

# The Nature Conservancy's Prairie Wings Project: A Conservation Strategy for the Grassland Birds of the Western Great Plains<sup>1</sup>

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In the second half of the nineteenth century, driven by the cultural mandate of manifest destiny and economic expansion, the North American west was rapidly settled and permanently altered by hundreds of thousands of residents from the eastern United States, Canada, Central Mexico and Europe. The first region to fill up with new arrivals was the Great Plains, a "sea of grass" that stretched uninterrupted, from the prairies of southern Canada across the middle of the United States, to the arid grasslands of Northern Mexico – an area of both stunning continuity and biological complexity that is the largest biome on the continent. Although it is widely accepted that native peoples purposefully altered the prairie landscape primarily through the use of fire, in the last 150 years conversion to agriculture, fragmentation from urban development, degradation of wetlands, groundwater depletion, fire suppression, and incompatible grazing practices have been and will be among the most serious threats to prairies and many of the grassland obligate bird species that rely on the varied habitat types of the plains.

The impact of these human pressures on grassland birds has nowhere been more acute than in the western Great Plains – essentially the area bounded by the eastern slope of the Rocky Mountains in the west and the 100<sup>th</sup> meridian in the east. It is here that a relatively small number of avian species evolved and may be considered narrow endemics of the short and mixed-grass prairies. These include Ferruginous Hawk, Mountain Plover, Long-billed Curlew, Sprague's Pipit, Cassin's Sparrow, Baird's Sparrow, Lark Bunting, McCown's Longspur, and Chestnut-collared Longspur among others (Mengel 1970, Knopf 1996). Based upon North American Breeding Bird Survey (BBS) data, a majority of these have been experiencing disturbing declines (*table 1*) during the last four decades. Indeed, the endemic grassland birds of the short and mixed-

grass prairies, have shown steeper, more consistent, and more geographically widespread declines than any other behavioral or ecological guild of North American species (Knopf 1994).

In response, The Nature Conservancy's Migratory Bird Program created the Prairie Wings project in 2000 with the goal of identifying and protecting critical grassland bird habitat across ten ecoregions (*fig. 1*) across the prairies of Canada, the United States and Mexico. There is an almost complete congruence between these ten ecoregions and the five western Great Plains bird conservation regions (Prairie Potholes, Badlands and Prairies, Shortgrass Prairie, Central Mixed-grass Prairie, and Chihuahuan Desert) as adopted by the North American Bird Conservation Initiative (U.S. NABCI Committee 2000). Ecoregions are the basic planning unit used by the Conservancy and are a modified version of Bailey's (1995) ecoregions, defined as large areas that have similarities in faunal and floral composition and are normally based on criteria such as climate, soils, geology, and vegetation cover types (Bailey 1998).

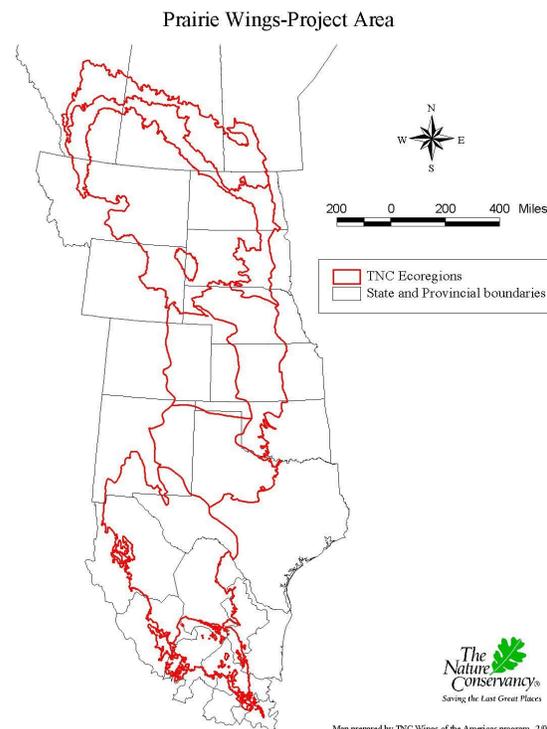


Figure 1— Project area boundary of The Nature Conservancy's Prairie Wings project.

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**Table 1**— Annual Rates of change in continental populations of selected endemic grassland bird species, 1966-2000. Trends statistically significant with a *p*-value <0.01 are boldfaced. Data from North American Breeding Bird Survey (Sauer et al. 2001). Scientific names are listed in table 2.

Species	No. of BBS routes	Population trend	P value
<b>Ferruginous Hawk</b>	<b>216</b>	<b>+4.3%</b>	<b>0.00</b>
Mountain Plover	38	-1.2%	0.51
Long-billed Curlew	227	-1.2%	0.11
<b>Sprague’s Pipit</b>	<b>126</b>	<b>-4.7%</b>	<b>0.00</b>
<b>Cassin’s Sparrow</b>	<b>232</b>	<b>-2.3%</b>	<b>0.00</b>
Baird’s Sparrow	124	-2.9%	0.02
Lark Bunting	346	-1.4%	0.03
McCown’s Longspur	62	-3.6%	0.39
Chestnut-collared Longspur	148	-1.7%	0.04

Within each of these ecoregions, The Nature Conservancy identifies a portfolio of conservation areas that collectively represent the native species and ecosystems of the ecoregion and the underlying ecological processes that sustain them (Groves et al. 2002). Although the Conservancy’s ecoregional planning efforts have been effective tools for guiding our conservation efforts at the ecoregional scale, there is concern that the sites identified in these plans may not adequately provide for the conservation of migratory birds or other wide-ranging species. As a result, The Nature Conservancy’s Prairie Wings conservation planning team is analyzing existing data to identify those large landscapes that need to be protected across the entire short- and mixed-grass prairie ecosystem if viable populations of grassland birds are to be maintained into the future. The resultant map will be the basis for developing range-wide conservation strategies across ten ecoregions to protect the endemic birds of the western Great Plains.

The process we are using to identify the portfolio of important grassland bird conservation areas begins with the selection of what the Conservancy calls “conservation targets” or those elements of biological diversity that will be the focus of the planning efforts (Groves et al. 2000). Unlike most species of migratory birds, a majority of the narrow endemics of the western Great Plains spend all or at least a majority of their entire life cycle (i.e., breeding, migration, and wintering) within the short- and mixed-grass prairies and arid grasslands of Canada, the United States, and Mexico. The relatively small range of this group of birds offers unique opportunities to design and implement comprehensive conservation strategies that can be easily integrated with existing Conservancy and partner organization site-level work. Consequently, Prairie Wings staff has identified those birds that are considered to be endemics or those with a very strong affinity for the short- and mixed-grass prairie system as the primary

conservation targets. These species are all also generally considered to be of great conservation concern by the bird conservation community (table 2). There are, in addition, species of great conservation concern in the Prairie Wings project area that spend only a small portion of their lifecycle in the Western Great Plains, have only a small portion of their range in the Great Plains, and/or are dependent on wetland habitat. The most threatened of these have been identified as either secondary or wetland associated target species (table 2).

Although planning is a critical step in the conservation process, it is the implementation of strategies to abate the threats that are causing the decline of the targets that will ultimately lead to conservation success. Given the paucity of data available on these conservation targets, an analysis to determine the most deleterious threats is rather coarse but includes:

- Habitat destruction from agricultural conversion and urbanization;
- Habitat fragmentation from the subdivision of large tracts near urban centers;
- Habitat disturbance from exotic species introductions and incompatible grazing practices;
- Alteration of the natural fire regime; and
- Changes in flow patterns of rivers, excessive groundwater depletion, and water quality degradation from inappropriate agricultural practices and development.

In an effort to mitigate these range-wide threats, Prairie Wings staff are working with The Nature Conservancy’s programs in the United States, Mexico, and Canada as well as other conservation organizations, state and federal agencies, and researchers across the three countries to develop and implement conservation

**Table 2--** *Prairie Wings grassland bird conservation targets. Species are divided into three categories; global conservation priority rank is from NatureServe (2001) and Partners in Flight (Pashley et al. 2000).*

Target type	Common name	Scientific name	Global rank	Global PIF score
<b>Primary</b>				
	Ferruginous Hawk	<i>Buteo regalis</i>	G4	17
	Greater Prairie-Chicken	<i>Tympanuchus cupido</i>	G4	24
	Lesser Prairie-Chicken	<i>Tympanuchus pallidicinctus</i>	G3	24
	Scaled Quail	<i>Callipepla squamata</i>	G5	20
	Mountain Plover	<i>Charadrius montanus</i>	G2	26
	Long-billed Curlew	<i>Numenius americanus</i>	G5	20
	Burrowing Owl	<i>Athene cunicularia</i>	G4	17
	Sprague's Pipit	<i>Anthus spragueii</i>	G4	22
	Cassin's Sparrow	<i>Aimophila cassinii</i>	G5	19
	Lark Bunting	<i>Calamospiza melanocorys</i>	G5	19
	Baird's Sparrow	<i>Ammodramus bairdii</i>	G4	23
	McCown's Longspur	<i>Calcarius mccownii</i>	G5	23
	Chestnut-collared Longspur	<i>Calcarius ornatus</i>	G5	20
<b>Secondary</b>				
	Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	G4	20
	Short-eared Owl	<i>Asio flammeus</i>	G5	19
	Clay-colored Sparrow	<i>Spizella pallida</i>	G5	18
	Brewer's Sparrow	<i>Spizella breweri</i>	G5	19
	Henslow's Sparrow	<i>Ammodramus henslowii</i>	G4	24
	Smith's Longspur	<i>Calcarius pictus</i>	G5	23
	Dickeissel	<i>Spiza americana</i>	G5	21
	Bobolink	<i>Dolichonyx oryzivorus</i>	G5	19
<b>Wetland Associated</b>				
	Trumpeter Swan	<i>Cygnus buccinator</i>	G4	21
	Sandhill Crane	<i>Grus canadensis</i>	G5	18
	Whooping Crane	<i>Grus americana</i>	G1	30
	Yellow Rail	<i>Coturnicops noveboracensis</i>	G4	22
	Black Rail	<i>Laterallus jamaicensis</i>	G4	25
	Snowy Plover	<i>Charadrius alexandrinus</i>	G4	24
	Piping Plover	<i>Charadrius melodus</i>	G3	27
	Marbled Godwit	<i>Limosa fedoa</i>	G5	21
	Least Tern	<i>Sterna antillarum</i>	G4	15

strategies at important grassland bird conservation areas in each of the ten ecoregions in the project area. Conservation strategies generated by our planning process include, among others, the permanent protection of critical habitat areas through acquisition and conservation easements, the creation of protected areas, collaboration with land management agencies to begin adopting management approaches that improve grassland bird habitat, and the creation of novel financial private landowner incentive programs that will protect native prairie habitat.

For instance, Prairie Wings staff worked closely with the Mexican non-governmental organization Pronatura Noreste in an effort that led to the decree of a new 20,000 hectare protected area in the El Tokio region in the state of Nuevo Leon in the Chihuahuan Desert Ecoregion. This globally significant area harbors the last

remaining colonies of the Mexican Black-tailed Prairie Dog (*Cynomys mexicanus*), and provides critical wintering habitat for Ferruginous Hawk, Mountain Plover, Long-billed Curlew, Burrowing Owl, Sprague's Pipit, Lark Bunting, McCown's Longspur, and other grassland birds of concern. Our support for this project included financial and technical assistance to Pronatura Noreste in the design and implementation of an ongoing multi-year grassland bird inventory project as well as the identification and protection of additional key areas in the El Tokio region.

Another example of our approach can be seen in The Nature Conservancy's goal of developing a federally funded native grassland conservation easement program in the US. Thanks to the dedication of a strong coalition of conservation organizations, the Conservancy played a major role in the passage of the Grassland

Reserve Program (GRP) as a component of the 2002 Farm Bill. The GRP is an innovative program that will provide 254 million dollars for the enrollment of up to 2 million acres of grasslands or shrublands in the US in 10, 15, or 20-year rental agreements, or 30-year permanent conservation easements from interested landowners in regions determined to include high-quality native grassland habitat.

Our assumption is that if the threats presently degrading or destroying critical grassland habitat are abated, we will see a subsequent increase in those populations of grassland birds that are presently declining. The key to program success will be the degree to which a wide assortment of organizations collaborate on conservation efforts across all of the priority grassland bird conservation areas. It is our hope that if our range-wide approach to migratory bird conservation is successful, Prairie Wings will serve as a model for the development and implementation of other range-wide bird conservation efforts elsewhere in the Americas and beyond.

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