

Passenger Pigeon
EXERCISE

THE STATE OF THE BIRDS 2014
United States of America



The State of the Birds 2014 at a Glance

ONE HUNDRED YEARS after the extinction of the Passenger Pigeon, the nation's top bird scientists from conservation groups and agencies have come together again to publish the fifth State of the Birds report.

AMERICA'S BIRD HABITATS: CONTINENTAL LANDS AND INLAND WATERS4

Where conservation investments have been made in healthy habitats and cleaner water, birds are doing well. Due to conservation action, many wetland birds are showing strong population gains, and grassland bird populations are showing signs of improvement. Bird populations in eastern and western forests and aridlands are all in decline, reflecting the urgent need for conservation in these habitats.

AMERICA'S BIRD HABITATS: OCEANS, COASTS, AND ISLANDS6

Coastal birds, shorebirds, and island birds are squeezed into shrinking strips of habitat impacted by development and invasive species. Some seabird populations are recovering from prior declines, though threats remain from fishing operations, offshore energy development, and climate change. Some U.S. fishing fleets are demonstrating bird-friendly fishing practices that could be a model for other countries.

PREVENTING EXTINCTIONS8

There are 230 species on the State of the Birds Watch List of birds that are presently endangered or at risk of becoming endangered without significant conservation action. Watch List species occur in all habitats, with the highest proportion on Hawai'i. Proactive, partner-driven conservation is the best way to recover currently endangered birds and keep other species off the Endangered Species List.

PRESERVING ABUNDANCE10

Keeping common birds common is as important as rescuing rare species. Massive population losses are occurring across several groups of common species, such as aerial insectivores, rural birds, and birds that visit from the North. While habitat conservation is most important, there are several additional sources of direct human-caused bird mortalities that could be reduced to benefit bird populations.

LESSONS OF THE PASSENGER PIGEON12

As the Passenger Pigeon vanished, America was inspired to create the best conservation and adaptive wildlife management system the world has ever seen. Now that system needs reinvestments to take on the challenges of a new century. Unlike 100 years ago, we are now building on prior conservation successes. Today we know conservation works, and we have the science, technology, and knowledge to prevent extinctions.

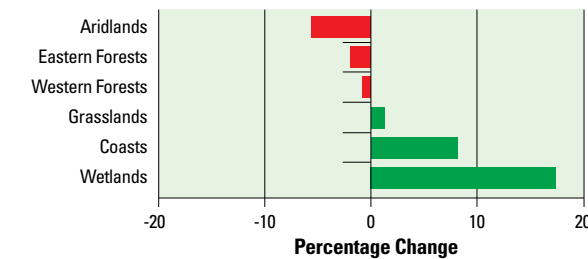
OUR APPROACH14

The State of the Birds habitat indicators are based on extensive reviews of population trend data from long-term monitoring. The Watch List and Common Birds in Steep Decline are derived from a complete conservation assessment of all U.S. bird species.

The 2014 State of the Birds assesses the health of our nation's bird populations through a set of habitat indicators, a Watch List of species most vulnerable to extinction, and a list of the Common Birds in Steep Decline.

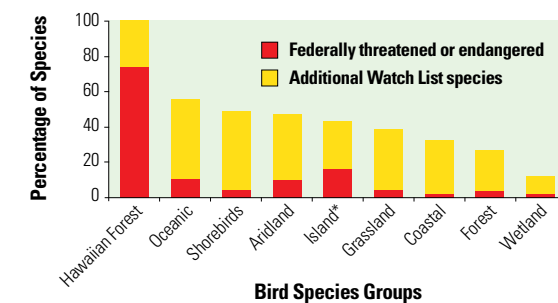
Habitat indicators are based on the population changes of obligate bird species—those birds restricted to a single habitat—where long-term monitoring data is available. This year's indicators repeat the method from the original 2009 State of the Birds.

HABITAT INDICATOR CHANGE SINCE 2009 STATE OF THE BIRDS REPORT



Aridland birds continue to show the steepest declines, while coastal and wetland bird populations continue to increase.

2014 STATE OF THE BIRDS WATCH LIST



Every Hawaiian forest bird species is on the Watch List. There are Watch List species in every major habitat. See the full Watch List of 230 species at www.stateofthebirds.org.

*INCLUDES BIRDS OF HAWAII, OTHER U.S. PACIFIC ISLANDS, PUERTO RICO, AND U.S. VIRGIN ISLANDS, BUT NOT HAWAIIAN FORESTS



FOREWORD

“The pigeon was no mere bird, he was a biological storm.” —Aldo Leopold

PASSENGER PIGEON ILLUSTRATION BY STEF DEN RIDDER

THE PASSENGER PIGEON was the most abundant bird America has ever known.

As they migrated en masse up and down the eastern United States, they darkened the skylines of New York, Boston, Chicago, Minneapolis, and St. Louis. In 1860, one flock estimated to be a billion-birds strong was said to be 300 miles long; it took 14 hours, from sunup to sundown, for the flowing river in the sky to pass.

Forty years later, the river had dried up to the last few drops, a single bird or a solitary pair that had thus far escaped market hunting and forest clearing. The last known pigeons in the wild were shot around 1902. Then on September 1, 1914, the very last Passenger Pigeon—a captive bird the keepers at the Cincinnati Zoo called Martha—died.

From billions of birds to none, in half of a person's lifetime.

On this somber 100th anniversary, we do not honor the Passenger Pigeon simply by bemoaning its demise. We honor it by reflecting on what we've learned.

Today, we know how to provide the crucial coastal habitat that has sparked a remarkable turnaround for American Oystercatchers; we know how to modify long-line fishing practices to prevent the accidental catch of endangered Short-tailed Albatrosses; and, we know how to manage jack pine forests in ways that make Kirtland's Warbler populations grow.

If Passenger Pigeons were indicators of our collective indifference toward birds, this fifth State of the Birds report signals how far we've come.

In this report we use birds as indicators of ecosystem health by examining population trends of obligate species for a single habitat (all the bird species dependent primarily on that habitat for survival). This 2014 report marks the fifth State of the Birds, so you will see references to the habitat indicators' trends since 2009. As you read the report,

ask yourself, what are the birds telling us about our lands and waters? Aridland birds are rapidly declining, perhaps an echo of environmental conditions and habitat change in the West. Eastern Meadowlarks are disappearing as family farms fade from rural America. Yet wetland birds have staged a robust recovery—with the help of programs that safeguard wetlands such as the North American Wetlands Conservation Act and the federal Duck Stamp, populations of Mallard, Blue-winged Teal, Gadwall, and some other duck species have risen dramatically.

In the Preventing Extinctions section of this report, you'll read about Watch List species that require our immediate conservation attention, and the factors driving their declines. In Preserving Abundance, you'll read about the Common Birds in Steep Decline—those species that still mostly number in the millions but have lost more than half of their global population. Remembering the Passenger Pigeon, we know the importance of keeping common birds common. Surely we can strive for more than Noah's Ark, more than just a representative sampling of species on Earth. Our grandchildren deserve to hear a springtime chorus of meadowlarks calling from the fenceposts, to see wave after wave of sandpipers dancing along the surf, to be amazed by nature not just in its presence, but in its multitudes.

Birds aren't just warning signals; they give us hope. Ducks fly again in great aerial cascades along California's Central Valley and up the Mississippi River and into Chesapeake Bay. California Condors were saved from the brink of extinction, from just 22 birds to more than 200 today. Bald Eagles, Brown Pelicans, Peregrine Falcons—all species once headed the way of the Passenger Pigeon—are now common again.

Today, we have the science, technology, and knowledge to prevent extinctions. Conservation works. When we have the will to conserve, we can make a better future: for birds, for ecosystems, for everyone.

The North American Bird Conservation Initiative U.S. Committee presents this 2014 State of the Birds Report as a collective call for action.

PHOTOS, LEFT TO RIGHT: GREATER SAGE-GROUSE, SNOWY OWL, AND GOLDEN-WINGED WARBLER BY GERRIT VYN; TIWI BY JACK JEFFREY; NORTHERN PINTAIL BY PETER ORR LRPS, WWW.PETERORRPHOTOGRAPHY.COM; PURPLE GALLINULE BY VIVEK TIWARI, WWW.FLICKR.COM/SPIDERHUNTERS

AMERICA'S BIRD HABITATS

CONTINENTAL LANDS AND INLAND WATERS



GRASSLANDS

Populations have stabilized at low levels after decades of decline.

Since 1968, the grasslands indicator for 24 obligate breeding birds declined by nearly 40%, but the decline flattened out beginning in 1990. This recent stabilization noted in the 2009 report continues today, reflecting the significant investments made in grassland bird conservation. Reductions in Farm Bill conservation funding, however, threaten those investments.

Eastern grassland birds (such as Eastern Meadowlark and Bobolink) have continued a steady and precipitous decline, associated with declines in pasturelands due to changing dairy farming practices and suburban sprawl.

A sub-group of shortgrass prairie-nesting birds in the Western Great Plains—including Sprague's Pipit and McCown's and Chestnut-collared longspurs—also continue steep declines, which may be driven by large-scale agricultural conversion and overgrazing on their wintering grounds in the Chihuahuan Desert that spans the U.S.–Mexico border.



ARIDLANDS

Although steep declines continue, conservation initiatives are spreading to restore and protect habitat.

The aridlands indicator for 17 obligate birds—breeding birds of desert, sagebrush, and chaparral habitats in the West—is the most steeply declining of all habitat indicators, with an overall loss of 46% since 1968. Just since 2009 this indicator dropped 6%, extending a nearly continuous 44-year decline. Habitat loss and fragmentation due to residential and energy development are the most consistent and widespread threats. Long-term habitat degradation from unsustainable land use, invasions of non-native grasses, and encroachment by trees and shrubs also play significant (and underappreciated) roles in the decline. These negative effects have been exacerbated over the past decade by severe drought, creating extremely difficult condi-



tions for aridland birds such as Bendire's and Le Conte's thrashers, the two fastest declining species in the aridlands indicator.

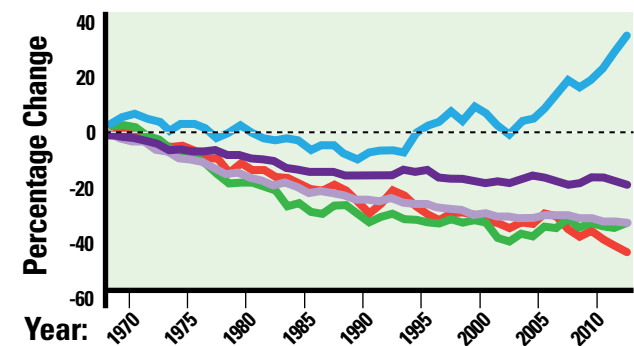
Conservation works!

The NRCS Sage Grouse Initiative is working with more than 1,000 ranchers on privately owned lands within the range of the Greater Sage-Grouse to implement land management practices that benefit both cattle and grouse. The BLM Restore New Mexico initiative has restored 1.8 million acres of aridlands habitat on federal public lands. More large-scale habitat protection and enhancement initiatives are needed to enable aridland birds to persist during prolonged periods of drought, particularly given projections for reduced and more variable precipitation in the Southwest due to climate change.

GREATER SAGE-GROUSE BY GERRIT VYN

BIRD POPULATION INDICATORS IN FIVE INLAND HABITATS

● Grasslands ● Aridlands ● Eastern Forests ● Western Forests ● Wetlands



See Our Approach for description of bird population indicators.

Conservation works!

Rangewide grassland bird conservation depends on conservation provisions in the Farm Bill. For example, Henslow's Sparrow and Upland Sandpiper (which benefit from the Conservation Reserve Program and grazing management on working grasslands, respectively) have responded positively to the many millions of grassland acres put back on the land since 1985. Continued support for Farm Bill conservation programs is needed to lock in these gains.



UPLAND SANDPIPER BY COREY HAYES



FORESTS

Ongoing declines in the East and West, but progress made in conserving important forest habitats.

The eastern forests indicator for 26 obligate breeding birds shows an overall drop of 32%, with a continued steady decline since 2009. Species dependent on either young forests (such as Golden-winged Warbler and Eastern Towhee) or mature deciduous forest (such as Wood Thrush and Cerulean Warbler) are showing the steepest declines. Because 84% of eastern forests are privately owned, timber companies and other forest owners can greatly benefit bird populations by maintaining large forest blocks and participating in sustainable forestry initiatives.

The western forests indicator, based on 39 obligate breeding species, has declined nearly 20% and has continued to decline since 2009. More than half of western forests are on public lands. Species dependent on oak and pinyon-juniper woodlands (such as Oak Titmouse and Pinyon Jay) are showing the steepest declines. As in the East, both early successional species (such as Rufous Hummingbird and

MacGillivray's Warbler) and mature forest species (such as Vaux's Swift and Cassin's Finch) are declining.

Major threats to U.S. forests include urban and ex-urban development, changes in natural disturbance regimes including fire, and exotic insect pests and diseases.

Conservation works!

With support from the National Fish and Wildlife Foundation and NRCS Working Lands for Wildlife initiative, state and private partners within the Appalachian Mountains Joint Venture have created 28,000 acres of early successional forest for Golden-winged Warbler and American Woodcock. Similarly, Klamath Siskiyou Oak Network partners have restored 6,000 acres on federal, state, and private lands in southern Oregon and northern California, benefitting oak-dependent birds such as Oak Titmouse. Both are excellent examples of public-private partnerships creating important habitat for declining forest birds.



AMERICAN WOODCOCK BY CHRIS WOOD

WETLANDS

Strong population gains reflect habitat investments, yet wetlands loss continues in some regions.

The inland wetlands indicator for 87 obligate freshwater breeding birds shows strong growth, with a more than 40% gain since 1968. These gains among wetland birds are the continuing legacy of important legislation such as the Clean Water Act and the Farm Bill's conservation provisions.

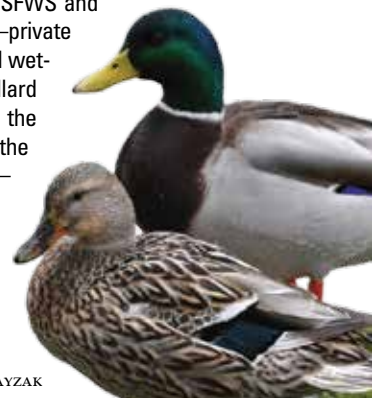
According to USFWS breeding duck data, Mallards are 42% above their long-term population average. They are just one of several growing waterfowl populations that benefit from dedicated conservation efforts and funding. Federally protected wetlands (such as National Wildlife Refuges), state and local wildlife management areas, and Wetland Reserve Program projects on private lands conserve more than 10 million acres of waterfowl habitat along the four flyways.

Nevertheless, more than 17 million acres of wetlands have been lost since the 1950s. Some wetland bird populations are declining in regions where significant wetlands loss continues. Long-term declines are most apparent in southeastern

marsh species such as Mottled Duck, King Rail, and Purple Gallinule, as well as species dependent on ephemeral prairie wetlands including Black Tern, Le Conte's Sparrow, and Northern Pintail.

Conservation works!

The North American Wetlands Conservation Act has enabled strategic conservation projects covering an area larger than Tennessee. Implemented by the USFWS and using a partnership approach, this model of public-private cooperative conservation has protected or restored wetlands that contributed to reversing declines of Mallard and other waterfowl species. Just as impressive, the Joint Ventures program has proven to be among the most cost-efficient means of conservation delivery—growing every \$1 that Congress provides into \$36 in total conservation funding to provide more than 20 million acres of habitat for migratory birds and other wildlife.



MALLARDS BY DIANE MAYZAK

AMERICA'S BIRD HABITATS OCEANS, COASTS, AND ISLANDS



COASTS Rising wintering populations along seashores.

The coasts indicator for 50 bird species that winter along U.S. coasts has steadily risen 28% above the baseline assessment in 1968, with an 8% rise over the past 5 years—a testament to the wise investments in more than 160 coastal national wildlife refuges and 595,000 acres of national seashore in 10 states. Nevertheless, birds along America's coastlines face threats from development, increased recreational use, and rising sea levels due to climate change.

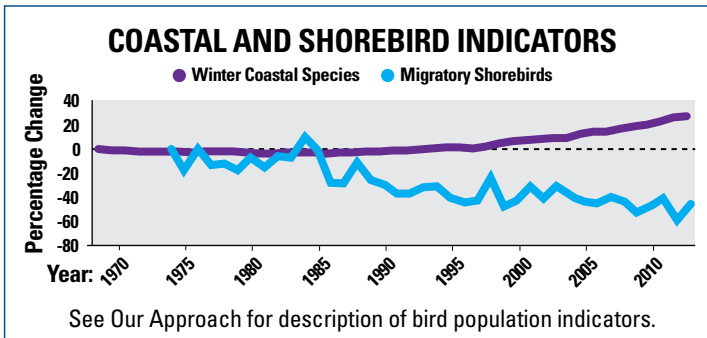
Along the Pacific Coast, Black Turnstones and Black Oystercatchers show encouraging population increases. However, human-caused disturbances and habitat loss are negatively affecting California populations of wintering Dunlins and threaten resident populations of Snowy Plovers.

Along the Gulf of Mexico, the Deepwater Horizon oil spill affected Black Skimmers and Wilson's Plovers, two coastal species already in decline. Deepwater Horizon-related funding will be critical to address environmental damage from the oil spill in a timely manner. Meanwhile, Gulf coastal wetlands loss continues; coastal habitats will need additional conservation measures to counter wetlands loss and sea-level rise.

Birds along the Atlantic Coast are squeezed for habitat in this most densely human-populated region of the U.S. Additionally, coastal engineering projects—such as sea walls being built to defend against sea-level rise—are impacting beach-nesting species such as Piping Plover and tidal marsh birds such as Saltmarsh Sparrow.

Conservation works!

Coastal wetland restoration projects are showing that natural habitats offer the best resilience to rising waters. The Nature Conservancy's South Cape May Meadows in New Jersey provides important habitat for birds such as the endangered Piping Plover, and the preserve acted as a natural buffer during Superstorm Sandy, holding back the sea surge and floodwaters.



SHOREBIRDS Long-distance migrants are steeply declining and need international conservation.

Shorebirds are declining more than many other species groups. Long-term migration counts for 19 shorebird species show an alarming 50% decline since 1974. Declines are particularly strong for long-distance migrants that breed in the Arctic and boreal forest. Species with the steepest declines include Red Knot, Hudsonian Godwit, and Ruddy Turnstone. Long-distance migrants require healthy stopover habitats along their entire pathway, and the chain of sites is only as strong as the weakest link. For example, overharvesting of horseshoe crab eggs in Delaware Bay can threaten the entire Atlantic coastal population of Red Knots, as they depend on this food source during their intercontinental migration. Cooperative international efforts are needed to improve the outlook for Red Knots and other winged ambassadors.

Conservation works!

In response to alarming declines among Atlantic Flyway shorebird populations, the USFWS, National Fish and Wildlife Foundation, and partners created the Atlantic Shorebird Business Strategy. The strategy uses business planning fundamentals to tie funding inputs to measurable results. NFWF investments in priority action areas have already stopped a regional decline of American Oystercatchers and increased reproductive success. Now the population is growing for the first time in 10 years.

AMERICAN OYSTERCATCHER BY MICHAEL LIBBE, WWW.MICHAELLIBBEPHOTOGRAPHY.COM



OCEANS Many seabirds face severe threats; marine protected areas and a fishing treaty can help birds on the ocean.

Because oceans are vast habitats, there isn't enough broad bird population survey data for an oceans habitat indicator. However, regional surveys and research identify important habitat for seabirds, as well as potential threats—including fishing operations that deplete prey fish stocks, offshore energy development (wind power generation and gas and mineral exploration), and oil spills in critical marine foraging habitats.

In the North Atlantic, colony counts of some species (such as Northern Gannets) indicate stable or growing populations. Others (such as Arctic Terns in the Gulf of Maine) have seen large declines linked to lowered breeding productivity and changes in availability of prey fish species, due to changing ocean temperatures.

In Alaskan waters, USFWS surveys mostly show stability in seabird populations, though Aleutian Tern and Kittlitz's Murrelet colonies are in steep decline. Point Blue Conservation Science surveys in the California Current ecosystem show Common Murre, Pigeon Guillemot, and Cassin's Auklet populations have recovered from past breeding failures. However, Brandt's Cormorants and Western Gulls have suffered severe population declines, signaling the depletion of important prey such as anchovy and sardine.

Plastic pollution continues to be a problem, including a massive garbage patch in the Pacific. In one study, more than 90% of Northern Fulmars found dead on beaches had plastic in their stomachs, mostly consumer-grade plastics (e.g. toothbrushes).

Seabird populations will benefit from the proposed expansion of marine protected areas to 782,000 square miles of American waters in the Pacific.

Conservation works!

The U.S. commercial fishing industry in the Pacific Ocean has made great strides in adopting bird-friendly practices. In Alaska, the use of streamers on long-line fishing boats to scare away birds reduced incidental bycatch by more than 50% from 2007 to 2012. U.S. fishing fleets use measures consistent with the Agreement on the Conservation of Albatrosses and Petrels, which seeks to conserve 30 species of albatrosses and petrels. Thirteen countries have joined the ACAP treaty, including some of the world's leading fishing nations such as Peru and Chile, but not the U.S. Signing ACAP would demonstrate U.S. leadership to other countries in the Pacific—such as Japan, China, and South Korea—and level the playing field for American fleets, since other countries would adopt the bird-friendly fishing practices that the U.S. already uses.



LAYSAN ALBATROSS BY GERRIT VYN

ISLANDS Immediate help is needed for many island birds making their last stand.

Island birds are especially restricted by where they can live, and those restrictions tighten when development and non-native predators and plants consume the limited supply of habitat. Such is the case on Hawai'i, where avian malaria; predation by introduced rats, cats, and mongooses; pressure by grazing ungulates, such as sheep, goats, and pigs; and habitat degradation by invasive plants are pushing several species toward extinction. One-third of all of America's federally endangered birds are Hawaiian species.

On other American islands, invasive species are likewise taking a sizable toll on endemic birds. The brown tree snake is a menace on Guam and the Northern Mariana Islands, responsible for nine extinctions and extirpations within the last 50 years. Efforts are underway to relocate imperiled species such

as Bridled White-eye to snake-free islands. The last remaining population of Mariana Crow on the island of Rota is imperiled by feral cats. Several species on American Samoa and U.S. territories in the Caribbean, such as Spotless Crake and Puerto Rican Parrot, face critical shortages of quality habitat.

Conservation works!

Relocations of Millerbirds and Laysan Ducks in the Northwestern Hawaiian Islands are increasing the populations of those species and reducing their risk of extinction. The 'Alalā has been absent in the wild on Hawai'i Island for more than a decade, but captive breeding has kept the species alive and grown its population. Work is now underway to prepare habitat for reintroductions.



HAWAI'I 'AMAKIHI BY JACK JEFFREY

PREVENTING EXTINCTIONS

The State of the Birds Watch List contains the 230 species most in need of conservation action. (See the full list at www.stateofthebirds.org.) Without conservation action, these are the birds headed the way of the Passenger Pigeon and other now-extinct American birds, such as the Carolina Parakeet and Heath Hen. Watch List birds meet criteria for a combination of high rate of population decline, small population size, small geographic range, and significant future threats to sustainable populations.

The Watch List contains species already on the federal Endangered list as well as those at risk of becoming Threatened or Endangered. While the Endangered Species Act remains the primary line of defense against extinction, proactive conservation is the most effective way to keep other Watch List species from needing Endangered list protection. Most Watch List species fall into seven categories; addressing issues across landscapes and migratory ranges can efficiently conserve entire suites of at-risk species.

SEABIRDS



The 42 Watch List seabird species face acute and chronic impacts from fishing operations that deplete stocks of prey, offshore wind development, oil contamination, and plastic pollution. Climate change will also alter the food resources of fish populations that are prey for seabirds, as well as cause extensive loss of low-elevation breeding habitat.

In the Northwestern Hawaiian Islands, nesting populations of Laysan and Black-footed albatrosses are threatened by rising sea levels. Ocean swells are already impacting Hawaiian seabirds. In 2011 swells from winter storms and a tsunami killed about 110,000 albatross chicks.

Conserving nesting habitat above predicted future sea levels will be important for albatrosses. Some Laysan Albatross colonies are already using higher habitat on the Hawaiian islands of Oahu and Kauai.

LAYSAN ALBATROSS BY EDUARDO IÑIGO-ELIAS

COASTAL



Coasts, beaches, and salt marshes provide habitat for 36 Watch List species, including endangered Piping Plover and Whooping Crane, 20 species of shorebirds, and the entire population of Saltmarsh Sparrow. Reddish Egrets depend on mangrove and estuary systems along our southern coasts, while Steller's and Spectacled eiders occur only along Alaska's Arctic coasts.

Coastal birds face multiple threats from human development and disturbance, oil spills and other pollution, and more recently from climate change—in the form of rising sea levels and severe coastal storms.

Our network of national seashores, national wildlife refuges, and private preserves offer protection for coastal birds in many regions, but more widespread efforts to restore coastal wetlands and reduce disturbance to beach-nesting birds will be needed.

EMPEROR GOOSE BY GERRIT VYN

NEOTROPICAL MIGRANTS



Thirty Watch List species are Neotropical migrant songbirds that breed in North America and winter south of U.S. borders.

Neotropical migrant conservation requires international cooperation to protect habitats throughout their ranges, on the premise that conservation in Latin America and the Caribbean will ensure these birds return to the U.S. in spring. Bicknell's Thrush, a breeding bird of Northeastern mountains, needs immediate action to stop deforestation in Hispaniola. Virginia's Warbler and Rufous Hummingbird both breed in the West and winter in Mexican pine-oak and thorn forests.

Cerulean and Golden-winged warblers breed in eastern forests and winter in the tropics. These fast-declining species have benefitted from collaborations by scientists, agencies, and businesses that created breeding habitat on U.S. timberlands and wintering habitat in Colombian coffee-growing landscapes. Such partnerships provide a model for voluntary, international habitat conservation for other Neotropical migrants.

CERULEAN WARBLER BY GERRIT VYN

SHOREBIRDS



Shorebirds are among the most threatened groups of North American birds. More than half of U.S. shorebird species are on the Watch List, including beach-nesting Piping and Wilson's plovers, prairie-nesting Mountain Plover and Long-billed Curlew, and arctic-nesting Red Knot and Hudsonian Godwit.

The small size of many shorebird populations, and their tendency to concentrate in small areas during migration and winter, make them especially vulnerable to human disturbance, loss of coastal and freshwater wetlands, and unregulated harvest in the Caribbean and South America.

Shorebirds will respond rapidly to protection and active management, such as providing shallow water impoundments or seasonally flooded rice fields. The Western Hemisphere Shorebird Reserve Network recognizes more than 32 million acres of key habitats throughout the Americas.

RED KNOT BY GERRIT VYN

ARIDLANDS/ GRASSLANDS



Thirty Watch List species are specialized birds of grasslands, deserts, sagebrush, and chaparral—some of the most neglected and maligned habitats in America. These are places where development, intense agricultural production, and energy extraction are primary land uses.

Among the most threatened species are Greater and Lesser prairie-chickens and Greater and Gunnison sage-grouse. These spectacular dancing birds still perform their spring breeding rituals across 18 states in the Midwest and West.

Cooperative conservation habitat initiatives are enlisting ranchers and farmers to help keep these iconic American birds on the land. Conservation efforts on private working lands must be coordinated with improved management across vast western public lands to reverse the declines not only of prairie-chickens and grouse, but also thrashers, sparrows, and longspurs.

GREATER PRAIRIE-CHICKEN BY GERRIT VYN

HAWAIIAN FOREST



All 33 native Hawaiian forest bird species are on the Watch List; 23 are federally endangered. Hawai'i may be a tourist paradise, but it's the bird extinction capital of the world. No place has had more bird extinctions since human settlement.

Eleven Hawaiian forest bird species have dangerously low populations of fewer than 5,000 individuals, including Palila and 'Akiapōlā'au. Non-native predators and disease-bearing mosquitoes pose the biggest threats, especially to forest birds on Kauai. Mosquitoes are expanding into high-elevation forests as temperatures become warmer.

Where conservation has been enacted, there is hope. Ungulate-proof fences are effective in protecting forests. Some species (including 'Apapane and Hawai'i 'Amakihi) are evolving resistance to avian malaria. More Hawaiian forest birds will fight for their own survival, if people give them a fighting chance through habitat conservation.

I'IWI BY JACK JEFFREY

DISTINCT POPULATIONS



Genetically distinct populations within a single species are important reservoirs of evolutionary diversity. Quite often, upon closer examination by scientists, some of these so-called subspecies are recognized as entirely unique species of their own, as with Bicknell's Thrush and Bell's Sparrow. Many of these distinct populations meet Watch List criteria.

Often distinct populations are isolated and pressures on their limited habitat threaten their existence. For example, the Great White Heron nests only in the mangroves of the Florida Keys.

Some distinct populations, such as the Yuma Clapper Rail and Florida Grasshopper Sparrow, are already protected as federally endangered. Proactive conservation for other regionally distinct bird populations will protect the full diversity of American birdlife.

GREAT WHITE HERON BY TOM BLANDFORD, TOMBLANDFORD.SMUGMUG.COM

PRESERVING ABUNDANCE

Birds that are abundant today can undergo a massive population collapse with surprising rapidity. Passenger Pigeon populations crashed from 2 to 3 billion birds to none in the wild in just 40 years. Keeping common birds common, while we still can, is as important as preventing extinctions of rare species.

Today there are 33 common bird species that do not meet Watch List criteria, yet are rapidly declining in many areas. (See the full list at www.stateofthebirds.org). These birds have lost more than half their global population. All of these species combined have lost hundreds of millions of breeding individuals over the past four decades.

Most common birds in steep decline fall within five categories that indicate larger environmental trends. Addressing the conservation needs of these birds will result in healthier, more productive lands and waters for other wildlife, as well as people.

GAMEBIRDS



America's resident gamebirds are some of our most beloved wildlife. Yet even with the best efforts by state agencies and private conservation groups to manage gamebird populations and foster recovery in some areas, many of these species continue to decline.

For example, Northern Bobwhite has benefitted from dedicated conservation efforts in targeted areas, yet it's declining steeply across its range. Scaled Quail is exhibiting broad population declines across the Southwest.

Both of these birds occur in agriculturally dominant landscapes and depend on working lands conservation. Rangewide recovery requires taking best practices—such as grass buffers along cropfields for bobwhite and prescribed burns with grazing management for Scaled Quail—and extending them across landscapes. Gamebirds will also benefit from management for other, non-game grassland and aridland birds.

NORTHERN BOBWHITE BY JOSHUA CLARK; WWW.MOMENTSINATURE.COM

NORTHERN VISITORS



Many birds that commonly visit the lower 48 states from the North are in steep decline. Shrinking populations of Snowy Owl, which shift south with great fanfare every few winters, may reflect changing climatic conditions in the Arctic. Winter flocks of Snow Buntings are also getting smaller.

The vast boreal forest, mostly in Canada, is a breeding nursery for hundreds of millions of birds that migrate through or winter in the U.S. Increasing timber, oil, and natural gas extraction is impacting boreal bird populations, contributing to long-term declines of Blackpoll, Cape May, and Wilson's warblers, as well as Rusty Blackbird and Pine Siskin. Several new mining projects proposed from Minnesota to Maine would further damage southern boreal forest habitat within the U.S.

International efforts such as the Boreal Songbird Initiative are fostering cross-border research and conservation to stop the widespread decline of northern birds.

SNOWY OWL BY GERRIT VYN

PRAIRIE WETLANDS



Though wetland birds are doing well overall, Black Tern and Northern Pintail are two species with significant declining trends. These birds depend on ephemeral prairie wetlands—those wet spots on the prairie that fill with snowmelt and seasonal rains.

The Prairie Pothole Region of the Upper Midwest is a great cluster of these temporary wetlands. Declining Northern Pintail populations mirror the continuing drainage of ephemeral wetlands in this region. Ephemeral prairie wetlands are among the most threatened wetland ecosystems, as they are largely not protected by the Clean Water Act. From 1997 to 2009, total wetland area in the PPR declined by 74,340 acres.

A provision in the 2014 Farm Bill, called conservation compliance, discourages the drainage and conversion of ephemeral wetlands. The USFWS is directing Duck Stamp revenue toward protecting these vital wetlands and surrounding prairies.

NORTHERN PINTAIL BY GREGORY LIS

AERIAL INSECTIVORES



Common Nighthawk, Chimney Swift, and Bank Swallow are three very different bird species, but they all eat flying insects—and they're all declining rapidly.

They are also all members of bird families (nighthawks and nightjars, swifts, and swallows) that are broadly declining. Bank Swallow is just one of six swallow species declining across major portions of its range.

Aerial insectivores are extremely sensitive to environmental change. The increased effectiveness and use of agricultural insecticides such as synthetic neonicotinoids has greatly reduced their prey base of flying insects.

Neonicotinoids are also suspected in declines of native pollinators. Decreasing pesticide use, in agriculture and around the home, will benefit bees and butterflies as well as aerial insectivores.

COMMON NIGHTHAWK BY GERRIT VYN

RURAL LANDSCAPES



As family farms have disappeared in America, so too have many species of birds that were good neighbors to generations of American farmers.

In the East and Midwest, Eastern Meadowlark and Grasshopper Sparrow populations have declined as industrial farming became widespread. According to the USDA, dairy farming has shifted toward larger operations and away from pasturing practices, which has reduced habitat for these species. In the West and Southwest, as ranchers fight to maintain their way of life, declining birds such as Lark Bunting and Loggerhead Shrike are likewise attempting to hold on to their homes.

Farm Bill and working lands conservation programs have provided habitat for farm and ranch birds, and now organic agriculture is providing a new boost to rural habitat. A one-day bird survey on an organic dairy farm in Minnesota found almost 50 confirmed or possible breeding species.

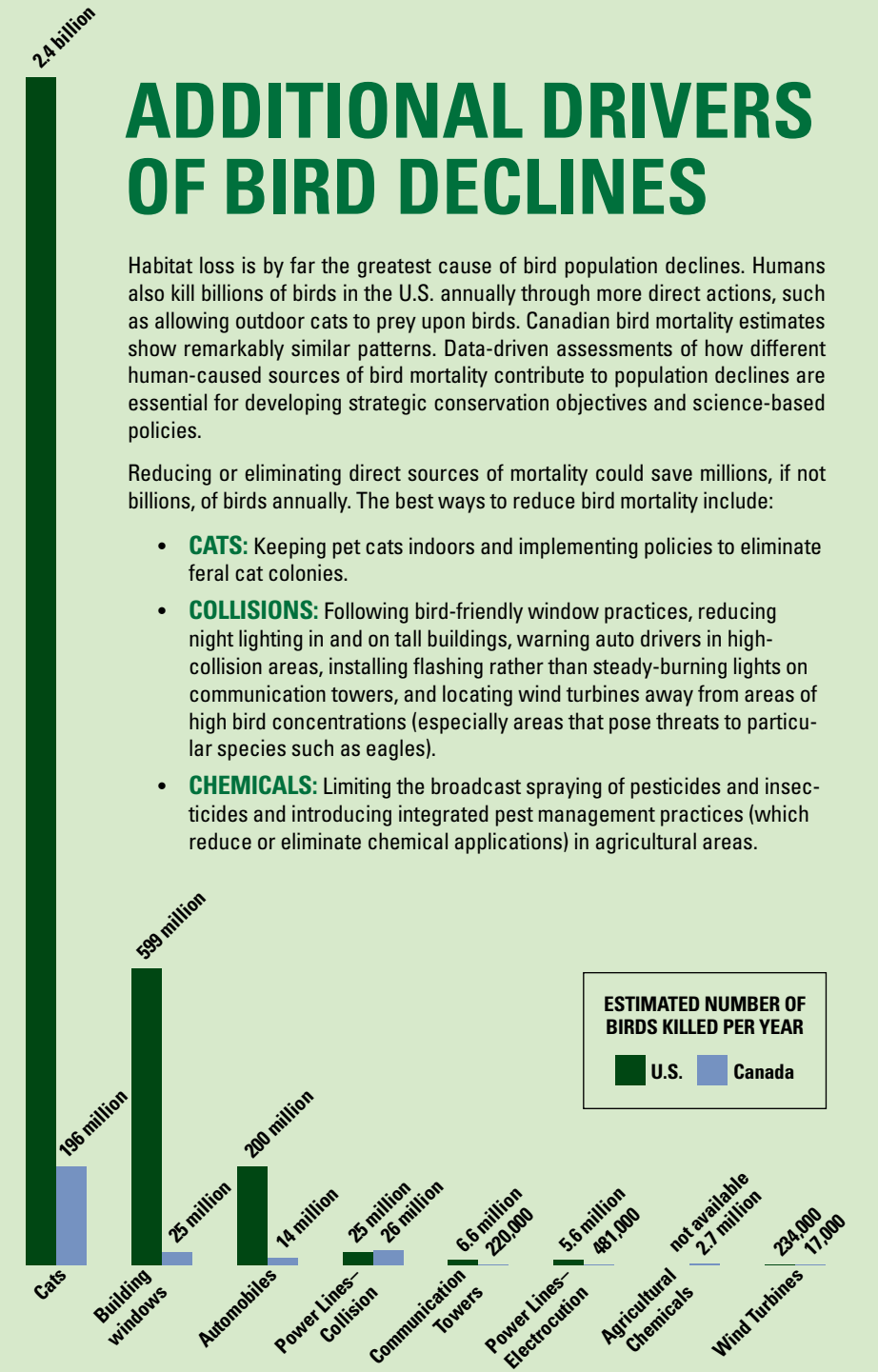
EASTERN MEADOWLARK BY GERRIT VYN

ADDITIONAL DRIVERS OF BIRD DECLINES

Habitat loss is by far the greatest cause of bird population declines. Humans also kill billions of birds in the U.S. annually through more direct actions, such as allowing outdoor cats to prey upon birds. Canadian bird mortality estimates show remarkably similar patterns. Data-driven assessments of how different human-caused sources of bird mortality contribute to population declines are essential for developing strategic conservation objectives and science-based policies.

Reducing or eliminating direct sources of mortality could save millions, if not billions, of birds annually. The best ways to reduce bird mortality include:

- **CATS:** Keeping pet cats indoors and implementing policies to eliminate feral cat colonies.
- **COLLISIONS:** Following bird-friendly window practices, reducing night lighting in and on tall buildings, warning auto drivers in high-collision areas, installing flashing rather than steady-burning lights on communication towers, and locating wind turbines away from areas of high bird concentrations (especially areas that pose threats to particular species such as eagles).
- **CHEMICALS:** Limiting the broadcast spraying of pesticides and insecticides and introducing integrated pest management practices (which reduce or eliminate chemical applications) in agricultural areas.



LESSONS of the PASSENGER PIGEON

THE LAST PASSENGER PIGEONS in the wild were shot just after 1900, a tragic way to start a century. But ironically, their disappearance ushered in a powerful new era of conservation. The pigeon inspired leaders such as Theodore Roosevelt, George Bird Grinnell, Aldo Leopold, and Rachel Carson, and provided the impetus for federal wildlife protection laws, beginning with the Lacey Act, followed by the Migratory Bird Treaty Act, and eventually the Endangered Species Act.

Reflecting back on the plight of the Passenger Pigeon, our nation has made tremendous strides in wildlife conservation. We have developed deep scientific knowledge, built a strong network of protected habitats, and designed the world's best model for adaptive management of wildlife populations. Our charge today is to protect these investments with policies that rise to the threats that wildlife face in the 21st century.

KEY POLICIES FOR AMERICA'S BIRDS

Support and actions on key government policies help keep the assurance to the American public of healthy bird populations for future generations. These policies include:

- The North American Wetlands Conservation Act and Neotropical Migratory Bird Conservation Act;
- Revenue provided by sales of the Duck Stamp;
- The Agreement on the Conservation of Albatrosses and Petrels treaty that endorses America's bird-friendly ocean fishing;
- Conservation programs such as the Land and Water Conservation Fund, Migratory Bird Joint Ventures, and State and Tribal Wildlife Grants;
- The Conservation Reserve Program; and,
- Policies that reduce the impacts of climate change and help birds adapt.



CHRIS WOOD

KNOWLEDGE: Science is the foundation of effective conservation

The population crash of the Passenger Pigeon didn't occur out of sight from human eyes. Americans in the late-19th century could see that the great Passenger Pigeon flocks were growing thinner. But without a mechanism for population monitoring, there was no widespread recognition that the population was in full collapse.

Today scientists have rich data sets for evaluating the health of bird populations. Monitoring allows scientists to inventory bird populations, just as a business takes stock of its assets. Continued monitoring, with years of data for comparison, makes it possible for scientists to gauge population changes. The indicators and assessments in this and previous State of Birds reports were made possible by long-term, consistent monitoring, such as the Breeding Bird Survey, Christmas Bird Count, and eBird. Much of this data is now available to the public and all scientists through the Avian Knowledge Network.

Once declines are detected, causes must be diagnosed. Recent advances in research technologies (such as geolocators small enough to fit on a songbird's back) provide new ways to study birds not possible a decade ago. By locating where the troubles are (on breeding or wintering grounds, or during migration), and what physiological factors play a role (such as DNA or chemical disruption), scientists can pinpoint the limiting factors in a bird population. Out of research comes the prescription for recovery.

Investments in monitoring and research pay for themselves with smarter conservation that's effective and cost-efficient—the kind that keeps species off the Endangered list. Such investments must be planned for up-front in budgeting as a key tool for land management. At the Cascade Siskiyou National Monument, bird monitoring was designated as an indicator of oak woodland ecological integrity. The monitoring data helped guide improved grazing management on 52,000 acres of public lands.



GERRIT VYN

HABITAT: America's legacy of healthy habitats needs support

From 1870 to 1900, the number of people in the United States nearly doubled, creating tremendous demand for food and wood products and putting tremendous pressure on mature forests. Deforestation in the Northeast reduced the breeding range of the Passenger Pigeon.

In the wake of the pigeon's demise, a strong conservation movement emerged with a great appreciation for the importance of habitat. President Roosevelt declared the first national wildlife refuge at Pelican Island in 1903. Today, public agencies protect more than 850 million acres of land and 3.5 million square miles of ocean. Private conservation groups and land trusts protect another 24 million acres (an area of private protected habitat nearly as large as the entire National Park Service system in the lower 48 states).

A strong framework of habitat conservation legislation emerged, too. In recent decades, the North American Wetlands Conservation Act and the

Neotropical Migratory Bird Conservation Act have conserved more than 30 million acres by growing initial federal investments into higher conservation returns (grant-to-match ratios of more than \$3-to-\$1). The Farm Bill has had the largest conservation footprint on private lands, with nearly 30 million acres currently enrolled in the Conservation Reserve Program or under farm, grassland, or wetland easements. Additionally, conservation measures are implemented through Farm Bill working lands programs on another 30 million acres on farms and ranches. The Land and Water Conservation Fund has added millions of acres to our national parks, national forests, and wildlife refuges.

These cornerstones of federal legislation have built a great American legacy of healthy habitats. In order to carry the legacy forward for future generations, they must receive continuing authorization and funding at levels closer to their peak appropriations.



COURTESY TOM THULEN

MANAGEMENT: Hunters and birders, the conservation constituency

The Passenger Pigeon is a case study in unregulated harvest. At one massive nesting colony in Wisconsin in 1871, one million birds were stuffed into barrels and shipped to market via railroads.

Wildlife management was clearly needed. In the early 20th century, sportsmen ignited a remarkable conservation turnaround. Key legislation, such as the Duck Stamp and the Pittman-Robertson excise tax on firearms and ammunition, built the foundation for funding a wildlife management system. The results of that bold action fly as waves of ducks and geese that course along our country's flyways.

Today, though, our conservation dollars are stretched thin, as the problems are more complex. Climate change poses pervasive threats (changing seasonal temperatures, precipitation patterns, and water levels) that require full-landscape management. Our challenge now is to protect the entire ecological fabric, not just individual threads. It's time to build on the successes of the past century

by updating existing revenue streams (the price of a Duck Stamp has not changed since 1991) and expanding the funding base beyond hunter-generated dollars. The 47 million birders in America could be a more powerful source of conservation funding.

Wildlife management in this century must be proactive and partnership-driven. As successful as the Endangered Species Act has been—the lifeline that rescued Bald Eagles and remains fundamental to preventing extinctions—it should be a last resort. We must strive to keep species off the list. Responding to early-warning signals is far more cost efficient and effective than administering emergency care.

The Passenger Pigeon is gone, but we've accomplished much since it disappeared. We may face steeper challenges, but we have a century of progress to build on. And, we know conservation works, when we have the will—and the resources—to achieve it.

OUR APPROACH

Assessment of U.S. Birds by Habitat

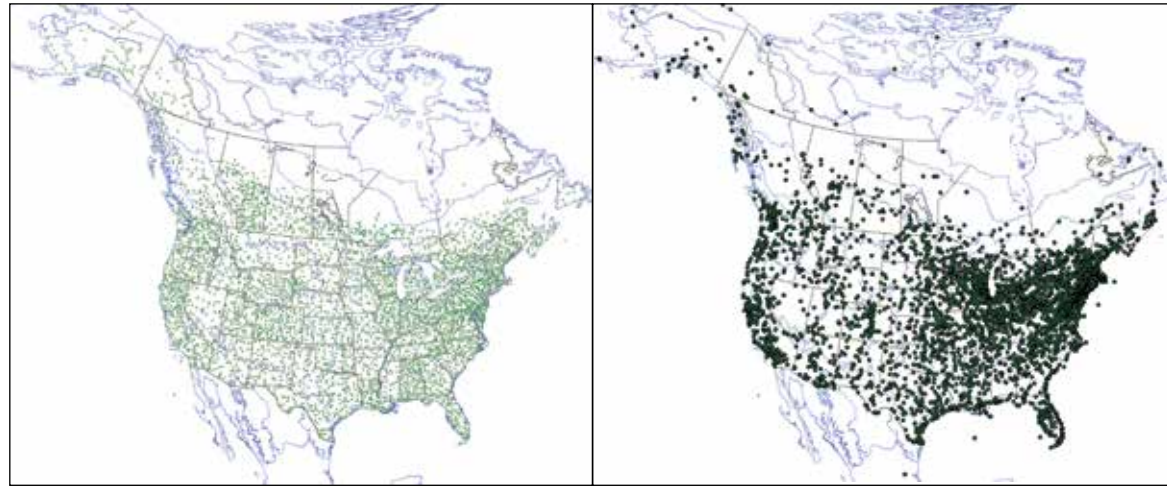
Because healthy bird populations depend on both the quality and quantity of their habitats, our State of the Birds approach focuses on species that are dependent on a single primary habitat type—we define these species as habitat obligates. For this report, we identified obligate species in oceans, coasts, inland wetlands, forests, aridlands, and grasslands, as well as species found on Hawai'i, Puerto Rico, and the U.S. Virgin Islands, and other U.S. island territories. A listing of species in each habitat and a map of U.S. habitats based on USGS GAP National Land Cover can be found at www.stateofthebirds.org.

Bird Population Indicators: A Measure of Environmental Health

The underlying principle of State of the Birds reports is that the health of populations of bird species found only within a habitat reflects the overall health of that habitat. To assess the health of bird populations, we used data from several continental-scale monitoring programs that have provided consistent data since 1968 (or since 1974 for shorebirds). For each obligate species, we assigned a habitat type and estimated the population change up to 2012 with the appropriate survey, then combined the estimates of trends for species in the habitat into a composite estimate of change. This composite estimate of change is used as the bird population indicator for the habitat. The statistical approaches we use for estimation of the bird population indicators were first used in the 2009 State of the Birds report.

Tracking Change in U.S. Bird Populations

In this report, we use information from the North American Breeding Bird Survey, the Audubon Christmas Bird Count, the U.S. Fish and Wildlife Service's Spring Breeding Ground Waterfowl Survey, and the American Woodcock Singing-ground Survey. A new indicator was developed from monitoring data of migrating shorebirds, using data from the International Shorebird Survey, the Atlantic Canada Shorebird Survey, and the Ontario Shorebird Survey. Detailed information about these surveys and species used in each analysis are provided on the State of the Birds website (www.stateofthebirds.org).



Locations of North American Breeding Bird Survey routes (left) and Audubon Christmas Bird Counts (right), which provided the bulk of long-term bird monitoring data used in this report. Both of these surveys rely on thousands of volunteer birders.

Species of Conservation Concern: The 2014 State of the Birds Watch List

The Watch List, presented by the North American Bird Conservation Initiative U.S. committee, includes those birds of highest conservation concern occurring in the U.S. and its territories. The 2014 Watch List represents the first time the approach described below has been applied consistently to all of our birds. It includes many of the species listed under the Endangered Species Act, additional species that require immediate conservation attention, and others on or near the brink of being threatened that warrant continued vigilance. The Watch List is re-evaluated every 5 to 10 years on the basis of improved methods of evaluation, better data, and changes in the status of populations. A complete listing of Watch List species and distinct populations is available on the State of the Birds website (www.stateofthebirds.org).

To assess species for inclusion on the Watch List, a NABCI team reviewed the conservation status of more than 800 bird species in the continental U.S., Hawai'i, U.S. oceans, and territories. The team drew on data from long-term monitoring surveys, regional assessments, and expert knowledge of species' populations and threats to each major habitat. Specifically, we assessed the vulnerability of each species to possible extinction, based on six key factors: size of global breeding population, breeding and non-breeding range size, threats to breeding and non-breeding habitats, and population trends. Species that did not meet Watch List criteria for threats or range size, but experienced significantly declining trends (50% or more loss over 45 years), are defined as Common Birds in Steep Decline. The complete results of this assessment can be found in the Partners in Flight Species Assessment Database maintained by the Rocky Mountain Bird Observatory.

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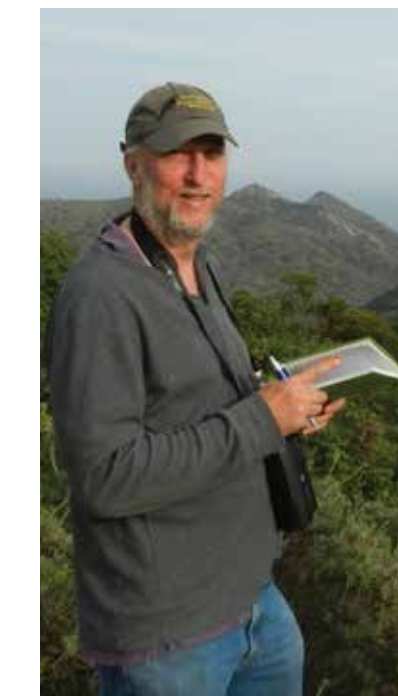
Thank You to Volunteers: We thank the thousands of dedicated bird watchers who volunteer their time and expertise to participate in long-term monitoring programs such as the North American Breeding Bird Survey, Christmas Bird Count, and eBird. Without their efforts, we would not have the understanding of bird population status and trends that made this State of the Birds Report possible.

ABOUT NABCI AND THE U.S. STATE OF THE BIRDS REPORTS

The development of the State of the Birds report is a team effort lead by the North American Bird Conservation Initiative U.S. Committee. The NABCI U.S. Committee is a forum of 23 state and federal government agencies, private conservation organizations, and bird initiatives that work together in partnership so that healthy populations of North American birds are enjoyed and valued for generations to come. Beginning in 2009, NABCI has produced four U.S. State of the Birds reports that focus on key issues such as climate change and public and private lands conservation. This report is the fifth in the series.



DEDICATED TO THE MEMORY OF RUSS GREENBERG (1953–2013)



Russ Greenberg was one of the key scientists in the nascent field of conservation biology who became alarmed by tropical deforestation. In response, he proposed the idea of promoting shade-grown coffee as a bird-friendly product. His ability to integrate science and conservation was especially evident in his research on Neotropical migrants, culminating in 1989 with a landmark paper with Chan Robbins, John Sauer, and Sam Droege indicating precipitous population declines of migratory species. This paper motivated Congress to appropriate funds to establish the Smithsonian Migratory Bird Center and helped ignite a massive bird conservation movement resulting in the establishment of Partners in Flight. Russ also initiated important public initiatives, including the Bridging the Americas program to teach schoolchildren about migratory birds and a popular public festival that blossomed into International Migratory Bird Day. Russ will always be remembered as a great champion in migratory bird conservation.

RUSS GREENBERG ON SANTA CRUZ ISLAND, CALIFORNIA
BY MAYBELLENE GAMBOA

The **Cornell** Lab of Ornithology



Audubon University of Idaho



Environment
Canada

Environnement
Canada

