

BIRD PRIORITIZATION

Purpose

Effective and efficient ecological management involves determining which species and habitats are most in need of conservation. The Wyoming Partners In Flight species prioritization process was designed as a tool for this important task. Priority species selected for discussion in Version 2.0 of the Wyoming Bird Conservation Plan were chosen using the prioritization process as the initial scoring tool, and the knowledge of WY-PIF participants and other local experts to refine the priority list. We recognize that there are gaps in our knowledge of Wyoming birds. However, the Wyoming Bird Conservation Plan is a dynamic and working document, so new information will be incorporated into our prioritization process and subsequent recommendations.

Partners In Flight initially focused only on Neotropical migratory birds (those species that breed in the United States and Canada and winter in Latin America). As the national program progressed, emphasis has expanded to include all breeding, wintering, and resident birds. Following the national PIF expanded emphasis, the Wyoming Bird Conservation Plan will concentrate on the birds that will be most positively influenced by management, as well as those species with the greatest immediate threats of extirpation. In many cases, management of habitat groups will provide protection for suites of priority species and allow land managers to participate in critical conservation efforts. This approach often results in less of a financial burden than single-species management practices sometimes incur.

Process for Prioritizing Species

Wyoming Partners In Flight participants developed the current list of priority species based on a combination of the seven criteria in the national Partners In Flight Priority Database (Carter et al. 1997). This database serves as a defensible method of prioritizing both species and habitats in need of conservation. The criteria include Wyoming-dependent and Wyoming-independent factors. The Wyoming-independent criteria are constant over a species' range and do not vary for each species. The Wyoming-dependent criteria were the key components used to prioritize species and their conservation action needs. In the absence of any more rigorous statewide surveys, Breeding Bird Survey data dating back to 1968 were used to determine population trends in Wyoming.

Criteria

Within each criterion below, a species was given a rank score ranging from 1 to 5, with 1 being the least critical rank and 5 the most critical. Each ranked species could potentially receive a low score of 7 and a high score of 35. However, setting conservation goals based only on total score could be misleading; therefore, each total score was reviewed in conjunction with its component parts. In Wyoming, species were initially ranked using total score, area importance, and population trend.

1. **Relative Abundance (RA)** - The abundance of a bird, in appropriate habitat within its entire range, relative to other bird species. This criterion gives an indication of a species' vulnerability to withstand cataclysmic environmental changes. A low score would indicate a higher relative abundance, therefore reducing the risk of complete extirpation from losses in one or more regions. Higher scores indicate a lower relative abundance, thus more vulnerability to drastic losses or population changes.
2. **Breeding Distribution (BD)** - A relative measure of breeding range size as a proportion of North America [defined as the main body of the continent, excluding Greenland, through Panama and the islands of the Caribbean, comprising an area of 8,517,290 mi² (22,059,680 km²) (National Geographic Society 1993)], and as such it provides an index of a species' vulnerability to random environmental events. High scores indicate localized breeding, thus a higher likelihood of serious decline from drastic environmental changes. Low scores indicate wide breeding distribution, therefore less likelihood of extirpation. Used for breeding birds only.
3. **Non-breeding Distribution (ND)** - A relative measure of non-breeding, or winter, range size as a proportion of North America, and as such it provides an index of a species' vulnerability to random environmental events. High scores indicate localized distribution on the non-breeding grounds. Low scores indicate wide distribution on the non-breeding grounds, therefore less likelihood of extirpation. Used for wintering birds only.
4. **Threats on Breeding Grounds (TB)** - The ability of a habitat in an area to support populations of a species in that area. Two factors are considered here: 1) each species' demographic and ecological vulnerability (the potential inability of a species to recover from population loss by normal reproductive effort due to low reproductive rate, high juvenile mortality, or both; and the level of ecological specialization of a species and, hence, its potential inability to withstand environmental change), and 2) habitat loss or disruption (a combination of the amount of habitat or conditions necessary for survival and reproductive success that has been lost since 1945, and the amount that is anticipated to be lost in the future). High scores indicate either a large loss of habitat or a species that is an extreme

ecological specialist. Low scores indicate a stable or increasing habitat or a species that is an ecological generalist. Used for both breeding and wintering birds.

5. **Threats on Non-breeding Grounds (TN)** – Range-wide threats on non-breeding, or winter, grounds. This is scored using the same criteria as threats on breeding grounds but reflects non-breeding issues, including migratory habitat. Used for wintering birds only.
6. **Population Trend (PT)** - The overall population trend of each species assigned independently for each state, province, or Bird Conservation Region. This criterion must meet two thresholds, reliability and magnitude, to warrant either a very high or very low score. When possible, a score was assigned using BBS data, which incorporated a population trend uncertainty score based on the statistical validity of the BBS data (i.e. a species must be detected on a minimum of 14 BBS routes per state for population trends to have statistical significance). This criterion was chosen to alert managers to species with modest, but certain, population declines.
7. **Area Importance (AI)** - The abundance of a species within a state, province, or Bird Conservation Region relative to its abundance throughout its range. This criterion helps direct conservation efforts toward areas that are most important to a species' survival. Area Importance is scored locally; therefore, high scores indicate that a large proportion of the species' breeding or winter range occurs in Wyoming, or a species is using a habitat that is only available in Wyoming. Low scores indicate that a small proportion of the species' range occurs in Wyoming, or the preferred habitat is widespread across its range. Used for both breeding and wintering birds.

Priority Species

Priority bird species in Wyoming were identified from the PIF Priority Database (Carter et al. 1997) and by qualitative, informed decisions. Those species with a total score of 18 or above, Area Importance (AI) of 3 or above, and/or Population Trend (PT) of 3 or above from the database, or with a total score less than 18 but of significant local interest were identified as the highest priority species. However, as more information becomes available, the highest priority species for Wyoming may change, as this is a dynamic database that allows for updated information to be periodically inserted and reviewed. The primary habitat type or types required for breeding were identified for each species to determine the highest priority habitat types for the state. Finally, the type of conservation strategy needed to ensure survival for each priority species was determined (Tables 7-10).

References and Additional Reading

Carter, M. F., W. C. Hunter, D. N. Pashley, J. S. Bradley, C. S. Aid, J. Price, and G. S. Butcher. 1997. Setting landbird conservation priorities for states, provinces, and physiographic areas of North America. Partners In Flight Priority Database Final Report, Colorado Bird Observatory, Brighton.

Carter, M. F., W. C. Hunter, D. N. Pashley, J. S. Bradley, and K. V. Rosenberg. 2000. Setting conservation priorities for land birds in the United States: the Partners In Flight approach. *Auk* 117:541-548.

National Geographic Society. 1993. *Our World, Second Edition*. National Geographic Society, Washington, D.C.

Table 7. Level I (Conservation Action). Species clearly needs conservation action (CA). Declining population trend and/or habitat loss may be significant. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), monitoring (M), and the need for additional knowledge (K) through research into basic natural history, distribution, etc.

Species	Primary Habitat Type(s)
American Bittern	Wetlands
Trumpeter Swan ^a	Wetlands
Bald Eagle ^a	Montane Riparian, Plains/Basin Riparian
Northern Goshawk	High Elevation Conifer, Mid Elevation Conifer, Aspen
Swainson's Hawk	Plains/Basin Riparian
Ferruginous Hawk	Shrub-steppe, Shortgrass Prairie
Peregrine Falcon	Specialized (cliffs)
Greater Sage-Grouse ^a	Shrub-steppe
Columbian Sharp-tailed Grouse	Mountain-foothills Shrub
Mountain Plover	Shortgrass Prairie, Shrub-steppe
Upland Sandpiper	Shortgrass Prairie
Long-billed Curlew	Shortgrass Prairie, Meadows
Wilson's Phalarope	Wetlands
Franklin's Gull	Wetlands
Forster's Tern	Wetlands
Black Tern	Wetlands
Burrowing Owl	Shortgrass Prairie
Short-eared Owl	Shortgrass Prairie, Meadows
Brewer's Sparrow	Shrub-steppe, Mountain-foothills Shrub
Sage Sparrow	Shrub-steppe, Mountain-foothills Shrub
Baird's Sparrow ^b	Shortgrass Prairie
McCown's Longspur	Shortgrass Prairie, Shrub-steppe

^a Specific management plans already exist for the Trumpeter Swan, Greater Sage-Grouse, and Bald Eagle in Wyoming.

^b Species is peripheral in Wyoming.

Table 8. Level II (Monitoring). The action and focus for the species is monitoring (M). Declining population trend and habitat loss are not significant at this point. Includes species of which Wyoming has a high percentage of and responsibility for the breeding population (R), species whose stability (S) may be unknown (S?), species that are peripheral (P) for breeding in the habitat or state, or additional knowledge (K) may be needed.

Species	Primary Habitat Type(s)
Common Loon	Wetlands, Aquatic
American White Pelican	Aquatic
Harlequin Duck	Montane Riparian
Merlin	Low Elevation Conifer
Snowy Plover ^a	Wetlands
Black-billed Cuckoo	Plains/Basin Riparian
Yellow-billed Cuckoo	Plains/Basin Riparian
Western Screech-Owl	Plains/Basin Riparian
Eastern Screech-Owl	Plains/Basin Riparian
Great Gray Owl	Mid Elevation Conifer, High Elevation Conifer
Boreal Owl	High Elevation Conifer
White-throated Swift	Specialized (cliffs and canyons)
Black-chinned Hummingbird ^a	Plains/Basin Riparian, Shrub-steppe
Calliope Hummingbird	Mid Elevation Conifer, Montane Riparian
Broad-tailed Hummingbird	Montane Riparian, Plains/Basin Riparian, Mid Elevation Conifer
Rufous Hummingbird	Mid Elevation Conifer
Lewis' Woodpecker	Low Elevation Conifer, Plains/Basin Riparian
Williamson's Sapsucker	Mid Elevation Conifer
Red-naped Sapsucker	Aspen
Three-toed Woodpecker	Mid Elevation Conifer, High Elevation Conifer
Black-backed Woodpecker	Mid Elevation Conifer, High Elevation Conifer
Olive-sided Flycatcher	High Elevation Conifer, Mid Elevation Conifer
Willow Flycatcher	Montane Riparian, Plains/Basin Riparian
Hammond's Flycatcher	High Elevation Conifer, Aspen, Montane Riparian
Gray Flycatcher	Juniper Woodland, Mountain-foothills Shrub
Dusky Flycatcher	Low Elevation Conifer, Aspen, Mountain-foothills Shrub
Cordilleran Flycatcher	Montane Riparian, Mid Elevation Conifer
Ash-throated Flycatcher	Juniper Woodland
Cassin's Kingbird ^a	Juniper Woodland, Plains/Basin Riparian
Loggerhead Shrike	Shrub-steppe

Table 8. Level II (Monitoring), continued.

Species	Primary Habitat Type(s)
Plumbeous Vireo	Mid Elevation Conifer, Low Elevation Conifer
Western Scrub-Jay	Juniper Woodland
Juniper Titmouse	Juniper Woodland
Bushtit	Juniper Woodland
Pygmy Nuthatch	Low Elevation Conifer
Brown Creeper	Mid Elevation Conifer, High Elevation Conifer
Marsh Wren	Wetlands
American Dipper	Montane Riparian
Golden-crowned Kinglet	High Elevation Conifer
Western Bluebird	Juniper Woodland, Low Elevation Conifer
Townsend's Solitaire	Mid Elevation Conifer, High Elevation Conifer, Juniper Woodland
Sage Thrasher	Shrub-steppe
Townsend's Warbler	High Elevation Conifer, Mid Elevation Conifer
MacGillivray's Warbler	Montane Riparian, Plains/Basin Riparian
Wilson's Warbler	Montane Riparian
Vesper Sparrow	Shrub-steppe
Lark Sparrow	Shrub-steppe
Lark Bunting	Shortgrass Prairie, Shrub-steppe
Grasshopper Sparrow	Shortgrass Prairie, Shrub-steppe
Chestnut-collared Longspur	Shortgrass Prairie
Dickcissel	Shortgrass Prairie
Bobolink	Shortgrass Prairie, Agricultural Lands, Meadows
Scott's Oriole	Juniper Woodland

^a Species is peripheral in Wyoming.

Table 9. Level III (Local Interest). Species that Wyoming Partners In Flight may recommend for conservation action (CA) that are not otherwise high priority but are of local interest (LI). Can include monitoring (M).

Species	Primary Habitat Type(s)
Western Grebe	Wetlands, Aquatic
Clark's Grebe	Wetlands, Aquatic
Northern Harrier	Wetlands, Meadows
Golden Eagle	Specialized (cliffs)
Prairie Falcon	Specialized (cliffs)
White-tailed Ptarmigan ^a	Alpine Tundra/Grassland
Blue Grouse ^a	Mid Elevation Conifer, High Elevation Conifer
American Avocet	Wetlands
Willet	Wetlands
Common Poorwill	Mountain-foothills Shrub, Shrub-steppe
Red-headed Woodpecker	Plains/Basin Riparian, Low Elevation Conifer
Say's Phoebe	Shrub-steppe
Clark's Nutcracker	High Elevation Conifer, Mid Elevation Conifer
Northern Rough-winged Swallow	Plains/Basin Riparian
Rock Wren	Specialized (rock outcrops)
Canyon Wren	Specialized (canyons)
Bewick's Wren	Juniper Woodland
Veery	Montane Riparian
Virginia's Warbler	Juniper Woodland, Mountain-foothills Shrub
Black-throated Gray Warbler	Juniper Woodland, Mountain-foothills Shrub
Ovenbird	Plains/Basin Riparian
Lazuli Bunting	Montane Riparian, Plains/Basin Riparian, Mountain-foothills Shrub
Bullock's Oriole	Montane Riparian, Plains/Basin Riparian
Black Rosy-Finch	Alpine Tundra/Grassland, Specialized (cliffs)
Brown-capped Rosy-Finch	Alpine Tundra/Grassland, Specialized (cliffs)

^a Classified as a game species in Wyoming.

Table 10. Level IV (Not Considered Priority). Additional species of concern, but not considered a priority species; species is known to be stable (S) or increasing, or is addressed elsewhere in other management plans; no action is needed; monitoring (M) is not precluded but is not the focus; or species is extirpated (E) and no action is needed.

Species	Primary Habitat Type(s)
Wood Duck ^a	Plains/Basin Riparian
Cinnamon Teal ^a	Wetlands
Canvasback ^a	Wetlands
Redhead ^a	Wetlands
Ring-necked Duck ^a	Wetlands
Bufflehead ^a	Wetlands
Barrow's Goldeneye ^a	Wetlands
Hooded Merganser ^a	Aquatic
Northern Bobwhite ^b	Plains/Basin Riparian
Sandhill Crane ^a	Wetlands
California Gull	Aquatic
Chimney Swift	Urban
Warbling Vireo	Plains/Basin Riparian, Mid Elevation Conifer, Aspen
Pinyon Jay	Juniper Woodland
Black-billed Magpie	Generalist
Mountain Chickadee	High Elevation Conifer, Mid Elevation Conifer
Mountain Bluebird	Mountain-foothills Shrub, Shrub-steppe
Western Tanager	Mid Elevation Conifer, High Elevation Conifer
Green-tailed Towhee	Mountain-foothills Shrub, Shrub-steppe
Clay-colored Sparrow	Mountain-foothills Shrub, Shrub-steppe
Rose-breasted Grosbeak	Plains/Basin Riparian, Montane Riparian
Black-headed Grosbeak	Mid Elevation Conifer, Aspen
Cassin's Finch	Mid Elevation Conifer, High Elevation Conifer

^a Specific management plans already exist for waterfowl and the Rocky Mountain Greater Sandhill Crane.

^b Classified as a game species in Wyoming.