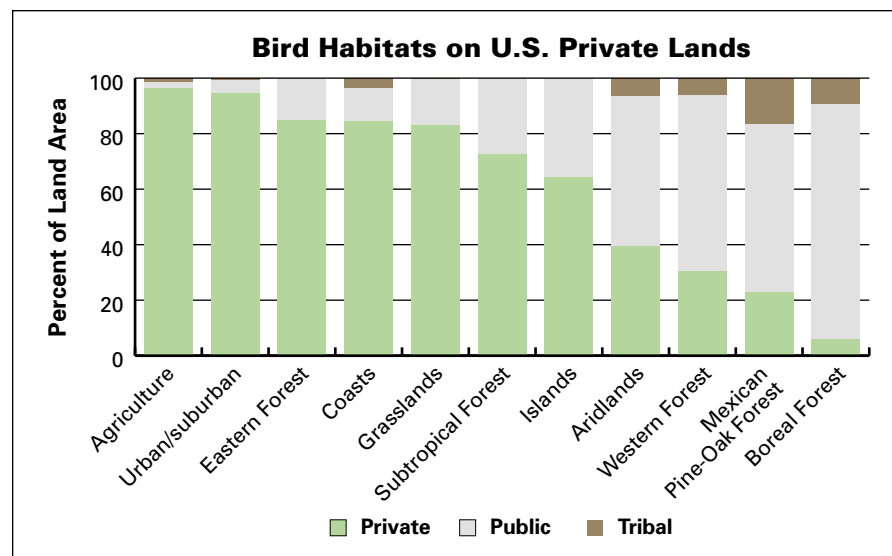
This fourth State of the Birds report highlights the enormous contributions private landowners make to bird and habitat conservation, and opportunities for increased contributions. Roughly 60% of the land area in the United States (1.43 billion acres) is privately owned by millions of individuals, families, organizations, and corporations, including 2 million ranchers and farmers and about 10 million woodland owners. More than 100 species have 50% or more of their U.S. breeding distributions on private lands.

Birds are important indicators of the health of our environment. To assess bird populations and conservation opportunities on private lands across the nation, we combined the latest eBird distribution data with land ownership data from the Protected Areas Database of the U.S. As in past reports, we focused on species dependent on a single primary habitat, or *habitat obligates*.

Our results emphasize the high dependence on private lands among grassland, wetland, and eastern forest birds, with important conservation opportunities existing in all habitats. Many conservation programs available to private landowners offer win-win opportunities to implement land management practices that benefit birds and landowners. The success stories highlighted in this report demonstrate that voluntary private landowner efforts can yield real and meaningful bird conservation results.



Private forests provide 92% of our nation's timber and maintain large contiguous blocks of habitat for interior forest birds, such as Wood Thrush. Photo by Kelly Colgan Azar



Percentage of primary habitats on private, public, and tribal lands in the lower 48 states, Alaska, Hawai'i, Virgin Islands, and Puerto Rico. Wetlands are not depicted because of insufficient data.

Working Lands Sustain People and Birds

Many privately owned working lands that produce food, timber, and other resources for society also provide valuable habitat for birds. Sustainable grazing systems yield better food resources for livestock over the long term, as well as healthier habitats for grassland and aridland birds. Ricelands can provide important wintering habitat for waterbirds. Sustainable working lands can meet the economic bottom line while providing habitat for birds and cleaner water, cleaner air, and improved human health for communities.

Private Protected Lands Have Great Conservation Importance

About 2% of private lands are formally protected, either owned or under easement with conservation as a primary land management objective. Though small in proportion, these 24 million acres protected by land trusts and private conservation groups provide a network of private protected lands nearly as large as the entire National Park Service system in the lower 48 states. Private protected lands range from small urban greenspaces to vast easements on working timberlands that provide wildlife habitat and places for outdoor recreation.

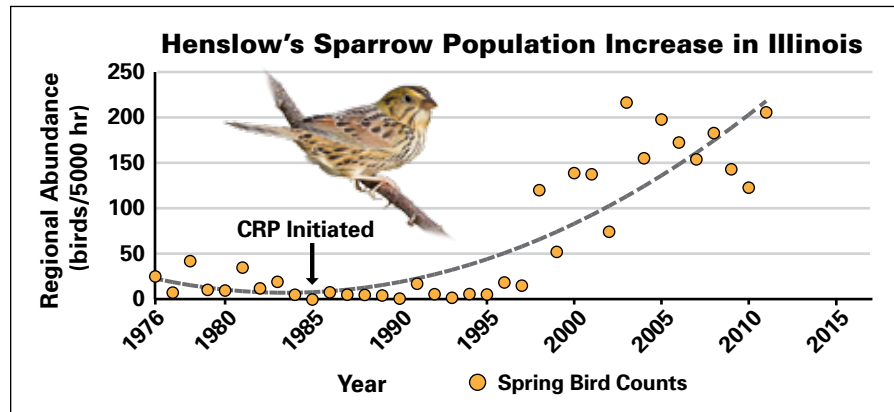
Wetlands Restoration Key to Waterfowl Production

More than half our nation's historic wetland habitat base of 220 million acres has been lost. And private landowners hold the key to wetlands

restoration, as three-quarters of wetlands are on private land. Funding from Farm Bill programs, Migratory Bird Hunting and Conservation Stamps, and the North American Wetlands Conservation Act have restored millions of acres of private wetlands. In the Prairie Pothole Region, lands enrolled in the Conservation Reserve Program have yielded a net increase of 2 million waterfowl per year in the Dakotas and Montana.

Grassland Birds Benefit Most from Private Lands Programs

Privately owned grasslands are vital to 29 breeding obligate grassland bird species, with 82% of their distribution occurring on private land. Because most grasslands today are embedded within working agricultural landscapes, much of the important conservation of grassland habitat in the U.S. has been accomplished through programs under the Farm Bill. For example, the Conservation Reserve Program has reestablished natural habitat on about 27 million acres of environmentally sensitive lands with a history of growing crops, spurring regional rebounds of grassland bird species such as the Henslow's Sparrow.



In Illinois, regional spring counts of Henslow's Sparrows are now about 25 times greater than 30 years ago, prior to the Farm Bill's Conservation Reserve Program. Henslow's Sparrow by Chris Wood. Graphic courtesy of James Herkert.

Western Ranchers Key to Aridlands Conservation Success

More than 75% of aridland bird species are declining, and private lands host 40% of aridland bird distribution during the breeding season. Ranchers are implementing sustainable grazing systems and improving bird habitat on more than 2 million acres of ranchlands in 11 western states. Though only 1% of private aridlands are considered protected, these parcels support disproportionately high aridland bird distributions. A conservation easement on the 270,000-acre Tejon Ranch in California directly protects 18 species of aridland birds.



Bird watching and hunting of game birds are two of the most popular forms of wildlife recreation, which contributes \$145 billion to the U.S. economy annually. Northern Pintail by Gerrit Vyn

Forest Birds Depend on Working Private Timberlands

Private forests contain more than 40% of the U.S. distribution of 152 forest bird species. Eastern and subtropical forest birds are particularly dependent on private forests, which often contain young woodlands that are important habitat for steeply declining, disturbance-dependent forest birds. Ultimately, economic factors affect many landowner decisions to maintain standing forests or sell for development. Conservation easements and strong timber markets can provide incentives for private forest owners to maintain working forests.

Coastal and Island Bird Populations Rely on Private Lands

Coastal habitats (which are 83% privately owned) host 25% of all bird species in North America at some point of the year; most beach-nesting bird species are of conservation concern. Similarly, private lands are important bird habitat on islands, with about 50% of land in Hawai'i, 92% in Puerto Rico, and 88% in the U.S. Virgin Islands under private ownership. In both coastal and island areas, public-private conservation partnerships on private lands are vital to sustaining some of our nation's most threatened birds.

Private Lands Conservation Needs Greater Support

As society requires more production (food, timber, energy) from private lands, conservation strategies compatible with working lands will become even more important for sustaining bird populations. Increased support is urgently needed for strong and cost-effective programs, policies, and partnerships that empower willing landowners to choose conservation tools that fit best and will prevent the further loss of vital wildlife habitat, while also protecting our nation's air and water.

WETLANDS

At a Glance

- Three-quarters of remaining wetlands are on private lands, making them vital to wetland bird conservation.
- More than half of the U.S. historic wetland habitat base of 220 million acres has been lost.



BLUE-WINGED TEAL BY DUCKS UNLIMITED

- The Wetlands Reserve Program has restored 2.6 million acres of private wetlands habitat.
- Wetlands sustain waterfowl populations and therefore duck hunting, which contributes more than \$2.3 billion in total economic output.
- Landowners and their communities see several benefits from wetlands conservation, such as flood mitigation and improved water quality.

Wetland Birds on Private Lands

Private lands are essential to wetland birds and wetland conservation, as three-quarters of wetlands in the U.S. occur on private lands. And birds, by their abundance and distribution across regions and seasons, are effective indicators of the health of our nation's wetlands. More than 75% of both the breeding and wintering distributions of American Black Ducks, Blue-winged Teal, Northern Pintails, and Wood Ducks are on private wetlands. Herons, egrets, grebes, and rails also all depend on private wetlands throughout the year. Landowners and their communities likewise depend on wetlands, which provide flood mitigation, coastal buffering, ground water replenishment, improved water quality, and wetland-based recreation.

Conservation Successes

Funding from Farm Bill programs (such as the Environmental Quality Incentives Program), Migratory Bird Hunting and Conservation stamps (also known as Federal Duck Stamps), and the North American Wetlands Conservation Act has enabled public-private partnerships to conserve millions of acres on private lands for birds.

The Wetland Reserve Program—a Farm Bill provision that provides financial incentives for farmers and landowners to convert croplands in drained

areas back into wetlands—has restored 2.6 million acres of private wetlands across the nation. In the Mississippi Alluvial Valley, more than 650,000 WRP acres from southern Illinois to Louisiana play a key role in sustaining bird populations. The valley, which retains only 20% of its original bottomland forested wetlands, is largely in private ownership and dominated by agriculture. WRP-conserved wetlands provide essential breeding habitat for waterbirds such as Wood Duck, White Ibis, and Hooded Merganser, wintering habitat for 3.5 to 4.5 million waterfowl every winter, and migratory stopover habitat for shorebirds such as Black-necked Stilt and Greater Yellowlegs. WRP benefits human residents of the valley, too, as wetlands restored through the program have helped reduce the extent of natural flooding by as much as 88%.

In the Central Valley of California, winter-flooded wetlands support 5 to 7 million waterfowl, as well as large populations of shorebirds, rails, and bitterns. In this region, more than 90% of the original winter wetlands have been lost or highly altered, and only 400,000 acres are left today—more than 60% of which are privately owned and managed. Wetland restoration efforts here, combined with the presence of wetland-type habitat provided by ricelands, have allowed the White-faced Ibis to bounce back from near extirpation.

“Restoring marginal cropland on my farm that should have never been cleared has been one of the most fulfilling events in my farming career. It has been good for my business but great for the ducks.”

—George Dunklin, Jr., Mississippi Alluvial Valley landowner

PHOTO BY JASON JOHNSON, USDA-NRCS, IOWA

PHOTO BY JASON JOHNSON, USDA-NRCS, IOWA

Conservation Challenges

Wetland habitat is vital for breeding, migrating, and wintering birds. More than half of our nation's historic wetland habitat base of 220 million acres has been lost, with losses exceeding 80% in some regions. Although substantial acres of wetlands have been restored and conserved through programs such as WRP, many of these gains have been offset recently. Wetland protections from the Clean Water Act have been reversed. Increasing crop prices have spurred a new wave of draining and converting wetlands for agricultural production. Residential development and urban expansion are impacting wetlands as well. Due to these pressures on our nation's already greatly reduced supply of wetlands, a diverse mix of programs is needed to encourage and support private landowners who conserve wetlands.

In the Prairie Pothole Region of the northern Great Plains, nearly 90% of the land is in private ownership, and 40% to 90% of native wetlands have been drained, primarily for agricultural production. The key challenge here involves protecting small wetlands amid large expanses of grass to support the productivity of prairie-wetland breeding birds. Prairie Pothole wetlands provide breeding habitat for dozens of waterbird species, such as Black Terns. This region is known as the "Duck Factory," because the shallow-water basins provide protein-rich invertebrate food resources for nesting females and growing ducklings. The eastern Dakotas alone supported more than 10 million breeding dabbling ducks in recent years. Successful waterfowl breeding here is dependent on the private landowners who are stewards of so

Wetlands Reserve Program (WRP) at 20 Years



Wood Duck Distribution



This map shows more than 13,000 WRP projects on 2.6 million acres. These sites closely match habitats used by important waterfowl species, such as Wood Duck. (Breeding season distribution shown at left. Brighter areas on map indicate higher probability of occupancy. Occupancy estimates were based on bird observations from eBird and characteristics of the local environment from remote sensing data.) Wood Duck photo courtesy of Ducks Unlimited.

much of this habitat. Farm Bill Conservation Reserve Program payments to farmers and landowners provide economic compensation for reserving lands from planting that are not typically the most productive for growing crops. CRP lands in the Prairie Pothole Region have produced a net increase of 2 million waterfowl per year, or a 30% increase in breeding production, over the past two decades. Because duck production in the Prairie

Secretary of Agriculture Tom Vilsack.

Along the Gulf Coast, marshes from Mobile Bay, Alabama, to the Rio Grande in Texas are being lost. Historically, the amount of coastal marsh fluctuated due to elemental factors (such as amount of sediment deposited in deltas), but recently the trend has been completely downward, with net wetland loss in the region currently estimated at about 10,000 acres per year. Although there are many important publicly owned lands across this region, most land is privately owned. These coastal marsh wetlands constitute a continentally important habitat for migratory birds. Up to 13 million waterfowl winter here, including about 90% of the continental population of Mottled Ducks. Gulf Coast wetlands provide breeding, winter, and migration habitat to nearly every wading bird species, including Roseate Spoonbill and Wood Stork.

A Gulf Coast wetlands complex east of Corpus Christi, Texas—consisting of Aransas National Wildlife Refuge and surrounding privately owned wetlands—provides winter habitat for the only remaining wild population of Whooping Cranes. In 2012, The Nature Conservancy, with additional funding from the Whooping Crane Conservation Association, the U.S. Fish and Wildlife Service, and other private donors and foundations, purchased a conservation easement on more than 100 acres at the Falcon Point Ranch to protect this prime parcel of coastal real estate (and important crane wintering habitat) from development.



PRIVATE LANDS CONSERVATION SPOTLIGHT:

Rice Farm Habitat for Waterbirds

Three regions combine to account for essentially all domestic rice production in the United States: the Mississippi Alluvial Valley from southern Illinois to Louisiana, the Gulf Coast of Louisiana and Texas, and the Central Valley of California. In these areas, ricelands act as surrogates for lost wetlands. Although they can't fully replace natural wetlands, ricelands support approximately 45% of the North American wintering duck population. Ricelands provide an estimated 60% of all dabbling duck foods in the Central Valley, 35% of all food along the Gulf Coast, and 70% of food in the Mississippi Alluvial Valley. These same habitats are also extremely important to shorebirds and other wetland-dependent birds.

Although ricelands remain a cornerstone of wintering waterbird habitat, rice agriculture has experienced significant declines on the Gulf Coast. Declines of similar magnitude have not yet been observed in other rice growing regions. However, competition for water supplies, urban expansion, and changing cultivation practices will exert pressures on the U.S. rice industry that may have consequences for waterbirds.

In Texas, the human population is expected to grow by about 20 million people by 2040, an increase of more than 40% from 2012, creating greater demands for municipal water. Much of this growth will occur in rice-growing regions and in areas where rice operations get their water supply. Extreme drought across Texas during 2011–12 depleted reservoir water supplies and prompted the Lower Colorado River Authority to withhold water from approximately 55,000 acres of rice in Texas for the 2012 growing season. As a result, Texas rice acreage in 2012 was projected to be 114,000 acres, the lowest reported since 1929. Shrinking rice acreage threatens waterbirds in this region, where native wetland habitats are largely gone,

and cultivated rice areas provide a majority of the habitat for wading birds and migratory shorebirds. In the future, water restrictions and withholding from rice operations will likely occur more often as human populations grow, extreme weather continues, and water supplies are strained.

Rice acreage in California—which supports habitat for White-faced Ibis, Black-necked Stilts, and other shorebirds, as well as ducks, geese, and swans—has been relatively stable over the past several decades, but that may change. Similar to Texas, California is expected to see population growth (7 million more people by 2030). Yet, as demand for water increas-

es, available water supplies are expected to shrink. Climate scientists project a 25% to 40% reduction in average annual mountain snowpack by 2050; that snowpack provides one-third of California's water supply. A reduced water supply could have a negative effect on rice production and managed wetlands in the Central Valley. The two are intertwined, as water drained from rice fields provides water for more than 50% of wetlands managed for wildlife in the northern half of the Central Valley.

The Migratory Bird Habitat Conservation Partnership (a collaborative between Audubon California, The Nature Conservancy, and PRBO Conserva-



LONG-BILLED DOWITCHERS IN FLOODED RICE FIELD BY TOM JOHNSON



LEFT: RICE FIELDS IN CALIFORNIA'S CENTRAL VALLEY, DALE HUMBURG;
RIGHT: BLACK-NECKED STILT BY GERRIT VYN

tion Science) has been working with rice growers on practices that can provide bird habitat, such as managing water levels during spring and fall migration. So far the program has enrolled more than 100,000 acres of ricelands (about 20% of California's total rice acreage) into the Waterbird Habitat Enhancement Program.

Concerns about rice agriculture in the Mississippi Alluvial Valley focus on the waste rice available as food for waterbirds during winter. Recent studies in the valley documented a 70% decline in biomass of waste rice between harvest and early November. Development of earlier maturing rice varieties may hold promise for a second crop of rice (ratoon) to be

harvested in autumn, thereby providing waste rice closer to the arrival of migrant birds in the valley.

Loss of riceland agriculture, or shifts to cultivation practices that diminish its value to birds, will impair the ability of these key working landscapes to support waterfowl. If current ricelands lose their viability for agricultural production, it would cost more than \$1.5 billion to acquire and manage wetlands to replace them. Creative solutions, such as planning for more efficient water use, are urgently needed to ensure the sustainability of American rice agriculture with conditions that provide foraging benefits to wintering birds.

Migratory Bird Habitat Initiative:

Demonstrating Landowner Engagement in Bird Conservation

Following the Deepwater Horizon oil spill in 2010, which threatened bird habitat in coastal marshes along the Gulf of Mexico, the Natural Resources Conservation Service launched the Migratory Bird Habitat Initiative to provide inland habitats for migratory waterbirds. Delivered through various Farm Bill conservation programs, the initiative was enthusiastically embraced by landowners, and more than 470,000 acres of private lands were enrolled in 8 states from Florida and Georgia to Texas and Missouri.

The many rice growers and other producers participating in the initiative demonstrated their willingness to modify operations to provide shallow water and mudflat-type habitats for wading birds, shorebirds, and waterfowl. In exchange for small financial incentives, producers activated existing on-farm infrastructure—levees, pumps, tractors, disks, mowers, and other equipment—to provide migrating and wintering waterbirds with habitat and high-energy foods.

By providing feeding and resting areas for waterbirds at a time when such spots were in short supply on the landscape, the initiative demonstrated an extremely efficient and effective way of quickly providing crucial habitat. It also supported local economies by attracting hunters and bird watchers. The program was so popular it was expanded to other regions and additional years, which was fortuitous given the successive years of droughts after the oil spill. Even in wet years, the Migratory Bird Habitat Initiative provides important waterbird habitats.

GRASSLANDS

PRAIRIE POTHOLE REGION BY JIM RINGELMAN

At a Glance

- Grasslands cover 358 million acres of the U.S., 85% of which are privately owned and serve as important habitat for 29 breeding obligate grassland bird species.
- Livestock production can be compatible with grassland bird management. Managed cattle grazing that creates diverse mosaics of grassland habitat are beneficial to livestock and grassland birds.



BOBOLINK BY JASON CROTTY

- Grasslands provide important wetland buffers that improve water quality and watershed health for human communities.
- As crop prices soared between 2008 and 2011, about 23.7 million acres of grasslands, shrublands, and wetlands were converted to crop production.

Grassland Birds on Private Lands

Grasslands (including prairie and pasturelands) in the U.S. are 85% privately owned. These 302 million acres of privately owned grasslands are critical to 29 breeding obligate grassland bird species that have 82% of their distribution on private lands, one of the largest percentages for any habitat. Most grasslands also function as working landscapes for livestock grazing. These working grasslands provide wetland buffers that improve water quality and watershed health, as well as sequester carbon to reduce atmospheric greenhouse gas accumulation and mitigate climate change.

Grassland birds are dependent on healthy, intact grasslands. Seven obligate species, including Dickcissel, have more than 90% of their breeding dis-

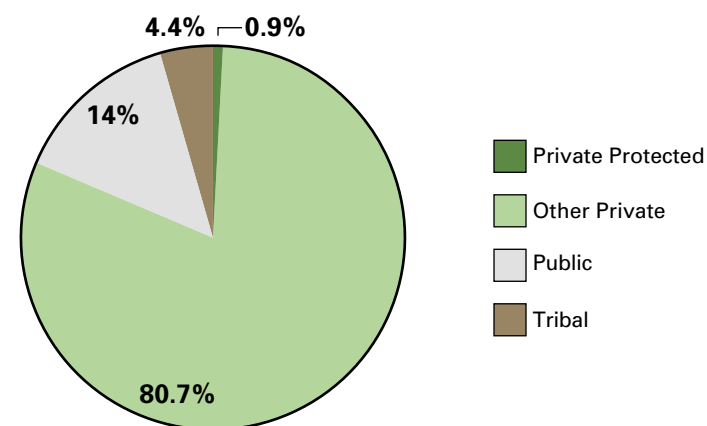
tributions on private lands. Wintering grassland birds are similarly dependent on private lands: 22 obligate grassland species average 83% of their winter distribution on private lands.

Some grassland bird species have habitat requirements for short grasses with heavy disturbance; others require undisturbed, thick patches of taller grasses. Ranchers can model cattle grazing to mimic the historic, variable grazing patterns of bison (with which grassland birds evolved), so that some areas are grazed intensely (preferred by Mountain Plover and McCown's Longspur) while other areas are lightly grazed or untouched (for Bobolink and Upland Sandpiper). This variable grazing creates diverse grasslands that are also a more beneficial food resource for livestock. Management that both



With 97% of their distribution on private lands, Eastern Meadowlarks depend on the grassland habitat provided by pastures and farm fields. Six other obligate grassland breeding bird species also have distributions greater than 90% on private lands. Eastern Meadowlark by Joshua Clark, www.momentsinature.com.

Grassland Bird Distribution



meets the economic bottom line for agriculture and promotes healthy wildlife habitat is essential for sustaining grassland bird populations.

Conservation Successes

Conservation programs are proving that ranchers can sustain a livelihood and sustain grassland birds at the same time. The Wineinger-Davis Ranch has worked with Colorado Parks and Wildlife to establish a conservation easement on 14,000 acres of shortgrass prairie. The easement allows the family to continue raising livestock for future generations, while managing their grasslands for Mountain Plover, Ferruginous Hawk, Lark Bunting, and Western Meadowlark. The ranch owner is thrilled with the easement, and now several neighboring ranches have entered into similar agreements, conserving large grassland blocks of tens of thousands of acres. This kind of contagious conservation is growing among many landowners.

In America's Corn Belt, the Farm Bill's Conservation Reserve Program is restoring grassland habitat for breeding birds. Henslow's Sparrow populations, which have declined more than 95% since the mid-1960s, have rebounded in some areas through CRP. In Illinois, the regional Henslow's Sparrow population has significantly increased; spring bird counts for the species are now about 25 times greater than 30 years ago, prior to CRP. The increase strongly coincides with CRP lands; counties with the highest percentage of CRP acreage also have the highest Henslow's Sparrow population gains.

The Kansas Department of Wildlife, Parks and Tourism uses State Wildlife Grants to provide cost-sharing assistance to private landowners for restoring native grasslands for Lesser Prairie-Chickens. As of December 2012, Kansas' State Wildlife Grant Private Land-

owner Program has partnered with 21 landowners to restore 11,155 acres of Lesser Prairie-Chicken habitat. CRP lands seeded with forbs and legumes are also helping Lesser Prairie-Chicken populations to hold steady in western Kansas.

Conservation Challenges

Grassland bird species are experiencing rapid population declines. The McCown's Longspur population—with 73% of its distribution on private lands—has declined an estimated 92% over the last 45 years.

Habitat loss is a driver of these declines. Increasing crop prices have increased pressure to put land into production. According to an Environmental Working Group study ("Plowed Under," 2012), about 23 million acres of grasslands, shrublands, and wetlands were converted to crop production between 2008 and 2011 (including 8.4 million acres converted for corn and 5.6 million acres converted for soybeans). Grasslands enrolled in CRP have dropped from over 30 million acres in 2007 to just over 20 million acres today. Energy development and residential development pose additional threats to grasslands.

Fear of regulation often deters landowners from participating in conservation programs that address these threats. Many landowners rely on their lands to make a living, and they are sensitive to state or federal regulations on land management.

However, conservationists and landowners can work together on proactive, voluntary efforts that conserve private grasslands and preclude the need for regulations to protect declining species. Conservation programs from the U.S. Department of Agriculture, such as CRP, compensate a landowner for restoring grasslands and reserving them from agricultural pro-

duction. Cost-share programs defray a landowner's expenses for enhancing grassland habitat. Easement programs are another way to protect grasslands from being plowed up or developed.

Making conservation-friendly technical assistance on land management readily available to private landowners is key to sustaining grassland bird populations, as well as fostering a community conservation ethic. Given the compatibility of grasslands birds and sustainable agricultural production, maintaining healthy communities for birds, farms, and ranches is a real and achievable conservation goal.



UPLAND SANDPIPER BY BARB D'ARPINO, WWW.NATURETHROUGHMYEYES.COM

"I am very proud to be the fourth generation to live on, and manage, my family's ranch. I shudder to imagine a grassland ecosystem devoid of the sights and sounds of its unique and melodic bird species."

—Jeff Smeenk, Center of the Nation Cattle Company, Butte County, South Dakota.

Fourth generation Rancher and National Cattlemen's Beef Association Region VII Environmental Stewardship Award winner

PRIVATE LANDS CONSERVATION SPOTLIGHT:

Farmers Make Room for Mountain Plovers



A biologist from Nebraska Prairie Partners shows a local landowner the radio transmitter that will be used to track Mountain Plovers and evaluate their habitat use and survival rates. Biologists have helped farmers with plover-friendly practices such as tilling around nests in crop fields. In the past decade, 672 Mountain Plover nests have been located and protected on Nebraska farms. Photo by Seth Gallagher.

American prairie landscapes have undergone tremendous changes—from massive conversions of grass into croplands and development to the widespread eradication of prairie dogs. These changes have caused steep population declines for many bird species, including the Mountain Plover, which dropped to the point of being proposed for listing as Threatened under the Endangered Species Act. But farmers in Colorado and Nebraska took voluntary action to make room for nesting Mountain Plovers in their crop fields, and the proposed listing was removed.

Mountain Plovers, despite their name, are prairie birds. They depend on bare ground for nesting, such as recently burned shortgrass prairie or prairie dog towns. Due to habitat loss, the Mountain Plover population declined by around 66% over the past 25 years. This decline inspired government agencies, private landowners, and nonprofit organizations to work together to protect Mountain Plovers.

More than 50% of remaining Mountain Plovers breed in eastern Colorado and southwestern Nebraska, so conservation efforts focused there. In

2003, Colorado Parks and Wildlife, the Colorado Farm Bureau, and the Rocky Mountain Bird Observatory joined forces to form the Prairie Partners Mountain Plover Nest Conservation Program. A parallel conservation effort in the neighboring state, Nebraska Prairie Partners, formed via a partnership between the Nebraska Game and Parks Commission and Rocky Mountain Bird Observatory.

In this region dominated by agricultural production and private ownership, the program sought to identify plover nests on farmlands. At first, many landowners were skeptical of allowing nest surveys on their land, since Mountain Plovers were proposed for Endangered Species Act listing in 1993. But over time, landowners developed a strong sense of pride and ownership about plovers nesting on their land.

The programs succeeded because the teams demonstrated the compatibility of nesting plovers with working lands. Once a nest was marked with brightly colored stakes, a farmer just needed to till around that small patch by inches to protect the nest, without hindering crop production.





LEFT TO RIGHT: MOUNTAIN PLOVER CHICKS IN NEST BY DANNY MARTIN, COLORADO; MOUNTAIN PLOVER BY SETH GALLAGHER

Over the past 10 years, the program has partnered with nearly 250 private landowners and located and protected more than 1,000 Mountain Plover nests, including 672 nests in Nebraska. (Before the project began, experts expected to find just a few plovers nesting in Nebraska.) Eventually the project evolved into a landowner-driven program, with 42% of known plover nests in Nebraska located and marked by landowners last year.

A project milestone occurred in 2008, when the U.S. Fish and Wildlife Service removed the Mountain Plover from consideration for listing under the Endangered Species Act. Landowners are now joining other conservation efforts, such as a program to install nesting platforms for Ferruginous Hawks on private lands.

Robust programmatic support from private, state, and federal partners—and financial support from the Nebraska Environmental Trust, state wildlife grants for Colorado and Nebraska, and the USFWS Neotropical Migratory Bird Conservation Act—are crucial to Mountain Plover nest conservation over the long term. But the program's success stems from the willingness of private landowners and state agricultural groups (such as the Colorado Farm Bureau) to become directly involved in Mountain Plover conservation.

The program is a model for bird conservation on private lands: a deep understanding of species habitat requirements—combined with productive partnerships with private landowners—leads to sustainable, cooperative conservation practices.

Grassland Easements:

Conserving Nesting Habitat in the Prairie Pothole Region

The Prairie Pothole Region of the northern Great Plains may be known as America's "Duck Factory," but it's also a critical region for breeding grassland birds. Much of that breeding occurs on grasslands on national wildlife refuges in the Dakotas and Montana managed by the U.S. Fish and Wildlife Service. The agency is also protecting grassland habitat on private lands via conservation easements.

Since 1989, the USFWS has purchased more than 1.2 million acres of grassland easements from landowners in the Prairie Pothole Region. Sellers receive a payment in exchange for agreeing to keep their land in permanent grass cover. Grazing is allowed on grassland easements, however landowners agree to delay haying until after July 15 to avoid disturbing ground-nesting birds.



PHOTO BY JIM RINGELMAN

At a time when grassland losses are outpacing the rate of grassland conservation (it is estimated that between 105,000 and 340,000 acres of grasslands are converted to croplands each year in the Prairie Pothole Region), these grassland easements protect vital nesting habitat for grassland-nesting birds, such as Dickcissel and Upland Sandpiper, in perpetuity.

ARIDLANDS

SAGEBRUSH BY GERRIT VYN

At a Glance

- Aridlands make up approximately 19%, or 369 million acres, of the lower 48 states. Of those acres, 39%, or 145 million acres, are in private ownership.
- Private lands contain 40% of breeding and 43% of wintering aridland bird distributions.



SAGEBRUSH COUNTRY IN MONTANA, BY LINDA POOLE,
COURTESY OF SAGE GROUSE INITIATIVE

- Many aridland regions are popular for human settlement. Arizona's population increased by more than 300% between 1960 and 2000. Projected future population increases could increase development pressure on important bird habitats.
- Two million acres of private protected aridlands support a disproportionately high percentage of breeding and wintering bird distributions.

Aridland Birds on Private Lands

Aridlands include some of our country's most unique habitats: deserts, sagebrush, chaparral, and other habitats characterized by low precipitation and a highly variable climate. About 19%, or 369 million acres, of the lower 48 states are aridlands. In the U.S., about 39%, or 145 million acres, of aridlands are privately owned, about 54% are publicly owned, and 7% are Native American-owned. About 1%, or 2 million acres, of privately owned aridlands have some kind of conservation protection via ownership or easement.

About 40% of aridland bird species are of conservation concern, and more than 75% are declining. In the breeding season, there are 36 obligate species of aridland birds, with about 40% of their U.S. distribution on private lands. In the winter season, there are 26 obligate species of aridland birds, with about 43% of their U.S. distribution on private lands.

Several aridland bird species are noticeably more prevalent on private than public lands. These include the federally listed Black-capped Vireo and California Gnatcatcher (99% and 81% distribution, respectively, on private lands); Chihuahuan Raven, Pyrrhuloxia, and Scaled Quail of southern desert shrublands (77%, 76%, and 74%, respectively, on private lands); and a miscellaneous assemblage of other species (Lark Sparrow, 79%; Bell's Vireo, 62%; Wrentit, 62%).

Among the major types of aridlands, the best studied are the extensive sagebrush habitats of the Great Basin desert and surrounding areas between the Cascade-Sierra Nevada and Rocky Mountains. Analyses of lands within the current and former range of the Greater and Gunnison Sage-Grouse (species that rely on this aridland habitat type) indicate that 31% of this area is in

private ownership. For Greater Sage-Grouse, 36% of their distribution is on private land, with 1% of these birds on private protected lands. For Gunnison Sage-Grouse, 26% of their distribution is on private land and 2% on private protected lands, demonstrating that protected aridland parcels contribute to the conservation of these iconic sagebrush species.

Conservation Successes

The 2 million acres of private protected aridlands support a disproportionately high percentage of bird distributions, which is an encouraging sign that some of the best aridland bird habitats have been preserved. For some species, this proportion is especially high, such as Lawrence's Goldfinch in the breeding season, where over 2% of the estimated occupancy of this species is found on private protected lands, almost all in California. Similarly, almost 2% of the Wrentits on private lands in the U.S. are found on private protected lands in Oregon and California.

Whereas most other species of aridland birds are declining, Bell's Vireo shows significant population increases of 3% per year from 2000 to 2010, according to the North American Breeding Bird Survey. Major habitat restoration efforts in California and along the lower Colorado River by

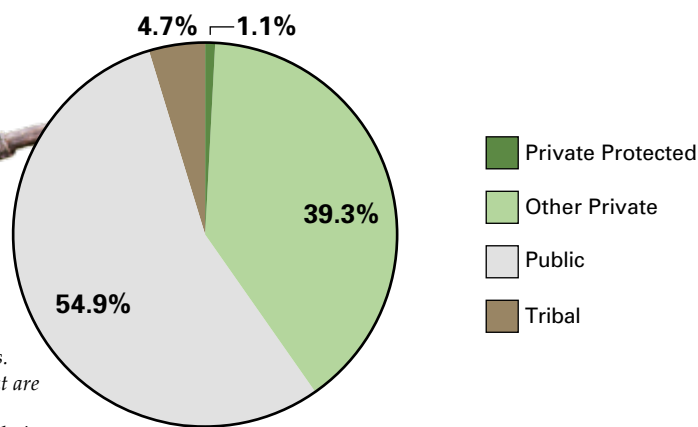


PYRRHULOXIA BY CLIFFORD A. CATHERS



The Wrentit—a bird of the Pacific Coast chaparral—has more than 60% of its distribution on private lands. It is among the eight aridland obligate bird species that are more prevalent on private lands than average. Wrentit by Ganesh Jayaraman; www.flickr.com/ganesh_j.

Aridland Bird Distribution



SILVER CREEK AT SILVER CREEK PRESERVE IN IDAHO BY HAROLD E. MALDE

federal and state agencies and nonprofit organizations have increased habitat availability for the vireo, which has responded by recolonizing areas it hasn't used for many years.

In Arizona, the Sonoran Desert Conservation Plan is an ambitious effort by the local government and partner groups in Pima County to protect the region's rich cultural heritage, biodiversity, and natural landscapes. Originally developed in 1997 in response to the listing of the Cactus Ferruginous Pygmy-Owl, the plan now has become one of the nation's most comprehensive conservation and land-use planning efforts. With a biological goal to ensure the long-term survival of the full array of plants and animals found in Pima County, the plan protects key habitats via purchase, conservation easement, or through management lease, planning, and zoning that regulates development in particularly vulnerable habitats. The plan has protected

more than 230,000 acres of Sonoran desert and semi-desert grassland habitat, including 87,000 acres of private land managed to comply with a local floodplain ordinance that minimizes impacts on riparian habitat. These lands are primarily along ephemeral streams prone to flooding during summer rain, and they contain important habitats for many aridland birds, such as Elf Owl, Gilded Flicker, Phainopepla, Pyrrhuloxia, Costa's Hummingbird, Bell's Vireo, and Varied Bunting.

Conservation Challenges

Aridland birds are faring poorly, especially compared with birds in other habitat types. Many of the best and most productive aridland bird habitats are privately owned. For example, an analysis of land ownership in the Intermountain West Joint Venture area revealed that although 30% of the

land area is privately owned, 70% of the palustrine wetlands (such as inland marshes) in this region are privately owned, a habitat type that is extremely important to aridland birds. The highest quality aridlands were the first to be claimed and settled following homesteading in most western states, and they have been mostly converted to other uses, such as agriculture and human settlement.

Furthermore, many aridland regions are among the most popular for residential development in the entire country. In Gunnison County, Colorado (which supports more than 80% of all Gunnison Sage-Grouse), the population is predicted to double by 2050. In Arizona, the population increased over 300% between 1960 and 2000, and projected future increases are among the highest in the nation. Assuming most of the current network of public and tribal lands stays intact, almost all of this growth will be concentrated on private lands.

"These lands are an important part of the forage base for our sheep operation, and they support sage-grouse. We are honored to protect these lands in perpetuity."

—Brian Bean of Lava Lake Land & Livestock, who has signed 12,000 acres of conservation easements on his ranchlands in the Pioneer Mountains of Idaho

PRIVATE LANDS CONSERVATION SPOTLIGHT:

The Sage Grouse Initiative



The Sage Grouse Initiative is an example of a win-win solution for both birds and ranchers in 11 states in the West. The initiative's goal is to target conservation in habitats important for conserving sage-grouse. Using Farm Bill programs, such as the Environmental Quality Incentives Program and Wildlife Habitat Incentive Program, the project has been successful at simultaneously improving sagebrush habitat for grouse and the sustainability and productivity of working ranches.

In March 2010, the Natural Resources Conservation Service and its partners launched the science-based, collaborative Sage Grouse Initiative, significantly increasing NRCS financial and technical assistance to ranchers in targeted areas with abundant local sage-grouse populations. In just a few years, it has produced remarkable results. Through 2012, NRCS had enrolled more than 700 ranchers through the Sage Grouse Initiative and provided assistance with sustainable grazing systems on more than 2 million acres. The new grazing systems enhance nesting habitat for grouse and improve the native grasses, wildflowers, sagebrush, and wet meadows as food resources for livestock. "Everything is benefitting from it, the green needle, Gardner salt bush, and winter fat. And they're the most important forage we have on this range. With the NRCS guidelines we've done, I'd say it's increased five times from what it was when we started," said Montana rancher and initiative partner Dennis Mercer.

Initiative programs have also removed invasive junipers and other conifers from more than 200,000 acres, and marked more than 500 miles of fences near sage-grouse breeding habitat to reduce grouse collisions with fences. Ranchers also signed conservation easements to protect more than 240,000 acres of sagebrush habitat from de-



SAGE-GROUSE RELEASE IN NORTHERN CALIFORNIA, BY MICHAEL ANDERSON, COURTESY OF SAGE GROUSE INITIATIVE

velopment or agricultural conversion. Altogether, the initiative has invested more than \$145 million into conservation, as well as generated nearly \$70 million in partner matching funds.

Science is integral to the initiative's operations. NRCS employs a Sage Grouse Initiative science advisor and provides funding for independent scientists to measure the response of sage-grouse to conservation practices. Detailed maps have been developed to assess the risk of agricultural conversion of intact grassland and sagebrush in the eastern part of the range. Nest success and survival of young grouse is measured in response to the initiative's grazing management systems. Extent of conifer encroachment is analyzed for cost-effective targeting of funding for tree re-

moval. A major collaborative study is assessing the connectivity among sage-grouse populations across their range.

The program has proven extremely popular with ranchers, so popular that strong demand from ranchers wanting to participate in the effort has outstripped the capacity of NRCS staff in critical sage-grouse landscapes. In the true partnership spirit of the initiative, the Intermountain West Joint Venture and more than 30 other diverse conservation partners teamed with NRCS to generate funding to hire 24 new range conservationists and wildlife biologists, strategically located in sage-grouse core areas, who will assist ranchers directly with developing site-specific conservation plans.



"The Sage Grouse Initiative helps our family stay in ranching. It helps us and it helps the birds."

—Bryson Masini, Sweetwater Ranch, Nevada

Tejon Ranch

The Tejon Ranch is the largest contiguous private property in California. Five conservation organizations guided the development of the 2008 Tejon Ranch Conservation and Land Use Plan that resulted in a permanent conservation easement on 240,000 acres and established the Tejon Ranch Conservancy to guide conservation planning, monitoring, and stewardship under the easement. Conservation at the ranch is focused on preserving and enhancing bird populations and biodiversity while preserving traditional land uses such as grazing. Located in the Tehachapi Mountains, Tejon Ranch helps connect the Sierra Nevada with California coastal ranges and is heavily used by California Condors. In addition to protecting foraging and roosting condors, the ranch directly protects habitat for 18 species of obligate aridland birds—including Le Conte's Thrasher, Lark and Black-throated Sparrows, and Lawrence's Goldfinch. The ranch also provides education and outreach activities for the local community.



CALIFORNIA CONDOR BY JIM DODSON

FORESTS

At a Glance

- Private forest lands cover 468 million acres and are important bird habitat: nearly half the distribution of 151 obligate forest birds is on private forest lands.



AMERICAN WOODCOCK BY GERRIT VYN

- Private forests provide 92% of our nation's timber harvest and can keep large forest blocks intact. Strong timber markets encourage landowners to maintain working forests.
- Private forests often provide habitat for birds that live in young forests, such as American Woodcock and Golden-winged Warbler.
- Tens of millions of private forest acres are managed under sustainable forestry certification programs that protect biodiversity.



EASTERN WHITE PINE BY JOSEPH O' BRIEN, USDA FOREST SERVICE, BUGWOOD.ORG

Forest Birds on Private Lands

Forests on private lands comprise 54% of American forest land cover on 468 million acres. The health and conservation of about 310 forest-breeding bird species nationwide are highly dependent on private lands that maintain forest cover and preserve the integrity of forest ecosystems. About 46% of the U.S. distribution of 151 obligate forest birds, on average, is on private land. Neotropical migrant songbirds of eastern forests are particularly dependent on private forests, especially steeply declining species of young and disturbed forests, such as Brown Thrasher (93% distribution on private lands). A suite of obligate subtropical-forest birds occurs nearly entirely on private lands in south Texas, including 91% of the population of endangered Golden-cheeked Warblers. Privately owned oak woodlands in California are essential habitats for Yellow-billed Magpies (92% distribution on private lands) and several other western forest species of high concern.

Private Forest Ownership and Conservation

Most private forest land (62%) is owned by individuals, families, and other unincorporated groups. For many family forest owners, multiple factors—

such as aesthetic or recreational values, passing land on to heirs, and nature protection—figure heavily into their forest management decisions.

Corporations and other private groups primarily engaged in timber production own the other 38% of private forest land. Economic forces play a major role in land-use patterns on private forest lands, because the primary motivation for many private landowners to keep their land forested is often by necessity financial. In particular, timber markets influence landowner incentives to retain ownership of forest land, especially for corporate forest landowners who own or manage large blocks of working forest (see Private Lands Conservation: Bird Habitat on Timberlands, p. 26). Active timber management can provide essential habitat for game birds such as American Woodcock and Ruffed Grouse, as well as declining songbirds such as Golden-winged Warbler. Tens of millions of forest acres in the U.S. are managed under sustainable forestry certification programs with requirements for respecting and protecting biodiversity, such as the Sustainable Forestry Initiative (60 million acres), Forestry Stewardship Council (35 million acres), and American Tree Farm System (20 million acres).



"Restore the habitat and the wildlife will come."

—Valer Austin, El Coronado Ranch, Chiricahua Mountains, Arizona



Private Forest Owners Can Create Bird Habitat

Forest landowners can do many things to create and maintain bird habitat on their property.

- Retain large forest patches with corridors between patches, wherever possible;
- Retain some standing dead trees (snags) and dying trees for cavity-nesting birds;
- Mimic natural disturbance regimes with tree-harvesting treatments;
- Encourage native tree species and minimize over browsing by cattle or deer;
- Create forest buffers along riparian and other wetland areas;
- Work with a forester and/or wildlife biologist to create a forest management plan that addresses wildlife goals;
- Work with nearby landowners or public agencies to coordinate forest management and control harmful invasive species;
- Create a succession plan with your family to ensure the sustainable future of your land.



Julita and Tom Pollard worked with the Iowa Department of Natural Resources and their local Natural Resources Conservation Service office on a forest stewardship plan for their 90 acres of hardwoods in Iowa. Their plan called for tree thinning—completed with NRCS technical assistance—that will reinvigorate young oak trees in their forest. Photo by Jason Johnson, USDA-NRCS, Iowa.

Programs that encourage landowners to conserve or manage their forests, and offer advice on forest certification and development of forest management plans, include the Farm Bill's Conservation Reserve Program and Environmental Quality Incentives Program, and the U.S. Forest Service's Forest Stewardship Program. Additionally, 13.4 million acres of private forest are owned and managed specifically for conservation purposes by The Nature Conservancy, Audubon chapters, and regional or local land trusts.

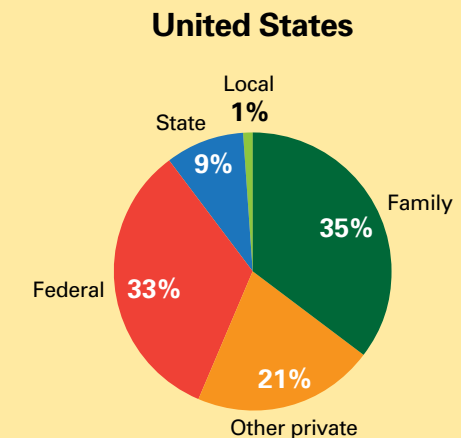
Challenges for Bird Conservation on Private Forests

The single largest threat to private forests is increased parcelization, or the breaking up of blocks of forest land into smaller blocks, often for sale and development. Forests are being lost and fragmented due to depressed timber values and higher economic gains from residential development or agricultural expansion. Pressures to sell off land can result in new management objectives that do not include maintaining forest habitat. Strong timber markets help reduce this pressure. Conservation easements—between private landowners and federal, state, or nonprofit conservation groups—also provide incentives to private forest owners, in exchange for agreements to continue to manage working forests and maintain contiguous forest blocks in perpetuity to benefit birds and other wildlife.

Because parcels of private forest are often small, and landscapes with many private forests can have multiple owners, a coordinated approach to controlling invasive species, fire management, or over browsing by white-tailed deer is much more difficult than on large public lands. Corporate and family forest owners often must balance the needs of timber production, recreation, livestock grazing, and other economic benefits with those of wildlife or nature. Many programs that provide incentives for conservation are available to private owners of forest lands.

Forest Ownership Across the U.S.

Nearly 11 million private landowners are stewards of 468 million acres of U.S. forests, nearly all in the lower 48 states. Compared with publicly owned forests, private forests tend to be in smaller parcels, consist of more young forest (less than 20 years old), and are often embedded in fragmented agricultural or urban landscapes. Private ownership of forest varies greatly across regions, from 25% in the Rocky Mountains to 86% in the Southeast. Corporate timberlands are often large, contiguous blocks, especially in the northern hardwood forests of Maine, the Great Lakes states, and the Pacific Northwest, as well as in southeastern pine forests. These timberlands provide a mosaic of forest ages and structures often not present on public lands in the same regions. Corporate timberlands are largely protected from fragmentation and development, as long as they remain commercially viable.



Patterns of forest ownership across the U.S. (from U.S. Forest Service General Technical Report 2008).

Land Trusts Protect Eastern Forest Habitat

National and regional land trusts are permanently protecting working forests throughout the eastern U.S. by establishing reserves and purchasing easements.

- **The Chippewa Flowage Forest Conservation Easement:** This Forest Legacy project partnership between the Wisconsin DNR, Plum Creek Timber Company, and Trust for Public Land created an 18,000-acre conservation easement of forest and wildlife habitat for forest birds such as Wood Thrush and Rose-breasted Grosbeak.
- **Altamaha River Project:** The Nature Conservancy has helped protect more than 100,000 acres of forests along Georgia's most diverse river system through land purchases, conservation easements, and transfers to state or federal management, thus preserving habitat for Swainson's Warbler and Red-cockaded Woodpecker.
- **The Richard & Lucile Durrell Edge of Appalachia Preserve System:** This 16,000-acre Nature Conservancy forest, co-owned with the Cincinnati Museum Center, is Ohio's largest privately owned, protected natural area and provides habitat for mature forest birds like Cerulean Warbler.



EASTERN FORESTS

Eastern forests include the northern and central hardwoods, southeastern bottomland hardwoods, southern pine forests, and northern mixed-conifer forests. Overall, 84% of eastern forests are in private ownership. The three regions in the East with the largest concentrations of large corporate ownerships of private forest lands are the Southeast, Maine, and the Great Lakes states. Roughly 9.2 million acres (2%) of eastern forests are protected by land trusts and The Nature Conservancy under various easements or under ownership with management primarily for conservation. Whereas the largest contiguous blocks of older forests exist on public lands, private working forests provide substantial acreages of younger forests required by a suite of steeply declining, disturbance-dependent forest birds. Private forest parcels in the East are often small and embedded within highly fragmented urban and agricultural landscapes.

Eastern Forest Birds on Private Lands

On average, 83% of the distribution of 36 obligate eastern forest breeding species is on private lands. Suites of species with particularly high reliance on

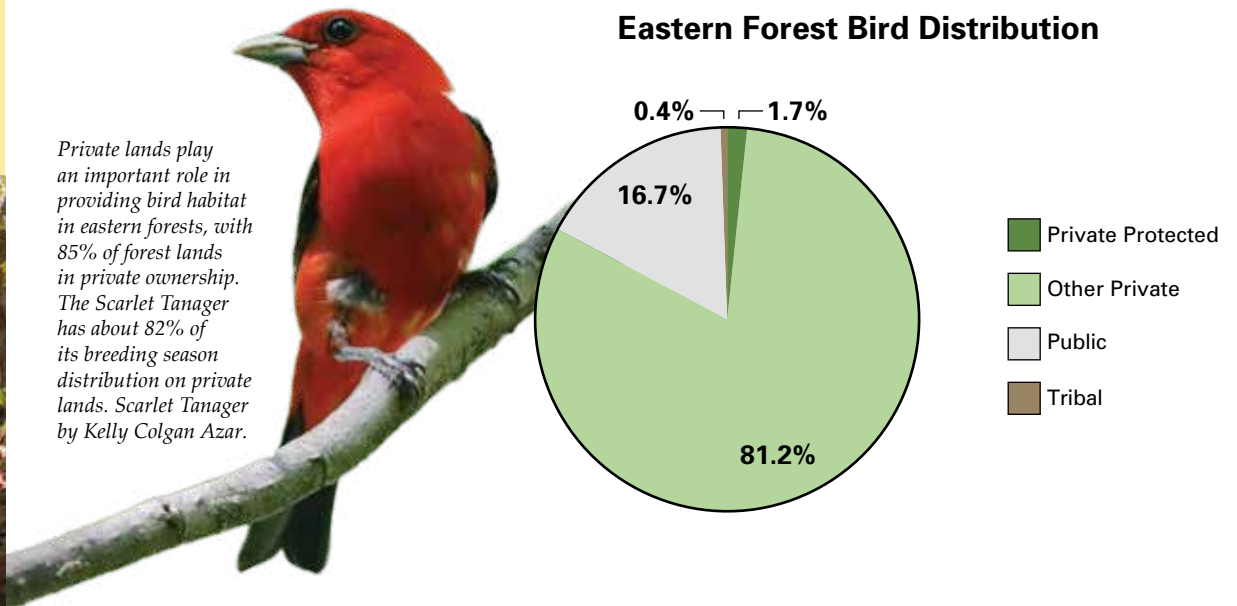


INDIGO BUNTING BY NORM TOWNSEND

private forest lands (more than 90% distribution) include young-forest specialists such as Brown Thrasher and Indigo Bunting, southern pine specialists such as Brown-headed Nuthatch, and forest generalists such as Eastern Bluebird and Yellow-billed Cuckoo. Important wintering species, such as Rusty Blackbird and Winter Wren, also occur predominantly (more than 80% distributions) on private lands.

For many birds that live in interior-forest habitat—such as Wood Thrush, Scarlet Tanager, and Cerulean Warbler—large, contiguous areas of viable working forests can serve as buffers against development and ensure long-term population

Eastern Forest Bird Distribution



health. Birds dependent on early successional forests—including Golden-winged Warbler, American Woodcock, and Brown Thrasher—require diverse forest age classes across large landscapes and may benefit from timber management on both small and large forest parcels. Even small private forests in urban or agricultural landscapes may provide vital habitat for birds outside the breeding season, especially as stopover sites for refueling during spring and fall migrations.



APPALACHIAN MIXED HARDWOODS BY PAUL BOLSTAD,
UNIVERSITY OF MINNESOTA, BUGWOOD.ORG

Conservation Successes

The Cerulean Warbler Conservation Initiative illustrates how private and public sectors can cooperate to benefit landowners and a bird species of high conservation concern. With 75% of Cerulean Warbler distribution on private land, common forestry practices on private lands can enhance mature forest habitat for Cerulean Warbler populations. In addition, landowner assistance programs are promoting reforestation of reclaimed mine land in the core of the cerulean's range.

Similarly, Golden-winged Warbler populations are benefiting from the Natural Resources Conservation Service Working Lands for Wildlife program. The program aims to restore 10,000 acres of Golden-winged Warbler habitat on private lands in the Appalachians within 5 years, which will also benefit other species dependent on young forest, such as American Woodcock. The Golden-winged Warbler Conservation Plan—produced by a collaborative of 140 government agencies, universities, and conservation groups—identifies key areas for habitat restoration in each state. Some of the first management projects informed by the plan in Pennsylvania and other states are already attracting Golden-winged Warblers to places where they had been absent.

WESTERN FORESTS

From the lush coniferous forests and oak woodlands of the Pacific Coast to the mixed coniferous, aspen, and riparian forests of the western mountains, western forests cover more than 280 million acres and support 40 obligate forest bird species. Although overall (including southeastern Alaska) 63% of western forests are on public lands, significant acreages of certain at-risk forest types are privately owned. For example, most juniper and oak woodlands on the Edwards Plateau of Texas, as well as Pacific Coast oak woodlands in Oregon and California, exist primarily on private land. Corporate-owned timberlands cover vast coniferous forests of the Pacific Northwest, whereas numerous private reserves and easements protect important and unique forest types such as old-growth redwoods and riparian forests.

Public/Private Partners Protect Oak Woodlands

The Central Umpqua-Mid Klamath Oak Habitat Conservation Project—funded by the Natural Resources Conservation Service Cooperative Conservation Partnership Initiative and the U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program—has channelled more than \$3.8 million to restore 2,000 acres of oak woodlands on private lands in southern Oregon and northern California. Two local conservation groups, the Lomakatsi Restoration Project and Klamath Bird Observatory, are working with landowners to create and restore oak woodland habitat for Oak Titmouse, Acorn Woodpecker, and Black-throated Gray Warbler. This unique collaboration received the 2012 Department of Interior Partners in Conservation Award.



ACORN WOODPECKER BY JON GOULDEN



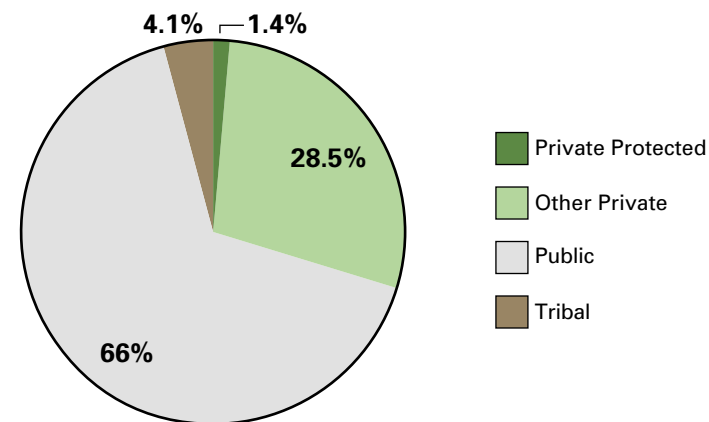
“We are too quickly losing important landscapes in this country to development, and I worry that if we do not act to protect them now, future generations will grow up in a profoundly different world.”

—Louis Bacon, ranch owner



Although more than 60% of western forests are public lands, private forests provide prime habitat for certain bird species. Yellow-billed Magpies have 95% of their distribution on private lands. Yellow-billed Magpie by Bob Gunderson, www.flickr.com/photos/bobgunderson/

Western Forest Bird Distribution



Western Forest Birds on Private Lands

Private lands support, on average, 31% of the distribution of western forest breeding species—including important habitat for the endangered Golden-cheeked Warbler (92% of distribution on private lands) and the endemic Island Scrub-Jay (14%). In Texas, Golden-cheeked Warbler habitats near Austin and San Antonio are threatened with development. Conversely, all of the privately owned land within the Island Scrub-Jay’s range is protected by The Nature Conservancy’s Santa Cruz Island Preserve off the coast of California. The National Park Service has partnered with TNC to improve jay habitat by eradicating nonnative animals and restoring oak woodlands.

California oak-woodland specialists, such as Yellow-billed Magpie, Nuttall’s Woodpecker, and Oak Titmouse, have about 70% to 95% of their distributions on private land. Pacific Coast oak woodlands have declined significantly due to development, with 80% loss in some areas. Most remaining habitat is privately owned and at risk for conversion to agriculture, especially vineyards for wine production. Among other obligate western forest birds, species breeding at lower elevations and especially in riparian habitats

tend to be highly dependent on private lands. Species with more than 40% of their distributions on private lands include Pacific-slope Flycatcher, Lesser Goldfinch, Lazuli Bunting, and Lewis’s Woodpecker.

Conservation Successes

In 2012, ranch owner Louis Bacon donated perpetual conservation easements on two of Colorado’s largest ranches to the U.S. Fish and Wildlife Service to create the Sangre de Cristo Conservation Area, protecting 170,000 acres of montane forests and adjacent areas from development. The agreement protects Lewis’s Woodpecker habitat. The largest-ever donation to the U.S. Fish and Wildlife Service, it is one of the first cooperative arrangements of its kind among the federal government, a private land trust, and a private landowner.

Through a series of preserves, conservation easements, and cooperative management agreements, The Nature Conservancy has protected some of the most important and fragile riparian forests in the western U.S. These include nearly 250,000 acres collaboratively managed in the Gila River watershed of



PALM SAVANNAH IN SOUTHMOST PRESERVE BY RICH KOSTECKE

New Mexico, 46,000 acres along the Cosumnes River in California, and the Hassayampa River, Aravaipa Canyon, and Patagonia-Sonoita Creek preserves in Arizona. These riparian systems support some of the highest bird diversity in the U.S.

SUBTROPICAL FORESTS

Although subtropical forests make up less than 1% of U.S. forest lands, a suite of 16 bird species is completely dependent on these forests within the U.S. portions of their range in south Texas and southern Florida. About 73% of U.S. subtropical forests are on private lands, mostly on several large ranches.

Subtropical Forest Birds on Private Lands

On average, more than 90% of the U.S. breeding distribution of subtropical forest birds is on private lands. For species restricted to south Texas—such as Audubon's Oriole, Olive Sparrow, and White-tipped Dove—private lands account for more than 95% of their distributions. In Florida, 74% of the distribution of Short-tailed Hawks is on private lands.

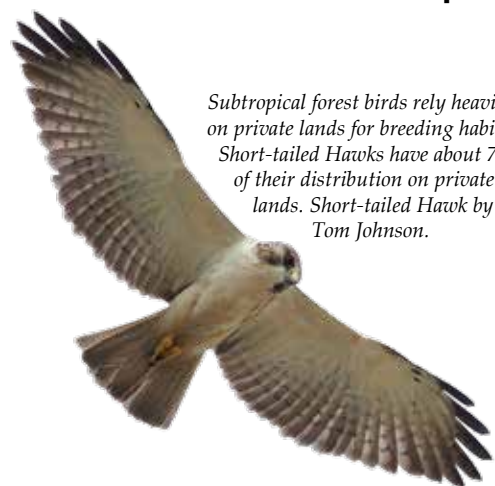
Conservation Successes

Private landowners are critical partners in bird conservation within Texas' Rio Grande Joint Venture

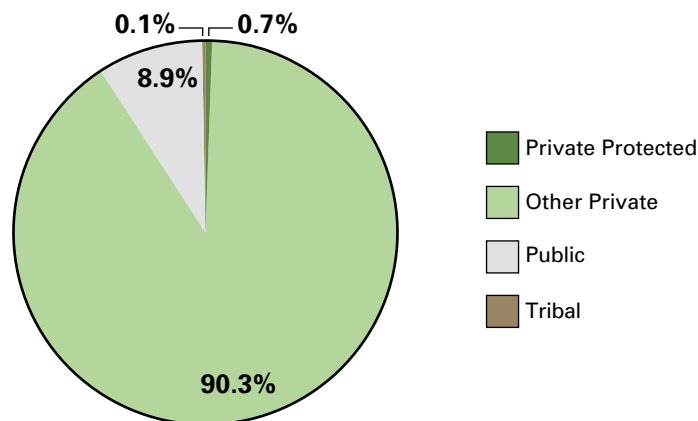
Region. The Yturria Ranch includes 14,000 acres of pasture and native forest, with critical conservation easements held by the U.S. Fish and Wildlife Service and The Nature Conservancy. Restoration of native forests supports healthy populations of forest birds, such as Long-billed Thrasher and Common Pau-raque. Nearby, the 1,000-acre Southmost Preserve, owned by The Nature Conservancy, protects one of the last stands of native sabal palm trees in the U.S., as well as Tamaulipan thornscrub forest. The Southmost Preserve provides habitat for Altamira Oriole, Tropical Parula, and Groove-billed Ani.

Among the largest working ranches in the world, the 825,000-acre King Ranch is dedicated to environmental stewardship, wildlife management, and research, while promoting recreational hunting and bird watching. The ranch has been designated as a Globally Important Bird Area and is a site on the Great Texas Coastal Birding Trail. Among the 356 bird species recorded on the ranch are the largest U.S. populations of Ferruginous Pygmy-Owl and Tropical Parula.

Subtropical Forest Bird Distribution



Subtropical forest birds rely heavily on private lands for breeding habitat. Short-tailed Hawks have about 74% of their distribution on private lands. Short-tailed Hawk by Tom Johnson.



MEXICAN PINE-OAK FORESTS

The roughly 3 million acres of pine-oak forests in the mountains of southern Arizona, New Mexico, and Texas are an extension of the vast Sierra Madre forests of Mexico. Twenty-one bird species are restricted to this forest type within the U.S. portions of their ranges. Privately owned lands constitute 23% of U.S. Mexican pine-oak forests, including more than 82,000 acres of private protected lands that, in conjunction with adjacent public lands, preserve unique forest ecosystems in mountain canyons and other riparian areas.

Mexican Pine-Oak Birds on Private Lands

On average, 24% of Mexican pine-oak forest bird distribution is on private lands. For many species, however, distribution on private protected lands is disproportionately high. For example, private protected lands constitute only 3% of the land area, but they hold one-fifth of the regional populations of Arizona Woodpeckers and Whiskered Screech-Owls. In general, birds of riparian canyons are

more dependent on private lands than birds of upland pine-oak forests.

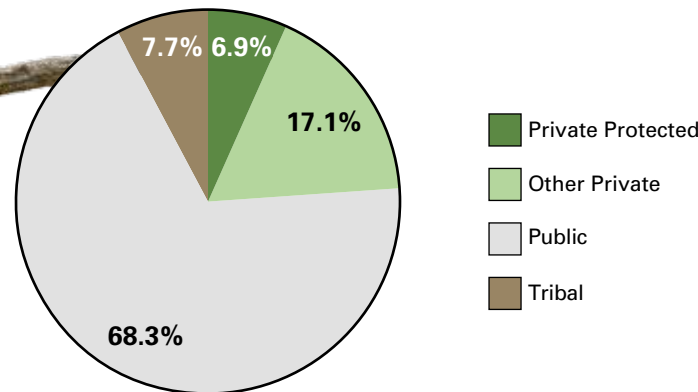
Conservation Successes

The Nature Conservancy's Ramsey Canyon Preserve in the Huachuca Mountains protects one of the most pristine examples of southeast Arizona's mountain canyons and adjacent pine-oak slopes. The preserve boasts the highest hummingbird diversity in the U.S. (15 species recorded) as well as important populations of obligate species such as Elegant Trogon and Sulphur-bellied Flycatcher.

The 1,920-acre El Coronado Ranch on the west side of the Chiricahua Mountains in Arizona represents a remarkable demonstration of private land conservation. Owners and managers Valer and Josiah Austin have restored the natural hydrology of the mountain canyon, revitalizing both the aquatic habitat and the adjacent forests, while increasing the productivity of their ranch. The Austins have expanded their successful water conservation techniques to other ranches in Arizona and Sonora, Mexico.



Mexican Pine-Oak Forest Bird Distribution



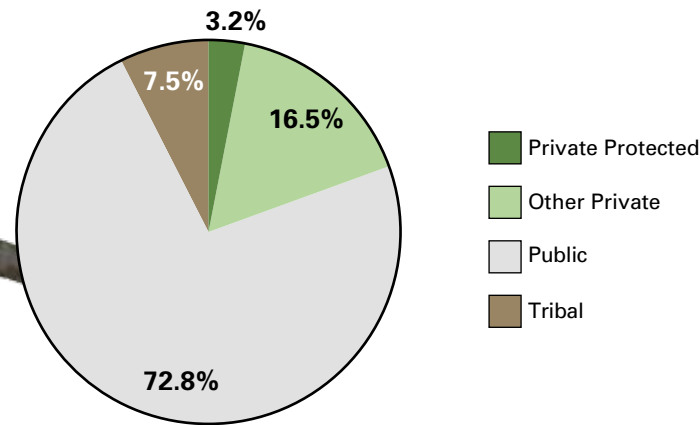
Within the Mexican pine-oak forests that extend into the United States, private lands host about a quarter or more of the distributions of Elegant Trogon and 11 other obligate species. Elegant Trogon by John Paul Cahill.





Outside of Alaska, more than half of U.S. boreal forests are privately owned, and these forests support a majority of the breeding distributions for boreal species such as Bay-breasted Warbler. Bay-breasted Warbler by Danny Bales.

Boreal Forest Bird Distribution



BOREAL FORESTS

Of the 146 million acres of U.S. boreal forests, 93% are in Alaska, where only 3% are in private ownership. In the lower 48 states, however, more than half of 9.6 million acres of boreal forests are privately owned. Including Alaska, 17% of the roughly 8.8 million acres of privately owned boreal forests are protected for conservation through ownership or easement.

Boreal Forest Birds on Private Lands

Thirty-eight bird species are obligate boreal forest breeders in the U.S. On average, 20% of boreal forest bird distribution is on private lands. Twelve of these species have U.S. breeding distributions only in Alaska, including Gray-cheeked Thrush, Solitary Sandpiper, and Bohemian Waxwing—all of which have only 2% of their distributions on private lands. On the other hand, private lands are vital habitat for boreal birds in the lower 48 states. From Minnesota to Maine, boreal species generally have more than half their distributions on private lands. Many of these species have disproportionately greater distributions on private protected lands, including Philadelphia Vireo (15%), Bay-breasted and Tennessee Warblers, (both 14%), and Bicknell's Thrush (8%).

Conservation Successes

In May 2012, The Nature Conservancy, the Forest Society of Maine, and Plum Creek Timber Company created a historic conservation easement on 363,000 acres in northern Maine. One of the largest forest conservation easements in American history, the easement serves as the missing puzzle piece in one of the nation's most extensive permanently



BOREAL FOREST ON PRIVATE LAND IN MINNESOTA BY GUSTAVE AXELSON



Local forest owners learned about stewardship practices and planning during tours of native boreal coastal habitat along Minnesota's North Shore with Lake Superior. Photo by Sugarloaf: The North Shore Stewardship Association.

conserved working forest regions. Altogether, the easement and surrounding conserved areas total 2 million acres of conserved lands across Maine's North Woods. This easement contains management provisions specifically for Common Loon and Rusty Blackbird, as well as an agreement that the property will remain accessible to the public in perpetuity, thus continuing the long tradition of recreation and sustainable forestry in the Maine woods.

Along Minnesota's North Shore with Lake Superior—150 miles of coastal boreal habitat that hosts breeding birds such as Canada, Blackburnian, and Black-throated Green Warblers—family forest owners are banding together with a collective vision for ecosystem health. About 80% of the North Shore is privately owned. The Sugarloaf North Shore Stewardship Association has partnered with the University of Minnesota Extension to provide 30 private landowners with forest stewardship plans and technical assistance on invasive plant control and reforestation. Sugarloaf is now working with the Natural Resources Conservation Service under the Farm Bill's Environmental Quality Incentives Program to sign up another 50 landowners along the North Shore.

PRIVATE LANDS CONSERVATION SPOTLIGHT:

Bird Habitat on Timberlands



PHOTO BY AUDUBON VERMONT

Working forests across the U.S. provide important habitat for the majority of forest bird species, especially in eastern forests where 85% to 95% of many bird distributions are on private land. These lands often complement and buffer bird habitats on nearby public lands to create larger contiguous blocks of habitat across landscapes that are essential for area-sensitive species such as Wood Thrush and Scarlet Tanager. Timberlands (forests available to be managed for industrial wood products) covered 514.2 million forest acres in the U.S. in 2007. About 20%, or 106.1 million acres, of those timberlands were in corporate ownership, and about 49% (250.4 million acres) were in private non-corporate ownership such as family-owned forests. Working forests are a critical source of raw material for industries that contribute to the economies of many states. In 2006, about 92% of wood harvested in the U.S. came from privately owned timberland.

Changing ownership patterns of private working forests over the last decade represent changing conservation opportunities for important bird habitat. Most forest products companies that previously owned both land and manufacturing facilities have sold their timberland to agencies, conservation organizations, individuals, timber investment management organizations, real estate investment trusts, and other entities. Manufacturing companies now primarily obtain their wood from logging contractors or by interacting directly with private owners. Economic returns from producing this wood provide incentives for landowners to maintain forests rather than convert them to other uses that could degrade or fragment valuable bird habitat and allow forested landscapes to give way to urban or exurban development.

Corporate and non-corporate landowners often manage working forests under programs with standards, guidelines, or regulations that conserve

ecosystem functions and services. Many states offer property tax reductions to landowners who commit to long-term forest management in a forest stewardship plan or forest certification programs for multiple resource management planning. The three most common sustainable certification programs in the U.S. — Sustainable Forestry Initiative, Forest Stewardship Council, and American Tree Farm System — all require forest managers to include biological diversity conservation in their forestry practices (such as retention of snags and downed wood as habitat features and conservation of old-growth forests). Sustainable forestry certification systems therefore offer tremendous potential for large and small private forest owners to contribute to regional bird conservation objectives. Many wood-product manufacturers and lumber retailers also provide information to consumers about the benefits of certified wood, which creates demand for sustainably grown and harvested timber.

Managers of working forests have many opportunities to create and maintain habitat for forest birds. At a large scale, vegetative and bird diversity are often greatest in landscapes where there is a mixture of managed and unmanaged forests of varying ages, ranging from forests with various harvesting intensities to those not managed at all. This is not unusual in landscapes with a mixture of ownerships with different management objectives. Working forest landscapes themselves also commonly contain a mix of habitats. Within the most intensively managed stands in working forest landscapes, managers can enhance habitat for some bird species by modifying the timing and uniformity of site preparation, by retaining structural features such as downed wood or snags, by controlling tree spacing at planting to promote abundant understory vegetation, and by thinning to minimize the time that stands are in a dense, closed-canopy condition (which isn't optimal for many bird species). Managers can also utilize

various forest management strategies to vary the age of forest stands, especially those that mimic natural disturbance regimes and support declining young-forest birds such as Golden-winged Warbler and Brown Thrasher.

Many private timber companies provide fine examples of working forest conservation. In Alabama, the Westervelt Company retains clumps of trees and snags on large harvests, and retains single trees and snags on virtually every harvest unit, to provide a diverse managed landscape and a wide range of bird habitats. In Arkansas, the Anderson Tully Lumber Company manages young forests to provide early successional habitat near the Arkansas and White Rivers amid a landscape dominated by publicly owned older forest. Bird surveys have found significantly higher numbers of Swainson's Warblers on these managed lands compared to adjacent public lands. And in eastern North Carolina, Weyerhaeuser is restoring long-leaf pine at the Cool Springs Environmental Center, which is actively managed as a working forest to demonstrate forestry practices that also maintain and enhance wildlife habitat, air quality, water quality, and aesthetic, recreational, and historical values. This area receives thousands of visitors annually who can see or hear Brown-headed Nuthatch, Yellow-throated Warbler, Chuck-will's-widow, and other pine specialists. Each spring, the center celebrates International Migratory Bird Day to welcome the return of the warblers.



MACHIAS RIVER, MAINE COURTESY OF TNC

Working Forests that Work for Birds

Several programs help private forest owners manage working timberlands as habitat for forest birds (see directory, pages 42 and 43).

In Maine, the Machias River Project—a partnership of the Forest Legacy Program of the Northeast Area, Maine Bureau of Parks and Lands, The Nature Conservancy Maine Chapter, and others—protected 60,000 acres of forest from development via purchases and easements. These private timberlands will be sustainably managed and connect to more than 340,000 acres of other protected lands, creating a mega-block of contiguous habitat for 28 bird species of conservation concern, including Canada Warbler. "This is an ecological and an economic win," said Bill Cherry, a coordinator for local watershed councils.

Technical assistance also helps landowners include birds in their forest management plans. Foresters for the Birds, a joint project of the Vermont Department of Forests, Parks and Recreation and Audubon Vermont, gathered Audubon biologists and more than 100 foresters for bird-friendly forestry seminars. Participating foresters attended training sessions on timber practices beneficial for bird habitat, then partnered with an Audubon biologist to assess forest bird habitat on a property that they manage.



GOLDEN-WINGED WARBLER BY GERRIT VYN

COASTS

BRANT FLOCK BY GERRIT VYN

At a Glance

- Coastal areas constitute only 9% of the land area of the U.S., but 25% of all bird species in North America use coastal habitats for some part of their annual cycle. About 83% of coastal lands are privately owned.
- Coastlines provide birds with important nesting, migration stopover, and wintering habitats. Coastal wetlands support millions of migrant and wintering birds.



AMERICAN OYSTERCATCHER BY B.N. SINGH;
WWW.FLICKR.COM/PHOTOS/BNSINGH

- Many birds that nest on beaches or use them during migration are of high conservation concern, such as Piping Plover and Least Tern.
- In Louisiana, National Coastal Wetlands Conservation Grants and North American Wetlands Conservation Act funds have conserved 110,000 wetland acres and 320,000 acres of shoreline and wetlands (including private lands).

Coastal Birds on Private Lands

The U.S. has more than 90,000 miles of coastal shoreline, of which 53,677 miles occur along the lower 48 states that border the Atlantic and Pacific Oceans and the Gulf of Mexico. Although the land area within 50 miles of the ocean only represents 9% of total land area of the U.S. (excluding Alaska and Caribbean and Pacific Islands), 36% of the U.S. human population in 2010 lived in this zone. Additionally, more than 180 million Americans make annual visits to coastal areas for recreation and vacation. Ownership of our coastal areas is complex and varies among states. In some states, private ownership begins above the low tide line, and in others it begins above the high tide line.

One-quarter of all bird species in North America use coastal habitats for some part of their annual cycle. Most coastal lands are privately owned (83%), with less than 1% being private protected lands. Twenty-one of the 27 obligate breeding bird species along the coast nest on beaches or rocky shorelines; another 3 species are obligate saltmarsh breeders. Ten of the 11 obligate beach nesting birds are of conservation concern. Most beach-nesting species nest or forage in early-successional habitat, such as bare sand beaches and over-wash zones near mudflats, or sparsely vegetated dunes. Beaches are also used by tens of thousands of migrating and wintering shorebirds, such as the Black-bellied Plover, Red Knot, Sanderling, and Ruddy Turnstone. Coastal marshes provide wintering habitat for millions of waterfowl such as Brant, American Black Duck, and Greater Scaup.

Conservation Successes

The Coastal Wetlands Planning, Protection and Restoration Act of 1990 directed the U.S. Fish and Wildlife Service to engage in interagency wetlands



RED KNOT BY B.N. SINGH; WWW.FLICKR.COM/PHOTOS/BNSINGH

restoration and conservation planning in Louisiana. Additionally, the act established National Coastal Wetlands Conservation Grants and allocated a specific proportion of North American Wetlands Conservation Act funds to coastal states. Since 1991, 151 projects in Louisiana have resulted in the creation or restoration of 110,000 wetland acres and the protection of 320,000 acres of shoreline or wetlands. These programs involve private landowners and the public in the decision-making process.

The San Francisco Bay Restoration Authority, which includes private landowners and citizens, was established in 2008 to raise and allocate resources for the restoration, enhancement, protection, and enjoyment of wetlands and wildlife habitat in the San Francisco Bay and along its

shoreline. The goal is to restore 100,000 acres of tidal wetlands.

In coastal South Carolina, Harbor Island is a small residential community surrounded by natural beauty. Lagoons and barrier beaches provide nesting, feeding, and roosting sites for thousands of wading birds and shorebirds. As the gateway to the Beaufort Barrier Islands Important Bird Area, the Harbor Island Owners Association developed a number of regulations to protect coastal wildlife, such as dog leash laws, restrictions on beach grooming, and restricting vehicles on beaches. The association is a model for citizen-based conservation efforts.

Conservation Challenges

Urbanization, development, and population growth threaten remaining private open space in coastal areas. Extensive coastal engineering for the protection of roads, buildings, or recreational beaches has dramatically altered the characteristics of beaches to the detriment of many coastal birds. The additional construction of structures on some beaches to mitigate potential climate-change effects of sea-level rise and increased storm frequency and intensity could further reduce early-successional habitats for beach-nesting birds. As sea levels rise in response to a warming climate, salt marshes will need to migrate inland, which is often impeded by human development.

Other human activities can also detrimentally affect birds nesting on beaches and rocky shorelines. Vehicle use and other chronic human-caused distur-

bance, including off-leash dogs, can directly destroy nests and kill young chicks. Chronic disturbances will keep adults off their nests, leaving eggs and chicks vulnerable to the hot sun or exposing them to predators, such as gulls. Exotic predators, including cats, and native predators, such as foxes and raccoons, can wreak havoc on shoreline-nesting birds by chronically disturbing adults or by eating adults, chicks, or eggs. Chronic disturbance can also negatively affect migrating and wintering birds. When roosting or resting birds are disturbed, they will often flee the site at a critical time when they need to conserve energy.

To improve the situation for coastal birds, beach habitat complexity should be maintained, as well as access to different habitat types. Broad overwash fans provide a natural link between ocean and bayside habitats and should be retained if at all possible. Incentives for private landowners might be developed to minimize construction in coastal areas prone to alteration. Disturbance at nesting and roosting sites should be minimized by fencing off nesting areas, maintaining or creating isolated high tide roosts, invoking controls on off-leash pets at specific sites or times of the year, and considering wildlife needs when planning beach engineering projects. The North Carolina Wildlife Resources Commission develops cooperative agreements with landowners to protect bird nesting and foraging sites. Communication to beach users on balancing human and wildlife use is crucial when implementing these management measures. Saltmarsh migration also needs to be considered in coastal zone management plans.

Coastal Reserves on Private Lands

Private protected lands along coastal areas secure important stopover and wintering habitat for migratory birds, as well as breeding habitat for several coastal species. The Nature Conservancy's Virginia Coast Reserve protects nearly 40,000 acres of barrier islands, salt marshes, tidal mudflats, shallow coastal bays, and nearby inland areas—one of the longest stretches of undeveloped Atlantic coastline. Conservation easements on farmlands here preserve natural systems and water quality, as well as the community's traditions of land stewardship, commercial fisheries, and aquaculture. Working with multiple partners, The Nature Conservancy has also enhanced island beach habitats for nesting colonial waterbirds and shorebirds and restored scrub-shrub and forest habitat for migrant songbirds. Near the Gulf Coast, the National Audubon Society is part of the Mississippi River Alliance, a partnership that works with landowners on sustainable forestry practices for more than 200,000 acres of bottomland hardwood forest. Audubon and other partners are providing tools and guidance to restore this key habitat for Prothonotary Warblers and Northern Parulas.

"Protection of the Virginia barrier islands from encroaching development has allowed them to buffer the Eastern Shore mainland and its coastal communities from storms and, along with protection and restoration of healthy ecosystems, provides resiliency to the anticipated impacts of climate change."

—Barry Truitt, Nature Conservancy Chief Conservation Scientist, Virginia Coast Reserve



ISLANDS

At a Glance

- Although Hawai'i accounts for less than 0.2% of the area of the United States, about one-third of all federally endangered bird species are found solely in Hawai'i. With about half of Hawai'i under private ownership, private landowners play an important role in the conservation of the state's high priority birds.



PALILA BY MICHAEL WALTHER

- Private lands in Guam and the Commonwealth of the Northern Mariana Islands total just over 92,000 acres, but they account for 37% of the total land area. Like in Hawai'i, private lands on these islands are key to the survival of an unusually high number of listed endangered species.
- In Puerto Rico and the U.S. Virgin Islands, private lands constitute 92% and 88%, respectively, of all lands among the islands. Thus the ranges of most bird species, including listed endangered species and birds of conservation concern, are predominantly on private lands.

Hawai'i

One-third of all birds on the federal endangered species list are native to Hawai'i. Ten of these species and subspecies may already be extinct. Although many private lands in Hawai'i are devoted to agricultural production and have lost much of their value for native birds, other private tracts are extremely important bird habitat. The owners of those tracts are key partners in Hawaiian bird conservation.

Avian malaria and avian pox are deadly to many Hawaiian native birds. Spread by nonnative mosquitos, these diseases are less prevalent above 4,500 feet elevation. Many endangered forest birds rely on higher-elevation habitat. Averaged across Hawai'i, private lands support approximately 27% of upland forest bird distribution, including 'Akikiki and 'Akeke'e on Kaua'i, and 'Akiapōlā'au and Hawai'i Creeper on Hawai'i Island. Bird species that frequent lower elevations have higher distributions on private lands (such as an average of 44% for O'ahu, Kaua'i, and Hawai'i 'Elepaio combined). The 'Io (Hawaiian Hawk) is fairly common on open ranchlands on Hawai'i Island, with nearly 60% of its range on private lands. More than 42% of Hawai'i's wetlands are on private lands, giving private landowners a major stake in the protection and recovery of endangered waterbirds, such as the 'Alae ke'oke'o (Hawaiian Coot) and Ae'o (Hawaiian Black-necked Stilt).

In Hawai'i, private landowners have formed innovative and important alliances with state and federal landowners to work cooperatively toward conserving watersheds for communities, agriculture, native ecosystems, and culturally important plants and animals. Eleven watershed partnerships consisting of 71 entities (most of them private landowners) protect and manage 2.2 million acres of forested watersheds across 6 islands.

These partnerships protect native bird habitat by constructing fences to control nonnative grazing animals, controlling invasive plants, conducting reforestation, and educating the public about the value of these lands.

Two landowners own entire islands in Hawai'i. Bruce and Keith Robinson own the island of Ni'ihau (47,700 acres) as the Ni'ihau Ranch. Access to the island is restricted and the land is managed for agriculture and ranching. Radio telemetry data suggest that central Ni'ihau wetlands are important for the endangered Koloa (Hawaiian Duck). Larry Ellison owns 98% of the island of Lana'i (approximately 88,000 acres), which hosts the second largest known Hawaiian Petrel colony.

As Hawai'i's largest private landowner with over 367,500 acres, the Kamehameha Schools/Bernice Pauahi Bishop Estate are important conservation partners in multiple watershed partnerships, including the Three Mountain Alliance on Hawai'i Island. One alliance project on the flanks of



Ungulate-proof fencing protects regrowing māmane forest on the slopes of Mauna Loa on Hawai'i. Photo by Colleen Cole.

VIEW FROM THE NORTHERN SLOPE OF MAUNA KEA LOOKING DOWN ON THE HAMAKUA COAST OF HAWAII'ISLAND BY ROBERT STEPHENS

Mauna Loa is restoring māmane forest that could be recovery habitat for the endangered Palila. Kamehameha Schools also owns the Keauhou Ranch on Hawai'i Island, where a koa forest restoration is benefitting many species of native birds. The San Diego Zoo leases a portion of the ranch as the site of the Keauhou Bird Conservation Center, a captive breeding facility for native bird species, such as the 'Alalā (Hawaiian Crow), which is extinct in the wild.

Guam, Northern Mariana Islands

On Guam, private lands constitute more than 50% of all land and contain 42% of bird distribution. On the Northern Mariana Islands, private lands constitute 20% of all land and contain 82% of bird distribution. Throughout the Mariana Islands, invasive species pose dire threats to nine endangered bird species. The nonnative brown tree snake has extirpated nearly all native forest birds on Guam and is spreading in the Northern Mariana Islands.

On the island of Rota, private lands host about 20% of the range of an experimental Guam Rail population (mostly on ranches) and 30% of the range of Mariana Crow. Private landowners are helping to control feral cats that prey on rails. Three landowners have hosted releases of 18 rails. The Rota Landowner Incentive Plan for the Mariana Crow is awarding \$500 to landowners who have crows on their land, do not harass them, and allow biologists to conduct crow monitoring and feral cat control.

Other projects are reintroducing native birds where they have vanished. On Cocos Island off the southern tip of Guam, 16 rails were released after the successful eradication of rats. A Safe Harbor Agreement between the U.S. Fish and Wildlife Service, Government of Guam, and Cocos Island Resort, Inc. allows management activities for Guam Rail reintroductions on private land. The Marianas Avifauna Conservation Project has been working to propagate native bird species at U.S. mainland zoos and introduce or translocate native species to islands in the Mariana Archipelago deemed safe from the brown tree snake. So far Bridled White-eye and Golden White-eye have been established on Sarigan.

Puerto Rico and the U.S. Virgin Islands

In Puerto Rico and the U.S. Virgin Islands, 16 endemic bird species are listed under the Endangered Species Act, and the vast majority of lands are private (92% and 88% respectively). Species such as Elfin-woods Warbler and Puerto Rican Parrot are losing habitat as forests are cleared for agriculture, wind farms, and communication towers. Among 25 obligate island forest species, the average distribution on private land is approximately 90%. The endangered Plain Pigeon, with about 99% of its population on private lands, is especially vulnerable.

Private landowners are involved in projects to benefit Puerto Rican birds. The USFWS and the Natural Resources Conservation Service are working with coffee farmers to improve habitat for Elfin-woods Warbler and Puerto Rican Parrot. The program supplies seedlings and technical assistance to help farmers convert their farms to shade coffee, benefiting the warbler and parrot, as well as the endangered Puerto Rican Sharp-shinned Hawk and the Puerto Rican Nightjar. Given the high conservation importance of private lands in Puerto Rico and the U.S. Virgin Islands, greater investment in private landowner programs is vital to the future of birds there. Because of these efforts, the United States is playing a significant role in the conservation of West Indian birds and biodiversity.

Protecting Parrotbills on Ranchlands in Maui

On the windward slopes of the massive volcano Haleakalā, the Haleakalā Ranch Company partnered with The Nature Conservancy to create a permanent conservation easement, the Waikamoi Preserve, on 5,000 acres of the company's ranchland in east



MAUI PARROTBILL BY
ERIC VANDERWERF, PACIFIC
RIM CONSERVATION

Maui. The reserve is home to a significant proportion of the remaining population of Kiwīkiu (Maui Parrotbill), which is down to fewer than 500 birds. Through fencing and feral pig control, native plant diversity and abundance improved, with benefits for other native birds, including Maui Alauahio and Ākohekohe.

"The shade coffee plantations on my farm produce better quality coffee and more durable coffee trees while eliminating erosion. With shade trees among my crops, I now have more bird species foraging and nesting."

—Farmer Fidencio Sánchez, Maricao, Puerto Rico

RESIDENT GAME BIRDS

At a Glance

- Half of the resident game birds in the U.S. (11 of 19 species) have more than 50% of their distributions on private lands; 7 species have greater than 80% distribution on private lands.
- Private lands support 97% of the distribution of Northern Bobwhite and 94% of the distribution of Greater Prairie-Chicken.

- Policies are needed to ensure federal conservation efforts do not provide taxpayer subsidies for land practices harmful to resident game and nongame birds.
- Game birds are excellent indicators of the health of habitats and larger communities of nongame birds and wildlife.
- Game bird conservation initiatives help garner the financial support necessary for private landowners to implement conservation-friendly practices on their lands.



SHARP-TAILED GROUSE BY GERRIT VYN

Resident Game Birds on Private Lands

Private lands play an important role in providing habitat for resident game birds: 11 of 19 resident game birds in the U.S. have more than 50% of their distributions on private lands. Seven species have greater than 80% of their distributions on private lands, including Northern Bobwhite (97%) and Greater Prairie-Chicken (94%).

Game birds are excellent indicators of the health of their habitats, and habitat restoration on behalf of game birds often benefits larger bird communities. For example, under the State Acres for Wildlife Enhancement provision of the Farm Bill's Conservation Reserve Program Continuous Sign-up, upland grass areas on farmlands preserved as Greater Prairie-Chicken habitat have also benefitted Grasshopper Sparrows and Upland Sandpipers.

Conservation Successes

Another Farm Bill CRP Continuous Sign-up provision, Habitat Buffers for Upland Birds, focuses on population recovery goals for Northern Bobwhite. The provision, also called CP33, exemplifies highly efficient private lands conservation compatible with agricultural production. CP33 provides financial incentives to landowners to establish habitat buffers of native grasses for

quail around the field edges of croplands. Incentive funds compensate farmers for establishing grasses on marginal parts of fields that are the least productive for growing crops. Farmers also see benefits from reduced soil erosion, and their communities see the benefit of improved water quality from reduced agrichemical run-off from crop fields. Birds have shown significant positive responses to the program. Follow-up monitoring on fields with habitat buffers showed Northern Bobwhite breeding densities up to twice as high as densities on row-crop fields without buffers. Densities of Dickcissel and Field Sparrow were also up to twice as high on buffered fields.

The National Bobwhite Conservation Initiative has worked to implement CP33 and create almost 250,000 acres of habitat buffers on private croplands across 26 states. NBCI is an example of how conservation organizations can coordinate with state wildlife agencies and work across regional boundaries to identify and prioritize needs for sustaining a game bird species. Of 19 species of resident game birds, 7 species have organized groups like NBCI advocating for conservation on their behalf. Another such group, the National Wild Turkey Federation, has conserved more than 17 million acres of habitat over the past 40 years.

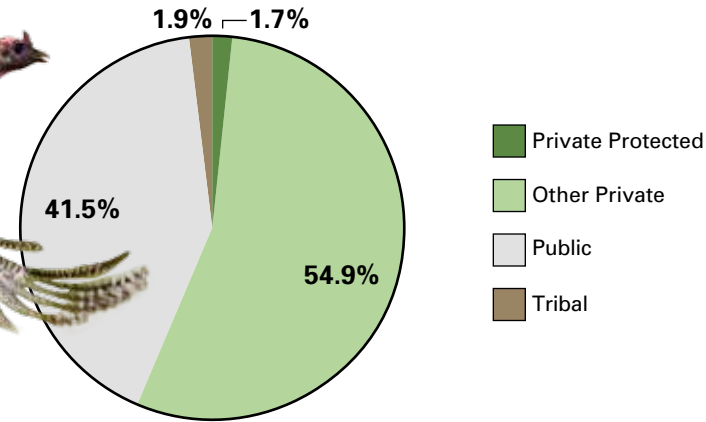
"I hope through my habitat efforts, my children, grandchildren, and great-grandchildren can come to the farm and still enjoy hearing the bobwhite's call."

—Ray Prebe, Participant in Bee Ridge Quail Focus Area Conservation Initiative, Knox County, Missouri





Resident Game Bird Distribution



Private lands are important habitat for resident game birds, such as Wild Turkey with 87% distribution on private lands. Six other game bird species have distributions on private lands greater than 80%. Wild Turkey by John Ritchey.

Conservation Challenges

Some federal programs subsidize both the restoration of native grasslands and the use of nonnative grasses. For example, the Farm Bill's Environmental Quality Incentives Program may fund eradication of aggressive introduced grasses to restore native grasslands, while also funding the establishment of aggressive introduced grasses, such as fescue, for pasture or buffer practices. Introduced grasses typically provide poor habitat for grassland bird species such as Northern Bobwhite. A native grassland policy equivalent to the current policy of "no net loss of wetlands" would preclude federal agencies from providing public subsidies for practices harmful to native grassland habitats.

Another challenge is the intermittent funding for private lands biologists who provide technical assistance through the Natural Resources Conservation Service to landowners. These positions are not guaranteed year-to-year, yet they play a vital role in management prescriptions for private landowners enhancing habitat for resident game and nongame birds. These biologists are often employed by creative partnerships of federal Farm Bill funding with state agencies and conservation groups. More funding is needed to ensure consistent technical support to landowners for private lands conservation.

Funding also must be maintained for programs that clearly demonstrate economic and conservation success. The Farm Bill's Voluntary Public Access and Habitat Incentive Program (VPA-HIP) provides payments to private landowners in exchange for habitat enhancement and public access for hunting, fishing, and other wildlife-related recreation. VPA-HIP funding was eliminated in 2012, even though every taxpayer dollar VPA-HIP invested into landowner agreements in 2011 returned about \$2 in spending by recreational users—generating more than \$18 million for rural communities. VPA-HIP can only be fully restored through Farm Bill reauthorization.

There is also a continuing need to utilize the best science and unite game and nongame bird conservation programs to maximize benefits for entire suites of birds and wildlife. The Intermountain West Joint Venture is incorporating data and distribution models from the 2011 State of the Birds Report to coordinate conservation projects in areas where sage-grouse management can benefit other sagebrush birds, such as Brewer's Sparrow, Sage Thrasher, and Green-tailed Towhee. This type of integrated, science-based habitat management maximizes private and public dollars for conservation.

Bringing Back Bobwhites at Bee Ridge

Northern Bobwhites have declined 80% over the past 40 years. But in northeastern Missouri, these quail are prospering, thanks to an innovative public-private partnership.

Over the last decade landowners in Knox County have joined with Quail Forever and the Missouri Department of Conservation to create the 12,000-acre Bee Ridge Quail Focus Area. Inside the QFA boundaries, participating farmers utilized cost-sharing and technical assistance—as well as financial incentives from CRP's CP33 Upland Birds Initiative—to create grass buffers around crop fields.



GRASS HABITAT BUFFER FOR NORTHERN BOBWHITES ALONG CROP FIELD IN MISSOURI. PHOTO BY MISSOURI DEPARTMENT OF CONSERVATION.

So far, 21 miles of 60-foot wide habitat buffers have been created in the Bee Ridge QFA. Bobwhite survey counts are four times higher here than surrounding areas. Dickcissel, Eastern Meadowlark, and Indigo Bunting counts are higher as well.

"Thanks to the focus area program and some neighbors who have the same goals, the results are more quail. In just a few years you can see the difference, and so can your dog," said landowner David McGinnis.

"The Bee Ridge QFA shows what landowners can accomplish when they band together to improve quail habitat on working lands," said Tom Dailey, National Bobwhite Conservation Initiative assistant director.

PRIVATE LANDS CONSERVATION SPOTLIGHT:

Conservation Reserve Program

The 1985 Farm Bill established the Conservation Reserve Program. Originally this program was established to manage commodity surpluses, reduce soil erosion, and improve water quality. CRP is a voluntary program that provides growers with economic incentives and cost-sharing for the restoration and reestablishment of perennial habitat on environmentally sensitive

lands with a cropping history. In April 2013, about 27 million acres were enrolled in CRP nationally.

Although wildlife habitat was not one of the original goals of CRP, it has made a tremendous difference in establishing habitat for grassland birds. Lands enrolled in CRP harbor secure nesting habitat for numerous species. Waterfowl breeding data

from 1992 to 2004 in the Prairie Pothole Region in the Dakotas and northeast Montana showed that CRP acres created habitat that increased waterfowl production by about 26 million ducks, about 2 million per year. A recent evaluation of estimated CRP benefits in the central mixed-grass prairie bird conservation region found that CRP acres constituted 1% of the region's land cover in Kansas but contributed about 30% of the population goal for Eastern Meadowlark. In Oklahoma, CRP acres constituted 3% of the region's land cover but contributed about 44% of the population goal for Dickcissel, and Texas CRP acres constituted 4% of the region's land cover but contributed nearly 31% of the Grasshopper Sparrow population goal. A recent study in the Dakotas suggested that if CRP acres were put back into annual crop production, populations of several species of grassland birds (including Sedge Wren, Grasshopper Sparrow, Dickcissel, Bobolink, and Western Meadowlark) would experience significant population declines, ranging up to 56%.

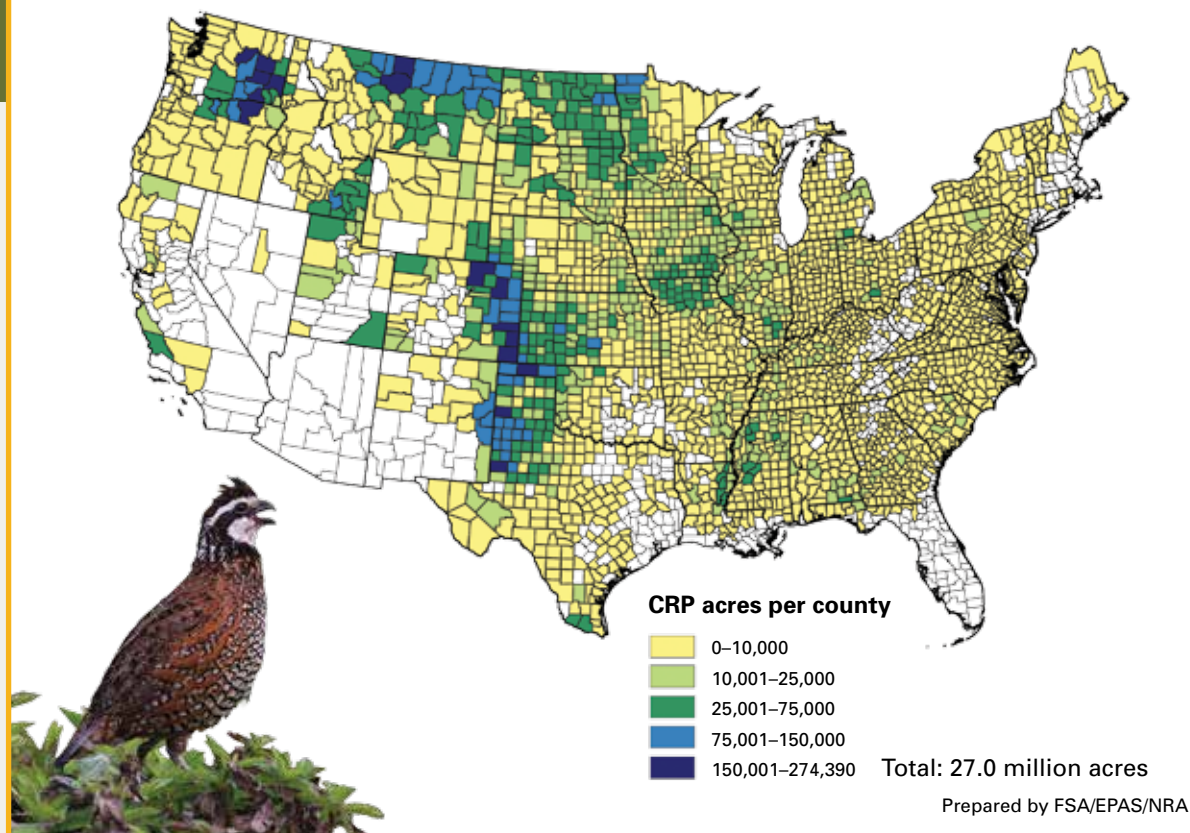
CRP creates large blocks of grassland habitat for sensitive species like Greater and Lesser Prairie-Chicken, the latter proposed for listing as threatened under the Endangered Species Act. A landscape assessment in Nebraska's Eastern Tall-grass Prairie region found that CRP acres contributed 40% of suitable habitat for Greater Prairie-Chickens. A complementary assessment of Lesser Prairie-Chicken habitat in Kansas, New Mexico, Oklahoma, and Texas found that CRP acres adjacent to existing grasslands made up larger blocks of habitat that provided 6% of the habitat goal for this species.

To maintain sustainable populations of grassland birds (as well as waterfowl that rely on grasslands for nesting), CRP enrollment should be targeted where it can provide maximum benefits. CRP's State Acres for Wildlife Enhancement program



PHOTO BY JASON JOHNSON, USDA-NRCS, IOWA

CRP Enrollment – April 2013



NORTHERN BOBWHITE BY VIVEK TIWARI, WWW.FLICKR.COM/SPIDERHUNTERS

does just that, identifying priority habitat to be conserved through CRP contracts for wildlife species that are threatened or endangered, have suffered significant population declines, or are important environmentally, economically, or socially. SAFE areas have created habitat via CRP acres for Columbian Sharp-tailed Grouse in Colorado, Idaho, and Washington; Northern Bobwhite in Missouri; American Woodcock, Henslow's Sparrow, Sedge Wren, and Grasshopper Sparrow in Indiana; Upland Sandpiper in Maine; and Ferruginous Hawk in Washington.

Recent increases in crop prices, and corresponding increases in land values and rental prices, have spurred the conversion of expiring CRP acres back

to cropland. In just the Prairie Pothole Region alone, 1.8 million acres, or 22%, of the region's CRP lands have been lost due to expiring contracts without re-enrollment. In North Dakota, almost half of CRP acres (about 1.6 million acres) in the state were lost, and in Montana more than 40% of CRP acres (about 1.5 million acres) were lost. Some of these expired acres could yet be conserved, perhaps by signing them to conservation easements to maintain them as grasslands. It is imperative for grassland bird conservation that CRP remain a strong component of the Farm Bill, and for conservationists to continue to target efforts to deliver CRP acres in those areas where they have the greatest potential to positively influence priority and sensitive species.

Sodsaver

Halting grassland conversion and maintaining habitat

Soaring commodity prices for corn, soybeans and wheat have resulted in a new wave of plowing up grasslands, wetlands, and shrublands. The Sodsaver provision—a proposal being debated for the Farm Bill—would eliminate any type of subsidy payment on a piece of ground that was plowed up with no prior cropping history.

While landowners could still plow up native grasslands, they would not receive any federal assistance for farming those acres, thereby relying solely on the free market value of the crop planted for profit. Many of the lands still uncultivated in the 21st century are marginal lands for crop production (for example, prone to drought). These lands tend to be more prone to crop failure. From 1997 to 2006 in South Dakota, the counties with the highest rates of grassland-to-cropland conversion had average annual net crop insurance per acre payments that were nearly twice as high as the average payments for other counties in the state.

If implemented, Sodsaver is estimated to save taxpayers as much as \$1.4 billion over a 10-year period, making it both a sound fiscal and conservation policy.



PHOTO BY JASON JOHNSON, USDA-NRCS, IOWA

OPPORTUNITIES FOR IMPROVING PRIVATE LANDS CONSERVATION

Private landowners face a gauntlet of challenges to provide for their families as well as for their communities and country by producing food, fiber (such as wood or cotton), and energy. And the pressure on private lands to produce will only become greater. The planet's population is expected to grow to 9 billion people by 2050, and increased food demands will require 70% more agricultural production.

This pressure will affect birds, because some of the best existing wildlife habitat is on private lands. The human settlement patterns of this country established farms and ranches on lands near water and flat lands with rich soil at low elevations. These lands also now provide the greatest opportunities to restore wildlife habitat.



Greater Prairie-Chickens rely heavily on privately owned grassland habitat. Photo by John W. Fitzpatrick.

Unlike our vast public lands, which can be managed under broad agency mandates and missions, private lands management cannot be steered by top-down directives. Private lands are managed based on the economic decisions of individual landowners. But working lands and habitat conservation can complement, and even strengthen, each other. The success stories highlighted in this report demonstrate that private lands conservation actions, assisted by programs and initiatives from government agencies and private groups, can result in real and meaningful victories for birds, while making sustainable economic sense for the landowner.

No “one size fits all” program will work for every landowner or every

conservation goal. But a suite of programs, policies, and partnerships across our nation's varied landscapes can empower landowners to choose what's right for them. Based on these successes, the bird conservation community seeks to improve opportunities for private lands conservation by: (1) retaining and strengthening conservation provisions in the Farm Bill; (2) enhancing other successful government programs and initiatives that provide assistance and foster partnerships; and (3) increasing support for nongovernmental organizations and partnerships that leverage funding and protect land.

1. Keep Conservation Strong in the Farm Bill

By far, the Farm Bill is the largest source of conservation dollars available to U.S. landowners via the bill's roughly 20 conservation provisions. As shown in this report, grassland and wetland birds are among those most reliant on private lands for healthy populations. During recent times of difficult economic decision-making, however, these vital conservation provisions are in danger of suffering major reductions or even disappearing completely. For example, cuts have reduced the overall funding for Farm Bill conservation by more than \$3 billion over the past five years, leaving thousands of landowners unable to enroll new land in conservation programs despite overwhelming demand. Abandoning the course of conservation on private working landscapes can have dire consequences for our nation's bird and wildlife populations, as well as for our air and water quality.

As future versions of the Farm Bill are debated, effective conservation measures can be strengthened and expanded.

• Fund incentive programs to meet demand:

Demand for popular Farm Bill conservation programs among landowners often far outstrips supply and available funding. Acreage caps for programs are often exhausted within days, or even hours; sometimes a third or more of eligible applications are left unfunded. Ending disproportionate cuts to Farm Bill conservation funding will close the gap in the substantial unmet landowner demand for conservation programs on private lands.

• Reconnect crop insurance subsidies to conservation compliance:

The 1985 Farm Bill included a Conservation Compliance measure whereby farmers agreed to provide basic protections for soil and wetlands when they voluntarily accepted taxpayer support through Farm Bill programs. However, in 1996 the Conservation Compliance requirement was removed for crop insurance, and farmers had an economic incentive to plant erodible land without a conservation plan and drain new wetlands without risk of losing crop insurance benefits. Re-establishing basic conservation eligibility requirements for crop insurance subsidies, and implementing new provisions like Sod saver (see page 35) that reduce incentives for plowing native prairie for crops, will ensure that taxpayers see the most efficient use of Farm Bill dollars, and scarce remaining natural habitats are preserved.

- **Strategically target conservation for priority species:** New applications of Farm Bill programs focus scarce funding on individual species of concern, with cost-efficient, quick results. One new targeted conservation project—Working Lands for Wildlife—engages farmers, ranchers, and forest landowners in the restoration and protection of habitat for seven priority wildlife species, including Golden-winged Warbler, Greater Sage-Grouse, Lesser Prairie-Chicken, and Southwestern Willow Flycatcher. Expanding targeted conservation initiatives—with focused outcomes and monitoring for results—to other at-risk species and habitats could be an efficient and effective use of taxpayer dollars.

2. Empower Community-based Conservation through Partnerships

Conservation is strongest when grassroots community efforts are seeded at state and local levels. Besides the Farm Bill, numerous government programs and initiatives offer voluntary financial and technical assistance to millions of private landowners, often through regional partnerships among



Many Farm Bill programs reward landowners for responsible stewardship of natural resources, which in turn pays dividends in ecological services for neighboring communities. The Farm Bill's Conservation Reserve Program alone has resulted in cleaner water, with 623 million pounds of nitrogen and 124 million pounds of phosphorous intercepted and kept from our nation's waterways; reduced greenhouse gas accumulation, with 51 million metric tons of carbon dioxide sequestered and kept from our planet's atmosphere; and more abundant wildlife, with a 30% increase in waterfowl breeding production in the Dakotas and Montana. Photo by Jim Ringelman.

agencies and private organizations and through matching grants that leverage government funding.

- **Reauthorize and fully fund the Land and Water Conservation Fund:**

Since 1965 the Land and Water Conservation Fund has turned \$3.5 billion of matching grants into more than \$7 billion of habitat and outdoor recreation projects nationwide. LWCF funds are used to conserve working farms, ranches, and forests; preserve natural areas and wildlife habitat; safeguard clean water in rivers and watersheds; and directly support local economies and jobs through outdoor recreation.

The LWCF has enabled locally led conservation efforts to successfully work with private landowners on key conservation land acquisitions, such as

ecologically sensitive bluffs and lowlands along Indiana's Wabash River and riparian habitat on a former ranch along the Devils River in Texas. Full funding and reauthorization of LWCF will stimulate our nation's economy, create jobs, and shore up our infrastructure.

- **Expand availability of technical assistance for private landowners:**

Many private landowners are willing to take conservation actions on their lands, but they do not have the knowledge or equipment to do so. Technical assistance from consulting biologists can come from a variety of sources: Natural Resources Conservation Service field office staff, state university cooperative extension offices, U.S. Forest Service State and Private Forestry programs, and private conservation organizations. Technical assistance field biologists are often funded through cooperative public-private partnerships among federal, state, and private conservation partners. If the ambitious goals for habitat and bird conservation are to be achieved, then expanded funding for broader technical assistance will be essential.



*Marking fences prevents sage-grouse collisions.
Photo by Jeremy R. Roberts, Conservation Media.*





The Finger Lakes Land Trust is using public-private partnerships to stretch public conservation funds further in upstate New York. For example, the town of Canandaigua wanted to preserve its rural character, but town open-space funds weren't enough to protect the area's scenic lake-view farmlands from development. So the town partnered with the Finger Lakes Land Trust—and accessed matching grants from New York's Farmland Protection Program—to pool funds and buy conservation easements from two farms totaling more than 200 acres on the west side of Canandaigua Lake. Photo by Nigel P. Kent.

- **Leverage government dollars with private dollars to multiply conservation impacts:**

As federal and state budgets get tighter, government conservation dollars will need to go further, and private conservation groups can make that happen. Migratory Bird Joint Ventures across the country are facilitating bird conservation on private lands through effective use of Farm Bill programs and matching grants under the North American Wetland Conservation Act. More of this kind of public-private collaborative conservation partnership would be fostered through the Regional Conservation Partnership Program, a proposal in drafts of the Farm Bill that would create a competitive process for allocating funding to private partners that design and execute local projects for soil, water, and wildlife conservation. Passing the Regional Conservation Partnership Program, and creating more partnerships like it, would allow government and private conservation

organizations to achieve more together than they could on their own.

- 3. **Support Private Organizations that Grow Conservation Beyond Government Budgets**

Conservation programs that are solely government-funded can only do so much. Privately funded organizations also play vital roles in preserving habitat (see sidebar, Land Trusts). Government policy and partnership can enhance the effectiveness of these private conservation efforts.

- **Extend tax incentives for conservation easements:** Many private conservation organizations, such as Ducks Unlimited and The Nature Conservancy, work closely with private landowners who want to be sure their land is preserved and never developed. Often, these landowners are willing to donate conservation easements on their land in order to realize a tax deduction. The American Taxpayer Relief Act that Congress

passed on January 1, 2013, extended enhanced deductibility for another year. Multi-year, or permanent, extension of enhanced deductibility would provide private organizations with long-term stability in planning conservation strategies with potential easement donors.

- **Support landowner-driven conservation partnerships:** Private landowners can play a critical role in developing and leading collaborative conservation initiatives in their communities. The Blackfoot Challenge in western Montana offers a successful model of collaborative conservation where public agencies, conservation groups, and private landowners work together to conserve natural resources and their rural way of life. By partnering with The Nature Conservancy and Plum Creek Timber Company, the Blackfoot Challenge leveraged \$10 million of private funding with \$80 million in Land and Water Conservation Fund money



Tax incentives have been an important consideration for landowners who have partnered with Ducks Unlimited on conservation easements that protect more than 360,000 acres of waterfowl habitat. Hooded Merganser by Gerrit Vyn.

and other federal and state funding to protect 89,000 acres of working forest and ranch land with conservation easements as one of the tools. Baseline funding for federal assistance programs that incentivize voluntary, private landowner conservation and maintain strong agricultural economies should be retained, if not increased due to the high conservation return on dollars invested.

Monitoring is Key to Evaluating Conservation Success

Monitoring birds and habitat change provides metrics for measuring and evaluating conservation outcomes. Effective monitoring helps to promote and improve science-based land management by allowing landowners and other managers to adapt to changing conditions and ensuring the right practices are occurring in the right places to maximize the benefits to birds. While broad-based citizen-science programs such as eBird are providing ever-more detailed information on changing bird distributions and populations, more rigorous bird monitoring, tied explicitly to the planning, funding, and implementation of conservation programs, will be essential for evaluating their success and supporting the adaptive management feedback loop.

Values beyond birds can be included in these analyses, even for bird-focused conservation efforts. Conservation benefits extend into a full suite of ecosystem services, many of which benefit the people who rely on private lands—these include increased water retention during periods of drought, reduced impacts from natural flooding, carbon sequestration and reduced greenhouse gas accumulation in our atmosphere, cleaner air and water, even a meadow horizon for watching a sunset or a forest for children's explorations.

Aldo Leopold recognized all of this when he described the uniquely American land ethic. "Examine each question in terms of what is ethically and aesthetically as well as what is economically expedient," Leopold wrote. "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community."

Private Protected Lands and Land Trusts: Securing Important Bird Habitat in Key Places

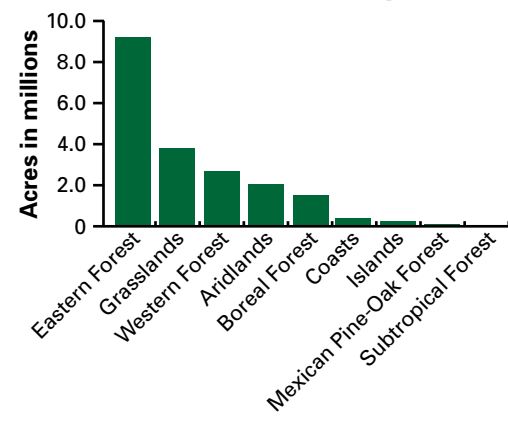
Although only 2% of private lands are formally protected for conservation purposes through direct ownership or easement, the more than 24 million acres managed by land trusts and other conservation organizations form a network of private protected lands nearly as large as the entire National Park Service system in the contiguous 48 states.

Many of these private protected lands are conserved by land trusts. Land trusts are nonprofit groups that can provide willing landowners with a buyer for land of high conservation value or for conservation easements that protect against future development on their land. According to the Land Trust Alliance, there are more than 1,700 active land trusts throughout the U.S., ranging from national organizations like The Nature Conservancy and The Conservation Fund to small local land trusts that work only in their communities.

Private protected lands conserved by land trusts and other groups are not distributed evenly across all habitat types. Eastern forests, grasslands, and western forests have the highest acreage of private protected lands. But other habitats stand out for the high importance of their private protected lands as habitat. Mexican pine-oak, boreal, and western forests all have relatively high proportions of bird distributions on private protected lands.

Some parcels of private protected lands are among America's best-known birding sites, such as The Nature Conservancy's Ramsey Canyon Preserve in Arizona and Audubon's Rowe Sanctuary in Nebraska. Most private protected lands are in large, working landscapes, such as the Flint Hills Legacy Conservation area, Dakota Grassland Conservation Area, and Everglades Headwaters National Wildlife Refuge and Conservation Area. These landscapes combine extensive private lands (many protected by conservation easements) with smaller parcels of public lands. These strong public-private partnerships, and the willingness of private landowners to participate in bold initiatives, demonstrate the kind of landscape-level conservation vision and action that will be essential to preserving bird populations for future generations.

Private Protected Acres by Habitat



Eastern forest, grasslands, and western forest habitats have the highest acreage of private protected lands conserved by land trusts and other private groups.



In 2006 The Conservation Fund purchased nearly 6,000 acres of forest from Wausau Paper Company at the mouth of the Brule River in Wisconsin. This forest, which is habitat for nearly 200 bird species, was at risk of being sold off for development. The Wisconsin Department of Natural Resources later bought the land and incorporated it into the Brule River State Forest. Photo by Coldsnap Photography.

URBAN AND SUBURBAN LANDSCAPES

More than 97 million acres, or roughly 4%, of land in the U.S. is in urban or suburban areas, with 95% of this land privately owned. Although many grassland and forest birds avoid urban areas, more than 100 native bird species, including hawks, hummingbirds, woodpeckers, and orioles find urban and suburban habitats suitable for breeding. Many species also use these urbanized habitats during migration and winter. Homeowners' yards, corporate parks, and other private urban greenspaces (owned by groups such as land trusts) can provide vital habitat for birds, especially if patches of native vegetation are maintained.

Urban Greenspace

Urban areas can be more bird-friendly and bird deaths can be reduced through measures to prevent collisions with glass windows, adjust nighttime lighting so as not to attract birds, and encourage pet owners to keep cats indoors.

Chimney Swift Distribution



Some bird species, such as Chimney Swift, are now highly adapted to urban environments. Chimney Swift breeding distribution is highly concentrated around major cities in the eastern U.S. (Brighter areas on map indicate higher probability of occupancy. Occupancy estimates were based on bird observations from eBird and characteristics of the local environment from remote sensing data.) Chimney Swift populations have been declining steeply due to changes in chimney designs on homes and other buildings. Chimney Swift by Tom Johnson.

Several programs guide municipalities in managing and restoring habitat for birds. Many cities have adopted the U.S. Fish and Wildlife Service's Urban Conservation Treaty for Migratory Birds to provide zoning recommendations that benefit bird habitat and conservation. Land trusts also play key roles in preserving valuable bird habitat in urban areas. For example, the Central Indiana Land Trust worked with landowners Bob and Mary Lou Rice to protect 56 acres of hardwood forest in Indianapolis with a conservation easement. This property, now open to the public for hiking and birding, adjoins an Audubon Important Bird Area and is an important habitat for Neotropical migrant birds as well as many resident birds.

Corporate office grounds have a role to play in bird conservation, too. Office buildings can earn credit toward Leadership in Environment and Energy Design (LEED) certification by using bird-safe exterior glass. The nonprofit Wildlife Habitat Council's "Wildlife at Work" program has worked with employers and employees at more than 650 sites to create, conserve, and restore wildlife habitats on corporate lands.

Backyard Habitats

Homeowners can enhance backyard habitats by landscaping with native plants and providing nesting sites as well as supplemental food and water sources. The National Wildlife Federation's Certified Wildlife Habitat™ program has helped people with more than 150,000 bird-friendly backyards and other sites.



YardMap, a citizen-science project of the Cornell Lab of Ornithology, uses social networking and mapping technologies to help people create bird-friendly landscaping on their properties and share ideas with neighbors. Homeowners are also contributing long-term monitoring data to Project FeederWatch, NestWatch, and eBird.

PRIVATE LANDS CONSERVATION PROGRAMS

A variety of government and nongovernmental organizations work to conserve private lands or offer incentive and assistance programs to private landowners to foster bird conservation on their lands. This is a sampling of programs mentioned in this report, but even more programs are available in state and local communities. Links to programs listed here can be found online at www.stateofthebirds.org.

Nonprofit Organizations

Several nonprofit organizations offer landowners assistance with funding, technical advice, and equipment to restore and maintain habitat on private lands.

The Nature Conservancy works to balance growing development needs with those of nature; build relationships with communities, companies and governments; and increase funding for large-scale conservation projects. The Nature Conservancy works with partners around the world to support policies that protect our lands and waters so that next generations can build secure and rewarding lives.

The **National Audubon Society** and its more than 500 local chapters and centers work to conserve bird habitat on private lands. Audubon staff often partner with landowners who own property inside Important Bird Areas on habitat enhancement projects, conservation easements, or even just to put up a birdhouse.

Ducks Unlimited works with landowners to protect and restore the value of their land for waterfowl while also improving the recreational value and compatible agriculture. DU accomplishes continental-scale conservation through partnerships with private and public landowners and public policy focused on conservation provisions of the Farm Bill, the North American Wetlands Conservation Act, tax incentives associated with easements, and Duck Stamps.

The **National Bobwhite Conservation Initiative** is the unified strategic effort of 25 state wildlife agencies and various conservation organizations—all under the umbrella of the National Bobwhite Technical Committee—to restore wild populations of quail. NBCI works with state and federal agencies, research institutes, and nongovernment organizations on policy, planning, and evaluation to implement habitat-based conservation of bobwhites and complementary species.

The **Ruffed Grouse Society** employs a team of wildlife biologists who work with private landowners throughout the United States to improve their land for Ruffed Grouse, American Woodcock, and other wildlife with similar habitat requirements. RGS seminars aid private landowners and land managers in managing forests for wildlife.



OWNBEY EASEMENT OF THE PALOUSE LAND TRUST IN LATAH COUNTY, IDAHO, BY JUSTIN TRUJILLO

Pheasants Forever works through its local and county chapters, and its quail division **Quail Forever**, to partner with farmers, ranchers, and other landowners on grassland habitat conservation projects, such as technical assistance from biologists and prescribed burns on private lands. Pheasants Forever also assists landowners with enrolling in federal and state habitat conservation programs.

The **National Wild Turkey Federation** teams with the federal, state, and corporate partners to deliver private lands conservation efforts that benefit game birds and many other wildlife species. They provide landowner assistance through planning, cost-share, technical assistance, and contract services. Their primary focus is on enhancing forested habitats such as longleaf pine/wiregrass, Ponderosa pine, central Appalachian hardwoods, and western riparian corridors.

The **Cornell Lab of Ornithology** develops science-driven conservation plans and land management guidelines, giving private landowners the tools and information necessary to enhance and create habitat for birds and other wildlife. Cornell Lab scientists often partner with national game and nongame conservation groups to implement these plans and protect and grow wildlife populations.

Klamath Bird Observatory works with partners in the Pacific Northwest to guide restoration on private lands. By incorporating habitat components that directly benefit birds into restoration planning, the observatory applies an ecological approach that builds on traditional vegetation management. Bird and vegetation monitoring are incorporated into private lands restoration projects to evaluate and demonstrate the return of ecological integrity and to inform future restorations.

The **PRBO Conservation Science** Working Lands Program extends research and monitoring findings to conservation applications on the ground. Through a partnership with the Natural Resources Conservation Service, PRBO Conservation Science assists with using Farm Bill programs to plan, design, implement, and further monitor conservation management and restoration on private lands in California.

The **Rocky Mountain Bird Observatory** works with private landowners in Colorado, Nebraska, Wyoming, and Chihuahua, Mexico, to provide technical and financial assistance to enhance and create bird habitat while maintaining economically viable agricultural operations. RMBO promotes a collaborative approach with landowners and partnerships with federal and state agencies, as well as joint ventures and private foundations, to make these efforts possible.

The **Conservation Fund** has protected more than 7 million acres of land and water across America, including the forests, grasslands, waterways, and other natural areas birds need to thrive. The Conservation Fund works with public and private partners to advance conservation by providing financing, planning, and strategies necessary to protect special places swiftly and sustainably.

The **Wildlife Habitat Council** is a nonprofit group that works with corporations and other landowners to create tailored voluntary wildlife habitat enhancement and conservation education programs on corporate facilities and in the communities where they operate.

The **National Wildlife Federation** provides resources to help landowners create and certify habitat for wildlife in residential and commercial areas through its Certified Wildlife Habitat™ program.

Forest Certification Programs

Sustainable forest certification programs require forest managers to include biological diversity conservation in their silvicultural practices.

- The **Sustainable Forestry Initiative** is an independent, nonprofit organization responsible for maintaining, overseeing, and improving a sustainable forestry certification program based on principles and measures that promote sustainable forest management and consider all forest values.
- The **Forest Stewardship Council** is an independent, nonprofit organization with membership in three chambers (environmental, economic, and social) that sets certification standards to ensure forests are being managed to the highest environmental and social standards.

- The **American Tree Farm System** offers affordable forest certification for family forest landowners. The certification program works to sustain forests, watersheds, and healthy wildlife habitats through the power of private stewardship by giving forest owners the tools they need to keep forests healthy and productive.

Land Trusts

The **Land Trust Alliance** is a network of more than 1,700 national, regional, and local land trusts that work in local communities to foster land conservation. Land trusts plan, coordinate, and execute conservation easements with private landowners and acquisitions from willing sellers to protect private lands from development. The alliance can connect landowners with a land trust in their community.

Cooperative Extension System

The **Cooperative Extension System** is a nationwide educational network offered by land-grant universities in most states. A partnership between federal, state, and county governments, Cooperative Extension services are delivered through Extension specialists at land-grant universities and Extension educators at local or regional offices. Extension offices often work closely with private landowners in their community on improved agricultural practices that utilize the latest, research-based information, such as forestry advice on thinning to spur timber growth and consulting on no-till farming to reduce soil erosion. Because Extension practices can be friendlier for the environment (such as non-chemical integrated pest management for apple orchards), they can benefit bird habitat. Many Extension offices consult on planting to provide cover and food resources for birds.

National Fish and Wildlife Foundation

The **National Fish and Wildlife Foundation** protects and restores fish and wildlife species and their habitats by working with public and private partners. NFWF programs include grants to provide staff and technical assistance to private landowners in regions where crucial conservation issues can be addressed through Farm Bill programs.

Federal Government Programs

Many different entities within the federal government work with landowners to restore, protect, and conserve wildlife habitat on private lands.

U.S. Department of Agriculture

The U.S. Department of Agriculture implements the Farm Bill, one of the largest sources of federal conservation funding. Several Farm Bill voluntary conservation programs are delivered through state and local offices of the Natural Resources Conservation Service and Farm Service Agency.

- The **Conservation Reserve Program** offers landowners the opportunity to receive financial and technical assistance for placing highly erodible and other environmentally sensitive cropland in conservation covers such as grass, trees, wetlands, and buffers. Participants receive annual payments for the length of their 10- or 15-year contract. National enrollment in CRP is authorized for up to 32 million acres.
- The **Wetlands Reserve Program** purchases long-term (30-year or perpetual) easements to protect and restore formerly degraded wetlands. The program also provides technical advice and financial assistance for wetland restoration on easement lands.
- The **Grassland Reserve Program** emphasizes support for working grazing operations, enhancement of biodiversity, and protection of grassland under threat of conversion to other uses. Participants voluntarily enroll their land in 10-, 15-, or 20-year rental contracts or in permanent easements.
- The **Healthy Forests Reserve Program** provides assistance to landowners, on a voluntary basis, in restoring, enhancing, and protecting forest resources on private lands through easements, 30-year contracts, and 1-year cost-share agreements.
- The **Environmental Quality Incentives Program** provides financial and technical assistance to agricultural or forest producers to help them plan and implement conservation practices.
- The **Wildlife Habitat Incentive Program** provides technical and financial assistance to conservation-minded landowners who want to develop and improve wildlife habitat on their agricultural land, nonindustrial private forest land, or tribal land.
- **Working Lands for Wildlife** is a new partnership between NRCS and the U.S. Fish and Wildlife Service that uses technical and financial assistance from NRCS-administered Farm Bill programs to combat the decline of seven wildlife species. Focus species in Working Lands for Wildlife include Greater Sage-Grouse (see p. 16) and Golden-winged Warbler (see p. 21).
- The **Conservation Stewardship Program** offers annual payments for installing new conservation activities and maintaining existing practices. Additionally, a supplemental payment is available to participants who adopt a resource-conserving crop rotation.

U.S. Forest Service

In addition to managing our nation's federal forests, the U.S. Department of Agriculture's Forest Service works with private landowners to promote healthy forests and communities through its state and private forestry programs.

- The **Forest Legacy Program** partners with state programs to protect working forests from development, primarily through conservation easements.
- The **Forest Stewardship Program** provides technical assistance, through state forestry agency partners, to nonindustrial private forest owners to encourage and enable active, long-term forest management.

- The **Community Forest and Open Space Conservation Program** provides financial assistance grants to local governments, tribes, and nonprofit organizations working to establish community forests.
- The **Urban and Community Forestry Program** provides technical, financial, educational, and research services to communities so they can maximize social, economic, and environmental benefits from community trees and forests.

U.S. Fish & Wildlife Service

The U.S. Fish & Wildlife Service works directly with private landowners to partner on projects that expand habitat conservation beyond public lands.

- More than 20 **Migratory Bird Joint Ventures** have been organized to implement national or international bird conservation plans for a specific species or within a specific geographic area. Though they receive funding through the USFWS, joint ventures are self-directed partnerships of agencies, organizations, corporations, tribes, and individuals. Examples include the Intermountain West Joint Venture and the Black Duck Joint Venture.
- The **Partners for Fish and Wildlife Program** provides technical and financial assistance to private landowners who are willing to partner on habitat improvement projects for migratory birds, as well as other wildlife such as threatened and endangered species. Field biologists work one-on-one with private landowners on conservation projects on their land.
- The **State & Tribal Wildlife Grants Program** provides federal dollars to every state and territory to prevent wildlife from becoming endangered and to keep common species common. The funds are used to implement each state's Wildlife Action Plan. A non-federal match requirement assures local ownership, and leverages state and private funds to support conservation.
- The **North American Wetlands Conservation Act** provides matching grants to organizations and individuals who carry out wetlands conservation projects to benefit migratory birds associated with wetlands.
- Federal **Migratory Bird Hunting and Conservation Stamps**, commonly known as Federal Duck Stamps, serve as federal hunting licenses produced by the U.S. Fish and Wildlife Service. Federal Duck Stamps are vital tools for wetland conservation, with 98 cents of every dollar generated by sales going directly to purchase or lease wetland habitat in the National Wildlife Refuge System.
- The **National Coastal Wetlands Grant Program** provides matching grants to states for acquisition (including conservation easements), restoration, management, and enhancement of coastal wetlands.
- The **Neotropical Migratory Bird Conservation Act** is a matching grants program to fund projects (including conservation easements) that promote the conservation of Neotropical migratory birds.

OUR APPROACH

Overview

To determine the status of birds and bird habitats on private lands, we overlaid bird distribution and habitat information onto a map of private land ownership for the U.S. We estimated the percentage of each species' distribution on private protected lands as well as all other private lands. Private protected lands are private lands known to have some protection for conservation via easement or ownership and are included in the Protected Areas Database for the U.S. (PAD-US; gapanalysis.usgs.gov). All other private lands have no known conservation protection.

For this report, we focused on habitat obligates (i.e., bird species restricted to a single primary seasonal habitat) and estimated their breeding and winter season distributions using occupancy data from eBird (www.ebird.org). Primary habitat and ownership data were based on the National GAP Land Cover dataset (gapanalysis.usgs.gov) and PAD-US. These nationwide databases allow us to evaluate how much each species uses private lands and assess the contribution private protected lands make towards species' conservation. Details of our methodology, lists of species in each habitat, maps of primary habitats, and species distribution estimates can be found at www.stateofthebirds.org.

eBird Checklist Data, 2004–2011



This map shows the locations (green dots) of eBird checklists used to estimate species' distributions for this report. More than 1.5 million checklists from 220,000 unique locations from the eBird Reference Dataset 4.0 (available at www.avianknowledge.net) were analyzed.

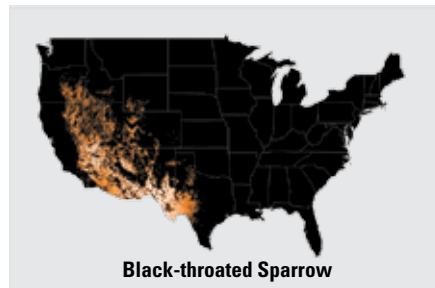
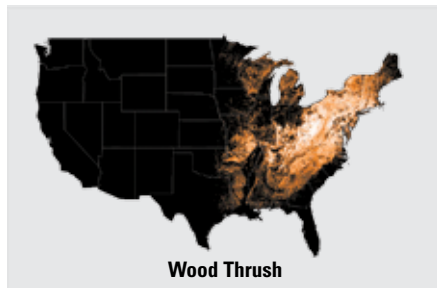


BLACK-THROATED SPARROW BY LOIS MANOWITZ, WWW.FLICKR.COM/PHOTOS/LOISMANOW

Understanding Bird Distributions

Most birds are not evenly distributed across their ranges and these uneven distributions change dynamically through the year as many birds migrate. To estimate breeding and winter season distributions of U.S. birds in the lower 48 states, we used data from eBird, a rapidly growing citizen-science program administered by the Cornell Lab of Ornithology. For this report, we used more than 1.5 million bird checklists collected by eBird participants during 2004–2011, from more than 220,000 unique locations. For Alaska bird distributions, we used vegetation layers to modify bird breeding and year-round range data from the Alaska Gap Analysis Project and NatureServe. For Hawaiian birds species, Hawai'i biologists compiled and analyzed bird distributions. Bird distributions for Puerto Rico, U.S. Virgin Islands, Guam, and the Commonwealth of the Northern Mariana Islands were based on distribution of suitable habitat identified by local experts.

We determined distributions for 219 breeding and 65 wintering birds within the U.S. Breeding species include non-migratory residents. For each of 169 breeding species and 49 wintering species with sufficient eBird data, we fit a statistical model to associate patterns of observed occurrence with elevation and local land cover information (i.e., the 2006 National Land Cover Database) while accounting for gaps and biases in the eBird data. For each species modeled, 52 weekly distribution estimates of bird occupancy were created at each of 933,688 locations across a grid of 3-square-km blocks covering the continental U.S. Each species' estimated occupancy distribution was evaluated for accuracy by experts at the Cornell Lab of Ornithology, and the most representative seasonal distribution was selected from among 52 weekly estimates. For an additional 16 wintering and 50 breeding species with very small ranges, we used the frequency of each species reported on eBird checklists to determine distributions. These frequency data were summarized across a coarse grid of 20-square-km blocks. Winter and breeding distributions were analyzed separately for migratory species within the U.S. To represent the breeding distribution of resident species we used data from throughout the year.



Examples of breeding distribution model-based estimates for obligate species in four habitats. Clockwise, from top left: Black-throated Gray Warbler in western forests; Dickcissel in grasslands; Black-throated Sparrow in aridlands; Wood Thrush in eastern forests. These maps show estimated occupancy during peak breeding season. Brighter areas indicate higher probability of occupancy. Occupancy estimates were based on bird observations from eBird and characteristics of the local environment from remote sensing data. For additional distribution maps, see www.stateofthebirds.org.

Mapping Private Lands

We used the PAD-US (version 1.3) to determine land ownership categories for the continental U.S., Alaska, Hawai'i, Puerto Rico, and Virgin Islands. PAD-US is a national spatial database created from authoritative sources by the U.S. Geological Survey's Gap Analysis Program (USGS-GAP) in collaboration with the University of Idaho Gap Analysis Program (UI-GAP). To determine the total acreage of land ownership, we combined 15 ownership categories into four categories: private protected lands, other private lands (lands with no known protection), public lands (i.e., lands managed by federal, state, county, and city agencies), and tribal lands (i.e., lands owned by Native Americans). Private protected lands are known to have some protection for conservation via easement or ownership, as identified in PAD-US, which includes land trusts, nonprofit groups, and nongovernmental groups as well as private landowners who have protected their lands via easement or management practices. Area of private lands for Guam and the Commonwealth of the Northern Mariana Islands was determined by subtracting total area of federal and state land from the total territorial area. American Samoa was excluded because land tenure is communal and private land as defined in this report does not exist.

To estimate the extent of each primary habitat, we used the National GAP Land Cover dataset. This dataset of vegetation associations is available for the U.S., including Alaska, Hawai'i, Puerto Rico, and Virgin Islands. The 745 ecological systems, as well as vegetation and land use classes, were categorized into primary habitat designations for our analysis. These data were then overlaid with PAD-US to calculate the area of each primary habitat on private protected lands, other private lands, public lands, and tribal lands. Wetlands information came from a variety of sources, including the USGS National Water Summary on Wetland Resources.

PAD-US includes significant contributions from the National Conservation Easement Database. USGS-GAP relies on authoritative sources such as non-governmental organizations and land trusts to provide valuable spatial and attribute data to improve the content of PAD-US. We encourage agencies and organizations with information on private protected lands to contact USGS-GAP (gapanalysis.usgs.gov). PAD-US 1.3 is the newest version of this database and is available for viewing and downloading from gapanalysis.usgs.gov.

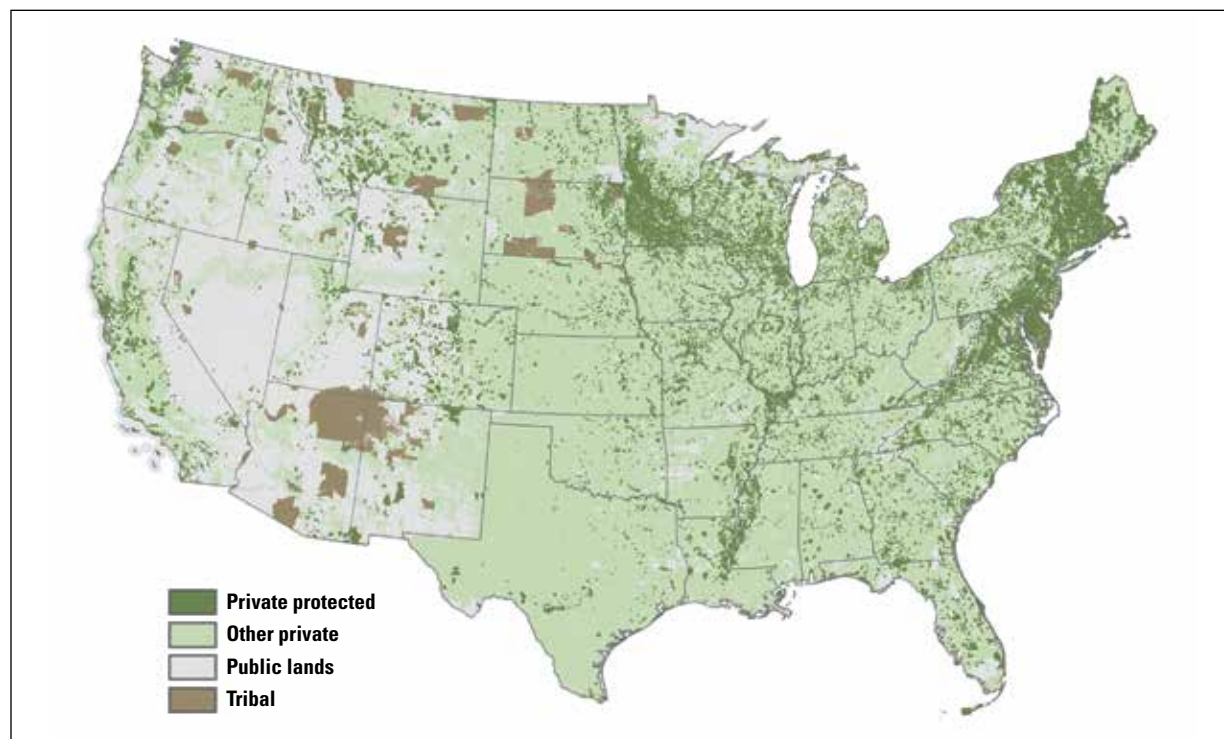
Thank You to eBird Volunteers

Each State of the Birds report has relied on bird monitoring data collected by volunteers throughout the U.S. Our understanding of bird distributions has greatly improved thanks to the thousands of bird watchers who have contributed observations to www.eBird.org. This effort is especially important for tracking seasonal and fine-scale changes in bird distributions, which is not possible with other bird-monitoring programs. However, even this massive observation network provides only imperfect information for assessing the year-round status of birds in remote parts of the U.S., including Alaska, Hawai'i, and island territories.



CORNELL YOUNG BIRDERS EVENT BY CHRIS WOOD

Protected Areas Database of the U.S.



Private protected, other private, public, and tribal lands of the U.S. Data based on Protected Areas Database of the U.S. (PAD-US) published by USGS-GAP and developed by UI-GAP (clockwise from above: contiguous 48 states, Alaska, Hawai'i, Puerto Rico, and U.S. Virgin Islands). Bird distributions and habitat information were overlaid onto PAD-US to determine area of each of the 4 categories of land represented here.



Thank you PAD-US contributors

The Protected Areas Database of the U.S. (PAD-US) is a spatially explicit inventory of protected areas based on data from authoritative sources, such as nongovernmental organizations and land trusts. The general public and professional land managers can use the PAD-US inventory in conservation, land management, planning, and recreation. The most recent version of PAD-US includes significant contributions from the National Conservation Easement Database. NCED is an initiative of the U.S. Endowment for Forestry and Communities with additional support from the Gaylord and Dorothy Donnelley Foundation, the Knobloch Family Foundation, the Graham Foundation, the U.S. Forest Service State and Private Forestry, the U.S. Fish and Wildlife Service Landscape Conservation Cooperatives, The Nature Conservancy, and Land Trust Alliance. We thank the NCED team consisting of The Trust for Public Land, Ducks Unlimited, Defenders of Wildlife, NatureServe, Conservation Biology Institute, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and the U.S. Forest Service for their contributions to PAD-US.

Determining Conservation Opportunities for Birds on Private Lands

To calculate the percentage of each species' distribution within the four ownership categories for the continental U.S., we projected the occupancy or frequency distribution for each bird species onto PAD-US using two approaches. First, for the occupancy distributions estimated by the statistical modeling, we calculated percentage directly by summing predicted occupancies by the four ownership categories at the 933,688 sample point locations based on a 3-square km grid. Second, the frequency distributions, which provided coarser data, were summarized within 20-square-km blocks. We projected these blocks onto PAD-US to define percentage of lands as private protected,

other private, public, or tribal within each block. For each species, we then summed occupancy among blocks, weighting by area of the ownership category within the blocks. In Alaska, the bird distributions were overlaid with PAD-US to determine the percentage of each ownership category within each species' distribution.

For each primary habitat, we reported the average percentage of bird distributions on private protected, other private, public, and tribal lands across multiple obligate species. For more details, visit www.stateofthebirds.org.



ABOVE: LEAST TERN CHICK BY GERRIT VYN.

BACK COVER, TOP LEFT TO RIGHT: CERULEAN WARBLER BY GLENN BARTLEY; FOREST HARVESTING PHOTO BY KRISTEN SHARPLESS; PHOTO BY IAN SHIVE. BOTTOM LEFT TO RIGHT: BURROWING OWL BY GREG SMITH; VALER AUSTIN PHOTO © CHRIS CHRISMAN; BOBOLINK BY BRYAN D. HIX.

Suggested Citation: North American Bird Conservation Initiative, U.S. Committee, 2013. The State of the Birds 2013 Report on Private Lands. U.S. Department of Interior: Washington, D.C. 48 pages.

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Acknowledgments

We thank the following people for their contributions or review: Max Alleger, Fred Amidon, Ole Amundsen, Victoria Arthur, Tom Auer, Donna Ball, Sara Barker, Lainie Berry, Jonathan Beyer, Julia Boland, Mike Brasher, Wes Burger, Katie Chang, Keith Cline, Jaime A. Collazo, John Coluccy, Mason Croft, Tom Dailey, Theo Damoulas, Anne Davidson, Andrew Dolgert, Patrick Donnelly, Lisa Duarte, Angela Dwyer, Beth Emmerich, John W. Fitzpatrick, Julia Fonseca, Holly Freifeld, Scott Fretz, Jeff Gerbracht, Wendell Gilgert, Tracey Gotthardt, Tim Griffiths, Ronnie Haynes, James Herkert, Wesley Hochachka, Mark Humpert, Chuck Hunter, Skip Hyberg, Marshall Iliff, J. Dale James, Jason Johnson, Matthew R. Kaminski, Steve Kelling, Gary Langham, Jeff Larkin, Thomas Laxson, Geoff LeBaron, David L. Leonard, Jr., Iván Llerandi-Román, Ross Lock, Jeff Lonaker, Thomas Maloney, Annie Marshall, Don McKenzie, Suzanne Medina, Curt Meine, Tom Moorman, Dave Naugle, Greg Neudecker, Glenn Olson, Benton Pang, Mark Petrie, Mary Pfaffko, John Pinkowski, Sheldon Plentovich, Debbie Pressman, Paul Radley, Michael Reed, Fritz Reid, Charlie Rewa, Deborah Richie, Ron Rohrbaugh, Brian Rutledge, Thomas Schmidt, Dave Smith, Larry Snyder, Henning Stabins, Casey Stemler, Scott Stewart, Brian Sullivan, Stan Temple, Molly Thompson, John Tirpak, Eric VanderWerf, Josh Vest, Johann Walker, Kevin Webb, Bill White, Alicia J. Wiseman, Chris Wood

We are grateful to the following organizations and programs for providing invaluable support, data analysis, and statistical modeling: The Leon Levy Foundation; The National Conservation Easement Database team consisting of The Trust for Public Land, Ducks Unlimited, Defenders of Wildlife, NatureServe, Conservation Biology Institute, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and the U.S. Forest Service; the Gap Analysis Program at the University of Idaho; USGS Patuxent Wildlife Research Center; the Wolf Creek Foundation; and, the National Science Foundation through the Institute for Computational Sustainability (CCF-0832782), research grant (IIS-1017793), DataONE (OCI-0830944), and computing support from XSEDE (OCI-1053575 and DEB-110008).





The **Cornell** Lab of Ornithology

University of Idaho



North American Waterfowl
Management Plan
Plan nord-américain de
gestion de la sauvagine
Plan de Manejo de Aves
Acuáticas de Norteamérica

ncasi

