PARTNERS IN FLIGHT LANDBIRD CONSERVATION PLAN

2016 Revision for Canada and Continental United States

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Cover Photo: Evening Grosbeak. ©Gerry Beyersbergen

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FOREWORD: A NEW CALL TO ACTION

The Partners in Flight (PIF) 2016 Landbird Conservation Plan Revision comes at an important time in conserving our heritage of an abundant and diverse avifauna. There is now an urgent need to bridge the gap between bird conservation planning and implementation.

Birds and their habitats face unprecedented threats from climate change, poorly planned urban growth, unsustainable agriculture and forestry, and a widespread decline in habitat quantity and quality. The spectacle of bird migration is being diminished by direct mortality as every year millions of birds die from anthropogenic sources. As documented in this Plan, nearly 20% of U.S. and Canadian landbird species are on a path towards endangerment and extinction in the absence of conservation action.

We know, however, that when we use the best science to develop conservation plans—and implement them—we can make a difference. Our diverse partners have achieved major milestones for bird conservation, including creation of "wall-to-wall" Joint Ventures with implementation plans all across the U.S. and southern Canada, Wildlife Action Plans in all 50 U.S. states, Bird Conservation Region strategies for all of Canada, and the Neotropical Migratory Bird Conservation Act – a valuable tool for funding landbird conservation. Since its inception in 1990, PIF has remained focused on its mission to keep common birds common and help species at risk through voluntary partnerships. But to expand our successes and achieve this end, these partnerships need renewed investment for implementation.

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U.S. Fish and Wildlife Service Director, Dan Ashe and Canadian Wildlife Service Assistant Deputy Minister, Sue Milburn-Hopwood are committed to strong partnerships that support landbird conservation.

Our conservation vision and successes draw upon the passion of millions of people who enjoy watching and studying wild birds, and who contribute a wealth of data about North American landbirds. The first part of this 2016 Plan Revision relies heavily on information provided by these citizen scientists to present an improved vulnerability assessment for nearly 450 species, which enables us to assign extinction risk and stewardship responsibility at different geographic scales. These new indicators provide a path towards stronger and more strategic conservation planning and action locally. The outstanding work of Joint Ventures and other partners, as presented in the second part of this document, is a testament to how conservation science and planning guides success on the ground. These partnerships are thus an essential bridge in the gap between conservation planning and implementation.

Our message is one of urgency. The 2016 Plan Revision provides serious recommendations for conservation delivery that can and must be addressed now to prevent the loss of our most vulnerable landbirds and prevent continued declines in many of our most common species. Many of these recommendations target actions across the full life-cycle of birds—ranging from nesting habitats in high latitudes to migration routes throughout the hemisphere to tropical overwintering habitats south of our borders. We have inherited a remarkable avifauna that flows throughout our hemisphere linking nations and continents; it's imperative that it not be diminished any further. The 2016 Plan Revision provides the information that we and our partners need to strategically integrate the range-wide habitat requirements of landbird populations with other demands being placed upon the landscape. Only by investing in strong, diverse partnerships—to address the full life-cycle needs of birds—can we effectively bridge the landbird conservation community's implementation gap.

Canadian Wildlife Services

United States Fish and Wildlife Service

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Flocks of Evening Grosbeaks descending on backyard bird feeders are becoming a rare sight, as they are among the fastest declining North American landbirds and a recent addition to the Partners in Flight (PIF) Watch List. This 2016 Plan Revision highlights proactive measures necessary to achieve PIF's mission of Keeping Common Birds Common.

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INTRODUCTION TO THE 2016 PLAN REVISION

This 2016 Plan Revision documents widespread declines in populations of many of the 448 species of landbirds in the U.S. and Canada—a foreboding indicator that the health of ecosystems upon which we all depend is being degraded. Although we have made much progress over the past 20 years, the daunting task of conserving several hundred landbird species across vast and varied landscapes under diverse ownership requires unprecedented levels of cooperation among the public, private, and industrial sectors.

In 2004, Partners in Flight (PIF) published the first North American Landbird Conservation Plan (NALCP, Rich et al.), presenting the results of a comprehensive landbird species vulnerability assessment for the U.S. and Canada. The 2004 NALCP presented a Watch List that identified the species of highest conservation concern, along with a summary of their status, monitoring needs, and the first estimates of population size, leading to bold continental population objectives. Compelling new science that refines the biological foundation of our conservation indicators and objectives, combined with new opportunities for conservation throughout the full life-cycle of these species, prompted us to revise and update the Plan.

We intend this 2016 Plan Revision to:

1. *Refine and update the relative vulnerability assessment* of 448 species of North American landbirds;
2. *Present new scientific assessments and tools* to integrate into range-wide and full life-cycle conservation implementation; and
3. *Deliver recommendations* to advance high priority landbird conservation actions over the next 10 years.

We encourage:

- Conservation practitioners to implement and evaluate conservation actions to achieve the continental landbird population objectives presented in this Plan Revision;
- Leaders and decision makers to guide policy and allocate resources to benefit landbird conservation broadly; and
- All PIF partners to share this Plan Revision widely with colleagues, young professionals and students to foster a greater appreciation for and engagement in bird conservation.

"Birds are indicators of the environment. If they are in trouble, we know we'll soon be in trouble."

Roger Tory Peterson

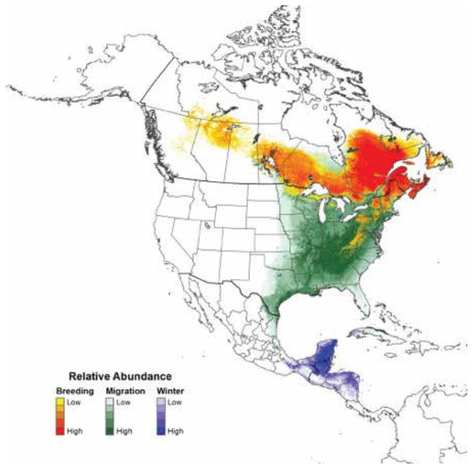
WHAT IS PARTNERS IN FLIGHT?

PIF is a dynamic and welcoming network of more than 150 partner organizations throughout the Western Hemisphere engaged in all aspects of landbird conservation, from science, research, planning, and policy development, to land management, monitoring, education, and outreach. All are dedicated to PIF's simple, proactive mission:
Keeping common birds common and helping species at risk through voluntary partnerships.

Our strategic goals remain unchanged since 1990:

- Maintain healthy bird populations, in natural numbers, in healthy habitats and ecosystems;
- Keep species from becoming threatened or endangered through proactive measures and science-based planning;
- Promote full life-cycle conservation of migratory birds throughout the Western Hemisphere; and
- Promote the value of birds as indicators of environmental health and human quality of life.

INTRODUCTION TO THE 2016 PLAN REVISION



eBird is an online database of bird observations providing scientists, researchers, and amateur naturalists with real-time data about bird distribution and abundance. Data from eBird can be used to create detailed maps of year-round distribution and abundance as the example above for Magnolia Warbler illustrates.

©Laura Kammermeir

Many people are conserving, studying, and watching migratory birds. Our success relies on building a passionate and engaged community.

WHAT IS NEW SINCE 2004?

This 2016 Plan Revision presents four new and updated tools for bird conservation:

- Extinction Risk models that convey quantitative measures of urgency;
- Responsibility assignments for continental Watch List species scaled to Joint Ventures and Bird Conservation Regions (BCR);
- Full life-cycle analysis of year-round eBird data to identify areas of greatest importance to migrants in the non-breeding season; and
- Species assessment scores updated with improved access to the associated PIF database.

Today we have unprecedented opportunities for collaborative conservation at multiple scales and across jurisdictional boundaries. Over the last two decades the PIF network has made important progress in helping to create a new "bird conservation landscape" that includes:

- Joint Ventures dedicated to all-bird conservation in every major region and habitat in the U.S. and parts of Canada.
- State Wildlife Action Plans in every U.S. state with strategies for conserving species of greatest conservation need.
- BCR Plans completed for all of Canada.
- State of the Birds Reports produced in both countries under the North American Bird Conservation Initiative.
- National surveys that assess the activities, values, and motivations of hunters, viewers, and other members of the public, results of which can improve our understanding of these audiences to better engage them in conservation.
- Millions of dollars available through the U.S. Department of Agriculture's Farm Bill Conservation Programs that provide technical assistance and financial incentives to landowners to manage habitats for birds and other wildlife.
- State Wildlife Grant money available in every state to carry out State Wildlife Action Plans.
- Neotropical Migratory Bird Conservation Act, North American Wetlands Conservation Act, National Coastal Wetlands Conservation Grants, Urban Bird Treaty, and other grant programs.
- Recognition of 52 million bird watchers as the fastest growing segment of outdoor recreation users.
- Tri-national Vision document for landbird conservation that includes Mexico and Central American species assessments as a first step to identifying hemispheric priorities.

We must find new ways to address habitat loss and degradation as the primary causes of bird declines.

A NEW SENSE OF URGENCY

Although we have made significant progress since 2004, many landbird species continue to exhibit alarming population declines. **The steepest recent declines are seen in grassland birds, species of aridland habitats such as sagebrush and desert scrub, and forest species dependent on specialized structural features or natural disturbance**. PIF estimates that breeding landbird populations have been reduced by over a billion individuals since 1970. Several PIF priority species have recently been petitioned for protection under the U.S. Endangered Species Act, and in Canada formerly common and widespread species are increasingly being listed under the *Species at Risk Act*.

Our new urgency analyses indicate that the window for reversing declines and preventing endangerment is narrower than we thought. Among the 86 Watch List species presented in this 2016 Plan Revision, 22 species that have already lost at least half of their population in the past 40 years are projected to lose an additional 50% of their current population within the next 40 years. For at least six species this "half-life" window is fewer than 20 years. **Equally troubling is that nearly half of all Watch List species are too poorly monitored to predict future trajectories, adding to the sense of urgency for these species**.

The daunting challenge of **conserving landbird populations can only be addressed through strong and sustainable partnerships** among the public, private and industrial sectors. Within each of the following sections, we offer a set of PIF Recommended Actions that will be necessary in the coming decade to prevent future species listings, keep common birds from becoming highly threatened, address the full life-cycle needs of migratory birds, and bridge the gap between science-based planning and successful on-the-ground implementation. We encourage readers to review these important actions and help develop new and creative ways to carry them out.

Urgency: Symbol to Look For

Wherever the hourglass icon appears in this document, it indicates a species with a short "half-life" and high urgency (less than 30 years to an additional 50% population loss). The Pinyon Jay below is an example of a species with urgent conservation needs —it has a half-life of only 19 years, and faces threats from changing forest conditions. It is strongly tied to piñon pine forests as a major seed disperser in that ecosystem.

©Earl Horn; Cornell Lab

SPECIES OF CONTINENTAL CONCERN

With nearly 450 breeding landbirds in the U.S. and Canada, and limited resources for conservation of terrestrial habitats, identifying the species most in need of conservation action is the key to efficient and effective bird conservation at multiple scales. Our primary tool for identifying the highest-concern species is the Partners in Flight (PIF) Species Assessment Process.

The PIF Watch List identifies 86 species—these are the species of highest conservation concern at the continental (range-wide) scale (Table 1). Some of these species are already recognized as federally threatened or endangered in the U.S. and Canada. The Watch List fosters proactive conservation that will help recover populations of the most at-risk species and keep the remaining species from becoming endangered. Refer to Watch List Table at a Glance on page 5 for definitions of table headings.

The primary purpose of the PIF Watch List is to foster proactive attention to the conservation needs of the continent's most vulnerable landbird species.

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Proactive and voluntary conservation measures by industry, agency, and non-governmental organization partners helped to preclude the need for federal listing of the Cerulean Warbler in the United States. The Cerulean Warbler Technical Group has served as a model for other, similar working group partnerships focused on conservation of high-priority and declining species.

WATCH LIST TABLE AT A GLANCE

VULNERABILITY FACTORS

PIF scores the relative vulnerability of all landbirds according to the following six factors. Scores for each factor range from 5 to 1 (high to low). See pages 96-101 for more details on PIF Science Based Approach. Appendix A contains assessment scores for all landbirds. The color-coded columns following the species names in Table 1 indicate each species' scores for the six factors:

5 4 3 2 1

POPULATION SIZE (PS)

Total number of adult individuals in the global population. Small populations have higher vulnerability.

BREEDING DISTRIBUTION (BD)

Geographic extent of a species' breeding range. Restricted breeding ranges have higher vulnerability.

NON-BREEDING DISTRIBUTION (ND)

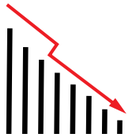
Geographic extent of a species' non-breeding range. Restricted non-breeding ranges have higher vulnerability.

THREATS BREEDING (TB)

Effects of current and probable future conditions that threaten a species' ability to survive and reproduce in its breeding areas.

THREATS NON-BREEDING (TN)

Effects of current and probable future conditions that threaten a species' ability to survive during the non-breeding season.



POPULATION TREND (PT)

Direction and magnitude of long-term changes in population size. Species with long-term population loss of at least 50% are considered most vulnerable.

LOSS

Percentage of global population lost over the past 44 years (1970-2014).

URGENCY/HALF-LIFE

Estimated number of years until an additional 50% of the global population is lost (i.e., a species' "half-life") if current population trends (past 10 years) continue into the future. Blank entries indicate insufficient data to calculate an estimate. An * next to a number indicates a confidence interval of >40 years around the estimate.

CONTINENTAL THREATS

Major threats affecting each species presented in order of severity. See the Continental Threats section for more details and Figure 3, page 14 for a key to abbreviations.

REGIONS OF HIGHEST IMPORTANCE: BREEDING, WINTER

Bird Conservation Regions (BCRs identified by number on page 116) or wintering geographic areas where each species occurs in high relative abundance during each season. MX-B =Mexico - Arid Baja (BCRs 40-42, 62-63); MX-C = Mexico - Caribbean Lowlands (BCRs 49, 52, 55-57, 64-66); MX-H = Mexico - Highlands (BCRs 46-48, 51, 53-54, 58, 60); MX-P = Mexico - Pacific Lowlands (BCRs 38, 43-45, 50, 59, 61); BS = Bahamas, Turks and Caicos; CU = Cuba, Jamaica, Cayman Islands; Hisp = Haiti, Dominican Republic; BZ = Belize; GT = Guatemala; HN = Honduras; NI = Nicaragua, El Salvador; CR = Costa Rica; PA = Panama; CO = Colombia; VE = Venezuela, Aruba, French Guiana, Guyana, Netherlands Antilles, Suriname, Trinidad and Tobago; EC = Ecuador; BR = Brazil; BO = Bolivia, Paraguay, Uruguay.

PRIMARY BREEDING HABITAT

Primary habitat type in which each species is found during the breeding season, based on categories used in the Species Assessment Database.

SPECIES OF CONTINENTAL CONCERN

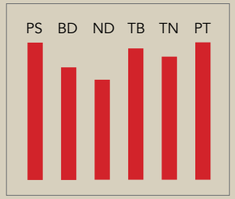
Table 1. PIF WATCH LIST FOR CONTINENTAL UNITED STATES AND CANADA

Species	Vulnerability Factors						Loss	Urgency/ Half-Life (years)	Continental Threat	Regions of Highest Importance		Primary Breeding Habitat
	PS	Distribution		Threats		PT				Breeding	Wintering	
		BD	ND	TB	TN							
RECOVER: Red Watch List - Species with extremely high vulnerability due to small population and range, high threats, and rangewide declines (19 species)												
Gunnison Sage-Grouse							> 50%		R, E, Cl, U, D	16	16	Sagebrush
Lesser Prairie-Chicken							> 50%		A, R, E, Cl	18, 19	18, 19	Grassland
California Condor							> 50%		Co, D, E	32, 16	32, 16	Chaparral
Red-cockaded Woodpecker							79%	38*	F	27, 25	27, 25	Eastern Forest
Ivory-billed Woodpecker							uncertain		F, U	27, 25, 26, 31	27, 25, 26, 31	Eastern Forest
Red-crowned Parrot							> 50%		H, T	36	36	Tropical Dry Forest
Black-capped Vireo							15-50%		R, U	35, 20	MX-P	Desert Scrub
Florida Scrub-Jay							> 50%		U, A, D	31	31	Eastern Forest
Bicknell's Thrush							15-50%		T, F, Cl	14	Hisp	Boreal Forest
Bendire's Thrasher							86%	18	R, A, U, E, Cl	33, 16	33	Desert Scrub
Le Conte's Thrasher							67%	27	R, A, U, E, Cl	33	33	Desert Scrub
Bachman's Warbler							uncertain		F	27, 25, 26	CU	Eastern Forest
Golden-winged Warbler							60%	34*	F, T, U	12, 23, 28	CR, PA, HN, NI	Eastern Forest
Golden-cheeked Warbler							> 50%		T, F, U	20	NI, HN, MX-H	Western Forest
Bachman's Sparrow							72%	24	F	27, 31	27, 31	Eastern Forest
Saltmarsh Sparrow							94%		Cl, U	30	27, 30	Coastal Saltmarsh
Tricolored Blackbird							> 50%	> 50	A	32	32	Wetland
Black Rosy-Finch							95%		Cl	10, 9	16	Alpine Tundra
Brown-capped Rosy-Finch							95%		Cl	16	16	Alpine Tundra
PREVENT DECLINE: "R" Yellow Watch List - Species not declining but vulnerable due to small range or population and moderate threats (12 species)												
Flammulated Owl							uncertain		F, Cl, U	34, 16, 10		Western Forest
Lucifer Hummingbird							uncertain		Cl	35	MX-H; MX-P	Desert Scrub
Gray Vireo							none	> 50	T, F, D	16, 34	MX-B	Western Forest
Island Scrub-Jay							uncertain		F, D	32	32	Western Forest
California Gnatcatcher							uncertain		U	32	32	Chaparral
McKay's Bunting							uncertain		Cl	1	1	Arctic Tundra
Colima Warbler							uncertain		F	35	Mx-H	Mexican Pine Oak
Kirtland's Warbler							none		T, F	12	BS	Eastern Forest
Henslow's Sparrow							uncertain	> 50	A, U	24, 22	25, 26, 27	Grassland
Nelson's Sparrow							uncertain	> 50	Cl, A, U	7, 11, 6, (14)	37, 27	Wetland
Seaside Sparrow							none	> 50	Cl, U	37, 30, 27	37, 27	Coastal Saltmarsh
Audubon's Oriole							uncertain		F	36	36	Tropical Dry Forest
REVERSE DECLINE: "D" Yellow Watch List - Species with population declines and moderate to high threats (55 species)												
Mountain Quail							19%	> 50	Cl, F	32, 15, 5	32, 15, 5	Western Forest
Scaled Quail							67%	8	R, A, Cl	35, 18	35, 18	Desert Scrub
Greater Sage-Grouse							67%	> 50	E, R, D, A, Cl, I	10, 17, 9	10, 17, 9	Sagebrush
Sooty Grouse							52%	> 50	F	5	5	Western Forest
Greater Prairie-Chicken							> 50%	> 50	A, E, R, I, H	19	19	Grassland
White-crowned Pigeon							15-50%		T, H	31	31	Mangrove
Band-tailed Pigeon							60%	> 50	F, T	5, 32, 34	CO	Western Forest
Mangrove Cuckoo							15-50%		U, T	31		Mangrove
Black-billed Cuckoo							66%	37*	T, F, U	12, 13, 23, 28	VE, MX-P, EC	Eastern Forest
Whiskered Screech-Owl							15-50%		F, U, Cl	34	34	Mexican Pine Oak

SEE WATCH LIST TABLE AT A GLANCE FOR DEFINITIONS (page 5)

Species	Vulnerability Factors						Loss	Urgency/ Half-Life (years)	Continental Threat	Regions of Highest Importance		Primary Breeding Habitat
	PS	Distribution		Threats		PT				Breeding	Wintering	
		BD	ND	TB	TN							
Snowy Owl							64%		Cl	3	11	Arctic Tundra
Spotted Owl							15-50%		F, Cl	34, 5, 32, 15	34, 5, 32, 15	Western Forest
Long-eared Owl							91%		F, U	(widespread)	22, 35, 33, 18, 9, 34, 15	Forest Generalist
Eastern Whip-poor-will							67%		F, T, Co, U, Cl	24, 29, 27, 25	31, NI	Eastern Forest
Mexican Whip-poor-will							15-50%		T, F, Co, Cl	34	MX-H; GT	Mexican Pine Oak
Black Swift							94%	16	Cl	5, 10	BR	Western Forest
Rufous Hummingbird							60%	34	Cl, F	5	26, 37, 36	Western Forest
Allen's Hummingbird							83%	17	Cl, U	32, 5	32	Chaparral
Elegant Trogon							15-50%		T, F	34	MX-P; MX-H	Mexican Pine Oak
Lewis's Woodpecker							67%	> 50	F, Cl	9, 16	32, 15, 16, 34	Western Forest
Red-headed Woodpecker							68%	> 50	F, U	22, 19, 27, 26, 24	26, 27, 25, 24	Eastern Forest
Arizona Woodpecker							15-50%		T, F, Cl	34	34	Mexican Pine Oak
Gilded Flicker							58%	33	R, U	33	33	Desert Scrub
Green Parakeet							15-50%		T, H	36	36	Tropical Dry Forest
Olive-sided Flycatcher							78%	24	T, F, Cl	4, 10, 5	CO, EC, VE	Boreal Forest
Pinyon Jay							84%	19	F, R	16, 9	16, 9	Western Forest
Yellow-billed Magpie							49%	11	D	32	32	Western Forest
Chestnut-backed Chickadee							51%	46	F, U	5	5	Western Forest
Mexican Chickadee							15-50%		F	34		Mexican Pine Oak
Oak Titmouse							53%	40	F, U	32	32	Western Forest
Black-capped Gnatcatcher							15-50%		A, R, U	34	34	Desert Scrub
Wrentit							24%	> 50	U	32, 15	32, 15	Chaparral
Wood Thrush							59%	31	F, T, U, E, I	28, 29, 27, 24, 13	BZ, GT, HN, MX-C	Eastern Forest
California Thrasher							58%	34	U	32	32	Chaparral
Sprague's Pipit							73%	27	A, R, E, I	11	36, 37, 35, 21, 34	Grassland
Chestnut-collared Longspur							85%	21	A, R, E, I	11, 17	35, 34	Grassland
McCown's Longspur							86%	> 50	A, R, E, I	11, 18, 17, 10	35, 21, 18, 34, 19	Grassland
Prothonotary Warbler							34%	> 50	T, U, F	26, 27	PA, CR	Eastern Forest
Virginia's Warbler							38%	> 50	T, F, U	16, 34	Mx-P	Western Forest
Connecticut Warbler							51%	> 50	T, F	6, 8, 12	CO	Boreal Forest
Kentucky Warbler							25%	> 50	T, F, U	24, 25, 27, 28	BZ, GT, HN, MX-C	Eastern Forest
Cape May Warbler							79%	> 50	T, F	8, 6, 12, 7	Hisp, BS, CU	Boreal Forest
Cerulean Warbler							73%	26	T, F, E, U	28	CO	Eastern Forest
Prairie Warbler							54%	> 50	T, F, U	27, 29, 28, 24, 25	BS, CU, Hisp	Eastern Forest
Grace's Warbler							52%	> 50	T, F, Cl	34, 16	BZ, GT, HN,MX-H	Mexican Pine Oak
Canada Warbler							63%	> 50	T, F	8, 12, 14	CO	Boreal Forest
Rufous-winged Sparrow							15-50%		R, A, U	33, 34	33, 34	Desert Scrub
Black-chinned Sparrow							61%	> 50	R, U	35, 32, 34	34, 35	Chaparral
Five-striped Sparrow							15-50%		R	34	MX-P	Tropical Dry Forest
Baird's Sparrow							72%	> 50	A, R, E	11	34	Grassland
Le Conte's Sparrow							61%	43	A, U, Cl	6, 7, 11	25, 21, 20, 37	Grassland
Harris's Sparrow							63%		A, U	3, 7	19, 21	Arctic Tundra
Bobolink							59%	48*	A, U	11, 13, 12, 17, 14, 23	BO	Grassland
Cassin's Finch							68%	> 50	F	10, 9, 15	16	Western Forest
Evening Grosbeak							92%	38*	F	14, 12, 9, 10, 5	6, 8	Boreal Forest

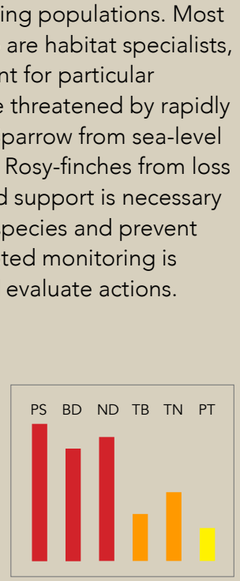
SPECIES OF CONTINENTAL CONCERN



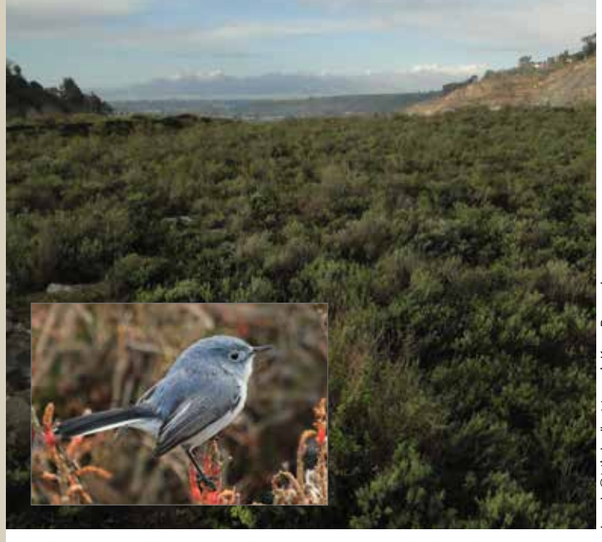
RED WATCH LIST SPECIES: PIF's population goal for these 19 species of highest concern is to RECOVER populations well above current levels. These species have relatively high scores for all vulnerability factors (**illustrated by the red bars in the adjacent figure, presented in the same order as the columns in Table 1**). They have restricted distributions and small, declining populations. Most face elevated threats and also are habitat specialists, requiring focused management for particular habitat conditions. Several are threatened by rapidly changing climate–Saltmarsh Sparrow from sea-level rise, Black and Brown-capped Rosy-finches from loss of alpine snowfields. Increased support is necessary to successfully recover these species and prevent additional listings. More targeted monitoring is needed to clarify urgency and evaluate actions.

Inset: USFWS; USDA

Red Watch List species include two lekking grouse—iconic and spectacular birds in genuine danger of extinction—including the Lesser Prairie-Chicken.



"R" YELLOW WATCH LIST SPECIES: These 12 species require constant care and long-term assessment to meet PIF's goal to PREVENT DECLINES. This group has high vulnerability scores for restricted ranges ("R") and small populations (red) with moderate threats (orange) and stable or increasing trends (yellow). It is critical that the already high vulnerability of these species due to ecological specialization is not increased by existing threats or unpredictable events. If populations of these species begin to decline, they will become the next Red Watch List species. These species also need improved monitoring due to high uncertainty in population trend. This group includes numerous species of aridland habitats in the southwestern U.S. as well as several marsh or grassland specialists.

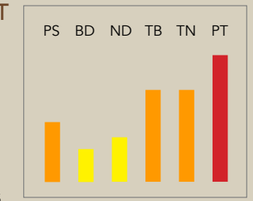


Inset: ©Michelle Maani; Ken Rosenberg

The "R" Yellow Watch List group includes the California Gnatcatcher, which has a small range restricted to extreme southern California and Mexico and needs strong bi-national collaboration to protect its full distribution.

Inset: ©Matt Stratmoen; USFWS

The "D" Yellow Watch List species include many steeply declining Neotropical migrants needing full life-cycle conservation, such as the Connecticut Warbler.



"D" YELLOW WATCH LIST SPECIES: These 55 species have declining populations ("D") and thus PIF's goal is to REVERSE these DECLINES. This group has high population trend scores (red), and moderate to high threats as well as moderate population sizes (orange) but low vulnerability scores for range (yellow). Many of these species have lost 50%-90% of their population in the past 40 years, declines that are representative of deteriorating conditions in virtually every terrestrial habitat and region. PIF's goal for these species is to stabilize populations in the short-term and then reclaim a portion of their populations within 30 years, to bring them to safer levels and avoid special protection measures. Best management practices need to be developed and implemented to maintain the diversity of habitats and successional stages needed by these species.

PIF RECOMMENDED ACTIONS:

- *Address needs* for continental Watch List species in all regional planning efforts, including Joint Venture Implementation Plans, State Wildlife Action Plans, Canadian Bird Conservation Region Strategies, and full life-cycle conservation plans.
- *Collaborate across jurisdictions* so local-scale efforts roll up to meet continental goals and objectives for highest priority landbirds (see page 26).
- *Work internationally* to conserve migratory Watch List species across their full life-cycle (see page 20).
- *Fill knowledge gaps* in population status and limiting factors through targeted monitoring and research, and ensure that the best science is being applied to conservation.
- *Evaluate conservation efforts* by implementing effective monitoring to assess progress towards population objectives.
- *Build capacity* with dedicated resources to keep birds from becoming endangered and requiring expensive federal protection and recovery efforts.

Watch List species require a wide spectrum of conservation actions—from meeting specific habitat needs to mitigating threats—across their full ranges and throughout their life-cycles.

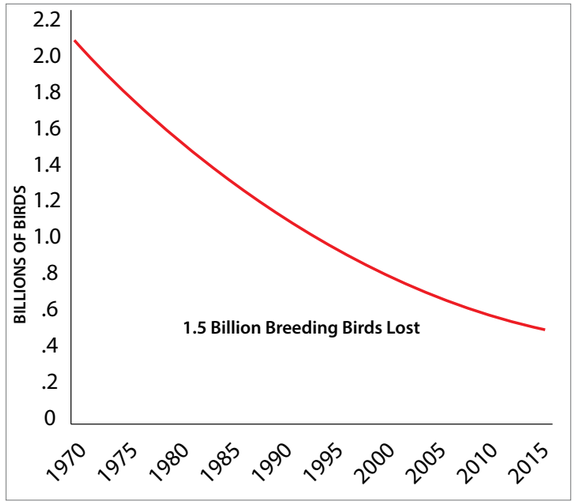


Figure 1. Over the past 40 years, the total loss of abundance across 46 steeply declining landbird species has been staggering and could disrupt the structure and function of the ecosystems of which they are a part.

©William Majoros

Nearly half of the 1.5 billion breeding landbirds lost since 1970 have been Blackpoll Warblers—boreal-forest breeders that migrate to the Amazonian lowlands of South America and back each year.

While rare and threatened species are usually the focus of conservation attention, Partners in Flight's (PIF) mission calls for action to maintain the abundance of birds fundamental for healthy habitats and functioning ecosystems in all regions and terrestrial habitats. Over one-third of our common landbird species have declined by more than 15% since 1970, with 46 species losing half or more of their populations— a net loss of over 1.5 billion breeding birds (Figure 1). Many of these relatively abundant and broadly distributed species may not be in imminent danger, but we don't know where the tipping point lies. At what levels will populations be unrecoverable or ecosystem functions impaired? When will these still numerous species spiral down and, like the Passenger Pigeon, disappear? Abundance does not guarantee immunity from significant and potentially catastrophic declines. This is why PIF works to "Keep Common Birds Common."

COMMON BIRDS IN STEEP DECLINE

As portrayed in State of the Birds reports in North America and around the world, birds are excellent indicators of overall environmental health—and their loss signals danger. Even relatively small percentage reductions in the abundance of widespread common species represent the loss of large numbers of individuals and substantial biomass. Such losses can disrupt ecosystem structure, function, and services. Thus successful conservation programs must not only address species at risk of extinction but also threats to the healthy functioning of the greater ecological community.

As part of our Species Assessment process, PIF identified 24 Common Birds in Steep Decline—species that are still too numerous or widely distributed to warrant Watch List status, but that are experiencing troubling long-term declines (Figure 2). All of these species have lost from 50%-90% of their populations since 1970, and most are projected to lose another 50% within the next 20-25 years. More than half are dependent on rural and agricultural landscapes, where loss of pastures and weedy margins, intensified crop production, and increased pesticide use are creating hostile environments for birds and other wildlife. Almost one-third migrate to Central or South America for the non-breeding period, where habitat loss poses a significant challenge for these species.

Common Birds in Steep Decline include several grassland specialists and birds of desert scrub and other aridland habitats. Reversing steep declines in grassland and aridland birds—which also make up 30% of all Watch List species—will require shifts in farming and grazing policies and practices that are compatible with economically viable and sustainable working landscapes. Another group of birds showing consistent declines is the aerial insectivores, which include swifts, swallows, nightjars, and large flycatchers. Dependent on flying insects throughout the year, these species are particularly sensitive to pesticides as well as to changes in insect availability due to climate change.

©Kenneth Cole Schneider

Steep declines among many aerial insectivores, such as this Common Nighthawk, are a signal of declining environmental health. Birds help maintain healthy ecosystems by providing services such as insect control, pollination, and seed dispersal.

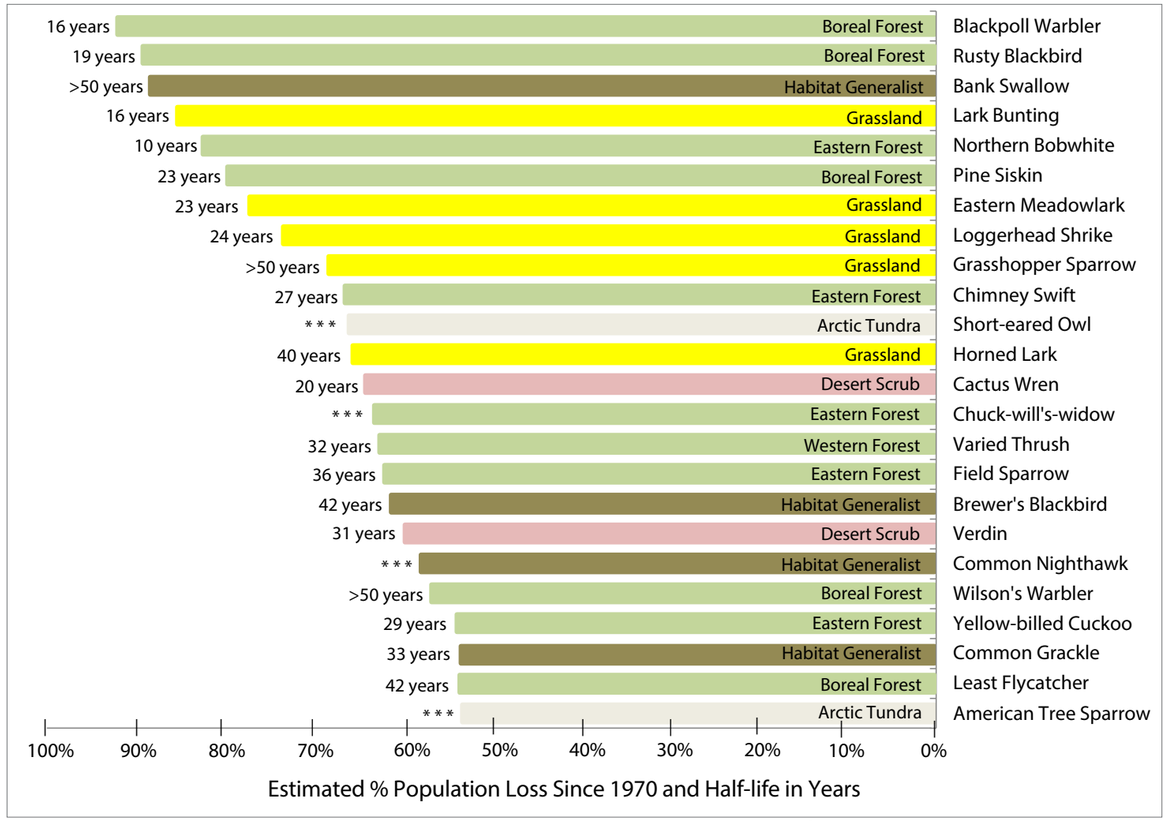


Figure 2. The 24 Common Birds in Steep Decline have lost more than 50% of their populations over the past 40 years (% loss indicated by length of the bars)—but they lack other elevated vulnerability factors that would warrant Watch List status. Each species' "half-life" (defined on page 5) in years is presented at the end of its bar (" * *" indicates lack of data) and primary breeding habitats are indicated by bar color.*

©Diana Robinson

PRESERVING THE SPECTACLE OF MIGRATION

The ebb and flow of birds across our skies mark the passing seasons. The phenomenon of annual migration, involving billions of birds and many different strategies along diverse routes, radiates waves of pollination and insect consumption, connecting countries and cultures throughout the Western Hemisphere. Birds encounter many human obstacles throughout their journeys, however, and millions die following collisions with houses, tall buildings, communications towers and other structures, or fall victim to predators like cats. Migration stopover habitat, which is critical to fuel long-distance flight, is disappearing and needs greater protection.

MAINTAINING ABUNDANCE

Central to maintaining a healthy avifauna is the concept of stewardship—caring for species where they are most abundant, even if populations are not yet highly threatened or declining. **PIF assigns stewardship responsibility to geographic areas that have a high proportion of the global population or range of a species.** Because such species are characteristic of the areas with stewardship responsibility, they merit special attention to ensure their numbers are retained at levels that enable continued ecological function. The status of these species can serve as an indicator of the health of habitats, or even broader geographies, and targeting conservation at these focal species may achieve the habitat goals that support many landbird species.

Often species with a high proportion of their population in a given region have stable or unknown population trends, and many require additional monitoring to improve our understanding of their population dynamics. This type of species is particularly important in Canada where many landbirds have broad distributions and low threats that generally preclude them from gaining Watch List status. Caring for these species before they reach the Watch List parallels the PIF approach of "preventive conservation" to keep Watch List species from official listing as endangered.

The best way to retain abundance is through landscape-level conservation that supports suites of species representative of every habitat.

COST-EFFECTIVE CONSERVATION

Targeting and supporting conservation action for abundant and declining species before they need critical care saves money, and can serve as preventive medicine for other species as well as ecosystem function. **Without action to prevent further losses of abundance, more species will be listed, and their recovery will come at a greater cost to society.**

CONSERVATION SUCCESS

Two groups of landbirds have increased over the last 40 years. Of these 60 species, more than half are forest generalists, such as woodpeckers, chickadees, and wrens that have adapted well to urban and suburban habitats over the past 200 years, primarily in eastern North America. The second group is diurnal birds of prey, including **Bald Eagle**, **Peregrine Falcon**, and **Osprey** that were brought back from the brink of extinction after banning DDT and indiscriminate shooting, as well as **Red-tailed Hawk**, and other raptors that are increasingly common in towns and cities. These conservation success stories illustrate that **although birds are sensitive to environmental change, they will also respond rapidly to conservation efforts fueled by political will and financial investments.**

PIF RECOMMENDED ACTIONS:

- *Implement conservation practices in agricultural and rangeland landscapes* through Farm Bill and other incentive programs to reverse or sustain grassland and aridland bird populations.
- *Support sustainable forestry practices* in the U.S. and Canada.
- *Reduce the loss of forests and other habitats* in nonbreeding areas through international programs and policies.
- *Reduce the use of pesticides,* and improve our knowledge about the role of pesticides in insect (as prey) and bird population declines.
- *Reduce and prevent collisions with buildings* and other structures by implementing known solutions.
- *Remove feral cats from public lands* and keep pet cats from roaming freely.
- *Preserve greenspace and use native plants* in urban and suburban landscaping.
- *Use bird-friendly coffee and other sustainable products* from Neotropical countries.
- *Support, promote, and contribute to citizen science databases* such as eBird, Breeding Bird Surveys and Christmas Bird Counts.

©W.P. Lynn

Eastern Bluebird populations, once greatly reduced due to pesticides and competition with invasive European Starling and House Sparrow, have steadily rebounded through a multitude of local education efforts and nest-box programs.

©Jerry McFarland

The Bald Eagle is proof that we can recover a species when we identify and eliminate key threats with sufficient resources, political support, and science-based conservation action.

CONTINENTAL-SCALE THREAT ANALYSIS

Several major large-scale forces threaten birds in every region and habitat in North America. In this section, we take a close look at how these factors result in elevated threat scores in the Partners in Flight (PIF) vulnerability assessment for landbirds of continental importance with breeding populations in the U.S. and Canada. By summing the threat scores assigned for Watch List and Common Birds in Steep Decline species, we developed a Continental Threat Index for landbirds (Figure 3). This index summarizes both the number of these species affected by a specific factor and the severity of those threats at the continental scale for each species (see page 99).

Our analysis indicates that the **two most pervasive threats to landbirds in the U.S. and Canada are habitat loss due to urbanization and habitat degradation due to changing forest conditions**. Both of these threats affect almost half (44-45 species) of the 98 Watch List and Common Birds in Steep Decline species evaluated for this report. Habitat loss due to conversion to agriculture and tropical deforestation, along with climate change, also rank very high in terms of overall impact (30-31 species), followed by habitat degradation due to rangeland management (20 species). Other major threat factors may have severe effects but on fewer species. Some factors like energy extraction and development are likely to increase in scope or severity over the next 10 years.

These major threat factors are operating at national, continental, or global scales, and cannot be adequately addressed at local or regional levels. Moreover, successful efforts to protect and restore habitats on a given landscape may not result in a net gain if issues, such as urbanization and agricultural conversion, are not remedied through coordinated policy at broader scales. Joining forces with people outside the bird conservation community to influence national and international policies and practices is essential to reduce and remove these threats to birds.

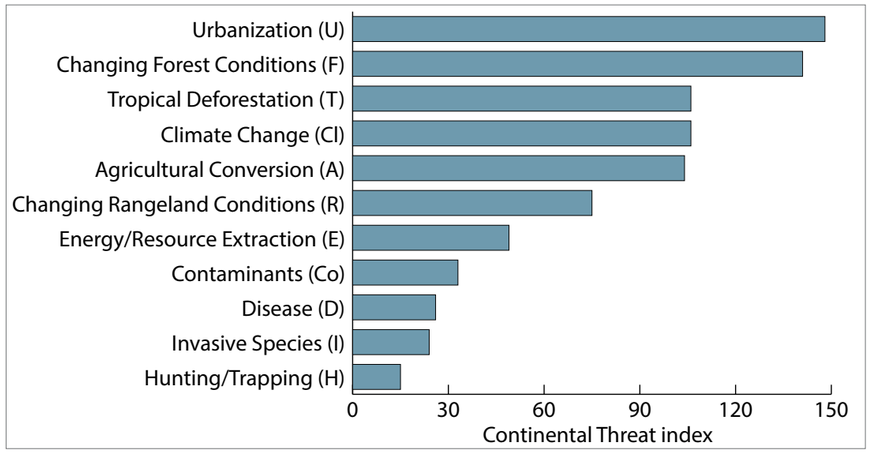


Figure 3. Major threats to landbird species of concern. Continental Threat Index reflects both the number of species affected and the severity of the threat (see P. 99). Threats impacting each Watch List species are listed in Table 1, using codes presented here (in parentheses).

Habitat loss do to urbanization is one of the two most severe threats to sustaining healthy landbird populations in the U.S. and Canada.

HABITAT LOSS DUE TO URBANIZATION

Residential and commercial development associated with urban and suburban sprawl is the largest threat to most native ecosystems in the U.S. and southern Canada. Although some birds can adapt, unchecked sprawl threatens the populations of more than half of all Watch List species. Bi-national policies to plan for economic and urban growth are urgently needed.

SOLUTIONS!

- ***Adopt smart growth*** planning initiatives and legislation to control sprawl.
- ***Create and retain urban green space and bird-friendly practices*** in developed areas.
- ***Support the forest products industry to retain large, intact blocks of working forests***, particularly in the face of increasing economic pressure in the U.S. to subdivide for urban development.
- ***Work with regional land trusts*** to acquire properties that meet both open space and bird conservation objectives.

©Stacey Jean

Urban parks like the High Line in New York City use existing urban environments in unique ways to provide habitat and connect people to nature.

HABITAT DEGRADATION DUE TO CHANGING FOREST CONDITIONS

More than 850 million acres of U.S. public lands (see page 71), and millions of hectares of yet-to-be-developed boreal forests in Canada, offer an unprecedented opportunity to maintain and enhance bird populations. Large-scale, coordinated planning across jurisdictional boundaries is key to meeting PIF objectives for widespread and migratory species. Although the total amount of forest may remain stable in many regions, the structure and condition of these forests are degraded; thus managing for natural composition has great potential to enhance bird populations on existing forest acres.

SOLUTIONS!

- ***Incorporate needs of high-priority birds*** into forest-management guidelines and practices on public and private lands.
- ***Implement landscape-level planning*** for industrial forestry in the boreal region to retain natural biodiversity and healthy bird populations.
- ***Revise fire-prevention policies*** to support natural forest conditions, and prevent catastrophic fires, degradation of habitat, and loss of native bird populations.
- ***Promote management for a shifting mosaic of forest age structures***, including adequate amounts of disturbed early successional and old-growth forest habitats.
- ***Support sustainable forestry*** practices on private lands
- ***Implement aggressive invasive species management*** policies on public lands and encourage similar action through education on private lands.

©Bridget McKenzie

The Boreal Songbird Initiative is working to apply the highest sustainability standards to forestry operations across the boreal forest, which supports three billion breeding birds (see page 81).

CONTINENTAL THREATS

Inset, USFWS, ©Ken Rosenberg.

Shade-grown coffee and other agroforestry can provide bird-friendly and sustainable products while buffering the loss of tropical forests in the surrounding landscape.

HABITAT LOSS DUE TO TROPICAL DEFORESTATION

At least 30% of Watch List species and Common Birds in Steep Decline depend on highly threatened tropical forests in winter—including wet tropical rainforests, dry forests, and montane pine-oak and cloud forests. Underlying causes of tropical deforestation are complex, but primarily trace to economic issues, poverty, and lack of enforcement of existing laws and policies. Working internationally to stem the loss of tropical forests is as important as protecting and managing breeding habitats in the U.S. and Canada.

SOLUTIONS!

- *Support national, regional, and local initiatives* in Latin America and the Caribbean to stop rates of tropical deforestation.
- *Develop and implement comprehensive wintering ground conservation plans* for migratory species and tropical residents through international partnerships.
- *Generate economic programs* to provide alternative, sustainable livelihoods for people in working landscapes.
- *Provide funding for existing and new protected areas* that support Watch List and resident species.
- *Promote and expand markets for bird-friendly and sustainable products*, such as coffee and cacao, from Neotropical regions.

Medea Curteanu, Environment and Climate Change Canada

Use of best management practices, such as reduced or rotating grazing intensities and protection of riparian buffers, can make ranching and bird conservation mutually beneficial. One-quarter of Watch List Species are currently threatened by degraded habitats on North American rangelands.

HABITAT LOSS AND DEGRADATION DUE TO CLIMATE CHANGE

Our assessment indicates that nearly 30% of Watch List species and Common Birds in Steep Decline are now threatened by habitat loss and degradation due to climate change. In addition, the negative impacts of other factors, such as energy extraction and development, often are exacerbated by climate change effects. Because this issue has become so important to bird conservation since 2004, we treat it in a separate section of this plan (see page 18).

HABITAT LOSS DUE TO AGRICULTURAL CONVERSION

Loss of native habitat to agriculture across North America remains the greatest threat to steeply declining grassland birds and affects 23% of Watch List species. Halting this habitat loss is the most intense and urgent need for the subset of habitat specialists that breed in Canadian and U.S. prairies and winter in the Chihuahuan Desert grasslands of northern Mexico.

SOLUTIONS!

- *Support conservation provisions of the Farm Bill* conservation programs in the U.S.
- *Support Mexican partners to improve habitat management and carry out sustainable practices* to reduce and eventually reverse the loss of grassland habitat, primarily in the Chihuahuan and Sonoran deserts.

HABITAT DEGRADATION DUE TO CHANGING RANGELAND CONDITION

Ranching and grazing can be compatible with sustainable wildlife populations and healthy rangeland ecosystems. However, existing grazing intensities and practices, especially in sagebrush and arid grassland systems, cannot be sustained through this century. Sustainable ranching presents a tremendous opportunity to enhance and restore habitats and bird populations.

SOLUTIONS!

- *Provide technical support to encourage sustainable grazing practices* that promote healthy native vegetation, while supporting the livelihoods of ranchers and communities.
- *Identify and protect high-quality public rangelands and restore habitat* using native plants and natural processes such as fire.

DIRECT THREATS TO BIRD ABUNDANCE

In many cases, the exact causes of species' declines are not known. While we know that habitat loss and degradation are the major factors affecting birds and other wildlife, recent studies have illuminated the magnitude of direct bird mortality inflicted by anthropogenic sources. For example, free-ranging cats are estimated to kill 2-3 billion birds annually in the U.S. and Canada, and millions more die from collisions with automobiles, buildings, power lines, communication towers and other structures.

SOLUTIONS!

- *Develop and recommend guidelines* to remove feral cats from public lands.
- *Implement proven guidelines* to replace steady-burning lighting on towers.
- *Implement bird-friendly architectural* designs and retrofits for building windows and lighting.
- *Locate energy infrastructure* such as wind turbines to minimize impacts on migrating and resident birds.

©Penn Johnson

©Hagard

©Doug Beckers

©Jon Nelson

Recent evidence shows the top four sources of anthropogenic mortality of birds in the U.S. and Canada are from cats, building collisions, auto strikes, and power lines. These mortalities can be significantly reduced with known solutions.

Inset: ©Derek Finch ; ©ABC

Many birds can be protected by designing and retrofitting buildings with bird-safe glass, and implementing Federal Aviation Administration tower lighting standards that would reduce mortality by 50-70%.

CLIMATE IMPACTS ON LANDBIRDS

One of the defining environmental challenges of the 21st century is climate change. Increased temperatures, more extreme weather events, changing moisture levels, and rising sea levels are affecting ecological processes, which in turn influence the distribution, abundance, and survival of many organisms, including birds and humans. These changes can adversely impact bird survival throughout the annual life-cycle. Birds in every terrestrial and aquatic habitat will be affected, although individual species in each habitat are likely to respond differently.

The degree to which birds can adapt to further environmental change depends on a suite of biological traits among species as well as the sensitivity of the habitats on which they depend. Some birds respond rapidly to changing environments by shifting their distributions; such distributional shifts are already well documented for both migratory and resident species. Some species may not be able to make such shifts.

Based on the vulnerability assessment in the *2010 State of the Birds Report on Climate Change*, several groups of species emerge as especially vulnerable to changing climate in the next decade. In some cases, this new assessment increases the urgency for protecting habitats for Watch List species already vulnerable due to other factors. In other cases, it highlights additional species not previously considered vulnerable through Watch List designation.

"How global warming will affect the distribution of birds in the coming millennium is a question of vital importance to those interested in biodiversity."

Dr. Blair Wolf, University of New Mexico

All of our predictions regarding the impacts of climate change on bird populations are based on complex climate models, as well as equally complex models of the life histories of birds. At the same time, documented shifts in bird distributions represent some of the strongest evidence that climate change effects are already occurring.

Information to improve our ability to understand and predict the impacts of climate change on birds is urgently needed, including:

- Improved, standardized methods for evaluating which species, suites of species, or habitats are most vulnerable to climate change, including information about sensitivity, exposure, and adaptive capacity;
- More research on species phenology (i.e., the timing of seasonal changes in plants and animals) and how climate change may affect interactions between species, habitats and resources;
- Incorporation of demographic parameters (e.g., birth, death, and immigration rates) into bird-habitat-climate models; and
- Long-term monitoring programs to document changes climate, responses of species and habitats to climate change, and to ground-truth predictive models.

PIF RECOMMENDED ACTIONS:

- *Protect native vegetation* to sequester carbon and reduce greenhouse gases.
- *Protect and restore coastal salt marshes* and facilitate migration of marshes inland.
- *Create corridors of high quality habitat*, especially along elevational and latitudinal gradients, to allow specialized species to shift distribution.
- *Review green energy projects* in consideration of sensitive habitats and migratory flyways to minimize unintended impacts on birds.
- *Protect vital surface water sources*, especially in riparian and aridland habitats.
- *Focus on reducing habitat loss and degradation* as the primary threat to most bird species.

©Jeanna Mielcarek, UCONN

Saltmarsh Sparrows, which build their nests just above the high-water line, are among the coastal species gravely threatened by rising sea levels that inundate low-lying habitats such as saltmarshes, barrier islands, and mudflats. Rising ocean temperatures are spawning more frequent and severe storms, which increase flooding and erosion of these fragile habitats.

©David Shenfeld

Increased temperatures have reduced winter and year-round snowpack in mountaintop habitats and allowed the spread of trees and shrubs into alpine tundra. The entire world population of Brown-capped (pictured here) and Black Rosy-Finches will lose their tundra habitat as montane forests expand to higher elevations.

©Gerald Beyersberg

Climate change is predicted to worsen the climatic extremes in aridlands. Small-bodied birds such as this Verdin—which already push the limits of heat tolerance and dehydration—will be further stressed as precipitation becomes more variable and heat waves increase in intensity, frequency, and duration.

©Bill Hubick

Long-distance migrants that winter in the Neotropics, such as this American Redstart, experience poor winter habitat conditions with the drying of seasonally wet tropical forests, as well as potential mismatches in the timing of food availability due to warming temperatures on northern breeding grounds.

FULL LIFE-CYCLE CONSERVATION

WHAT IS FULL LIFE-CYCLE?

Over the past decade, Partners in Flight (PIF) has increasingly recognized the importance of understanding and addressing issues faced by migratory birds throughout their lives and during their full annual migratory cycles. Full life-cycle conservation of migratory birds requires actions that provide habitat and reduce mortality throughout the year and across the globe, wherever the birds might go.

WINTER GEOGRAPHY MATTERS!

The challenge of conserving migratory birds is complicated by the fact that **habitat conditions in one season can affect the reproduction and survival of birds in subsequent seasons.** Poor quality winter habitat, for example, can affect the timing of migration, leading to decreased survival or reproductive success. Therefore, actions to improve conditions in the Neotropics can have far-reaching positive effects on breeding birds in the U.S. and Canada. **Restoring and managing habitats on the breeding grounds may not succeed in reversing declines of many Watch List species without a similar investment in critical winter habitats south of the U.S.**

Of the 286 migratory landbirds breeding in the U.S. and Canada, roughly 56% winter primarily south of the U.S. in one or more Neotropical regions. **Striking new results illustrate that where a species spends the winter may be a better predictor of population declines than where it breeds.** Species wintering in Chihuahuan Grasslands of northern Mexico, Central and South American Highlands, and South American Lowlands are experiencing steeper declines than species wintering in other regions (see Figure 7).

MISSING LINKS

For the billions of landbirds that pour south into Latin America and the Caribbean each year, identifying what is causing a species to decline has been extremely challenging. In most cases, we know little about migratory routes or stopover sites south of the U.S., and for some species of conservation concern, we still do not know where the majority of the population spends the winter.

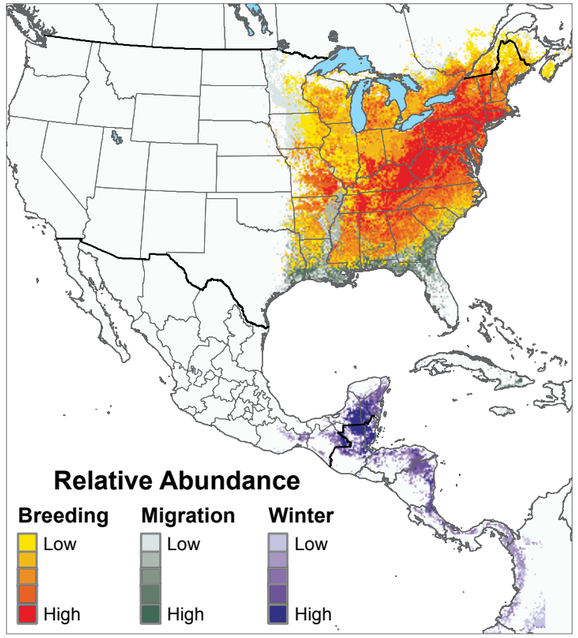
Because mortality during migration may be 15 times higher than during the relatively stable breeding and winter periods, **identifying and protecting key stopover habitats, including those south of the U.S., is a high priority**. These include important corridors, bottlenecks, and roost sites for diurnally migrating raptors, swallows, and swifts, as well as key forested regions where millions of birds make extended stops to rest and refuel. The Neotropical Flyways Initiative is currently assessing the value of stopover regions and habitats to long-distance migratory birds in Central and northern South America.

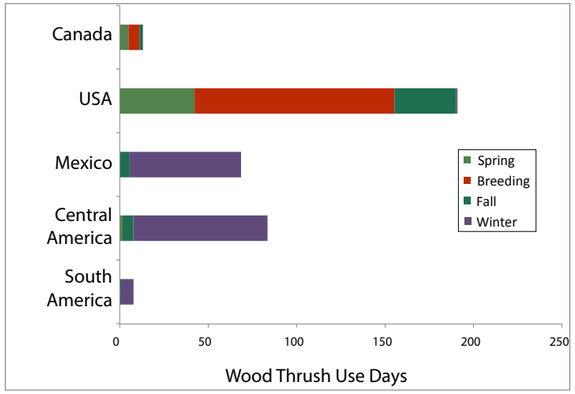
Inset: ©Alan Schmeirer; ©Dave Krueper

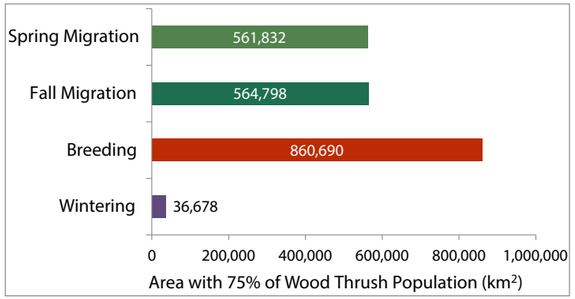
Species that winter primarily in the Chihuahuan grasslands of northern Mexico, such as Baird's Sparrow, are experiencing the steepest declines of any North American landbirds.

NEW METRICS FOR FULL LIFE-CYCLE CONSERVATION

PIF used eBird data to identify important areas for Watch List species during the nonbreeding periods (see Table 1 on pages 6-7). For example, Belize, Guatemala, Honduras, and the Caribbean lowlands of Mexico (Bird Conservation Regions [BCR] 49, 52, 55-57, 64-66) are most important in winter for Wood Thrush. The Gulf Coastal Prairie (BCR 37) and Mississippi Alluvial Valley (BCR 26) have markedly higher bird usage during migration seasons, suggesting their value as important stopover areas (see below figures). Models of predicted abundance using eBird data (Figure 4) indicate that Wood Thrush spends 40% of the year on their wintering grounds (Figure 5). The total area supporting the majority of the population is much smaller in winter (Figure 6). Thus, Wood Thrush are twenty-four times more concentrated on their wintering grounds than on the breeding grounds. These new metrics provide valuable information for full life-cycle conservation planning.







Figures 4,5,6 (starting left and moving clockwise). eBird data for Wood Thrush helps guide new conservation efforts throughout the hemisphere.

Inset: ©Ian Martin; ©Kelly Azar

Belize supports a high concentration of wintering Wood Thrush. Protecting this and other important wintering areas is critical to the survival of many migrant and resident landbird species.

CONNECT THE DOTS

Many bird species breed over broad geographic areas and have sub-populations that migrate along different routes and winter in different regions. Although broad geographic patterns of migratory connections are well known for some groups of birds (see PIF's Saving Our Shared Birds report), understanding how specific populations are connected geographically throughout their life-cycle is critical to stabilizing and reversing declines for high-priority species. New technology is greatly increasing our ability to track individuals and link the breeding, wintering, and stopover areas required by populations throughout the year.

©Nancy Magnusson

The Migratory Connectivity Project is using the latest technological advances to coordinate research on a wide variety of species such as the Gray Catbird.

FILLING KNOWLEDGE GAPS

This is an exciting time to be studying the life-cycles of migratory birds. Continuing technological advances in satellite telemetry, light-level and GPS geolocators, and other marking methods enable the accurate tracking of individual birds over vast distances. **Tracking data, combined with stable isotopes and new molecular markers, are enabling us to connect the breeding, wintering, and stopover regions for specific populations.**

At the same time, birder-generated observational data are rapidly accumulating and freely available at eBird, allowing for accurate mapping and modeling of dynamic species distributions throughout the year such as for the Wood Thrush illustrated on page 21. These and other monitoring data as well as demographic information from bird observatories throughout the hemisphere are available from the Avian Knowledge Network.

Despite this proliferation of technology and data, we are just scratching the surface of the knowledge needed to understand factors that limit population growth and develop life-cycle models for most Watch List species. **A greatly expanded network of demographic monitoring sites is needed to fill these many knowledge gaps.**

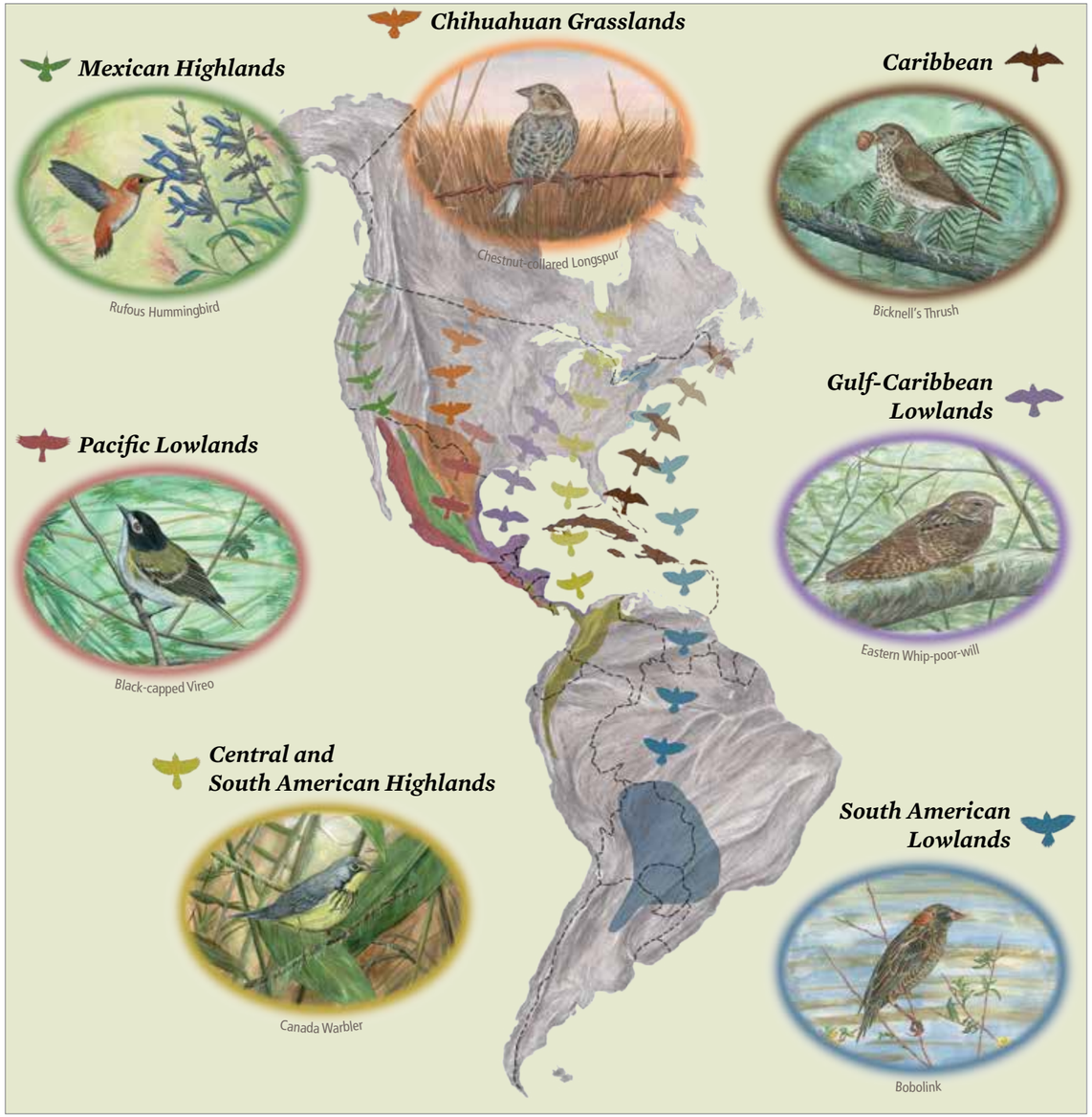
PIF RECOMMENDED ACTIONS:

- *Increase resources* available through Neotropical Migratory Bird Conservation Act, Southern Wings, North American Wetlands Conservation Act and other sources to implement priority landbird projects.
- *Build capacity within Latin American and Caribbean nations* for sustainable, landscape-scale conservation.
- *Develop and implement a hemispheric bird-monitoring strategy* that includes demographics to inform management and track conservation success.
- *Expand the use of new technologies* (e.g. geolocators, nanotags) to determine migratory connectivity, key stopover sites, and accurate winter distribution maps for poorly studied species.
- *Use integrated, full life-cycle population models* to assess limiting factors and causes of species declines.

PIF FRAMEWORK FOR FULL LIFE-CYCLE CONSERVATION

In 2013, PIF's Fifth International Conference (PIF V) brought together more than 240 conservation professionals from 120 organizations and 16 countries across the Americas to launch a new framework for full life-cycle bird conservation. Focused initially on seven winter geographies (Figure 7) shared by suites of Watch List species, participants at PIF V began a process of developing comprehensive Conservation Business Plans that identify key threats and actions necessary to conserve migratory birds throughout the Western Hemisphere.

WINTER GEOGRAPHIC AREAS FOR WATCH LIST SPECIES



Cornell Lab of Ornithology/Misaki Ouchida, Bartels Science Illustration Intern

Figure 7. Approximate geographic wintering areas, linked to breeding grounds, for suites of Watch List species, with example species shown.

POPULATION GOALS AND OBJECTIVES

BACKGROUND ON PIF POPULATION OBJECTIVES

The 2004 PIF Plan broke new ground by establishing range-wide population objectives for landbirds of high conservation concern. These objectives were quantitative (% change relative to current status), measurable (through the BBS), and easily communicated—all characteristics of useful population objectives. Objectives were based on long-term population trends with the aim of returning declining species to levels around 1970, near the start of the BBS.

Some partners considered PIF's 2004 objectives unrealistic while others found them a useful starting point to develop regional objectives. This 2016 Plan Revision provides both short- and long-term objectives that are tied to a goal for each group of Watch List species, and are based on more pragmatic outcomes than returning populations to levels of the 1970s, while still based on long-term trends.

WHY SET POPULATION GOALS AND OBJECTIVES?

To address the continuing decline in many landbird populations, **we must strategically target our limited resources on prioritized conservation actions. This is only possible when partners work together efficiently toward common goals and objectives by coordinating efforts across geographies and jurisdictions**. We can then evaluate the success of our collective actions relative to these agreed-upon goals and objectives.

Conservation goals are subjective expressions of the values that underlie a group's actions. **Partners in Flight's (PIF) goals for conserving bird populations appropriately reflect its mission. Thus, "helping species at risk" translates into the goals of "recover" and "prevent declines"** (see Table 2 for definitions of these goals) because we value healthy bird populations and habitats and want to prevent vulnerable species from becoming extinct or endangered. **"Keeping common birds common" translates into the goals of "reverse declines" and "stabilize"** because we value the spectacle, abundance, and diversity of widespread birds that benefit ecosystems and enhance our quality of life.

To meet species' range-wide population goals, PIF identifies measurable, range-wide population objectives in Table 2 to inform regional partners' conservation planning and action. At the same time, the work of these partners must contribute to meet the range-wide objectives, which can be informed and revised through partner dialogue across spatial scales.

SETTING POPULATION OBJECTIVES: THE CHALLENGE

The bird conservation community has wrestled with the concepts and pragmatism of setting population objectives for species of concern for several decades. **Population objectives are considered a fundamental component of adaptive, strategic conservation because they establish a target for planning, implementation, and evaluation**. The PIF Technical Series and PIF International Conference Proceedings provide recommended approaches and guidelines for establishing population objectives.

How many individuals are needed to prevent the extinction of a species, and how many birds are needed to restore a population to some historic or desired future degree of commonness? These are questions that even the best science can only partly answer because objectives are fundamentally value-based. At the range-wide scale, most of PIF's population objectives are based on trends derived from the North American Breeding Bird Survey (BBS). Even with this wealth of data, **setting population objectives requires identifying appropriate temporal benchmarks and evaluating our capability to restore bird populations given the dynamics of landscape conditions and threats**.

PIF'S REVISED APPROACH TO POPULATION OBJECTIVES

PIF's population goals are general statements of desired future condition. These goals are linked to numeric, measurable population objectives with specific time frames. In Table 2, we propose short-term (10-year) and long-term (30-year) continental population objectives (*see Figure 8 for graphical depictions of these objectives over time*).

These revised, range-wide goals and objectives are tied to the different groups of Watch List species and Common Birds in Steep Decline (see Appendix B for specific objectives for each species). **The objectives reflect a short-term desire to slow and then halt declines, at a minimum, for all these bird groups.** Objectives differ in the rate at which declines should be halted, and are based on species' overall vulnerability, abundance, and threat level. **The long-term objectives provide targets for longer range conservation planning, and reflect the desire to return declining Watch List species to at least a portion of their former abundance**.

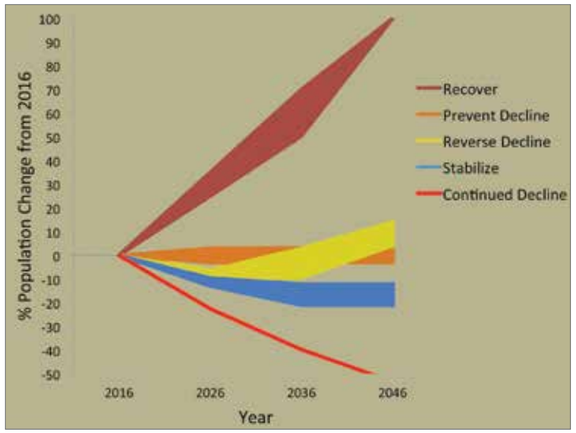


Figure 8. Potential scenarios of percent population change over 30 years that would achieve population objectives for the different population goal categories. Reverse Declines and Stabilize scenarios represent species with a long-term trend of -2.5% per year. The red line indicates the population trajectory if a trend of -2.5% per year continues unimpeded.

PIF will conduct 10-year progress assessments of the effectiveness of conservation actions toward meeting these objectives. Given population trends and the results of these assessments and partner dialogue, species objectives may be adjusted in the future as part of an adaptive conservation framework.

To meet species range-wide population goals and objectives, partners need to translate them to the regional and local scales where they are carrying out conservation actions. Regional population objectives are often expressed as population size targets that can be translated into habitat objectives. **Developing population targets and habitat objectives is neither simple nor straightforward. PIF commits to sustained collaborations on this process with Joint Venture, Bird Conservation Regions (BCR), state, and provincial partners**.

©Dave Curtis

Range-wide declines in widespread species, such as this Olive-sided Flycatcher, highlight the need for partners to collaborate across jurisdictions to set regional objectives.

PIF RECOMMENDED ACTIONS:

- *Collaborate with partners* to develop regional-scale population goals and objectives.
- *Implement PIF's "Five Elements Process of Conservation Design"* to assess current and future habitat capacity and produce realistic regional population and habitat objectives.
- *Develop a complete range-wide set of regional objectives and conservation actions* through the Tri-Initiative Science Team, and use them to evaluate conservation progress across regions.

Table 2. CONTINENTAL LANDBIRD POPULATION GOALS AND OBJECTIVES

Continental Landbird Population Goals and Objectives (for 10-year and 30-year time periods beginning in 2016). Ranges of values presented for population objectives reflect uncertainty in response of species to conservation actions and unforeseen environmental conditions. Species-specific population objectives for the Watch List Species and Common Birds in Steep Decline are provided in Appendix B.

Population Goal[1]	Continental Concern Group	Goal Rationale	Population Objectives[1]	
			By 2026	By 2046
Recover	**Red Watch List** species	Ensure **highly vulnerable** species with small and declining populations are **recovered well above their current population size starting immediately** to meet recovery plan goals or demonstrate that regulatory action is not necessary to prevent extinction.	**Recovery Plan target, or increase 2016 population by 25% to 35%.**	**Recovery Plan target, or increase 2016 population by 75% to 100%.**
Prevent Decline	**"R" Yellow Watch List** species	**Prevent future declines of vulnerable species not currently known to be declining.** These species should be **monitored closely to clarify population trends** and identify undetected declines that may trigger additional actions.	**Maintain Stable Population** Maintain at least a stable population (e.g., +3% change) and actively monitor to assess status.	**Maintain & Monitor** Maintain at least a stable long-term population (e.g., +3% change) and actively monitor to assess status.
Reverse Decline	**"D" Yellow Watch List** species	Ensure **declining, vulnerable species** remain above the level requiring special protection by restoring populations above current levels: **reduce the rate of decline within 10 years, then stabilize and ultimately increase populations by the end of the 30-year period**.	**Slow rate of decline by 60% to 75%** Rate of decline for 2016-2026 is 60% to 75% less than long-term decline (equivalent to allowing between 2% - 22% loss of 2016 populations, depending on long-term trends – see Appendix B for species-specific objectives).	**Increase 2016 population by 5% to 15%.**
Stabilize	**Common Birds in Steep Decline**	Ensure **steeply declining species not on the Watch List reach a stable population trend in 30 years**, while still abundant enough to prevent future Watch List status or federal listing.	**Slow rate of decline by 45% to 60%** Rate of decline for 2016-2026 is 45% to 60% less than long-term decline (equivalent to allowing between 5% - 25% loss of 2016 populations, depending on long-term trends – see Appendix B for species-specific objectives).	**Achieve Stable Population at 10% to 25% below 2016** Population has stabilized with no more than 10%-25% loss of 2016 population.

[1] *For species federally listed in either country or covered by a species Working Group, stated Recovery Plan goals and objectives will be used.*

CASE STUDY: SETTING REGIONAL POPULATION OBJECTIVES

The Bobolink Working Group developed a modeling tool to allocate trend-based population objectives by BCR. By changing population objectives in different regions, projected changes in range-wide trend and estimated population size can be determined over the next 30 years (Figure 9). This approach can easily be adapted for other species.

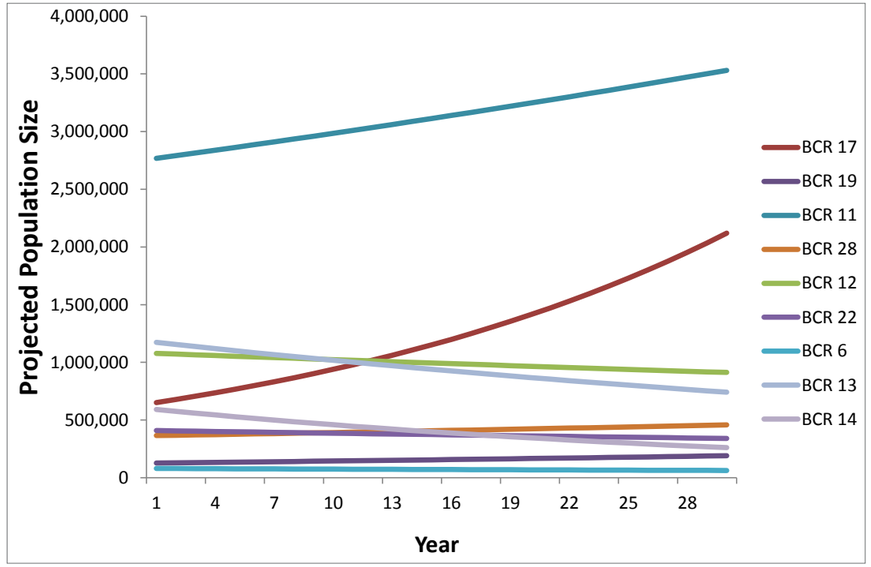


Figure 9. In this scenario, a Bobolink model was used to project population sizes in different BCRs that will meet a range-wide population objective of stabilizing the entire population at more than 85% of current population size after 30 years. See the Bobolink Working Group on Griffin Groups for more details and to download the tool.

©Louis Ruffkay

By targeting conservation actions in BCRs with the greatest capacity to increase Bobolink populations, we can meet the continental objective for this widespread and declining species within 30 years.

BRIDGING THE IMPLEMENTATION GAP

©Bill Hubick

Rachel Carson's seminal work on the impacts of DDT on bird populations, showed that birds are good indicators of the environment. Thus, the Peregrine Falcon is a reminder that large-scale environmental challenges can be addressed with decisive conservation action.

Achieving healthy landbird populations requires a commitment of new resources to bridge the gap between planning and implementation

BRIDGING THE DIVIDE

Science and planning for bird conservation have advanced rapidly over the last decade—setting the stage for action. We know that landbirds are in urgent need of conservation action applied consistently across broad landscapes to stabilize or reverse their population declines. We also know that management of at-risk and endangered species is expensive, so it makes sense to conserve birds and their habitats now, before a crisis hits. However, the divide between knowing what to do and our ability to do it can be large – we call this the implementation gap. Finding new mechanisms and resources to bridge this implementation gap is essential if we are to move beyond planning and achieve meaningful conservation success. The implementation gap stems from three main issues:

1. *Scope and scale* of the challenge;
2. *Lack of conservation capacity*; and
3. Need for *greater societal awareness and engagement*.

SCOPE AND SCALE OF THE CHALLENGE

The 448 landbirds covered by this 2016 Plan Revision occur in every type of habitat. Moreover, during their life-cycles, most journey across political and international boundaries and encounter a diversity of human communities and environmental challenges along the way. Thus the scope of the effort needed to conserve these species is enormous. In the following sections, Partners in Flight (PIF) presents landbird conservation priorities at a scale appropriate for U.S. and Canadian regional partnerships to adopt and work toward. By addressing the needs of Watch List species and Common Birds in Steep Decline at the Joint Venture and Bird Conservation Region scale, PIF is facilitating the work of regional partners to refine and strengthen their conservation efforts for landbirds.

CONSERVATION CAPACITY

Like any voluntary partnership, PIF's ability to bridge the gap between planning and implementation relies on the strength of our network. Human and financial resources are the core of our conservation capacity. People discover what's limiting bird populations and use that information to plan conservation and design landscapes to meet the needs of birds and society. People integrate conservation needs and policy recommendations to create habitat programs for birds and other wildlife. Financial resources enable people to generate this information and put this conservation in place. People participating at all levels of government agencies, non-governmental organizations, and industry, as well as individuals can influence bird habitats or mitigate direct mortality of landbirds, and play essential roles in garnering and delivering needed resources internationally, nationally, and locally (see Figure 8, page 30).

SOCIETAL AWARENESS & ENGAGEMENT

Conservation is a societal and cultural challenge. To bridge the implementation gap and achieve our conservation objectives, we must engage people who already watch and appreciate birds, as well as those who are motivated by human health or other concerns. Making connections between cultural values and conservation can motivate people to take action and be a powerful mechanism for success.

People enjoy and care about birds. One of every six citizens in the United States and Canada—people from all walks of life—participate in bird watching, whether they watch the backyard bird feeder or travel long distances to see birds. People are concerned when more species are assigned endangered or at-risk status. Thus, many contribute time, money and data for conservation. For example, citizen science data have been critical to developing conservation plans and identifying steep population declines in common species. We must continue to mobilize this passion for birds and turn it into conservation action at every level.

"Our generation will be judged by the state in which we leave (fish and wildlife) resources to the next."

The Future of America's Wildlife, Final Report and Recommendations, March, 2016

TURNING PASSION INTO ACTION

According to recent national surveys, the 52 million citizens in the United States and Canada who watch birds will spend over $14 billion each year on travel and equipment to do so. If mobilized, this constituency has the potential to enhance conservation capacity by increasing resources and influencing decisions to benefit birds and their habitats. We need better mechanisms to facilitate direct contributions to habitat conservation and other expressions of support for healthy ecosystems where bird populations thrive.

USFWS

Partners are making a difference for birds in urban and suburban areas through the U.S. Fish and Wildlife Service Urban Bird Treaty Program by engaging city governments, other partner organizations, and citizens in taking action to create bird-friendly environments such as the students above restoring habitat with native plants.

LEARNING FROM WATERFOWL SUCCESS

Wetlands and waterfowl conservation in North America provides a successful model of complex implementation at multiple scales. This effort captured a three-way linkage among legislated policy and funding at a continental scale (North American Wetlands Conservation Act), coordinated science across species ranges (North American Waterfowl Management Plan) and the delivery of habitat conservation by local partnerships (Migratory Bird Joint Ventures). The success of this model speaks for itself through consistently rising populations of waterfowl, and benefits to some wetland associated landbirds.

For landbird conservation, this three-way linkage exists but is fragile and lacks the resources for implementation required to reverse declining bird populations. Legislated policy and funding is in place for hemispheric application (Neotropical Migratory Bird Conservation Act), coordinated science across species ranges exists (e.g., this 2016 Plan Revision), and local and regional conservation partnerships have committed to PIF's objectives for landbird conservation (e.g., Joint Ventures and other groups). Significantly more resources and public engagement are needed to fuel this collaborative framework and restore declining bird populations.

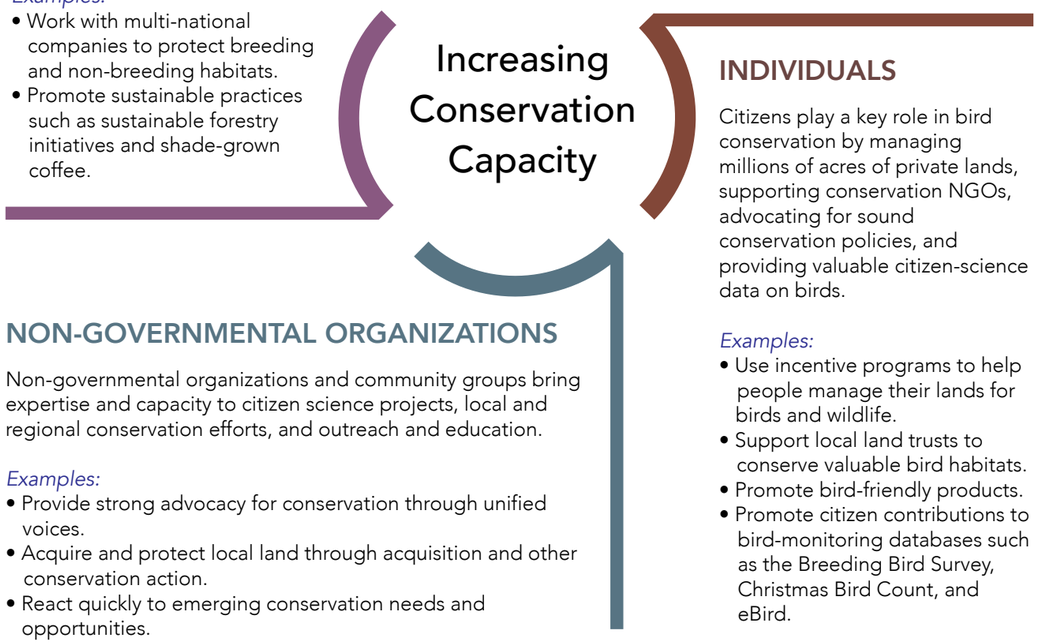


Figure 10. All agencies, organizations, and individuals play an essential role in contributing to conservation.

PIF RECOMMENDED ACTIONS:

- *Fuel the existing landbird conservation network* with increased resources to ensure partners are able to link full life-cycle conservation science and planning with implementation, including increased support for: Neotropical Migratory Bird Conservation Act, Joint Ventures, Habitat Stewardship Program, State Wildlife Grants and the operational budgets of government agencies charged with bird conservation and management;
- *Develop a proposal* for funding implementation of BCR Strategy recommendations in Canada.
- *Enhance and strengthen PIF regional working groups* and other groups to better support regional and local-scale conservation action.
- *Identify and address critical information needs*, such as full life-cycle approaches and migratory connectivity, and increase research capacity.
- *Generate and use human dimensions research* information to engage the birdwatching constituency and other audiences in supporting bird and habitat conservation.
- *Engage communities in implementing solutions that mitigate* direct bird mortality.

USFWS

Private landowners are the primary decision-makers on about 890 million acres in the U.S. Meeting the needs of landowners in the U.S. and Canada is essential for successful bird conservation.

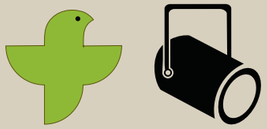
BLUE RIBBON PANEL ADDRESSES CAPACITY NEEDS

In both the U.S. and Canada, conservation strategies have been developed to stabilize or reverse declining bird populations. In the U.S., State Wildlife Action Plans for all 50 states document 12,000 species, subspecies or populations with the greatest conservation need. In Canada, 25 Bird Conservation Region (BCR) Strategies identify 232 landbird species, subspecies or populations (out of 310) that are a priority in at least one BCR. However, no dedicated source of sufficient funds has been approved in either country to implement these recommended actions.

In the U.S., the Association of Fish and Wildlife Agencies Blue Ribbon Panel on Sustaining America's Diverse Fish and Wildlife Resources published its finding in March 2016, and documented that at least an additional $1.3 billion is needed for states to proactively halt species declines. The Blue Ribbon Panel recommends using revenue from oil and gas leases on public lands to provide funding to states for wildlife species of greatest conservation need—including 95% of PIF Watch List species.

INTRODUCTION TO REGIONAL PROFILES

Symbols to Look For Stewardship & Spotlight:



The green icon indicates "stewardship" species that are characteristics of specific habitats and require care to ensure healthy ecosystems. Within the regional profiles, the symbol will indicate high stewardship responsibility for that species within that regional boundary.

The spotlight icon positioned on the green sidebar indicates a page highlighting a specific conservation issue or story of interest to PIF and Joint Ventures.

These spotlights provide a more in-depth view of conservation topics and issues, ranging from Northern Bobwhite conservation to the use of focal species to the importance of the boreal forest for breeding landbirds.

REGIONAL IMPLEMENTATION PROFILES

While conservation planning happens at international, national, or ecoregional scales, action is best taken locally by those who know how the lands, waters, and human and natural communities will respond. In the following sections, we present a regional profile for each U.S. and Canadian Joint Venture or Bird Conservation Region (BCR) (see map on next page). Note that regions in Canada represent a combination of existing habitat Joint Ventures and amalgamated BCRs that share major habitat types. Each profile provides five elements: a regional map that is overlaid with BCRs and jurisdictional boundaries; a table listing Partners in Flight (PIF) Continental Species of Importance (see page 34 for Regional Table at a Glance section); a description of the area's bird conservation landscape; a "Conservation in Action" success story; and a "Looking Ahead" list of next steps to make progress in achieving regional objectives. In combination, the elements in each of these profiles illustrate the important roles that regional partnerships play in implementing PIF plans and contributing to continental objectives for landbirds. PIF is committed to bringing the needed capacity for landbird conservation to those partnerships, working for habitat management and acquisition, conservation policy, conservation science and planning, and to facilitate full life-cycle conservation.

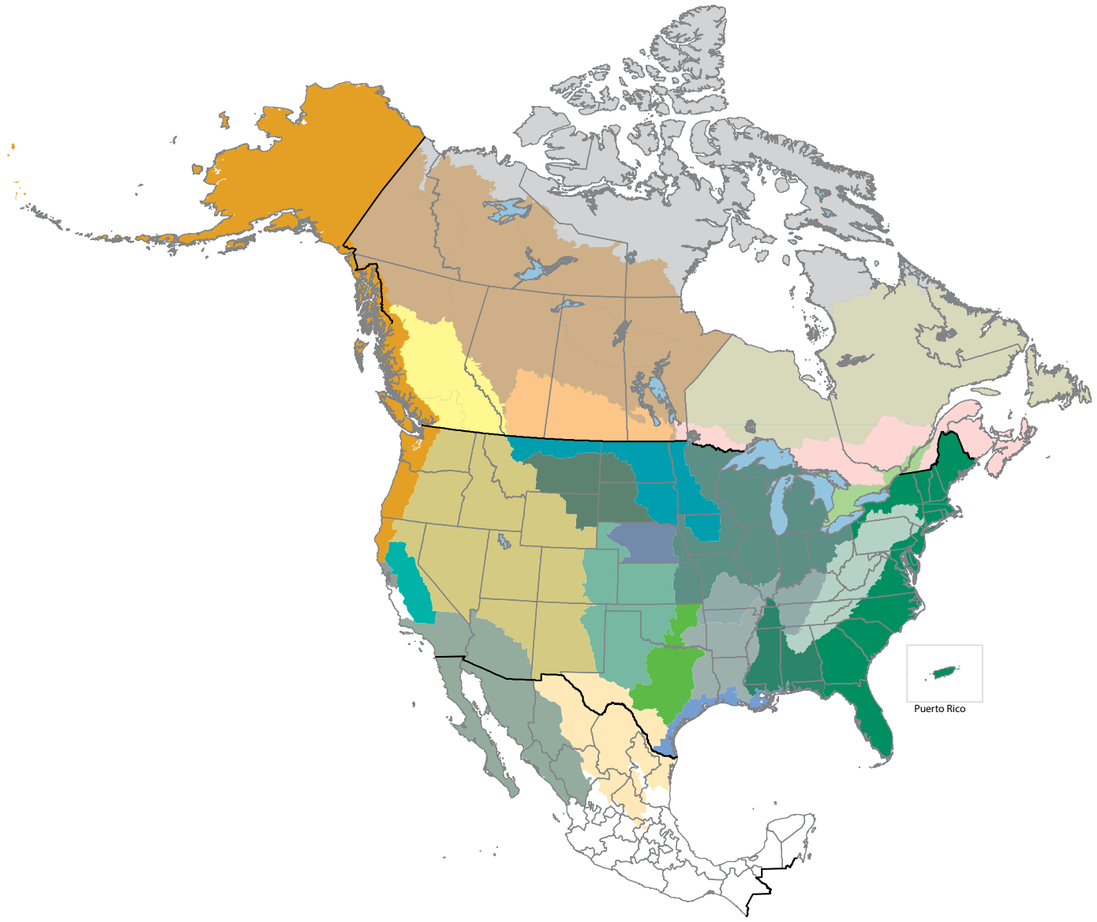
IMPORTANCE OF MIGRATORY BIRD JOINT VENTURES

Joint Ventures represent diverse partnerships of government agencies, non-profit organizations, corporations, tribes, and individuals working together to design and implement landscape-scale conservation efforts in support of the North American Waterfowl Management Plan, PIF, and other conservation plans for shorebirds, waterbirds, and resident game birds. Joint Ventures carry out a wide range of bird conservation actions that include planning and prioritization; project development and implementation; monitoring, evaluation, and research; communications, education, and outreach; and grant development and funding support.

Widely accepted as the model for collaborative conservation in the 21st century, Joint Ventures are a proven mechanism to bridge the gap between science-based planning and on-the-ground implementation. They work successfully across geographic, political, and organizational boundaries to integrate bird conservation needs shared by multiple levels of government agency and non-governmental organizational partners. Thus, Joint Ventures tailor conservation to the specific needs of their regions. In the next part of this 2016 Plan Revision, each Joint Venture provides their unique perspective on how they undertake bird conservation.

Thanks to all the Joint Venture staff for providing their regional profile descriptions and stories.

MIGRATORY BIRD JOINT VENTURES AND CANADIAN REGIONS



Migratory Bird Joint Ventures are collaborative, regional partnerships that conserve habitat for the benefit of priority bird species, other wildlife, and people.

Canada

- Canadian Arctic
- Canadian Intermountain
- Eastern Boreal
- Lower Great Lakes/St. Lawrence Plain
- Prairie Habitat
- Southern Shield and Maritimes
- Western Boreal

United States

- Appalachian Mountains
- Atlantic Coast
- Central Hardwoods
- Central Valley
- East Gulf Coastal Plain
- Gulf Coast
- Intermountain West
- Lower Mississippi Valley
- Northern Great Plains
- Oaks and Prairies
- Playa Lakes
- Prairie Pothole
- Rainwater Basin
- San Francisco Bay
- Upper Mississippi River/ Great Lakes Region

Bi-national

- Pacific Birds Habitat
- Rio Grande
- Sonoran

INTRODUCTION TO REGIONAL PROFILES

REGIONAL TABLE AT A GLANCE

The tables of Species of Continental Importance in the Joint Venture and Regional profiles contain the following information. **Note that all information presented in these tables reflects the regional scale and is specific to each Joint Venture or Region**, including Urgency/Half-life and population change information (see pages 96-99). All "* * *" entries indicate insufficient or unreliable data to calculate a regional estimate, including all wintering populations.

SPECIES

Red = Red Watch List, Yellow = Yellow Watch List, Tan = Common Birds in Steep Decline
Season(s) of occurrence with high relative abundance: (B) = breeding, (W) = winter, (R) = resident
Species are grouped by their primary habitat within a Joint Venture or Region.

BCR

Numbers correspond to BCRs (see map on page 118).
X indicates a BCR where the species occurs at a level of ≥1% of the global population.

AREA IMPORTANCE

Relative importance of the Joint Venture or Region to a species based on % of Breeding Population or Non-breeding Area Importance (indicated by "AI=#"). Red text indicates HIGH area importance (i.e., ≥25% of population or AI = 5).

URGENCY/HALF-LIFE

Estimated number of years until an additional 50% of the regional population is lost (i.e., a species' "half-life"within the Joint Venture or Region) if current population trends (past 10 years) continue into the future. Red text indicates HIGH urgency (i.e., half-life ≤30 years). A "*" next to a number indicates a confidence interval of >40 years around the half-life estimate.

LONG-TERM CHANGE

Percentage change in regional population over the past 44 years (1970-2014).

SHORT-TERM TREND

Average annual % change in regional population over the past 10 years (2004-2014).

©Chad Johnson

Joint Ventures work toward achieving range-wide habitat objectives for birds, and reflect the local and regional culture and environmental priorities of their geographic regions.

SPOTLIGHT: ECOTOURISM SUPPORTS BIRDS AND PEOPLE

©Mexican Birding Trail

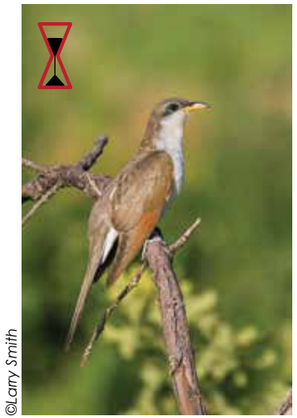
IMPROVING HABITATS AND LIVELIHOODS IN THE SONORAN JOINT VENTURE

Combined with habitat protection and restoration, birding ecotourism can be an important piece of a larger solution to the issues facing migratory landbirds. In 2007, the Sonoran Joint Venture and Pronatura Noroeste trained residents of communities near important conservation sites in northwest Mexico to be bird guides. **The goal: protect Neotropical migratory birds and their habitats by combining on-the-ground restoration and protection efforts with local ecotourism project development.** Although birding ecotourism is not a panacea, it can help provide an economic incentive for conservation.

Over the course of the two-year program, guide trainees in the Colorado River Delta (Sonora and Baja California), Álamos (Sonora), and San José del Cabo (Baja California Sur) developed their guiding skills, but they also participated in monitoring, habitat restoration, and education and outreach efforts in their communities. All of these locations provide critical migratory stopover habitat for landbirds during migration as well as wintering habitat for birds that breed in the United States and Canada. Hundreds of migratory species benefited from these habitat restoration efforts, including **Southwestern Willow Flycatcher**, **Least Bell's Vireo**, **Savannah Sparrow**, **Yellow-billed Cuckoo**, **Rufus Hummingbird**, and **Gray Vireo**.

One of the challenges to conservation in Mexico is lack of knowledge about the status and distribution of bird populations. Over the course of the two year training program, guide trainees submitted over 200 checklists to eBird, contributing to the state of knowledge about bird populations in these priority sites as they developed their bird identification skills.

As part of the program, the time guide trainees spent volunteering made a significant and direct impact to regional bird and habitat conservation priorities. By the end of the project, trainees worked on fifteen unique projects with thirteen different partners and contributed over 1,400 hours of their time. Projects included bird monitoring with training in banding and point count techniques; habitat restoration activities; installation of camera traps for large mammal monitoring; desert tortoise monitoring; forest fire control activities; repairing a cabin used for tourism; environmental education and community outreach; and a trash clean-up campaign.



©Larry Smith

Guides participated in monitoring, habitat restoration, education and outreach for species such as the Yellow-billed Cuckoo.

One final part of the program was the development of the Mexico Birding Trail, a comprehensive website designed to connect birders to guides who completed the program and share information about conservation efforts at each site.

In the years since the project ended, one participant became employed as a full-time natural history and birding guide, while others supplement their jobs with part-time guide work. In addition, some have been hired as full or part-time park rangers or field technicians by conservation organizations, thus continuing to contribute to conservation in the region.

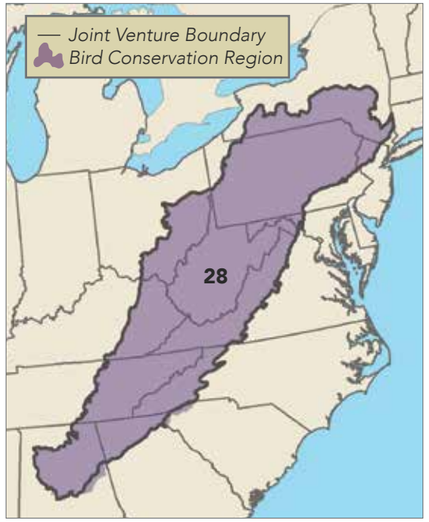
Learn more about the Mexican Birding Trail Project.

APPALACHIAN MOUNTAINS
JOINT VENTURE

©Charlie Choci

BIRD CONSERVATION LANDSCAPE

The Appalachian Mountains Joint Venture encompasses some of the largest expanses of deciduous forest remaining in the eastern U.S. These forests have changed drastically over the last century due to the timber boom of the late 1800s and early 1900s, the increase and subsequent abandonment of farmland acreage from the mid-1900s through the 1980s, and extraction of fossil fuels. Loss of historic natural disturbances, such as fire and grazing by bison and eastern woodland elk, once maintained a dynamic and resilient forest landscape. This loss, coupled with current fire suppression, public opposition to forest management, and urbanization, now limit organizations from carrying out management actions that would mimic these disturbances. Appalachian forests also continue to be subject to a variety of stressors such as disease, insect pests, invasive species, over-browsing by deer, and continued energy development. As a result, these forests now lack much of the structural diversity and range of forest age classes needed by several bird species. For example, Watchlist species such as **Golden-winged Warbler** and **Prairie Warbler** need early successional forest, while **Cerulean Warbler** and **Wood Thrush** breed in mature forest.



©Bill Hubick

Multiple species, including Cerulean Warbler, Golden-winged Warbler and Wood Thrush, can be supported in the same landscape through integrated conservation and management of different forest age classes.

CONSERVATION IN ACTION

Revitalizing a Dynamic Forest Landscape

A major priority of Joint Venture partners is to improve the health and resiliency of Appalachian forests and landbird populations by reviving a dynamic forest landscape that contains a mosaic of forest structure and age classes. Although this requires a long-term process of actively managing forests and restoring degraded systems, partners have made substantial progress over the last five years for two of their highest priority species: **Golden-winged Warbler** and **Cerulean Warbler**. Using science-based management guidelines developed by partners and broader working groups, the Joint Venture is coordinating habitat conservation for both of these species on public and private land within focal areas across the region.

One of the Joint Venture's greatest successes has been engaging private landowners through two recent Natural Resources Conservation Service initiatives: Working Lands for Wildlife and the Regional Conservation Partners Program. Through these programs partners across five states have committed tens of thousands of acres of private lands for **Golden-winged Warbler** and **Cerulean Warbler** habitat enhancements and private land conservation easements. In addition, 1,000 acres of legacy surface mine lands in Kentucky are being reforested with deciduous species such as blight-resistant American Chestnuts.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 28	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST					
Golden-winged Warbler (B)	X	5%	9	-98%	-7.8%
Cerulean Warbler (B)	X	81%	19	-74%	-2.3%
Wood Thrush (B)	X	34%	43	-49%	-2.0%
Kentucky Warbler (B)	X	18%	>50	-41%	-0.8%
Prairie Warbler (B)	X	15%	27	-78%	-2.1%
Eastern Whip-poor-will (B)	X	10%	* * *	-80%	-1.8%
Black-billed Cuckoo (B)	X	7%	11*	-61%	-5.0%
Canada Warbler (B)	X	4%	>50	-28%	0.1%
Yellow-billed Cuckoo (B)	X	5%	21*	-50%	-4.3%
GRASSLAND					
Bobolink (B)	X	5%	>50	-21%	-0.4%
Henslow's Sparrow (B)	X	5%	19*	-83%	-3.7%
Field Sparrow (B)	X	13%	31	-74%	-1.7%
Eastern Meadowlark (B)	X	3%	19	-83%	-3.3%
Northern Bobwhite (R)	X	1%	7	-98%	-9.6%
HABITAT GENERALIST					
Chimney Swift (B)	X	16%	37	-57%	-1.9%
Common Grackle (B)	X	7%	33	-65%	-2.5%

***Watch List* ●●, *Common Birds In Steep Decline* ●**
See Page 34 For Table Explanation

LOOKING AHEAD

- Develop a Decision Support Tool that integrates the needs of multiple bird species and promotes forest health and resiliency.
- Increase the Joint Venture's capacity to address its social science needs (e.g., public opposition to land management).
- Increase international partnerships to facilitate full life-cycle conservation.

©Phil Jackson

Landowner, forester, and logger at Pennsylvania Golden-winged Warbler habitat initiative project discuss management options.

ATLANTIC COAST JOINT VENTURE

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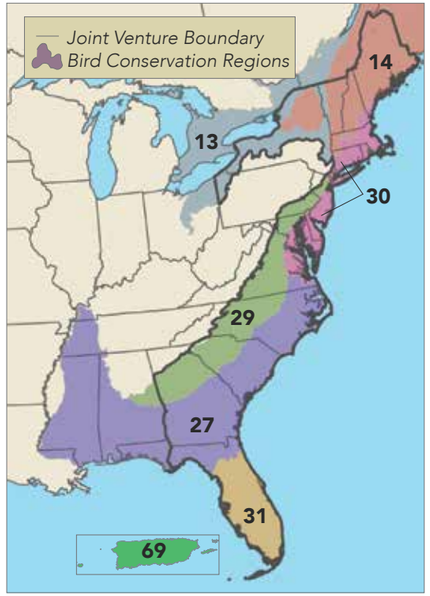
BIRD CONSERVATION LANDSCAPE

The Atlantic Coast Joint Venture encompasses the entire U.S. portion of the Atlantic Flyway and about one-third of the country's states and human population. It supports an incredible diversity of terrestrial and wetland habitats, from boreal forests and bogs in the north to tropical forests and mangroves in the south. Several species of landbirds are entirely or largely endemic or restricted to the region, including the Watchlist species **Saltmarsh Sparrow**, **Seaside Sparrow**, and **Bachman's Sparrow**. Serious threats from climate change and expanding suburban, urban, industrial, and agricultural land use along the East Coast are further destroying and degrading habitats that are already greatly reduced from their historic extent. The Joint Venture is working to protect the best available habitats and enhance and restore degraded habitats through federal funding programs such as the North American Wetlands Conservation Act (NAWCA), National Coastal Wetlands Conservation Grant Program, and Farm Bill Conservation programs. The Joint Venture works with many federal, state, and private landowners—particularly through land trusts—to conserve vital habitats for Partners in Flight species.



©Brain Henderson

Rising sea-levels are threatening the Saltmarsh Sparrow, a tidal marsh specialist.

CONSERVATION IN ACTION

Partnering for Saltmarsh Conservation

Coastal marsh conservation is a high priority in the Joint Venture as it supports many species of highest concern, including **Saltmarsh Sparrow**, Black Rail and American Black Duck. Most saltmarsh habitat in northeastern and mid-Atlantic states has been lost or degraded by three centuries of draining and filling for development, ditching for agriculture and mosquito control, and widespread invasions by exotic reeds. Also, sea-level rise due to climate change is now a major threat. While saltmarsh is relatively intact and extensive in the South Atlantic, continued protection is needed to provide refugia for many of the saltmarsh-obligate species.

To protect the **Saltmarsh Sparrow** and other tidal marsh-dependent species, Joint Venture partners have conserved more than 200,000 acres of coastal marsh in the last two decades, largely through the NAWCA and Coastal Grants programs. Partners are restoring tidal flow and natural hydrology, acquiring lands adjacent to saltmarsh, facilitating the creation of future saltmarsh habitat, and allowing for saltmarsh migration. These are challenging tasks, as many coastal areas are highly developed, which makes most undeveloped coastal real estate extremely expensive.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 13	14	27	29	30	31	Area Importance	Urgency/ Half-life (Years)	Long-term Change	Short-term Trend
COASTAL SALTMARSH										
Saltmarsh Sparrow (B/W)		X	X		X	X	100%	* * *	* * *	* * *
Seaside Sparrow (R)			X		X	X	43%	* * *	16%	-0.2%
Nelson's Sparrow (B/W)		X	X		X	X	AI = 5	>50	-27%	-0.6%
EASTERN FOREST										
Florida Scrub-Jay (R)						X	100%	* * *	* * *	* * *
Bachman's Sparrow (R)			X	X		X	63%	30*	-73%	-2.7%
Red-cockaded Woodpecker (R)			X	X		X	48%	* * *	-95%	-1.8%
Prairie Warbler (B)		X	X	X	X	X	45%	31	-41%	-1.0%
Prothonotary Warbler (B)			X	X	X		35%	>50	-32%	0.1%
Wood Thrush (B)	X	X	X	X	X		28%	27	-72%	-3.0%
Eastern Whip-poor-will (B/W)	X	X	X	X	X	X	25%; AI = 5	* * *	-69%	-1.8%
Red-headed Woodpecker (R)			X	X		X	10%; AI = 5	>50	-14%	1.6%
Kentucky Warbler (B)			X	X	X		6%	>50	-23%	-0.5%
Black-billed Cuckoo (B)	X	X			X		6%	13*	-77%	-3.9%
Chuck-will's-widow (B/R)			X	X	X	X	34%	* * *	-68%	-2.1%
Chimney Swift (B)	X	X	X	X	X	X	28%	28	-61%	-2.2%
Field Sparrow (B)	X		X	X	X		14%	30	-68%	-2.9%
Northern Bobwhite (R)			X	X	X	X	11%	13	-93%	-5.8%
Yellow-billed Cuckoo (B)			X	X	X		11%	44*	-49%	-2.1%
Rusty Blackbird (W)			X	X			AI = 4	* * *	* * *	* * *
BOREAL FOREST										
Bicknell's Thrush (B)		X					60%	* * *	* * *	* * *
Canada Warbler (B)	X	X					6%	17	-86%	-2.7%
Evening Grosbeak (R)		X					5%	5*	-92%	-6.8%
MANGROVE										
Mangrove Cuckoo (B)						X	5%	* * *	* * *	* * *
GRASSLAND										
Bobolink (B)	X	X					8%	29*	-86%	-2.8%
Henslow's Sparrow (W)			X				AI = 4	* * *	* * *	* * *
Loggerhead Shrike (B)			X			X	6%	15	-89%	-2.9%
Eastern Meadowlark (B)			X	X		X	5%	13	-89%	-4.3%
Grasshopper Sparrow (W)						X	AI = 4	* * *	* * *	* * *
HABITAT GENERALIST										
Common Grackle (B/W)	X	X	X	X	X	X	14%; AI = 5	22	-73%	-3.0%
American Tree Sparrow (W)	X	X					AI = 5	* * *	* * *	* * *

Watch List Species ●●, Common Birds in Steep Decline ●
See Page 34 For Table Explanation

©William Majoros

Conservation of forested wetlands helps declining species such as the Prothonotary Warbler.

The Joint Venture's habitat conservation work is good for wildlife and people too. Protecting habitat provides for outdoor recreation, tourism-related jobs, clean air and drinking water, and supports multi-billion dollar industries such as timber extraction and commercial fisheries.

LOOKING AHEAD

- Protect uplands and wetlands with the greatest potential to become future saltmarsh and facilitate marsh migration.
- Continue to protect the vast array of forested wetlands on the landscape that provide important breeding, migratory, and wintering habitat to high priority Partners in Flight species.
- Increase engagement with the Natural Resources Conservation Service and private landowners to increase effectiveness of Farm Bill conservation practices for highest priority species.

SPOTLIGHT: COMMERCIAL FOREST MANAGEMENT

©CIFOR

THE ROLE OF COMMERCIAL FOREST LANDS

Private and public forests managed for commercial timber production provide important habitat for most forest bird species. The distributions of these species are largely on private lands in eastern forests, while public lands play a larger role in western forests. These working forests typically consist of a mix of forest ages, types, and structures, and provide a shifting mosaic of forest conditions required by a number of declining, disturbance-dependent birds. When commercial forest lands are adjacent to other ownership types, all ownerships have the potential to complement each other and deliver habitat diversity to benefit birds across landscapes.

©Matt Ward

Habitat management strategies that maintain large parcels can benefit priority species, such as Brown Thrasher, and also provide economic benefits.

Forest landowners often implement management practices for biodiversity conservation such as retention of snags, downed wood, and trees with wildlife benefits. Additional practices, including vegetation buffers for water quality protection, also benefit birds. Regular forest management practices, such as clearcutting, thinning, natural regeneration and re-planting, often create forest conditions that mimic natural disturbance and forest succession and support many declining species.

Commercial forest owners often manage working forests under sustainable forestry certification programs that maintain biological diversity, conserve threatened and endangered species, control invasive species, and carry out other aspects of sustainability. These programs also encourage landowners to incorporate state and regional conservation priorities into their management plans, which gives people an opportunity to contribute to achieving bird conservation objectives.

Science-based information on bird conservation helps landowners efficiently allocate resources to specific conservation objectives where they can make a difference. The forest products industry, for example, has a long history of contributing to all aspects of the conservation. Contributions have ranged from science and data input for species such as **Bald Eagle**, **Rusty Blackbird**, **Swainson's Warbler**, and **Cerulean Warbler** to planning efforts such as Partners in Flight and State Wildlife Action Plans. Industries have carried out species specific plans and practices on working landscapes such as Habitat Conservation Plans for **Northern Spotted Owl** and **Red-cockaded Woodpecker** and forest management practices such as retention of snags and wildlife trees for **Brown-headed Nuthatches** and **White-headed** and **Lewis's Woodpecker**.

In the future, forest industry partners will continue to engage with partners on science collaborations, coordinated landscape planning, and implementation of bird conservation practices. They will also strive to manage forest habitats to achieve a range of stand ages and structures to provide proactive benefits for species in steep decline, reducing the potential for state and federal listings. Future actions will also involve research investments so that science-based recommendations can be used to direct conservation actions on forestry lands.

CENTRAL HARDWOODS JOINT VENTURE

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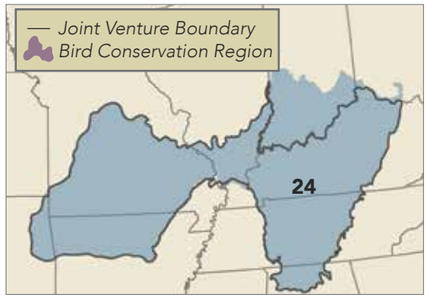
BIRD CONSERVATION LANDSCAPE

The Central Hardwoods Joint Venture is a landscape interspersed with grasslands, woodlands, and forests. Historically, prairie grasses and forbs carpeted the understory of both oak and pine woodlands and contributed greatly to the region's overall biodiversity. Fire was the major disturbance that shaped the structure of these ecosystems. After European settlement, forests and woodlands were almost completely cut down, and many converted to cropland and pastures. Fires were suppressed decades later to recover timber, especially in areas with limited agricultural use. As a result, the forests and woodlands of today are overstocked, and the grassy understory is largely buried under thick leaf litter. Nearly all the native prairies and savannas have been converted to cropland or fescue, a non-native grass that is less beneficial to grassland birds and other wildlife. Thus, grassland and shrub species, such as **Prairie Warbler**, **Field Sparrow**, **Bachman's Sparrow**, and **Northern Bobwhite,** have suffered notable declines. Joint Venture partners are restoring native woodland communities for shrub-dependent species through thinning and prescribed fire, and replanting native warm-season grasses.



USFWS

Northern Bobwhite

©William Majoros

The Joint Venture focuses on species with the greatest conservation need, such as Prairie Warbler, that typically have relatively small ranges, small population sizes, declining trends, or rely on threatened or degraded habitats.

CONSERVATION IN ACTION

Modeling Population Responses To Habitat Fragmentation

Joint Venture partners developed a set of Geographic Information Systems-based habitat suitability models to estimate the amount of habitat needed to reach Partners in Flight (PIF) population goals for more than 20 priority bird species that breed in forest and shrublands across the region. Population viability models were then used to assess how habitat restoration and/or reforestation, in landscapes with different levels of habitat fragmentation, could affect the breeding success and future population trends of two Watchlist species: **Wood Thrush**, which nests in the forest interior, and **Prairie Warbler**, which nests in large shrubland areas within forested landscapes (Bonnot et al. 2013). Importantly, the models evaluated the effects of survival rates during the non-breeding season on these species as well as breeding season factors.

Results indicated that habitat conservation efforts within less fragmented landscapes resulted in markedly better population responses. This supports work already underway to restore hundreds of thousands of acres of woodlands on or near public lands, with most in some of the least fragmented landscapes in the region. Model results also indicated that increasing **Wood Thrush** and **Prairie Warbler** survivorship during the non-breeding season would substantially increase population viability, which supports the full life-cycle approach to bird conservation that PIF is championing.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 24	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST					
Bachman's Sparrow (R)	X	0%	***	***	***
Eastern Whip-poor-will (B)	X	31%	***	-71%	-2.5%
Kentucky Warbler (B)	X	23%	>50	-4%	-0.6%
Prairie Warbler (B)	X	12%	34	-61%	-1.6%
Cerulean Warbler (B)	X	8%	39	-66%	-1.3%
Wood Thrush (B)	X	7%	>50	-30%	-1.4%
Red-headed Woodpecker (R)	X	5%	33*	-64%	-0.2%
Prothonotary Warbler (B)	X	3%	>50	28%	0.6%
Field Sparrow (B)	X	20%	34*	-59%	-2.3%
Yellow-billed Cuckoo (B)	X	10%	16*	-69%	-2.6%
Chuck-will's-widow (B)	X	10%	***	-53%	-1.2%
GRASSLAND					
Henslow's Sparrow (B)	X	29%	***	***	***
Eastern Meadowlark (B)	X	7%	28	-69%	-2.6%
Northern Bobwhite (R)	X	7%	12	-86%	-5.1%
Horned Lark (W)	X	AI = 4	38*	-55%	-1.3%
HABITAT GENERALIST					
Chimney Swift (B)	X	7%	20	-81%	-3.4%
Common Grackle (B)	X	5%	20	-75%	-3.6%

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

LOOKING AHEAD

- Identify habitat and landscape factors best suited to support grassland birds such as **Henslow's Sparrow**, **Field Sparrow**, **Eastern Meadowlark**, and **Northern Bobwhite**.

- Develop spatially explicit strategies for increasing grassland bird populations that incorporate climate change and socioeconomic factors such as drought, population growth, and commodity prices.

CHJV

Joint Venture partners are restoring native woodland communities for shrub-dependent species through thinning and prescribed fire.

CENTRAL VALLEY JOINT VENTURE

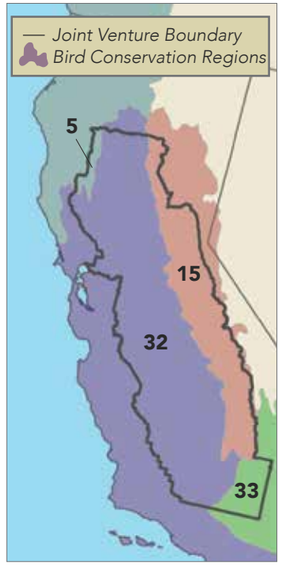
©Jim Gray

BIRD CONSERVATION LANDSCAPE

The Central Valley Joint Venture encompasses a diverse landscape that consists of a vast valley floor, surrounding mountain ranges, and habitats such as wetlands, riparian forest, grasslands, desert scrub, and oak woodland. The climate is Mediterranean, with hot dry summers and mild wet winters.

Historically, the Central Valley floor was a vast mosaic of free-flowing rivers, wetlands, riparian forests, and native prairie, the majority of which has been destroyed or severely modified by agriculture and urban development, which in turn have impacted ecosystem function and bird populations.

Over its 25-year history, the Joint Venture partnership has developed a collaborative model for conservation planning that includes waterfowl, shorebirds, and other waterbirds dependent on wetlands as well as landbirds breeding in riparian forest, grassland, and oak savanna. For landbirds, the Joint Venture has adopted a goal of restoring ecosystems that are capable of supporting self-sustaining and resilient populations. To achieve this goal, the partnership has developed population and habitat objectives for a suite of "focal species" (see Focal Species section on page 99) that represent a range of life histories and specific ecosystem elements. These objectives collectively reflect the state of Central Valley ecosystems. Habitats restored and enhanced for these focal species will improve ecosystem function and, thus benefit other wildlife and the people of California.



©Jerry McFarland

The Black-headed Grosbeak is one of 7 breeding riparian focal species along with Western Yellow-billed Cuckoo, Yellow-breasted Chat, Yellow Warbler, Common Yellowthroat, Song Sparrow, and Spotted Towhee).

CONSERVATION IN ACTION

Restoring Riparian Forests to Provide Multiple Benefits

California's Central Valley is a place with many demands—water, wildlife, agriculture, and recreation. It is a transformed landscape, where creative conservation is needed to reconcile competing demands. Birds provide a valuable lens through which to achieve reconciliation.

The Joint Venture sets conservation objectives for landbirds that need conservation attention, whether they are at-risk or for which we have a high degree of stewardship responsibility, and also for their ability to direct successful restoration of riparian ecosystems for multiple benefits. Multiple-benefit projects are those whose outcomes address additional conservation targets beyond birds (e.g., fish habitat, erosion control) —they demonstrate how conservation of bird habitats helps achieve other goals.. Multiple-benefit projects are those whose outcomes benefit more than one thing—they demonstrate how conservation of bird habitats helps achieve other goals.

The Joint Venture aims to protect, restore, and enhance riparian bird and other wildlife habitat while reducing flood risk, providing other services such as carbon sequestration, and improving recreational opportunities. Since the late 1980s, more than 7,000 acres of riparian habitat have been restored, resulting in significant increases in riparian birds. This restoration has multiple benefits; at twenty years of age, these 7,000 acres of restored riparian forest can store the amount of carbon equivalent to the annual emissions of 15,000 cars.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 15	BCR 32	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
FRESHWATER MARSH						
Tricolored Blackbird (R)		X	50%	* * *	-61%	-2.0%
WESTERN FOREST						
California Condor (R)		X	30%	* * *	* * *	* * *
Mountain Quail (R)	X	X	33%	***	-38%	-4.4%
Lewis's Woodpecker (W)	X	X	AI=5	* * *	* * *	* * *
Spotted Owl (R)	X	X	5%	* * *	* * *	* * *
Cassin's Finch (R)	X		AI=5	>50	-51%	-1.2%
Sooty Grouse (R)	X		AI=5	* * *	***	***
Pine Siskin (W)	X		AI=5	* * *	* * *	* * *
CHAPARRAL						
Wrentit (R)	X	X	32%	>50	-37%	-0.8%
Allen's Hummingbird (B)		X	30%	* * *	-87%	-4.6%
California Thrasher (R)		X	29%	36	-56%	-1.9%
WESTERN OAK WOODLAND						
Oak Titmouse (R)	X	X	54%	25*	-52%	-1.6%
Yellow-billed Magpie (R)		X	54%	11	-58%	-4.9%
HABITAT GENERALIST						
Brewer's Blackbird (R)		X	10%	29	-65%	-2.8%

***Watch List* ●●, *Common Birds In Steep Decline* ●**

See Page 34 For Table Explanation

LOOKING AHEAD

- Expand landbird conservation efforts to include grassland and oak savanna habitats.
- Achieve habitat objectives through landscape-scale restoration and enhancement programs.
- Monitor and evaluate bird response to restoration efforts to measure progress toward population objectives, and identify and refine practices in an adaptive framework.

Michael Dunphy, USFWS

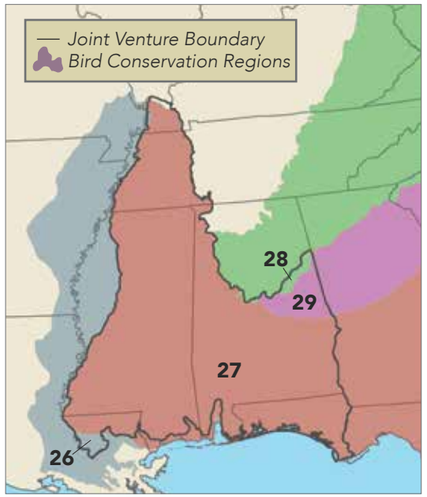
Restoration projects that benefit Central Valley riparian bird species are a priority of the Joint Venture.

EAST GULF COASTAL PLAIN
JOINT VENTURE

©Julie Tew

BIRD CONSERVATION LANDSCAPE

The East Gulf Coastal Plain Joint Venture region covers 63 million acres of diverse habitats, including pine-dominated forests, old-growth deciduous forests, native prairies and grasslands, and forested and coastal wetlands. Over 300 bird species depend upon these habitats for breeding, migration, and overwintering, with at least 180 species known to breed in the region. The Joint Venture region once supported a significant portion of the longleaf pine woodlands that historically covered over 90 million acres in the southeastern U.S. Today less than 3 percent remains due to changes in natural fire regimes and widespread conversion to loblolly and slash pine communities. In addition, most of the region's native grassland habitat continues to be used for agriculture following conversion during early settlement. As a result, priority habitats for conservation include longleaf pine communities, eastern interior grasslands, and freshwater wetlands with an emphasis on bottomland hardwood habitats. The Watchlist species **Red-cockaded Woodpecker** and **Bachman's Sparrow** rank among the highest priority birds, with about 25 percent of their global populations occurring in the region. Priority grassland species include **Henslow's Sparrow** and **Northern Bobwhite**, a priority game bird that uses both open pine and grassland habitats.



Ben Robinson – KDFWR

Conserving open pine habitats and managing for their natural state with an herbaceous understory benefits many birds, including the Northern Bobwhite, and other wildlife.

CONSERVATION IN ACTION

Restoring Longleaf Pine: A Decision Support Tool for Managers

The Joint Venture partnership focuses on conserving open pine habitats, especially longleaf pine. These ecosystems may be dominated by a single species or a mix of longleaf, slash, loblolly, or shortleaf pine. In their natural state, these habitats have an open canopy and herbaceous understory needed by many species such as **Bachman's Sparrow,** and are maintained by frequent fire. The endangered Watchlist species **Red-cockaded Woodpecker** also has specific open pine habitat needs such as large nesting cavities and an open mid-story for foraging. To conserve these important habitats, the Joint Venture is leveraging the strengths of its many partners to develop science-based planning products that guide land managers on where and how to maximize benefits to birds and other wildlife.

For example, in 2016, Joint Venture partners are releasing an Open Pine Decision Support Tool, which incorporates habitat information about priority birds and other wildlife, maximizes conservation efforts on the ground, and determines where prescribed fire and other management tools can be used to maintain ecosystems for the long term. In addition, the Joint Venture is leading an effort among wildlife biologists, fire ecologists, and foresters to identify and describe forest conditions that meet the needs of multiple wildlife species, including reptiles, amphibians, birds, and mammals.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 27	BCR 29	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST						
Bachman's Sparrow (R)	X		26%	30*	-69%	-2.3%
Red-cockaded Woodpecker (R)	X		22%	* * *	-83%	-1.8%
Prothonotary Warbler (B)	X		20%	>50	-33%	0.0%
Kentucky Warbler (B)	X		17%	>50	1%	-0.3%
Prairie Warbler (B)	X	X	14%	>50	-6%	0.1%
Wood Thrush (B)	X		11%	23*	-65%	-2.2%
Red-headed Woodpecker (R)	X		8%, AI = 5	>50	16%	1.5%
Eastern Whip-poor-will (B/W)	X	X	4%	* * *	-43%	-1.0%
Chuck-will's-widow (B)	X		16%	* * *	-68%	-2.2%
Yellow-billed Cuckoo (B)	X		10%	44*	-43%	-1.6%
Rusty Blackbird (W)	X		AI = 4	* * *	* * *	* * *
GRASSLAND						
Henslow's Sparrow (W)	X		AI = 4	* * *	* * *	* * *
Northern Bobwhite (R)	X		5%	13	-91%	-5.3%
Eastern Meadowlark (R/W)	X	X	3%; AI=3	15	-47%	-3.3%
Loggerhead Shrike (R)	X	X	2%; AI=2	34*	-85%	-2.2%
Grasshopper Sparrow (W)	X		AI=2	* * *	* * *	* * *
HABITAT GENERALIST						
Chimney Swift (B)	X		9%	28	-64%	-2.6%
Common Grackle (R)	X	X	2%, AI = 4	22	-76%	-3.6%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

LOOKING AHEAD

- Prioritize monitoring and research activities to evaluate progress and refine science tools.
- Elevate prescribed fire as a critical communications issue to increase agency and public understanding and support.
- Increase engagement with partners best suited to provide training, resources, and assistance to private landowners about important wildlife and other societal benefits of prescribed fire.

USFWS

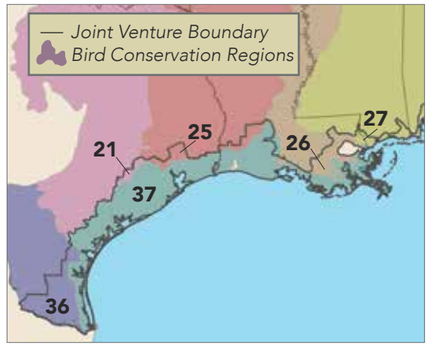
Public support for prescribed fire is critical to restoring and maintaining healthy open pineland systems.

GULF COAST JOINT VENTURE

©JC Winkler

BIRD CONSERVATION LANDSCAPE

The Gulf Coast Joint Venture encompasses the coastal fringe of marshes, prairies, bottomland hardwoods, thorn scrub, and pine flatwoods stretching from the Texas-Mexico border to the Alabama-Florida border. In addition to supporting 139 species of breeding landbirds, the region is critically important to Neotropical migrants during spring and fall migration. Joint Venture landbird conservation goals focus on conserving large blocks of saline-to-brackish marsh for **Seaside Sparrow**, conserving native grassland-shrublands for numerous species such as **Loggerhead Shrike**, and conserving coastal forests that benefit migrant forest landbirds like, **Cerulean Warbler**. These habitats are subject to a variety of stressors, including outright loss due to coastal erosion, subsidence, and sea-level rise, as well as threats such as conversion to row-crop agriculture and human development. Joint Venture partners have developed a prioritization model that identifies important areas and forest patches for migrating forest landbirds. Additionally, partners are working to conserve important habitats using a variety of strategies that include providing incentives to private landowners through the Farm Bill and other programs; managing bird habitat on state, federal, and non-profit conservation lands; and acquiring and restoring habitat with funds from a variety of wetland and coastal habitat programs.



©Dan Dzurisin

Short-eared Owl

USFWS

The Swainson's Warbler is one of many migratory species that use vital stopover habitats within the Joint Venture.

CONSERVATION IN ACTION

Conserving Stopover Habitat

Partners in Flight's (PIF's) species priorities laid the groundwork for the Joint Venture's creation of a prioritization model that guides landbird conservation planning and implementation throughout the region. The Joint Venture used PIF's Species Assessment and Prioritization Process to inform selection of a suite of species that would represent desired components of forest habitat for migrating landbirds. These included **Cerulean Warbler**, a canopy forager; **Golden-winged Warbler**, a mid-story forager; and **Swainson's Warbler**, an understory forager. Research on these three species and other Neotropical migrants indicates that large bottomland hardwood forest patches are important during both spring and fall migration (especially in the vicinity of Longitude 95 degrees West, and within six miles of the coast). Using these results, Joint Venture and Gulf Coast Bird Observatory staff prioritized forest migrant stopover habitat for protection and restoration in the region. Larger forest patches (more than 10,000 acres) within six miles of the Gulf of Mexico are the highest priority for protection, whereas forest patches that could be increased to 10,000 or more acres are of high priority for restoration. This prioritization scheme is used for both conservation planning and implementation, including ranking North American Wetland Conservation Act grant proposals.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 26	BCR 37	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
COASTAL SALTMARSH						
Seaside Sparrow (R)		X	48%	* * *	***	***
Nelson's Sparrow (W)		X	AI = 5	* * *	* * *	* * *
EASTERN FOREST						
Prothonotary Warbler (B)	X	X	5%	> 50	-33%	-1.3%
Red-headed Woodpecker (W)	X		AI = 5	* * *	* * *	* * *
Rusty Blackbird (W)	X		AI = 5	* * *	* * *	* * *
GRASSLAND						
Sprague's Pipit (W)		X	AI = 5	* * *	* * *	* * *
Le Conte's Sparrow (W)	X	X	AI = 4	* * *	* * *	* * *
Loggerhead Shrike (B/W)	X	X	6%; AI = 5	23	-73%	-2.9%
Eastern Meadowlark (R/W)		X	3%; AI = 5	16	-84%	-4.0%
Northern Bobwhite (R)		X	2%	21	-79%	-3.3%
Horned Lark (W)	X	X	AI = 4	* * *	* * *	* * *
Short-eared Owl (W)	X	X	AI = 4	* * *	* * *	* * *
HABITAT GENERALIST						
Common Nighthawk (B)		X	5%	* * *	-76%	-3.1%
Common Grackle (B/W)		X	2%; AI = 5	***	15%	1.9%
Chimney Swift (B/W)	X	X	1%; AI = 5	***	-28%	-2.5%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

LOOKING AHEAD

- Collaborate with the Rio Grande and Oaks and Prairies Joint Ventures to synthesize methods for setting bird population and habitat objectives within the Gulf Coast Prairies Landscape Conservation Cooperative area.
- Develop an energetics-based model to quantify coastal forest habitat needs for priority migrant landbirds.
- Continue to work with U.S. Geological Survey to identify characteristics of important stopover habitat through analysis of weather radar.

USGS

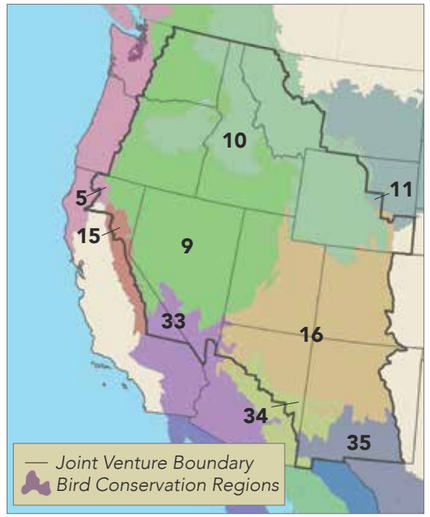
Analyzing bird reflectivity captured by weather radar provides information for conservation planning.

INTERMOUNTAIN WEST
JOINT VENTURE

USFWS

BIRD CONSERVATION LANDSCAPE

The Intermountain West Joint Venture is among the largest and most ecologically diverse Joint Venture in the U.S. It spans portions of 11 western states and 11 Bird Conservation Regions (BCRs), although is comprised primarily by the Great Basin, Northern Rockies, and Southern Rockies BCRs. The Intermountain West contains a wide variety of habitats that are important to landbird species during breeding and nonbreeding seasons. These habitats vary along elevational and climatic gradients, and are found in a diverse array of biomes that range from warm and cold deserts to forests and woodlands to alpine tundra. Large expanses of land occur in public ownership yet some of the most biologically productive areas are primarily in private ownership. The Joint Venture hosts a high proportion of the continent's sagebrush-steppe habitat and associated landbird species that occur across a matrix of federal and private land ownership. Therefore, sagebrush-steppe conservation is a high priority for the Joint Venture partnership. Changing land-use patterns that result in landscape fragmentation, altered fire frequency and intensity, invasive species, water scarcity, and climate change are a few of the landscape stressors affecting the region that create challenges in sustaining adequate habitat for landbirds.



USFWS

It's critical to work with private landowners, ranchers, and farmers to conserve and restore important habitats needed by species such as Greater Sage-Grouse.

CONSERVATION IN ACTION

Restoring Habitat: Songbirds as Early Indicators of Success

Nearly 90% of sagebrush-steppe habitat occurs in the Joint Venture and many sagebrush obligate bird species exhibit long-term population declines. Concerns over sage-grouse populations have spurred unprecedented focus and investment in sagebrush conservation and management by private landowners, state and federal natural resource agencies, and conservation organizations. For example, the Natural Resources Conservation Service and partnerships have helped conserve over 4.4 million acres of sage-steppe habitat. **Greater Sage-Grouse** have broadly been viewed as an umbrella, or surrogate, species for conserving sagebrush-steppe habitats that are used by other obligate species. This relationship is particularly evident when conservation measures are targeted at addressing landscape stressors (e.g., fragmentation).

Over the past century, juniper and pinyon pines have greatly expanded into historic sagebrush habitats. Conifer removal focused on early and mid-successional sites prevents conversion of sagebrush-steppe to conifer woodlands, and has emerged as a primary conservation practice for sustaining **Greater Sage-Grouse**. Recent research indicates that **Brewer's Sparrow** and **Green-tailed Towhee** abundance responds positively and strongly (55–81%) following cuts. This new science demonstrates the utility of songbirds as early indicators of restoration effectiveness, and illustrates that restorative cuts for sage-grouse that retain shrub cover can have immediate benefits for sagebrush species.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 9	10	15	16	18	33	34	35	Area Importance	Urgency/ Half-life (Years)	Long-term Change	Short-term Trend
ALPINE TUNDRA												
Brown-capped Rosy-finch (R)				X					100%	* * *	* * *	* * *
Black Rosy-finch (R)	X	X		X					100%	* * *	* * *	* * *
SAGEBRUSH												
Gunnison Sage-Grouse (R)				X					100%	* * *	* * *	* * *
Greater Sage-Grouse (R)	X	X		X					73%	* * *	-63%	0.4%
DESERT SCRUB												
Bendire's Thrasher (B)				X			X	X	48%	14	-90%	-4.0%
LeConte's Thrasher (R)						X			8%	29	-64%	-2.8%
Black-chinned Sparrow (B)				X			X	X	17%	* * *	-65%	-2.1%
Scaled Quail (R)							X	X	11%	5	-66%	-8.2%
Loggerhead Shrike (R)	X	X		X		X		X	22%	> 50	-48%	-1.3%
CONIFEROUS AND PINE - OAK FOREST												
California Condor (R)				X					40%	* * *	* * *	* * *
Cassin's Finch (R)	X	X	X	X					91%	20	-68%	-0.9%
Lewis's Woodpecker (R)	X	X	X	X			X		85%	> 50	-62%	-0.8%
Grace's Warbler (B)				X			X	X	46%	* * *	-50%	-1.2%
Flammulated Owl (B)	X	X		X			X		41%	* * *	* * *	* * *
Spotted Owl (B)	X		X	X			X	X	28%	* * *	* * *	* * *
Evening Grosbeak (B)	X	X	X	X				X	22%	> 50	-69%	2.3%
Mountain Quail (R)	X		X						20%	11*	0%	-1.3%
Olive-sided Flycatcher (B)	X	X	X	X					14%	26	-67%	-2.3%
Mexican Whip-poor-will (B)							X	X	10%	* * *	* * *	* * *
Pine Siskin (R)	X	X		X					20%	9*	-72%	-1.5%

Watch List ●●, *Common Birds in Steep Decline* ●
See Page 34 for Table Explanation

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR								Area Importance	Urgency/ Half-life (Years)	Long-term Change	Short-term Trend
	9	10	15	16	18	33	34	35				
PINYON-JUNIPER WOODLAND												
Pinyon Jay (R)	X	X		X			X		96%	19	-85%	-3.7%
Virginia's Warbler (B)	X	X		X			X	X	78%	> 50	-44%	-1.6%
Gray Vireo (B)	X			X			X	X	77%	* * *	41%	2.6%
GRASSLAND												
McCown's Longspur (B)		X			X				25%	* * *	-61%	-0.5%
Chestnut-collared Longspur (W)							X	X	AI=5	* * *	* * *	* * *
Horned Lark (R)	X	X		X					17%	> 50	-50%	-1.4%
HABITAT GENERALIST												
Brewer's Blackbird (R)	X	X		X					44%	> 50	-54%	-1.7%
Common Nighthawk (B)	X	X		X				X	26%	* * *	-66%	-1.7%

Watch List ●●, Common Birds in Steep Decline ●
See Page 34 for Table Explanation

LOOKING AHEAD

- Continue to facilitate partnerships for strategic sagebrush-steppe conservation.
- Facilitate outcome-based evaluations regarding sagebrush obligates and sagebrush-steppe habitat conservation.

©Linda Tanner

Lewis's Woodpecker is one of several declining landbirds for which the Joint Venture has extremely high stewardship responsibility. While the Joint Venture does not have the capacity to work on all priority species, many of its partners focus on additional habitats important to these birds.

SPOTLIGHT: NORTHERN BOBWHITE CONSERVATION

©Brandon Trentler

NATIONAL BOBWHITE CONSERVATION INITIATIVE

The National Bobwhite Conservation Initiative (NBCI) is the unified strategic effort of 25 state fish and wildlife agencies and various conservation organizations, under the umbrella of the National Bobwhite Technical Committee (NBTC), to restore widespread populations of wild Northern Bobwhite in the U.S. to desired levels. The products of the NBCI include: a strategic plan that prioritizes the landscape for restoration; a GIS-based conservation tool that assists biologists in identifying and achieving state based objectives; and a coordinated Implementation Plan to monitor the responses of grassland birds to habitat restoration.

©Andy Marffew

Painted Bunting benefits from NBCI's Northern Bobwhite conservation efforts.

One major objective of NBCI is to conserve and restore native grasslands and savannahs—some of the most imperiled ecosystems in North America. As a result of the significant loss of these habitats, grassland birds are declining at faster rates than any other community of birds in North America. In recent years, NBCI and Partners in Flight (PIF) have acknowledged that a suite of conservation activities create suitable habitat for multiple priority species, including game and nongame birds. By working together, members of NBCI and PIF leverage resources, knowledge, and experience to address the decline of grassland birds.

In 2016, at the urging of NBCI, the U.S. Department of Agriculture Farm Service Agency (FSA) approved stand-alone eligibility for corners of center pivot-irrigated crop fields into the Continuous Conservation Reserve Program (CCRP). The FSA authorized 250,000 acres for enrollment of pivot corners into the CCRP CP33 field border practice. This $250 million wildlife conservation value is primarily the result of leadership by NBCI and the NBTC. The practice pays producers to transform center pivot corners into quality bird habitat. In pivot-dominated landscapes, marginal corners can comprise more than 20% of the landscape acreage, and thus has the potential to support **Northern Bobwhite** and a suite of other priority species, including **Painted Bunting**, **Scissor-tailed Flycatcher**, **Field Sparrow**, **Loggerhead Shrike**, and **Dickcissel**.

©Kenneth Cole Schneider

Dickcissel may benefit from the conversion of pivot corners into quality habitat.

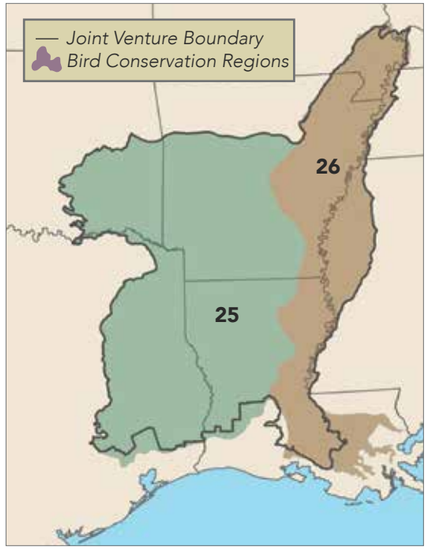
In the future NBCI will continue its work to influence federal agricultural policy to help restore native grassland habitat. Restoring healthy forests on public and private lands by promoting active management, such as thinning and prescribed fire, will remain a priority. And finally, NBCI plans to develop central information services to help partners document, monitor, and publicize progress and successes, thus building a stronger collective movement.

LOWER MISSISSIPPI VALLEY JOINT VENTURE

©Clark Jones

BIRD CONSERVATION LANDSCAPE

The Lower Mississippi Valley Joint Venture is composed of two distinctly different ecological landscapes—the Mississippi Alluvial Valley (MAV) and the West Gulf Coastal Plains/Ouachitas. The Mississippi Alluvial Valley was once the largest and most productive forested wetland ecosystem in North America. But today less than one-third of the region's historic forest acreage remains. In the West Gulf Coastal Plains/Ouachitas, forested wetland and open pine habitats are threatened by many landscape changes such as reservoir creation that alters hydrology, conversion of native habitats to densely-planted pine plantations, and loss of relatively frequent fire. Combining Joint Venture science and partner-led reforestation actions, the region has experienced a net gain of over one million acres of forested habitat since 1992. Partners are also engaged in encouraging forest landowners to carry out management practices that maintain forest health, sustainable economic return, and quality wildlife habitat. Partners are cooperating through Conservation Delivery Networks to use the best available science to identify places on the landscape that will provide the greatest conservation benefits to priority Watch List species such as **Prothonotary Warbler, Kentucky Warbler, Wood Thrush, Bachman's Sparrow, and Red-cockaded Woodpecker**.



© Brian Sullivan/Cornell Lab

Area-sensitive forest species, such as Swallow-tailed Kite, were used to identify "core forest" areas in the Joint Venture.

CONSERVATION IN ACTION

Gaining Ground for Birds

One primary focus of Joint Venture partners is to protect, manage, and restore forest in ways that build large, contiguous forested areas or "core forest" needed by many landbird species. Core forest has a 250-meter buffer against surrounding unsuitable habitats and is the basic building block of priority bird habitat in the MAV. This key understanding of the birds' biology was incorporated into a landscape-scale Forest Breeding Bird Decision Support Model, which public land management agencies and non-governmental organization partners use to target acquisition, protection, and reforestation efforts that maximize benefits to priority bird species such as **Swallow-tailed Kite**, **Prothonotary Warbler**, and **Cerulean Warbler**. To date approximately one million acres of forest have been restored.

This model has directly impacted habitat conservation delivery programs. For example, it has been used in ranking applications for funding through the Wetlands Reserve Program (WRP) by identifying tracts within high priority reforestation areas. As a result, the WRP has supported the reforestation of over 700,000 acres within the MAV—a 10% increase in available habitat for priority bird species—most of which (more than 500,000 acres) has been strategically placed to help build core forest.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 25	BCR 26	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST						
Red-cockaded Woodpecker (R)	X		25%	* * *	-65%	-1.6%
Bachman's Sparrow (R)	X		11%	16*	-93%	-3.6%
Prothonotary Warbler (B)	X	X	32%	> 50	-53%	-1.5%
Kentucky Warbler (B)	X	X	26%	30	-52%	-2.7%
Prairie Warbler (B)	X		11%	> 50	-39%	1.6%
Red-headed Woodpecker (R)	X	X	9%	> 50	-28%	0.4%
Eastern Whip-poor-will (B)	X		8%	* * *	>100%	5.8%
Wood Thrush (B)	X	X	5%	42*	-57%	-2.4%
Chuck-will's-widow (B)	X	X	20%	* * *	-65%	-2.4%
Yellow-billed Cuckoo (B)		X	14%	37*	-50%	0.4%
Field Sparrow (B)	X	X	3%; AI = 4	17	-87%	-4.6%
Rusty Blackbird (W)	X	X	AI = 5	* * *	* * *	* * *
Pine Siskin (W)	X		AI = 4	* * *	* * *	* * *
GRASSLAND						
Henslow's Sparrow (W)	X	X	AI = 5	* * *	* * *	* * *
Eastern Meadowlark (B/W)	X	X	5%	14	-86%	-4.3%
Loggerhead Shrike (B/W)	X	X	5%	> 50	-69%	-1.7%
Northern Bobwhite (R)	X	X	4%	10	-92%	-5.8%
Horned Lark (W)		X	AI = 4	* * *	* * *	* * *
Short-eared Owl (W)		X	AI = 4	* * *	* * *	* * *
HABITAT GENERALIST						
Chimney Swift (B/W)	X	X	8%; AI = 5	23	-67%	-2.7%
Common Grackle (B/W)	X	X	4%; AI = 5	17	-81%	-3.9%

***Watch List* 🔴🟡, *Common Birds In Steep Decline* ⚫**
See Page 34 For Table Explanation

LOOKING AHEAD

- Support Conservation Delivery Networks to transform biological planning and design products into efficient and effective conservation actions.
- Revise population targets, update biological models of forest quality, and reassess forest bird conservation areas in the MAV.
- Evaluate accuracy of density estimates used to derive regional population objectives.

LMVJV

Conservation delivery partners focus on highest priority species and habitats.

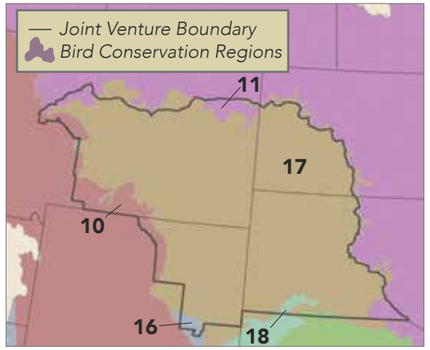
NORTHERN GREAT PLAINS
JOINT VENTURE

USFWS

BIRD CONSERVATION LANDSCAPE

The Northern Great Plains Joint Venture covers portions of four states bounded on the north and east by the Missouri River as it flows from Montana south through the Dakotas. It encompasses the majority of the Badlands and Prairies Bird Conservation Region. The Yellowstone River, the longest undammed river in the country, flows more than 450 miles across the Montana portion of the Joint Venture, and supports extensive cottonwood gallery, riparian shrubland, and riverine habitats inhabited by **Black-billed Cuckoo**, **Red-headed Woodpecker** and **Spotted Towhee**. Water diversion, bank armoring, and transportation infrastructure threaten natural hydrologic function and habitat diversity in the region. Forming the core of the range of many declining priority landbirds such as **Lark Bunting** and **Chestnut-collared Longspur**, the Joint Venture includes some of the most intact prairie landscapes in the Great Plains. Expanding development of coal, oil, and wind resources threaten to fragment these prairie bird habitats, particularly in **Greater Sage-Grouse** core breeding areas in Montana and Wyoming. The primary driver of habitat change in the region has been the conversion of rangeland to tilled agricultural crops such as corn, soybeans, and wheat.

To address these impacts and threats, Joint Venture partners are developing conservation design and decision support tools that enhance the capability of landowners to undertake sustainable ranching. For example, decision support tools include improved spatial models of species distributions, habitats, and threats of Watch List species. Partners are also working to maintain landscape resiliency by improving the quality and quantity of riparian and wetland habitats across the Joint Venture through improved grazing practices and habitat buffers.



Rick Bohn/USFWS

Declining species such as Lark Bunting need an intact prairie landscape.

Rick Bohn/USFWS

The Plowprint Tool is helping to achieve Joint Venture goals for rangeland management benefiting grassland birds such as Chestnut-collared Longspur.

CONSERVATION IN ACTION

Use of the "Plowprint" to Guide and Monitor Landscape Change

The Joint Venture is focused on enhancing the ability of working landscapes to sustain populations of priority landbirds. Joint Venture partners are using a map of the cumulative "plowprint" of all lands cultivated for crop production as a tool for targeting conservation and monitoring landscape change. Spearheaded by the World Wildlife Fund, this tool has helped identify focal counties where enhanced Farm Bill delivery and other approaches might best achieve Joint Venture goals of sustainable rangeland management. Joint Venture partners are funding and hiring partner biologists who provide technical assistance to Natural Resources Conservation Service office staff in priority counties. Priority areas for their efforts are defined by the plowprint tool and species models for **Chestnut-collared Longspur**, **Sprague's Pipit,** and other grassland and sagebrush obligates.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 17	Area Importance	Urgency/ Half-life (years)	Long-term Change	Short-term Trend
GRASSLAND					
Chestnut-collared Longspur (B)	X	35%	19*	-84%	-1.6%
McCown's Longspur (B)	X	14%	* * *	-54%	-1.1%
Baird's Sparrow (B)	X	9%	> 50	-38%	3.2%
Sprague's Pipit (B)	X	9%	> 50	-44%	-5.1%
Bobolink (B)	X	8%	***	> 100%	8.7%
Lark Bunting (B)	X	48%	26	-69%	-3.2%
Grasshopper Sparrow (B)	X	17%	> 50	-65%	0.8%
Horned Lark (R)	X	5%, AI=5	29	-70%	-3.0%
Loggerhead Shrike (B)	X	6%	46	-52%	-1.8%
Common Nighthawk (B)	X	5%	* * *	-47%	-0.7%
WESTERN FOREST					
Lewis's Woodpecker (B)	X	6%	* * *	***	***
Pine Siskin (W)	X	AI=4	* * *	* * *	* * *
SAGEBRUSH					
Greater Sage-Grouse (R)	X	17%	* * *	-96%	-11.6%
HABITAT GENERALIST					
Brewer's Blackbird (B)	X	6%	> 50	-43%	-0.6%

Watch List ●●, Common Birds in Steep Decline ●
See Page 34 for Table Explanation

LOOKING AHEAD

- Continue to build and improve species models and incorporate them into decision support tools that predict responses of priority bird species to specific habitat management actions.
- Work with landowners to design grazing and livestock production systems that meet their objectives for livestock while providing habitat structure that is compatible with habitat management needs for grassland birds.

©Daniel Casey

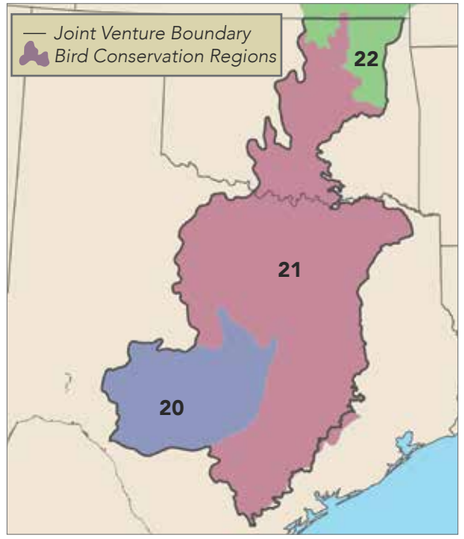
The Joint Venture is working to expand partnerships with tribal entities, livestock industry, and land trusts to broaden conservation efforts on the landscape.

OAKS AND PRAIRIES
JOINT VENTURE

©Billy Bain

BIRD CONSERVATION LANDSCAPE

The Oaks and Prairies Joint Venture encompasses three unique Bird Conservation Regions (BCR)—the Edwards Plateau, the Oaks and Prairies, and a small portion of the Eastern Tallgrass Prairie. Covering nearly 14 million acres, the Edwards Plateau region is the southernmost extension of the Great Plains. The region's native vegetation of mesquite, juniper, and oak savannas and woodlands is the core breeding range of the endangered **Black-capped Vireo** and **Golden-cheeked Warbler**. The Oaks and Prairies BCR encompasses 45 million acres that, historically, were predominantly large tallgrass prairie patches intermixed with patches of shrub and forest habitats. On the ridges in the Cross Timbers region, large tracts of ancient deciduous forests were left on rugged escarpments and steep terrain that were unsuitable for farming, creating one of largest tracts of old-growth forest in the U.S. Urbanization highly impacts this region; the region holds over 14 million people and has 7 of the largest 50 cities in the U.S. Agriculture dominates about 80% of the landscape, about half is cropland and the other half is grazing land. Few natural lakes exist in the region, but artificial water bodies, such as reservoirs and stock tanks, are abundant and have transformed the dry-land savanna into an area rich with seasonal and permanent water sources.



©Outdoor Alabama

The Joint Venture works to protect and restore grassland and shrubland habitat to benefit species that have restricted breeding ranges and small populations, like Black-capped Vireo, as well as wide ranging common species in serious decline such as Eastern Meadowlark.

CONSERVATION IN ACTION

Getting a "GRIP" on Grassland Bird Conservation

The Joint Venture initiated the Grassland Restoration Incentive Program (GRIP) in 2013, with contributions from corporate, state, and non-governmental organizations, such as local Quail Coalition chapters, to provide incentive payments to private landowners for grassland species management. GRIP works in parallel with U.S. Department of Agriculture Farm Bill Conservation Programs to help target priority conservation where this and other federal programs cannot reach. It provides an opportunity for private and state resources to augment federal money for on-the-ground conservation incentives. Joint Venture planning efforts help guide the process and are based on population and habitat objectives from Partners in Flight. Thus far, over 45,000 acres of habitat have been improved through 75 enrolled projects. GRIP is supported by over 3,000 bird point counts that provide county-scale grassland and shrubland breeding bird monitoring, and a strategic communications effort to reach partner biologists and target landowners in focus areas. This partner effort ties planning, delivery, communications, monitoring, and research together for a strategic and adaptive approach for conservation.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 20	BCR 21	BCR 22	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
OAK-JUNIPER WOODLAND							
Golden-cheeked Warbler (B)	x	x		100%	* * *	* * *	* * *
Black-capped Vireo (B)	x	x		45%	* * *	* * *	* * *
GRASSLAND							
Henslow's Sparrow (B)			X	8%	***	***	***
Le Conte's Sparrow (W)	X	X		AI = 5	* * *	* * *	* * *
Harris' Sparrow (W)		X		AI = 5	* * *	* * *	* * *
Sprague's Pipit (W)		X		AI = 5	* * *	* * *	* * *
McCown's Longspur (W)		X		AI = 5	* * *	* * *	* * *
Northern Bobwhite (R)	X	X	X	8%	6	-93%	-7.3%
Eastern Meadowlark (R)		X	X	7%	10	-87%	-5.0%
Loggerhead Shrike (B)		X		5%	7	-94%	-7.3%
Grasshopper Sparrow (R/W)		X	X	2%; AI = 5	15*	-64%	-2.3%
Horned Lark (W)			X	AI = 5	* * *	* * *	* * *
Short-eared Owl (W)			X	AI = 5	* * *	* * *	* * *
EASTERN FOREST							
Long-eared Owl (W)			X	AI = 5	* * *	* * *	* * *
Red-headed Woopecker (B)		X		1%	9*	-88%	-3.2%
Yellow-billed Cuckoo (B)	X	X	X	13%	17	-59%	-2.3%
Chuck-will's-widow (B)	X	X		10%	* * *	-34%	0.2%
Field Sparrow (R)	X	X	X	9%	8	-58%	-6.3%
HABITAT GENERALIST							
Common Nighthawk (B)	X	X		7%	* * *	-76%	-3.1%
American Tree Sparrow (W)			X	AI = 5	* * *	* * *	* * *

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚫
See Page 34 For Table Explanation

LOOKING AHEAD

- Tie together conservation of bobwhites, birds, butterflies, and bees, with burning, brush management, and grazing land management to create native grasslands and shrublands.
- Continue to incorporate habitat needs for monarch butterflies and other pollinator insects into grassland bird conservation programs.

USDA

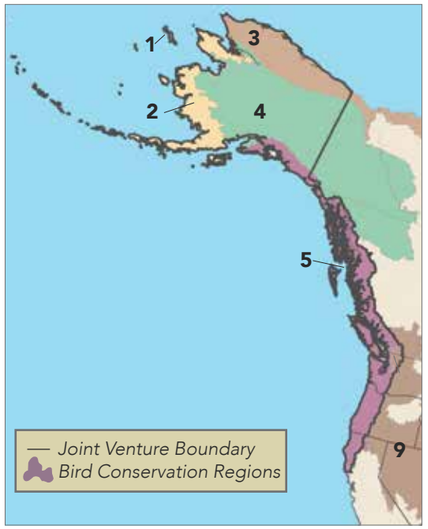
The Joint Venture makes conservation efforts compatible with "working lands".

PACIFIC BIRDS HABITAT JOINT VENTURE

©Keith Lazelle

BIRD CONSERVATION LANDSCAPE

Pacific Birds Habitat Joint Venture is an international Joint Venture that includes Alaska, the western portions of British Columbia, Washington, Oregon, and northern California, and the Hawaiian and other Pacific Islands. It encompasses several avifaunal biomes and a diversity of habitat types such as arctic and alpine tundra, forests, wetlands, prairies, and islands and atolls. Several species of landbirds are entirely or largely restricted to this region, including **McKay's Bunting** and **Sooty Grouse**. Multiple landbird conservation efforts are underway in the Joint Venture, from the boreal forest to the oaks and prairies of the Pacific Northwest. Increasing climate effects across the boreal zone are prompting new efforts to assess the vulnerability of habitats and establish trans-border monitoring programs in Alaska and Canada. Oak and prairie habitat is now among the Pacific Northwest's most threatened landbird habitats. Cleared for agriculture and urban development, crowded out by conifers in the absence of periodic fire, and facing uncertain prospects in a changing climate, oak habitats provide a dwindling base for many species. In addition, the integrity of coastal habitats are threatened by rising sea levels, increasing storm frequency and intensity, and altered erosion and deposition.



©Frode Jacobsen

Winter surveys in pine-oak and cloud forests include Hermit Warbler.

CONSERVATION IN ACTION

Oak and Prairie Collaborative Conservation

Joint Venture partners in the region are directly contributing to the conservation of priority landbird species that depend on oak and prairie habitats, especially in the Willamette Valley, Puget Trough and the Georgia Basin, where habitat losses have been greatest. Quercus and Aves is an international effort led by the American Bird Conservancy to conserve Pacific Coast priority oak-associated birds and their breeding habitats as well as their wintering habitats in Mexico and Central America. Many Joint Venture partners have raised millions of dollars to match Neotropical Migratory Bird Conservation Act grant funds that support this work.

Landscape-scale restoration projects are ongoing in southern Oregon and northern California, where there are similar threats to existing oak and prairie habitat but relatively less direct habitat loss. Accomplishments include: four land acquisitions in the U.S. of approximately 1,200 acres; three acquisitions in El Salvador of approximately 120 acres; nearly 40,000 acres of private reserves in Guatemala and Costa Rica; and habitat management and restoration on over 450 acres at 20 sites in Oregon, Washington, and British Columbia. Bird monitoring and research is occurring at more than 100 sites in California, Oregon, and Washington as are inventories for the endangered **Golden-cheeked Warbler** at numerous sites in Latin America.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 1	2	3	4	5	9	Area Importance	Urgency/ Half-life (years)	Long-term Change	Short-term Trend
WESTERN FOREST										
Sooty Grouse (R)					X		98%	> 50	-55%	-1.4%
Rufous Hummingbird (B)				X	X	X	76%	25	-68%	-2.5%
Chestnut-backed Chickadee (R)					X	X	50%	31	-54%	-2.5%
Olive-sided Flycatcher (B)		X	X	X	X	X	31%	34	-67%	-3.5%
Band-tailed Pigeon (R)					X	X	27%	>50	-65%	-1.2%
Mountain Quail (R)					X		20%	>50	0%	-1.3%
Black Swift (B)					X	X	17%	* * *	-97%	-7.4%
Spotted Owl (R)					X	X	13%	* * *	* * *	* * *
Lewis's Woodpecker (R)					X	X	6%	>50	-54%	-0.9%
Varied Thrush (B/R)		X	X	X	X	X	77%	> 50	-48%	-1.4%
BOREAL FOREST										
Evening Grosbeak (B)					X	X	9%	29*	-68%	1.0%
Wilson's Warbler (B)		X	X	X	X	X	58%	20	-77%	-1.3%
American Tree Sparrow (B)		X	X	X	X		30%	* * *	* * *	* * *
Blackpoll Warbler (B)		X	X	X	X		24%	13	-95%	-4.8%
Rusty Blackbird (B)		X	X	X	X		13%	>50	-3%	-1.3%
Pine Siskin (B)		X		X	X	X	11%	* * *	-90%	0.6%
TUNDRA										
McKay's Bunting (B/W)	X	X		X			100%, AI=5	* * *	* * *	* * *
CHAPPARAL										
Allen's Hummingbird (B)					X		42%	* * *	-80%	-3.3%
Wrentit (R)					X	X	19%	30*	-26%	-2.2%
HABITAT GENERALIST										
Bank Swallow (B)	X	X	X	X	X	X	10%	14	-95%	1.4%

Watch List Species ●●, Common Birds in Steep Decline ●
See Page 34 For Table Explanation

LOOKING AHEAD

- Increase the resiliency of coastal wetlands threatened by climate change.
- Continue oak and prairie conservation throughout the range in British Columbia, Washington, Oregon, and California.
- Identify and address science and policy needs, increase communication networks, generate funding, and continue to provide on-the-ground support to partners.

©David Mitchell

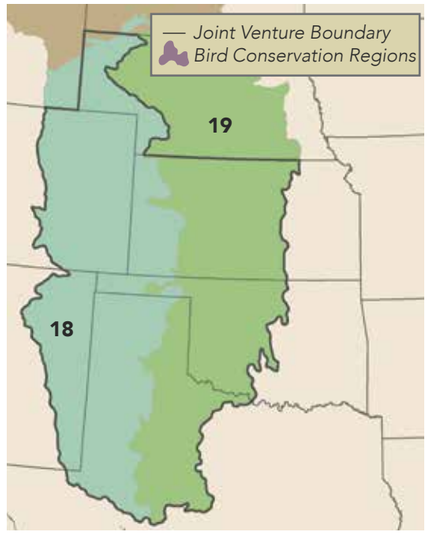
Warming across northern latitudes effects species such as Boreal Chickadee.

PLAYA LAKES JOINT VENTURE

PLJV

BIRD CONSERVATION LANDSCAPE

The Playa Lakes Joint Venture extends from western Nebraska south through the Texas panhandle, and is comprised of native short and mixed-grass prairies and shrublands, bisected by a few large river systems. Although the 140 million-acre area does not contain a high diversity of habitats, it supports over 520 species of birds during some portion of their life-cycle. The Joint Venture is the only place in the world where one still can see the spectacular breeding displays of the **Lesser Prairie-Chicken**.



The birdlife of the western Great Plains is often cited as having the steepest and most consistent declines of any guild in North America. Examples of declining species include **Northern Harrier**, **Loggerhead Shrike**, **Cassin's Sparrow**, **McCown's Longspur**, **Lark Bunting**, **Scissor-tailed Flycatcher** and **Western Meadowlark**. The Joint Venture supports significant migrant and wintering populations of many grassland birds, and is critical to maintaining linkages between breeding areas in the northern plains and wintering areas as far south as the pampas in Argentina.

The most numerous wetlands throughout the Joint Venture area are playas—shallow ephemeral wetlands each of which occurs at the lowest point in an individual watershed. These playas, along with wetlands such as Cheyenne Bottoms, support continentally important populations of birds.

©Larry Kruckenberg

Farm Bill biologist Kelsi Wehrman and landowner Mark Ohmstede discuss a Farm Bill conservation project in Nebraska.

CONSERVATION IN ACTION

Crafting a Landscape That Works for Birds and People

One of the primary ways the Joint Venture can affect conservation is through the use of U.S. Department of Agriculture Farm Bill conservation programs, such as the Conservation Reserve Program (CRP), which gives incentives to landowners to carry out a variety of practices that support the conversion of cropland back to grassland. The Joint Venture and its partners have used many different methods to reach landowners, including direct mailings in targeted areas, radio advertising, and landowner workshops. The Joint Venture partnership has supported positions for private lands biologists who match landowners with suitable conservation practices that best fit the landowners' personal goals. It has also used its planning and conservation design capabilities to identify priority areas for targeting enrollment of CRP grasslands.

For the past 25 years, through its ConocoPhillips grant program, the Joint Venture has awarded nearly $2.5 million in grants which have supported more than 150 conservation projects throughout the region and affected over 68,000 acres of bird habitat—much of that in grasslands. In addition, it offers capacity grants to increase the ongoing ability of programs or organizations to develop and deliver habitat conservation, even after funding has stopped.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 18	BCR 19	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
SHORT GRASS PRAIRIE						
Lesser Prairie-Chicken (R)	X	X	100%	* * *	* * *	* * *
McCown's Longspur (B/W)	X		15%, AI = 5	* * *	* * *	* * *
Lark Bunting (B)	X	X	33%	17	-94%	-4.2%
Horned Lark (B/W)	X	X	13%, AI = 5	37*	-46%	-1.0%
MIXED-GRASS PRAIRIE						
Greater Prairie-Chicken (R)	X	X	27%	* * *	* * *	* * *
Grasshopper Sparrow (B)	X	X	31%	31*	-66%	-3.2%
Northern Bobwhite (R)	X	X	23%	9	-28%	-5.4%
Eastern Meadowlark (B)	X	X	11%	19*	-12%	-2.8%
ARID-SCRUB LAND						
Black-capped Vireo (B)	X	X	10%	* * *	* * *	* * *
Scaled Quail (R)	X		16%	8	-66%	-3.0%
Loggerhead Shrike (R)	X	X	12%	23	-74%	-3.3%
EASTERN FOREST						
Red-headed Woodpecker (R)	X	X	17%	> 50	-32%	-0.5%
Harris's Sparrow (W)		X	AI = 5	* * *	* * *	* * *
Yellow-billed Cuckoo (B)		X	7%	15	-47%	-3.8%
Chuck-will's-widow (B)		X	5%	* * *	-15%	-0.2%
HABITAT GENERALIST						
Common Nighthawk (B)	X	X	25%	* * *	2%	0.1%
Common Grackle (B)	X	X	7%	> 50	9%	-1.0%
American Tree Sparrow (W)	X	X	AI = 4	* * *	* * *	* * *

***Watch List* 🔴🟡, *Common Birds In Steep Decline* ⚪**
See Page 34 For Table Explanation

LOOKING AHEAD

- Institute a region-wide integrated monitoring program with a sampling design to generate the data needed to address continued population declines, shifting species ranges, and effectiveness of habitat management.
- Based on the integrated monitoring program, determine significant bird population trends at local scales, provide information to develop decision support tools, and evaluate conservation treatments.

©Ken Slade

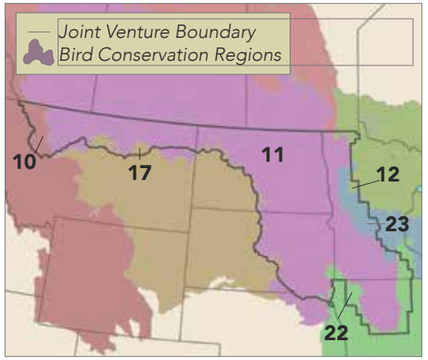
Bird monitoring will help support conservation for declining species such as the Scissor-tailed Flycatcher.

PRAIRIE POTHOLE JOINT VENTURE

USFWS

BIRD CONSERVATION LANDSCAPE

The Prairie Pothole Joint Venture encompasses one-third or 100,000 square miles of North America's Prairie Pothole Region (PPR). Its uniqueness lies in the millions of small depressional wetlands that constitute one of the richest wetland systems in the world. These "prairie potholes" and their surrounding grasslands provide breeding habitat for a diversity of wetland and grassland birds, including more than half of North America's waterfowl population and 189 landbird species. Significant numbers of spring and fall migrants also use these productive habitats.



Temperate grasslands within the Joint Venture are among the earth's most imperiled ecosystems. Conversion of grasslands into other uses occurs faster than conservation actions can respond. Many prairie landbird populations have declined drastically since the 1960s. Some have stabilized, but a small group of grassland nesting birds in the Joint Venture continues to decline. Species within this group are Partners in Flight Watchlist species, including **Sprague's Pipit**, **Baird's Sparrow**, **Chestnut-collared Longspur**, and **McCown's Longspur**. Two high priorities for Joint Venture partners are to better understand population limiting factors of these species and restore grassland nesting habitat to address their decline.

©Melanie Underwood

Sprague's Pipit is one of several steeply declining grassland specialists that depend on native prairie habitats for breeding. The vast majority of their remaining habitat is on private lands.

CONSERVATION IN ACTION

Partnering for Sprague's Pipit Conservation

Sprague's Pipit populations are declining sharply and consistently. A petition to list this species as federally threatened or endangered resulted in work on a distribution model, which was published in 2015, to inform the species status assessment. The model was developed in cooperation with the University of Montana and Joint Venture partners. It is the first successful attempt at building an international model for non-game species between Canadian and U.S. partners in the PPR.

Model results indicate that high percentages of breeding Sprague's Pipit populations occur in small areas of their total geographic breeding range. At least 80% of the entire breeding population occurs on private land, which resulted in a Candidate Conservation Agreement with Assurances (CCAA) program with the U.S. Fish and Wildlife Service and Joint Venture partners. The CCAA provides incentives for landowners to engage in voluntary conservation activities that can prevent Endangered Species Act listing of this species. Furthermore, a CCAA provides participating property owners with a permit containing assurances that if they engage in certain conservation actions for species included in the agreement, they will not be required to implement additional conservation measures beyond those in the CCAA.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 11	Area Importance	Urgency/ Half-Life (years)	Long-term Change	Short-term Trend
GRASSLAND					
Chestnut-collared Longspur (B)	X	40%	17	-86%	-4.3%
Bobolink (B)	X	32%	> 50	-20%	-1.1%
Snowy Owl (W)	X	AI=5	* * *	* * *	* * *
McCown's Longspur (B)	X	23%	* * *	-97%	-7.0%
Baird's Sparrow (B)	X	20%	> 50	-73%	-2.6%
Nelson's Sparrow (B)	X	13%	> 50	>100%	6.1%
Sprague's Pipit (B)	X	10%	28	-74%	-4.8%
Greater Prairie-Chicken (R)	X	7%	* * *	* * *	* * *
Le Conte's Sparrow (B)	X	7%	>50	10%	0%
Grasshopper Sparrow (B)	X	14%	24*	-66%	-1.2%
Lark Bunting (B)	X	9%	* * *	-87%	-7.7%
Horned Lark (B/W)	X	7%; AI=5	28	-81%	-3.4%
Short-eared Owl (W)	X	AI=4	* * *	* * *	* * *
EASTERN FOREST					
Black-billed Cuckoo (B)	X	7%	15*	-82%	-1.5%
Red-headed Woodpecker (R)	X	6%	> 50	-79%	-1.7%
HABITAT GENERALIST					
Common Grackle (B)	X	15%	> 50	-9%	-0.6%

Watch List ●●, Common Birds in Steep Decline ●
See Page 34 for Table Explanation

LOOKING AHEAD

- Expand knowledge of the demographics of priority breeding grassland birds to facilitate strategic habitat conservation.
- Develop full life-cycle models to understand what portion of the annual cycle to focus conservation and address population limiting factors.
- Provide research that better defines the landscape characteristics associated with the density and distribution of breeding grassland bird populations, enabling population objectives to be directly tied to conservation actions.

©PPJV

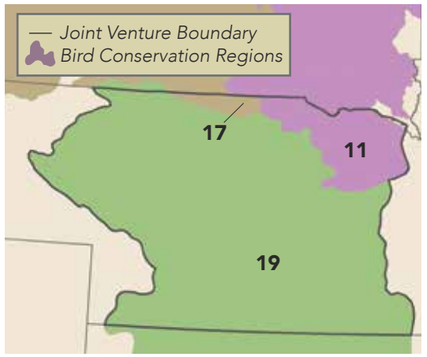
Working with private landowners is imperative to grassland conservation.

RAINWATER BASIN JOINT VENTURE

©George Thomas

BIRD CONSERVATION LANDSCAPE

The Rainwater Basin Joint Venture contains over 2.3 million acres of wetlands and over 20 million acres of grasslands—including the Sandhills region of Nebraska, one of the largest intact grass-stabilized dune systems in the world. The Sandhills provide prime breeding habitat for **Greater Prairie-Chicken**, **Eastern Meadowlark**, and **Grasshopper Sparrow**, all priority landbird species. In addition, the Rainwater Basin Wetland Complex and Central Platte River provide critical spring stopover habitat for millions of migrating waterfowl, 40 species of shorebirds, and over 500,000 Sandhill Cranes. Woodlands, generally confined to drainages of the major river systems, provide breeding habitat for priority species such as **Baltimore Oriole**, **Red-headed Woodpecker**, and **Black-billed Cuckoo**.



Outside of the Sandhills, much of the tallgrass and mixed-grass prairie grasslands have now been converted to row-crop agriculture. Those that remain are subject to wind or water erosion or are often integrated into haying and grazing operations, which depending on timing and intensity, can significantly impact wildlife habitat value. To address threats and achieve population and habitat goals for 19 priority landbird species Joint Venture partners are employing two main strategies: reducing grassland fragmentation by removing 220,000 acres of invasive Eastern Red Cedar and adding new grassland acreage in four geographic focus areas through enrollment in easement programs.

CONSERVATION IN ACTION

Restoring Fire on the Landscape

Following a century of successful fire suppression campaigns, eastern red cedar is now invading over 40,000 acres of Nebraska grasslands annually, including more than 11% of the 2.3 million acres of mixed-grass prairie within the Central Loess Hills Ecoregion. The woody plant encroachment not only fragments and degrades habitat for species like **Greater Prairie-Chicken**, it also substantially reduces forage capacity, undermining local livestock economies. A grassland management strategy of carrying out over two thousand 200-acre prescribed fires every year would be needed to mitigate the current rate of invasive tree encroachment. Clearly larger fires on a landscape scale are needed to sustain grasslands for livestock and wildlife.

In 2014, the Joint Venture was awarded a grant to extend and enhance the highly successful Prescribed Fire Training Exchange (TREX) in the Central Loess Hills. The TREX program provides professional firefighters with hands-on training hosted on up to 5,000 contiguous acres of privately-owned grassland. Funding from the Nebraska Environmental Trust is used to enhance the ecological effects of these prescribed fires by providing financial incentives for livestock grazing deferments and mechanical tree removal. In addition, areas targeted for the TREX are derived from the Joint Venture's **Greater Prairie-Chicken** distribution models that predict hotspots where local habitat management can have the biggest benefit.

Since the inception of the TREX program, wildland firefighters from the U.S., South Africa, Mexico, and Spain have burned over 20,000 acres within the Central Loess Hills. In 2014, landowners signed voluntary agreements to perform 322 acres of invasive tree removal, 615 acres of half-season and 61 acres of full-season livestock grazing deferment within the 2015 TREX area. A recent survey of participating landowners estimated a reduction in Eastern Red Cedar (on a 1-10 scale) from 8.3 to 3.4 following the TREX. The landowners estimated a savings of over $40,000 in red cedar control over the next 5-10 years, and reported increases in mule deer and **Northern Bobwhite** numbers.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 11	BCR 19	Area Importance	Urgency/ Half-life (years)	Long-term Change	Short-term Trend
GRASSLAND						
Greater Prairie-Chicken (R)	X	X	58%	* * *	* * *	* * *
Grasshopper Sparrow (B)	X	X	10%	19*	-48%	-2.1%
Horned Lark (W)		X	AI = 5	* * *	* * *	* * *
Northern Bobwhite (R)		X	AI = 5	9	-35%	-4.7%
EASTERN FOREST						
Red-headed Woodpecker (R)	X	X	12%	> 50	-46%	-0.6%
Harris's Sparrow (W)		X	AI=5	* * *	* * *	* * *
American Tree Sparrow (W)		X	AI=4	* * *	* * *	* * *

Watch List ●●, *Common Birds in Steep Decline* ●
See Page 34 for Table Explanation

USFWS

Surveys on Greater Prairie-Chicken leks were used to identify habitat variables needed to predict species occurrence throughout Nebraska and to determine areas for prescribed burning.

LOOKING AHEAD

- Update population objectives and develop species distribution models for all 19 priority landbird species in order to identify opportunities where habitat restoration or improvement will have the greatest impact.
- Assess the effectiveness of invasive species removal and Conservation Reserve Program enrollment strategies in order to refine conservation benchmarks or develop additional grassland conservation strategies.

RBJV

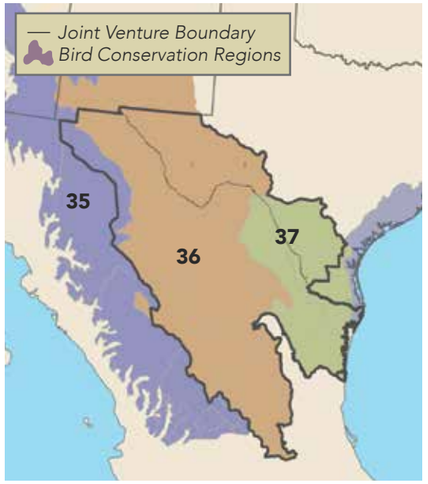
Landscape-scale fires covering thousands of acres of grasslands, a regular occurrence prior to European settlement of the Great Plains, are now being restored to deter invasive woody plant encroachment.

RIO GRANDE JOINT VENTURE

©Gary Nored

BIRD CONSERVATION LANDSCAPE

The Rio Grande Joint Venture geography encompasses a range of habitats, from oak forests and brush to coastal prairie and barrier islands to montane ponderosa pine forests and grassland habitat of the Chihuahuan Desert. Over 700 species of birds have been found in the region and 75% are landbirds. Joint Venture work in these areas target a suite of grassland birds, including **Sprague's Pipit** and **Chestnut-collared Longspur**. Joint Venture partners are improving range condition by adjusting grazing regimes and helping landowners reduce reliance on non-native grasses and cope with drought. Throughout the region, riparian corridors are a priority for **Rose-throated Becard** and **Yellow-billed Cuckoo**. Riparian zones are impacted by changing water availability, invasive species, grazing in the flood zone, and habitat loss.



©Richard Gibbons

Grassland birds, such as Grasshopper Sparrow, have lost habitat in the Chihuahuan grasslands due to brush encroachment and conversion to agriculture or urbanization. Partners are working to improve existing conditions and reduce reliance on non-native grasses for grazing.

CONSERVATION IN ACTION

Partnering for Grassland Conservation in the Valles Centrales of Mexico

The globally significant grasslands of the Chihuahuan Desert provide winter habitat for many declining Great Plains grassland birds, including **Baird's Sparrow**, **Grasshopper Sparrow**, **Sprague's Pipit**, **Chestnut-collared Longspur,** and **McCown's Longspur**. The grasslands of Valles Centrales are facing significant threats from inappropriate grazing regimes, land-use change for agriculture, brush and tree invasion, and drought.

The Joint Venture was instrumental in providing resources to create an extensive dataset to analyze bird distribution, abundance and habitat use. That foundation served as the groundwork for the Chihuahuan Desert Grassland Bird Conservation Plan. This plan became a significant mechanism to provide landowners with technical guidance to help them improve grassland conditions through better management practices. Restored grasslands provide improved habitat conditions for wintering priority grassland birds, while benefiting ranchers through increased income.

The Joint Venture partnership obtained funding from a variety of sources to carry out models of sustainable cattle ranching. The models promote the restoration and conservation of grasslands, increase income and profit for ranchers, and provide more and better quality habitat for grasslands birds and other wildlife. After several years of this collaborative work, the Joint Venture has impacted 290,000 acres.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 35	BCR 36	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
DESERT SCRUB						
Black-capped Vireo (B)	X	X	45%	* * *	* * *	* * *
Bendire's Thrasher (B)	X		2%	* * *	-98%	* * *
Lucifer Hummingbird (B)	X		23%	* * *	* * *	* * *
Gray Vireo (B)	X		4%	* * *	-84%	-4.3%
Scaled Quail (R)	X	X	54%	5	-72%	-8.1%
Cactus Wren (R)	X	X	41%	10	-69%	-8.6%
Verdin (R)	X	X	38%	20	20%	-3.5%
TROPICAL DRY FOREST						
Red-crowned Parrot (R)		X	20%	* * *	* * *	* * *
Audubon's Oriole (B)	X	X	30%	* * *	* * *	* * *
Green Parakeet (R)		X	14%	* * *	* * *	* * *
Yellow-billed Cuckoo	X	X	4%	34	-57%	-2.5%
MEXICAN PINE AND OAK FOREST						
Colima Warbler (B)	X		94%	* * *	* * *	* * *
Mexican Whip-poor-will (B)	X		7%	* * *	* * *	* * *
Flammulated Owl (B)	X		5%	* * *	* * *	* * *
Band-tailed Pigeon (B)	X		4%	* * *	* * *	* * *
Rufous Hummingbird (W)		X	AI = 4	* * *	* * *	* * *
CHIHUAHUAN GRASSLAND						
Chestnut-collared Longspur (W)	X		AI = 5	* * *	* * *	* * *
McCown's Longspur (W)	X		AI = 5	* * *	* * *	* * *
Sprague's Pipit (W)	X	X	AI = 5	* * *	* * *	* * *
Baird's Sparrow (W)	X		AI = 5	* * *	* * *	* * *
CHAPPARAL						
Black-chinned Sparrow (B)	X		23%	* * *	-22%	-1.0%
MEXICAN HIGHLAND FOREST						
Spotted Owl (R)	X		10%	* * *	* * *	* * *
GRASSLAND						
Northern Bobwhite (R)	X	X	8%	5*	-59%	-2.1%
Loggerhead Shrike (B)	X		6%	12	-77%	-3.3%
Grasshopper Sparrow (W)	X	X	AI = 5	* * *	* * *	* * *
Horned Lark (W)	X		AI = 5	* * *	* * *	* * *
HABITAT GENERALIST						
Common Nighthawk (B)	X	X	9%	* * *	-42%	-1.9%

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚪

See Page 34 For Table Explanation

LOOKING AHEAD

- Implement long-term bird and habitat monitoring strategies to track impact of management actions on bird populations and grassland bird habitat.

- Implement long-term, spatially explicit, coordinated strategies with partners in the Chihuahuan Desert to sustain and increase the quality and condition of grasslands.

Conserving the unique birdlife of the Rio Grande region requires bi-national cooperation to protect and restore habitats on both sides of the great river.

©Heather Paul

The stronghold for the restricted range species, Red-crowned Parrot, may be the urban populations in south Texas, where partners provide nesting sites for the birds and work to protect the birds and nests from people who steal nestlings for the pet trade.

SPOTLIGHT: CONSERVATION ON PUBLIC LANDS

Bureau of Land Management

BIRD CONSERVATION ON PUBLIC LANDS IN THE UNITED STATES

In the western U.S., publicly owned land is widespread, including, for example, 65% of Alaska. Although public ownership is less common in the eastern and central U.S., many important parks, forests, and refuges in those regions are managed by state and federal agencies. In 2011, U.S. State of the Birds Report on Public Lands highlighted the tremendous stewardship responsibilities and opportunities for bird conservation on more than 850 million acres of U.S. public lands.

©Tom Benson

More than half of the breeding population of Sage Thrasher occurs on BLM-managed lands. Therefore, BLM efforts to improve sagebrush habitat can halt the declines of this species.

The two largest public land agencies in the U.S. are the Bureau of Land Management (BLM) and the U.S. Forest Service, together managing nearly 440 million acres. Both are multi-purpose agencies meaning bird conservation must be balanced with other land uses such as grazing, logging, mineral exploration, energy development, and recreation. In an era when habitat management is required to provide the full variety of habitats used by birds, opportunities to use logging and grazing as conservation tools—rather than just for economic benefits—may allow the multi-use agencies to contribute as much to bird conservation as those for whom conservation is a higher priority.

Because of the highly uneven distribution of public lands across the U.S., certain habitats and the birds associated with them, are disproportionately represented on these lands. For example, about 86% of arctic and alpine tundra bird distributions are on public lands, including extensive BLM lands in Alaska. Public lands also support more than half the breeding distributions across 36 aridland specialists, with BLM having lead stewardship for a very large proportion of **Sage Sparrow** (67%), **Sage Thrasher** (63%), and **Greater Sage-Grouse** (59%).

Similarly, 33% of bird distributions in Mexican pine-oak forests, 34% of distributions across 41 other Western forest species, and 70% of alpine habitat in the contiguous United States (not including Alaska) are found on Forest Service land. Thus, conservation of these groups of birds will require Forest Service leadership. Examples include **Black** and **Brown-capped Rosy-Finches** in alpine tundra and **Dusky Grouse** and **White-headed Woodpecker** in western forest.

©Dave Kreuper

Black Rosey-finch has one of the smallest and most specialized ranges of all North American birds, and may lose much of its current habitat in the face of climate change.

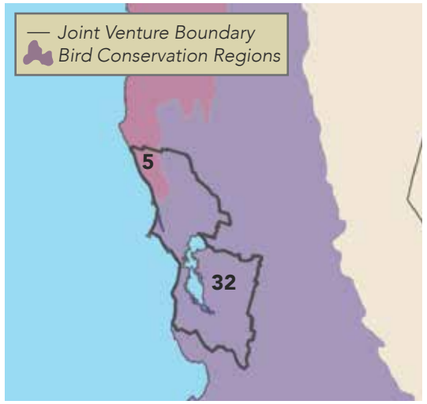
Parters in Flight's (PIF) multi-species, science-based approach can serve as a catalyst for improving ecosystem management on public lands. PIF population and habitat objectives and data from bird monitoring can be used to assess management needs, set measurable targets, design management to meet these targets, and measure the effectiveness of actions. To take advantage of these opportunities for bird and ecosystem conservation on public lands, all U.S. land management agencies will need additional resources, more public support for conservation, and better collaboration among multiple stakeholders.

SAN FRANCISCO BAY JOINT VENTURE

©Jamie Beverly

BIRD CONSERVATION LANDSCAPE

The San Francisco Bay Joint Venture is a partnership working to protect, restore, and enhance all kinds of wetlands and riparian habitats for the benefit of wildlife and people in the Bay Area. Although small in geographic territory compared to other Joint Ventures, it incorporates areas that are widely recognized as among North America's most ecologically important. The Joint Venture includes three Ramsar Wetlands of International Importance (San Francisco Bay Estuary, Bolinas Lagoon, and Tomales Bay), two Western Hemisphere Reserve Network sites (San Francisco Bay Estuary Hemispheric Reserve and Bolinas Lagoon), and a high density of Audubon Important Bird Areas.



Despite losing one third of its area and approximately 85% of its wetlands to development, agricultural and salt flat conversion, and fill, the San Francisco Bay Estuary remains critically important ecologically. In the highly urbanized San Francisco Bay Area, the wetlands provide ecological services such as flood protection, water quality maintenance, nutrient filtration and cycling, and carbon sequestration.

Of the Joint Venture's six planning regions, four are within the San Francisco Bay Estuary, while the others include the coast and coastal estuaries and the Russian River watershed. Much of the Joint Venture's habitat work has occurred within the San Francisco Bay Estuary, the largest estuary on the Pacific Coast of the U.S., and one of the most important nationally for wildlife. The Estuary was historically rimmed with tidal salt marshes, particularly its northern and southern reaches. The marshes, vegetated with specialized plants adapted to salty water, provide important habitat for over 1,000 species of animals such as young salmon and other fish, rails, songbirds, shorebirds, egrets and herons, ducks, the endangered endemic salt marsh harvest mouse, and other species of conservation concern.

The Joint Venture has several of the largest tidal wetland restoration projects in the country, including the 14,500-acre South Bay Salt Pond Project, which is restoring the former industrial salt ponds to tidal and managed wetland habitats.

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CONSERVATION IN ACTION

Reversing Wetland Habitat Loss

The Joint Venture was founded in 1996 to reverse the trend in habitat loss and restore wetland habitats. Since 1997, Joint Venture partners have completed over 150 wetland habitat projects, resulting in conservation actions on over 70,000 acres. This work has contributed to stabilizing bird populations in the region. General findings in the first regional State of the Birds Report indicated that over the last 20 years, most bird populations have been stable. Riparian birds, for example, have increased: however, grassland and coastal sage scrub/chaparral birds are losing habitat.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 32	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
FRESHWATER MARSH					
Tricolored Blackbird (R)	X	7%	* * *	-61%	-2.0%
WESTERN FOREST					
Lewis's Woodpecker (W)	X	AI =5	* * *	* * *	* * *
Band-tailed Pigeon (R)	X	4%	>50	>50%	2.7%
Chestnut-backed Chickadee (R)	X	4%	>50	-37%	-1.0%
Mountain Quail (R)	X	3%	* * *	-51%	-6.0%
Wilson's Warbler (B)	X	1%	>50	-1.0%	2.2%
CHAPARRAL					
Allen's Hummingbird (B)	X	41%	* * *	-87%	-4.6%
Wrentit (R)	X	4%	>50	-29%	-0.5%
Black-chinned Sparrow	X	2%	* * *	-55%	0.0%
California Thrasher (R)	X	1%	36	-54%	-1.8%
WESTERN OAK WOODLAND					
Yellow-billed Magpie (R)	X	7%	11	-58%	-4.9%
Oak Titmouse (R)	X	4%	25*	-53%	-1.7%
HABITAT GENERALIST					
Brewer's Blackbird (R)	X	1%	29	-66%	-2.8%

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

LOOKING AHEAD

- Prioritize the protection of habitat migration space and restore transitional habitats that will provide habitat values now and allow for future marsh and species migration.
- Provide science, conservation, and policy support to partners now to make critical investments that will perpetuate full ecosystem functions.
- Continue to use the Joint Venture's Climate Adaptation Decision Support planning and decision models to identify target species and key conservation actions on the landscape.
- Predict the best places to restore marshes through a multi-species approach to assessing tidal marsh resilience under different sea-level rise scenarios.
- Further develop a climate adaptation plan for San Pablo Bay National Wildlife Refuge as a possible model for other regions of the Joint Venture.

©Alan Schmeirer

Oak Titmouse rely on warm, dry oak woodlands.

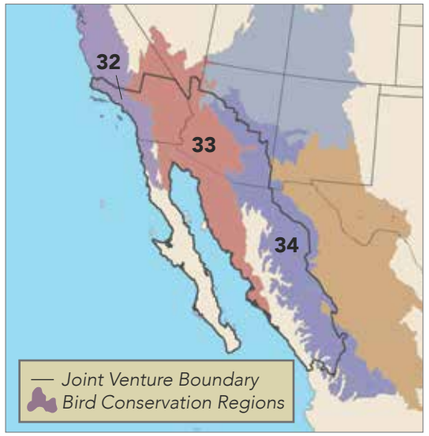
SONORAN JOINT VENTURE

©Jennie Duberstein

BIRD CONSERVATION LANDSCAPE

The Sonoran Joint Venture, the first bi-national Joint Venture with Mexico, is an international partnership of diverse organizations working together to conserve the unique birds and habitats of the southwestern U.S. and northwestern Mexico. The Joint Venture includes all or parts of nine states in the two countries as well as the Gulf of California and its islands. Elevation in the Joint Venture ranges from below sea level at the Salton Sea to over 9,000 feet in the mountains. This region's diverse habitats support approximately 650 regularly occurring species that breed, winter, or migrate through the area. The Joint Venture has high stewardship responsibility for 26 species—over 50% of the world's population of these birds occurs within its boundaries (see side bar). The Joint Venture is also culturally diverse, with more than 25 indigenous tribes and nations living in the region.

A large percent of Joint Venture lands in the U.S. is publicly owned and managed by state and federal agencies, including the Bureau of Land Management (BLM), U.S. Forest Service (USFS), Department of Defense, and U.S. Fish and Wildlife Service. In Mexico, much of the land is private, although a number of protected areas are managed by state and federal agencies. Climate change, habitat loss and degradation, alternative energy development, invasive species, water management, and grazing management are some of the major challenges facing landbirds in the Joint Venture region.



©Alan Schmierer

Lawrence Goldfinch pair.

©Dominc Sherony

Bendire's Thrasher populations are predicted to decrease by 50% by 2033, if current trends continue.

CONSERVATION IN ACTION

Planning for Bird Conservation in an Uncertain Future

Birds are closely linked to climate and vegetation and, as a result, can provide early warnings of broader changes to come. The Joint Venture's interactive, online decision support tool, PLuMA (Planning for Landscape Management and Action/Planeación para el Manejo y Adaptación de Paisajes), was developed in partnership with Point Blue Conservation Science to help land managers visualize the projected impacts of a changing climate on birds and their habitats. PLuMA lets land managers see what the future might hold for birds, to help make better decisions about what management actions to take. This tool is a foundation for monitoring environmental change for the southwestern U.S. and northern Mexico, evaluating climate change impacts and determining if land management and adaptation strategies are making a difference for birds and their habitats. Among the 67 species modeled are Partners in Flight Watch List birds: **Bendire's Thrasher**, **Le Conte's Thrasher**, **Wrentit**, **Band-tailed Pigeon**, and **California Thrasher**.

BIRD HABITATS IN THE SONORAN JOINT VENTURE

Sonoran and Mojave Desertscrub
Coastal Wetlands and Islands
Freshwater Wetlands
Arid Grasslands
Tropical Deciduous Forest
Madrean Pine-Oak Forest
Oak Woodland
Riparian and Mesquite Bosque
Coastal Sage Scrub
Chaparral
Ponderosa Pine Forest
Spruce-Fir Forest

SELECT STEWARDSHIP SPECIES (>50% OF SPECIES' POPULATION)

Gambel's Quail
California Condor*
Elf Owl
Lucifer Hummingbird*
Anna's Hummingbird
Gila Woodpecker
Gilded Flicker*
Island Scrub-Jay*
Mexican Jay
Mexican Chickadee
Verdin*
Bridled Titmouse
Black-tailed Gnatcatcher
Bendire's Thrasher*
California Thrasher*
Le Conte's Thrasher*
Phainopepla
Lucy's Warbler
Red-faced Warbler
California Towhee
Abert's Towhee
Rufous-winged Sparrow*
Black-chinned Sparrow*
Five-striped Sparrow
Black-throated Sparrow
Lawrence's Goldfinch

** On the Watch List or Common Birds in Steep Decline*

©Dominc Sherony

Nearly the entire U.S. population of Elegant Trogons, a spectacular borderland species shared with Mexico, is protected on federal lands managed by the U.S. Forest Service and Department of Defense.

LOOKING AHEAD

- Implement long-term coordinated bird and habitat monitoring across the region to track climate impacts and other wide-scale stressors.
- Address the most pressing issues facing birds in the Joint Venture, such as climate change, habitat loss, and invasive species, by implementing the results of a multi-year strategic conservation planning effort, guided by the Open Standards for the Practice of Conservation.
- Develop bird and habitat accounts, geared toward land management agencies like the BLM and USFS, as well as those who work with private landowners.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 32	BCR 33	BCR 34	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
DESERT SCRUB							
Le Conte's Thrasher (R)		X		90%	29	-64%	-2.8%
Bendire's Thrasher (R/B)		X	X	51%	18	-78%	-2.3%
Gilded Flicker (R)		X	X	100%	31	-55%	-1.8%
Rufous-winged Sparrow (R)		X	X	100%	* * *	* * *	* * *
Five-striped Sparrow (B)		X	X	100%	* * *	* * *	* * *
Black-capped Gnatcatcher (B)		X	X	85%	* * *	* * *	* * *
Lucifer Hummingbird (B)			X	25%	* * *	* * *	* * *
Gray Vireo (W)		X		AI=5	* * *	* * *	* * *
Verdin (R)	X	X	X	49%	19	-67%	-1.9%
Cactus Wren (R)		X	X	38%	41*	-63%	-2.1%
Loggerhead Shrike (R)	X	X	X	13%	9*	-54%	-3.6%
Scaled Quail (R)			X	10%	30	-69%	-2.6%
PINE-OAK FOREST							
California Condor (R)	X			50%	* * *	* * *	* * *
Mountain Quail (R)	X	X		27%	* * *	-51%	-6.0%
Lewis's Woodpecker (W)	X	X	X	AI=5	* * *	* * *	* * *
Virginia's Warbler (B)			X	22%	30	-62%	-2.5%
Spotted Owl (R)	X		X	20%	* * *	* * *	* * *
Flammulated Owl (B)	X		X	18%	* * *	* * *	* * *
Band-tailed Pigeon (R)	X		X	10%	* * *	-42%	-0.6%
Pine Siskin (W)	X	X	X	AI=5	12	* * *	* * *
FRESHWATER WETLAND							
Tricolored Blackbird (R)	X			20%	* * *	-61%	-2.0%
CHAPARRAL-COASTAL SHRUB							
Island Scrub-Jay (R)	X			100%	* * *	* * *	* * *
California Gnatcatcher (R)	X			100%	* * *	* * *	* * *
California Thrasher (R)	X			63%	36	-56%	-1.9%
Black-chinned Sparrow (B/W)	X	X	X	37%, AI = 5	* * *	-73%	-1.2%
Wrentit (R)	X			35%	>50	-29%	-0.5%
Allen's Hummingbird (B/W)	X			7%	* * *	-87%	-4.6%

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 32	BCR 33	BCR 34	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
MEXICAN PINE-OAK WOODLAND							
Arizona Woodpecker (R)			X	70%	* * *	* * *	* * *
Mexican Chickadee (R)			X	50%	* * *	* * *	* * *
Elegant Trogan (B/R)			X	32%	* * *	* * *	* * *
Mexican Whip-poor-will (B/R)			X	28%	* * *	* * *	* * *
Whiskered Screech-Owl (R)			X	22%	* * *	* * *	* * *
Grace's Warbler (B)		X	X	20%	* * *	-57%	-2.2%
GRASSLAND							
Baird's Sparrow (W)			X	AI=5	>50	* * *	* * *
Chestnut-collared Longspur (W)			X	AI=5	17	* * *	* * *
Sprague's Pipit (W)			X	AI=5	28	* * *	* * *
McCown's Longspur (W)			X	AI=5	* * *	* * *	* * *
Grasshopper Sparrow (W)			X	AI=5	25	* * *	* * *
Lark Bunting (W)		X	X	AI=4	8	* * *	* * *
Horned Lark (W)	X	X	X	AI=4	* * *	* * *	* * *
PINYON-JUNIPER WOODLAND							
Gray Vireo (B)	X		X	18%	* * *	>50%	5.6%
Pinyon Jay (W)			X	AI = 3	* * *	* * *	* * *
OAK WOODLAND							
Oak Titmouse (R)	X	X		28%	25*	-53%	-1.7%
HABITAT GENERALIST							
Long-eared Owl (W)	X	X	X	AI=4	* * *	* * *	* * *
Brewer's Blackbird (R/W)	X	X	X	Winter AI=5	29	-59%	-1.8%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚫

See Page 34 For Table Explanation

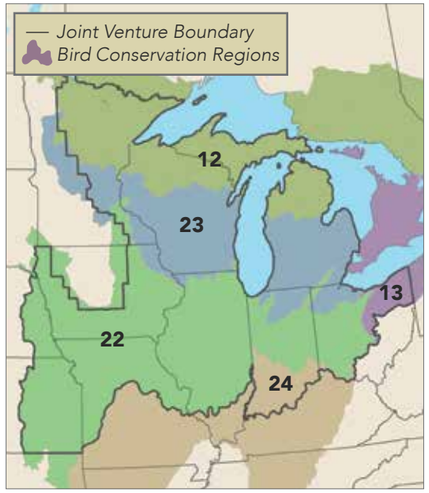
©Brian Sullivan/Cornell Lab

Allen's Hummingbird breeds and winters in the Joint Venture.

UPPER MISSISSIPPI RIVER/ GREAT LAKES REGION JOINT VENTURE

© Creative Commons - Phil

BIRD CONSERVATION LANDSCAPE



Most of the Upper Mississippi River and Great Lakes Region Joint Venture landscape is used for crop production (39%), but forest communities occupy 26% of the area, and include boreal evergreen and mixed hardwoods, boreal hardwood transition, deciduous Big Woods remnants, oak woodlands, savannas, and river floodplain forests. Grasslands and pastures comprise another 18% of the area, including the Flint Hills of Kansas and Nebraska—one of the last strongholds of tallgrass prairie on the continent. More than 500 species of birds breed, winter, or migrate through the region. The Joint Venture is especially important for three Watch List species: most of the global populations of **Kirtland's Warbler** (99%) and **Golden-winged Warbler** (75%) breed in the relatively intact northern forests of Bird Conservation Region (BCR) 12, and 53% of the world's **Henslow's Sparrow** persist in increasingly small prairie remnants scattered throughout BCRs 22 and 23. Habitat loss due to urbanization and conversion to row-crop agriculture remains the greatest threat to the region's birds. Habitat degradation through forest fragmentation and invasive species, and increasing human-caused mortality from collisions with structures and domestic cat predation, are also significant threats. To help offset some of these losses, partners within the Joint Venture have protected, restored, and enhanced more than 820,000 acres of habitat since the completion of their 2007 Implementation Plan.

©Black Swamp Bird Observatory.

Volunteers and professional banders work together at the Navarre banding station on the south shore of Lake Erie to assess landbird migrant molt and body condition.

CONSERVATION IN ACTION

Monitoring Landbird Migration

Millions of landbirds pass through the Joint Venture each spring and fall. These migrants are concentrated by weather events along 8,000 miles of Great Lakes shoreline or by cover and foraging opportunities in wetlands and forests along 7,000 miles of the Mississippi, Missouri, Illinois, and Ohio Rivers. Since 2009, the Joint Venture Science Team has partnered with the Midwest Coordinated Bird Monitoring Partnership to fill key information needs and to monitor progress on management projects. A partnership working group, the Midwest Landbird Migration Monitoring Network, coalesced in 2011, to coordinate bird observatory, monitoring station, and academic and organizational research program efforts to better understand landbird migration ecology in the Midwest, and to develop effective decision support tools and migration conservation strategies. This network is working to address challenges posed by human-caused obstacles to migration, to determine location and site characteristics of optimal stopover habitat, and to share information and protocols so that migration data are available to address questions at multiple temporal and spatial scales. Recent projects involve incorporating migration survival data into full life-cycle models for select Watch List species, and the integration of stopover site modeling with other tools in the Midwest Avian Data Center to prioritize sites for protection and restoration, based on migratory landbird movements.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 12	BCR 13	BCR 22	BCR 23	BCR 24	Area Importance	Urgency/ Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST									
Kirtland's Warbler (B)	X					99%	* * *	* * *	* * *
Golden-winged Warbler (B)	X			X		75%	20*	-39%	-1.4%
Red-headed Woodpecker (R)			X	X	X	29%	14	-88%	-3.3%
Black-billed Cuckoo (B)	X		X	X		23%	9*	-62%	-1.5%
Long-eared Owl (W)			X			AI=5	* * *	* * *	* * *
Eastern Whip-poor-will (B)	X		X		X	15%	* * *	-77%	-3.4%
Wood Thrush (B)	X		X	X	X	9%	> 50	-33%	-1.2%
Kentucky Warbler (B)			X		X	9%	> 50	32%	0.5%
Cerulean Warbler (B)		X		X	X	8%	39	-68%	-1.5%
American Tree Sparrow (W)		X	X	X	X	AI=5	* * *	* * *	* * *
Field Sparrow (B/R)			X	X	X	23%	> 50	-62%	-1.9%
Chimney Swift (B)		X	X	X	X	20%	18	-68%	-3.1%
Northern Bobwhite (R)			X		X	17%	9	-79%	-5.4%
Yellow-billed Cuckoo (B)			X			11%	9*	-55%	-4.2%
Least Flycatcher (B)	X					5%	31	-62%	-2.1%
GRASSLAND									
Henslow's Sparrow (B)	X		X	X	X	53%	> 50	50%	4.6%
Bobolink (B)	X		X	X		17%	34	-77%	-2.9%
Greater Prairie-Chicken (R)			X			5%	* * *	-88%	-2.5%
Horned Lark (B/W)			X		X	3%; AI=5	29	* * *	* * *
Short-eared Owl (W)			X		X	AI=5	* * *	* * *	* * *
Eastern Meadowlark (B)			X	X		16%	24	-68%	-2.8%
Grasshopper Sparrow (B)			X			11%	13	-81%	-5.8%
BOREAL FOREST									
Canada Warbler (B)	X					9%	> 50	-69%	-1.2%
Connecticut Warbler (B)	X					5%	37	-69%	-2.9%
Evening Grosbeak (R)	X					5%	11*	-92%	-4.8%
Pine Siskin (W)	X	X		X		AI=4	* * *	* * *	* * *
HABITAT GENERALIST									
Common Grackle (B/R)			X	X	X	26%	20	-53%	-3.7%

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚫
See Page 34 For Explanation of All Footnotes

LOOKING AHEAD

- Revise the Joint Venture Landbird Habitat Conservation Strategy to include developing and delivering decision support tools that can identify priority conservation areas and recommended strategies for sustaining source populations of focal species.

- Partner with the Northern Forest Birds Working Group to monitor, manage, and sustain populations of Boreal Hardwood Transition stewardship species such as Kirtland's Warbler.

- Work with the Midwest Grasslands Partnership to replicate Grassland Bird Conservation Area successes at scales sufficient to reverse regional declines of Midwest grassland birds.

Monitoring is designed and implemented to measure progress toward meeting Joint Venture population goals and habitat objectives.

Joel Trick/USFWS

The Joint Venture hosts over 99% of the global breeding population of Kirtland's Warbler.

SPOTLIGHT: THE BOREAL NURSERY

©Jeff Bryant

STEWARDSHIP OF BIRDS IN THE BOREAL NURSERY

The boreal region is home to one of the greatest extents of the world's remaining forest. This enormous forested biome produces a huge abundance of birds: at the end of each breeding season, several billion birds migrate out of the boreal to countries throughout the hemisphere. At least 21 species have more than 80% of their breeding population in the boreal forest, and therefore the region has an extremely high stewardship responsibility for these species.

Boreal Avian Modelling Project

Figure 1. The footprint of anthropogenic disturbance in the boreal, including transportation, resource extraction and energy development and transmission, demonstrates the importance of long-term planning to retain ecosystem structure and function that supports landbird populations.*

Despite the number of birds produced in the boreal forest, this region has often been ranked as a low priority for immediate landbird conservation action. The boreal supports relatively few Watch List, endangered, or endemic species, and because of its immense size, its bird species typically have extensive distributions and relatively large population sizes that lower their scores in the Partners in Flight (PIF) assessment process. However, several boreal species, such as the **Wilson's Warbler** (pictured above), are recognized by PIF as Common Birds in Steep Decline (see page 11). Moreover, analysis of Breeding Bird Survey data suggest that the boreal forest has lost one billion or more landbirds between 1970 and 2014—more than any other habitat guild in the analysis. To achieve PIF's goal of keeping common birds common, maintaining ecosystem structure and function of the boreal forest and abundance and integrity of boreal bird communities, must be essential components of PIF's conservation strategy. For example, recommendations from the Canadian Bird Conservation Region Strategies must be incorporated into long-term land-use planning to achieve a balance among the many forces that create the mosaic of habitats characteristic of the boreal such as annual variations in fire, insect outbreaks, seed crops, and anthropogenic disturbance.

STATUS OF KNOWLEDGE OF BOREAL BIRDS	
Distribution	Fair
Abundance	Poor to Fair
Population Trend	Poor
Productivity & Survival	Largely Unknown
Ecology	Poor to Fair
Impacts	Poor to Fair
Modelling the Future	Poor to Fair

The large scale of the region and lack of information make conservation of ecosystem functions more practical than single species efforts.

** Anthropogenic Disturbance Layers*
Global Land Cover Facility (GLCF) and Goddard Space Flight Center (GSFC). 2014. GLCF Forest Cover Change 2000-2005, Global Land Cover Facility, University of Maryland, College Park.

BEAD Development of boreal ecosystem anthropogenic disturbance layers for Canada based on 2008 to 2010 Landsat imagery. Jon Pasher, Evan Seed, Jason Duffe. Canadian Journal of Remote Sensing, 2013, 39:42-58, 10.5589/m13-007.

National Road Network (NRN) www.GeoGratis.ca version 2.0 – uses the Open Government license.

CANADIAN ARCTIC REGION

©Scott Lough

BIRD CONSERVATION LANDSCAPE

The Arctic Region spans the far northern portion of the continent from Alaska to Labrador, corresponding to Bird Conservation Region 3, Arctic Plains and Mountains. Habitats are diverse and include arctic tundra, sparse taiga forests, wet coastal sedge and grass meadows, gravel barrens, glaciers, alpine landscapes, and a high density of small and medium-sized lakes. A total of 153 bird species breed across the region, including 64 landbirds. Some, like the **Harris's Sparrow**—Canada's only endemic breeding landbird—do not nest anywhere else in North America.

This portion of Canada's north is sparsely populated with around 50,000 residents, predominantly Indigenous People. Development in the region has a limited footprint since the main human activities are subsistence hunting, trapping, and some commercial mining. Most of the threats to arctic landbirds arise outside of the region, for example, anthropogenic climate change, degradation of tundra habitats from over-abundant waterfowl, and long-range transport and deposition of contaminants. Thus, the main challenge in addressing arctic landbird conservation is to engage people whose activities affect a region they will likely never visit.

Large gaps in knowledge of species distribution, abundance, and population trends also complicate efforts to conserve the birds and habitats in arctic Canada. Monitoring in this vast and remote area is difficult, especially given often challenging weather conditions. Migration and wintering ground survey counts provide information for some arctic landbirds, but these counts can be imprecise, in part because they can be affected if birds shift their wintering distribution or migration behavior in response to weather or climate change.

©Kenneth Cole Schneider

Few data are available from the Arctic Region for landbirds, such as this Horned Lark; thus data from more southerly regions are often substituted.

©Dave Curtis

Arctic PRISM surveys include landbirds such as Snow Bunting.

CONSERVATION IN ACTION

Using Shorebirds to Monitor Landbirds

While the Arctic Program for Regional and International Shorebird Monitoring (Arctic PRISM) is designed to focus on 26 species of shorebirds that breed primarily in the arctic, the program's scientists also collect data on all bird species they encounter. These data are extremely valuable in a region without other formal landbird surveys. Arctic PRISM's all-inclusive approach to monitoring has produced statistically reliable population estimates for a number of arctic-breeding songbird species, including **Snow Bunting**, **Lapland Longspur**, **Hoary Redpoll** and **Savannah Sparrow**. Analysis of information acquired through Arctic PRISM helps determine range and habitat associations, the cause of declines, and provides a much needed baseline against which to measure future change.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 3	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
ALPINE TUNDRA					
Harris' Sparrow (B)	X	55%	* * *	* * *	* * *
Snowy Owl (B)	X	41%	* * *	* * *	* * *
American Tree Sparrow (B)	X	58%	* * *	* * *	* * *
Horned Lark (B)	X	14%	* * *	* * *	* * *
Short-eared Owl (B)	X	6%	* * *	* * *	* * *

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

©Tony Hisgett

Snowy Owl are believed to be rapidly declining but populations are difficult to estimate.

LOOKING AHEAD

- Integrate landbird conservation into existing arctic partnerships.
- Work with other organizations to halt the causes of climate change.
- Manage habitats in ways that enable ecosystems to adapt to changing conditions.

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Smith's Longspur (41%)
American Pipit (35%)
Lapland Longspur (33%)
Snow Bunting (33%)
Hoary Redpoll (32%)
Gyrfalcon (31%)
Rough-legged Hawk (29%)
Rock Ptarmigan (27%)

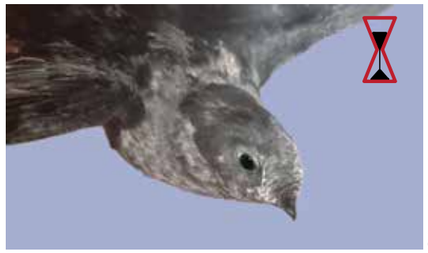
**% population in region*

CANADIAN INTERMOUNTAIN JOINT VENTURE

©Jeff Wallaca

BIRD CONSERVATION LANDSCAPE

The Canadian Intermountain Joint Venture includes the Canadian portions of the Great Basin and Northern Rockies Bird Conservation Regions (BCRs 9 and 10). The region covers the Columbia and Rocky Mountains from the Canada-U.S. border to the southern edge of the boreal forest, and the central plateau in interior British Columbia to the Coast Mountains, as well as the Great Basin. This region contains extremes and contrasts in topography and climate, which combine to create a tremendous variety of habitat types in close proximity, including lakes and ponds, wetlands, riparian areas, grasslands, shrub-steppe, dry and moist coniferous forests, and alpine tundra. Some of these ecosystems are found nowhere else in Canada. This variety results in 280 bird species that regularly breed, overwinter, or reside year-round within the region, including 189 landbirds—a disproportionately high number of which are considered at risk such as **Lewis's Woodpecker** and **Black Swift**.



©Alan Schmierer

Black Swift is sensitive to climate change.

Loss and degradation of forest habitats through logging and massive changes in forest structure, due to the Mountain Pine Beetle outbreak and fire suppression, are affecting numerous species. Habitat loss and degradation from agricultural practices are also significant due to the booming viticulture (wine-making) industry in the herbaceous habitats of valley bottoms as well as from cattle-grazing practices in forested and riparian areas at all elevations.

©A.Reago & C. McClarren

Urban development, agriculture, and pine beetle infestations contribute to the loss of large, cavity-bearing trees or snags required for nesting or roosting, and can severely impact populations of several species such as Lewis's Woodpecker.

CONSERVATION IN ACTION

Conserving and Restoring Riparian Habitat for Lewis's Woodpecker

Although riparian areas and other wetlands are limited in distribution within arid regions, such as the southern interior of British Columbia, they are critically important for wildlife. Shorelines and riparian areas, as well as the species that rely on them, face a wide variety of pressures. Over the past five years, the Partners in Flight regional working group for British Columbia/Yukon supported partners of the Kettle River watershed riparian working group to map riparian cottonwood habitat. Analysts overlaid nest record, land-ownership and threats data and prioritized habitats for three pilot restoration projects. A habitat scored higher if it contained two or more **Lewis's Woodpecker** or **Western Screech-Owl** nests. A parcel of land also scored points based on other criteria, including a willing landowner, other partner interests such as fish values or other species at risk, whether the property contributed to connectivity of riparian habitat, and whether identified threats warranted immediate action. Partners prepared a restoration plan for each of the three pilot projects based on species occurrence, scores, threats, and opportunities.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 9	BCR 10	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
WESTERN FOREST						
Rufous Hummingbird (B)	X	X	18%	> 50	-35%	-1.1%
Black Swift (B)	X	X	14%	* * *	-90%	-3.8%
Evening Grosbeak (B)	X	X	12%	16*	-71%	8.0%
Olive-sided Flycatcher (B)		X	10%	26	-76%	-2.6%
Cassin's Finch (B)	X	X	5%	> 50	-66%	-0.6%
Lewis's Woodpecker	X		4%	> 50	-39%	-1.7%
Pine Siskin (B/R)	X	X	19%, AI=5	9*	-74%	-2.7%
Varied Thrush (B)		X	10%	27	-60%	-2.7%
Wilson's Warbler (B)		X	5%	50*	-72%	-2.4%
GRASSLAND						
Horned Lark (W)	X		AI = 4	* * *	* * *	* * *
HABITAT GENERALIST						
Brewer's Blackbird (B)	X	X	4%	31	-56%	-3.3%

Watch List 🔴🟡***, Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

©Chuck Roberts

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Red-naped Sapsucker (48%)
Hammond's Flycatcher (43%)
MacGillivray's Warbler (42%)
Cassin's Vireo (41)
Dusky Flycatcher (36%)
White-tailed Ptarmigan (28%)
Calliope Hummingbird (25%)
Warbling Vireo (22%)

**% population in region*

LOOKING AHEAD

- Facilitate the adoption of sustainable land-use practices by resource-based industries.
- Protect and manage high priority areas.
- Improve carrying capacity for birds through habitat improvement.

©Graham Watt

Above photo: Partners plant and prune cottonwoods in a riparian area adjacent to Midway Mill. Above left photo: Calliope Hummingbird

EASTERN BOREAL REGION

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BIRD CONSERVATION LANDSCAPE

The Eastern Boreal Region includes the Hudson Plains and the Boreal Softwood Shield from Ontario east through Quebec to Newfoundland and Labrador. It is part of the area covered by the Eastern Habitat Joint Venture. The region contains one of the most extensive areas of wetlands in the world, including coastal marshes and broad tidal flats, but also comprises vast tracks of coniferous forest. It supports a high abundance of breeding birds, including 158 landbirds out of a total of 244 species, and is an important area for **Cape May Warbler**, **Rusty Blackbird,** and **Nelson's Sparrow**.

This large and relatively remote area is sparsely populated, so the major influences on forested habitats are still largely natural forces such as fire, wind, and insect outbreaks. Human impacts take the form of forestry and hydroelectric power. Mining, renewable energy development, and the associated infrastructure to support them are less important factors at present, but their cumulative effects could have substantial impacts on landbirds and their habitats in the future. Climate change is also expected to have a growing influence in the boreal zone and likely will result in some degree of wetland drying and a greater risk of fires. As most of this region is poorly served by roads, it is outside the reach of volunteer monitoring like the Breeding Bird Survey; therefore, information to assess the population status of many bird species is inadequate.

©Gerard W. Beyersbergen

Winter threats may drive Rusty Blackbird declines.

©William Majoros

Much of the Eastern Boreal Region remains intact, enabling partners to pursue development and conservation in tandem to benefit Canada Warbler and other landbirds.

CONSERVATION IN ACTION

Conserving a Boreal Icon, the Canada Warbler

The Canada Warbler International Conservation Initiative (CWICI) is a public-private partnership to improve the population status of the **Canada Warbler** throughout its distribution. Launched in June 2013, CWICI brings together the forest industry, representatives from Indigenous communities, academia, and government and non-government biologists in the Western Hemisphere. In 2015, CWICI began developing a conservation action plan for the breeding grounds. Although this species is declining throughout its range, declines appear to be most severe in the eastern portion, much of which is within the eastern boreal.

One of the main recommendations is to develop and adopt beneficial management practices in the forestry, mining, renewable power, and agriculture sectors to mitigate impacts on the shrubby understory preferred by the **Canada Warbler**. For example, ongoing efforts to encourage foresters to carry out practices that emulate natural disturbance patterns will help create a mosaic of habitats for the **Canada Warbler** and other priority landbird species in the southern parts of this region where forestry is prominent and active.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 7	BCR 8	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
BOREAL FOREST						
Bicknell's Thrush (B)		X	5%	* * *	* * *	* * *
Canada Warbler (B)	X	X	38%	48	-39%	-0.5%
Cape May Warbler (B)	X	X	26%	> 50	-18%	0.3%
Connecticut Warbler (B)	X	X	24%	* * *	-53%	-2.4%
Evening Grosbeak (R)		X	12%, AI = 4	11	-93%	-5.7%
Olive-sided Flycatcher (B)	X	X	7%	26	-59%	-2.0%
Black-billed Cuckoo (B)		X	5%	* * *	-57%	0.8%
Rusty Blackbird (B)	X	X	62%	* * *	-70%	-2.8%
Blackpoll Warbler (B)	X	X	37%	* * *	-70%	-3.5%
Least Flycatcher (B)	X	X	24%	>50	-37%	-1.0%
Wilson's Warbler (B)	X	X	15%	* * *	-23%	-1.4%
Pine Siskin (R)	X	X	11%, AI = 4	* * *	-63%	1.2%
WETLAND						
Nelson's Sparrow (B)	X		36%	* * *	* * *	* * *
Le Conte's Sparrow (B)	X	X	14%	* * *	* * *	* * *

***Watch List* ●●, *Common Birds In Steep Decline* ●**
See Page 34 For Explanation of All Footnotes

©Sue Fitzgerald

Climate change may affect the wetland habitat of species such as Nelson's Sparrow.

LOOKING AHEAD

- Pursue public-private partnerships on this largely publicly-owned land base.
- Manage resource development through collaborations among indigenous, provincial, and federal governments.
- Improve population monitoring through traditional surveys and emerging technologies.

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Bay-breasted Warbler (75%)
Yellow-bellied Flycatcher (65%)
Winter Wren (63%)
White-throated Sparrow (48%)
Philadelphia Vireo (45%)
Magnolia Warbler (43%)
Nashville Warbler (42%)
Black-throated Green Warbler (42%)
Ruby-crowned Kinglet (41%)
Palm Warbler (41%)
American Three-toed Woodpecker (41%)

**% population in region*

LOWER GREAT LAKES/ ST. LAWRENCE PLAIN REGION

©Dennis Jarvis

BIRD CONSERVATION LANDSCAPE

The Lower Great Lakes/St. Lawrence Plain Region, the Bird Conservation Region 13 portion of the Eastern Habitat Joint Venture, includes the low-lying areas south of the Canadian Shield and north of Lakes Erie and Ontario as well as those along the St. Lawrence River. Of the 288 species of birds that regularly occur in the region almost two-thirds (187) are landbirds. These southern parts of the provinces of Ontario and Québec are the most densely-populated regions of Canada, and most of the old-growth deciduous and mixed forests that originally covered the area have been converted to agricultural use. Urbanization is also causing habitat loss, especially along lake and river shorelines, which provide critical stopover habitat for migrating landbirds. Despite recent reforestation initiatives, remaining areas of natural habitat tend to be isolated and fragmented. Landbird species in the region are also threatened by predation from domestic cats, collisions with buildings and vehicles, and climate change, among other factors. Aerial insectivores—birds that forage on the wing—have experienced population declines of up to 95% in this region in recent decades, which is more than any other bird group; however, the factors contributing to this decrease remain poorly understood.

©Denis Fournier

Bobolink are declining steeply.

©Christian Artuso

Barn Swallow and other aerial insectivores have declined at alarming rates.

CONSERVATION IN ACTION

Conserving Aerial Insectivore Habitat in the Lower Great Lakes Region

Little is known about the underlying causes of the steep population declines of the formerly common Barn Swallow. Since 2013, Bird Studies Canada (BSC) has sent information about **Barn Swallow** to landowners on whose properties the birds were seen foraging or using possible nesting structures. Receptive landowners agree to have studies of nests and the surrounding habitat undertaken on their land, to conserve important habitat, and to monitor breeding birds. If a barn must be torn down, BSC works with interested landowners to install alternative nesting structures prior to the birds' return the following spring. One study is looking at how social cues influence the birds' use of alternative nesting structures. Wooden Barn Swallow decoys and audio equipment broadcasting Barn Swallow songs are installed at one or two structures on each site, and monitored throughout the breeding season. If successful, social cues could be used to attract birds to alternative nesting structures.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 13	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
EASTERN FOREST					
Golden-winged Warbler (B)	X	2%	> 50	>50%	1.7%
Black-billed Cuckoo (B)	X	4%	13*	-53%	-3.0%
Wood Thrush (B)	X	2%	24	-1%	-2.3%
American Tree Sparrow (W)	X	AI=5	* * *	* * *	* * *
GRASSLAND					
Bobolink (B)	X	11%	21	-82%	-3.5%
HABITAT GENERALIST					
Common Grackle (B)	X	3%	>50	-26%	-1.4%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

©Caleb Putnum

Golden-winged Warbler respond positively to management practices that create shrubby habitats.

LOOKING AHEAD

- Engage landowners and other stakeholders in habitat protection, restoration and management, using tools such as beneficial management practices and stewardship agreements to conserve habitat on privately owned land.
- Implement effective land and resource-use policies and regulations to maintain or improve both the quantity and quality of habitat.

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

American Goldfinch (5%)
Song Sparrow (4%)
Baltimore Oriole (4%)
Tree Swallow (4%)
Cedar Waxwing (3%)
Rose-breasted Grosbeak (3%)

**% population in region*

PRAIRIE HABITAT
JOINT VENTURE

©Helen Trefry

BIRD CONSERVATION LANDSCAPE

The Prairie Habitat Joint Venture is comprised of the Canadian portion of a single Bird Conservation Region (BCR)—the Prairie Potholes (BCR 11), named for the millions of shallow wetlands scattered across the landscape. This Joint Venture extends from the foothills of Alberta's Rocky Mountains to the Red River Valley in Manitoba, and from the U.S.-Canada border to the forested habitats of the Boreal Taiga Plains BCR (6) in the north. The climate is generally dry and grasslands are the dominant natural habitat. Native grasslands are predominantly mixed-grass prairie, but fescue prairie occurs in the west and north, and tallgrass prairie in parts of Manitoba. A moister climate in the northern and eastern extent of the region supports continuous tree cover. The region supports 261 breeding bird species, including 188 landbirds.

Conversion of native upland habitats, like shortgrass prairie and sagebrush, to cropland, rangeland or other agricultural uses has had the greatest impact on landbird populations. The most severe population declines have been observed for specialists of grasslands and sagebrush, including **Sprague's Pipit**, **Chestnut-collared Longspur**, **McCown's Longspur**, **Baird's Sparrow** and **Greater Sage-Grouse**. Other important threats to prairie habitats and the landbirds dependent on them include overgrazing, oil and gas development, and invasive species. Climate change is expected to result in drier, hotter summers and warmer, wetter winters in the region, but the full extent of the effects on birds is difficult to predict.

BLM

Greater Sage-Grouse is endangered in Canada.

©Caleb Putnum

Large patches of native grasslands are critical for grassland birds such as Sprague's Pipit.

CONSERVATION IN ACTION

Maintaining Wildlife Habitat in the Working Landscape

The South of the Divide Conservation Action Program Inc. (SODCAP Inc.) has been in place since the fall of 2014. Its goal is to develop programs for habitat management that are economically viable for stakeholders while sustaining native prairie for species at risk and other wildlife. The initiative is a partnership between stakeholders from the agriculture, energy, and conservation sectors, and municipal, federal, and provincial governments working in the Milk River Watershed of southwestern Saskatchewan. One of their most effective and innovative tools is "Results Based Agreements" that reward producers for meeting habitat targets based on the habitat requirements of focal species like **Sprague's Pipit**. The agreements are non-prescriptive, which allows the producer to decide whether the targets are feasible in a given year or not. Producers who meet results for grass height, sage-brush density, and litter cover receive a payment for that year. This approach encourages producers to make management decisions that support species at risk on their land.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 11	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
GRASSLAND					
Sprague's Pipit (B)	X	77%	28	-78%	-5.6%
Baird's Sparrow (B)	X	71%	> 50	-69%	-3.1%
McCown's Longspur (B)	X	23%	* * *	-95%	-6.7%
Chestnut-collared Longspur (B)	X	22%	17	-93%	-6.3%
Le Conte's Sparrow (B)	X	12%	>50	-8%	-0.1%
Bobolink (B)	X	5%	> 50	-5%	1.2%
Horned Lark (B)	X	7%	28	-86%	-5.6%
Short-eared Owl (W)	X	AI=4	* * *	* * *	* * *
WETLAND					
Nelson's Sparrow (B)	X	15%	> 50	-50%	5.2%
WESTERN FOREST					
Black-billed Cuckoo (B)	X	7%	15*	-75%	1.5%
Least Flycatcher (B)	X	9%	>50	21%	1.6%
SAGEBRUSH					
Greater Sage-Grouse (R)	X	6%	* * *	* * *	* * *
HABITAT GENERALIST					
Snowy Owl (W)	X	AI=5	* * *	* * *	* * *
Brewer's Blackbird (B)	X	16%	> 50	-26%	-0.7%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚪
See Page 34 For Table Explanation

USFWS

McCown's Longspur is affected by loss of grassland habitat in the Prairie region.

LOOKING AHEAD

- Develop and implement beneficial management practices to mitigate the effects of agriculture on birds.
- Prioritize habitat protection and restoration.
- Ensure maintenance of natural processes such as fire and hydrologic cycles.
- Initiate awareness and education campaigns to engage industry and the public in conservation.

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Clay-colored Sparrow (33%)
Sharp-tailed Grouse (24%)
Vesper Sparrow (24%)
Black-billed Magpie (22%)
Swainson's Hawk (19%)

**% population in region*

SOUTHERN SHIELD & MARITIMES REGION

©Asif A. Ali

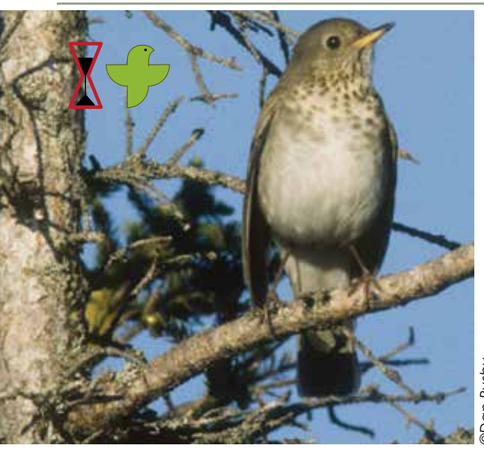
BIRD CONSERVATION LANDSCAPE

The Southern Shield and Maritimes Region, which is part of the Eastern Habitat Joint Venture, includes the areas east and west of Lake Superior in Ontario and the southern Laurentian area of Quebec, which correspond to Bird Conservation Region (BCR) 12, the Boreal Hardwood Transition, in Canada. It also includes Quebec's Appalachian region and Gaspé Peninsula, and the Maritime provinces, which make up the Canadian portion of BCR 14, the Atlantic Northern Forest. A total of 329 species of birds regularly breed, overwinter, reside year-round or routinely migrate through the region, including 190 landbirds such as Watch List species like **Black-billed Cuckoo** and **Evening Grosbeak**. The region consists of both hardwood- and softwood-dominated forests on poorly-drained soils. The rocky, mountainous terrain is dotted with extensive plains, valleys, rivers, and small lakes, in which the dominant human activity is logging. Though they provide critical bird habitat throughout the region, wetlands are most abundant in the Maritimes, where agriculture, fishing and aquaculture are also important industries.

Long-term management of forestry has resulted in habitat fragmentation, disturbance, and a scarcity of both large-diameter trees and snags with cavities. Acid precipitation and pesticide spraying in forests reduce the availability of insect prey. Agricultural intensification and residential and commercial development result in land conversion which has significant impacts on birds and their habitats. Waterfowl are the only bird species group whose populations have increased in this region since the 1970s.

©Tom Benson

Black-billed Cuckoo are declining.



©Dan Busby

Bicknell's Thrush in Quebec may benefit from regeneration of dense coniferous forest after managed harvest.

CONSERVATION IN ACTION

Conserving Bicknell's Thrush Habitat in Eastern Canada

The not-for-profit group QuébecOiseaux partnered with the forestry company Domtar to produce a management plan for 3,000 hectares (7,400 acres) of land east of Montreal along the border with Maine. The area, which is part of the **Bicknell's Thrush** breeding range, is Forest Stewardship Council certified, which means that forests must be well managed to provide environmental, social and economic benefits. The company agreed to postpone their logging operation until after QuébecOiseaux biologists conducted surveys to determine where **Bicknell's Thrush** occurred. A collaboratively developed harvest plan for the mountain included both areas to remain untouched and areas to be harvested in a manner that would encourage regrowth of the dense, stunted coniferous forest preferred by **Bicknell's Thrush**. The post-harvest landscape looked promising; however, future surveys will be needed to determine the optimal habitat and breeding success for **Bicknell's Thrush** in these managed forests.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 12	BCR 14	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
BOREAL FOREST						
Bicknell's Thrush (B)		X	40%	* * *	* * *	* * *
Evening Grosbeak (R)	X	X	23%	11*	-92%	-5.3%
Canada Warbler (B)	X	X	19%	> 50	-80%	-1.4%
Cape May Warbler (B)	X	X	15%	> 50	-44%	-1.7%
Connecticut Warbler (B)	X		5%	37	-69%	-2.9%
Pine Siskin (W)	X	X	AI=4	* * *	* * *	* * *
EASTERN FOREST						
Golden-winged Warbler (B)	X		14%	20*	-17%	-5.3%
Black-billed Cuckoo (B)	X	X	24%	9*	-52%	-5.2%
Wood Thrush (B)	X	X	4%	19*	-83%	-3.3%
Least Flycatcher (B)	X	X	8%	31	-62%	-2.0%
American Tree Sparrow (W)		X	AI = 4	* * *	* * *	* * *
GRASSLAND						
Bobolink (B)	X	X	10%	34	-89%	-3.1%
COASTAL SALTMARSH						
Nelson's Sparrow (B)		X	4%	> 50	13%	0.0%

***Watch List* ●●, *Common Birds In Steep Decline* ●**

See Page 34 For Table Explanation

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Black-throated Blue Warbler (56%)
Chestnut-sided Warbler (38%)
Blackburnian Warbler (38%)

Veery (38%)
Broad-winged Hawk (26%)
Nashville Warbler (24%)

Black-throated Green Warbler (24%)
Blue-headed Vireo (23%)
Yellow-bellied Sapsucker (22%)

Winter Wren (22%)
Ovenbird (21%)
Northern Parula (21%)
Black-and-white Warbler (20%)

**% population in region*

LOOKING AHEAD

- Ensure adequate habitat for **Bicknell's Thrush** and other Watch List species through protection of significant sites and implementation of beneficial management practices.
- Improve understanding of the factors causing bird population declines.
- Expand existing monitoring and research programs, and implement surveys of specific groups like high-altitude or nocturnal birds.

©Frédéric Bussière

Habitat managed for Bicknell's Thrush, post-harvest.

WESTERN BOREAL JOINT VENTURE

©Charles Peterson

BIRD CONSERVATION LANDSCAPE

The Western Boreal Region, affiliated with the Prairie Habitat Joint Venture, is comprised of the Northwestern Interior Forest Bird Conservation Region (BCR 4), and portions of the Boreal Taiga Plains BCR (6), Taiga Shield and Hudson Plains BCR (7), and Boreal Softwood Shield BCR (8) west of Ontario. A mix of boreal forests dominates the landscape interspersed with lakes, ponds, marshes, swamps, bogs, and fens. Taiga and alpine tundra occur in northwestern portions of the region, while peatlands overlay the granite bedrock of the Canadian Shield and coastal floodplains and marshlands typify the Hudson Plains. These boreal habitats support 318 bird species, including 209 landbirds. Among them are **Blackpoll Warbler**, **Boreal Chickadee**, and **Alder Flycatcher**, each with steep population declines.

©Global Forest Watch Canada

Habitat fragmented by mixed use.

The pace and extent of habitat change in the Western Boreal Forest, particularly in the south, has grown rapidly with the expansion of both traditional industries such as forestry, oil and gas, and newly emerging activities like hydraulic fracturing. Habitat loss and alteration in southern portions of BCR 6 stem from agriculture and linear features such as roads, railways, power/utility lines, and pipelines. Climate change is a significant issue mainly in the north.

Despite these threats, opportunities for proactive conservation still exist to keep common species common and preserve important ecological features and processes.

USFWS

Western Tanager is tolerant of open habitats but are still predicted to decrease with further development and climate change.

CONSERVATION IN ACTION

Using Models to Evaluate Landbird Population Objectives

Land-use change models can assess the feasibility of regional population objectives. A team of University of Alberta/Boreal Avian Modeling Project researchers modeled current habitat conditions and three possible future scenarios over 30 years: continued land development (Business As Usual); protected areas over 20% of the study area (Protected Areas); and increased forest fire burn rate from climate change (Climate Change). Regional population objectives were not met for any of the four priority landbird species modeled. Specifically, populations of **Black-throated Green Warbler**, **Boreal Chickadee**, and **Western Tanager**—mature and old forest species—were projected to decrease under all three scenarios. Significant increases were projected for **White-throated Sparrow** under all scenarios, but still fell short of the objective. The Protected Areas scenario resulted in higher population sizes for three species while the Climate Change scenario resulted in lower population sizes for all species. This approach allows conservation planners to assess and revise regional objectives and on-the-ground actions.

SPECIES OF CONTINENTAL IMPORTANCE

Species	BCR 4	BCR 6	BCR 7	BCR 8	Area Importance	Urgency/Half-life (years)	Long-term Change	Short-term Trend
BOREAL FOREST								
Connecticut Warbler (B)		X		X	65%	>50	-54%	-1.4%
Cape May Warbler (B)		X	X	X	57%	> 50	>50%	2.3%
Harris's Sparrow (B)		X	X	X	44%	* * *	* * *	* * *
Olive-sided Flycatcher (B)	X	X	X	X	29%	34	-67%	-2.4%
Canada Warbler (B)		X		X	24%	> 50	-33%	-1.3%
Evening Grosbeak (R)		X		X	7%, AI=5	11	-77%	-3.1%
Blackpoll Warbler (B)	X	X	X	X	36%	* * *	-71%	-3.0%
Pine Siskin (B)	X	X		X	27%	* * *	-73%	-3.4%
Rusty Blackbird (B)	X	X	X		22%	> 50	-71%	-2.3%
Wilson's Warbler (B)	X	X	X	X	17%	* * *	9%	0.5%
Varied Thrush (B)	X	X			10%	> 50	19%	1.1%
American Tree Sparrow (B)	X		X	X	8%	* * *	-96%	-2.8%
WETLAND								
Le Conte's Sparrow (B)		X	X		62%	28	-66%	-2.2%
Nelson's Sparrow (B)		X	X		31%	* * *	>50%	2.4%
WESTERN FOREST								
Black-billed Cuckoo (B)		X		X	13%	* * *	-77%	>5.0%
Long-eared Owl (B)		X		X	6%	* * *	* * *	* * *
Least Flycatcher (B)	X	X	X	X	42%	22	-58%	-2.2%
HABITAT GENERALIST								
Brewer's Blackbird (B)		X			5%	15	-90%	-4.0%

Watch List 🔴🟡, ***Common Birds In Steep Decline*** ⚪

See Page 34 For Table Explanation

LOOKING AHEAD

- Seek broad collaborations among governments, industry, Indigenous Peoples and others active in more intact areas.
- Protect less intact lands and develop and implement industrial practices that support landbirds and their habitats.

ADDITIONAL SPECIES WITH HIGH AREA IMPORTANCE*

Tennessee Warbler (78%)
Palm Warbler (57%)
Black-backed Woodpecker (51%)
Lincoln's Sparrow (51%)
Orange-crowned Warbler (51%)
Swamp Sparrow (50%)
Alder Flycatcher (50%)
Clay-colored Sparrow (49%)
Gray Jay (45%)
Yellow-rumped Warbler (44%)
Hermit Thrush (44%)
Boreal Chickadee (42%)
Ruffed Grouse (42%)
Yellow-bellied Sapsucker (41%)

*% population in region

PIF SCIENCE-BASED APPROACH

OVERVIEW OF PIF SCIENCE-BASED APPROACH

Partners in Flight (PIF) conservation planning and action is guided by a biologically-driven process built on a foundation of scientific knowledge about birds and the threats they face (see descriptions in Pashley et al. 2000, Rich et al. 2004, and Alexander 2011). PIF follows a step-by-step planning approach and a logical process for setting objectives, working with partners to implement conservation actions, and evaluating progress toward these objectives. Our approach, originally described as the PIF "Flight Plan" (Pashley et al. 2000), formed the basis for the PIF North American Landbird Conservation Plan (Rich et al. 2004), Saving Our Shared Birds: PIF Tri-National Vision for Landbird Conservation (Berlanga et al. 2010) and many other bird conservation planning efforts at multiple scales. PIF's step-by-step approach, applied through a broad collaboration among avian scientists from universities, agencies, and Non governmental organizations, includes:

- Assess conservation vulnerability of all landbird species;
- Identify species and habitats most in need of conservation attention;
- Set numerical population objectives for species of continental and regional importance;
- Set habitat-based conservation objectives and identify conservation actions for priority species;
- Identify suites of focal species that are representative of desired habitat conditions;
- Work with partners to implement strategies for meeting species and habitat objectives at continental and regional scales;
- Evaluate conservation outcomes using habitat measures, response of focal species, and priority species' population trends; and
- Revise conservation priorities, objectives, and actions as new data and evaluation results become available.

In the sections below, we briefly describe the methodology employed in this 2016 Plan Revision, highlighting new data sources, refined methods, and updated results since Rich et al. (2004).

CONSERVATION VULNERABILITY ASSESSMENT

Global Species Assessment

PIF assesses the conservation vulnerability of all native landbird species throughout their range and annual cycle, based on biological criteria that evaluate distinct components of vulnerability. The process has evolved over time (Hunter et al. 1993, Carter et al. 2000, Panjabi et al. 2001, Panjabi et al. 2005, Panjabi et al. 2012) and has been refined in response to external reviewers (Beissinger et al. 2000) and partner input.

The species assessment process uses data contained in the PIF Species Assessment Database and is explained in detail in the PIF Handbook on Species Assessment (Panjabi et al. 2012). Each species is assigned global scores for six factors, assessing largely independent aspects of vulnerability at the range-wide scale: Population Size (PS), Breeding Distribution (BD), Non-breeding Distribution (ND), Threats to Breeding (TB), Threats to Non-breeding (TN), and Population Trend (PT) (see page 5 for descriptions). Each score reflects the degree of a species' vulnerability due to that factor, ranging from "1" (low vulnerability) to "5" (high vulnerability).

For each species we calculated the Maximum Combined Score (Max CS), a single metric of a species' relative vulnerability based on a combination of the individual factor scores (see Species Assessment Handbook). Max CS can range from 4 for a widespread, relatively secure species, to 20 for a species of the very highest concern. Global scores for all landbirds have been updated for this 2016 Plan Revision, using the latest data from the North American Breeding Bird Survey (BBS), other updated data sources, and extensive review by the PIF Science Committee. The updated global scores are presented in Appendix A.

Species of Conservation Concern

The PIF Species Assessment uses a standardized and calibrated process to identify species and habitats most in need of conservation attention. A primary product of the assessment is the Watch List of species exhibiting the greatest vulnerability to regional extirpation or extinction. Here we present the fully updated PIF Watch List of Landbirds for the U.S. and Canada (see Table 1, pages 6-7), divided into categories that reflect levels of vulnerability and PIF's revised population goals for each species (see sidebar on page 97). Identical methodology was use to create the U.S Watch List for all birds (NABCI 2014) and most recently for all North American Birds (Canada, U.S., Mexico; NABCI 2016).

PIF also recognizes a list of Common Birds in Steep Decline List, which represent species that do not exhibit overall levels of vulnerability warranting Watch List designation, but which are experiencing troubling declines throughout their range (see Figure 2, page 11). Paying attention to these still abundant species helps PIF achieve its mission of Keeping Common Birds Common.

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Common Birds in Steep Decline, such as Grasshopper Sparrow, are important because they can consume an impressive amount of insects in a single day. These landbirds help maintain healthy ecosystems by providing services, including insect control, pollination, and seed dispersal.

SPECIES OF CONSERVATION CONCERN EXPLAINED

Watch List

All Watch List Species have a Maximum Combined Score (Max CS) > 14 OR Max CS = 13 with PT = 5.

Red Watch List – Highly Vulnerable and in Urgent Need of Special Attention

Species in this category are on the Watch List AND have either:
Max CS > 16 OR
[Max CS = 16 AND (PT + Tmax) = 9 or 10].

"R" Yellow Watch List – Range Restricted and Small Populations - In Need of Constant Care

Species in this category are on Watch List AND not on the Red List AND have either:
[PS + Dmax > PT + Tmax] OR
[(PS + Dmax = PT + Tmax) AND PT < 4].

"D" Yellow Watch List – Steep Declines, Major Threats

Species in this category are on Watch List AND not on the Red List AND have either:
[PT + Tmax > PS + Dmax] OR
[(PT + Tmax = PS + Dmax) AND PT > 4].

Common Birds in Steep Decline

Species in this category are native species not on the Watch List but with a PT = 5 AND PS, BD and ND < 4.

CONSERVATION URGENCY METRICS

Along with identifying species on the Watch List, we provide additional information that highlights these species' conservation concern and a sense of urgency for action (Table 1). In addition to direct measures of population change derived from long-term monitoring data, we introduce in this 2016 Plan Revision the new concept of "population half-life," based on models that project trends into the future to forecast rates of future population change.

Population Change – We used population trends from the BBS or Christmas Bird Count (CBC) to estimate the percentage population change for each species from 1970-2014. Range-wide population change is presented for Watch List species in Table 1 (see "Loss" column) and for all species in Appendix A, while region-specific population change is presented in the tables within Joint Venture (JV) and Canadian Region profiles (see "Long-term Change" column) beginning on page 36. For species without reliable BBS or CBC data, we used other sources of information, where available for approximately the same time interval, to put species into population change categories such as "> 50%" or "15-50%" loss.

Because population change metrics based on BBS data were available for Bird Conservation Regions (BCR) but not for Joint Ventures or Canadian Regions, we used existing BCR-scale data to generate approximate values for long-term change and short-term trend at the JV scale. We calculated a weighted mean of each metric across BCRs within a given JV or Region, with weights proportional to a species' % of population within the portion of each BCR in a JV or Canadian Region.

Population Half Life – Data from the BBS time series of indices of abundance summarized at the BCR-level were used to fit a multivariate state-space model for each species, as described in Stanton et al (2016). This approach allows for estimation of the trend and year-to-year population variability while removing some of the residual variance belonging to the observation process. With the characterization of the population variability and the most recent trend observed over the last decade, a forecast is then made that projects the population forward to predict how many years in the future until a population size that is half of the current abundance is expected to be observed—this value we define as the Population Half-life for each species. This prediction is based on the assumption that the population trends observed over the past decade will continue. This approach also assumes that the year-to-year population variability, as observed over the past four decades, is inherent to the species and has not increased or decreased substantially with climate change or other changes on the landscape.

Half-life for entire species' populations are presented in Table 1 and Appendix A. The number reported for a given species in a JV or Canadian Region table (see pages 36-95) is specific to that region and represents the Half-life value from the BCR with the greatest % of population for that species within the JV or Region.

DETERMINING AREA IMPORTANCE

Regions of highest importance for the conservation of each Watch List species during breeding and winter periods are identified in Table 1. BCRs of highest breeding-season importance for a species have either > 25% of the breeding population OR > 5% of the breeding population AND a regional relative density score of 4 or 5. Relative density is a score reflecting the density of a species within a given BCR relative to the species' highest density within any BCR (See PIF Handbook on Species Assessment for details).

For migrant species in the winter season, we applied similar methodology to newly available frequency data from eBird. Regions of highest importance across all BCRs, Mexican biomes, and countries/regions further south, were those with area importance (AI) scores of 4 or 5, based on eBird data for the months of January and February ("winter"). Similar to relative density described above, area importance is a score reflecting a species' proportional occurrence on eBird check-lists within a given region during winter relative to the species' highest relative occurrence on eBird check-lists within any region during winter.

Regional area importance value for Watch List and Common Birds in Steep Decline species are also presented in the JV and Canadian Region tables in pages 36-95. For these tables, regional area importance is reported as either the % of breeding population or the winter area importance score. The % of breeding population for each JV and Canadian Region was approximated using data from the PIF Population Estimates Database by summing the % of population across all appropriate state/province-by-BCR polygons matching a given JVs or Region's boundary. In cases where a state/province-by-BCR polygon was substantially split between two JVs, we assigned the BBS routes within that polygon to the appropriate JV and calculated the resulting % of population for each JV.

POPULATION ESTIMATES

Population estimates for all landbird species were updated for the 2016 Plan Revision, with estimates of population size within the U.S. and Canada presented for all species in Appendix A. The general approach, as well as specific details on the PIF method for estimating landbird population sizes, is described in the PIF Population Estimates Handbook (Blancher et al. 2007, 2013). The general approach includes building range-wide estimates based on average relative abundance across BBS routes within state/province-by-BCR polygons. Updated population estimates were based on BBS data for the years 2005-2014.

For this 2016 Plan Revision, an additional step was implemented to incorporate variability in the BBS counts and uncertainty in the three adjustment factors (time of day, detection distance, pair adjustment) for the BBS-based estimates. A Monte Carlo approach was used to propagate uncertainty arising from each component of the calculation through to the final population estimation by making 1,000 iterations of the calculation, randomly drawing from the distribution of each component. The result is a distribution of population size estimates for each species in each geographic region, which can be subsequently described by standard statistical metrics (e.g., mean, median, 95% calculation limits). The mean of the population size estimate distribution is used as the point estimate for the current population size for each species.
The printed version of this 2016 Plan Revision presents the mean population estimates from the Monte Carlo process for those species adequately covered by BBS. The 95% calculation limits will be available through the PIF Population Estimates Database, along with more details on the Monte Carlo approach. U.S./Canadian estimates for some species (as noted in Appendix A) are based on independent estimates from species-specific surveys or based on expert knowledge combined with estimates of the % of the total population within the two countries.

CONTINENTAL THREATS ASSESSMENT

To create the Continental Threat Index presented on page 14, we assigned a score of 3, 4, or 5 to one or more of the 12 threat categories for each Watch List and Common Birds in Steep Decline species. These scores were based on the Threats Breeding and Threats Nonbreeding scores in the PIF Species Assessment Database as well as associated comments. For each species with TB or TN scores of 3 (moderate threats), 4 (high threats), or 5 (severe threats), we assigned equivalent scores to the threat categories primarily responsible for elevated TB or TN scores. The Index value for a given threat category was the sum of scores across all Watch List and Common Birds in Steep Decline species, reflecting both the number of species affected by that threat and the relative severity of that threat across species.

USE OF FOCAL SPECIES FOR CONSERVATION PLANNING AND IMPLEMENTATION

PIF promotes the use of a focal species approach that supports habitat management planning; habitat needs of focal species can be used to formulate on-the-ground objectives and guide conservation implementation.

PIF focal species are: (1) representative of a range of desired future conditions for healthy ecosystems; (2) cost-effective to monitor; and (3) responsive to management actions and therefore can be used to set and measure habitat-based conservation objectives for both at-risk and more common species. Focusing on suites of species that are indicators of desired future conditions, and not subject to numerous regulations, offers an effective approach to engaging partners in voluntary conservation actions. By managing for suites of species representative of important habitat components, many other species and elements of biodiversity also will be conserved. Focal species can help tie PIF population objectives to habitat objectives to recover and sustain diverse landbird populations at BCR and JV scales.

Monitoring a suite of focal bird species with standardized protocols can be used to test the effectiveness of conservation actions. Such monitoring is an essential component of an adaptive management approach. Examples of the use of focal species include setting regional population and habitat objectives for riparian habitat within the Central Valley Joint Venture in California, and regional planning efforts throughout the Pacific Coast region.

RESEARCH AND MONITORING NEEDS

Over the years various PIF-related documents have been published identifying research and/or monitoring needs that are required to enable the effective conservation of landbirds in North America. These include Donovan et al. (2002), Ruth et al. (2003), Dunn et al. (2005), Ruth and Rosenberg (2009), and Laurent and Pashley (2009). Key research and monitoring needs associated with this 2016 Plan Revision are provided throughout the document in the relevant sections of text or PIF Recommended Action boxes.

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Robert Meese releases a banded female Tricolored Blackbird.

BREEDING HABITAT AND WINTER GEOGRAPHY DEFINITIONS FOR U.S./CANADIAN LANDBIRDS

Primary breeding habitat and primary winter geography for all 448 landbirds in Canada and the U.S. are presented in Appendix A.

PRIMARY BREEDING HABITAT: The follow definitions were adapted from categories used in the State of North America's Birds Report (NABCI 2016) and database (www.stateofthebirds.org). Colors reflect the Major Habitat category used in that report (e.g., Forests, Aridlands, etc.).

Wetland generalist = uses a wide variety of freshwater wetlands, over a wide geographic area; birds may have a specific nesting requirement, but can nest in a variety of situations that provide nesting substrate (e.g., trees, shorelines).

Freshwater marsh = permanent or semi-permanent freshwater wetlands with emergent aquatic vegetation (cattails, etc.); often embedded within other "parent" habitats; species often widespread geographically.

Prairie wetland = ephemeral or seasonal wetlands, usually dominated by grasses (as opposed to cattails, etc.); primarily within Prairie biome of U.S. and Canada.

Coastal saltmarsh = tidally influenced saltmarsh, primarily on Atlantic and Gulf Coasts.

Mangrove = mangrove swamps from Florida and Mexico south.

Arctic tundra = tundra habitat in arctic region of Canada and Alaska.

Alpine tundra = alpine habitat on high elevation mountaintops.

Grassland = native grassland, pasture, and agriculture that supports grassland birds.

Sagebrush = Great Basin sage-dominated desert and steppe region of western U.S. and southwestern Canada.

Chaparral = unique shrub community, primarily in coastal California and Baja, including coastal sage, but also similar shrub habitats in interior Southwest.

Desert scrub = a broad range of desert communities, including Mojave, Sonoran, and Chihuahuan deserts, and deserts of Mexico's Central Plateau.

Rocky cliffs = a separate designation for certain species that occur primarily in aridland regions but also in barren rocky areas within forested mountains.

Boreal forest = "true" boreal forest of Canada and Alaska, and also the boreal zone (primarily spruce-fir) of high mountains in the western and northeastern U.S.

Eastern forest = all forest types of eastern U.S. and southeastern Canada (below the boreal), including northern hardwoods, oak-hickory, pine-oak, southern pine, and bottomland hardwood associations.

Western forest = all forest types of western U.S. and Canada (below the boreal) and extending through high mountains south into northwestern Mexico; includes Pacific Northwest rainforest, all western conifer, oak-dominated, and riparian forests, pinyon-juniper, juniper-oak woodlands of Edward's Plateau, and high-elevation conifer forests of northwestern Mexico (above pine-oak).

Mexican pine-oak forest = distinctive pine-oak forests of Mexican mountains, including similar forests in "sky island" mountains from southeastern Arizona to western Texas, and extending south in northern Central America.

Tropical dry forest = broad array of deciduous and semi-deciduous forests, including arid thorn forest; primarily on Pacific slope from northwestern Mexico to northwestern Costa Rica, but also including Tamaulipan "thornscrub" throughout Texas and other areas.

Forest generalist = occurs in roughly equal abundance in three or more forest types.

Habitat Generalist = occurs in roughly equal abundance in three or more major habitat types, usually including forest and non-forest categories.

WINTER GEOGRAPHIC REGION: The primary region within which a species spends the northern winter (i.e., stationary nonbreeding period); based on regions identified at PIF V Workshop, 2013, in Snowbird, UT and modified and expanded to include all migratory species. Regions south of the U.S. correspond with mapped regions in Figure 7 on page 23. Non-migratory species are designated as Resident.

Caribbean = islands of the West Indies and Caribbean Sea.

Central and South American Highlands = subtropical and cloud forest zones of mountain regions from Honduras south through Central America to the northern Andes and other mountains of northern South America.

Chihuahuan Grasslands = distinctive arid grassland region of northern Mexico and extreme southwestern U.S.

Gulf-Caribbean Lowlands = Atlantic slope region from northeastern Mexico to Panama (based on avifauna, potentially also including lowlands of Panama from Canal Zone south, and low areas of northern Colombia north and west of Andes).

Mexican Highlands = pine-oak, cloud forest, and Mexican highland forest zone from northern Mexico through Guatemala and Honduras to northern Nicaragua and El Salvador.

Pacific Lowlands = Pacific slope from northwestern Mexico to northwestern Costa Rica, including inland drainages (e.g., Baslas).

South American Lowlands = all lowland areas east and south of the Andes, including Amazonia, Pantanal, dry forest types, and grasslands.

Southwestern Aridlands = aridland region of southwestern U.S., northwestern Mexico, and Mexican Plateau.

U.S./Canadian regions = for migratory species that winter primarily north of Mexico (i.e., not Neotropical migrants), we describe a broad region (e.g., Northern U.S./Canada) that indicates general winter distribution and does not correspond with any mapped biographic regions.

Widespread = occurs in roughly equal abundance in three or more geographic regions.

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APPENDIX A: SPECIES ASSESSMENT INFORMATION

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Plain Chachalaca	3	3	3	2	2	3	11			<2,500#	Trop Dry Forest	Resident
Mountain Quail	4	3	3	3	3	4	14	-19%	>50	290,000	Western Forest	Resident
Scaled Quail	3	2	2	3	3	5	13	-67%	8	2,400,000	Desert Scrub	Resident
California Quail	3	2	2	2	2	1	8	71%	>50	3,600,000	Chaparral	Resident
Gambel's Quail	2	3	3	2	2	2	9	-13%	>50	4,500,000	Desert Scrub	Resident
Northern Bobwhite	2	1	1	4	3	5	12	-83%	10	5,800,000*	Eastern Forest	Resident
Montezuma Quail	3	3	3	3	3	4	13			<150,000#	Mex Pine Oak	Resident
Ruffed Grouse	2	1	1	3	3	3	9	31%	>50	18,000,000*	Forest Generalist	Resident
Greater Sage-Grouse	4	2	2	4	4	5	15		>50	432,000*	Sagebrush	Resident
Gunnison Sage-Grouse	5	5	5	5	5	5	20			4,600*	Sagebrush	Resident
Spruce Grouse	2	1	1	2	2	2	7	> 200%		11,000,000*	Boreal Forest	Resident
Willow Ptarmigan	2	1	1	2	2	3	8			10,000,000	Arctic Tundra	Resident
Rock Ptarmigan	2	1	1	2	2	3	8			3,900,000	Arctic Tundra	Resident
White-tailed Ptarmigan	3	2	2	3	3	3	11			2,000,000#	Alpine Tundra	Resident
Dusky Grouse	4	2	2	3	3	2	11	105%	>50	300,000#	Western Forest	Resident
Sooty Grouse	3	3	3	3	3	5	14	-55%	>50	2,000,000#	Western Forest	Resident
Sharp-tailed Grouse	3	2	2	3	3	2	10	19%	>50	750,000	Grassland	Resident
Greater Prairie-Chicken	3	3	3	4	4	5	15		>50	750,000	Grassland	Resident
Lesser Prairie-Chicken	5	4	4	5	5	5	19			32,000*	Grassland	Resident
Wild Turkey	2	2	2	2	2	1	7	> 200%	>50	7,800,000*	Forest Generalist	Resident
Black Vulture	2	1	1	1	1	1	5	> 200%	>50	1,200,000	Habitat Generalist	Widespread
Turkey Vulture	2	1	1	1	1	1	5	186%	>50	6,700,000	Habitat Generalist	Widespread
California Condor	5	5	4	5	5	5	20			230*	Chaparral	Resident
Osprey	3	1	1	2	2	1	7	> 200%	>50	310,000	Wetland Generalist	Widespread
Hook-billed Kite	4	1	1	3	3	4	12			< 50#	Trop Evgrn Forest	Resident
Swallow-tailed Kite	4	1	1	4	3	3	12		>50	7,500*	Eastern Forest	Widespread Neotropical
White-tailed Kite	3	1	1	2	2	4	10	-36%	>50	10,000	Habitat Generalist	Resident
Snail Kite	3	1	1	3	3	2	9			2,100*	Freshwater Marsh	Resident
Mississippi Kite	3	2	2	2	3	3	11	25%	>50	540,000	Eastern Forest	S. American Lowlands
Bald Eagle	4	1	1	3	3	1	9	131%	>50	200,000*	Wetland Generalist	Widespread U.S.
Northern Harrier	3	1	1	3	3	4	11	-37%	>50	790,000	Grassland	Widespread
Sharp-shinned Hawk	3	1	1	2	2	1	7	68%	>50	440,000	Forest Generalist	Widespread
Cooper's Hawk	3	1	1	2	2	1	7	> 200%	>50	800,000	Forest Generalist	Widespread
Northern Goshawk	4	1	1	3	3	3	11	2%	>50	210,000	Forest Generalist	Northern U.S./Canada
Common Black Hawk	3	2	2	3	3	3	11			<2,000#	Trop Dry Forest	Resident
Harris's Hawk	3	1	1	3	3	4	11		41	55,000	Desert Scrub	Resident
White-tailed Hawk	3	1	1	3	3	3	10			<10,000#	Trop Dry Forest	Resident
Gray Hawk	3	1	1	2	2	2	8			<2,000#	Trop Dry Forest	Pacific Lowlands
Red-shouldered Hawk	3	2	2	2	2	1	8	> 200%	>50	1,600,000	Eastern Forest	Southern U.S.
Broad-winged Hawk	3	1	1	3	3	1	8	53%	>50	1,800,000	Boreal Forest	Widespread Neotropical
Short-tailed Hawk	3	1	1	3	3	3	10			< 50#	Habitat Generalist	Resident
Swainson's Hawk	3	1	3	3	4	2	12	35%	>50	800,000	Grassland	S. American Lowlands
Zone-tailed Hawk	3	1	1	3	3	3	10			<2,000#	Mex Pine Oak	Widespread Neotropical
Red-tailed Hawk	3	1	1	1	1	1	6	106%	>50	2,600,000	Habitat Generalist	Widespread
Rough-legged Hawk	3	1	1	2	2	2	8	2%		310,000	Arctic Tundra	Northern U.S./Canada
Ferruginous Hawk	4	2	2	3	3	2	11	39%	>50	110,000	Grassland	Western U.S./Mexico
Golden Eagle	4	1	1	3	3	2	10	6%	>50	57,000*	Habitat Generalist	Western U.S./Mexico

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
White-crowned Pigeon	3	3	3	4	4	4	14			<12,000*	Mangrove	Resident
Red-billed Pigeon	3	3	3	3	3	3	12			< 500#	Trop Dry Forest	Resident
Band-tailed Pigeon	3	2	2	3	3	5	13	-57%	>50	1,400,000	Western Forest	Mexican Highlands
Inca Dove	3	2	2	2	2	1	8	173%	>50	710,000	Desert Scrub	Resident
Common Ground-Dove	2	1	1	3	3	3	9		>50	2,100,000	Desert Scrub	Resident
Ruddy Ground-Dove	2	1	1	1	1	1	5			< 50#	Habitat Generalist	Resident
White-tipped Dove	2	1	1	2	2	3	8			<10,000#	Trop Dry Forest	Resident
White-winged Dove	2	2	2	2	2	3	9	48%	>50	6,000,000	Desert Scrub	Southwestern Aridlands
Mourning Dove	1	1	1	1	1	3	6	-14%	>50	130,000,000	Habitat Generalist	Widespread
Yellow-billed Cuckoo	2	1	2	3	3	5	12	-54%	29	8,200,000	Eastern Forest	S. American Lowlands
Mangrove Cuckoo	4	3	3	3	3	4	14			3,000	Mangrove	Resident
Black-billed Cuckoo	3	1	2	3	3	5	13	-68%	37	890,000	Boreal Forest	S. American Lowlands
Greater Roadrunner	3	2	2	2	2	2	9	9%	>50	790,000	Desert Scrub	Resident
Smooth-billed Ani	2	1	1	2	2	3	8			< 50#	Habitat Generalist	Resident
Groove-billed Ani	3	2	2	1	1	1	7		>50	< 5,000#	Habitat Generalist	Resident
Barn Owl	3	1	1	3	3	2	9	48%		120,000	Habitat Generalist	Resident
Flammulated Owl	5	2	4	3	3	3	15			11,000	Western Forest	Mexican Highlands
Western Screech-Owl	4	2	2	3	3	3	12			220,000	Western Forest	Resident
Eastern Screech-Owl	3	1	1	2	2	4	10	-41%		680,000	Eastern Forest	Resident
Whiskered Screech-Owl	4	3	3	3	3	4	14			< 500#	Mex Pine Oak	Resident
Great Horned Owl	2	1	1	1	1	4	8	-27%		3,900,000	Habitat Generalist	Resident
Snowy Owl	4	1	1	3	2	5	13	-64%		<30,000*	Arctic Tundra	Northern U.S./Canada
Northern Hawk Owl	4	1	1	3	2	3	11			100,000	Boreal Forest	Resident
Northern Pygmy-Owl	4	2	2	3	3	2	11	2%		100,000	Western Forest	Resident
Ferruginous Pygmy-Owl	2	1	1	2	2	3	8			< 1,000#	Trop Dry Forest	Resident
Elf Owl	4	3	3	3	3	3	13			40,000	Desert Scrub	Pacific Lowlands
Burrowing Owl	3	1	1	4	3	4	12	-35%		1,100,000	Grassland	Widespread
Spotted Owl	5	2	2	4	4	4	15			<15,000*	Western Forest	Resident
Barred Owl	3	1	1	2	2	1	7	99%		3,200,000	Forest Generalist	Resident
Great Gray Owl	4	1	1	3	3	3	11			95,000	Boreal Forest	Northern U.S./Canada
Long-eared Owl	4	1	1	3	3	5	13	-91%		140,000	Forest Generalist	Widespread U.S.
Short-eared Owl	3	1	1	3	3	5	12	-65%		660,000	Arctic Tundra	Widespread U.S.
Boreal Owl	3	1	1	3	3	3	10			1,700,000#	Boreal Forest	Northern U.S./Canada
Northern Saw-whet Owl	3	1	1	3	2	1	8	> 200%		2,000,000#	Forest Generalist	Widespread U.S.
Lesser Nighthawk	2	2	1	2	2	2	8	15%		3,200,000	Desert Scrub	Widespread Neotropical
Common Nighthawk	2	1	1	3	3	5	11	-58%		16,000,000	Habitat Generalist	S. American Lowlands
Antillean Nighthawk	4	3	3	2	2	3	12			< 50#	Habitat Generalist	Unknown
Common Pauraque	2	1	1	2	2	2	7			< 5,000#	Trop Dry Forest	Resident
Common Poorwill	3	1	2	3	2	4	11	-29%		1,100,000	Desert Scrub	Southwestern Aridlands
Chuck-will's-widow	2	2	2	3	3	5	12	-63%		5,400,000	Eastern Forest	Gulf-Caribbean Lowlands
Buff-collared Nightjar	3	3	3	3	3	3	12			< 50#	Trop Dry Forest	Pacific Lowlands
Eastern Whip-poor-will	3	2	3	3	3	5	14	-69%		1,800,000	Eastern Forest	Gulf-Caribbean Lowlands
Mexican Whip-poor-will	4	3	3	3	3	4	14			35,000	Mex Pine Oak	Mexican Highlands
Black Swift	4	2	2	4	3	5	15	-94%	16	74,000	Western Forest	S. American Lowlands
Chimney Swift	2	1	2	4	3	5	12	-67%	27	7,700,000	Eastern Forest	S. American Lowlands
Vaux's Swift	3	2	3	3	3	4	13	-50%	>50	390,000	Western Forest	Pacific Lowlands
White-throated Swift	3	2	2	2	2	4	11	-48%	>50	810,000	Rocky Cliff	Southwestern Aridlands

APPENDIX A: SPECIES ASSESSMENT INFORMATION

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Magnificent Hummingbird	3	3	3	3	3	3	12			< 5,000#	Mex Pine Oak	Resident
Blue-throated Hummingbird	3	3	3	3	3	3	12			<2,000#	Mex Pine Oak	Resident
Lucifer Hummingbird	4	3	4	3	3	3	14			< 5,000#	Desert Scrub	Pacific Lowlands
Ruby-throated Hummingbird	2	1	3	2	2	1	8	110%	>50	34,000,000	Eastern Forest	Pacific Lowlands
Black-chinned Hummingbird	2	2	4	2	2	1	9	66%	>50	7,700,000	Western Forest	Pacific Lowlands
Anna's Hummingbird	2	3	2	1	1	1	7	145%	>50	8,200,000	Chaparral	Resident
Costa's Hummingbird	3	3	3	3	3	4	13	-51%	37	1,600,000	Desert Scrub	Southwestern Aridlands
Broad-tailed Hummingbird	2	2	4	2	2	4	12	-49%	48	7,600,000	Western Forest	Mexican Highlands
Rufous Hummingbird	2	2	4	3	3	5	14	-60%	34	19,000,000	Western Forest	Mexican Highlands
Allen's Hummingbird	3	5	5	3	3	5	16	-83%	17	1,700,000	Chaparral	Mexican Highlands
Calliope Hummingbird	3	2	4	3	3	2	12	-9%	>50	4,500,000	Western Forest	Mexican Highlands
Broad-billed Hummingbird	3	3	3	2	2	2	10			200,000	Trop Dry Forest	Resident
Buff-bellied Hummingbird	3	3	3	2	2	3	11			100,000	Trop Dry Forest	Gulf-Caribbean Lowlands
Violet-crowned Hummingbird	3	3	3	2	2	2	10			<200#	Trop Dry Forest	Resident
White-eared Hummingbird	3	3	3	2	2	3	11			<200#	Mex Pine Oak	Resident
Elegant Trogon	4	3	3	3	3	4	14			< 500#	Mex Pine Oak	Pacific Lowlands
Ringed Kingfisher	2	1	1	2	2	3	8			< 500#	Wetland Generalist	Resident
Belted Kingfisher	3	1	1	2	2	4	10	-49%		1,700,000	Wetland Generalist	Widespread
Green Kingfisher	2	1	1	2	2	4	9			< 5,000#	Wetland Generalist	Resident
Lewis's Woodpecker	4	2	3	4	3	5	15	-72%	>50	69,000	Western Forest	Western U.S.
Red-headed Woodpecker	3	1	2	3	3	5	13	-67%	>50	1,600,000	Eastern Forest	Southeastern U.S.
Acorn Woodpecker	2	2	2	3	3	2	9	34%	>50	2,000,000	Western Forest	Resident
Gila Woodpecker	3	3	3	2	2	4	12	-44%	>50	430,000	Desert Scrub	Resident
Golden-fronted Woodpecker	3	2	2	2	2	2	9		>50	820,000	Trop Dry Forest	Resident
Red-bellied Woodpecker	2	2	2	2	2	1	7	63%	>50	15,000,000	Eastern Forest	Resident
Williamson's Sapsucker	4	3	3	3	3	2	12	5%	>50	290,000	Western Forest	Western U.S./Mexico
Yellow-bellied Sapsucker	2	1	1	2	2	2	7	46%	>50	12,000,000	Eastern Forest	Widespread
Red-naped Sapsucker	3	2	2	3	3	1	9	80%	>50	2,000,000	Western Forest	Western U.S./Mexico
Red-breasted Sapsucker	3	3	3	3	3	3	12	36%	>50	2,300,000	Western Forest	Western U.S.
Ladder-backed Woodpecker	2	2	2	2	2	3	9		>50	2,100,000	Desert Scrub	Resident
Nuttall's Woodpecker	3	4	4	3	3	1	11	65%	>50	650,000	Western Forest	Resident
Downy Woodpecker	2	1	1	2	1	2	7	8%	>50	13,000,000	Forest Generalist	Resident
Hairy Woodpecker	2	1	1	2	2	1	6	54%	>50	8,500,000	Forest Generalist	Resident
Arizona Woodpecker	4	3	3	3	3	4	14			< 5,000#	Mex Pine Oak	Resident
Red-cockaded Woodpecker	5	3	3	5	5	5	18	-81%	38	15,000*	Eastern Forest	Resident
White-headed Woodpecker	4	3	3	4	4	1	12	65%	>50	200,000	Western Forest	Resident
American Three-toed Woodpecker	3	1	1	3	3	3	10	-27%	>50	1,400,000	Boreal Forest	Resident
Black-backed Woodpecker	3	1	1	3	3	2	9	73%	>50	1,800,000	Boreal Forest	Resident
Northern Flicker	2	1	1	2	2	4	9			9,900,000	Forest Generalist	Widespread U.S.
Gilded Flicker	3	3	3	4	3	5	15	-54%	33	240,000	Desert Scrub	Resident
Pileated Woodpecker	3	1	1	2	2	1	7	87%	>50	2,600,000	Eastern Forest	Resident
Ivory-billed Woodpecker	5	5	5	5	5	3	18			0?#	Eastern Forest	Resident
Crested Caracara	3	1	1	2	2	2	8		>50	110,000	Trop Dry Forest	Resident
American Kestrel	3	1	1	3	2	4	11	-48%	>50	2,500,000	Habitat Generalist	Widespread
Merlin	3	1	1	2	2	1	7	> 200%	>50	1,500,000	Habitat Generalist	Widespread
Aplomado Falcon	4	1	1	4	3	4	13			<100	Grassland	Resident
Gyrfalcon	4	1	1	2	2	2	9	89%		39,000	Arctic Tundra	Northern U.S./Canada

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Peregrine Falcon	4	1	1	3	3	2	10	105%	>50	40,000*	Habitat Generalist	Widespread
Prairie Falcon	4	2	1	3	3	2	11	41%	>50	81,000	Desert Scrub	Southwestern Aridlands
Green Parakeet	4	4	4	4	4	4	16			<2,500#	Trop Dry Forest	Resident
Red-crowned Parrot	5	5	5	5	5	5	20			<1,500#	Trop Dry Forest	Resident
Northern Beardless-Tyrannulet	3	2	2	2	2	3	10			<10,000#	Trop Dry Forest	Resident
Olive-sided Flycatcher	3	1	1	3	4	5	13	-78%	24	1,900,000	Boreal Forest	Central & S. Am. Highlands
Greater Pewee	3	3	3	3	3	3	12			7,000	Mex Pine Oak	Mexican Highlands
Western Wood-Pewee	2	1	2	3	3	4	11	-47%	>50	10,000,000	Western Forest	Central & S. Am. Highlands
Eastern Wood-Pewee	2	1	1	3	3	4	10	-44%	>50	6,700,000	Eastern Forest	S. American Lowlands
Yellow-bellied Flycatcher	2	1	3	3	3	1	9	119%	>50	14,000,000	Boreal Forest	Gulf-Caribbean Lowlands
Acadian Flycatcher	2	2	3	3	3	3	11	-10%	>50	5,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Alder Flycatcher	1	1	2	2	2	4	9	-37%	>50	130,000,000	Boreal Forest	S. American Lowlands
Willow Flycatcher	2	1	2	4	2	4	11	-46%	>50	9,400,000	Eastern Forest	Pacific Lowlands
Least Flycatcher	2	1	2	3	2	5	11	-53%	42	31,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Hammond's Flycatcher	2	2	3	3	3	2	10	33%	>50	20,000,000	Western Forest	Mexican Highlands
Gray Flycatcher	3	2	3	3	2	1	9	185%	>50	3,000,000	Western Forest	Pacific Lowlands
Dusky Flycatcher	2	2	3	2	2	4	11	-26%	>50	9,400,000	Western Forest	Mexican Highlands
Pacific-slope Flycatcher	2	3	4	3	3	2	11			8,300,000	Western Forest	Pacific Lowlands
Cordilleran Flycatcher	3	2	3	3	3	2	11			2,100,000	Western Forest	Mexican Highlands
Buff-breasted Fly-catcher	3	3	3	3	2	3	12			< 500#	Mex Pine Oak	Resident
Black Phoebe	2	2	2	2	2	2	8		>50	1,300,000	Wetland Generalist	Western U.S./Mexico
Eastern Phoebe	2	1	2	2	2	2	8	29%	>50	33,000,000	Eastern Forest	Southeastern U.S.
Say's Phoebe	2	1	2	2	2	3	9	40%	>50	5,100,000	Habitat Generalist	Southwestern Aridlands
Vermilion Flycatcher	2	1	1	1	1	1	5		>50	560,000	Trop Dry Forest	Pacific Lowlands
Dusky-capped Flycatcher	2	1	1	3	3	3	9			<10,000#	Mex Pine Oak	Pacific Lowlands
Ash-throated Flycatcher	2	2	3	2	2	1	8	52%	>50	6,700,000	Desert Scrub	Pacific Lowlands
Great Crested Flycatcher	2	1	2	2	2	2	8	2%	>50	8,900,000	Eastern Forest	Gulf-Caribbean Lowlands
Brown-crested Flycatcher	2	1	1	2	2	3	8		>50	1,300,000	Desert Scrub	Pacific Lowlands
Great Kiskadee	1	1	1	1	1	2	5			<60,000#	Trop Dry Forest	Resident
Sulphur-bellied Flycatcher	3	2	2	2	3	3	11			< 1,000#	Mex Pine Oak	S. American Lowlands
Tropical Kingbird	1	1	1	1	1	1	4			< 7,000#	Habitat Generalist	Resident
Couch's Kingbird	3	3	3	2	2	2	10		>50	390,000	Trop Dry Forest	Resident
Cassin's Kingbird	2	2	3	2	2	2	9	8%	>50	2,600,000	Mex Pine Oak	Mexican Highlands
Thick-billed Kingbird	3	3	3	3	3	3	12			< 500#	Trop Dry Forest	Pacific Lowlands
Western Kingbird	2	1	3	2	2	2	9	20%	>50	25,000,000	Grassland	Pacific Lowlands
Eastern Kingbird	2	1	2	3	3	4	11	-38%	>50	26,000,000	Grassland	S. American Lowlands
Gray Kingbird	3	3	2	3	3	3	12			30,000	Mangrove	Caribbean
Scissor-tailed Flycatcher	2	2	3	2	2	4	11	-24%	37	9,900,000	Grassland	Pacific Lowlands
Rose-throated Becard	3	2	2	3	3	3	11			< 50#	Trop Dry Forest	Resident
Loggerhead Shrike	3	1	1	3	3	5	12	-74%	24	4,200,000	Grassland	Southern U.S./Mexico

APPENDIX A: SPECIES ASSESSMENT INFORMATION

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Northern Shrike	3	1	1	2	2	3	9	-14%		400,000#	Arctic Tundra	Northern U.S./Canada
White-eyed Vireo	2	2	2	2	2	2	8	33%	>50	20,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Bell's Vireo	2	2	4	4	3	2	11	38%	>50	4,500,000	Desert Scrub	Pacific Lowlands
Black-capped Vireo	5	4	4	4	3	4	17			11,000#	Desert Scrub	Pacific Lowlands
Gray Vireo	4	3	4	3	4	2	14	75%	>50	460,000	Western Forest	Southwestern Aridlands
Yellow-throated Vireo	3	2	2	3	3	1	9	62%	>50	4,400,000	Eastern Forest	Gulf-Caribbean Lowlands
Plumbeous Vireo	3	2	3	3	3	4	13	-39%	>50	2,500,000	Western Forest	Pacific Lowlands
Cassin's Vireo	3	3	3	3	3	1	10	81%	>50	4,200,000	Western Forest	Pacific Lowlands
Blue-headed Vireo	2	2	2	2	2	1	7	> 200%	>50	13,000,000	Boreal Forest	Gulf-Caribbean Lowlands
Hutton's Vireo	3	2	2	3	3	1	9	60%	>50	840,000	Western Forest	Resident
Warbling Vireo	1	1	3	3	3	1	8	55%	>50	53,000,000	Forest Generalist	Pacific Lowlands
Philadelphia Vireo	3	2	3	2	2	2	10	87%	>50	3,700,000	Boreal Forest	Gulf-Caribbean Lowlands
Red-eyed Vireo	1	1	1	2	2	2	6	43%	>50	130,000,000	Eastern Forest	S. American Lowlands
Yellow-green Vireo	3	2	2	3	3	3	11			< 50#	Trop Dry Forest	S. American Lowlands
Black-whiskered Vireo	3	3	1	3	3	3	12			84,000	Mangrove	S. American Lowlands
Gray Jay	2	1	1	2	2	4	9	-19%	>50	26,000,000	Boreal Forest	Resident
Brown Jay	3	3	3	2	2	2	10			< 50#	Trop Dry Forest	Resident
Green Jay	3	2	2	3	3	3	11		>50	60,000	Trop Dry Forest	Resident
Pinyon Jay	3	2	2	4	3	5	14	-85%	19	690,000	Western Forest	Resident
Steller's Jay	3	2	2	2	2	2	9	-5%	>50	2,600,000	Western Forest	Resident
Blue Jay	2	1	1	1	1	4	8	-24%	>50	17,000,000	Eastern Forest	Eastern U.S./Canada
Florida Scrub-Jay	5	5	5	5	5	5	20			4,000#	Eastern Forest	Resident
Island Scrub-Jay	5	5	5	3	3	3	16			1,700#	Western Forest	Resident
Western Scrub-Jay	3	2	2	2	2	3	10	-7%	>50	1,800,000	Western Forest	Resident
Mexican Jay	3	3	3	3	3	3	12			160,000	Mex Pine Oak	Resident
Clark's Nutcracker	4	2	2	3	2	2	11	-8%	>50	270,000	Western Forest	Resident
Black-billed Magpie	2	1	1	2	2	4	9	-23%	>50	6,100,000	Habitat Generalist	Resident
Yellow-billed Magpie	4	4	4	4	4	4	16		11	90,000*	Western Forest	Resident
American Crow	2	1	1	1	1	3	7	12%	>50	27,000,000	Habitat Generalist	Resident
Northwestern Crow	3	3	3	1	1	2	9	8%	>50	770,000	Western Forest	Resident
Fish Crow	4	3	3	1	1	2	10	30%	>50	460,000	Habitat Generalist	Resident
Chihuahuan Raven	3	2	2	2	1	2	9	0%	>50	300,000	Desert Scrub	Resident
Common Raven	2	1	1	2	1	1	6	168%	>50	7,700,000	Habitat Generalist	Resident
Horned Lark	1	1	1	2	2	5	9	-65%	40	97,000,000	Grassland	Widespread U.S./Mexico
Purple Martin	2	1	1	2	3	4	10	-23%	>50	7,600,000	Habitat Generalist	S. American Lowlands
Tree Swallow	2	1	2	2	2	4	10	-40%	>50	20,000,000	Habitat Generalist	Widespread
Violet-green Swallow	2	1	2	2	2	4	10	-19%	>50	7,000,000	Western Forest	Pacific Lowlands
Northern Rough-winged Swallow	2	1	2	2	2	4	10	-18%	>50	16,000,000	Habitat Generalist	Widespread
Bank Swallow	2	1	1	3	2	5	11	-89%	>50	7,700,000	Habitat Generalist	S. American Lowlands
Cliff Swallow	1	1	1	1	2	2	6	37%	>50	53,000,000	Habitat Generalist	S. American Lowlands
Cave Swallow	2	3	3	2	2	1	8	> 200%	>50	2,000,000	Desert Scrub	Pacific Lowlands
Barn Swallow	1	1	1	2	2	4	8	-38%	>50	41,000,000	Habitat Generalist	S. American Lowlands
Carolina Chickadee	2	2	2	2	1	3	9	-11%	>50	13,000,000	Eastern Forest	Resident
Black-capped Chickadee	2	1	1	2	1	2	7	40%	>50	39,000,000	Forest Generalist	Resident
Mountain Chickadee	2	2	2	2	2	4	10	-45%	>50	8,300,000	Western Forest	Resident
Mexican Chickadee	3	4	4	3	3	4	14			< 500#	Mex Pine Oak	Resident
Chestnut-backed Chickadee	2	3	3	3	2	5	13	-51%	46	12,000,000	Western Forest	Resident

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Boreal Chickadee	2	1	1	3	2	3	9	32%	>50	12,000,000	Boreal Forest	Resident
Gray-headed Chickadee	3	1	1	2	2	3	9			< 5,000#	Boreal Forest	Resident
Bridled Titmouse	3	3	3	3	3	3	12			82,000	Mex Pine Oak	Resident
Oak Titmouse	3	4	4	3	3	5	15	-51%	40	580,000	Western Forest	Resident
Juniper Titmouse	4	2	2	3	3	2	11	-4%	>50	280,000	Western Forest	Resident
Tufted Titmouse	2	2	2	2	1	1	7			11,000,000	Eastern Forest	Resident
Black-crested Titmouse	3	3	3	2	2	2	10			660,000	Trop Dry Forest	Resident
Verdin	2	2	2	3	2	5	12	-60%	31	3,400,000	Desert Scrub	Resident
Bushtit	3	2	2	2	2	4	11	-22%	>50	2,300,000	Western Forest	Resident
Red-breasted Nuthatch	2	1	1	2	2	1	6	86%	>50	19,000,000	Forest Generalist	Northern U.S./Canada
White-breasted Nuthatch	2	1	1	2	2	1	6	124%	>50	9,400,000	Forest Generalist	Resident
Pygmy Nuthatch	3	2	2	3	3	3	11	-21%	>50	2,500,000	Western Forest	Resident
Brown-headed Nuthatch	3	3	3	3	3	4	13	-18%	>50	1,400,000	Eastern Forest	Resident
Brown Creeper	2	1	1	3	3	2	8	30%	>50	10,000,000	Forest Generalist	Northern U.S./Canada
Rock Wren	3	1	2	2	2	4	11	-39%	>50	3,400,000	Desert Scrub	Southwestern Aridlands
Canyon Wren	4	1	1	2	2	2	9	0%	>50	310,000	Rocky Cliff	Resident
House Wren	1	1	1	1	1	2	5	8%	>50	42,000,000	Forest Generalist	Southern U.S./Mexico
Pacific Wren	2	2	2	3	3	4	11	-17%	15	6,700,000	Western Forest	Western U.S.
Winter Wren	2	2	2	3	2	1	8	74%	>50	12,000,000	Boreal Forest	Southeastern U.S.
Sedge Wren	2	1	1	3	3	1	7	72%	>50	5,400,000	Grassland	Southeastern U.S.
Marsh Wren	2	1	1	3	3	1	7	168%	>50	9,300,000	Freshwater Marsh	Southern U.S./Mexico
Carolina Wren	2	2	2	2	2	1	7	71%	>50	18,000,000	Eastern Forest	Resident
Bewick's Wren	2	2	2	3	3	4	11	-31%	47	4,400,000	Desert Scrub	Resident
Cactus Wren	2	2	2	3	2	5	12	-64%	20	3,100,000	Desert Scrub	Resident
Blue-gray Gnatcatcher	1	1	2	2	2	2	7	27%	>50	210,000,000	Habitat Generalist	Widespread
California Gnatcatcher	4	4	4	3	3	3	14			< 5,000#	Chaparral	Resident
Black-tailed Gnatcatcher	2	2	2	3	3	4	11	-40%	48	4,000,000	Desert Scrub	Resident
Black-capped Gnatcatcher	4	4	4	3	3	4	15			< 500#	Desert Scrub	Resident
American Dipper	4	1	1	3	3	3	11	-4%	>50	130,000	Western Forest	Resident
Golden-crowned Kinglet	1	1	1	2	2	4	8	-25%	>50	130,000,000	Boreal Forest	Widespread U.S.
Ruby-crowned Kinglet	1	1	1	2	2	2	6	17%	>50	90,000,000	Boreal Forest	Widespread U.S./Mexico
Arctic Warbler	1	1	1	2	3	3	8			6,600,000	Arctic Tundra	Paleotropics
Wrentit	3	4	4	3	3	4	14	-29%	>50	1,500,000	Chaparral	Resident
Bluethroat	3	1	1	2	3	3	10			200,000	Arctic Tundra	Paleotropics
Northern Wheatear	3	1	1	2	2	3	9			260,000	Arctic Tundra	Paleotropics
Eastern Bluebird	2	1	2	2	2	1	7	178%	>50	20,000,000	Eastern Forest	Southeastern US
Western Bluebird	2	2	2	3	3	2	9	36%	>50	5,000,000	Western Forest	Western US/Mexico
Mountain Bluebird	2	1	2	3	3	4	11	-21%	>50	6,000,000	Western Forest	Western US/Mexico
Townsend's Solitaire	3	2	2	3	3	3	11	23%	>50	1,100,000	Western Forest	Western US/Mexico
Veery	2	2	2	3	4	4	12	-40%	>50	12,000,000	Eastern Forest	S. American Lowlands
Gray-cheeked Thrush	2	1	1	2	3	3	9			20,000,000	Boreal Forest	S. American Lowlands
Bicknell's Thrush	4	4	4	3	5	4	17			110,500*	Boreal Forest	Caribbean
Swainson's Thrush	1	1	2	3	3	4	10	-32%	>50	110,000,000	Forest Generalist	Central & S. Am. Highlands
Hermit Thrush	1	1	1	2	2	3	7	35%	>50	70,000,000	Forest Generalist	Widespread U.S./Mexico
Wood Thrush	2	2	3	3	4	5	14	-60%	31	12,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Clay-colored Thrush	2	2	2	2	2	2	8			< 5,000#	Trop Dry Forest	Resident
American Robin	1	1	1	1	1	2	5	8%	>50	380,000,000	Forest Generalist	Widespread U.S.

APPENDIX A: SPECIES ASSESSMENT INFORMATION

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Varied Thrush	2	2	3	3	2	5	12	-63%	32	28,000,000	Western Forest	Western U.S.
Gray Catbird	2	1	2	2	2	2	8	1%	>50	29,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Curve-billed Thrasher	3	2	2	2	2	2	9		>50	1,200,000	Desert Scrub	Resident
Brown Thrasher	2	1	2	3	2	4	10	-37%	>50	6,100,000	Eastern Forest	Southeastern U.S.
Long-billed Thrasher	3	4	4	2	2	2	11		>50	190,000	Trop Dry Forest	Resident
Bendire's Thrasher	4	3	4	4	3	5	16	-87%	18	90,000	Desert Scrub	Southwestern Aridlands
California Thrasher	4	4	4	3	3	5	16	-57%	34	250,000	Chaparral	Resident
Le Conte's Thrasher	4	4	4	4	4	5	17	-67%	27	64,000	Desert Scrub	Resident
Crissal Thrasher	4	2	2	3	3	3	12	-22%	>50	100,000	Desert Scrub	Resident
Sage Thrasher	2	2	2	3	3	4	11	-44%	>50	6,600,000	Sagebrush	Southwestern Aridlands
Northern Mockingbird	2	1	1	1	1	4	8	-19%	>50	33,000,000	Habitat Generalist	Resident
Eastern Yellow Wagtail	2	2	2	2	2	3	9			<1,000,000#	Arctic Tundra	Paleotropics
White Wagtail	1	1	1	2	2	3	7			< 500#	Arctic Tundra	Paleotropics
Red-throated Pipit	3	2	1	2	2	3	10			< 50#	Arctic Tundra	Paleotropics
American Pipit	2	1	1	2	2	3	8	-30%		18,000,000	Arctic Tundra	Southern U.S./Mexico
Sprague's Pipit	3	2	2	4	4	5	14	-75%	27	1,200,000	Grassland	Chihuahuan Grasslands
Bohemian Waxwing	3	1	1	2	2	3	9	-55%		2,300,000	Boreal Forest	Northern U.S./Canada
Cedar Waxwing	1	1	1	2	2	3	7	15%	>50	57,000,000	Forest Generalist	Widespread U.S./Mexico
Phainopepla	3	2	2	3	2	2	10	-8%	>50	1,000,000	Desert Scrub	Resident
Olive Warbler	3	3	3	3	3	4	13			100,000	Mex Pine Oak	Resident
Lapland Longspur	1	1	1	2	2	3	7	-50%		66,000,000	Arctic Tundra	Widespread U.S.
Chestnut-collared Longspur	3	3	2	4	4	5	15	-85%	21	2,900,000	Grassland	Chihuahuan Grasslands
Smith's Longspur	4	3	3	2	3	3	13	155%		75,000*	Arctic Tundra	Central U.S.
McCown's Longspur	3	3	3	4	4	5	15	-94%	>50	950,000	Grassland	Chihuahuan Grasslands
Snow Bunting	2	1	1	2	2	3	8	-38%		14,000,000	Arctic Tundra	Northern U.S./Canada
McKay's Bunting	5	5	5	3	2	3	16			2,500*	Arctic Tundra	Alaskan Coast
Ovenbird	2	1	2	3	3	2	9	0%	>50	26,000,000	Eastern Forest	Widespread Neotropical
Worm-eating Warbler	3	2	3	3	4	3	13	26%	>50	860,000	Eastern Forest	Caribbean
Louisiana Waterthrush	4	2	2	3	4	2	12	34%	>50	500,000	Eastern Forest	Widespread Neotropical
Northern Waterthrush	2	1	2	2	3	1	8	54%	>50	18,000,000	Boreal Forest	Widespread Neotropical
Bachman's Warbler	5	5	5	5	5	3	18			0?#	Eastern Forest	Caribbean
Golden-winged Warbler	4	2	3	4	4	5	16	-61%	34	400,000	Eastern Forest	Central & S. Am. Highlands
Blue-winged Warbler	3	2	3	3	3	4	13	-22%	>50	710,000	Eastern Forest	Gulf-Caribbean Lowlands
Black-and-white Warbler	2	1	2	3	3	4	11	-27%	>50	18,000,000	Eastern Forest	Widespread Neotropical
Prothonotary Warbler	3	2	3	3	4	4	14	-38%	>50	1,800,000	Eastern Forest	Gulf-Caribbean Lowlands
Swainson's Warbler	4	2	4	4	4	1	13	67%	>50	140,000	Eastern Forest	Caribbean
Tennessee Warbler	1	1	2	3	3	3	9	-15%	>50	95,000,000	Boreal Forest	Widespread Neotropical
Orange-crowned Warbler	1	1	2	2	2	4	9	-30%	>50	80,000,000	Western Forest	Widespread U.S./Mexico
Colima Warbler	5	4	5	3	3	3	16			< 500#	Mex Pine Oak	Pacific Lowlands
Lucy's Warbler	3	3	4	3	3	2	12	24%	>50	2,600,000	Desert Scrub	Pacific Lowlands
Nashville Warbler	2	2	3	2	2	2	9	15%	>50	39,000,000	Boreal Forest	Pacific Lowlands
Virginia's Warbler	3	3	4	3	3	4	14	-46%	>50	950,000	Western Forest	Pacific Lowlands
Connecticut Warbler	3	2	2	3	3	5	13	-60%	>50	1,300,000	Boreal Forest	S. American Lowlands
MacGillivray's Warbler	2	2	3	2	3	4	12	-32%	>50	12,000,000	Western Forest	Pacific Lowlands
Mourning Warbler	2	2	3	2	3	4	12	-45%	49	16,000,000	Boreal Forest	Central & S. Am. Highlands
Kentucky Warbler	3	2	3	3	4	4	14	-29%	>50	2,500,000	Eastern Forest	Gulf-Caribbean Lowlands

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Common Yellowthroat	1	1	2	2	2	4	9	-34%	>50	81,000,000	Habitat Generalist	Widespread
Hooded Warbler	2	2	3	3	3	1	9	103%	>50	5,200,000	Eastern Forest	Gulf-Caribbean Lowlands
American Redstart	2	1	2	2	3	3	10	-12%	>50	42,000,000	Eastern Forest	Widespread Neotropical
Kirtland's Warbler	5	5	5	4	5	1	16			3,600*	Eastern Forest	Caribbean
Cape May Warbler	2	2	3	3	3	5	13	-76%	>50	8,100,000	Boreal Forest	Caribbean
Cerulean Warbler	3	2	3	4	4	5	15	-72%	26	570,000	Eastern Forest	Central & S. Am. Highlands
Northern Parula	2	2	3	2	2	1	8	62%	>50	17,000,000	Eastern Forest	Caribbean
Tropical Parula	2	1	1	3	3	4	10			< 5,000#	Trop Dry Forest	Resident
Magnolia Warbler	2	2	2	2	2	1	7	51%	>50	39,000,000	Boreal Forest	Gulf-Caribbean Lowlands
Bay-breasted Warbler	2	2	3	3	3	2	10	-9%	>50	9,200,000	Boreal Forest	Gulf-Caribbean Lowlands
Blackburnian Warbler	2	2	2	3	3	2	9	10%	>50	14,000,000	Boreal Forest	Central & S. Am. Highlands
Yellow Warbler	1	1	1	2	2	4	8	-20%	>50	92,000,000	Eastern Forest	Widespread Neotropical
Chestnut-sided Warbler	2	2	3	2	3	4	12	-42%	>50	18,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Blackpoll Warbler	1	1	2	2	3	5	11	-92%	16	59,000,000	Boreal Forest	S. American Lowlands
Black-throated Blue Warbler	3	2	2	3	3	1	9	163%	>50	2,400,000	Boreal Forest	Caribbean
Palm Warbler	2	2	3	2	2	4	11	-48%	>50	10,000,000	Boreal Forest	Caribbean
Pine Warbler	2	2	2	2	2	1	7	68%	>50	13,000,000	Eastern Forest	Southeastern U.S.
Yellow-rumped Warbler	1	1	1	2	2	2	6	0%	>50	150,000,000	Forest Generalist	Widespread
Yellow-throated Warbler	3	2	3	3	2	2	10	50%	>50	2,000,000	Eastern Forest	Caribbean
Prairie Warbler	3	2	2	3	3	5	13	-53%	>50	3,400,000	Eastern Forest	Caribbean
Grace's Warbler	3	2	3	3	3	5	14	-52%	>50	1,700,000	Mex Pine Oak	Mexican Highlands
Black-throated Gray Warbler	3	2	3	3	3	4	13	-49%	>50	2,900,000	Western Forest	Pacific Lowlands
Townsend's Warbler	2	2	3	3	3	3	11	-15%	>50	20,000,000	Western Forest	Mexican Highlands
Hermit Warbler	3	3	3	3	3	2	11	-4%	>50	2,600,000	Western Forest	Mexican Highlands
Golden-cheeked Warbler	5	5	4	4	4	5	19			21,000*	Western Forest	Mexican Highlands
Black-throated Green Warbler	2	2	2	3	3	2	9	41%	>50	8,700,000	Boreal Forest	Central & S. Am. Highlands
Canada Warbler	3	2	2	3	4	5	14	-62%	>50	3,000,000	Boreal Forest	Central & S. Am. Highlands
Wilson's Warbler	1	1	2	3	2	5	10	-57%	>50	76,000,000	Boreal Forest	Widespread Neotropical
Red-faced Warbler	3	3	3	3	3	4	13			250,000	Mex Pine Oak	Mexican Highlands
Painted Redstart	3	2	3	3	3	4	13			100,000	Mex Pine Oak	Resident
Yellow-breasted Chat	2	1	3	3	2	3	10	-11%	>50	14,000,000	Eastern Forest	Pacific Lowlands
White-collared Seedeater	2	2	2	1	1	1	6			<1,000#	Trop Dry Forest	Resident
Olive Sparrow	3	3	3	3	3	3	12		>50	800,000	Trop Dry Forest	Resident
Green-tailed Towhee	3	2	2	3	2	4	12	-17%	>50	4,800,000	Sagebrush	Southwestern Aridlands
Spotted Towhee	2	2	2	2	2	2	8	6%	>50	30,000,000	Western Forest	Western U.S./Mexico
Eastern Towhee	2	2	2	3	2	4	11	-43%	>50	28,000,000	Eastern Forest	Southeastern U.S.
Rufous-crowned Sparrow	3	2	2	2	2	4	11	-41%	>50	900,000	Desert Scrub	Resident
Botteri's Sparrow	4	3	3	3	2	3	13			30,000	Desert Scrub	Chihuahuan Grasslands
Cassin's Sparrow	2	2	2	3	3	4	11	-43%	>50	9,700,000	Grassland	Chihuahuan Grasslands
Bachman's Sparrow	4	3	3	4	4	5	16	-76%	24	190,000	Eastern Forest	Resident
American Tree Sparrow	2	1	1	2	2	5	10	-53%		22,000,000	Arctic Tundra	Northern U.S./Canada
Chipping Sparrow	1	1	2	1	2	3	8		>50	210,000,000	Forest Generalist	Widespread U.S./Mexico
Clay-colored Sparrow	1	2	2	2	3	4	10	-45%	>50	64,000,000	Grassland	Chihuahuan Grasslands
Brewer's Sparrow	2	2	2	3	3	4	11	-35%	>50	16,000,000	Sagebrush	Southwestern Aridlands
Field Sparrow	2	2	2	3	3	5	12	-62%	36	9,200,000	Eastern Forest	Southeastern U.S.

APPENDIX A: SPECIES ASSESSMENT INFORMATION

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Black-chinned Sparrow	4	3	3	3	3	5	15	-62%	>50	210,000	Chaparral	Southwestern Aridlands
Vesper Sparrow	2	1	2	3	3	4	11	-30%	>50	34,000,000	Grassland	Chihuahuan Grasslands
Lark Sparrow	2	1	2	2	2	4	10	-32%	>50	10,000,000	Grassland	Pacific Lowlands
Five-striped Sparrow	4	4	4	3	3	4	15			< 50#	Trop Dry Forest	Resident
Black-throated Sparrow	1	2	2	2	2	4	9	-42%	>50	29,000,000	Desert Scrub	Resident
Sagebrush Sparrow	3	2	3	3	3	3	12			4,700,000	Sagebrush	Southwestern Aridlands
Bell's Sparrow	4	4	4	3	3	2	13			270,000	Chaparral	Southwestern Aridlands
Lark Bunting	2	2	2	3	3	5	12	-86%	16	10,000,000	Grassland	Chihuahuan Grasslands
Savannah Sparrow	1	1	1	2	2	4	8	-40%	>50	170,000,000	Grassland	Southern U.S./Mexico
Grasshopper Sparrow	2	1	2	4	3	5	12	-68%	>50	31,000,000	Grassland	Southern U.S./Mexico
Baird's Sparrow	3	3	3	4	4	5	15	-71%	>50	3,200,000	Grassland	Chihuahuan Grasslands
Henslow's Sparrow	4	2	3	4	4	3	14	-10%	>50	390,000	Grassland	Southeastern U.S.
Le Conte's Sparrow	2	2	3	3	3	5	13	-61%	43	5,200,000	Grassland	Southeastern U.S.
Nelson's Sparrow	3	2	4	3	4	3	14		>50	1,000,000	Prairie Wetland	Southeastern U.S.
Saltmarsh Sparrow	4	5	4	5	4	5	19			60,000*	Saltmarsh	Southeastern U.S.
Seaside Sparrow	4	4	4	4	4	2	14	> 200%	>50	410,000	Saltmarsh	Resident
Fox Sparrow	2	1	2	2	2	2	8	23%	>50	33,000,000	Boreal Forest	Widespread U.S.
Song Sparrow	1	1	1	2	2	4	8	-25%	>50	130,000,000	Habitat Generalist	Widespread U.S.
Lincoln's Sparrow	1	1	2	2	2	4	9	-25%	>50	76,000,000	Boreal Forest	Widespread U.S./Mexico
Swamp Sparrow	2	1	1	2	2	1	6	66%	>50	22,000,000	Freshwater Marsh	Southeastern U.S.
White-throated Sparrow	1	1	2	2	2	4	9	-29%	>50	170,000,000	Boreal Forest	Southeastern U.S.
Harris's Sparrow	3	2	3	2	2	5	13	-63%		2,000,000#	Arctic Tundra	Central U.S.
White-crowned Sparrow	1	1	1	2	2	4	8	-18%	>50	75,000,000	Arctic Tundra	Widespread U.S./Mexico
Golden-crowned Sparrow	2	2	3	2	2	1	8	134%		6,200,000	Arctic Tundra	Western U.S.
Dark-eyed Junco	1	1	1	2	2	4	8	-42%	>50	190,000,000	Forest Generalist	Widespread U.S.
Yellow-eyed Junco	2	3	3	3	3	3	11			400,000	Mex Pine Oak	Resident
Hepatic Tanager	2	1	1	3	3	1	7	124%	>50	480,000	Mex Pine Oak	Mexican Highlands
Summer Tanager	2	2	1	3	3	2	9	9%	>50	12,000,000	Eastern Forest	Widespread Neotropical
Scarlet Tanager	3	2	3	3	3	3	12	-7%	>50	2,700,000	Eastern Forest	S. American Lowlands
Western Tanager	2	2	3	2	3	1	9	71%	>50	15,000,000	Western Forest	Pacific Lowlands
Northern Cardinal	1	1	1	1	1	2	5	17%	>50	110,000,000	Eastern Forest	Resident
Pyrrhuloxia	3	2	2	3	3	4	12	-48%	>50	1,500,000	Desert Scrub	Resident
Rose-breasted Grosbeak	3	2	2	2	2	4	11	-30%	>50	4,700,000	Eastern Forest	Widespread Neotropical
Black-headed Grosbeak	2	1	3	2	2	2	9	44%	>50	12,000,000	Western Forest	Pacific Lowlands
Blue Grosbeak	2	1	2	2	2	2	8	45%	>50	20,000,000	Eastern Forest	Pacific Lowlands
Lazuli Bunting	2	2	3	3	2	2	9	6%	>50	6,700,000	Western Forest	Pacific Lowlands
Indigo Bunting	1	1	2	2	2	4	9	-25%	>50	78,000,000	Eastern Forest	Gulf-Caribbean Lowlands
Varied Bunting	3	2	3	3	3	4	13			70,000	Trop Dry Forest	Pacific Lowlands
Painted Bunting	2	2	2	3	4	3	11	-9%	>50	12,000,000	Eastern Forest	Pacific Lowlands
Dickcissel	2	2	2	3	4	3	11	-14%	>50	27,000,000	Grassland	S. American Lowlands
Bobolink	2	2	3	3	4	5	14	-60%	48	9,700,000	Grassland	S. American Lowlands
Red-winged Blackbird	1	1	1	2	2	4	8	-36%	>50	150,000,000	Habitat Generalist	Western U.S./Mexico
Tricolored Blackbird	4	4	4	5	3	5	18		>50	300,000*	Freshwater Marsh	Western U.S.
Eastern Meadowlark	2	1	1	3	3	5	11	-77%	23	24,000,000	Grassland	Southeastern U.S.
Western Meadowlark	1	1	2	3	3	4	10	-42%	50	90,000,000	Grassland	Chihuahuan Grasslands
Yellow-headed Blackbird	2	1	2	3	3	2	9	-9%	>50	15,000,000	Freshwater Marsh	Western U.S./Mexico
Rusty Blackbird	2	1	2	3	3	5	12	-89%	19	5,700,000	Boreal Forest	Southeastern U.S.

Common Name[1]	Assessment Scores[2]							Population Change[3]	Urgency/ Half-Life (years)[4]	U.S./Canada Population Estimate[5]	Primary Breeding Habitat[6]	Primary Winter Region[7]
	PS	BD	ND	TB	TN	PT	Combined					
Brewer's Blackbird	2	1	1	2	2	5	10	-61%	42	24,000,000	Habitat Generalist	Western U.S./Mexico
Common Grackle	1	1	2	1	1	5	9	-54%	33	69,000,000	Habitat Generalist	Southeastern U.S.
Boat-tailed Grackle	3	4	4	1	1	4	12	-29%	>50	1,900,000	Saltmarsh	Resident
Great-tailed Grackle	2	1	1	1	1	1	5	177%	>50	8,000,000	Habitat Generalist	Resident
Shiny Cowbird	1	1	1	1	1	3	6	> 200%		< 500#	Habitat Generalist	Resident
Bronzed Cowbird	2	2	2	1	1	1	6		>50	980,000	Trop Dry Forest	Widespread Neotropical
Brown-headed Cowbird	1	1	1	1	1	4	7	-23%	>50	120,000,000	Habitat Generalist	Southern U.S./Mexico
Orchard Oriole	2	1	2	3	2	4	10	-23%	>50	10,000,000	Eastern Forest	Pacific Lowlands
Hooded Oriole	3	2	3	3	2	2	10	30%	>50	350,000	Trop Dry Forest	Pacific Lowlands
Streak-backed Oriole	3	3	3	2	2	2	10			< 50#	Trop Dry Forest	Resident
Bullock's Oriole	2	2	3	3	2	4	11	-22%	>50	6,500,000	Western Forest	Pacific Lowlands
Altamira Oriole	3	3	3	3	3	3	12			< 500#	Trop Dry Forest	Resident
Audubon's Oriole	4	4	4	3	3	3	14			<5,000#	Trop Dry Forest	Resident
Baltimore Oriole	2	1	2	2	2	4	10	-42%	>50	12,000,000	Eastern Forest	Widespread Neotropical
Scott's Oriole	3	2	3	3	3	4	13	-29%	>50	1,600,000	Mex Pine Oak	Mexican Highlands
Gray-crowned Rosy-Finch	4	2	2	3	2	4	13			200,000#	Alpine Tundra	Western U.S.
Black Rosy-Finch	5	4	3	4	2	4	17			20,000#	Alpine Tundra	Western U.S.
Brown-capped Rosy-Finch	5	5	4	4	2	4	18			45,000#	Alpine Tundra	Western U.S.
Pine Grosbeak	2	1	1	3	2	4	10	-49%	>50	4,400,000	Boreal Forest	Resident
House Finch	2	1	1	1	1	2	6	26%	>50	31,000,000	Habitat Generalist	Resident
Purple Finch	2	1	1	2	2	4	9	-47%	>50	5,900,000	Boreal Forest	Widespread U.S.
Cassin's Finch	3	2	2	3	3	5	13	-69%	>50	3,000,000	Western Forest	Western U.S./Mexico
Red Crossbill	2	1	1	3	3	2	8	-12%	>50	7,800,000	Forest Generalist	Northern U.S./Canada
White-winged Crossbill	1	1	1	3	3	2	7	163%	>50	35,000,000	Boreal Forest	Northern U.S./Canada
Common Redpoll	1	1	1	2	2	3	7			38,000,000	Arctic Tundra	Northern U.S./Canada
Hoary Redpoll	2	1	1	2	2	3	8			10,000,000	Arctic Tundra	Northern U.S./Canada
Pine Siskin	2	1	1	2	2	5	10	-80%	23	35,000,000	Boreal Forest	Northern U.S./Canada
Lesser Goldfinch	2	2	2	2	2	2	8	50%	>50	4,700,000	Western Forest	Western U.S./Mexico
Lawrence's Goldfinch	4	4	3	3	2	2	13	-8%	>50	240,000	Chaparral	Southwestern Aridlands
American Goldfinch	2	1	1	1	1	3	7	5%	>50	43,000,000	Forest Generalist	Widespread U.S.
Evening Grosbeak	3	2	1	3	2	5	13	-94%	38	3,400,000	Boreal Forest	Northern U.S./Canada

[1]Common Name: Red = Red Watch List, Yellow = Yellow Watch List, Tan = Common Birds in Steep Decline; species listed in taxonomic order according to the American Ornithologists' Union's checklist - 7th Edition, 56th Supplement.

[2]Assessment Scores: see pages 5 and 96 for definitions of assessment scores.

[3]Population Change: % change in population from 1970-2014 – see page 97; all estimated increases greater than 200% are reported as >200%; blanks indicate insufficient data.

[4]Urgency/Half-life: see page 98 for methods; >50 indicates the estimated half-life is beyond 50 years or not expected in the foreseeable future; blanks indicate insufficient data.

*[5]Population Estimate: see page 98 for methods; * indicates based on an independent estimate; # indicates estimates based on PIF Science Committee expert knowledge; all other estimates based on BBS data.*

[6]Breeding Habitat: see page 100 for habitat definitions.

[7]Winter Region: see page 101 for definitions; regions are defined for migratory species with others indicated as residents.

APPENDIX B: PIF POPULATION OBJECTIVES FOR WATCH LIST & COMMON BIRDS IN STEEP DECLINE

Species	Status 1970-2014		Objectives for 2016 - 2026		Objectives for 2016 - 2046		Federally Listed
	Loss	Trend	Pop'n Change	Annual Trend	Pop'n Change	Annual Trend	
Red Watch List Species - RECOVER							
all Red Watch List Species			25% to 35%	2.26% to 3.05%	75% to 100%	1.88% to 2.34%	[2]see footnote
Yellow R Watch List Species - PREVENT DECLINE							
all Yellow R Watch List Species			-3% to 3%	-.30% to .30%	-3% to 3%	-.10% to 0.0%	[2]see footnote
Yellow D Watch List Species - REVERSE DECLINE							
Mountain Quail	19%	-0.47%	-2% to -1%	-0.19% to -0.12%			CA
Scaled Quail	67%	-2.50%	-10% to -6%	-1.00% to -0.63%			
Greater Sage-Grouse	> 50%		-6% to -4%	-0.63% to -0.40%			CA
Sooty Grouse	55%	-1.79%	-7% to -4%	-0.71% to -0.45%			
Greater Prairie-Chicken	> 50%		-6% to -4%	-0.63% to -0.40%			
White-crowned Pigeon	15-50%		-6% to -1%	-0.63% to -0.09%			
Band-tailed Pigeon	57%	-1.93%	-7% to -5%	-0.77% to -0.48%			CA
Mangrove Cuckoo	15-50%		-6% to -1%	-.63% to -0.09%			
Black-billed Cuckoo	68%	-2.57%	-10% to -6%	-1.03% to -0.64%			
Whiskered Screech-Owl	15-50%		-6% to -1%	-.63% to -0.09%			
Snowy Owl	64%	-2.37%	-9% to -6%	-0.95% to -0.59%			
Spotted Owl	15-50%		-6% to -1%	-0.63% to -0.09%			CA/US
Long-eared Owl	91%	-5.39%	-20% to -13%	-2.16% to -1.35%			
Eastern Whip-poor-will	69%	-2.65%	-10% to -6%	-1.06% to -0.66%			CA
Mexican Whip-poor-will	15-50%		-6% to -1%	-0.63% to -0.09%			
Black Swift	94%	-6.06%	-22% to -14%	-2.42% to -1.52%			CA*
Rufous Hummingbird	60%	-2.04%	-8% to -5%	-0.82% to -0.51%			
Allen's Hummingbird	83%	-3.90%	-15% to -9%	-1.56% to -0.97%			
Elegant Trogan	15-50%		-6% to -1%	-0.63% to -0.09%			
Lewis's Woodpecker	72%	-2.88%	-11% to -7%	-1.15% to -0.72%			CA
Red-headed Woodpecker	67%	-2.50%	-10% to -6%	-1.00% to -0.63%			CA
Gilded Flicker	54%	-1.76%	-7% to -4%	-0.71% to -0.44%			
Green Parakeet	15-50%		-6% to -1%	-0.63% to -0.09%			
Olive-sided Flycatcher	78%	-3.36%	-13% to -8%	-1.35% to -0.84%			CA
Pinyon Jay	85%	-4.16%	-15% to -10%	-1.66% to -1.04%			
Yellow-billed Magpie	15-50%		-6% to -1%	-0.63% to -0.09%			
Mexican Chickadee	15-50%		-6% to -1%	-0.63% to -0.09%			
Chestnut-backed Chickadee	51%	-1.61%	-6% to -4%	-0.64% to -0.40%			
Oak Titmouse	51%	-1.62%	-6% to -4%	-0.65% to -0.40%			
Black-capped Gnatcatcher	15-50%		-6% to -1%	-0.63% to -0.09%			
Wrentit	29%	-0.78%	-3% to -2%	-0.31% to -0.19%			
Wood Thrush	60%	-2.08%	-8% to -5%	-0.83% to -0.52%			CA*
California Thrasher	57%	-1.88%	-7% to -5%	-0.75% to -0.47%			
Sprague's Pipit	75%	-3.10%	-12% to -7%	-1.24% to -0.77%			CA
Chestnut-collared Longspur	85%	-4.25%	-16% to -10%	-1.70% to -1.06%			CA
McCown's Longspur	94%	-6.12%	-22% to -14%	-2.45% to -1.53%			CA
Prothonotary Warbler	38%	-1.09%	-4% to -3%	-0.44% to -0.27%			CA
Virginia's Warbler	46%	-1.39%	-5% to -3%	-o.56% to -0.35%			
			5% to 15% for all Yellow D Watch List species		0.16% to 0.47% for all Yellow D Watch List species		

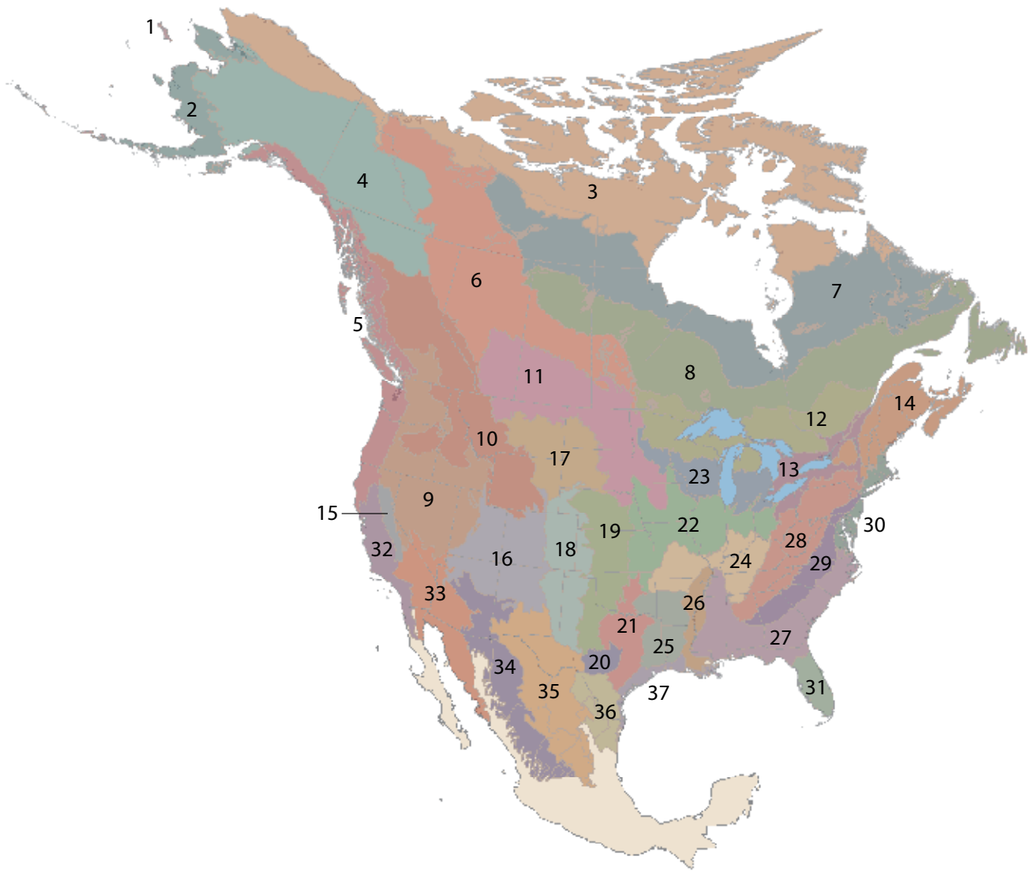
Species	Status 1970-2014		Objectives for 2016 - 2026		Objectives for 2016 - 2046		Federally Listed
	Loss	Trend	Pop'n Change	Annual Trend	Pop'n Change	Annual Trend	
Connecticut Warbler	60%	-2.08%	-8% to -5%	-0.83% to -0.52%			
Kentucky Warbler	29%	-0.78%	-3% to -2%	-0.31% to -0.19%			
Cape May Warbler	76%	-3.23%	-12% to -8%	-1.29% to -0.81%			
Cerulean Warbler	72%	-2.82%	-11% to -7%	-1.13% to -0.71%			CA
Prairie Warbler	53%	-1.72%	-7% to -4%	-0.69% to -0.43%			
Grace's Warbler	52%	-1.65%	-6% to -4%	-0.66% to -0.41%			
Canada Warbler	62%	-2.17%	-8% to -5%	-0.87% to -0.54%			CA
Rufous-winged Sparrow	15-50%		-6% to -1%	-0.63% to -0.09%			
Black-chinned Sparrow	62%	-2.20%	-8% to -5%	-0.88% to -0.55%			
Five-strippped Sparrow	15-50%		-6% to -1%	-0.63% to -0.09%			
Baird's Sparrow	71%	-2.74%	-10% to -7%	-1.10% to -0.69%			CA*
Le Conte's Sparrow	61%	-2.12%	-8% to -5%	-0.85% to -0.53%			
Harris's Sparrow	63%	-2.28%	-9% to -6%	-0.91% to -0.57%			
Bobolink	60%	-2.05%	-8% to -5%	-0.82% to -0.51%			CA*
Cassin's Finch	69%	-2.62%	-10% to -6%	-1.05% to -0.65%			
Evening Grosbeak	94%	-6.07%	-22% to -14%	-2.43% to -1.52%			
			5% to 15% for all Yellow D Watch List species		0.16% to 0.47% for all Yellow D Watch List species		
Common Birds in Steep Decline - STABILIZE Populations							
Northern Bobwhite	83%	-3.91%	-20% to -15%	-1.38% to -1.00%			CA
Yellow-billed Cuckoo	54%	-1.75%	-9% to -7%	-2.15% to -1.56%			CA/US^
Short-eared Owl	65%	-2.43%	-13% to -9%	-0.96% to -0.70%			CA
Common Nighthawk	58%	-1.96%	-10% to -8%	-1.34% to -0.97%			CA
Chuck-will's-widow	63%	-2.25%	-12% to -9%	-1.08% to -0.78%			
Chimney Swift	67%	-2.47%	-13% to -9%	-1.24% to -0.90%			CA
Least Flycatcher	53%	-1.68%	-7% to -10%	-1.36% to -0.99%			
Loggerhead Shrike	74%	-2.98%	-15% to -11%	-1.64% to -1.19%			CA/US^
Horned Lark	65%	-2.41%	-12% to -9%	-1.32% to -0.96%			CA^*/US^
Bank Swallow	89%	-4.83%	-24% to -18%	-2.66% to -1.93%			CA*
Verdin	60%	-2.05%	-11% to -8%	-1.13% to -0.82%			
Cactus Wren	64%	-2.32%	-12% to -9%	-1.27% to -0.93%			
Varied Thrush	63%	-2.22%	-12% to -9%	-1.22% to -0.89%			
Blackpoll Warbler	92%	-5.67%	-27% to -21%	-3.12% to -2.27%			
Wilson's Warbler	57%	-1.89%	-10% to -7%	-1.04% to -0.75%			
American Tree Sparrow	53%	-1.72%	-9% to -7%	-0.95% to -0.69%			
Field Sparrow	62%	-2.19%	-11% to -8%	-1.20% to -0.87%			
Lark Bunting	86%	-4.31%	-21% to -16%	-2.37% to -1.72%			
Grasshopper Sparrow	68%	-2.59%	-13% to -10%	-1.43% to -1.04%			CA^*
Eastern Meadowlark	77%	-3.33%	-17% to -13%	-1.83% to -1.33%			CA*
Rusty Blackbird	89%	-4.95%	-24% to -18%	-2.72% to -1.98%			CA
Brewer's Blackbird	61%	-2.14%	-11% to -8%	-1.18% to -0.86%			
Common Grackle	54%	-1.73%	-9% to -7%	-0.95% to -0.69%			
Pine Siskin	80%	-3.58%	-18% to -13%	-1.97% to -1.43%			
			-25% to -10% for all Common Birds in Steep Decline		-0.95% to -0.35% for all Common Birds in Steep Decline		

*[1]reflects federally listed bird species as of April 2016, CA = listed in Canada, US = listed in the United States, ^ = listed only in part of its range, * = assessed by COSEWIC and qualified for listing but not yet legally protected under the Species at Risk Act at the time of this report's publication.*

[2]Red Watch List and Yellow "R" Watch List species federally listed in Canada: Greater Prairie Chicken, Flammulated Owl, Bicknell's Thrush, Kirtland's Warbler, Golden-winged Warbler, Henslow's Sparrow.
Red Watch List and Yellow "R" Watch List species federally listed in the USA: Gunnison Sage-Grouse, Greater Prairie-Chicken (in part), Lesser Prairie-Chicken, California Condor, Red-cockaged Woodpecker, Ivory-billed Woodpecker, Black-capped Vireo, Florida Scrub-Jay, California Gnatcatcher (in part), Bachman's Warbler, Kirtland's Warbler, Golden-cheeked Warbler, Seaside Sparrow (in part).

BIRD CONSERVATION REGIONS AND WEB LINKS

BIRD CONSERVATION REGIONS IN THE U.S. AND CANADA



1 Aleutian/Bering Sea Islands
2 Western Alaska
3 Arctic Plains and Mountains
4 Northwestern Interior Forest
5 Northern Pacific Rainforest
6 Boreal Taiga Plains
7 Taigia Shield and Hudson Plains
8 Boreal Softwood Shield
9 Great Basin
10 Northern Rockies
11 Prairie Potholes
12 Boreal Hardwood Transition
13 Lower Great Lakes/St. Lawrence Plain
14 Atlantic Northern Forest
15 Sierra Nevada
16 Southern Rockies/Colorado Plateau
17 Badlands and Prairies
18 Shortgrass Prairie
19 Central Mixed-grass Prairie
20 Edwards Plateau
21 Oaks and Prairies
22 Eastern Tallgrass Prairie
23 Prairie Hardwood Transition
24 Boreal Hardwood Transition
25 West Gulf Coastal Plain/Ouachitas
26 Mississippi Alluvial Valley
27 Southeastern Coastal Plain
28 Appalachian Mountains
29 Piedmont
30 New England/Mid-Atlantic Coast
31 Peninsular Florida
32 Coastal California
33 Sonoran and Mohave Desert
34 Sierra Madre Occidental
35 Chihuahuan Desert
36 Tamaulipan Brushlands
37 Gulf Coast Prairie

RESOURCES WE CONNECT TO

Text/Name	Page	URL
ebird	2, 98	http://ebird.org/content/ebird/
PIF Database	2	http://rmbo.org/pifdb/
Partners in Flight	2	www.partnersinflight.org
Species Assessment Process	4	http://rmbo.org/pubs/downloads/PIFHandbook2012.pdf
Species Assessment Database	5	http://rmbo.org/pifassessment/
Cats from roaming freely	13	http://catsandbirds.ca/
Boreal Songbird Initiative	15	http://www.borealbirds.org/
2010 State of the Birds Report on Climate Change	18	http://www.stateofthebirds.org/2010/the-2010-report-climate-change
Neotropical Flyways Initiative	20	http://selva.org.co/research-programs/migratory-species/crossing-the-caribbean/?lang=en
Avian Knowledge Network	22	http://www.avianknowledge.net/
Migratory Connectivity Project	22	http://www.migratoryconnectivityproject.org/
PIF International Conference Proceedings	24	http://www.partnersinflight.org/pubs/IntConfProceed.php
PIF Technical Series	24	http://www.partnersinflight.org/pubs/ts/
Five Elements Process of Conservation Design	25	http://www.partnersinflight.org/pubs/ts/01-FiveElements.pdf
Bobolink Working Group on Griffin Groups 1	27	https://griffingroups.com/groups/profile/35661/bobolink-working-group
Urban Bird Treaty Program	29	http://www.fws.gov/birds/grants/urban-bird-treaty.php
Association of Fish and Wildlife Agencies Blue Ribbon Report	31	http://www.fishwildlife.org/files/Blue_Ribbon_Panel_Report2.pdf
Appalachian Mountains	33	www.amjv.org
Atlantic Coast	33	www.acjv.org
Canadian Arctic	33	http://www.ec.gc.ca/mbc-com/default.asp?lang=En&n=502C3475-1
Canadian Intermountain	33	http://www.cijv.ca
Central Hardwoods	33	www.chjv.org
Central Valley	33	http://www.cvjv.org
East Gulf Coastal Plain	33	http://www.egcpjv.org
Eastern Boreal	33	www.ehjv.ca/
Gulf Coast	33	www.gcjv.org
Maritimes	33	http://www.ec.gc.ca/mbc-com/default.asp?lang=En&n=07C6A185-1
Western Boreal	33	http://www.ec.gc.ca/mbc-com/default.asp?lang=En&n=07C6A185-1
Intermountain West	33	http://www.iwjv.org
Lower Great Lakes/St. Lawrence	33	http://www.ec.gc.ca/mbc-com/default.asp?lang=En&n=F43BE8A4-1
Lower Mississippi Valley	33	http://www.lmvjv.org
Northern Great Plains	33	http://www.ngpjv.org
Oaks and Prairies	33	http://www.opjv.org
Pacific Birds Habitat	33	http://www.pacificbirds.org
Playa Lakes	33	www.pljv.org
Prairie Habitat	33	http://www.phjv.ca/programs.html
Prairie Pothole	33	http://www.ppjv.org
Rainwater Basin	33	http://www.rwbjv.org

Text/Name	Page	URL
Rio Grande	33	http://www.rgjv.org
San Francisco Bay	33	http://www.sfbayjv.org
Sonoran	33	http://www.sonoranjv.org
Souther Shield	33	http://www.ec.gc.ca/mbc-com/default.asp?lang=En&n=5D31BDEE-1
Upper Mississippi River/Great Lakes Region	33	http://www.uppermissgreatlakesjv.org
Mexican Birding Trail Project	35	http://mexicobirdingtrail.org/
U.S. State of the Birds Report on Public Lands	71	http://www.stateofthebirds.org/2011
State of the Birds Report	72	http://data.prbo.org/sfstateofthebirds/
PluMa	74	http://data.prbo.org/apps/sjv/
Open Standards for the Practice of Conservation	75	http://cmp-openstandards.org/
Midwest Avian Data Center	78	http://data.pointblue.org/partners/mwadc/index.php?page=home
National Road Network Data	81	www.GeoGratis.ca
SODCAP Inc.	90	http://www.sodcap.com/aboutus.html
PIF Species Assessment Database	96, 98	http://www.partnersinflight.org/pubs/ts/
PIF Handbook on Species Assessment	98	http://www.partnersinflight.org/pubs/ts/
PIF Population Estimates Handbook	98, 103	http://www.partnersinflight.org/pubs/ts/
PIF Population Estimates Database	99	http://rmbo.org/pifpopestimates/
NABCI State of the Birds Report	100	www.stateofthebirds.org
Advancing Landbird Conservation on Western Federally Managed Lands with Management-and Policy-Relevant Science. PhD Dissertation	102	http://pqdtopen.proquest.com/#abstract?dispub=3487588
Guide to the Partners in Flight Population Estimates Database. Version: North American Landbird Conservation Plan 2004	102	http://www.partnersinflight.org/pubs/ts/
Handbook to the Partners in Flight Population Estimates Database, Version 2.0. PIF Technical Series No 6.	102	http://www.partnersinflight.org/pubs/ts/
High priority needs for range-wide monitoring of North American landbirds. Partners in Flight Technical Series No. 2. Partners in Flight.	102	http://www.partnersinflight.org/pubs/ts/
The Partners in Flight handbook on species assessment. Version 2005. Partners in Flight Technical Series No. 3.	102	http://www.partnersinflight.org/pubs/ts/

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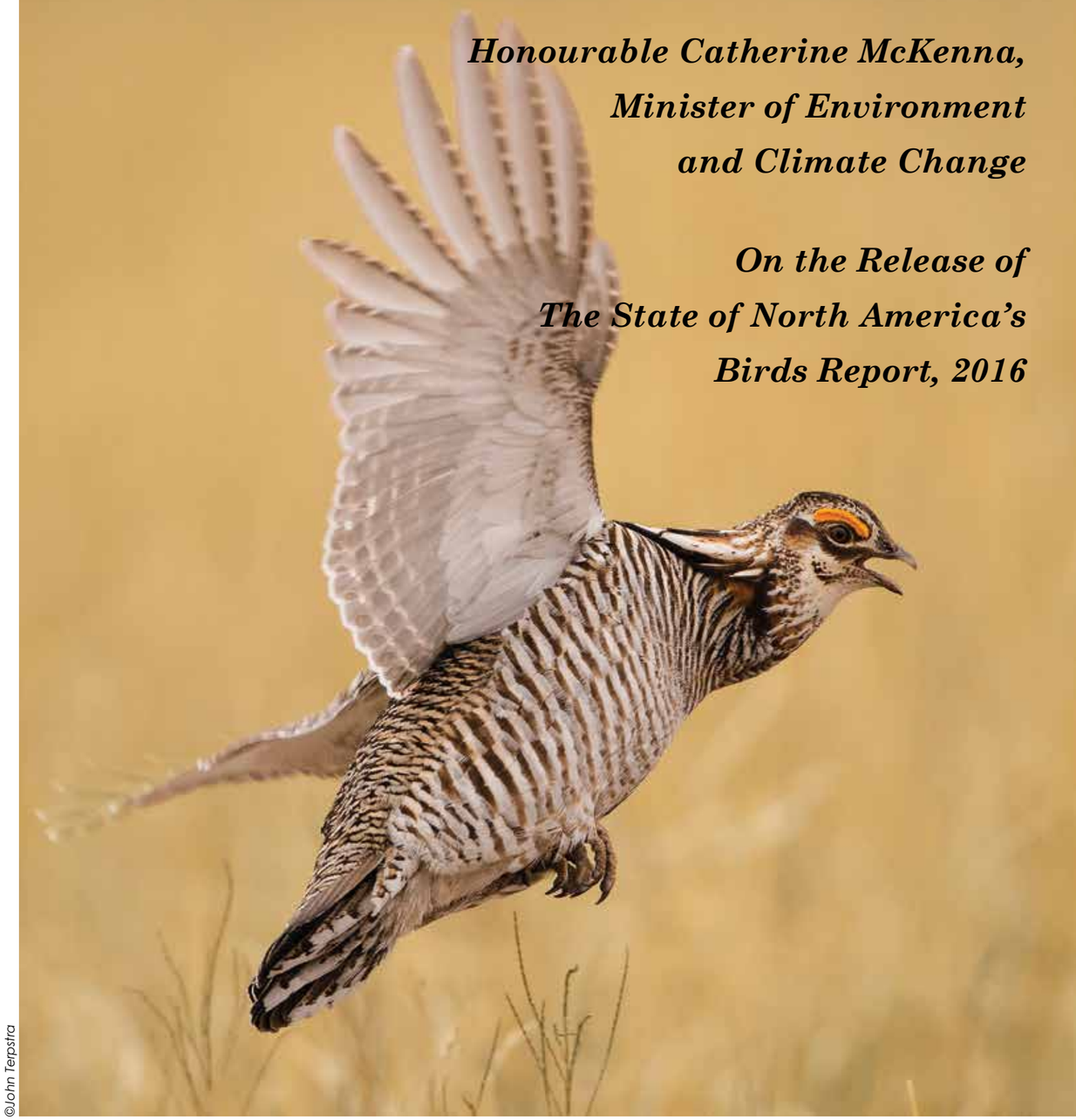
"Partnerships allow us to spread our wings beyond our own nests."

Honourable Catherine McKenna, Minister of Environment and Climate Change

On the Release of The State of North America's Birds Report, 2016



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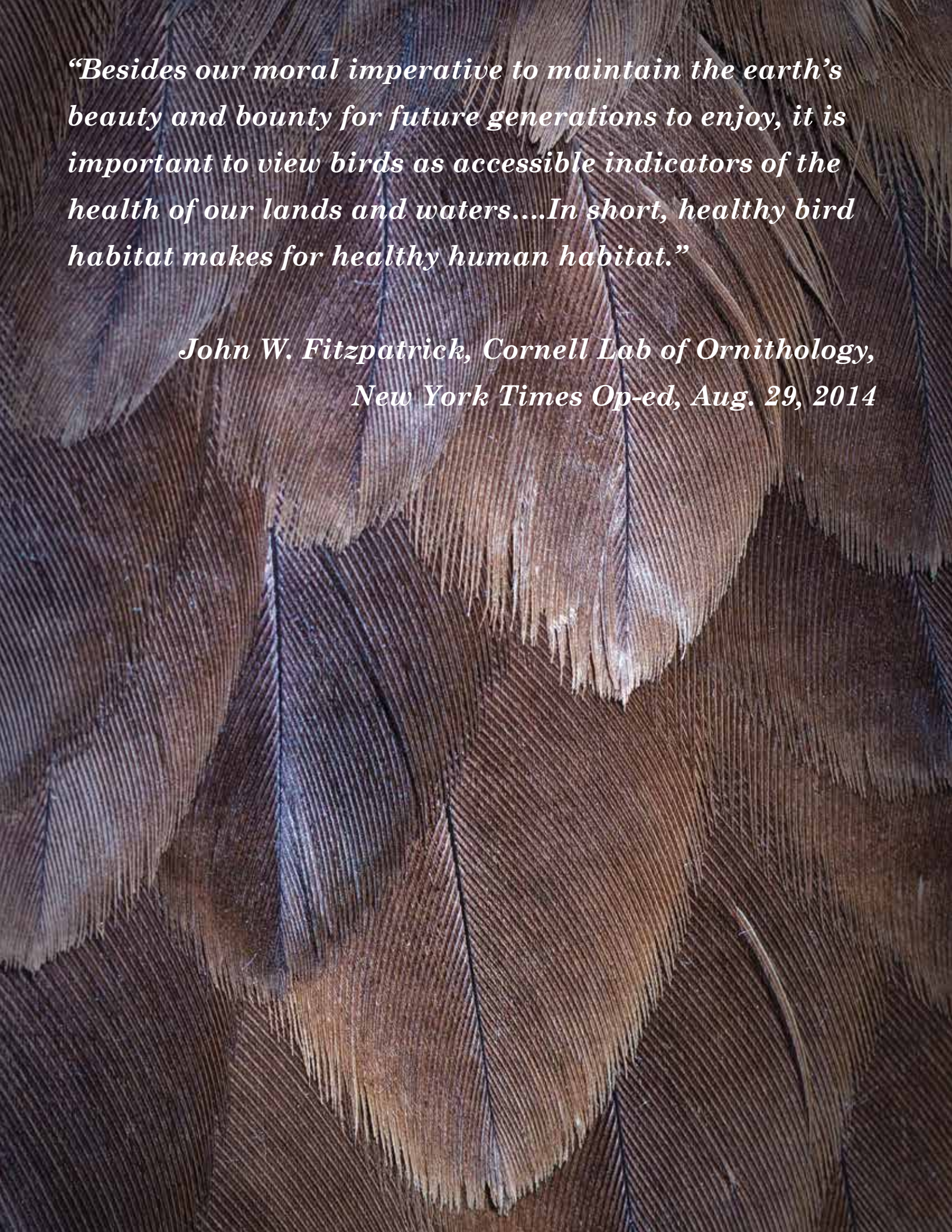
Grassland birds, such as the Greater Prairie-Chicken, are declining faster than any other group of North American landbirds and require immediate attention to maintain these emblematic species.



"Besides our moral imperative to maintain the earth's beauty and bounty for future generations to enjoy, it is important to view birds as accessible indicators of the health of our lands and waters....In short, healthy bird habitat makes for healthy human habitat."

John W. Fitzpatrick, Cornell Lab of Ornithology,
New York Times Op-ed, Aug. 29, 2014