



Saving Our Shared Birds

Partners in Flight Tri-National
Vision for Landbird Conservation

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Recommended Citation

H. Berlanga, J. A. Kennedy, T. D. Rich, M. C. Arizmendi, C. J. Beardmore, P. J. Blancher, G. S. Butcher, A. R. Couturier, A. A. Dayer, D. W. Demarest, W. E. Easton, M. Gustafson, E. Iñigo-Elias, E. A. Krebs, A. O. Panjabi, V. Rodriguez Contreras, K. V. Rosenberg, J. M. Ruth, E. Santana Castellón, R. Ma. Vidal, and T. Will. 2010. Saving Our Shared Birds: Partners in Flight Tri-National Vision for Landbird Conservation. Cornell Lab of Ornithology: Ithaca, NY

www.savingoursharedbirds.org

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JAMES L'VAUDAIS

The tiny Rufous Hummingbird (front cover and above) connects some of the most extreme environments of Canada, Mexico, and the United States twice each year. Its 8,000-km round-trip migration, through alpine meadows, forests, and deserts, from Alaska to Mexico, is the longest of any bird for its size. It is a critical continental pollinator, following waves of flowering plants during migration. Transporting pollen over huge distances helps resident plant species by increasing genetic mixing. Although still abundant, Rufous Hummingbirds are experiencing significant population declines.

FRONT COVER: RUFIOUS HUMMINGBIRD BY GLEN TEPKE (PBASE.COM/GTEPKE)



Foreword

LANDBIRDS are the most abundant and diverse group of birds in North America, with nearly 900 species distributed across every major terrestrial habitat. Birds are indicators of environmental health; their populations track changes in habitat, water, disease, and climate. They are providers of invaluable ecosystem services, such as pest control, seed dispersal, and pollination. As the focus of bird watching, they help generate billions of dollars for national economies. Yet, we are in danger of losing this spectacular and irreplaceable bird diversity: landbirds are experiencing significant declines, ominous threats, and shrinking habitats across a continent with growing human populations, increasing resource consumption, and changing climate.

Saving Our Shared Birds presents for the first time a comprehensive conservation assessment of landbirds in Canada, Mexico, and the continental United States. This new tri-national vision encompasses

The American Redstart, incorporated in the Partners in Flight logo below, represents the international connections of migratory landbirds described and embodied in this report.

the complete range of many migratory species and highlights the vital links among migrants and highly threatened resident species in Mexico. It points to a set of continent-scale actions necessary to maintain the landbird diversity and abundance that are our shared responsibility.

This collaborative effort of Partners in Flight (PIF) is the next step in linking the countries of the Western Hemisphere to help species at risk and keep common birds common through voluntary partnerships—our mission since 1990. *Saving Our Shared Birds* builds upon PIF's 2004 *North American Landbird Conservation Plan*, which presented science-based priorities for the conservation of 448 landbird species in Canada and the United States.

Our three nations have expressed their commitment to cooperative conservation through numerous international treaties, agreements, and programs, including formation of the North American Bird Conservation Initiative (NABCI) a decade ago. The NABCI partnership recognizes that effective conservation requires a concerted effort within each country, as well as a tri-national strategy to address issues throughout the full life cycles of our birds.

Today more than ever, it is urgent for the people of Canada, Mexico, and the United States to work together to keep common birds common, prevent extinction of our bird species at greatest risk, and ensure the diversity and abundance of birdlife across North America and throughout the hemisphere, far into the future. *Saving Our Shared Birds* shows the way forward.

Signed and approved by

Canada: Cynthia Wright, NABCI Canada Chair

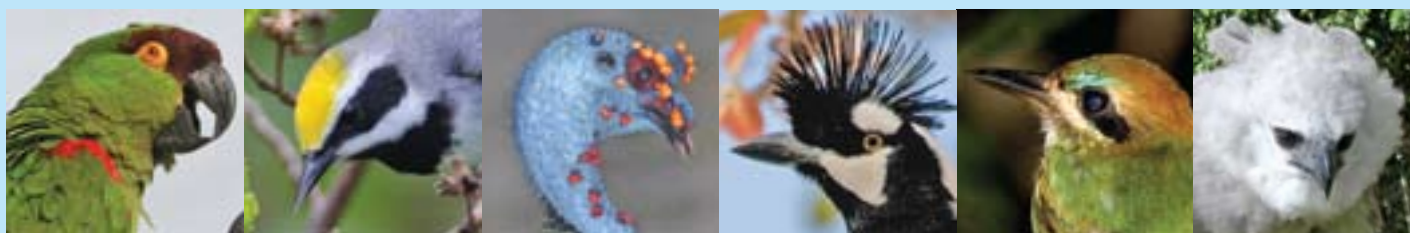
Mexico: Dr. José Sarukhán Kermez, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) y Presidente del Comité Mexicano de la Iniciativa para Conservación de las Aves de América del Norte (ICAAAN-NABCI)

United States: Paul Schmidt, Partners in Flight Council Chair and John Hoskins, NABCI United States Chair



nabci

Partners in Flight Tri-National Vision: Overview



Landbirds depend on terrestrial habitats throughout their life cycles. The landbirds of Canada, Mexico, and the United States encompass 58 taxonomic families (see Appendix A); 17 are primarily Neotropical families that reach their northern limit of distribution in Mexico. Left to right: Maroon-fronted Parrot, Golden-winged Warbler, Ocellated Turkey, Tufted Jay, Tody Motmot, Harpy Eagle.

A Continent of Birds and People

Canada, Mexico, and the continental United States are home to 882 native landbird species, more than one-third of which depend substantially on habitats in more than one country. Our abundant and diverse birdlife enriches the cultures of all three countries, provides immeasurable ecosystem services that benefit our economies, and serves as a sensitive barometer of changes to our environments. We now face unprecedented loss of bird populations and the imminent threat of extinction of many species. Conserving our shared North American birds will require a continental, and ultimately hemispheric, perspective and a commitment to international cooperation.

Loss of Bird Diversity

Partners in Flight's first tri-national assessment identified 148 bird species in need of immediate conservation attention because of their highly threatened and declining populations. The most imperiled species include:

- 44 species with very limited distributions, mostly in Mexico, that are at greatest risk of extinction;
- 80 tropical residents dependent on deciduous, highland, and evergreen forests in Mexico;
- 24 species that breed in temperate-zone forests, grasslands, and aridland habitats.

Action is needed in each country, but the most urgent needs are in Mexico, where tropical forests important to many high-concern landbirds are threatened by continued clearing for agriculture, livestock production, timber, and urban development. Many species are also threatened by unsustainable hunting or trapping for the cage-bird trade. Urban sprawl, intensified agriculture and grazing, and energy development threaten high-concern species in temperate forests, grasslands, and aridlands.

Loss of Bird Abundance

Steep declines in 42 common bird species over the past 40 years have resulted in the loss of 800 million birds from nearly all terrestrial habitats, with resulting effects on ecosystem services. The majority of steeply declining species breed in the northern United States and southern Canada; in winter these species are concentrated in the southern United States and Mexico. Because we lack long-term monitoring data to fully assess many tropical-forest, boreal-forest, and arctic-tundra birds, the number of steeply declining species is probably much higher. Declining birds face a diversity of threats on their breeding grounds from land-use policies and practices relating to agriculture, livestock grazing, urbanization, energy development, and logging. Migratory species also are highly threatened on their wintering grounds by loss of grasslands in northern Mexico and tropical forests in southern Mexico.

Shared Birds, Shared Responsibility

More than 200 species comprising 83% of individual landbirds rely on habitats in all three countries. Tropical forests in Mexico provide critical nonbreeding habitat for close to 100 substantially shared migratory species. These same forests provide year-round habitats for 70% of species that are of high tri-national concern. Migrating birds depend on high-quality habitat for safe travel and refuelling stopovers between distant breeding and wintering homes. The clear linkages among birds and habitats compel us to work internationally, to reinforce partnerships, and to develop new mechanisms for conserving both migrants and residents.

PHOTOS, THIS PAGE, LEFT TO RIGHT: RENÉ VALDÉZ, GERRY DEWAGHE (2), EDUARDO E. INIGO-ELIAS, GERRY DEWAGHE, KENNETH V. ROSENBERG.

PHOTOS, OPPOSITE PAGE, LEFT TO RIGHT: FRANCE DEWAGHE, BRIAN SULLIVAN (2), DAVID CREE, FULVIO ECCARDI

A Call to Tri-National Action

We can achieve our goals to protect, restore, and enhance populations and habitats of North America's birds, but the window of opportunity is rapidly closing. We recommend six primary actions:

1. Protect and Recover Species at Greatest Risk

A strong network of protected areas, especially in tropical and pine-oak forests in Mexico is necessary to support land-birds of high tri-national concern. Full implementation of national endangered species laws must ensure sufficient critical habitat for recovery of listed species.

2. Conserve Habitats and Ecosystem Functions

Relatively small policy changes can have dramatic cumulative benefits to birds in many habitats. Sustainable agriculture, forestry, and urban planning can protect core areas of habitat in working landscapes. Innovative incentives to communities and businesses are essential to support the transition to more sustainable economies.

3. Reduce Bird Mortality

Providing alternative livelihoods can reduce unsustainable hunting and trapping for the cage-bird trade. Simple measures can effectively reduce other sources of mortality, such as collisions with windows and tall structures, pesticide poisoning, and predation by domestic cats.

4. Expand Our Knowledge Base for Conservation

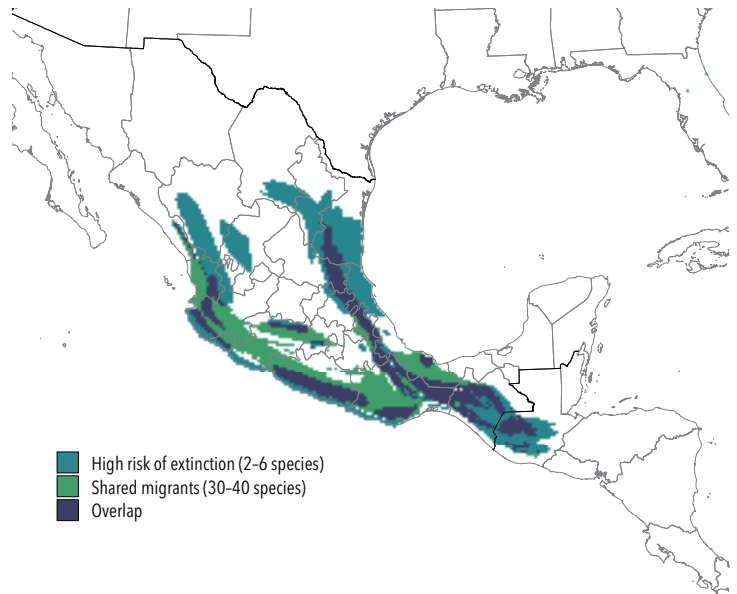
Effective conservation programs require an increased understanding of distribution patterns, seasonal connectivity between locations, factors limiting bird survival and productivity throughout the year, and the human dimensions of bird conservation. We also need to better understand the response of populations to management practices and the cumulative effects of human-caused mortality.

5. Engage People in Conservation Action

A more engaged human society will be necessary to conserve habitats and reverse bird population declines. Shared products and programs can increase participation by bird enthusiasts in citizen science and promote economic gain for people who rely on birds or bird habitats for their livelihoods.

6. Increase the Power of International Partnerships

Regional Alliances, international Joint Ventures, and community-based partnerships represent successful models for communication, international collaboration, and expanded funding for conservation of shared species. New mechanisms for engaging business, industry, and nongovernmental sectors will be necessary to find economically viable conservation solutions.



The winter ranges of shared migrants show a striking geographic overlap with the ranges of species at greatest risk of extinction. More than 100 of the migrants shared substantially among our three countries depend on the same tropical and pine-oak forests that support highly threatened tropical residents.

Conserving migrants while conserving residents



Many migrants from Canada and the United States depend on the same tropical highland forests in southern Mexico as highly threatened residents. Left to right: Pink-headed Warbler, Hermit Warbler, Townsend's Warbler, Golden-cheeked Warbler, Horned Guan.

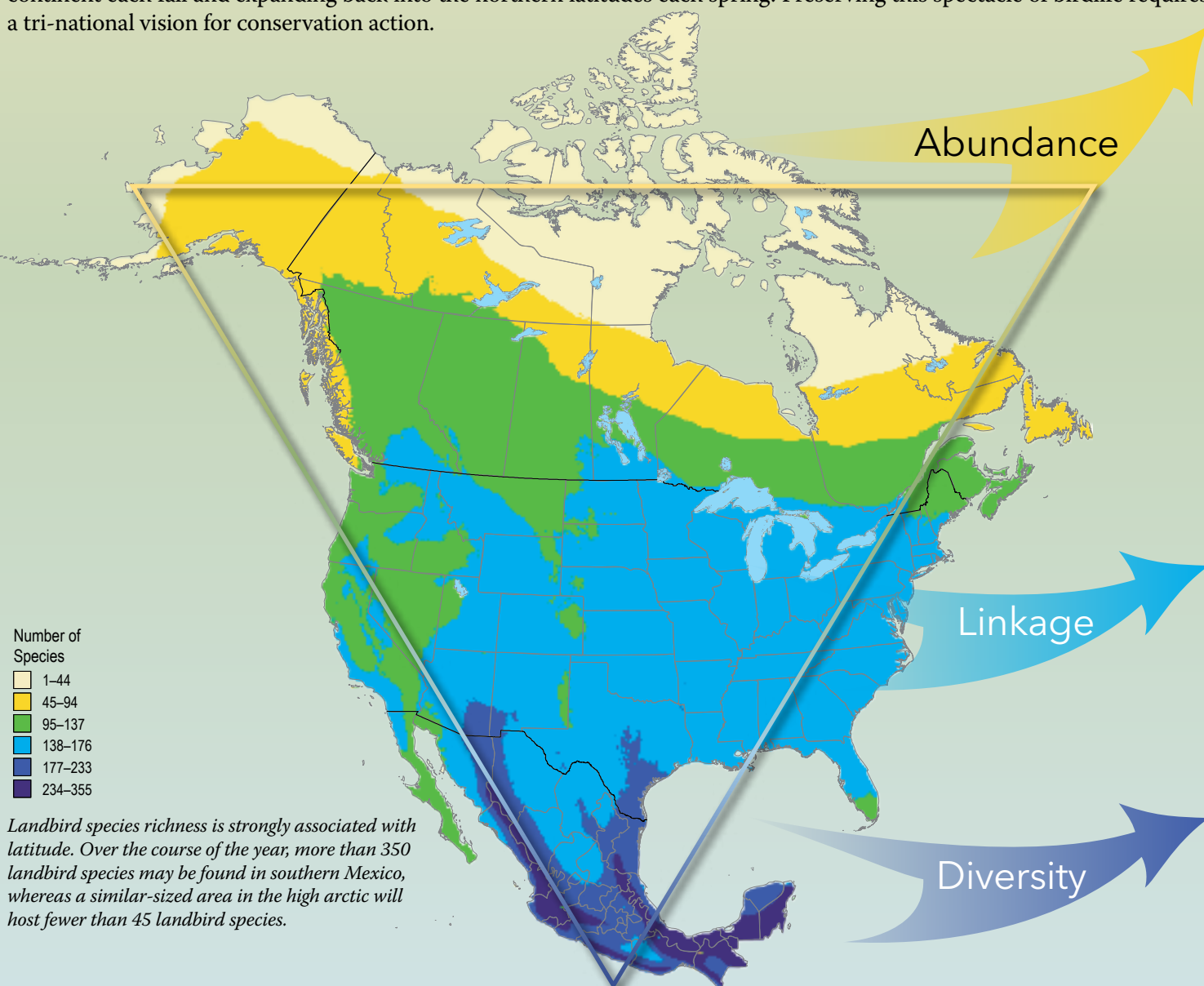
A Continent of Birds



OUR THREE NATIONS of Canada, Mexico, and the continental United States are home to more than 1,150 species of birds, including 882 native landbird species. Abundant and diverse, landbirds are important to every terrestrial ecosystem and are woven into the economic and social fabric of the human communities that share these ecosystems.

Shaped by Geography

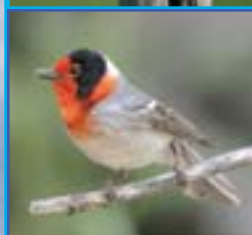
The unique “triangular” geography of North America shapes the birdlife in our three nations. The vast expanses of northern Canada and Alaska support relatively few breeding landbird species added up over such a large area; however, their total numbers are enormous. In contrast, a tremendous diversity of bird species, many with very small global populations, thrives in the narrow region of southern Mexico, where temperate and tropical systems meet. These disparate regions of great abundance and diversity are joined through the annual migrations of billions of birds, funneling southward across the continent each fall and expanding back into the northern latitudes each spring. Preserving this spectacle of birdlife requires a tri-national vision for conservation action.



PHOTOS, OPPOSITE PAGE, TOP TO BOTTOM, LEFT TO RIGHT: YELLOW-RUMPED WARBLER AND SPOTTED OWL BY JAMES LIVAUDAIS, BOBOLINK BY GERRY DEWAGHE, SNOW BUNTINGS BY EDUARDO E. INIGO-ELIAS, HERMIT THRUSH BY JAMES LIVAUDAIS, PAINTED BUNTING BY GREG LAVATY, SWAINSON'S HAWK BY GERRY DEWAGHE, RIVER OF RAPTORS BY KENNETH V. ROSENBERG, RED-FACED WARBLER AND BLUE-CROWNED MOTMOT BY GREG LAVATY, DOT-WINGED ANTWRN BY GERRY DEWAGHE, VIOLEACEOUS TROGON BY GREG LAVATY, MILITARY MACAW BY GREG LAVATY



Among North America's most abundant birds, the Yellow-rumped Warbler is a continental ambassador. Each summer, well over 100 million breeders fill the expansive northern forests, while each fall and winter, throngs of "yellow-rumps" pour into the southern United States, Mexico, the Caribbean, and Central America.



Each fall, more than 5 million raptors funnel through a narrow geographic bottleneck in Veracruz, Mexico. The monitoring of this "River of Raptors" is directly supported by an ecotourism program that contributes to the local economy.

The extremely high diversity in Mexico includes numerous representatives of primarily Neotropical families such as motmots, trogons, woodcreepers, parrots, and antbirds.



Spectacular Abundance

The total number of North American landbirds is staggering. PIF estimates that more than 10 billion birds are present at the end of each breeding season, with numbers receding as many die during migration and winter. This great abundance of birds is critical to the ongoing provision of fundamental ecosystem services, such as pollination, seed dispersal, and pest control, that support productive and resilient habitats throughout the continent.

Spectacular Linkage

Billions of birds—and almost 40% of all landbird species—traverse the continent twice a year in spectacular migrations. Many of these birds move from breeding grounds in the vast boreal "nursery" to wintering grounds in the tropics, following seasonal peaks of food availability. This migration, which links habitats throughout the hemisphere, has persisted for millennia and is one of the most complex and dynamic natural phenomena on the planet.

Spectacular Diversity

North American landbirds of our three nations are incredibly diverse, representing 58 taxonomic families and 75% of the global landbird orders. Sparrows (78 species), flycatchers (76 species), wood warblers (64 species) and hummingbirds (57 species) are especially well represented.



A Continent of People Connected to Birds



BIRDS FIGURE PROMINENTLY in human cultures throughout North America. They provide food in subsistence cultures. Their feathers are used as adornments and in religious ceremonies, and they serve as icons and omens. As namesakes of places and sports teams, and as national symbols on our flags and currency, birds represent strength and determination. Our languages and literature teem with references to birds, and our recreational pastimes, from birding to art, center on these amazing animals.

Birds Signal Environmental Health

Because of their great abundance and conspicuous habits, birds act as the “canary in the coal mine” in every terrestrial ecosystem. Birds respond quickly, not only to negative changes, but also to positive human actions, helping us to devise and monitor solutions to environmental problems. In State of the Birds reports around the world, birds have gained acceptance as important indicators of environmental health.



Landbirds, such as this Olive-Sided Flycatcher, consume vast numbers of insects, reducing the need for pest-control.

BRIAN SULLIVAN

Birds Fuel Economies

Millions of birders, photographers, and hunters travel widely and buy equipment for their hobbies, fueling a growing portion of our nations' economies. In the United States, approximately 48 million birders generated \$82 billion USD and 671,000 jobs in 2006. In Canada, an estimated 10.3 million people (one-third of the population) spent C\$1.3 billion on wildlife viewing in 1996. Bird tourism is growing in popularity in Mexico, through birding festivals and specialized tour packages and training of local guides.



Mesoamerican pre-Columbian cultures held strong social and economic ties to wild birds. They represented birds in many forms, such as this Mayan “lintel,” depicting a forest eagle, possibly a Harpy Eagle. Eagles were considered by the Maya to be a link between earth and heaven.

ROSA M.A. VIDAL



WILBER SUITER

The recovery of the Bald Eagle—after the ban on the pesticide DDT—is a testament to the power of conservation actions.

Birds are Essential to Ecosystems

Birds keep our ecosystems healthy, controlling pests and disease vectors by consuming immense quantities of insects and rodents, facilitating decomposition and nutrient cycling through the consumption of carrion, pollinating flowers, and dispersing seeds. They also excavate cavities and burrows essential for other wildlife. As birds migrate across the continent, they carry these services with them. The enormous number of shared landbirds can consume at least 100,000 metric tons of invertebrates daily (equivalent in weight to more than 20,000 African elephants!). Birds in Canada's boreal forest alone are estimated to provide \$5.4 billion in pest-control services each year.

A Future, Coexisting with Birds

North America is home to more than 450 million people, with almost half living in cities with populations of at least 750,000. With a projected continental population of more than 600 million people by 2050, sustainable resource use will be a difficult, but vital, goal. Widespread poverty, increased demand for resources, regional disparities in wealth, and economic hardships are among the many challenges we face when trying to maintain functioning ecosystems for birds and people. To be successful, conservation solutions for birds must also address these societal challenges.



HUMBERTO FERNANDEZ

Golden Eagle feathers are handed to the Huichol ethnic group leaders in San Luis Potosi, Mexico, to be used in a cultural ceremony. As part of the Golden Eagle Recovery program in Mexico, these feathers are now provided from captive birds that cannot be released due to injuries, rather than taken from hunted eagles.



EDUARDO E. INIGO-ELIAS

A Mexican child uses a field guide to learn about birds. Fostering a connection to birds, habitats, and conservation at a young age will ensure that future generations continue to be connected to birds.

Legally protecting birds

Canada, Mexico, and the United States have pursued environmental conservation individually and collectively since the late 1800s. The international migratory bird conventions signed by our three nations in the early 20th century, and their implementing laws in each nation, have regulated the take of migratory birds in North America and made the protection of migratory birds a responsibility of national governments.

In 1995, our three countries established the Trilateral Committee for Wildlife and Ecosystem Conservation and Management to advance an integrated approach for cooperative conservation, including the reduction and mitigation of threats to shared species and ecosystems.

Despite these safeguards, many native birds need further protection to prevent extinction. The *Canadian Species at Risk Act* (2002), the *Official Mexican Standard NOM-059-SEMARNAT* (2001), and the *United States Endangered Species Act* (1973) provide federal protection in each nation. Although this is an important and successful safety net, implementing endangered species laws is an expensive last resort. A central goal of Partners in Flight is to manage our ecosystems and proactively conserve species before they become endangered.



Socorro Dove (top), Kirtland's Warbler (center), and Henslow's Sparrow (bottom) are examples of federally endangered species in Mexico, the United States, and Canada, respectively.

PHOTOS, FROM TOP: ALAN R. THOMPSON, GERRY DEWAGHE, GREG LAVATY

Assessing Tri-National Conservation Priorities



WITH NEARLY 900 LANDBIRD SPECIES occurring in Canada, Mexico, and the United States, focusing conservation actions on the highest priority species, habitats, and geographic areas is of critical importance. PIF has developed a species assessment process that provides scientific evaluations of conservation vulnerability for birds. This process generates scores that rank the vulnerability of each species based on factors such as population size, distribution, population trend, and threats. The results are used to assign regional and continental landbird conservation priorities. For technical details, see the Appendices and visit the PIF Species Assessment website (www.rmbo.org/pif/pifdb.html).

Building on the assessments from the 2004 PIF North American Landbird Conservation Plan, hundreds of PIF partners completed new or updated assessments for the 882 native landbird species in Canada, Mexico, and the United States. The first ever assessment of Mexican birds was coordinated by the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) and the Rocky Mountain Bird Observatory, and engaged more than 100 Mexican ornithologists and conservation leaders (<http://avesmx.conabio.gob.mx>). In this report, we present the results of this process to aid tri-national efforts to conserve North American landbirds. In keeping with PIF's mission of helping species at risk, keeping common birds common, and engaging in voluntary partnerships, we asked three fundamental questions using the species assessment database:

- Which species are at greatest risk of extinction?
- Which common species are experiencing steep population declines?
- Which species share substantial populations across countries and would benefit most from cooperative international conservation?

By identifying the species most in need of conservation action, as well as those most amenable to tri-national actions, we can identify the habitats and geographic areas where actions are most urgent. We assigned species of conservation interest to one of 12 primary habitat types and identified primary wintering habitats for migrants (see photos at right and Appendices B, C, and D). We overlaid digital range maps (www.natureserve.org/explorer) of species in each group to identify regions of highest conservation importance, as well as linkages among regions and countries. Finally, by identifying the major threats affecting high-priority species and habitats, we were able to point to specific actions to address these conservation needs.

This tri-national assessment builds upon the priorities identified for the United States and Canada in the 2004 PIF Landbird Conservation Plan (www.partnersinflight.org/cont_plan/default.htm). The new assessment spotlights species

that warrant conservation attention at global and continental scales and highlights the critical importance of Mexico for resident and migratory birds.

Tri-National Species Assessment

The following examples illustrate how we used the species assessment database to answer the three fundamental questions:



Species such as the Thick-billed Parrot are considered to be at greatest risk of extinction, due to their very small breeding range and the severe threats faced by their small and steeply declining populations.



With distinctive populations breeding in different parts of Canada, Mexico, and the United States, the Northern Flicker is a common bird. Yet its populations have declined by more than 50% in the past 40 years. Common species in steep decline are sensitive indicators of the deteriorating health of their habitats.



By examining seasonal range maps, we identified species, such as the Hermit Thrush, that have substantial portions of their distribution in all three of our countries, compelling us to international conservation action.

PHOTOS, THIS PAGE, TOP TO BOTTOM: MARTJAN LAMMERTINK, WILLIAM JOBES, GREG LAVATY. PHOTOS, OPPOSITE PAGE, TOP TO BOTTOM, LEFT TO RIGHT: KENNETH V. ROSENBERG, INNU NATION, KENNETH V. ROSENBERG, TERRY RICH, JANET RUTH, KENNETH V. ROSENBERG, TERRY RICH, ASHLEY DAYER, ROSA MA. VIDAL (2), MARTJAN LAMMERTINK, MIGUEL A. SICILIA



Arctic and Alpine Tundra



Boreal Forests



Temperate Eastern Forests



Temperate Western Forests



Grasslands



Coasts



Freshwater Marsh



Aridlands



Tropical Deciduous Forests



Tropical Highland Forests



Mexican Pine-Oak Forests



Tropical Evergreen Forests

Loss of Bird Diversity



148 SPECIES (17% of native landbirds) face high or severe threats and have declining populations according to the PIF tri-national assessment. *All of these species warrant the highest levels of tri-national conservation concern and are in danger of disappearing without immediate conservation action.* Because many of these species are members of bird families found primarily in the Neotropics (Appendix A), this unique, tropical bird diversity is most in danger of being lost.

Species of High Tri-National Concern

Species of high tri-national concern can be categorized into three sub-groups based on patterns of distribution, abundance, and risk (see Appendix B for a full list of species in each group). Different conservation strategies are required for each group (44 species at greatest risk of extinction; 80 tropical residents of high tri-national concern; and 24 temperate breeders of high tri-national concern).

Groups of birds in which all species are of high tri-national conservation concern (see Appendix B)



All three hawk-eagles, both prairie-chickens



All three guans, all three wood-partridges, both quetzals

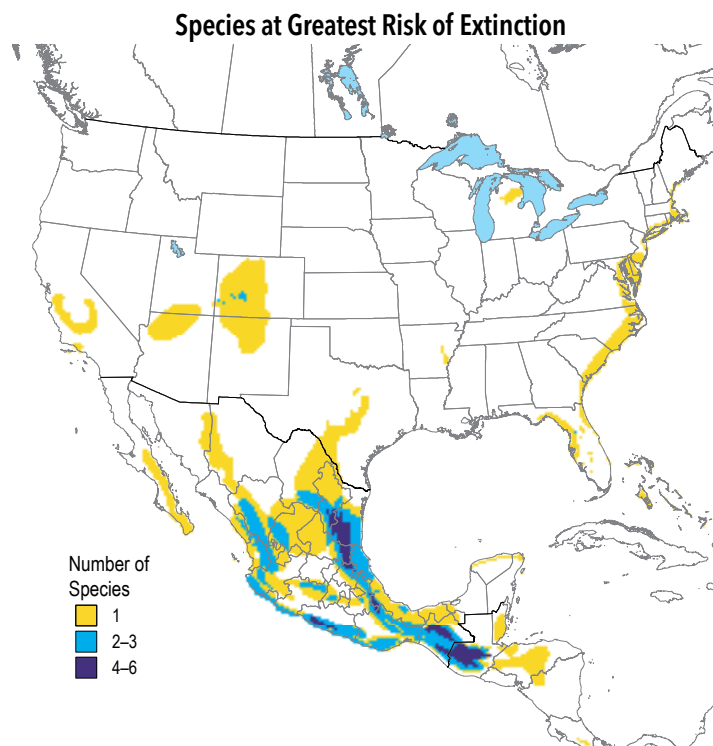


Both sage-grouse, all four Cyanolyca jays, both macaws

Species at Greatest Risk of Extinction

- 44 species at greatest risk
- 5 species already possibly extinct in the wild
- 91% listed under endangered species laws in at least one country
- 73% listed by the IUCN as globally “critically endangered,” “endangered,” or “vulnerable”

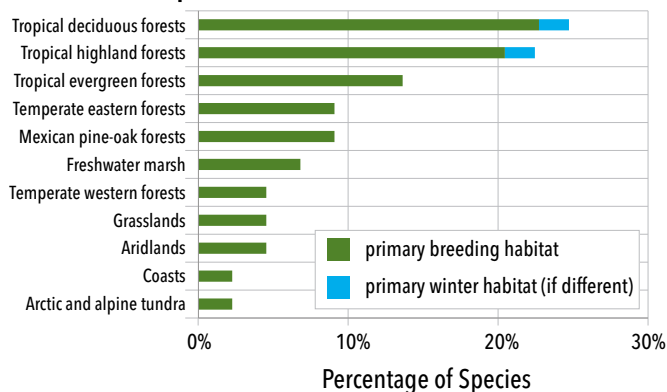
This group includes North American species at greatest risk because of severe threats, distributions of less than 80,000 km², and small, declining global populations. These species occur from the northern United States to southern Mexico, with the greatest number in the highland and Pacific coast regions of Mexico (for details, see Appendix B).



Overlay of year-round distributions for 44 landbird species at greatest risk of extinction.

PHOTOS, LEFT TO RIGHT, TOP TO BOTTOM: CHRIS WOOD, LAURA ERICKSON, CHRIS WOOD, GREG LAVATY (2), RAM PAPISH, KAREN FURGASON, MANUEL GROSSELET

Habitats: Species at Greatest Risk of Extinction



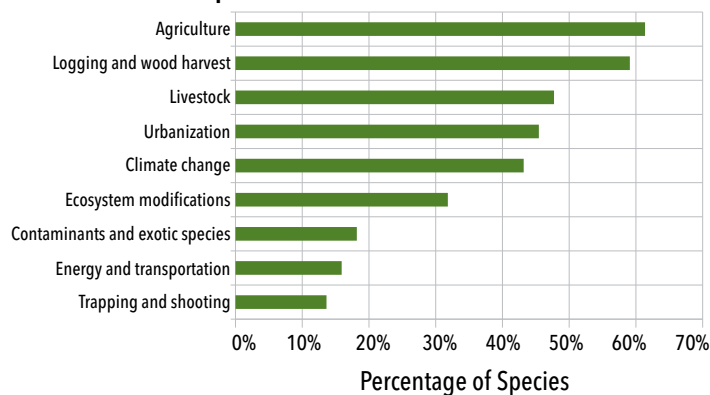
Most of these species face heightened risk because of their specialization on threatened tropical forest habitats: 25% require tropical deciduous forests; 23% are found in tropical highland forests; and 23% are in tropical evergreen or pine-oak forests of Mexico. The remaining species are dependent on specialized conditions in temperate forests (e.g., Kirtland's Warbler), grasslands (e.g., Sierra Madre Sparrow), aridlands (e.g., Gunnison Sage-Grouse), alpine tundra (Brown-capped Rosy-Finch), coastal saltmarsh (Saltmarsh Sparrow), and freshwater marshes (several endemic yellowthroats).

WILLIAM L. RHEIN, CORNELL LAB, MACAULAY LIBRARY



The Imperial Woodpecker was the largest woodpecker species in the world. It lived in the old-growth pine forests of northwestern Mexico, virtually all of which were heavily logged during the mid 20th century, before Mexico enacted endangered species legislation. This magnificent bird may have persisted into the early 1990s, but hope has dimmed that any remain today.

Threats: Species at Greatest Risk of Extinction



The primary threat to most of these species is loss of tropical forests in Mexico from unsustainable logging, wood harvesting, clearing for agriculture, and livestock grazing. These threats are particularly severe within high-elevation cloud forests, which support nine of Mexico's most endangered birds. The primary threat to birds in Mexican pine-oak forests, including Thick-billed and Maroon-fronted parrots, is continued logging of large-diameter trees and catastrophic wildfire. We cannot resolve these threats to habitat unless we address the socio-economic needs in human communities with limited resources.



Due to decades of trapping for the cage-bird trade, many of North America's parrots, such as this Yellow-headed Parrot, have disappeared from large parts of their ranges. Although Mexican laws now prohibit the capture of wild parrots, continued illegal capture is still a serious concern for remaining populations.

EDUARDO E. INIGO-ELIAS

Climate change predictions

More than 40% of the most at-risk species are vulnerable to habitat changes predicted to occur due to climate change. This is especially true for birds of alpine tundra on mountaintops, such as the Brown-capped Rosy-Finch, and birds restricted to high-elevation cloud forests, such as the Horned Guan. Effects on other species are poorly understood and require further study.

LEFT: DAVE KRUEPER; RIGHT: FULVIO ECCARDI



Urbanization is a threat to at-risk species in a wide range of habitats, from coastal saltmarsh and Texas Hill-country woodlands to high-elevation cloud forests and grasslands in Mexico. Large-scale development of vacation properties threatens to destroy and fragment remaining tropical deciduous forests along Mexico's Pacific Coast and Yucatan Peninsula. In addition, natural systems modifications, including disruption of natural fire regimes and draining of wetlands, directly threaten nearly one-third of the species most at risk of extinction (see Appendix B for listing of primary threats by species).



Tropical Residents of High Tri-National Concern

- 80 nonmigratory species
- 83% listed under Mexico's endangered species legislation

This group includes primarily tropical species with broad geographic distributions that are highly threatened in their tri-national range. Because nearly half are members of bird families characteristic of the New World tropics (e.g., trogons, motmots, woodcreepers, antbirds, cotingas), this significant tropical avifauna is in danger of disappearing from North America (for details, see Appendix B).

Of these 80 species, 12 have distributions primarily within Mexico (left map below), including Ocellated Turkey, Eared Quetzal, and Red-breasted Chat. An additional 42 species have moderate-sized distributions that extend through Mesoamerica into northern South America (center map below). These include such spectacular birds as the Resplendent Quetzal, Great Curassow, and Lovely Cotinga. The remaining 26 species are widely distributed in South America and reach their most

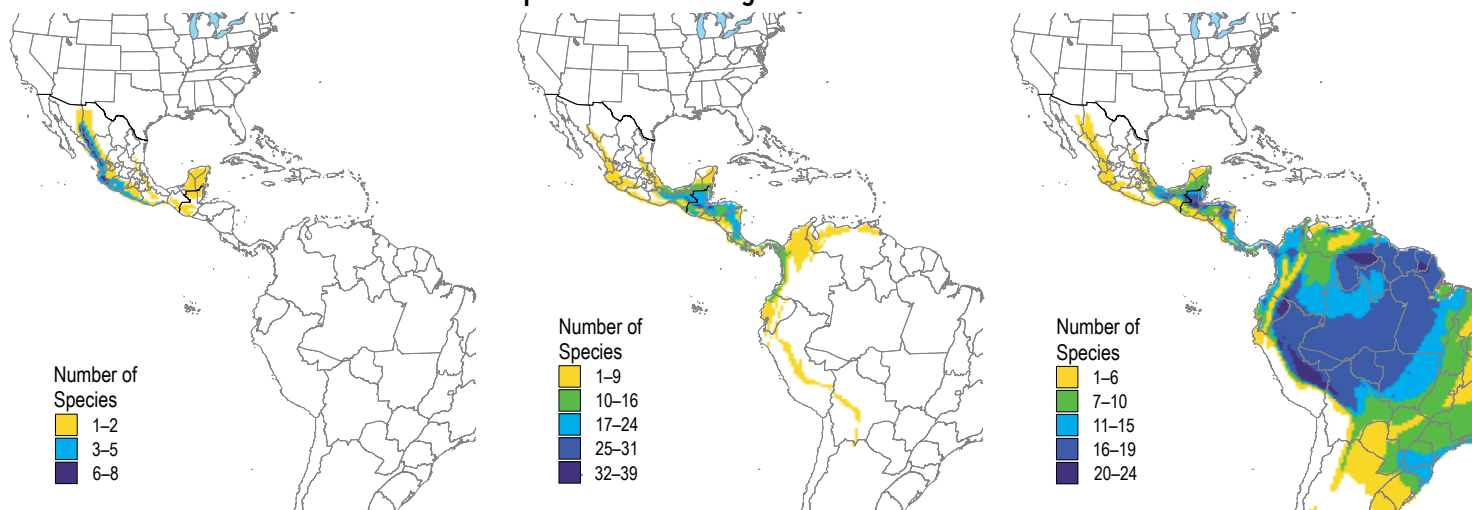
northerly distribution in southern Mexico (right map below). Species in this latter group, such as the Harpy Eagle, Orange-breasted Falcon, and Scarlet Macaw, are flagship species for rainforest conservation throughout their ranges.



CLOCKWISE FROM LEFT: FULVIO ECCARDI, MANUEL GROSSELET, MARCO GONZÁLEZ

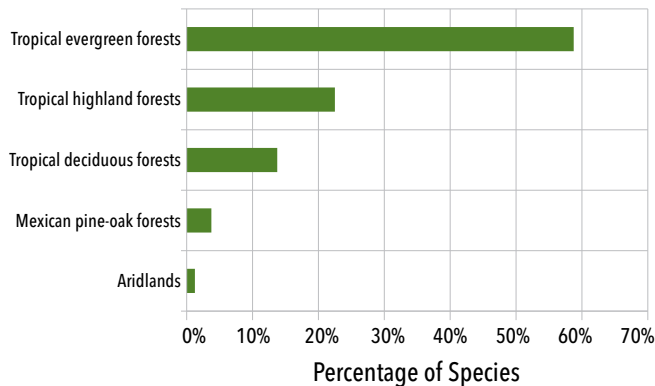
The Resplendent Quetzal (far left) is one of the most beautiful birds in the world. It was considered divine and was associated with the "snake god" Quetzalcoatl by Pre-Columbian Mesoamerican civilizations. It is one of 80 tropical residents of high tri-national concern. Red-breasted Chat (top) and Purplish-backed Jay (bottom) are endemic to western Mexico.

Tropical Residents of High Tri-National Concern



Patterns of geographic distributions among 80 tropical residents of high tri-national concern. Left: 12 species with primarily Mexican distributions; center: 42 species with primarily Mesoamerican distributions; right: 26 species with primarily South American distributions (see Appendix B for listings of species in each group).

Habitats: Tropical Residents



More than half of these species are dependent on tropical evergreen forest. These include typical members of insectivorous flocks such as antbirds, woodcreepers, and shrike-tanagers, as well as specialized fruit-eaters such as the Rufous Piha and Red-capped Manakin, and five species of tropical eagles. Another 23% of species are restricted to tropical highland forest, including cloud-forest specialists such as Fulvous Owl, Resplendent Quetzal, and Azure-hooded Jay. The remaining species, including several Mexican endemics such as Purplish-backed Jay and Eared Quetzal, are dependent on tropical deciduous and Mexican pine-oak forests.



CHRIS WOOD

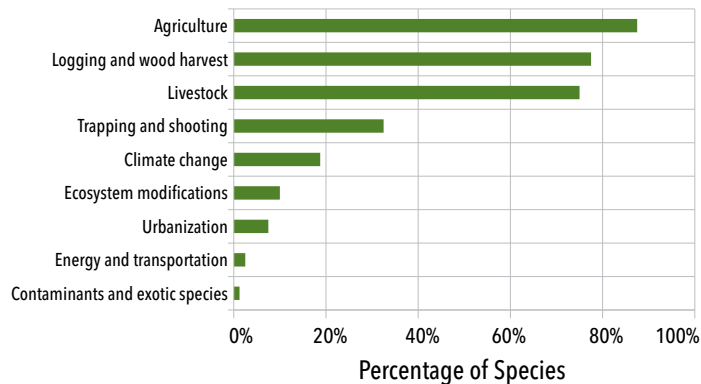
Once covering 9.8 million hectares from southern Tamaulipas through the Yucatan Peninsula and Chiapas, only 14% of the primary tropical evergreen forest remains today.



LEFT: JOHN DICUS; RIGHT: GERRY DEWAGHE

Lovely Cotinga (left) and Red-capped Manakin (right) are specialized fruit-eaters distributed through the tropical evergreen forests of Mesoamerica.

Threats: Tropical Residents



The primary threats to these tropical forest birds are logging of mature forest and habitat conversion for agriculture and livestock production. Plantations, such as sun coffee and bananas that remove a high proportion of native forest cover, significantly reduce the value of these habitats to high-concern tropical forest birds. Although many of these species extend southward into Central America, populations in those areas face similar habitat loss. Because agriculture and livestock production in these regions are often tied to subsistence living, we cannot resolve these threats to habitats unless we address the socio-economic need to support local human communities with limited resources.

In addition to the primary threat of habitat loss, nearly a third of these high-concern tropical forest species are threatened by unsustainable hunting, shooting, or trapping for the bird trade. This is especially detrimental for wood-partridges, guans, parrots, and large raptors, including eagles.



CHRIS WOOD

Orange-breasted Falcon (above) and Scarlet Macaw (right) reach the northern end of their distribution in southern Mexico and are flagship species for rainforest conservation throughout their range.



MIGUEL A. SICILIA

Temperate Breeders of High Tri-National Concern

- 24 species breeding primarily in the United States and Canada
- 67% have special protection by at least one nation's endangered species laws, but only three species are protected throughout their entire range
- 71% are migratory

This group includes temperate-zone species with moderate or large breeding distributions in the United States and Canada. PIF identified these species as high priorities in the 2004 Landbird Conservation Plan, and they all continue to warrant immediate tri-national conservation action to prevent further declines (for details, see Appendix B).

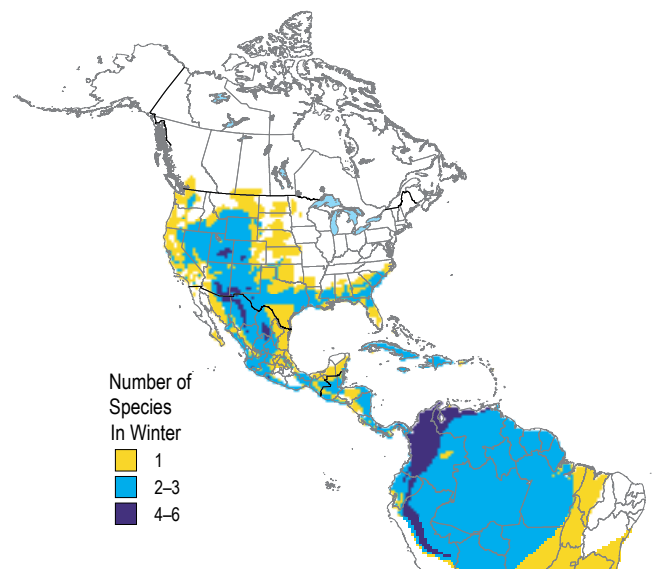
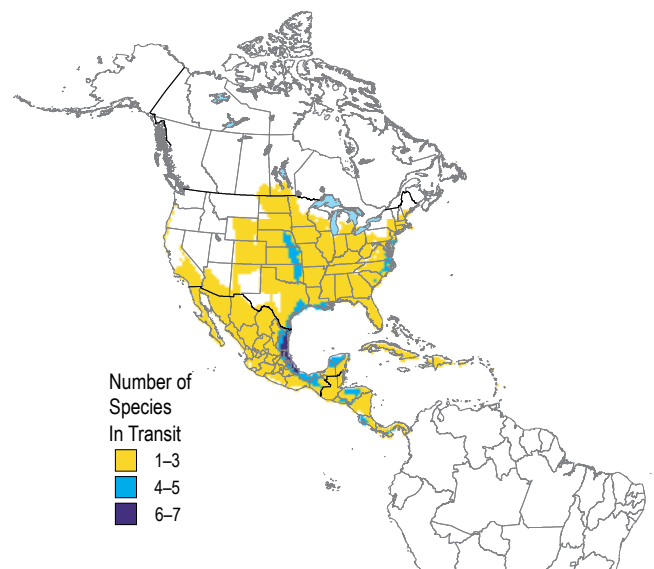
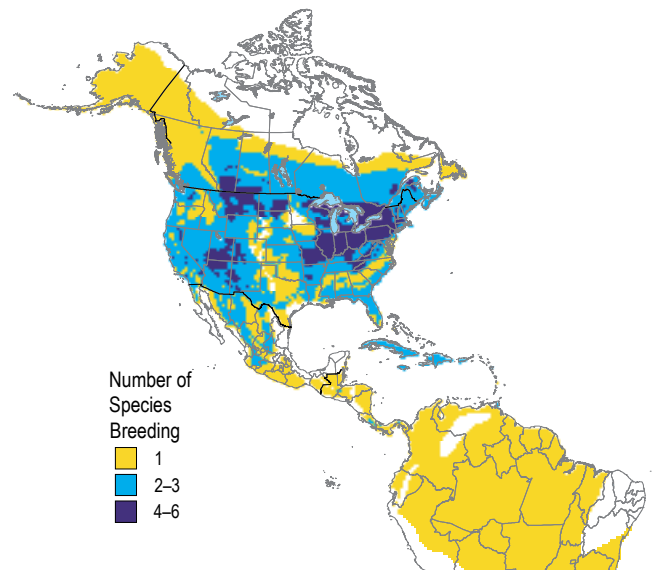
Collectively, the breeding ranges of these species cover most of the United States and Canada, and three species (Spotted Owl, Black Swift, and Olive-sided Flycatcher) have breeding populations in all three countries. More than 70% are migratory, most with populations wintering in or passing through Mexico; all but four species depend on habitats in at least two of our countries.



Cerulean Warbler (top), Black Swift (center), and Canada Warbler (bottom) are among the 24 temperate-breeding species of high tri-national concern.

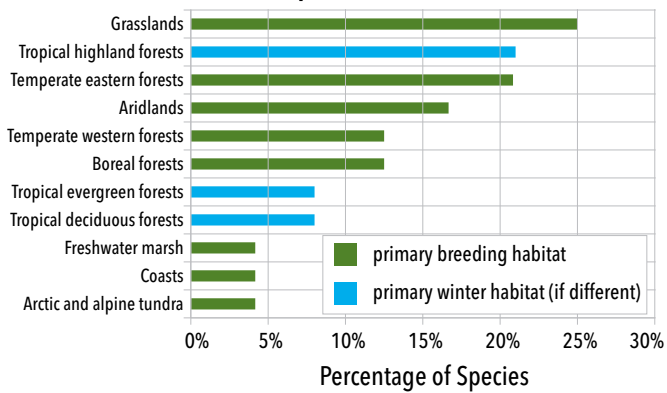
PHOTOS, TOP TO BOTTOM: GREG LAVATY, GLEN TEPKE, GERRY DEWAGHE

Temperate Breeders of High Tri-National Concern

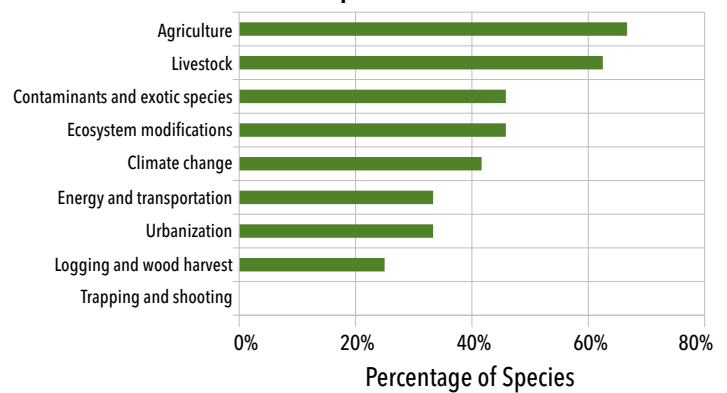


Overlay of breeding (top), in-transit (center), and winter (bottom) ranges of temperate-zone breeders of high tri-national concern.

Habitats: Temperate Breeders



Threats: Temperate Breeders



These high-concern species breed in all major temperate-zone habitats (see Appendix B), but nearly half are primarily associated with either grasslands or temperate eastern forests. Cerulean Warbler requires large tracts of mature deciduous forest for breeding, whereas Golden-winged Warbler requires disturbed or early successional forests in the same regions. Both of these warblers, along with boreal forest breeders such as Olive-sided Flycatcher and Canada Warbler, winter in tropical highland forests of Central and northern South America.

High-concern grassland birds include migrants, such as Sprague's Pipit, Baird's Sparrow, and Chestnut-collared Longspur, that winter primarily in northern Mexico, as well as resident Greater and Lesser prairie-chickens. Both Black-capped and Bell's vireos breed in aridland habitats of the southwestern United States and winter in tropical deciduous forests of Mexico. Other species highlight the need to conserve sagebrush (Greater Sage-Grouse), pinyon-juniper woodland (Pinyon Jay), old-growth coniferous forest (Spotted Owl), and Sonoran desert scrub (Bendire's Thrasher) in the western United States.

Because these high-concern species occur in every major habitat, they face a diversity of threats from land-use policies and practices in Canada and the United States for agriculture, livestock grazing, ecosystem modification, contaminants and exotic species, urbanization, energy development, and logging (see Appendix B). Agricultural practices in particular affect not only specialized grassland birds, but also migratory species that winter in the same tropical forest habitats as high-concern resident species. More than 40% of these species are predicted to be adversely affected by climate change, due to a range of factors such as loss of alpine tundra (Black Rosy-Finch) and high-elevation forests (Bicknell's Thrush), increased drought in grassland habitats, drying of ephemeral waterfalls (Black Swift), and loss of coastal habitats as sea levels rise (White-crowned Pigeon).

Migratory species also face high threats on their wintering grounds, especially loss of grasslands in northern Mexico and threats to tropical forests in southern Mexico and elsewhere in Latin America and the Caribbean.



Clockwise from bottom left, these species demonstrate the need to conserve important temperate habitats: Greater Sage-Grouse (sagebrush); Black-capped Vireo (aridlands); Pinyon Jay (pinyon-juniper woodlands); Bendire's Thrasher (Sonoran desert scrub); and Baird's Sparrow (mixed and shortgrass prairie).

PHOTOS, CLOCKWISE FROM BOTTOM LEFT: RAM PAPISH, CHRIS TESSAGLIA-HYMES, JAMES LIVAUDAIS, GERRY DEWAGHE, DAVID CREE



Loss of Bird Abundance



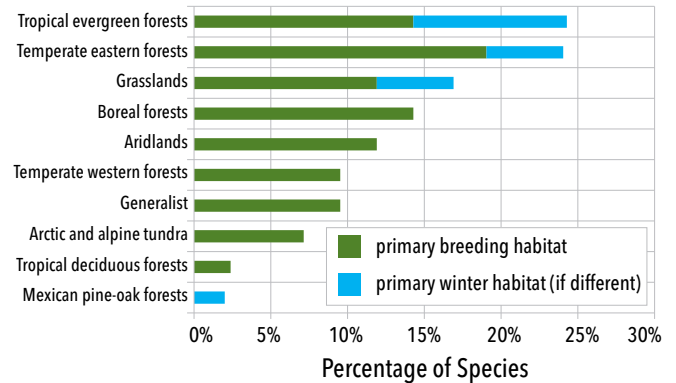
IN ADDITION to species of high tri-national concern due to high or severe threats, the PIF assessment identified 42 other common bird species whose populations have declined by 50% or more in the past 40 years (Appendix C). These species are found in nearly every habitat type, breeding primarily in Canada and the United States. It is likely that many common Mexican birds are steeply declining as well, but we lack long-term monitoring data for most Mexican species. Population declines of common species are an important indicator of deteriorating environmental health.

Common Birds in Steep Decline

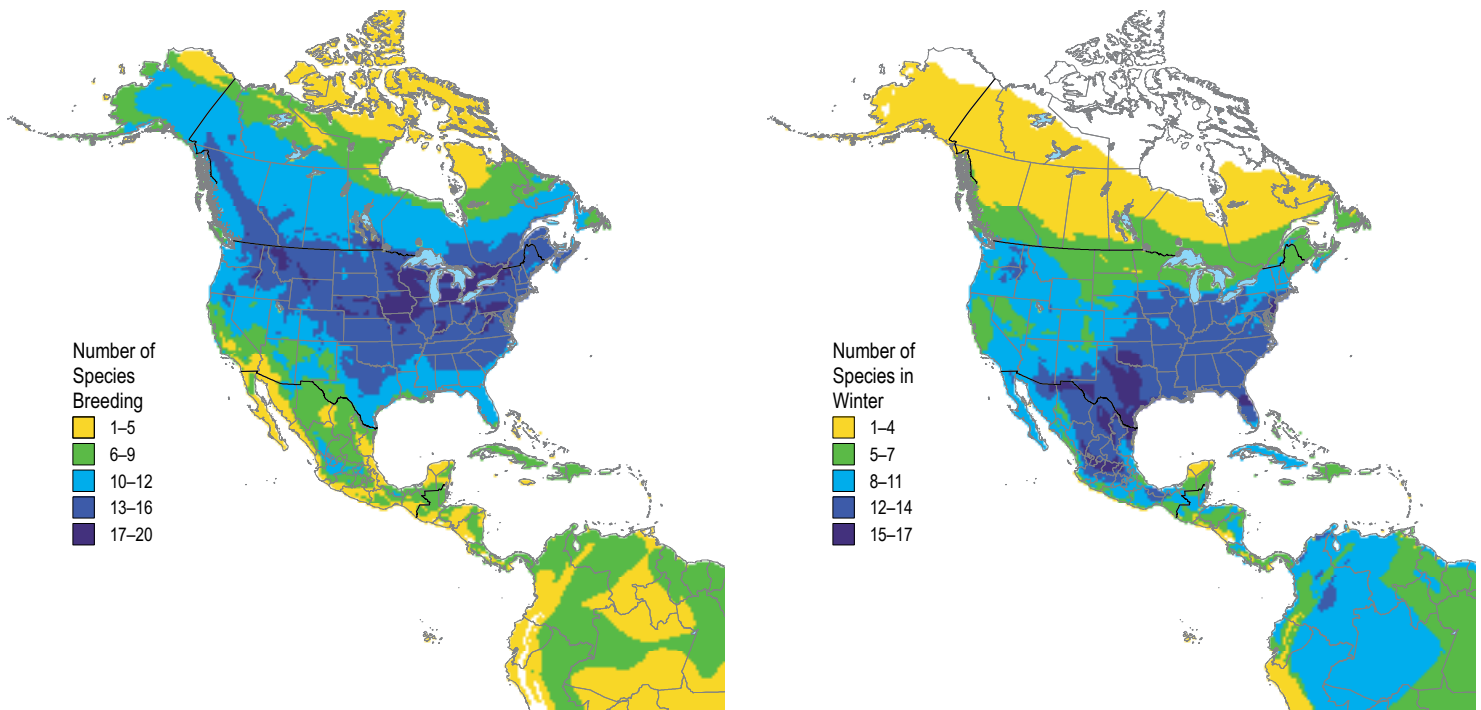
The combined loss of 42 steeply declining species is conservatively estimated at a staggering 800 million breeding birds, about two-thirds of those present 40 years ago. In total, more than half of the 882 landbird species show evidence of declines of at least 15%. This loss of bird abundance is especially troubling in light of the vital ecosystem services that these birds provide. To reverse population declines, we need to address the underlying causes of declines in every habitat, rather than manage for each species.

Declining species are found in every terrestrial habitat. Many of these species are migrants and depend on a variety of habitats throughout their lives. For example, tropical evergreen forests are important for residents as well as wintering populations of migrants.

Habitats: Common Birds in Steep Decline



Common Birds in Steep Decline



Common birds are declining by 50% or more over much of the North American continent, with the largest number of species breeding in the northern United States and southern Canada (left). In winter, these species are concentrated in the southern United States and Mexico (right).



Tropical evergreen forests

Several widespread species of tropical evergreen forest, including Black-faced Antthrush (left), Gray-headed Kite, and Plain Xenops, are estimated to have declined by more than 50% in Mexico, based on the reduction of their primary habitat over the last half-century. Tropical habitats are also probably home to other common species in steep decline, but we lack long-term monitoring data to identify these species in Mexico.



Temperate forests

Among the most steeply declining species in temperate forests are birds dependent on disturbed and early successional habitat, including Ruffed Grouse (left), Whip-poor-will, Rufous Hummingbird, and Prairie Warbler. Managing a mosaic of age classes of forests, as well as maintaining natural disturbance regimes such as fire, will be necessary to reverse declines of many forest birds.



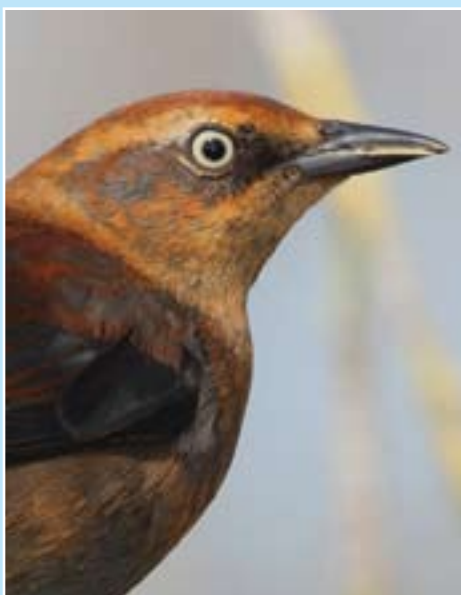
Aridlands

Many common aridland birds, such as Loggerhead Shrike (left), Verdin, Rock Wren, and Brewer's Sparrow, have lost more than half of their breeding populations over the past 40 years. Sagebrush, chaparral, and desert shrublands have been severely degraded and are threatened by the spread of exotic plants, energy development, and urban sprawl.



Temperate grasslands

Grassland birds in this habitat have suffered among the steepest declines of any North American landbirds. These include many familiar birds of rural landscapes including Grasshopper Sparrow (left), Eastern Meadowlark, Bobolink, Lark Bunting, and Horned Lark. Incentives for bird-friendly agricultural practices and protection of native prairie are essential for reversing declines of grassland birds.



Boreal forests

Steep declines are occurring in permanent residents such as Boreal Chickadee, temperate migrants such as Rusty Blackbird (left), and long-distance migrants such as Wilson's Warbler. The current rate and extent of industrial resource extraction threatens the integrity of our continent's boreal nursery. Yet vast areas of remaining boreal forest present large-scale opportunities for conservation.



Urban areas

Among the common species in steep decline are several urban-adapted generalists, such as Common Nighthawk (left), Chimney Swift, and Northern Flicker. Providing urban greenspace and reducing bird mortality from manmade structures and pesticides will benefit generalist breeders and migrants.

PHOTOS, TOP TO BOTTOM, LEFT TO RIGHT: MANUEL GROSSELET, JAMES LIVAUDAIS (2), GREG LAVATY, DANNY BALES, GREG LAVATY

Shared Birds, Shared Responsibility

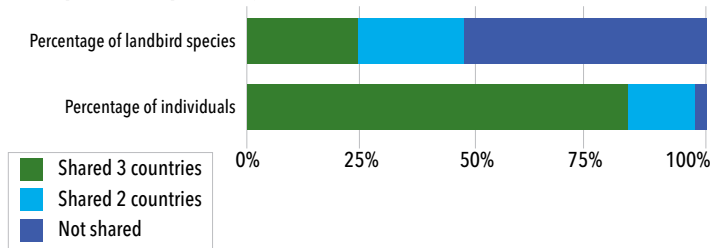


ONE OF THE MOST STRIKING RESULTS from the PIF conservation assessment was the large number of species that have a substantial proportion of their distribution and populations shared across national borders. These results underscore the complexity of the linkages among birds and habitats throughout their life cycle, across borders, and along migratory routes. With mounting threats, only increased and strategic tri-national cooperation can maintain this vital connectivity and protect sufficient high-quality habitats to ensure safe migrations for birds across the continent. For strategic cooperation, we need to understand how and where our birds are connected.

Birds Without Borders

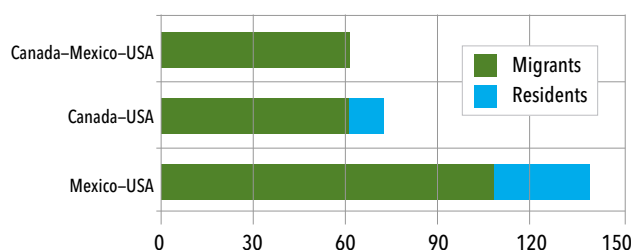
Nearly half of the native landbirds (418 species) in Canada, Mexico, and the United States depend on habitats in at least two of the three countries. More than 200 species, which include more than 80% of all individual landbirds, inhabit all three countries in at least one season. These abundant species, most of them cross-border travelers, provide critical ecosystem services, such as pollination and insect control, which contribute significantly to our nations' economic health. They require strong international coordination to monitor and protect them throughout their life cycle.

Species Depending on Habitats in at Least Two Countries



Our PIF assessment identified 272 species with at least one-quarter of their range or population in at least two of our three countries, including 61 species with at least one-quarter of their population in each of the three countries (Figure below; Appendix D). These “substantially shared” species include 63% of the temperate-breeding species of highest tri-national concern, as well as 64% of the common species in steep decline.

Number of Landbird Species Shared Substantially Among Countries



Boreal nursery

An estimated 30% of North America's landbirds (such as the Wilson's Warbler below) breed in the boreal forests of Canada and Alaska. Most depend on the tremendous seasonal surge of insects in summer, before leaving to winter in warmer regions. The boreal is one of the last and largest tracts of intact forest in the world. Recognizing the global significance of the boreal, Canadian federal, provincial, territorial, and aboriginal governments have established 50 million hectares of new parks and refuges in Canada's boreal forests since 2000. Many of these protected areas use innovative new co-management models like that between Parks Canada and the Sahtu Dene community of Deline for management of 400,000 hectares near Great Bear Lake, Northwest Territories. The most productive and ecologically diverse parts of the boreal are under intense pressure for resource extraction, and any effects on bird numbers here are felt on wintering grounds in the United States, Mexico, and as far away as South America (www.borealbirds.org and www.borealcanada.ca).



KENNETH V. ROSENBERG

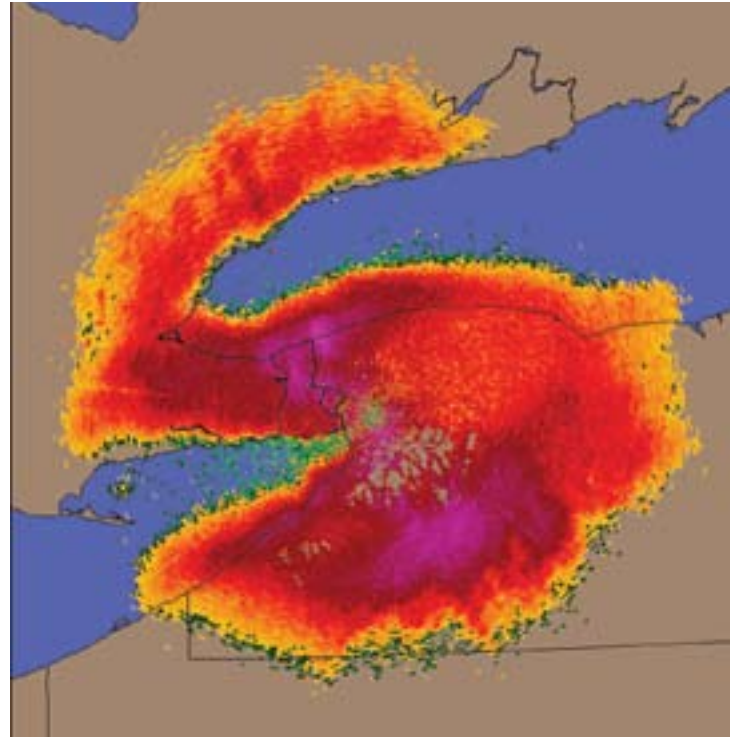


JAMES LIVAUDAIS

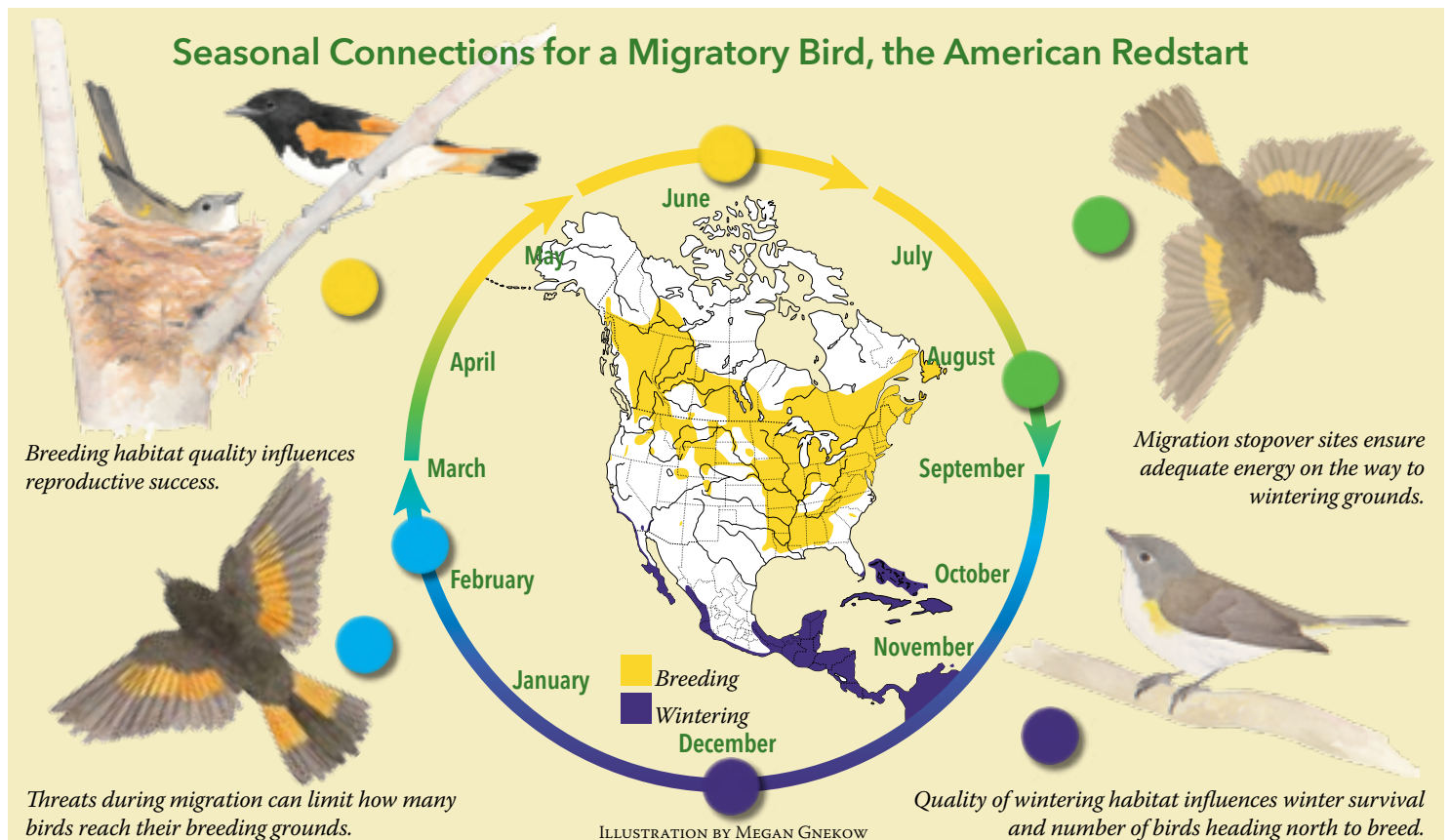
Full Life-Cycle Stewardship

Conservation of migratory birds requires actions that provide habitat and reduce mortality throughout the year. Habitat conditions in one season can affect the reproduction and survival of migratory birds in subsequent seasons. The quality of winter habitat can affect the timing of migration, leading to decreased survival or reproductive success. Therefore, actions to improve conditions in the tropics can have far-reaching positive effects on birds breeding in the United States and Canada. Conversely, because many northern breeding migrants spend up to eight months each year in tropical habitats, the health of these ecosystems depends on productivity of birds far to the north.

Mortality during migration may be 15 times higher for some species than during the relatively stable breeding or winter periods. Habitat loss at critical stopover sites is a major source of mortality. Throughout the annual cycle, anthropogenic threats, such as windows, tall lighted structures, wind turbines, indiscriminate pesticide use, and unrestrained cats can contribute to population declines. Protection of stopover habitats, especially along coastlines, mountain ridges, riparian corridors, and other migration pathways, is a high tri-national priority. This is especially true where the unique geography at the Cardel-Veracruz City corridor and the Isthmus of Tehuantepec in southern Mexico funnels billions of migrating birds through narrow corridors on their journeys north and south across the Western Hemisphere.



This radar image from May 16, 1999, depicts a massive takeoff of birds from stopover habitat at the onset of nocturnal migration along the shores of Lake Erie (lower left) and Lake Ontario (upper right). The highest densities of birds are depicted in purple and red. Radar is a powerful tool for tracking bird migration and identifying important stopover habitats used during migration (www.fort.usgs.gov/radar/).

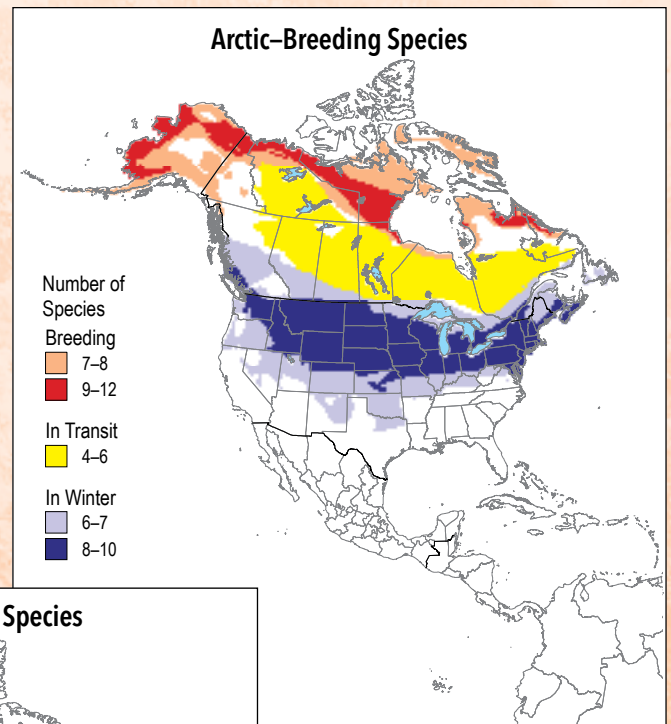


Linkages Among Habitats and Regions

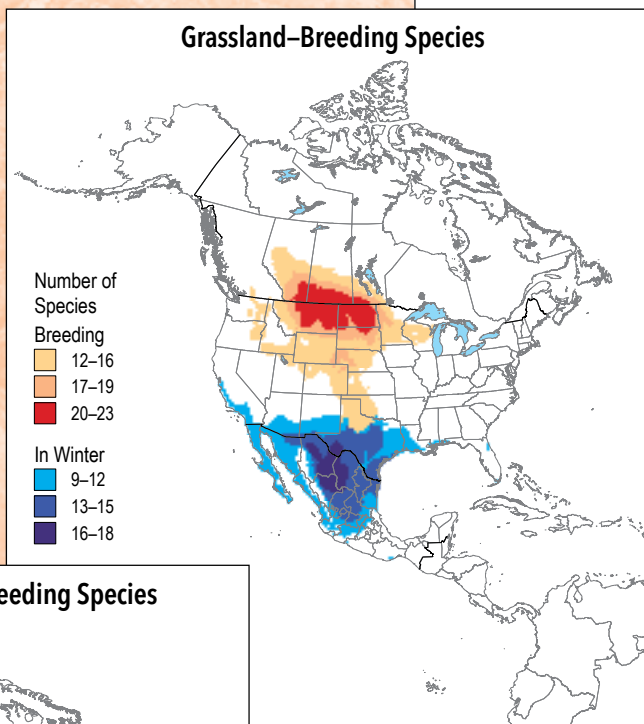
Assemblages among the 272 substantially shared species from each major breeding habitat tend to winter in distinct regions of the continent. These strong linkages among adjacent and disjunct regions illustrate how the conservation of our shared birds depends on increased international cooperation. See Appendix D for breeding and wintering habitats of shared species.



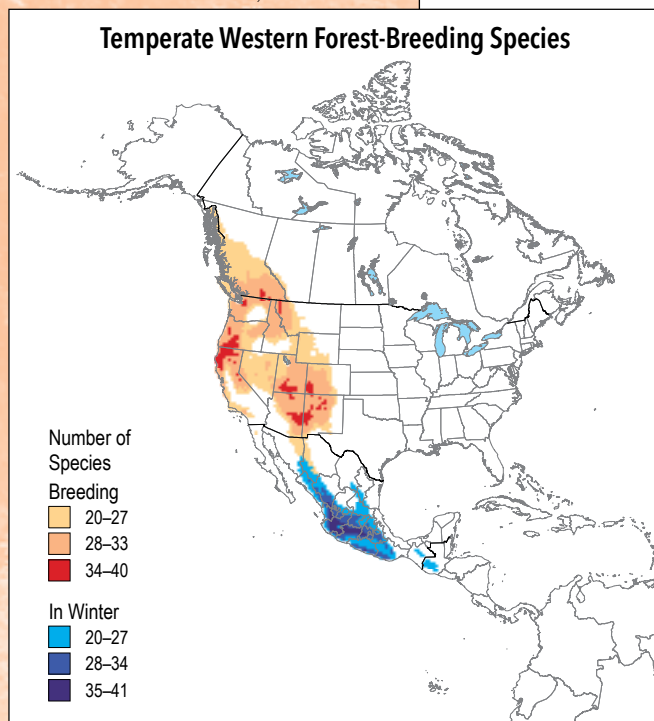
Shared arctic-breeding landbirds, such as Rough-legged Hawk (left) and Northern Shrike (right), mostly winter across the northern United States.



PHOTOS, THIS PAGE, TOP TO BOTTOM, LEFT TO RIGHT: JAMES LIVAUDAIS, TOM JOHNSON, CHRIS WOOD, BILL SCHMOKER, GREG LAVATY, JAMES LIVAUDAIS



Shared prairie birds, such as Chestnut-collared Longspur (top) and Sprague's Pipit (bottom), typically winter in grasslands of southwestern United States and northern Mexico.



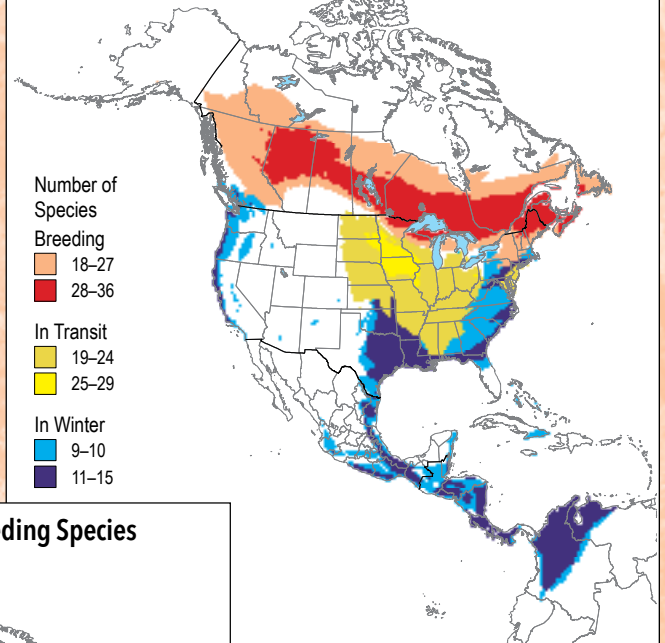
Shared birds breeding in temperate western forests, including Black-headed Grosbeak (left) and Western Tanager (right), winter predominantly in forests of western Mexico.



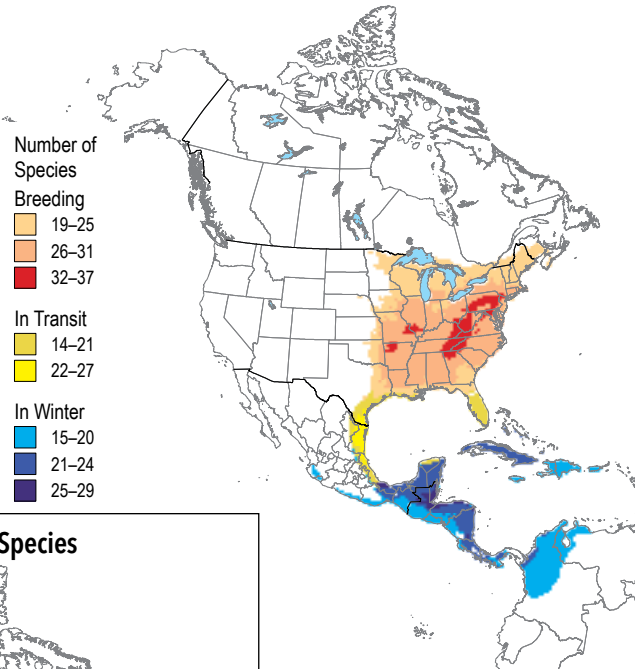
Shared breeders from the boreal forests, such as the Blackburnian Warbler (left) and Swainson's Thrush (right), winter primarily in tropical highland and ever-green forests from southern Mexico to northern South America.

GERRY DEWAGHE, GREG LAVATY

Boreal Forest–Breeding Species



Temperate Eastern Forest–Breeding Species

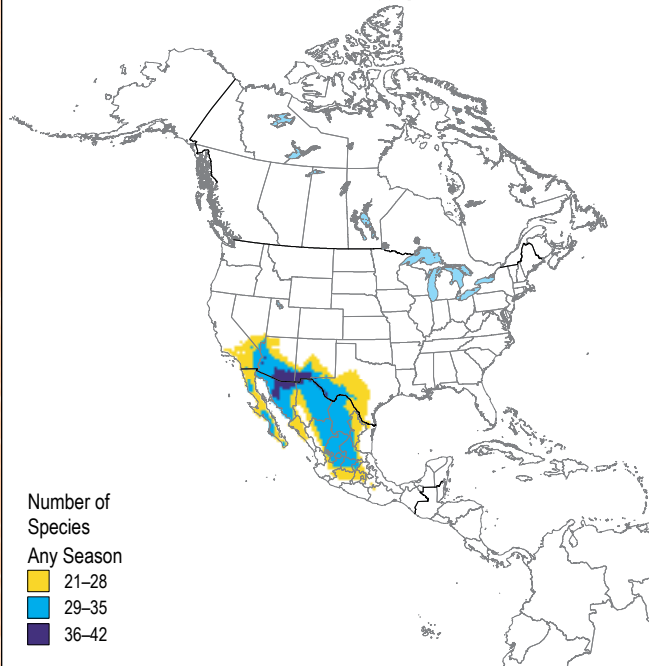


Shared birds breeding in temperate eastern forests, such as the Prothonotary Warbler (top) and Summer Tanager (bottom), winter in tropical forests from southern Mexico and the Caribbean southward, with areas along the Gulf of Mexico being important during migration.



Forty-six shared aridland birds, including the Verdin (left) and Vermilion Flycatcher (right), tend to be year-round residents or short-distance migrants whose distributions span the southwestern United States and northern Mexico.

Aridland–Breeding Species



A Call to Tri-National Action



OUR THREE NATIONS are connected by birds but also by the flow of trade and people across borders. PIF harnesses this connectivity by enabling communication, supporting science, and facilitating conservation among tri-national partners to save birds at risk and keep common birds common. Building on our recommendations from 2004 for landbirds breeding in Canada and the United

States, this first tri-national assessment shows the need for international collaboration to reverse steep declines of common birds in every terrestrial habitat of the continent and prevent the loss of 148 species in immediate danger.

Although we have common commitments to protect birds through legislation and policies, our concerns have changed little over the last 20 years. The international bird conservation community has grown, but loss of habitat still remains the most serious threat to birds throughout the continent. Declining bird populations are a clear indicator of ecosystem degradation, which is linked to reduced quality of life and the persistence of poverty in all three countries. We must find new means to integrate conservation into the fabric of our society via sustainable land- and resource-use policies. New approaches will necessitate increased cooperation, new partnerships, and new information.

We can still achieve our goals to protect and restore bird populations and habitats, but the window of opportunity is rapidly closing. One in six landbird species warrants the highest tri-national concern, including many widespread species. Immediate measures are needed to protect habitats and preserve functioning ecosystems. Although conservation actions will occur at different scales, they must be enacted as part of a coordinated strategy. Each of us has an important role to play in bringing our shared vision to fruition.

To prevent further loss of bird diversity and abundance, we recommend six primary actions:

1. Protect and recover species at greatest risk
2. Conserve habitats and ecosystem functions
3. Reduce bird mortality
4. Expand our knowledge base for conservation
5. Engage people in conservation action
6. Increase the power of international partnerships

Conserving migrants, conserving tropical residents

The endangered Golden-cheeked Warbler migrates from breeding habitats in Texas to winter in the same high-elevation pine-oak forest in southern Mexico and Guatemala that support the entire global population of the endangered Pink-headed Warbler. High densities of other migrants, such as Hermit and Townsend's warblers, join these endangered species in large mixed-species flocks living in the same tropical forests for up to eight months each year.



*Top to bottom:
Pink-headed Warbler,
Golden-cheeked Warbler,
Hermit Warbler,
Townsend's Warbler*



PHOTOS, TOP TO BOTTOM:
FRANCE DEWAGHE,
GREG LAVATY
BRIAN SULLIVAN (2)

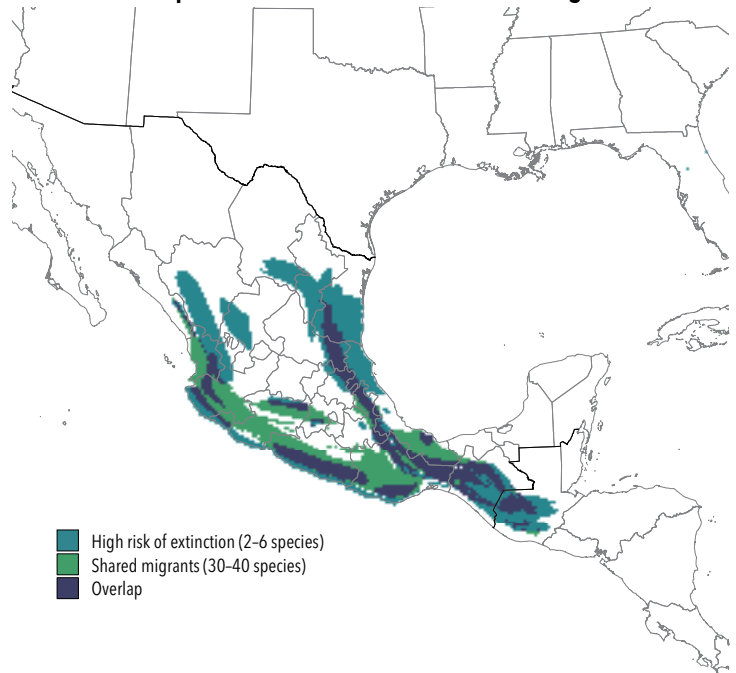
1. Protect and Recover Species at Greatest Risk

Many of the species at greatest risk have very limited distributions in highly threatened habitats. The most effective conservation measures, therefore, will often be site-specific, and in some cases species-specific. A network of protected areas in the most critical habitats and sites, and implementation of endangered species laws, will help prevent the immediate loss of these species. These measures must take into account cultural, social, and economic issues that influence land uses and integrate bird conservation with sustainable land management. Commitment from land-owners, investors, scientific institutions, and governments is essential.

Build Networks of Protected Areas in Tropical Forests

Most landbird species of highest tri-national conservation concern depend on tropical highland and pine-oak forests of the Mexican mountains, tropical deciduous forests on the Pacific slope of Mexico, and tropical evergreen forests from southern Mexico through Central America. Despite the accelerating degradation and loss of habitats, these regions still support high tropical diversity and a high abundance of temperate migrants. The striking overlap in distribution among high-concern residents and shared migrants highlights the need for a strong network of protected areas along Mexico's Pacific Coast and in narrow highland regions from Tamaulipas and Chihuahua south to Chiapas. Financial support by our three national governments, in partnership with local communities, governments, and non-government organizations, will be critical for protecting these forests.

Overlap of At-Risk Residents and Shared Migrants



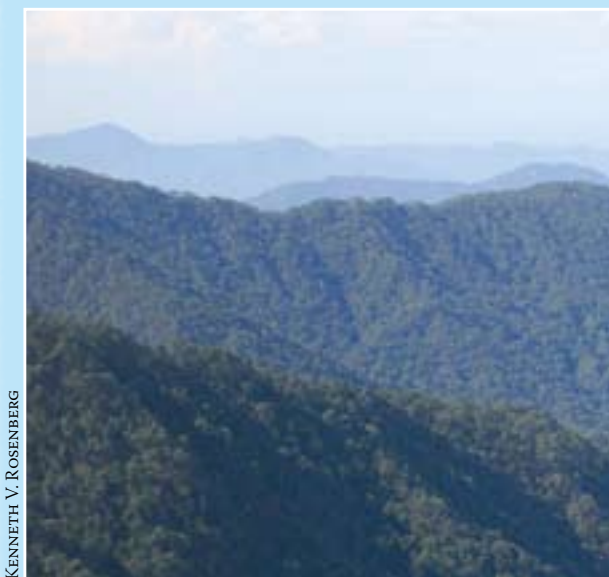
The winter ranges of shared migrants show a striking geographic overlap with the ranges of species at greatest risk of extinction. More than 100 of the migrants shared substantially among our three countries depend on the same tropical and pine-oak forests that support highly threatened tropical residents.

Protecting and managing critical habitats

Natural Protected Areas in Mexico have varying levels of protection and sustainability (www.conanp.gob.mx/), supporting some habitat needs for almost all of the most at-risk bird species. Nevertheless, important gaps must be addressed, mainly for species with very limited distributions listed as endangered under Mexican law. Reserves can be owned and protected at many levels by all governments, as well as communal, indigenous, private, and non-government groups.

The Sierra de Manantlán, pictured at left, is one of 37 Biosphere Reserves in Mexico, protecting 139,577 hectares of terrestrial and aquatic habitats (www.conanp.gob.mx/que_hacemos/reservas_biosfera.php).

Important Bird Area programs in all three countries have identified the most critical sites for bird conservation, based on a set of globally accepted criteria; many of these sites remain unprotected, however. These include nearly 600 globally significant IBAs in Canada, 383 IBAs in the United States, and 230 AICAs in Mexico. IBA databases are a critical resource for identifying gaps in protection and for recommending protected areas for species of high continental concern.



KENNETH V. ROSENBERG

Protect and Recover *(continued)*

The ranges of 37 shared migrants that winter in tropical evergreen forests overlap completely with the ranges of many high-concern tropical residents. These migrants predominantly breed in eastern temperate and boreal forests. For example, Wood Thrush and Kentucky Warbler winter in the same tracts of lowland forest in southeastern Mexico as the resident and highly threatened Slaty-tailed Trogon and Lovely Cotinga. Protecting these habitats therefore supports birds in all three countries.

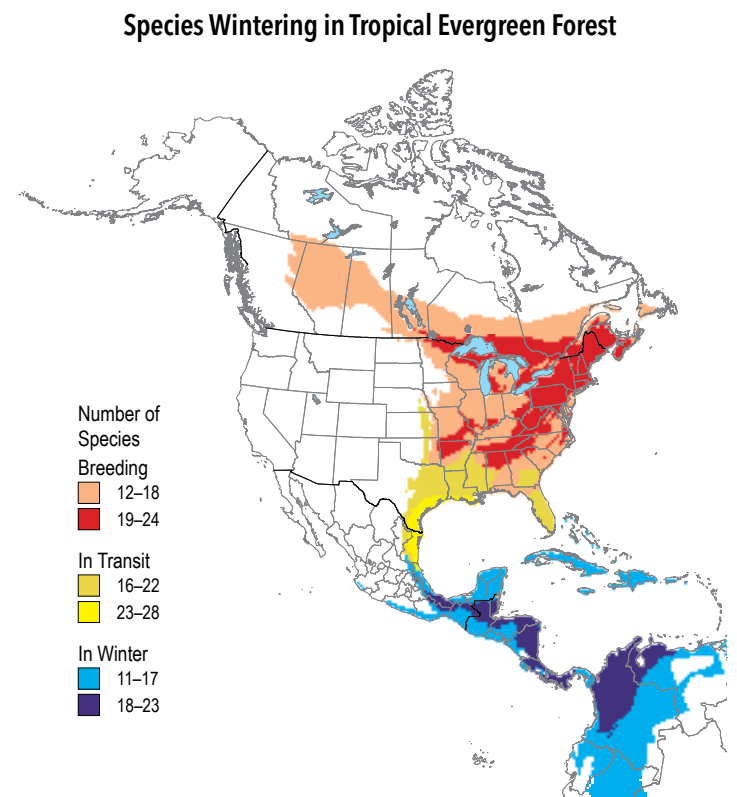
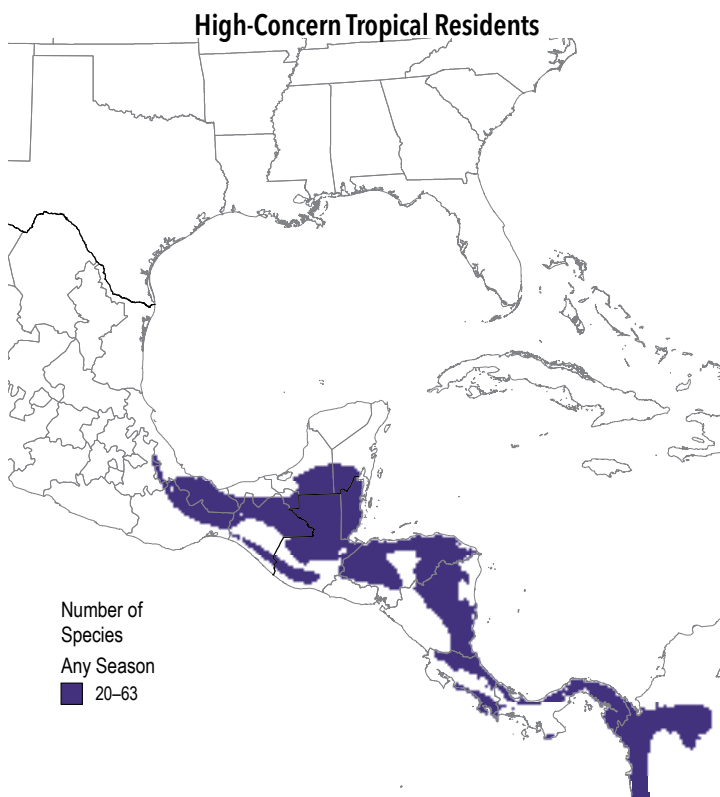


ROGER ERICSSON



GERRY DEWAGHE

The Wood Thrush (left) is a migrant that winters in tropical evergreen forests of southern Mexico, overlapping completely with the range of the Slaty-tailed Trogon (right), a high-concern tropical resident.



Overlaid year-round distributions of high-concern tropical resident species (left) compared with ranges of migrants that winter in tropical evergreen forests (right).

Fully Implement National Endangered Species Laws

The number of species in danger of extinction is growing at an alarming rate: 80% of the species of highest tri-national concern identified by the PIF assessment are federally listed under species at risk legislation in at least one of the three countries and 32% are considered globally endangered or vulnerable by the International Union for the Conservation of Nature (see Appendix B). We can reduce the conservation risk for listed species by implementing the recovery components of national endangered species laws and other related wildlife conservation legislation. Each country should ensure that sufficient amounts of critical habitat are protected for all endangered species throughout their life cycles.

Species at risk can make remarkable recoveries if listed with ample time for recovery activities to have an impact. This will require that nations ensure timely assessment of species that addresses knowledge gaps. Although proactive conservation is more cost-effective, recovery is the last chance for land-birds on the verge of extinction.



The Peregrine Falcon represents a dramatic success story in endangered species recovery. The banning of harmful pesticides, such as DDT, coupled with intensive recovery efforts in the United States and Canada, resulted in a steady increase in peregrine populations nearly throughout their original range. In 1999, the peregrine was removed from the United States Endangered Species list, and in 2007, Canadian peregrine populations were downlisted to Special Concern by the Committee on the Status of Endangered Wildlife in Canada.

GENE YEH

Coordinating conservation measures for endangered species across countries and species can leverage funds and amplify successes. For example, the Mesoamerican Pine-oak Conservation Alliance (<http://my.nature.org/birds/about/centralamerica.html>) protects critical habitat for the Golden-cheeked Warbler and other migratory and resident birds in threatened pine-oak habitats throughout Central America. Partners such as Pronatura Sur and The Nature Conservancy add significantly to government-led endangered species recovery.

Treasure of the Sierra Madre

One of North America's most endangered birds, the Sierra Madre Sparrow clings to existence in isolated remnants of high-elevation native grasslands near Mexico City and in Durango. Because these rare habitats are on community-owned lands outside of national protected areas, conservation is only possible through a voluntary coalition of community leaders, university and government scientists, and international conservation organizations. They collectively support sustainable agriculture, habitat protection, and fire management.



DAVE KRUEPER



ADÁN OLIVERAS



MANUEL GROSSELET

Top: Native bunchgrass habitat required by Sierra Madre Sparrow.

Center: Don Julio Castro, a resident of Ejido Ojo de Agua El Cazador and part of a working group formed by the community, Cornell Lab of Ornithology, UNAM, and CONABIO for the conservation of the species.

Bottom: Sierra Madre Sparrow

2. Conserve Habitats and Ecosystem Functions

The PIF assessment highlighted key habitats and geographic areas in Canada, Mexico, and the United States that are critical for the survival of continental landbird populations, for both species at greatest risk and millions of shared migrants. Conserving healthy habitats and addressing threats to bird populations remains the primary action necessary to reverse population declines and keep common birds common. Habitat conservation must occur at all scales, from protection of specific sites for the most at-risk species, to management of large core habitats for species of high tri-national concern, to improving the matrix of working landscapes for all birds.

Restore and Retain Core Habitats

Today, the expansion of agriculture continues to be the major driver of biodiversity loss. Agriculture affects every type of habitat and impacts 76% of the landbird species of highest conservation concern; 65% are threatened by unsustainable livestock grazing. Preventing the conversion of large areas of habitat, whether grassland, forest, or aridlands, in the core distribution of species of concern will be necessary to stem the rapid decline of many landbirds. Policies and management practices are tools that can support the needs of high-priority birds on vast public lands in Canada and the United States. Large areas of representative habitats can be preserved in Mexico through a mixture of government, community, and private lands.



The Chamela-Cuixmala Biosphere Reserve protects critical tropical deciduous forest on the Pacific slope of Mexico.

Core areas of habitat need to be buffered by sustainable landscapes, especially in open, dry habitats where location, climate, temperature, and open habitat structure make them susceptible to further degradation. Fire suppression and habitat fragmentation invite the spread of exotic species. Restoration should promote the use of native plant species, control invasive species, minimize the use of chemicals, and, where appropriate, use fire to emulate natural disturbance patterns.

Adopt Sustainable Grazing and Food Production



Shade-grown coffee is an extremely important crop that provides income to local people while preserving much of the native vegetation.

Most grassland and open woodland birds have always lived with herbivores. North American grasslands support a ranching culture that is equally dependent upon the survival of this vanishing ecosystem. Sustainable grazing of native grasses, combined with appropriate stocking rates, can be compatible with the needs of many grassland breeding species of continental concern.

Birds of high conservation concern can co-exist with many other types of sustainable food production. In tropical forests, shade-grown products like coffee and cocoa help retain native forest cover for birds while providing more diverse economic opportunities for local farmers. Improving the matrix of agricultural lands in Mexico by increasing natural vegetation cover will have far-reaching effects on continental bird populations.

Grasslands: A vanishing biome

Loss and degradation of both breeding and wintering habitat has led to an overall decline of 45% for 33 grassland species, a combined loss of 500 million birds over the past 40 years. The Chihuahuan and Sonoran grasslands of northern Mexico are important to grassland birds breeding in the Great Plains of the United States and Canada because these areas support the majority of the population in winter. Chihuahuan Desert Grasslands are being converted at an alarming rate for short-term farming practices that leave the land unsuitable for grassland birds (see photo below). The U.S. government's Natural Resources Conservation Service identified wildlife habitat enhancement as a priority for implementing the 2008 Farm Bill, which represents the most important tool for conservation of grassland birds on private lands. In order to protect shrinking native Canadian grasslands, we need changes in policy and extensive education to promote expansive native prairie and minimize degradation due to energy development, urbanization, or conversion to intensive agriculture.



ANGEL B. MONTOYA

Native grasslands are being plowed at an alarming rate in Chihuahua, Mexico.

Implement Sustainable Forestry Practices and Policies

Three quarters of the world's forests, including more than half of the temperate broadleaf forest and tropical dry forests, have been replaced by cultivated land and plantations. Whereas much of the temperate forest was converted decades ago, deforestation in the tropics and the boreal forest is accelerating. More than 65% of our continental landbirds of high tri-national concern are threatened by unsustainable timber harvest.

To maintain the abundance of landbirds produced in the boreal forest nursery and other forested habitats, we need to manage forests to maintain structural complexity and

a diversity of age classes. Many international certification programs support sustainable forestry practices that emulate natural disturbances and result in greater forest complexity that supports biodiversity. Natural processes, such as fire, also are important for maintaining forest health, and retention of large trees and snags is critical for cavity-nesting birds and other wildlife.



ENRIQUE JARDEL PELÁEZ

Natural protected areas in tropical and pine-oak forests must not only protect, but also maintain, natural disturbance regimes, such as forest fires, on which many migratory and resident bird species depend.

Improve working landscapes for birds

Relatively small policy changes can have dramatic cumulative benefits on habitat for birds, especially related to industrial-scale agriculture, forestry, and energy. Governments and industries have a key role in developing and adhering to sustainable standards. In Canada, a new regulatory strategy to manage the incidental take of birds will be one tool to support sustainable working landscape conditions. Project proponents would obtain permits that prescribe mandatory practices to support bird populations and habitats. Industries will benefit from new options to comply with existing regulations, and birds will benefit by having significant conservation issues addressed.



KENNETH V. ROSENBERG

Industrial-scale forestry in Canada's boreal forest

Conserve Habitats *(continued)*

Foster Community-Based Conservation Initiatives

Sustainable resource management is only possible when integrated into the regional economy. Working with local communities and landowners to protect, restore, and manage habitats is essential. Innovative approaches such as fiscal and economic incentives will be instrumental in promoting habitat conservation (e.g. Appalachian Regional Reforestation Initiative at <http://arri.osmre.gov/Default.shtm>) or the UN economic incentive programs for developing countries to maintain forests and minimize carbon emissions (www.un-redd.org). Taxation systems, market incentives, and conservation easements can also be structured to promote conservation in priority landscapes and help landowners and local governments in the process. Ecotourism and other habitat-friendly economic opportunities can provide employ-

Economic incentives for conservation

Several successful models for community-based conservation exist in Mexico that conserve some of the continent's most endangered species. Communal landowners in "El Palmito" forestal ejido in la Concordia, Sinaloa, signed a new conservation easement in 2008 to suspend logging practices in 1,150,000 hectares of prime Tufted Jay habitat for a period of 30 years. Through economic incentives for the development of low-impact tourism activities, habitat conservation of this endemic bird strengthens rural and economic development for the community in El Palmito.

CLOCKWISE FROM RIGHT: EDUARDO E. INIGO-ELIAS, KENNETH V. ROSENBERG (2)



Rancho Liebre Barranca, Sinaloa (left); Tufted Jay (upper right); recently cut pine (lower right)

ment and economic return to local communities when they are developed collaboratively with local people. Community-based conservation can provide alternative livelihoods that support both economic development and sustainable resource use.

Implement Sustainable Urban and Land-Use Planning at the Landscape Level

Urbanization throughout the continent continues to deplete habitat and erect hazards to migration such as buildings and towers. Habitat loss from residential and commercial development is both a result of expanding cities and large-scale resorts and vacation properties. Smart-growth initiatives are needed that limit urban and suburban sprawl and can incorporate "green infrastructure" such as large, functional, connected habitats. Because landbirds often congregate in large numbers during migration, it is critical we identify, manage, and conserve vital stopover habitats and migratory bottlenecks, especially along coastlines and in urban environments. Municipalities can work with neighboring jurisdictions to achieve common objectives for greenspace and to monitor change in urban ecosystems. Cost-share funding opportunities can support planning and implementation to ensure that development retains the natural values that first attracted people to the area.



New York City's Central Park provides vital stopover habitat for thousands of migrants that need to navigate through the urban metropolis along the United States Atlantic coast each spring and fall.

ISTOCKPHOTO.COM

3. Reduce Bird Mortality

Although habitat loss is a primary factor in the decline of landbirds, other threats exacerbate the challenges birds face. Reducing human-caused sources of mortality is a critical step in restoring bird populations and ensuring that the spectacle of migration continues across the hemisphere.

Encourage Alternatives to the Cage-Bird Trade

All Mexican parrot species have suffered population declines from decades of trapping for the cage-bird trade. Many other species are legally trapped in Mexico for the songbird and cage-bird trade, including the three species of toucans, many orioles, and buntings. Creating alternative careers for trappers as local birding guides can have an important positive impact for people whose livelihood depends on these birds, as well as for the birds themselves (www.birdlife.org/news/news/2005/03/bird_guide_manual_es.pdf). In addition, we need to work with communities and landowners to achieve a sustainable harvest of songbirds in Mexico and assess the impact on wild bird populations in light of other threats such as habitat loss. An adaptive harvest model needs to be implemented, with regulated trapping quotas tied to effective monitoring of wild bird populations building on the successful model of waterfowl harvesting under the North American Waterfowl Management Plan.



Orange-chinned and Orange-fronted parakeet chicks confiscated by PROFEPA, in Oaxaca, in 2002. The capture of parrots for the cage-bird trade has led to nearly all of the Mexican parrot species being of high tri-national concern.

Reduce Collisions with Windows and Structures



EDUARDO E. INIGO-ELLAS

Turkey Vulture soaring over wind turbines in the Isthmus of Tehuantepec, Oaxaca, Mexico. Wind turbines, while providing green energy, could cause significant bird mortality if located in the wrong places.

Manmade structures are estimated to kill millions of birds, predominately Neotropical migrating songbirds, each year. Municipal planners, regulators, owners, and citizens can measurably reduce bird deaths by minimizing window kills (www.flap.org), implementing bird-friendly lighting of towers and buildings, and protecting birds on power lines (www.aplic.org).

Wind turbines, transmission lines, and other infrastructure should be sited to minimize impacts to migratory and resident birds, especially avoiding migration corridors and concentration areas. In particular, wind-power development in migration “hot-spots,” such as the Isthmus of Tehuantepec in Mexico, needs to be accompanied by rigorous assessment and monitoring that considers the cumulative population impacts to migratory birds.

Minimize Deaths from Pesticides and Cats

Pesticides that result in bird mortality are widely used in agricultural and landscaping applications. We can minimize the use of pesticides by supporting organic agriculture, developing reduced use or lower toxicity alternatives, and developing shared standards for licensed pesticides and application techniques.

Free-ranging, domestic cats kill millions of birds annually; this mortality can be greatly reduced by keeping pet cats indoors and removing feral cats and colonies. Find guidelines at www.abcbirds.org/abcprograms/policy/cats/index.html.

4. Expand Our Knowledge Base for Conservation

Effective bird conservation must be based on scientific research and strategic monitoring, with timely results provided to managers and policy-makers in a usable format to inform actions. Despite decades of landbird research and monitoring, we still know astonishingly little about the population status and trends, habitats, limiting factors, and causes of population declines for many species of high tri-national concern. The following sections highlight the most important research areas for scientists to focus on in the next decade.

Habitat Requirements for Priority Species

Loss and degradation of habitat is still the most imminent threat to landbirds. Yet, we still need basic information about the habitat and ecological requirements (e.g. food, vegetation, patch size) critical for priority species in all habitats, especially in rapidly diminishing tropical forest. These resources should be available at scales appropriate for management. Improvements in remote sensing and GIS tools can

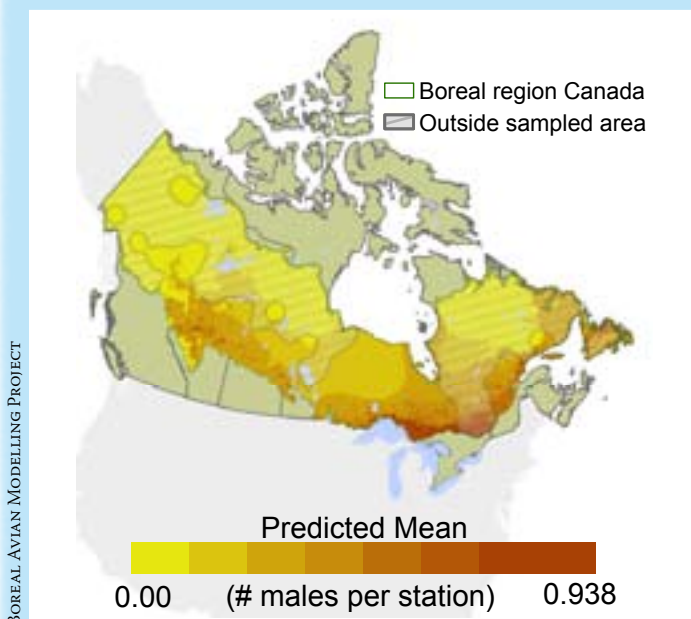
help provide these data, and advances in modeling complex associations and interactions will help us design conservation landscapes at appropriate scales.

Full Life-Cycle Connectivity and Limiting Factors

Conservation of migratory birds requires coordinated actions throughout their life cycle. Research should focus on: (1) distribution patterns of migrants throughout the annual cycle; (2) seasonal connectivity between specific breeding and nonbreeding locations, and (3) important factors limiting survival and productivity during the life cycle (e.g., does a bird face its greatest limiting factor during breeding, migration, or winter?). Knowing more about connectivity and limiting factors will enable us to predict consequences of habitat loss and environmental change and target effective conservation actions to benefit migrants and residents.

Modeling habitat relationships

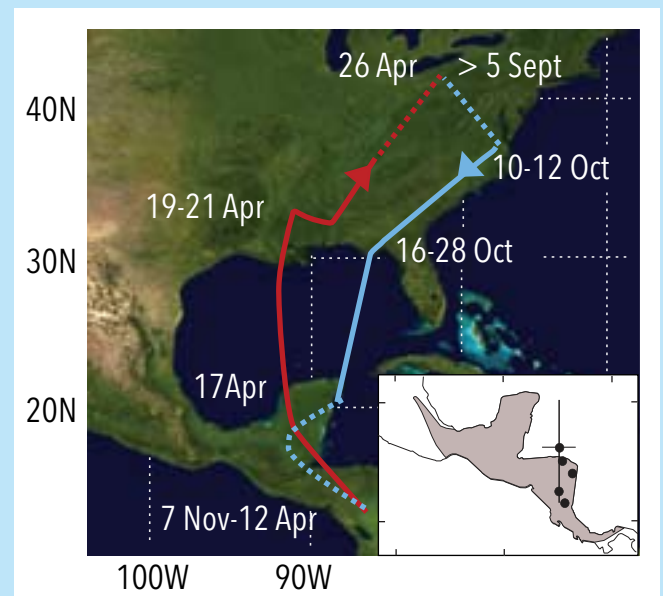
The Boreal Avian Modelling Project partnership is using bird and habitat data from across Canada's boreal forest to assess the habitat needs of boreal birds and to anticipate the impact of rapid environmental change. This work supports the conservation of boreal birds and informs future science efforts. The results will be used to predict avian response to environmental change and habitat loss and to support effective management and monitoring of boreal bird populations (www.borealbirds.ca).



Relative abundance estimates for Black-throated Green Warbler across Canada's boreal forest region.

Tracking connectivity

Technological advances allow us to track migration routes, document connectivity, and understand migration patterns. A recent study that used geolocators to study Purple Martins and Wood Thrushes identified the connection between specific breeding and wintering populations and the pace of spring migration. A recent analysis of stable isotopes in Wilson's Warbler feathers documented "leap frog" migration patterns, with those breeding farthest north migrating earliest in fall and wintering farthest south in Central America.



Migration tracks of an individual Wood Thrush on its journeys between upstate New York and Nicaragua, based on geolocator data. Reprinted from Stutchbury et al. 2009, *Science* 323: 896.

Population Status, Trends, Distribution, and Abundance

The population status of many species of highest conservation concern remain poorly known, especially in areas where monitoring has been limited because it is difficult, remote, or expensive. Improving monitoring programs and increasing our understanding of the factors impacting productivity (e.g. breeding success) and survival will assist in identifying key limiting factors. Much new information can be gained by expanding existing, long-term monitoring programs into regions where there are none, notably in Mexico, most of the boreal forest, and the arctic. In other cases new or targeted or non-traditional monitoring programs will be required.



ENRIQUE JARDEL PELÁEZ

Las Joyas Research Station (foreground) in the Sierra de Manantlán Biosphere Reserve and the Nevado de Colima National Park (background) are Important Bird Areas (IBAs) in western Mexico that over the past 20 years have hosted long-term landbird banding and monitoring training programs. International collaborative efforts have allowed hundreds of students, ornithologists, and land managers from Mexico, the United States, and Canada to participate in field courses that have generated new information on breeding seasons, habitat selection, site fidelity, migration schedules, and molt patterns of endemic and long-distance migratory landbirds.

Response to Management Actions, Development, and Environmental Change

Understanding the response of priority birds to human management practices (forestry, agriculture, grazing), development (energy, resorts, urban), and indirect environmental effects (habitat fragmentation, climate change, contaminants) will be a key component in designing and evaluating conservation and mitigation programs. Studying and monitoring priority species' population and ecological responses to these human-related actions and changes, documenting how they function as part of the affected ecosystems, and identifying key mechanisms driving the systems also will be crucial to understanding limiting factors and causes of population declines.

A Call to Tri-National Action

Human-Caused Sources of Mortality

Although trapping wild parrots is now illegal, we must assess whether the new bans are sufficient for recovering populations without supplementary measures. In addition, regulated trapping of other wild birds for the cage-bird trade needs to be tied to effective bird-population monitoring programs. Understanding the population effects of mortality caused by collisions with tall structures (e.g., wind turbines, telecommunication towers, power lines, buildings) and vehicles, as well as predation by cats and other nonnative predators, is essential for changing policy and developing guidelines based on relative risks to priority species. Research also should focus on cumulative and compensatory effects of multiple mortality factors.

Human Dimensions of Bird Conservation

Although social science has broadly explored people's relationship to the environment and response to specific issues (e.g., hunting, climate change), we know very little about how and why people relate to birds and bird conservation issues. By understanding the attitudes, knowledge, skills, motivation, and behaviors of existing and potential audiences (e.g., bird watchers, as well as private landowners and policymakers), we can better target conservation solutions that are acceptable to society. We also need to better understand (1) conservation outcomes achieved from birding tourism; (2) societal valuation of ecosystem services; (3) costs and benefits of conservation-oriented management practices; and (4) outcomes of conservation education programs. Integration of social and ecological science in studying bird conservation issues, such as including human population modeling and prediction into bird conservation modeling projects, has yet to be undertaken.



CHAD JOHNSON

Private woodland owners can take important actions on their properties to create or maintain bird habitat. A social scientist interviews a woodland owner to understand his motivations.

5. Engage People in Conservation Action

Although people in all three of our countries value our shared birds and environment, in many cases the connections between people and birds could be better harnessed for bird conservation. We must motivate people to recognize the costs and benefits of alternate futures, make behavioral changes, and take conservation actions at every geographic and political scale. Through their actions, humans continue to threaten birds, often unknowingly. Conservation strategies to meet the goals of our tri-national vision must include mechanisms to involve people in creating and implementing solutions, and must include direct benefits to society.

Strategic Education

Education, outreach, and communication are vital tools for achieving bird conservation goals. Collaboration between educators and conservationists will enhance strategies to focus on critical conservation actions through appropriate messages and delivery mechanisms. Education objectives need to be tied specifically to conservation objectives, focusing on the highest priority species and habitats.

Outreach should take advantage of innovative technologies, such as podcasts and blogs, and advances in social marketing to “sell” bird-related ideas in a way that focuses on what the consumer wants. We will need to work more closely with a variety of stakeholders, such as producers, industry, policy-makers, business communities, and First Nations, Native American, and indigenous peoples to implement bird-friendly agriculture and forestry practices. Articulating measurable outcomes and evaluating the impact of outreach programs will allow us to continually improve.



EDUARDO INIGO-ELIAS

“Kicking the dirt,” bird conservationists share information about birds and learn about landowners’ needs as part of the community-driven Sierra Madre Sparrow conservation project near Mexico City.



NARCA MOORE-CRAIG

Students from an inner city outings club learn from a researcher about grassland birds and ecosystems as she bands a wintering sparrow in south-eastern Arizona.

International Capacity

With limited resources devoted to education and outreach, sharing products and programs increases the capacity of providers, shifting resource expenditure from program development to implementation. Consistent messaging among groups and countries will yield greater impact. Sharing existing resources allows education programs on limited budgets to be far more strategic in meeting conservation education goals. We encourage broader use of resource directories, such as the Avian Index (www.birdday.org/resources/), by educators in all three countries, providing a new influx of ideas and encouraging full stewardship of shared birds. Translation of education and outreach materials into appropriate languages allows for greater impact.



Social networking sites connect people interested in bird conservation as a community. The Partners in Flight Facebook page recruited over 600 members within two weeks of its creation.

Engage More People in Citizen Science

Citizen science offers cost-effective tools for bird monitoring, education, and outreach among scientists, policy-makers, and birders. Besides providing valuable data for bird conservation, volunteer citizen scientists enhance their knowledge of birds, as well as their conservation involvement. The North American Breeding Bird Survey and the Christmas Bird Count, which rely entirely on volunteer birders, provide some of our best knowledge of long-term bird population trends. The online program eBird (www.ebird.org) is rapidly improving knowledge of seasonal bird distribution, with more than 100,000 checklists submitted per month in 2010. All of these projects need expanded coverage throughout our three nations, particularly in Mexico (averaves.org) and less-populated areas of Canada and Alaska.



ASHLEY DAYER

Thousands of volunteers throughout the Americas add their yearly counts to the Christmas Bird Count, one of the longest-running citizen science datasets—now spanning more than 100 years. The long-term perspective on bird population trends helps inform strategies to protect birds and their habitats—including this report.

Promote the Economic Benefits of Bird Conservation

Conservation solutions that ensure long-term protection of birds and their habitats must also provide economically viable options for people, communities, and industry. Successful models in all three countries illustrate the economic benefits of sustainable land-use practices that allow birds to co-exist with people. Providing bird-friendly economic opportunities for local people is particularly critical for reducing threats in and around protected areas for species at greatest risk of extinction. For example, tourism and bird-guide training can help link ecotourism providers with local guides and provide alternate livelihoods. At larger scales birding festivals, such as International Migratory Bird Day (www.birdday.org), and birding trails (e.g., www.coloradobirdingtrail.com) allow rural communities to realize income by attracting tourists.



GABRIELA PÉREZ CARRILLO

Ornithological research and bird-based environmental education programs in the Ayuquila River, Jalisco, sparked a river and riparian conservation program that transformed into Mexico's first inter-municipal watershed conservation agency. The migratory Belted Kingfisher has been an effective symbol for the citizen volunteer program and local government alliance.

Coffee supports birds, habitat, and people

Many people in the tropics rely on coffee crops for their livelihood. Whereas modernized coffee growing has become more intensive on the land and detrimental to birds, shade grown coffee certification has encouraged a return to the traditional agroforestry system. Fair trade certification supports local communities and discourages conversion of tropical forest. Coffee drinkers can buy certified coffees with the assurance that these forested farms provide habitat to not only migratory birds, but also resident species. For example, through partnerships with organizations and local people and export to international markets at fair trade prices, there are now 1,800 producers of certified coffee in the Biosphere Reserve at El Triunfo (www.fondoeltriunfo.org).



JOSE GUADALUPE PÉREZ GÓMEZ

6. Increase the Power of International Partnerships

Our three countries share bird species, and our birds share habitats and face common threats. Existing programs and funds that support a coordinated international approach to conservation have achieved great results. However, the continued decline of continental landbirds and the widespread deterioration of habitats indicate that much more needs to be done. We need to expand the capacity of international partnerships and develop new mechanisms for achieving conservation.

Fully Implement NABCI Tri-National Projects

The North American Bird Conservation Initiative (NABCI) promotes a strategic approach to conserving birds through the identification of continentally important areas. Since NABCI's inception in 1999, four Joint Venture-like Regional Alliances have been established in Mexico to facilitate and promote communication, international collaboration, and conservation action: Yucatan, Marismas Nacionales, el Triunfo, and Grasslands of the Chihuahuan Desert. Increased international support to fully implement these alliances will help conserve a large proportion of species of high tri-national concern.

Increase Support for Cross-border Joint Ventures

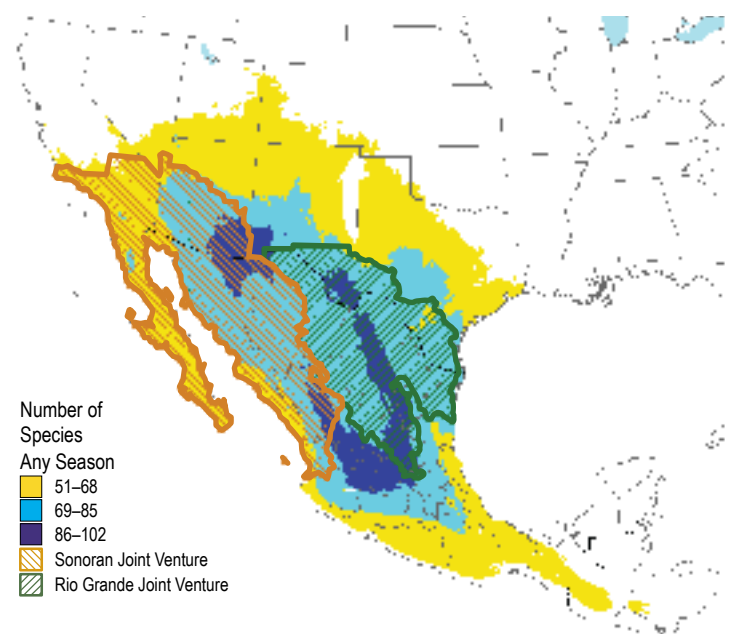


Educators from Mexico's National Commission for Natural Protected Areas discuss plans for environmental education that supports conservation objectives within the Sonoran Joint Venture.

Two international Joint Ventures (Sonoran JV, Rio Grande JV) focus on protecting more than 100 species of high conservation priority in the aridlands, tropical deciduous forests,

and pine-oak forests of the southwestern United States and northern Mexico. Increased support is needed for these, and other new cross-border partnerships, to expand their capacity and incentives for habitat conservation, community involvement and capacity building, conservation and ecotourism training, outreach materials, and monitoring and research. Similarly, the Pacific Coast Joint Venture spans the border of Canada and the United States, providing opportunities to protect high-priority landbirds of western temperate forests.

Sonoran and Rio Grande Joint Ventures



The Sonoran and Rio Grande Joint Ventures operate in the area with the highest number of species whose responsibility is substantially shared by Mexico and the United States.

Strengthen and Expand Funding Programs for International Bird Conservation

Substantially increased funding to enhance international conservation capacity is necessary to meet the goals of PIF's tri-national vision. Conservation efforts will benefit from expansion of funds allocated to existing programs, such as the U.S. Forest Service's International Programs, U.S. National Park Service Park Flight Migratory Bird Program, the Southern Wings Program of the Association of Fish and Wildlife Agencies, and Canada's Latin America Program. These government-led programs would have far more positive impact if they were matched or supplemented by investment from private foundations, international aid organizations, and industry partners.

In particular, we recommend increasing the funds allocated to

the Neotropical Migratory Bird Conservation Act (NMBCA), enacted by the United States Congress in 2000 to establish a grant program for conserving migratory birds. Between 2002 and 2008, NMBCA supported 260 projects coordinated by partners in 48 states/territories and 36 countries. The more than \$25.5 million awarded in grants over seven years has leveraged \$116.5 million in matching funds and \$6.1 million in additional funds. These projects positively impacted 1.9 million acres of bird habitat. Yet, many quality projects that could greatly impact conservation go unfunded. Doubling the funding appropriated to \$10,000,000 (currently \$4,500,000) would considerably enhance the impact of the program.

Adopt Green Policies and Business Practices at the Continental Scale

The 1994 North American Agreement on Environmental Cooperation set a precedent as a formal environmental agreement adopted in parallel with an international trade agreement. The Commission for Environmental Cooperation, an early leader in tri-national bird conservation, pro-

vides an ideal forum for collaborative exploration of new policies that support the goals of PIF and a more sustainable trading relationship throughout the continent. Policy decisions that will help achieve our tri-national vision for bird conservation must be addressed at existing government tables, such as the Trilateral Committee for Wildlife and Ecosystem Conservation and Management. The non-government (NGO) sector can be influential in establishing new partnerships with the private sector for financial support of bird conservation. NGOs are ideal to develop and promote certification programs for tourism, business, and land-use practices that support conservation. Businesses can thrive without depleting our natural capital or the ecological services upon which we depend.

Create Data-Driven Partnerships to Support Decision-Makers

Recent advances in Internet-based technology have spawned new partnerships centered around information-sharing to advance bird conservation. Communities of data providers and users can help disseminate conservation and decision support tools. They offer a hub for results of research on best management practices for landbirds, ranging from guidelines to alleviate direct mortalities and economic incentives for communities to endangered species' recovery strategies. For example, the Avian Knowledge Alliance (<http://klamathbird.org/partnerships/networkandcollaborations/60-aka.html>) recently formed to promote the use of standard protocols and centralized access to bird-monitoring data through the Avian Knowledge Network (www.avianknowledge.net), which houses more than 70 million observations of birds from throughout the Western Hemisphere. Other partner-driven information systems such as Avesmx (<http://avesmx.conabio.gob.mx>) and Neotropical Birds (www.neotropical.birds.cornell.edu) can support policy planners, managers, and other decision-makers.

Gateway to the Hemisphere

Although this tri-national effort is a major step forward for Western Hemisphere bird conservation, two-thirds of our landbird species are shared with other Western Hemisphere countries, and well over one billion birds migrate beyond our borders to the West Indies, Central America, or South America each year. Only through greatly increased collaboration with other countries will we ensure a future for all of our hemisphere's 4,200 bird species and the ecosystems on which they depend. Building on existing partnerships, such as the PIF Mesoamerican Working Group, and developing and strengthening partnerships in the Caribbean and South America, we can address the highest-priority conservation actions for our hemisphere's birds.

Voluntary partnerships for high-concern species

It is expensive to recover species from the edge of extinction. For high-concern species not federally listed in all or part of their range, international working groups serve as an excellent model for proactively addressing threats to habitats and reversing population declines. These partnerships, representing government, academic, conservation advocacy, and private industry sectors, can leverage significant funding for land acquisition and management, as well as important research aimed at finding economically viable conservation solutions.

The Cerulean Warbler Technical Group/El Grupo Cerúleo (www.srs.fs.usda.gov/egc/) brings together partners from the forest-products, coal-mining, and coffee-production industries, multiple resource agencies, conservation NGOs, and university scientists from countries throughout the species' breeding and winter range. Other examples are the Golden-winged Warbler working group/Alianza Alas Doradas (www.alasdoradas.org), International Rusty Blackbird Technical Working Group (http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Rusty_Blackbird/twg.cfm), and the Bicknell's Thrush Working Group (www.bicknellsthrush.org).



GREG LAVATY

Cerulean Warbler

Appendices

These appendices present data selected to support key messages in the body of the report. Much more information relevant to the assessment of all 882 native landbirds of Canada, Mexico, and the United States is provided online through the PIF species assessment database housed at the Rocky Mountain Bird Observatory in Colorado. Interested readers are encouraged to visit (www.rmbo.org/pif/pifdb.html) as well as the conservation assessment of all Mexican birds (<http://avesmx.conabio.gob.mx>).

The results of this new tri-national species assessment do not replace the priorities and objectives identified previously in the 2004 PIF Landbird Conservation Plan (Rich et al. 2004) or regional priorities in the PIF species assessment database. The messages in this report are highly relevant to successful conservation of all North American landbirds.

APPENDIX A: FAMILIES OF NATIVE LANDBIRDS

Provides a snapshot of the broad diversity of landbirds in this continent by summarizing the number of species across 58 taxonomic families, together with a summary of the numbers of species listed in the following appendices. Taxonomy follows the 50th supplement to the American Ornithologists' Union Check-list of North American Birds (Chesser et al. 2009, *Auk* 126(3):705–714).

APPENDIX B: SPECIES OF HIGH TRI-NATIONAL CONCERN

Lists 148 species highlighted in the “Loss of Bird Diversity” section of the report, identifying those within each of five subgroups mentioned in the text, and providing species-specific information that is summarized in graphs and maps in that section. Habitat definitions are provided at the end of Appendix B.

APPENDIX C: COMMON BIRDS IN STEEP DECLINE

Lists 42 species in the “Loss of Bird Abundance” section of the report, with additional data most relevant to key messages provided in that section.

APPENDIX D: SPECIES SUBSTANTIALLY SHARED AMONG NATIONS

Lists 272 species highlighted in the “Shared Birds, Shared Responsibility” section of the report—those for which responsibility is substantially shared by at least two countries within the tri-national area. Countries with high responsibility for these species are identified by season with additional information relevant to messages provided in the text.

NOTE: Species may appear in multiple Appendices if they meet criteria for more than one group of birds.



The Garnet-throated Hummingbird, restricted to tropical highland forests of Mesoamerica, is a species of high tri-national concern (see Appendix B).

KNUT EISENMANN

APPENDIX A: FAMILIES OF NATIVE LANDBIRDS

Family	Birds Included	Number of Species in Tri-national Area	% Endemic to Tri-national Area	% High Conservation Concern	% Common Birds in Steep Decline	% Shared Substantially	% Migratory Species
Tinamidae	Tinamous	4		50			
Cracidae	Chachalacas, Guans	8	25	50			
Odontophoridae	Quail, Wood-Partridges	15	53	33	7	13	
Phasianidae	Grouse & allies	14	79	36	14	36	14
Cathartidae	Vultures, Condor	5	20	40		40	20
Accipitridae	Hawks, Kites, Eagles	39	8	23	3	36	51
Falconidae	Falcons, Caracaras	13	8	23		8	46
Columbidae	Doves, Pigeons	23	9	17		17	17
Psittacidae	Parrots, Parakeets	21	19	48			5
Cuculidae	Cuckoos, Anis	11	9		27	27	27
Tytonidae	Barn Owls	1					
Strigidae	Typical Owls	33	27	27	6	33	21
Caprimulgidae	Nighthawks, Nightjars	14	21		14	29	64
Nyctibiidae	Potoos	2					
Apodidae	Swifts	10	20	10	10	40	40
Trochilidae	Hummingbirds	57	40	14	2	14	30
Trogonidae	Trogons	9	22	33			11
Momotidae	Motmots	6		50			
Alcedinidae	Kingfishers	5			20	20	20
Bucconidae	Puffbirds	2					
Galbulidae	Jacamars	1					
Ramphastidae	Toucans	3					
Picidae	Woodpeckers	35	60	14	6	34	20
Furnariidae	Woodcreepers & allies	19	5	32	5		
Thamnophilidae	Antbirds & allies	7		57			
Formicariidae	Anthrushes	1			100		
Grallariidae	Antpittas	1		100			
Tyrannidae	Tyrant Flycatchers	76	11	12		29	50
Cotingidae	Cotingas	1		100			
Pipridae	Manakins	3		33			
Laniidae	Shrikes	2	50		50	100	100
Vireonidae	Vireos	26	27	8		42	50
Corvidae	Jays, Crows & allies	31	71	29		19	13
Alaudidae	Larks	2			50	50	50
Hirundinidae	Swallows	13		8	8	62	85
Paridae	Chickadees, Titmice	12	92		8	25	
Remizidae	Penduline Tits	1	100		100	100	
Aegithalidae	Long-tailed Tits	1				100	
Sittidae	Nuthatches	4	75			25	25
Certhiidae	Treecreepers	1				100	100
Troglodytidae	Wrens	31	48	10	3	26	23
Cinclidae	Dippers	1					
Regulidae	Kinglets	2	100			100	100
Sylviidae	Gnatcatchers & allies	8	38		13	25	25
Turdidae	Thrushes	28	25	18		39	54
Timaliidae	Wrentit	1	100				
Mimidae	Thrashers & allies	18	72	17		33	28
Motacillidae	Pipits, Wagtails	5	20	20		40	100
Bombycillidae	Waxwings	2				100	100
Ptilogonatidae	Silky Flycatchers	2	50			50	50
Peucedramidae	Olive Warbler	1					
Parulidae	Wood Warblers	64	14	16	5	67	81
Coeribidae	Bananaquit	1					
Thraupidae *	Tanagers & allies	17		24			12
Emberizidae	Sparrows & allies	78	64	10	10	42	53
Cardinalidae	Grosbeaks & allies	30	27	10	3	37	43
Icteridae	Blackbirds, Orioles	36	28	3	8	31	56
Fringillidae	Finches	25	36	12	8	48	64
	Total Species:	882	276	148	42	272	337

Neotropical Families–Species reside almost entirely in the Neotropics

* includes genus *Saltator* (uncertain family placement)

APPENDIX B: SPECIES OF HIGH TRI-NATIONAL CONCERN (For key, see pages 42–43)

			Legal Lists ^						
Common Name	Latin Name	Migrant	Canada	Mexico	USA	IUCN 09 ~	Primary Habitat	Urbanization	Agri-culture
Species at Greatest Risk of Extinction									
Horned Guan	<i>Oreophasis derbianus</i>			P		EN	Tropical Highland Forests		Y
Bearded Wood-Partridge	<i>Dendrortyx barbatus</i>			P		VU	Tropical Highland Forests	Y	Y
Gunnison Sage-Grouse	<i>Centrocercus minimus</i>					EN	Aridlands	Y	
California Condor	<i>Gymnogyps californianus</i>			E	E	CR	Temperate Western Forests	Y	
Socorro Dove	<i>Zenaida graysoni</i>			E		EW	Tropical Deciduous Forests	Y	
Tuxtla Quail-Dove	<i>Geotrygon carikeri</i>			P		EN	Tropical Evergreen Forests		Y
Thick-billed Parrot	<i>Rhynchopsitta pachyrhyncha</i>	Y		P		EN	Mexican Pine-Oak Forests		Y
Maroon-fronted Parrot	<i>Rhynchopsitta terrisi</i>			A		VU	Mexican Pine-Oak Forests		
Red-crowned Parrot	<i>Amazona viridigenalis</i>			P		EN	Tropical Deciduous Forests		Y
Yellow-headed Parrot	<i>Amazona oratrix</i>			P		EN	Tropical Deciduous Forests		Y
Bearded Screech-Owl	<i>Megascops barbarus</i>			A		NT	Tropical Highland Forests	Y	Y
Tamaulipas Pygmy-Owl	<i>Glaucidium sanchezi</i>			P		LC	Tropical Highland Forests		Y
Unspotted Saw-whet Owl	<i>Aegolius ridgwayi</i>			A		LC	Tropical Highland Forests	Y	Y
Short-crested Coquette	<i>Lophornis brachylophus</i>			P		CR	Tropical Evergreen Forests		Y
Mexican Woodnymph	<i>Thalurania ridgwayi</i>			Pr		VU	Tropical Deciduous Forests		Y
Blue-capped Hummingbird	<i>Eupherusa cyanophrys</i>			A		EN	Tropical Evergreen Forests		Y
White-tailed Hummingbird	<i>Eupherusa poliocerca</i>			A		VU	Tropical Evergreen Forests	Y	Y
Mexican Sheartail	<i>Doricha eliza</i>			P		NT	Tropical Deciduous Forests	Y	Y
Ivory-billed Woodpecker	<i>Campephilus principalis</i>				E	CR	Temperate Eastern Forests	Y	
Imperial Woodpecker	<i>Campephilus imperialis</i>			E		CR	Mexican Pine-Oak Forests		
Belted Flycatcher	<i>Xenotriccus callizonus</i>			A		NT	Tropical Deciduous Forests		Y
Flammulated Flycatcher	<i>Deltarhynchus flammulatus</i>			Pr		LC	Tropical Deciduous Forests	Y	
Tufted Jay	<i>Cyanocorax dickeyi</i>			P		NT	Mexican Pine-Oak Forests		
Dwarf Jay	<i>Cyanolyca nana</i>			P		VU	Tropical Highland Forests	Y	Y
White-throated Jay	<i>Cyanolyca mirabilis</i>			P		VU	Tropical Highland Forests	Y	Y
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>				T	VU	Temperate Eastern Forests	Y	Y
Island Scrub-Jay	<i>Aphelocoma insularis</i>					NT	Aridlands		
Sumichrast's Wren	<i>Hylorchilus sumichrasti</i>			A		NT	Tropical Evergreen Forests		Y
Nava's Wren	<i>Hylorchilus navai</i>			P		VU	Tropical Evergreen Forests		
Socorro Mockingbird	<i>Mimus graysoni</i>			P		CR	Tropical Deciduous Forests		
Cozumel Thrasher	<i>Toxostoma guttatum</i>			P		CR	Tropical Deciduous Forests	Y	
Bachman's Warbler	<i>Vermivora bachmanii</i>	Y			E	CR	Temperate Eastern Forests / unknown		Y
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	Y		A	E	EN	Temperate Western Forests / Tropical Highland Forests	Y	Y
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	Y	EN		E	NT	Temperate Eastern Forests / Tropical Deciduous Forests		Y
Belding's Yellowthroat	<i>Geothlypis beldingi</i>			P		CR	Freshwater Marsh		
Altamira Yellowthroat	<i>Geothlypis flavovelata</i>			A		VU	Freshwater Marsh	Y	
Black-poll'd Yellowthroat	<i>Geothlypis speciosa</i>			P		EN	Freshwater Marsh	Y	Y
Pink-headed Warbler	<i>Ergaticus versicolor</i>			P		VU	Tropical Highland Forests	Y	Y
Azure-rumped Tanager	<i>Tangara cabanisi</i>			P		EN	Tropical Highland Forests		Y
Worthen's Sparrow	<i>Spizella wortheni</i>			A		EN	Grasslands		Y
Saltmarsh Sparrow	<i>Ammodramus caudacutus</i>	Y				VU	Coasts	Y	
Sierra Madre Sparrow	<i>Xenospiza baileyi</i>			P		EN	Grasslands	Y	Y
Rose-bellied Bunting	<i>Passerina rositae</i>			A		NT	Tropical Deciduous Forests		
Brown-capped Rosy-Finch	<i>Leucosticte australis</i>	Y				LC	Alpine Tundra		
Tropical Residents of High Tri-National Concern—primarily Mexican distribution									
Long-tailed Wood-Partridge	<i>Dendrortyx macroura</i>			Pr		LC	Tropical Highland Forests		
Ocellated Turkey	<i>Meleagris ocellata</i>			A		NT	Tropical Deciduous Forests		
Mexican Parrotlet	<i>Forpus cyanopygius</i>			Pr		LC	Tropical Deciduous Forests		
Yellow-lored Parrot	<i>Amazona xantholara</i>			Pr		LC	Tropical Deciduous Forests	Y	
Lilac-crowned Parrot	<i>Amazona finschi</i>			A		VU	Tropical Deciduous Forests	Y	Y
Balsas Screech-Owl	<i>Megascops seductus</i>			Pr		NT	Tropical Deciduous Forests		Y
Eared Quetzal	<i>Euptilotis neoxenus</i>			A		NT	Mexican Pine-Oak Forests		
Gray-crowned Woodpecker	<i>Colaptes auricularis</i>					LC	Tropical Highland Forests		Y
Purplish-backed Jay	<i>Cyanocorax beecheii</i>			A		LC	Tropical Deciduous Forests		Y
Sinaloa Martin	<i>Progne sinaloae</i>	Y		Pr		DD	Mexican Pine-Oak Forests / unknown		
Red-breasted Chat	<i>Granatellus venustus</i>					LC	Tropical Deciduous Forests	Y	Y
Hooded Grosbeak	<i>Coccothraustes abeillei</i>					LC	Tropical Highland Forests		

Primary Threats #								Assessment Scores **						Present in:		
	Livestock	Energy and Transportation	Trapping and Shooting	Logging/ Wood Harvest	Ecosystem Modifications	Contaminants and Exotic Species	Climate Change	PT	TB	TN	BD	ND	PS	Canada	Mexico	USA
	Y			Y			Y	5	5	5	5	5	5		Y	
				Y			Y	5	5	5	5	5	5		Y	
	Y	Y				Y		5	5	5	5	5	5			Y
		Y				Y		5	5	5	5	4	5		Y	Y
	Y			Y		Y		5	5	5	5	5	5		Y	
	Y			Y			Y	5	5	5	5	5	5		Y	
	Y			Y	Y			5	5	4	5	4	5		Y	
				Y	Y			4	5	5	5	5	5		Y	
				Y				5	5	5	5	5	5		Y	Y
	Y			Y				5	5	5	5	5	5		Y	
				Y			Y	4	5	5	5	5	5		Y	
	Y			Y			Y	4	4	4	5	5	5		Y	
	Y			Y			Y	4	5	5	5	5	5		Y	
							Y	4	5	5	5	5	5		Y	
	Y			Y				4	4	4	5	5	5		Y	
	Y			Y			Y	4	4	4	5	5	5		Y	
	Y			Y			Y	4	4	4	5	5	5		Y	
	Y							4	4	4	5	5	5		Y	
				Y	Y			5	5	5	5	5	5			Ext?
				Y	Y			5	5	5	5	5	5		Ext?	
					Y			5	4	4	5	5	5		Y	
	Y	Y		Y				4	4	4	5	5	5		Y	
				Y	Y			4	4	4	5	5	5		Y	
		Y		Y			Y	5	4	4	5	5	5		Y	
				Y			Y	4	4	4	5	5	5		Y	
					Y	Y		5	5	5	5	5	5			Y
						Y		3	4	4	5	5	5			Y
	Y			Y	Y			4	5	5	5	5	5		Y	
	Y	Y		Y	Y			5	5	5	5	5	5		Y	
	Y					Y		5	5	5	5	5	5		Y	
							Y	5	5	5	5	5	5		Ext?	
				Y				5	5	5	5	5	5			Ext?
	Y			Y				5	5	5	5	4	5		Y	Y
					Y	Y		5	4	5	5	5	5	Y		Y
					Y		Y	5	5	5	5	5	5		Y	
	Y				Y			5	5	5	5	5	5		Y	
		Y		Y			Y	5	5	5	5	5	5		Y	
				Y			Y	4	4	4	5	5	5		Y	
	Y						Y	4	4	4	5	5	5		Y	
						Y		4	4	4	5	4	4			Y
	Y				Y			5	5	5	5	5	5		Y	
	Y	Y						5	4	4	5	5	5		Y	
							Y	3	4	2	5	4	5			Y
	Y			Y				4	4	4	4	4	5		Y	
				Y			Y	5	4	3	4	4	5		Y	
	Y			Y				4	4	4	4	4	5		Y	
				Y				4	4	3	4	4	5		Y	
				Y				5	5	5	4	4	5		Y	
	Y			Y				4	4	3	4	4	5		Y	
				Y				4	4	4	4	4	5		Y	
	Y			Y				4	4	4	4	4	5		Y	
	Y			Y				4	4	4	4	4	5		Y	
				Y				4	4	3	4	4	5		Y	
	Y							4	4	4	4	4	5		Y	
	Y			Y			Y	4	4	4	4	4	5		Y	

APPENDIX B: SPECIES OF HIGH TRI-NATIONAL CONCERN *(continued)*

			Legal Lists ^						
Common Name	Latin Name	Migrant	Canada	Mexico	USA	IUCN 09 ~	Primary Habitat	Urbanization	Agri-culture
Tropical Residents of High Tri-National Concern—primarily Mesoamerican distribution									
Slaty-breasted Tinamou	<i>Crypturellus boucardi</i>			Pr		LC	Tropical Evergreen Forests		Y
Crested Guan	<i>Penelope purpurascens</i>			A		LC	Tropical Evergreen Forests		Y
Highland Guan	<i>Penelopina nigra</i>			A		VU	Tropical Highland Forests		Y
Great Curassow	<i>Crax rubra</i>			A		VU	Tropical Evergreen Forests		Y
Buffy-crowned Wood-Partridge	<i>Dendrotyx leucophrys</i>			A		LC	Tropical Highland Forests		Y
Spotted Wood-Quail	<i>Odontophorus guttatus</i>			Pr		LC	Tropical Evergreen Forests		Y
Ocellated Quail	<i>Cyrtonyx ocellatus</i>			A		NT	Aridlands		Y
Solitary Eagle	<i>Harpyhaliaetus solitarius</i>			P		NT	Mexican Pine-Oak Forests		Y
Maroon-chested Ground-Dove	<i>Claravis mondetoura</i>			A		LC	Tropical Evergreen Forests		Y
Yellow-naped Parrot	<i>Amazona auropalliata</i>			P		LC	Tropical Deciduous Forests		
Central American Pygmy-Owl	<i>Glaucidium griseiceps</i>			Pr		LC	Tropical Evergreen Forests		Y
Black-and-white Owl	<i>Ciccaba nigrolineata</i>			A		LC	Tropical Evergreen Forests		Y
Fulvous Owl	<i>Strix fulvescens</i>			A		LC	Tropical Highland Forests		Y
Emerald-chinned Hummingbird	<i>Abeillia abeillei</i>			Pr		LC	Tropical Evergreen Forests		Y
Garnet-throated Hummingbird	<i>Lamprolaima rhami</i>			A		LC	Tropical Highland Forests		Y
Wine-throated Hummingbird	<i>Atthis ellioti</i>			A		LC	Tropical Highland Forests		Y
Slaty-tailed Trogon	<i>Trogon massena</i>			A		LC	Tropical Evergreen Forests		Y
Resplendent Quetzal	<i>Pharomachrus mocinno</i>			P		NT	Tropical Highland Forests		Y
Tody Motmot	<i>Hylomanes momotula</i>			A		LC	Tropical Evergreen Forests		Y
Blue-throated Motmot	<i>Aspatha gularis</i>			A		LC	Tropical Highland Forests	Y	Y
Keel-billed Motmot	<i>Electron carinatum</i>			P		VU	Tropical Evergreen Forests		Y
Chestnut-colored Woodpecker	<i>Celeus castaneus</i>			Pr		LC	Tropical Evergreen Forests		Y
Scaly-throated Leafosser	<i>Sclerurus guatemalensis</i>			Pr		LC	Tropical Evergreen Forests		Y
Tawny-winged Woodcreeper	<i>Dendrocincla anabatina</i>			Pr		LC	Tropical Evergreen Forests		Y
Ruddy Woodcreeper	<i>Dendrocincla homochroa</i>					LC	Tropical Evergreen Forests		Y
Russet Antshrike	<i>Thamnistes anabatinus</i>			Pr		LC	Tropical Evergreen Forests		Y
Sulphur-rumped Flycatcher	<i>Myiobius sulphureipygius</i>					LC	Tropical Evergreen Forests		Y
Rufous Mourner	<i>Rhytipterna holerythra</i>					LC	Tropical Evergreen Forests		Y
Rufous Piha	<i>Lipaugus unirufus</i>					LC	Tropical Evergreen Forests		Y
Speckled Mourner	<i>Laniocera rufescens</i>			Pr		LC	Tropical Evergreen Forests		Y
Lovely Cotinga	<i>Cotinga amabilis</i>			A		LC	Tropical Evergreen Forests		Y
Red-capped Manakin	<i>Pipra mentalis</i>					LC	Tropical Evergreen Forests		Y
Azure-hooded Jay	<i>Cyanolyca cucullata</i>			A		LC	Tropical Highland Forests		Y
Black-throated Jay	<i>Cyanolyca pumilo</i>			A		LC	Tropical Highland Forests		Y
Nightingale Wren	<i>Microcerculus philomela</i>					LC	Tropical Evergreen Forests		Y
Slate-colored Solitaire	<i>Myadestes unicolor</i>			A		LC	Tropical Highland Forests		Y
Black-headed Nightingale-Thrush	<i>Catharus mexicanus</i>			Pr		LC	Tropical Highland Forests		
Black Thrush	<i>Turdus infuscatus</i>			A		LC	Tropical Highland Forests		Y
Rosy Thrush-Tanager	<i>Rhodinocichla rosea</i>					LC	Tropical Deciduous Forests	Y	Y
Black-throated Shrike-Tanager	<i>Lanio aurantius</i>			Pr		LC	Tropical Evergreen Forests		Y
Shining Honeycreeper	<i>Cyanerpes lucidus</i>			Pr		LC	Tropical Evergreen Forests		Y
Blue Seedeater	<i>Amaurospiza concolor</i>			Pr		LC	Tropical Deciduous Forests		Y
Tropical Residents of High Tri-National Concern—primarily South American distribution									
Great Tinamou	<i>Tinamus major</i>			Pr		LC	Tropical Evergreen Forests		Y
King Vulture	<i>Sarcoramphus papa</i>			P		LC	Tropical Evergreen Forests		Y
Bicolored Hawk	<i>Accipiter bicolor</i>			A		LC	Tropical Evergreen Forests		Y
White Hawk	<i>Leucopternis albicollis</i>			Pr		LC	Tropical Evergreen Forests		Y
Crested Eagle	<i>Morphnus guianensis</i>			P		NT	Tropical Evergreen Forests		Y
Harpy Eagle	<i>Harpia harpyja</i>			P		NT	Tropical Evergreen Forests		Y
Black Hawk-Eagle	<i>Spizaetus tyrannus</i>			P		LC	Tropical Evergreen Forests		Y
Ornate Hawk-Eagle	<i>Spizaetus ornatus</i>			P		LC	Tropical Evergreen Forests		Y
Black-and-white Hawk-Eagle	<i>Spizaetus melanoleucus</i>			P		LC	Tropical Evergreen Forests		Y
Barred Forest-Falcon	<i>Micrastur ruficollis</i>			Pr		LC	Tropical Evergreen Forests		Y
Red-throated Caracara	<i>Ibycter americanus</i>			E		LC	Tropical Evergreen Forests		Y
Orange-breasted Falcon	<i>Falco deiroleucus</i>			P		LC	Tropical Evergreen Forests		Y
Military Macaw	<i>Ara militaris</i>			P		VU	Tropical Deciduous Forests		Y
Scarlet Macaw	<i>Ara macao</i>			P		LC	Tropical Evergreen Forests		Y

Primary Threats #								Assessment Scores **						Present in:		
	Livestock	Energy and Transportation	Trapping and Shooting	Logging/ Wood Harvest	Ecosystem Modifications	Contaminants and Exotic Species	Climate Change	PT	TB	TN	BD	ND	PS	Canada	Mexico	USA
	Y							5	4	4	3	3	5		Y	
	Y							5	4	4	2	2	5		Y	
				Y				4	5	5	4	4	5		Y	
	Y			Y				5	4	4	3	3	5		Y	
	Y							5	5	5	4	4	5		Y	
	Y			Y				4	4	4	3	3	5		Y	
	Y			Y	Y			4	4	4	4	4	5		Y	
	Y			Y				5	4	4	3	3	5		Y	
	Y			Y			Y	4	4	4	3	3	5		Y	
				Y				5	5	5	4	4	5		Y	
	Y			Y			Y	4	4	4	4	4	5		Y	
	Y							5	4	4	3	3	4		Y	
	Y						Y	4	4	4	4	4	5		Y	
	Y			Y			Y	4	4	4	4	4	5		Y	
	Y			Y				4	4	4	4	4	5		Y	
	Y						Y	4	4	4	4	4	5		Y	
				Y				5	4	4	3	3	5		Y	
	Y			Y			Y	5	4	4	4	4	5		Y	
	Y			Y				5	4	4	3	3	5		Y	
				Y			Y	4	4	4	4	4	5		Y	
	Y			Y				5	4	4	4	4	5		Y	
				Y				5	4	4	3	3	5		Y	
	Y			Y				5	4	4	3	3	4		Y	
	Y			Y				5	3	4	3	3	4		Y	
	Y			Y				5	4	4	3	3	4		Y	
	Y			Y				5	4	4	3	3	4		Y	
				Y				5	4	4	3	3	4		Y	
	Y							5	4	4	3	3	5		Y	
				Y			Y	5	4	4	4	4	5		Y	
	Y			Y				4	4	3	4	4	5		Y	
	Y			Y			Y	5	4	4	4	4	4		Y	
							Y	4	4	4	4	4	5		Y	
	Y							4	4	4	4	4	5		Y	
	Y			Y			Y	5	5	5	4	4	5		Y	
				Y				5	4	4	4	4	4		Y	
	Y				Y			4	4	4	4	4	5		Y	
				Y				5	4	4	1	1	3		Y	
	Y			Y	Y			5	4	4	1	1	5		Y	
	Y			Y	Y			5	4	4	1	1	5		Y	
	Y			Y				5	4	4	1	1	5		Y	
	Y	Y		Y				5	5	5	1	1	5		Y	
	Y			Y				4	4	4	1	1	5		Y	
	Y			Y				5	4	4	1	1	5		Y	
	Y					Y		5	4	4	1	1	3		Y	
	Y			Y				5	5	5	1	1	4		ETP?	
	Y			Y	Y			5	5	5	2	2	5		Y	
	Y							5	5	4	3	3	5		Y	
	Y			Y				5	5	5	1	1	5		Y	

APPENDIX B: SPECIES OF HIGH TRI-NATIONAL CONCERN (continued)

Common Name	Latin Name	Migrant	Legal Lists ^				IUCN 09 ~	Primary Habitat	Urbanization	Agri-culture
			Canada	Mexico	USA					
Spectacled Owl	<i>Pulsatrix perspicillata</i>			A			LC	Tropical Evergreen Forests		Y
Ruddy Foliage-gleaner	<i>Automolus rubiginosus</i>			A			LC	Tropical Evergreen Forests		Y
Strong-billed Woodcreeper	<i>Xiphocolaptes promeropirhynchus</i>						LC	Tropical Highland Forests	Y	Y
Black-banded Woodcreeper	<i>Dendrocolaptes picumnus</i>			A			LC	Tropical Highland Forests		Y
Plain Antvireo	<i>Dysithamnus mentalis</i>			Pr			LC	Tropical Evergreen Forests		Y
Slaty Antwren	<i>Myrmotherula schisticolor</i>			Pr			LC	Tropical Evergreen Forests		Y
Dot-winged Antwren	<i>Microrhopias quixensis</i>			Pr			LC	Tropical Evergreen Forests		Y
Scaled Antpitta	<i>Grallaria guatemalensis</i>			A			LC	Tropical Evergreen Forests		Y
Sepia-capped Flycatcher	<i>Leptopogon amaurocephalus</i>						LC	Tropical Evergreen Forests		Y
Thrush-like Schiffornis	<i>Schiffornis turdina</i>						LC	Tropical Evergreen Forests		Y
Slaty Finch	<i>Haplospiza rustica</i>			Pr			LC	Tropical Highland Forests		
Orange-billed Sparrow	<i>Arremon aurantirostris</i>						LC	Tropical Evergreen Forests		Y
Temperate Breeders of High Tri-National Concern										
Greater Sage-Grouse	<i>Centrocercus urophasianus</i>		EN/XT				NT	Aridlands		Y
Greater Prairie-Chicken	<i>Tympanuchus cupido</i>		XT		E*		VU	Grasslands		Y
Lesser Prairie-Chicken	<i>Tympanuchus pallidicinctus</i>						VU	Grasslands		Y
Swallow-tailed Kite	<i>Elanoides forficatus</i>	Y		Pr			LC	Temperate Eastern Forests / Tropical Evergreen Forests	Y	
White-crowned Pigeon	<i>Patagioenas leucocephala</i>			A			NT	Coasts	Y	
Spotted Owl	<i>Strix occidentalis</i>		EN	A	T*		NT	Temperate Western Forests		
Black Swift	<i>Cypseloides niger</i>	Y					LC	Temperate Western Forests / unknown		
Red-cockaded Woodpecker	<i>Picoides borealis</i>				E		VU	Temperate Eastern Forests		Y
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Y	(TH)				NT	Temperate Western Forests / Tropical Highland Forests		Y
Bell's Vireo	<i>Vireo bellii</i>	Y		A*	E*		NT	Aridlands / Tropical Deciduous Forests	Y	
Black-capped Vireo	<i>Vireo atricapilla</i>	Y		P	E		VU	Aridlands / Tropical Deciduous Forests	Y	
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>						VU	Temperate Western Forests		
Bicknell's Thrush	<i>Catharus bicknelli</i>	Y	SC(TH)				VU	Boreal Forests / Tropical Highland Forests	Y	Y
Wood Thrush	<i>Hylocichla mustelina</i>	Y					LC	Temperate Eastern Forests / Tropical Evergreen Forests	Y	Y
Bendire's Thrasher	<i>Toxostoma bendirei</i>	Y					VU	Aridlands	Y	Y
Sprague's Pipit	<i>Anthus spragueii</i>	Y	TH				VU	Grasslands		Y
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Y	TH				NT	Temperate Eastern Forests / Tropical Highland Forests		Y
Cerulean Warbler	<i>Dendroica cerulea</i>	Y	SC				VU	Temperate Eastern Forests / Tropical Highland Forests		Y
Canada Warbler	<i>Wilsonia canadensis</i>	Y	(TH)				LC	Boreal Forests / Tropical Highland Forests		Y
Baird's Sparrow	<i>Ammodramus bairdii</i>	Y					LC	Grasslands		Y
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Y	EN				NT	Grasslands		Y
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	Y	(TH)				NT	Grasslands		Y
Tricolored Blackbird	<i>Agelaius tricolor</i>	Y					EN	Freshwater Marsh	Y	Y
Black Rosy-Finch	<i>Leucosticte atrata</i>	Y					LC	Alpine Tundra		

* subspecies listed Breeding / Nonbreeding (otherwise Year-Round)

() scientific list status, not legal list Cloud Forest Specialist

^ Legal Lists: Canada: COSEWIC designations if in parentheses, otherwise from SARA: XT=Extirpated, EN=Endangered, TH=Threatened; SC=Special Concern; Mexico: NOM-059 SEMARNAT (2001): E=probably extinct in the wild, P=endangered, A=threatened, Pr=special protection; USA: ESA list: E=Endangered, T=Threatened

~ International Union for Conservation of Nature (IUCN) codes: EX=Extinct, EW=Extinct in the Wild, CR=Critically Endangered, EN=Endangered, VU=Vulnerable, NT=Near Threatened, LC=Least Concern, DD=Data Deficient, NE=Not Evaluated

Landbird Habitat Definitions

ARCTIC AND ALPINE TUNDRA: regions of far northern Canada and Alaska, as well as areas above tree-line in mountains of western Canada and the United States.

BOREAL FORESTS: all coniferous, mixed, and deciduous forests, as well as associated wetlands, in the boreal regions of Canada and Alaska.

TEMPERATE EASTERN FORESTS: all deciduous, coniferous, and mixed forests of the eastern United States and southeastern Canada.

TEMPERATE WESTERN FORESTS: all coniferous forests, pinon-juniper and oak woodlands, and riparian forests of the western United States and Canada.

GRASSLANDS: all native prairie and other grassland habitats, including high-elevation grasslands in Mexico.

COASTS: coastal saltmarsh and mangrove habitats in all coastal regions.

FRESHWATER MARSH: all freshwater wetlands with emergent vegetation.

Primary Threats #								Assessment Scores **						Present in:		
	Livestock	Energy and Transportation	Trapping and Shooting	Logging/Wood Harvest	Ecosystem Modifications	Contaminants and Exotic Species	Climate Change	PT	TB	TN	BD	ND	PS	Canada	Mexico	USA
	Y			Y	Y			5	4	4	1	1	3		Y	
	Y			Y				5	4	4	2	2	3		Y	
	Y			Y				5	4	4	1	1	4		Y	
	Y			Y	Y			5	4	4	1	1	3		Y	
	Y			Y				5	4	4	1	1	3		Y	
	Y	Y		Y				5	5	5	3	3	4		Y	
	Y			Y	Y			5	4	4	1	1	3		Y	
	Y			Y				5	4	4	2	2	4		Y	
	Y			Y				5	4	4	1	1	3		Y	
								5	4	4	1	1	3		Y	
	Y			Y			Y	4	4	4	3	3	5		Y	
								5	4	4	3	3	4		Y	
		Y				Y		5	4	4	2	2	4	Y		Y
		Y						5	4	4	3	3	4	ETP		Y
		Y			Y			5	5	5	4	4	5			Y
	Y			Y	Y			5	4	3	1	1	4		Y	Y
	Y						Y	5	4	4	3	3	3		Y	Y
				Y				4	4	4	2	2	5	Y	Y	Y
					Y		Y	5	4	2	2	2	4	Y	Y	Y
				Y	Y			5	5	5	3	3	5			Y
	Y			Y	Y			5	3	4	1	1	3	Y	Y	Y
	Y				Y	Y	Y	5	4	3	2	4	3		Y	Y
	Y					Y		5	4	3	4	4	5		Y	Y
	Y	Y		Y	Y		Y	5	4	3	2	2	3		Y	Y
	Y			Y		Y	Y	4	3	5	4	4	5	Y		Y
	Y					Y		5	3	4	2	3	2	Y	Y	Y
						Y	Y	5	4	3	3	4	4		Y	Y
	Y	Y				Y	Y	5	4	4	2	2	3	Y	Y	Y
	Y				Y	Y		5	4	3	2	3	3	Y	Y	Y
	Y	Y						5	4	4	2	3	3	Y	Y	Y
	Y							5	3	4	2	2	3	Y	Y	Y
	Y	Y			Y	Y	Y	5	4	4	3	3	3	Y	Y	Y
	Y				Y			5	4	4	2	3	4	Y		Y
	Y	Y				Y	Y	5	3	4	3	2	3	Y	Y	Y
					Y	Y		5	4	3	4	4	4		Y	Y
							Y	3	4	2	4	3	5			Y

Endemic to 1 Country
Endemic to Tri-national Area
ETP-Extirpated
Ext?-Possibly Extinct
Y-Yes

Primary Threats: Threat categories based on Salafsky et al. 2008. A standard lexicon for biodiversity conservation: Unified classifications of threats and actions. *Conservation Biology* 22:897-911.

** Assessment Scores: 1=low vulnerability, 5=high vulnerability, TB=Threats Breeding, TN=Threats Nonbreeding, BD=Breeding Distribution, ND=Nonbreeding Distribution, PS=Population Size, PT=Population Trend; for details go to www.rmbo.org/pubs/downloads/Handbook2005.pdf

ARIDLANDS: all xeric native shrubland habitats of the western United States and Mexico, such as sagebrush, chaparral, and desert scrub.

TROPICAL DECIDUOUS FORESTS: lowland deciduous, semi-deciduous, and thorn forests from southern Texas through Mexico.

TROPICAL HIGHLAND FORESTS: cloud forests, evergreen forests at high elevations, and humid pine-broadleaf forests of southern Mexico.

MEXICAN PINE-OAK FORESTS: montane pine and pine-oak forests, as well as oak woodlands, from southern Arizona and New Mexico south through the Sierra Madre ranges and trans-volcanic belt of Mexico.

TROPICAL EVERGREEN FORESTS: all lowland tropical rainforests, primarily on the Caribbean slope of Mexico.

APPENDIX C: COMMON BIRDS IN STEEP DECLINE

Common Name	Latin Name	Migrant	% Pop'n Lost *	Primary Habitat	Present in:		
					Canada	Mexico	USA
Northern Bobwhite	<i>Colinus virginianus</i>		72%	Temperate Eastern Forests	Y	Y	Y
Ruffed Grouse	<i>Bonasa umbellus</i>		61%	Boreal Forests	Y		Y
Sooty Grouse	<i>Dendragapus fuliginosus</i>		≥ 50%	Temperate Western Forests	Y		Y
Gray-headed Kite	<i>Leptodon cayanensis</i>		≥ 50%	Tropical Evergreen Forests		Y	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Y	51%	Temperate Eastern Forests / Tropical Evergreen Forests	Y	Y	Y
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Y	53%	Temperate Eastern Forests / Tropical Evergreen Forests	Y	Y	Y
Smooth-billed Ani	<i>Crotophaga ani</i>		≥ 50%	Tropical Evergreen Forests		Y	Y
Snowy Owl	<i>Bubo scandiacus</i>	Y	52%	Arctic Tundra / Grasslands	Y		Y
Short-eared Owl	<i>Asio flammeus</i>	Y	71%	Arctic Tundra / Grasslands	Y	Y	Y
Common Nighthawk	<i>Chordeiles minor</i>	Y	51%	Generalist	Y	Y	Y
Whip-poor-will	<i>Caprimulgus vociferus</i>	Y	58%	Temperate Eastern Forests / Tropical Evergreen Forests	Y	Y	Y
Chimney Swift	<i>Chaetura pelagica</i>	Y	54%	Temperate Eastern Forests / Generalist	Y	Y	Y
Rufous Hummingbird	<i>Selasphorus rufus</i>	Y	63%	Temperate Western Forests / Mexican Pine-Oak Forests	Y	Y	Y
Belted Kingfisher	<i>Megasceryle alcyon</i>	Y	53%	Generalist	Y	Y	Y
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Y	67%	Temperate Eastern Forests	Y		Y
Northern Flicker	<i>Colaptes auratus</i>	Y	52%	Generalist	Y	Y	Y
Plain Xenops	<i>Xenops minutus</i>		≥ 50%	Tropical Evergreen Forests		Y	
Black-faced Anthrush	<i>Formicarius analis</i>		≥ 50%	Tropical Evergreen Forests		Y	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Y	79%	Aridlands	Y	Y	Y
Horned Lark	<i>Eremophila alpestris</i>	Y	56%	Grasslands	Y	Y	Y
Bank Swallow	<i>Riparia riparia</i>	Y	56%	Generalist	Y	Y	Y
Boreal Chickadee	<i>Poecile hudsonicus</i>		≥ 50%	Boreal Forests	Y		Y
Verdin	<i>Auriparus flaviceps</i>		89%	Aridlands		Y	Y
Rock Wren	<i>Salpinctes obsoletus</i>	Y	51%	Aridlands	Y	Y	Y
Tropical Gnatcatcher	<i>Polioptila plumbea</i>		≥ 50%	Tropical Evergreen Forests		Y	
Prairie Warbler	<i>Dendroica discolor</i>	Y	57%	Temperate Eastern Forests / Generalist	Y	Y	Y
Connecticut Warbler	<i>Oporornis agilis</i>	Y	70%	Boreal Forests / Tropical Evergreen Forests	Y		Y
Wilson's Warbler	<i>Wilsonia pusilla</i>	Y	≥ 50%	Boreal Forests / Generalist	Y	Y	Y
Cinnamon-tailed Sparrow	<i>Aimophila sumichrasti</i>		≥ 50%	Tropical Deciduous Forests		Y	
Brewer's Sparrow	<i>Spizella breweri</i>	Y	58%	Aridlands	Y	Y	Y
Field Sparrow	<i>Spizella pusilla</i>	Y	68%	Temperate Eastern Forests	Y	Y	Y
Black-chinned Sparrow	<i>Spizella atrogularis</i>	Y	90%	Aridlands		Y	Y
Lark Bunting	<i>Calamospiza melanocorys</i>	Y	50%	Grasslands	Y	Y	Y
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Y	78%	Grasslands	Y	Y	Y
Harris's Sparrow	<i>Zonotrichia querula</i>	Y	57%	Boreal Forests / Temperate Eastern Forests	Y	Y	Y
Snow Bunting	<i>Plectrophenax nivalis</i>	Y	64%	Arctic Tundra / Grasslands	Y		Y
Black-faced Grosbeak	<i>Caryothraustes poliogaster</i>		≥ 50%	Tropical Evergreen Forests		Y	
Bobolink	<i>Dolichonyx oryzivorus</i>	Y	52%	Grasslands	Y	Y	Y
Eastern Meadowlark	<i>Sturnella magna</i>	Y	69%	Grasslands	Y	Y	Y
Rusty Blackbird	<i>Euphagus carolinus</i>	Y	84%	Boreal Forests / Temperate Eastern Forests	Y		Y
Cassin's Finch	<i>Carpodacus cassinii</i>	Y	61%	Temperate Western Forests	Y	Y	Y
Pine Siskin	<i>Spinus pinus</i>	Y	71%	Temperate Western Forests / Generalist	Y	Y	Y

* % Population Lost based on BBS or CBC trend since mid-1960s, or on PT score (≥ 50%) if no reliable survey trend

Breeding / Nonbreeding (otherwise Year-Round)

Endemic to Mexico

Endemic to Tri-national Area

Y-Yes

APPENDIX D: SPECIES SUBSTANTIALLY SHARED AMONG NATIONS (For key, see page 48)

Common Name	Latin Name	Migrant	Breeding Habitats*	Wintering Habitats*	Present in Canada	Present in Mexico	Present in USA	Endemic to Tri-national Area
Osprey	<i>Pandion haliaetus</i>	Y	Generalist	Marsh	Yes	Yes	Yes	
Broad-winged Hawk	<i>Buteo platypterus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Merlin	<i>Falco columbarius</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Black Swift	<i>Cypseloides niger</i>	Y	Temperate Western Forests	Unknown	Yes	Yes	Yes	
Calliope Hummingbird	<i>Stellula calliope</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	Y
Rufous Hummingbird	<i>Selasphorus rufus</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	Y
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes	Yes	Yes	
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Y	Temperate Western Forests	Tropical Highland Forests	Yes	Yes	Yes	
Western Wood-Pewee	<i>Contopus sordidulus</i>	Y	Temperate Western Forests	Tropical Highland Forests	Yes	Yes	Yes	
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Alder Flycatcher	<i>Empidonax alnorum</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Willow Flycatcher	<i>Empidonax traillii</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Least Flycatcher	<i>Empidonax minimus</i>	Y	Boreal Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Hammond's Flycatcher	<i>Empidonax hammondi</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Dusky Flycatcher	<i>Empidonax oberholseri</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Cassin's Vireo	<i>Vireo cassinii</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	Y
Blue-headed Vireo	<i>Vireo solitarius</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes	Yes	Yes	
Warbling Vireo	<i>Vireo gilvus</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Philadelphia Vireo	<i>Vireo philadelphicus</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Red-eyed Vireo	<i>Vireo olivaceus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Tree Swallow	<i>Tachycineta bicolor</i>	Y	Generalist	Marsh	Yes	Yes	Yes	
Bank Swallow	<i>Riparia riparia</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
House Wren	<i>Troglodytes aedon</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Sedge Wren	<i>Cistothorus platensis</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	Y
Veery	<i>Catharus fuscens</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Swainson's Thrush	<i>Catharus ustulatus</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Hermit Thrush	<i>Catharus guttatus</i>	Y	Generalist	Temperate Eastern Forests	Yes	Yes	Yes	
American Pipit	<i>Anthus rubescens</i>	Y	Arctic Tundra	Grasslands	Yes	Yes	Yes	
Sprague's Pipit	<i>Anthus spragueii</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Tennessee Warbler	<i>Vermivora peregrina</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Orange-crowned Warbler	<i>Vermivora celata</i>	Y	Temperate Western Forests	Generalist	Yes	Yes	Yes	
Nashville Warbler	<i>Vermivora ruficapilla</i>	Y	Boreal Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Northern Parula	<i>Parula americana</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Yellow Warbler	<i>Dendroica petechia</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Magnolia Warbler	<i>Dendroica magnolia</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Black-throated Green Warbler	<i>Dendroica virens</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Townsend's Warbler	<i>Dendroica townsendi</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Blackburnian Warbler	<i>Dendroica fusca</i>	Y	Boreal Forests	Tropical Highland Forests	Yes	Yes	Yes	
Bay-breasted Warbler	<i>Dendroica castanea</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Black-and-white Warbler	<i>Mniotilta varia</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
American Redstart	<i>Setophaga ruticilla</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Ovenbird	<i>Seiurus aurocapilla</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Northern Waterthrush	<i>Seiurus noveboracensis</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Common Yellowthroat	<i>Geothlypis trichas</i>	Y	Generalist	Marsh	Yes	Yes	Yes	
Wilson's Warbler	<i>Wilsonia pusilla</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	
Canada Warbler	<i>Wilsonia canadensis</i>	Y	Boreal Forests	Tropical Highland Forests	Yes	Yes	Yes	
Chipping Sparrow	<i>Spizella passerina</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Clay-colored Sparrow	<i>Spizella pallida</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Vesper Sparrow	<i>Poocetes gramineus</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Baird's Sparrow	<i>Ammodramus bairdii</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Lincoln's Sparrow	<i>Melospiza lincolni</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	
Western Tanager	<i>Piranga ludoviciana</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Willow Ptarmigan	<i>Lagopus lagopus</i>	Y	Arctic Tundra	Arctic Tundra	Yes		Yes	
White-tailed Ptarmigan	<i>Lagopus leucurus</i>		Alpine Tundra	Alpine Tundra	Yes		Yes	Y
Dusky Grouse	<i>Dendragapus obscurus</i>		Temperate Western Forests	Temperate Western Forests	Yes		Yes	Y
Sooty Grouse	<i>Dendragapus fuliginosus</i>		Temperate Western Forests	Temperate Western Forests	Yes		Yes	Y
Sharp-tailed Grouse	<i>Tympanuchus phasianellus</i>		Grasslands	Grasslands	Yes		Yes	Y
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Y	Generalist	Wetlands	Yes	Yes	Yes	Y
Northern Harrier	<i>Circus cyaneus</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Northern Goshawk	<i>Accipiter gentilis</i>	Y	Boreal Forests	Boreal Forests	Yes	Yes	Yes	
Rough-legged Hawk	<i>Buteo lagopus</i>	Y	Arctic Tundra	Grasslands	Yes	Yes	Yes	
Golden Eagle	<i>Aquila chrysaetos</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Snowy Owl	<i>Bubo scandiacus</i>	Y	Arctic Tundra	Grasslands	Yes		Yes	

APPENDIX D: SPECIES SUBSTANTIALLY SHARED AMONG NATIONS (continued)

Common Name	Latin Name	Migrant	Breeding Habitats*	Wintering Habitats*	Present in Canada	Present in Mexico	Present in USA	Endemic to Tri-national Area
Northern Hawk Owl	<i>Surnia ulula</i>		Boreal Forests	Boreal Forests	Yes		Yes	
Long-eared Owl	<i>Asio otus</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Short-eared Owl	<i>Asio flammeus</i>	Y	Arctic Tundra	Grasslands	Yes	Yes	Yes	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	Y	Generalist	Temperate Eastern Forests	Yes	Yes	Yes	Y
Belted Kingfisher	<i>Megasceryle alcyon</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Hairy Woodpecker	<i>Picoides villosus</i>		Generalist	Generalist	Yes	Yes	Yes	
Northern Flicker	<i>Colaptes auratus</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Pileated Woodpecker	<i>Dryocopus pileatus</i>		Temperate Eastern Forests	Temperate Eastern Forests	Yes		Yes	Y
Northern Shrike	<i>Lanius excubitor</i>	Y	Arctic Tundra	Generalist	Yes		Yes	
Black-billed Magpie	<i>Pica hudsonia</i>	Y	Generalist	Generalist	Yes		Yes	Y
American Crow	<i>Corvus brachyrhynchos</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Northwestern Crow	<i>Corvus caurinus</i>		Temperate Western Forests	Temperate Western Forests	Yes		Yes	Y
Common Raven	<i>Corvus corax</i>		Generalist	Generalist	Yes	Yes	Yes	
Horned Lark	<i>Eremophila alpestris</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Black-capped Chickadee	<i>Poecile atricapillus</i>		Generalist	Temperate Eastern Forests	Yes		Yes	Y
Chestnut-backed Chickadee	<i>Poecile rufescens</i>		Temperate Western Forests	Temperate Western Forests	Yes		Yes	Y
Red-breasted Nuthatch	<i>Sitta canadensis</i>	Y	Generalist	Generalist	Yes		Yes	Y
Brown Creeper	<i>Certhia americana</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Winter Wren	<i>Troglodytes troglodytes</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes		Yes	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	Y
Townsend's Solitaire	<i>Myadestes townsendi</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Gray-cheeked Thrush	<i>Catharus minimus</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Bicknell's Thrush	<i>Catharus bicknelli</i>	Y	Boreal Forests	Tropical Highland Forests	Yes		Yes	
American Robin	<i>Turdus migratorius</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Varied Thrush	<i>Ixoreus naevius</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Bohemian Waxwing	<i>Bombicilla garrulus</i>	Y	Boreal Forests	Boreal Forests	Yes		Yes	
Cedar Waxwing	<i>Bombicilla cedrorum</i>	Y	Temperate Eastern Forests	Generalist	Yes	Yes	Yes	
Cape May Warbler	<i>Dendroica tigrina</i>	Y	Boreal Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Palm Warbler	<i>Dendroica palmarum</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	
Blackpoll Warbler	<i>Dendroica striata</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Connecticut Warbler	<i>Oporornis agilis</i>	Y	Boreal Forests	Tropical Evergreen Forests	Yes		Yes	
Mourning Warbler	<i>Oporornis philadelphia</i>	Y	Boreal Forests	Tropical Highland Forests	Yes	Yes	Yes	
American Tree Sparrow	<i>Spizella arborea</i>	Y	Arctic Tundra	Generalist	Yes		Yes	Y
Le Conte's Sparrow	<i>Ammodramus leconteii</i>	Y	Grasslands	Grasslands	Yes		Yes	Y
Nelson's Sparrow	<i>Ammodramus nelsoni</i>	Y	Grasslands	Coasts	Yes		Yes	Y
Fox Sparrow	<i>Passerella iliaca</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	Y
Song Sparrow	<i>Melospiza melodia</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Swamp Sparrow	<i>Melospiza georgiana</i>	Y	Freshwater Marsh	Generalist	Yes	Yes	Yes	Y
White-throated Sparrow	<i>Zonotrichia albicollis</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes	Yes	Yes	Y
Harris's Sparrow	<i>Zonotrichia querula</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes	Yes	Yes	Y
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Dark-eyed Junco	<i>Junco hyemalis</i>	Y	Boreal Forests	Generalist	Yes	Yes	Yes	Y
Lapland Longspur	<i>Calcarius lapponicus</i>	Y	Arctic Tundra	Grasslands	Yes		Yes	
Smith's Longspur	<i>Calcarius pictus</i>	Y	Arctic Tundra	Grasslands	Yes		Yes	Y
Snow Bunting	<i>Plectrophenax nivalis</i>	Y	Arctic Tundra	Grasslands	Yes		Yes	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Bobolink	<i>Dolichonyx oryzivorus</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Rusty Blackbird	<i>Euphagus carolinus</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes		Yes	Y
Gray-crowned Rosy-Finch	<i>Leucosticte tephrocotis</i>	Y	Alpine Tundra	Alpine Tundra	Yes		Yes	Y
Pine Grosbeak	<i>Pinicola enucleator</i>	Y	Boreal Forests	Boreal Forests	Yes		Yes	
Purple Finch	<i>Carpodacus purpureus</i>	Y	Boreal Forests	Temperate Eastern Forests	Yes	Yes	Yes	Y
Red Crossbill	<i>Loxia curvirostra</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	
White-winged Crossbill	<i>Loxia leucoptera</i>	Y	Boreal Forests	Boreal Forests	Yes		Yes	
Common Redpoll	<i>Acanthis flammea</i>	Y	Arctic Tundra	Generalist	Yes		Yes	
Hoary Redpoll	<i>Acanthis hornemanni</i>	Y	Arctic Tundra	Generalist	Yes		Yes	
Pine Siskin	<i>Spinus pinus</i>	Y	Temperate Western Forests	Generalist	Yes	Yes	Yes	
American Goldfinch	<i>Spinus tristis</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	Y	Boreal Forests	Boreal Forests	Yes	Yes	Yes	Y
Scaled Quail	<i>Callipepla squamata</i>		Aridlands	Aridlands		Yes	Yes	Y
Gambel's Quail	<i>Callipepla gambelii</i>		Aridlands	Aridlands		Yes	Yes	Y
Black Vulture	<i>Coragyps atratus</i>		Generalist	Generalist		Yes	Yes	
Turkey Vulture	<i>Cathartes aura</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Swallow-tailed Kite	<i>Elanoides forficatus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests		Yes	Yes	
White-tailed Kite	<i>Elanus leucurus</i>		Grasslands	Grasslands		Yes	Yes	
Mississippi Kite	<i>Ictinia mississippiensis</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests		Yes	Yes	
Swainson's Hawk	<i>Buteo swainsoni</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Zone-tailed Hawk	<i>Buteo albonotatus</i>	Y	Temperate Western Forests	Tropical Evergreen Forests		Yes	Yes	
Ferruginous Hawk	<i>Buteo regalis</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Band-tailed Pigeon	<i>Patagioenas fasciata</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
White-winged Dove	<i>Zenaidura macroura</i>	Y	Aridlands	Aridlands		Yes	Yes	
Inca Dove	<i>Columbina inca</i>		Aridlands	Aridlands		Yes	Yes	

APPENDIX D: SPECIES SUBSTANTIALLY SHARED AMONG NATIONS *(continued)*

Common Name	Latin Name	Migrant	Breeding Habitats*	Wintering Habitats*	Present in Canada	Present in Mexico	Present in USA	Endemic to Tri-national Area
Common Ground-Dove	<i>Columbina passerina</i>		Tropical Deciduous Forests	Tropical Deciduous Forests		Yes	Yes	
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Greater Roadrunner	<i>Geococcyx californianus</i>		Aridlands	Aridlands		Yes	Yes	Y
Flammulated Owl	<i>Otus flammeolus</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Western Screech-Owl	<i>Megascops kennicottii</i>		Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Northern Pygmy-Owl	<i>Glaucidium gnoma</i>		Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	
Elf Owl	<i>Micrathene whitneyi</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Burrowing Owl	<i>Athene cunicularia</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Spotted Owl	<i>Strix occidentalis</i>		Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	Y	Aridlands	Generalist		Yes	Yes	
Common Nighthawk	<i>Chordeiles minor</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Common Poorwill	<i>Phalaenoptilus nuttallii</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
Whip-poor-will	<i>Caprimulgus vociferus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Chimney Swift	<i>Chaetura pelagica</i>	Y	Temperate Eastern Forests	Generalist	Yes	Yes	Yes	
Vaux's Swift	<i>Chaetura vauxi</i>	Y	Temperate Western Forests	Tropical Highland Forests	Yes	Yes	Yes	
White-throated Swift	<i>Aeronautes saxatalis</i>	Y	Aridlands	Generalist	Yes	Yes	Yes	
Buff-bellied Hummingbird	<i>Amazilia yucatanensis</i>	Y	Tropical Deciduous Forests	Tropical Deciduous Forests		Yes	Yes	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	Y	Aridlands	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Costa's Hummingbird	<i>Calypte costae</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Allen's Hummingbird	<i>Selasphorus sasin</i>	Y	Aridlands	Tropical Highland Forests		Yes	Yes	Y
Acorn Woodpecker	<i>Melanerpes formicivorus</i>		Temperate Western Forests	Temperate Western Forests		Yes	Yes	
Gila Woodpecker	<i>Melanerpes uropygialis</i>		Aridlands	Aridlands		Yes	Yes	Y
Golden-fronted Woodpecker	<i>Melanerpes aurifrons</i>		Tropical Deciduous Forests	Tropical Deciduous Forests		Yes	Yes	
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	Y
Ladder-backed Woodpecker	<i>Picoides scalaris</i>		Aridlands	Aridlands		Yes	Yes	
Gilded Flicker	<i>Colaptes chrysoides</i>		Aridlands	Aridlands		Yes	Yes	Y
Eastern Wood-Pewee	<i>Contopus virens</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Acadian Flycatcher	<i>Empidonax virescens</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Gray Flycatcher	<i>Empidonax wrightii</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	Y
Black Phoebe	<i>Sayornis nigricans</i>	Y	Generalist	Generalist		Yes	Yes	
Eastern Phoebe	<i>Sayornis phoebe</i>	Y	Temperate Eastern Forests	Temperate Eastern Forests	Yes	Yes	Yes	Y
Say's Phoebe	<i>Sayornis saya</i>	Y	Generalist	Generalist	Yes	Yes	Yes	Y
Vermilion Flycatcher	<i>Pyrocephalus rubinus</i>	Y	Aridlands	Tropical Deciduous Forests		Yes	Yes	
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	Y	Aridlands	Tropical Deciduous Forests		Yes	Yes	
Cassin's Kingbird	<i>Tyrannus vociferans</i>	Y	Aridlands	Mexican Pine-Oak Forests		Yes	Yes	
Western Kingbird	<i>Tyrannus verticalis</i>	Y	Grasslands	Tropical Deciduous Forests	Yes	Yes	Yes	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Y	Grasslands	Tropical Evergreen Forests	Yes	Yes	Yes	
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	Y	Grasslands	Tropical Deciduous Forests		Yes	Yes	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
White-eyed Vireo	<i>Vireo griseus</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Bell's Vireo	<i>Vireo bellii</i>	Y	Aridlands	Tropical Deciduous Forests		Yes	Yes	
Black-capped Vireo	<i>Vireo atricapilla</i>	Y	Aridlands	Tropical Deciduous Forests		Yes	Yes	Y
Gray Vireo	<i>Vireo vicinior</i>	Y	Temperate Western Forests	Tropical Deciduous Forests		Yes	Yes	Y
Plumbeous Vireo	<i>Vireo plumbeus</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Hutton's Vireo	<i>Vireo huttoni</i>		Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Western Scrub-Jay	<i>Aphelocoma californica</i>		Temperate Western Forests	Temperate Western Forests		Yes	Yes	Y
Chihuahuan Raven	<i>Corvus cryptoleucus</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Purple Martin	<i>Progne subis</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Violet-green Swallow	<i>Tachycineta thalassina</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests	Yes	Yes	Yes	
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Cave Swallow	<i>Petrochelidon fulva</i>	Y	Aridlands	Generalist		Yes	Yes	
Barn Swallow	<i>Hirundo rustica</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Black-crested Titmouse	<i>Baeolophus atricristatus</i>		Tropical Deciduous Forests	Tropical Deciduous Forests		Yes	Yes	Y
Verdin	<i>Auriparus flaviceps</i>		Aridlands	Aridlands		Yes	Yes	Y
Bushtit	<i>Psaltirparus minimus</i>		Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	
Cactus Wren	<i>Campylorhynchus brunneicapillus</i>		Aridlands	Aridlands		Yes	Yes	Y
Rock Wren	<i>Salpinctes obsoletus</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	
Canyon Wren	<i>Catherpes mexicanus</i>		Aridlands	Aridlands	Yes	Yes	Yes	Y
Bewick's Wren	<i>Thryomanes bewickii</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
Marsh Wren	<i>Cistothorus palustris</i>	Y	Freshwater Marsh	Freshwater Marsh	Yes	Yes	Yes	Y

APPENDIX D: SPECIES SUBSTANTIALLY SHARED AMONG NATIONS (continued)

Common Name	Latin Name	Migrant	Breeding Habitats*	Wintering Habitats*	Present in Canada	Present in Mexico	Present in USA	Endemic to Tri-national Area
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Black-tailed Gnatcatcher	<i>Poliophtila melanura</i>		Aridlands	Aridlands		Yes	Yes	Y
Western Bluebird	<i>Sialia mexicana</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Mountain Bluebird	<i>Sialia currucoides</i>	Y	Temperate Western Forests	Temperate Western Forests	Yes	Yes	Yes	Y
Wood Thrush	<i>Hylocichla mustelina</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Gray Catbird	<i>Dumetella carolinensis</i>	Y	Temperate Eastern Forests	Generalist	Yes	Yes	Yes	
Sage Thrasher	<i>Oreoscoptes montanus</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
Long-billed Thrasher	<i>Toxostoma longirostre</i>		Tropical Deciduous Forests	Tropical Deciduous Forests		Yes	Yes	Y
Bendire's Thrasher	<i>Toxostoma bendirei</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>		Aridlands	Aridlands		Yes	Yes	Y
Crissal Thrasher	<i>Toxostoma crissale</i>		Aridlands	Aridlands		Yes	Yes	Y
Phainopepla	<i>Phainopepla nitens</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Blue-winged Warbler	<i>Vermivora pinus</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Y	Temperate Eastern Forests	Tropical Highland Forests	Yes	Yes	Yes	
Virginia's Warbler	<i>Vermivora virginiae</i>	Y	Temperate Western Forests	Tropical Deciduous Forests		Yes	Yes	Y
Lucy's Warbler	<i>Vermivora luciae</i>	Y	Aridlands	Tropical Deciduous Forests		Yes	Yes	Y
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	Y	Temperate Western Forests	Tropical Highland Forests		Yes	Yes	
Hermit Warbler	<i>Dendroica occidentalis</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Yellow-throated Warbler	<i>Dendroica dominica</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests		Yes	Yes	
Grace's Warbler	<i>Dendroica graciae</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Cerulean Warbler	<i>Dendroica cerulea</i>	Y	Temperate Eastern Forests	Tropical Highland Forests	Yes	Yes	Yes	
Prothonotary Warbler	<i>Protonotaria citrea</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Worm-eating Warbler	<i>Helminthos vermivorum</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Swainson's Warbler	<i>Limnithlypis swainsonii</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests		Yes	Yes	
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Hooded Warbler	<i>Wilsonia citrina</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests	Yes	Yes	Yes	
Red-faced Warbler	<i>Cardellina rubrifrons</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Yellow-breasted Chat	<i>Icteria virens</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Canyon Towhee	<i>Pipilo fuscus</i>		Aridlands	Aridlands		Yes	Yes	Y
California Towhee	<i>Pipilo crissalis</i>		Aridlands	Aridlands		Yes	Yes	Y
Cassin's Sparrow	<i>Aimophila cassinii</i>	Y	Grasslands	Grasslands		Yes	Yes	Y
Rufous-crowned Sparrow	<i>Aimophila ruficeps</i>		Aridlands	Aridlands		Yes	Yes	Y
Brewer's Sparrow	<i>Spizella breweri</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
Black-chinned Sparrow	<i>Spizella atrogularis</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Lark Sparrow	<i>Chondestes grammacus</i>	Y	Aridlands	Aridlands	Yes	Yes	Yes	Y
Black-throated Sparrow	<i>Amphispiza bilineata</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Sage Sparrow	<i>Amphispiza belli</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Lark Bunting	<i>Calamospiza melanocorys</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
McCown's Longspur	<i>Calcarius mccownii</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Hepatic Tanager	<i>Piranga flava</i>	Y	Temperate Western Forests	Mexican Pine-Oak Forests		Yes	Yes	
Summer Tanager	<i>Piranga rubra</i>	Y	Temperate Eastern Forests	Tropical Evergreen Forests		Yes	Yes	
Pyrrhuloxia	<i>Cardinalis sinuatus</i>		Aridlands	Aridlands		Yes	Yes	Y
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Blue Grosbeak	<i>Passerina caerulea</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests		Yes	Yes	
Lazuli Bunting	<i>Passerina amoena</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	Y
Indigo Bunting	<i>Passerina cyanea</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Painted Bunting	<i>Passerina ciris</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests		Yes	Yes	
Dickcissel	<i>Spiza americana</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	
Western Meadowlark	<i>Stumella neglecta</i>	Y	Grasslands	Grasslands	Yes	Yes	Yes	Y
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	Y	Freshwater Marsh	Generalist	Yes	Yes	Yes	Y
Great-tailed Grackle	<i>Quiscalus mexicanus</i>		Generalist	Generalist		Yes	Yes	
Brown-headed Cowbird	<i>Molothrus ater</i>	Y	Generalist	Generalist	Yes	Yes	Yes	
Orchard Oriole	<i>Icterus spurius</i>	Y	Temperate Eastern Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Hooded Oriole	<i>Icterus cucullatus</i>	Y	Temperate Western Forests	Tropical Deciduous Forests		Yes	Yes	
Bullock's Oriole	<i>Icterus bullockii</i>	Y	Temperate Western Forests	Tropical Deciduous Forests	Yes	Yes	Yes	
Scott's Oriole	<i>Icterus parisorum</i>	Y	Temperate Western Forests	Tropical Deciduous Forests		Yes	Yes	Y
Lesser Goldfinch	<i>Spinus psaltria</i>	Y	Temperate Western Forests	Generalist		Yes	Yes	
Lawrence's Goldfinch	<i>Spinus lawrencei</i>	Y	Aridlands	Aridlands		Yes	Yes	Y
Tri-national Population Shared Substantially by all 3 Countries		Y-Yes						Y-Yes
Tri-national Population Shared Substantially by Canada and USA						Yes	present, < 25% of tri-national population	
Tri-national Population Shared Substantially by Mexico and USA						Yes	≥ 25% year-round	
						Yes	≥ 25% breeding	
						Yes	≥ 25% winter	
						Yes	≥ 250,000 km² migrant range	

* Species with ≥3 major habitat associations per season were considered Generalists, and not included in habitat maps

We thank the following people for reviewing or contributing to the development of this report and its communication:

John Alexander, Miyoko Chu, Krista De Groot, Ian Davidson, Randy Dettmers, Jennie Duberstein, Dave Duncan, Kacie Ehrenberger, John Faaborg, Christian Friis, Deb Hahn, Alicia King, Dana Kinsman, Nathalie L'Ecuyer, Ed Laurent, Carol Lively, Claudia Macias Caballero, Craig Machtans, Art Martel, Adolfo Navarro, David Pashley, Melissa Pitkin, Deborah Reynolds, Christopher Rustay, Samantha Song, Diane Tessaglia-Hymes, Len Ugarenko, Jorge Vega, José Fernando Villaseñor Gómez, Jeff Wells, and Stephen Wendt

We also thank the over 100 Mexican ornithologists who contributed to the Mexican assessment of landbirds.

Maps were based on NatureServe's Digital Distribution Maps of the Birds of the Western Hemisphere, version 3.0 (Ridgely et al. 2007. NatureServe, Arlington, VA). Map data were provided by NatureServe in collaboration with Robert Ridgely, James Zook, The Nature Conservancy - Migratory Bird Program, Conservation International - Center for Applied Biodiversity Science, World Wildlife Fund - US, and Environment Canada - WILDSpace.

We appreciate the kind donations by many talented photographers. All photographs in this report are owned and copyrighted by the photographers, who are credited next to their image(s).



The Partners in Flight Science Committee meets at the Chamela-Cuixmala Biosphere Reserve to work on "Saving Our Shared Birds" in July 2008.



MANUEL GROSSELET

The Rose-bellied Bunting (above) is among 44 species at greatest risk of extinction; its tiny world population is threatened by loss and fragmentation of tropical deciduous forests in southern Mexico, as well as by trapping for the cage-bird trade. The Military Macaw (back cover) is one of 80 tropical resident birds that are of high international concern because of threats to their populations or habitats in Mexico.

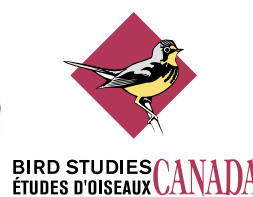
BACK COVER: MILITARY MACAW BY GREG LAVATY

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