

Declining Birds in Grassland Ecosystems: A Department of the Interior Conservation Strategy

Report From:

Department of the Interior Grassland Bird Working Group

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Executive Summary

Issue

- Grasslands are recognized by many as the most imperiled ecosystem worldwide.
- The unique avian assemblages associated with grasslands are also in danger -- grassland bird populations have shown steeper, more consistent, and more geographically widespread declines than any other guild of North American bird species.
- Breeding Bird Survey (BBS) data from 1966-1993 indicate that almost 70% of the 29 grassland bird species adequately surveyed by the BBS had negative population trends.
- The need for information on abundance, productivity, habitat use, seasonal distribution, and effects of management practices is widely recognized among resource managers.
- Favorite grassland birds like the Eastern and Western Meadowlarks, Mountain Plover, Burrowing Owl, Dickcissel, Cassin's Sparrow, and Lark Sparrow are declining.

This strategy identifies the most important Department of the Interior (DOI) information needs and funding requirements associated with conservation of Central Grassland birds that are ecologically restricted to upland habitats. The ultimate outcome will be to identify causes of grassland bird declines and to address them through better management.

Information Needs

The most important information needs for grassland bird conservation focus on:

- effects of habitat/landscape features
- species status assessments
- rangewide surveys
- monitoring issues
- effects of agricultural policies
- wintering ground issues

Recommendations

Need #1: A Departmental initiative will require some minimal infrastructure to facilitate communication and ensure that all interests are represented and have bought into the effort.

Recommendation #1: Establishment of a DOI Grassland Birds Coordination Team comprised of representatives named by U.S. Geological Survey-Biological Resources Division (USGS-BRD) and DOI management agencies.

Need #2: The capabilities exist within the USGS-BRD and the management agencies to address information needs and management activities respectively. However, current resources fall far short of what is necessary to adequately fund these activities.

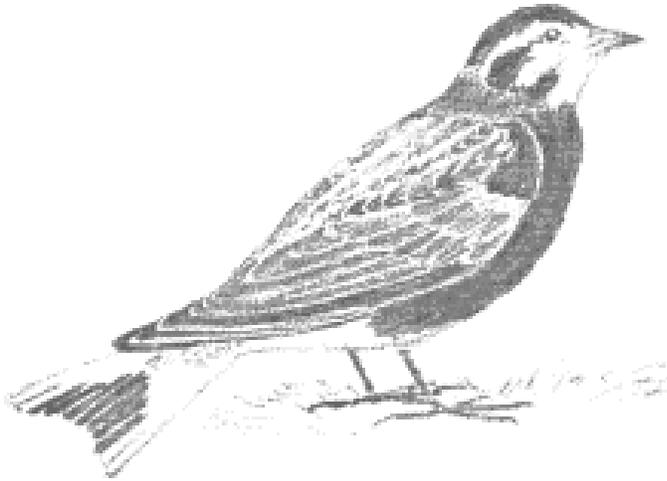
Recommendation #2: FY 1999 DOI budget initiative of \$6 million a year for 10 years.

Introduction

This document represents the efforts of an interagency workshop of Department of the Interior (DOI) agencies organized by the USGS-Biological Resources Division (BRD) Central Regional Office in response to a series of DOI needs related to grassland birds that were identified through the BRD Bureau Information Needs (BIN) process. Participants included representatives of the U.S. Fish and Wildlife Service (FWS), the Bureau of Land Management (BLM), and the National Park Service (NPS), as well as BRD scientists with expertise on grassland birds. The workshop's assigned task was to develop a strategy for addressing DOI grassland bird information needs.

This strategy document identifies needs for synthesizing existing information, conducting new research, and acquiring additional funding to address grassland bird declines. The ultimate outcome of these efforts will be to identify causes of

these declines and address them through better management of grassland birds and the ecosystems on which they depend.



Grasslands are recognized by many as the most imperiled ecosystem worldwide. Native North American grasslands that once extended from Canada into Mexico and from the foothills of the Rocky Mountains to western Indiana and Wisconsin have dramatically declined in area. This document addresses the grassland bird needs and funding requirements of the Central Grasslands, because the largest percentage of grassland habitat

occurs in this physiographic province. The Central Grasslands include the three commonly recognized grassland types - eastern tallgrass, central mixed-grass, and western shortgrass - as well as Sonoran/Chihuahuan desert grasslands [see color map]. We recognize that there are also significant grassland issues to be addressed in the far west and in the eastern U.S. We, therefore, encourage coordination between regional offices, both within USGS and among DOI bureaus, to address continent-wide grassland bird needs. The avian assemblages that have evolved specifically in association with grasslands are unique and represent a valuable component of regional and global biological diversity. Grassland bird populations have shown steeper, more consistent, and more geographically widespread declines than any other behavioral or ecological guild of North American species. Breeding Bird Survey (BBS) data from 1966-1993 indicate that almost 70% of the 29 grassland bird species adequately surveyed by the BBS had negative population trends.

The focus of this workshop was on grassland birds that are ecologically restricted to upland habitats. [See Appendix for sample list of grassland birds of concern by grassland type.] However, there are many waterfowl and shorebird species that also use grasslands. In addition, the workshop focused primarily on information needs related to grassland birds on their breeding and wintering grounds. While much also remains to be learned regarding grassland bird migration, it was the consensus of the participants that breeding and wintering issues are a higher priority at present.

The differing missions of the agencies involved in this workshop result in varying needs and applications of information developed to address grassland bird needs. USGS-BRD is a science agency that does not manage lands or species but rather is responsible for providing the scientific information needed by other DOI bureaus to effectively manage their trust responsibilities. By contrast, FWS,

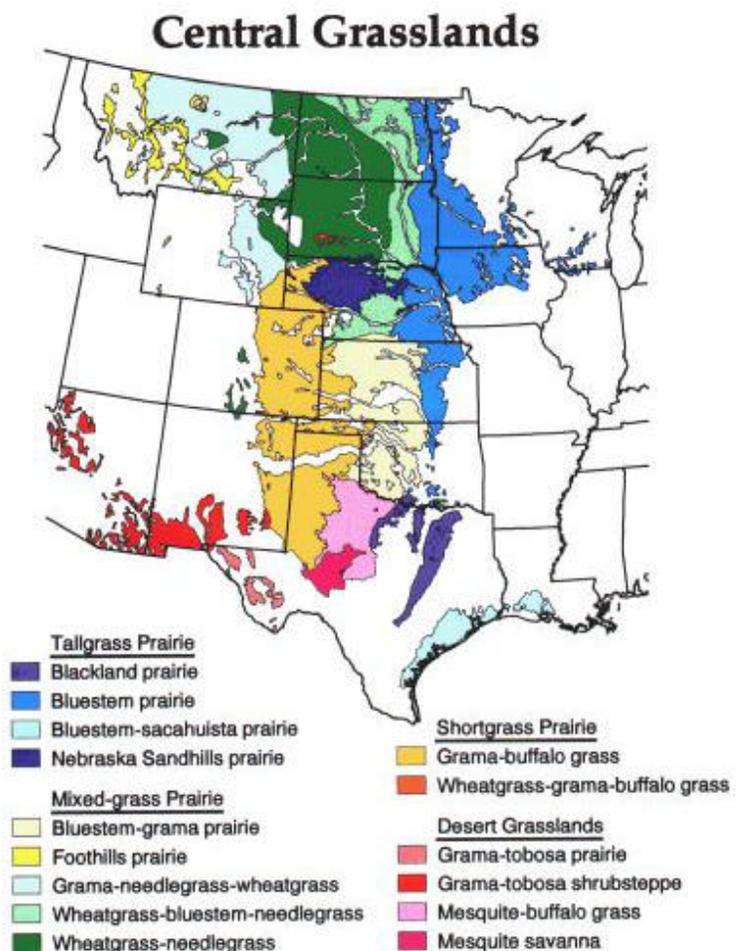
BLM and NPS all manage Federal lands and the species that occur there. The FWS mission also extends beyond FWS-managed lands, due to its statutory responsibilities for migratory birds and endangered species. In addition, varying land ownership patterns across the country present different opportunities and needs for research. For example, in the eastern tallgrass prairie much more of the landscape is in private ownership, while western shortgrass prairie contains large tracts of public land. This results in some differences regarding where research should be conducted - Federal lands, other public lands, or private land. The grassland bird needs presented in this document may result in research being conducted on lands managed by DOI agencies, other Federal, State or local agencies, or private landowners, depending on the particular need being addressed and the opportunities for permitted access.

High Priority Grassland Bird Information Needs

The following common themes are equally important information needs for grassland birds and their habitats and are not presented in any priority order. Research on these themes will ultimately identify the causes of population declines and provide information needed by managers to manipulate habitats and populations in ways that benefit grassland bird communities.

Effects of Habitat and Landscape Features on Grassland Birds

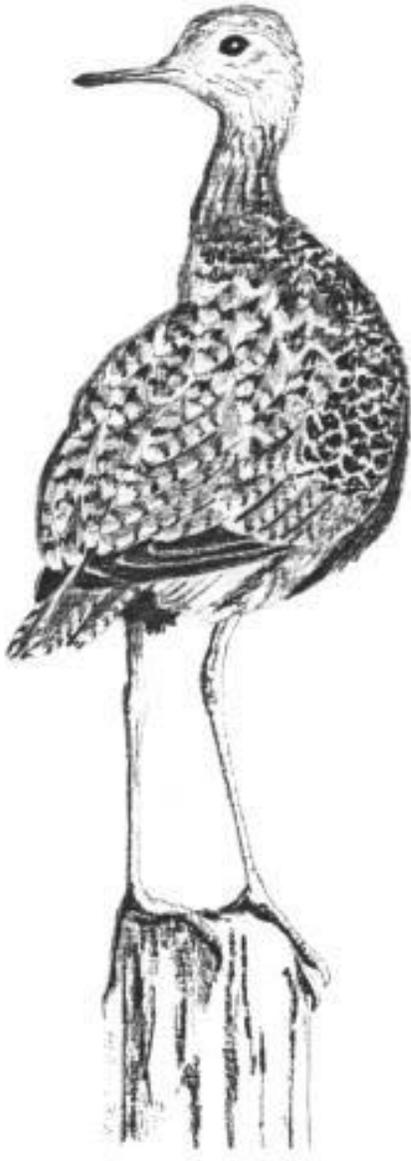
This rather broad information need can be thought of in four general categories that affect avian communities: habitat variables; landscape variables and related factors; management effects; and alien species issues.



Research and synthesis activities related to **habitat variables** should focus primarily on the effects of vegetative structure and vegetative species

composition on avian communities. These vegetation variables are also influenced by climatic factors. In desert grasslands and on the wintering grounds the invasion of shrubs and other woody growth (not alien species, which are addressed below) into areas of historic grassland poses a threat to grassland birds, as does the phenomenon of desertification in desert grasslands, both of which cause habitat degradation. In both shortgrass prairie and on the wintering grounds, prairie dog colonies appear to provide unique habitats. There is a need for a synthesis document targeted for managers, describing the importance of prairie dog ecosystems for grassland birds.

Activities related to **landscape variables** should focus primarily on the effects of habitat block size and landscape context. The latter includes block distribution,



surrounding land uses, and proximity to "hostile environments" (e.g., roads, suburban development, trees, feedlots). An additional issue that is critical in understanding grassland bird declines, and is often related to landscape features, is the effects of predation and nest parasitism on avian productivity and populations. It is important to supplement existing knowledge about the effects of predation on game birds and the effects of nest parasitism by cowbirds in forested ecosystems with similar research on these two factors in grassland ecosystems.

Research activities related to **management practices** should focus on the most important driving forces acting in particular grassland types. For example, fire and grazing represent a continuum in which grazing tends to assume greater importance as one moves west from tallgrass into mixed-grass and shortgrass, and southwest to the wintering grounds, while fire assumes greater importance as one moves east toward tallgrass prairie. Issues to be addressed regarding the use of prescribed fire include the effects of block size for burning, frequency of burn, timing of burn, and the importance of providing refugia for wildlife displaced by burning. Issues related to grazing include timing, frequency, size of enclosure, and intensity of grazing. The effects of agricultural practices, particularly cultivation and haying practices, on grassland birds is a more important information need for mixed-grass and tallgrass prairie. Issues

include the effects of pesticides, crop rotations, till practices, timing of plowing and harvest, and shelterbelts. Specific to mixed-grass and shortgrass prairie is

the need to understand the effects of grasshopper control on avian communities. In tallgrass prairie and desert grasslands there is a need to evaluate the effectiveness of habitat restoration activities.

The effects of **alien species**, especially plants, represent an information need of importance in mixed grass, shortgrass, and desert grasslands as well as on the wintering grounds, with the focus on different species in each area. Research should focus on mechanisms by which alien species invade, effects of such invasions, development of methods for controlling alien species, and the effects of control methods on avian communities.

Development/Expansion of Species Status Assessment Reports

Documents that synthesize diverse technical information on individual grassland bird species and present the information in a usable form for managers are critical. Such synthesis documents should summarize the status of a species (population numbers and trends, distribution, etc.), its ecology and natural history, and threats to it, and should provide management guidelines that will result in the species' conservation. These documents should also determine whether additional information, such as a rangewide survey, is needed. The FWS has provided a standard format for Status Assessments and we recommend that this format be employed for Status Assessments of grassland birds. [See Appendix for some species that require Status Assessments.]

Rangewide Surveys of Target Grassland Bird Species

There are many grassland bird species for which few data exist on distribution and abundance on the breeding and/or wintering grounds because of their low densities, cryptic behavior, or difficulty in identification (especially in winter plumage). There is a need to develop standard methods for gathering population data and to apply rangewide survey methods to species of concern. To date the following species have been identified either through Status Assessments, or by recognized scientific experts, as needing rangewide surveys-Henslow's Sparrow, Baird's Sparrow, Sprague's Pipit, Mountain Plover, and Lesser Prairie Chicken.

Monitoring Issues

Many grassland bird species are not adequately covered by North American population monitoring programs such as the BBS or Christmas Bird Count (CBC). There are several grassland bird monitoring issues that should be addressed by additional research, literature synthesis, and technical assistance. Of key importance is: what species are inadequately monitored by BBS/CBC and how can we develop new methods to address these deficiencies? Managers want to know how to monitor birds, which species and habitats to monitor, and how their local monitoring efforts fit into broader monitoring programs.

Effects of Agricultural Policies and Programs

The needs addressed here are to be distinguished from issues related to specific agricultural management practices as discussed above. What are referred to here are large scale farm policies and programs (e.g., the Conservation Reserve Program and Federal grazing fees) and their effects on avian habitat and landscape features.

Wintering Ground Issues

The wintering ranges of grassland birds cover a large geographic area, with some wintering in the southern U.S. and Mexico, while others winter in Central or South America. There are several additional information needs that are focused on the wintering grounds. The need for information about the distribution of wintering grassland birds extends beyond the need for rangewide surveys; it is also important to know how much spatial and temporal variability occurs in their distribution. There is also a need to develop survey methodologies and a training curriculum for identifying grassland birds on the wintering grounds. Finally, there is a need for information about the effects of contaminants on wintering birds.

Administration

An initiative that involves cooperation and collaboration among all DOI agencies with interests in grassland birds will require some minimal infrastructure to facilitate communication and ensure that the interests and needs of all agencies are recognized. We recommend the naming of a DOI Grassland Bird Coordination Team composed of a representative named by the USGS-BRD Central Regional Biologist and representatives named by counterparts in the DOI management agencies (e.g., FWS Regional Directors, BLM State Directors, NPS Regional Chief Biologists, etc.). This team would oversee grassland bird activities in their individual agencies, coordinate activities and initiatives among agencies, represent the importance of grassland bird information needs and conservation to the Department, and assist in the promotion and refinement of the proposed budget initiative.

Budget

The conservation of grassland birds is a high priority for all of the DOI agencies represented at the workshop. The capabilities exist within USGS-BRD to conduct needed research on grassland birds as identified in this document. The Northern Prairie Science Center in Jamestown, North Dakota, has particular expertise in tallgrass and mixed-grass ecosystems; and the Midcontinent Ecological Science Center in Fort Collins, Colorado, has similar expertise working in shortgrass and desert grassland ecosystems. There is additional expertise related to particular grassland issues at various other Science Centers and in the Cooperative Units program. The capabilities exist within FWS, NPS, and BLM to conduct the management activities needed to conserve grassland birds as an integral part of their larger missions. These agencies have identified the importance of the grassland bird issue and have addressed them as fully as possible with currently

allocated funds, but the resources fall far short of what is necessary to adequately address this issue.

Based on their knowledge of management, monitoring and research needs, and more limited knowledge regarding the development of broad-based budget initiatives, the workshop participants estimate that a minimum of an additional \$6 million would be required to address the Central Grassland bird information and management needs. This level of funding would support a range of grassland bird conservation activities including (1) improved documentation of species status and distribution, (2) research on grassland birds across seasons and across grassland types, and (3) testing of management options for improving grassland bird habitat.



We recognize that both USGS and the management agencies may be able to allocate some existing funds or planned budget initiatives (e.g., the proposed FY 1998 BRD budget initiative for Science Support for Management of Federal Lands) to address grassland bird information and management needs. However, reallocation of existing funds will not begin to address the current shortfall in funds for grassland bird conservation. In addition, in the current restrictive budget climate, it would place these DOI agencies in the position of robbing other priority programs to supplement a grassland bird effort. Therefore, we strongly recommend the development of a \$6 million DOI grassland bird budget initiative for FY 1999 to provide new funding annually at that level for 10 years. This funding would go to address the Central Grassland bird information needs

identified in this document and to supplement existing management activities to conserve grassland birds. We recommend selecting one of the following two alternative approaches to this initiative: a Department-wide initiative containing direct, separate funding for each individual participating DOI bureau; or a USGS-BRD initiative in which all funds go to BRD, but portions of the funding are identified for use in addressing the specific needs of individual DOI bureaus.

Promotion of a budget initiative of this magnitude will require additional details about the distribution of funds and how that money will be spent. We recommend that the DOI Grassland Bird Coordination Team be assigned responsibility to

negotiate and refine the development of this initiative and to promote the initiative within and beyond the Department.

Partnerships

The participants in this workshop recognize that development of a comprehensive approach to grassland bird conservation requires a broader range of partnerships. Partners should include other Federal agencies, State wildlife and natural resource agencies, broad-based interagency organizations, academia, and private organizations. In addition, because waterfowl and shorebirds also use grassland habitats, we have the opportunity to collaborate with the North American Waterfowl Management Plan and the Western Hemisphere Shorebird Reserve Network. Although making recommendations regarding specific cooperative actions is beyond the scope of this strategy document, we urge DOI agencies to communicate and collaborate with these potential cooperators as much as possible.

Appendix. Grassland Bird Species of Interest in the Central Grasslands

These species are **EXAMPLES ONLY!** This list is not meant to be a comprehensive list of grassland bird species of concern, but rather to exemplify the variety of Central Grassland species. Some of these species may also occur in other grassland types. They are categorized here by their primary breeding habitat (unless noted otherwise), although many also winter in the Sonoran/Chihuahuan desert grasslands.

Common Name	Scientific Name
<u>Tallgrass Prairie</u>	
Dickcissel ^a	<i>Spiza americana</i>
Henslow's Sparrow	<i>Ammodramus henslowii</i>
Le Conte's Sparrow ^a	<i>Ammodramus leconteii</i>
Bobolinka	<i>Dolichonyx oryzivorus</i>
Eastern Meadowlark ^a	<i>Calcarius pictus</i>
Smith's Longspur (winter)	<i>Calcarius pictus</i>
White-tailed Hawk (Texas coastal prairie)	<i>Buteo albicaudatus</i>
<u>Mixed-grass Prairie</u>	
Sprague's Pipit ^a	<i>Anthus spragueii</i>
Clay-colored Sparrow	<i>Spizella pallida</i>
Baird's Sparrow	<i>Ammodramus bairdii</i>
Nelson's Sharp-tailed Sparrow	<i>Ammodramus nelsoni</i>
McCown's Longspur	<i>Calcarius mccownii</i>
<u>Shortgrass Prairie</u>	
Ferruginous Hawk ^a	<i>Buteo regalis</i>
Mountain Plover ^a	<i>Charadrius montanus</i>
Long-billed Curlew ^a	<i>Numenius americanus</i>
Northern Shrike (winter)	<i>Lanius excubitor</i>
Lark Bunting ^a	<i>Calamospiza melanocorys</i>
Chestnut-collared Longspur	<i>Calcarius ornatus</i>
Lesser Prairie Chicken	<i>Tympanuchus pallidicinctus</i>
<u>Sonoran/Chihuahuan Desert Grasslands</u>	
Cassin's Sparrow ^a	<i>Aimophila cassinii</i>
Aplomado Falcon	<i>Falco femoralis</i>
Botteri's Sparrow ^a	<i>Aimophila botterii</i>
Rufous-winged Sparrow ^a	<i>Aimophila carpalis</i>
<u>Grassland Generalists</u>	
Upland Sandpiper ^a	<i>Bartramia longicauda</i>
Northern Harrier ^a	<i>Circus cyaneus</i>
Swainson's Hawk ^a	<i>Buteo swainsoni</i>
Burrowing Owl ^a	<i>Athene cunicularia</i>
Short-eared Owl ^a	<i>Asio flammeus</i>
Common Nighthawk	<i>Chordeiles minor</i>
Loggerhead Shrike ^a	<i>Lanius ludovicianus</i>
Vesper Sparrow	<i>Poocetes gramineus</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Grasshopper Sparrow ^a	<i>Ammodramus savannarum</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Western Meadowlark ^a	<i>Sturnella neglecta</i>

^a These species have been identified by FWS as species that need Status Assessments; they are not prioritized. Please contact the appropriate FWS Nongame Bird Coordinator for updated information about these and other species.

DOI Grassland Bird Working Group

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