

# Growing grassland birds



## best management practices for grasslands to benefit birds in wyoming

Every autumn, more than 350 species of birds leave the United States and Canada on their migratory journey for Mexico, the Caribbean, Central America, and South America, some traveling thousands of miles to their winter homes. These are the Neotropical (New World tropics) migratory birds. The list includes hawks like the Swainson's Hawk, owls like the Burrowing Owl, shorebirds like the Killdeer, and a long list of songbirds including warblers, sparrows, hummingbirds, swallows, thrushes, flycatchers, vireos, tanagers, and orioles. Ducks, geese, and resident species such as grouse are not included in the list of Neotropical migratory species (also referred to as "landbirds").

About 155 Neotropical migrant species spend part of their lives in Wyoming, and many of these nest in the state. Most of the Wyoming Neotropical migrants are songbirds that we see in our yards, on our public lands, and on our farms and ranches from spring to fall. All of us eagerly await their melodious announcement of spring each year.

Data collected for more than 30 years by scientists and amateur bird watchers clearly show that many migrant bird populations are being devastated by certain human influences. The primary cause for population loss is the destruction of natural habitats on breeding and wintering grounds and along migration routes. By studying years of long-term Breeding Bird Survey data, this alarming decline has been tracked by the U.S. Fish and Wildlife Service and the U.S. Geological Survey, Biological Resources Division. Recent trend analysis shows that, as a group, populations of grassland-dependent bird species have declined more dramatically, more consistently, and over

a more geographically widespread area than any other group of North American birds in the last quarter century.

Approximately 35 of Wyoming's avian species have been identified as using grassland habitats; 13 of those species use shortgrass prairie as their primary habitat. Some, like the Mountain Plover and McCown's Longspur, top the list of the most imperiled of the migratory species in Wyoming and the western United States.

Partners In Flight—an international, volunteer organization of federal and state agencies, the forest products industry, academia, and non-governmental organizations from Canada to Argentina—is working to help these migratory bird species. Wyoming Partners In Flight has developed a set of recommended Best Management Practices for grassland habitats that can be used to protect and enhance populations of both Neotropical migratory birds and resident birds that call Wyoming home year-round.





## introduction

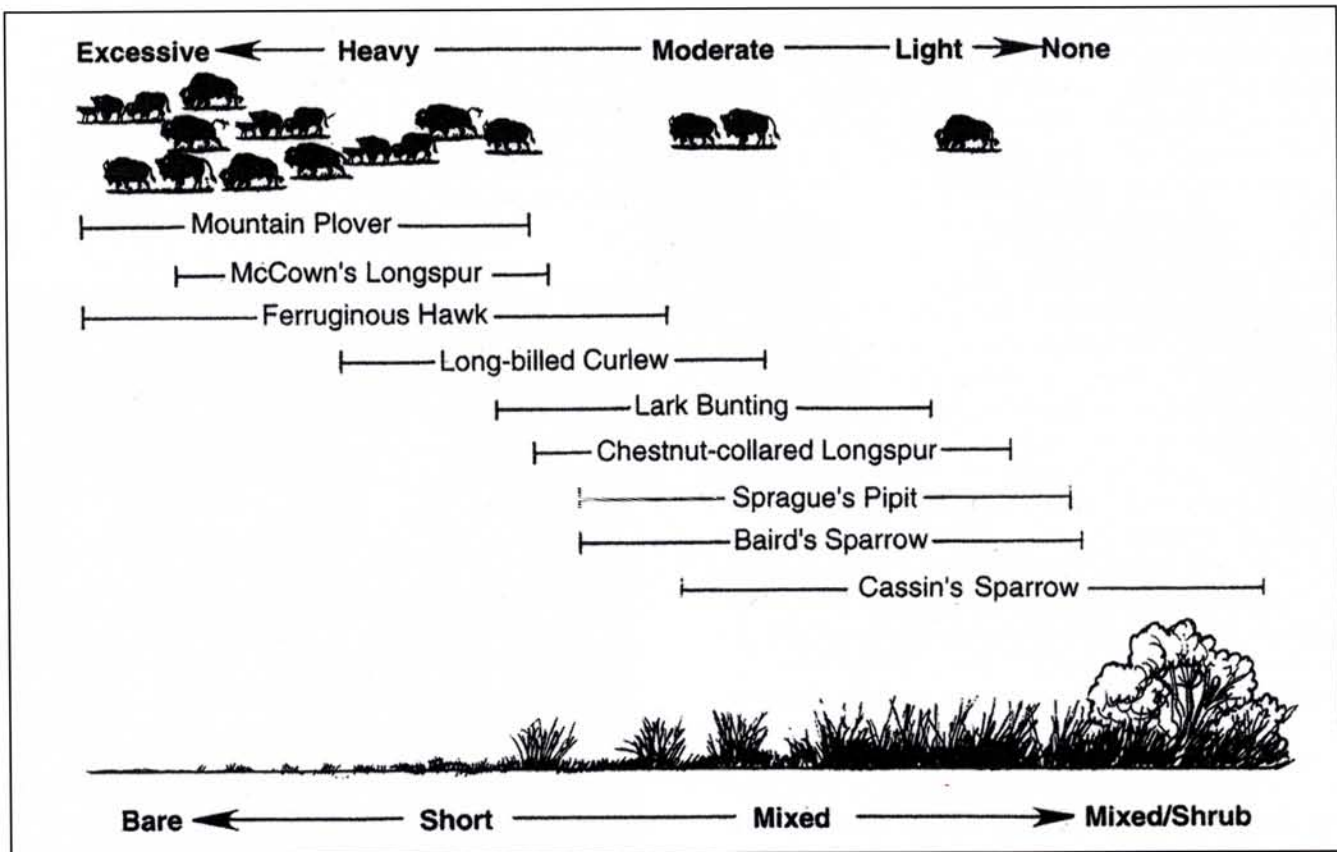
It is challenging to establish clear-cut guidelines for managing grasslands for birds because of the diversity of requirements for the various bird species and "species suites" that use grasslands (see graph below). (A species suite is a group of species with similar or overlapping habitat requirements that react similarly to habitat conditions and management actions.) Some, like the Mountain Plover and McCown's Longspur, prefer areas with very short vegetation. Others, like the Chestnut-collared Longspur and Dickcissel, prefer dense grasses. There are some species that evolved with shortgrass prairie, the predominant grassland type in Wyoming. Other species that are also native to Wyoming use mixed grasslands or grass-shrub complexes.

A simple set of guidelines for grassland management in Wyoming will not work for all species of birds using those habitats. A variety of habitats under different or rotating management schemes may be the best strategy within an ecological region (or ecoregion) that encompasses public lands and diverse private lands, and may even cross state boundaries. The efforts of land managers and private landowners are critical to the survival of these birds. Landowners and land managers

can take a variety of simple and inexpensive actions to improve habitat for birds and help them nest successfully. Ask any rancher, range extension specialist, or wildlife biologist and they are likely to agree that "quality habitat is king"—whether for growing cattle, crops, or critters. By maintaining and restoring habitat for grassland birds and other wildlife species, farm and ranch operations will also benefit. Some management activities may also work on a landscape scale to improve watershed health by reducing soil erosion and increasing water retention.

As a landowner or land manager, the actions you take will depend on your goals, resources, and commitment, as well as the physical characteristics of your property, such as soil type, topography, and existing vegetation. The following Best Management Practices (BMPs) provide some reasonable guidelines for managing grassland habitats to benefit a wide variety of resident and Neotropical migratory birds in Wyoming.

Many of these Best Management Practices fall into major categories of land use such as Grazing, Forestry, Engineering, Recreation, etc. The recommended BMPs are broken out into categories for convenience, although some are general enough to cross into other categories. Even if you practice only some of these recommendations, you will make a difference for birds in your area.



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*Distribution of different species of prairie birds across grasslands subject to different intensities of grazing.*



## how to help

- Decisions to control prairie dog towns should be made on an ecoregional basis. Prairie dogs are often considered “keystone species”. An entire community of organisms depends on a keystone species directly or indirectly, including Mountain Plovers, which require short vegetation and open ground; Ferruginous Hawks, which prey on prairie dogs; and Burrowing Owls, which require burrows for shelter, nesting, and raising their young. Removal of a keystone species can result in a cascade of changes and a rapid decline in species diversity. Prairie dog burrowing and grazing creates an expanse of close-cropped grass dotted with patches of bare earth surrounding burrow entrances. Since grass grows from the base of the stem rather than the stem tip, it can quickly grow back after the top is nipped off by a grazer. The new growth is more nutritious and more easily digested than older vegetation, and is typically shorter and more dense. This results in more energy and nutrition per bite, an important advantage for grazers that must process large amounts of vegetation each day to meet their food requirements. Thus, the act of grazing, if it is not too intense, can improve conditions for grazers. Also, recently excavated earth provides extensive habitat for annual forbs (flowering herbaceous plants) that could not compete where grass is already established.
- In suitable Mountain Plover range, repair leaking or overflowing livestock water tanks. Overflow areas promote use by Killdeer and discourage use by nesting Mountain Plovers.
- Use a combination of grazing and prescribed burning to maintain a short grass structure in areas where Mountain Plovers occur. Since most pastures are managed to promote the growth of taller grasses, improved range management practices on existing grasslands have negatively affected the Mountain Plover, which prefers short grass.



PHOTO BY MARY TREMAINE FOR THE CORNELL LABORATORY OF ORNITHOLOGY

***Found mainly in the grasslands of eastern Wyoming, Grasshopper Sparrows require singing perches that provide a stage for defending territories and attracting mates.***

- To benefit area-sensitive birds, patches should be no smaller than 125 acres, and preferably 250 acres or more. (Area-sensitive species are those that do not nest successfully in habitat patches below a certain size.) Fifty acres or less will benefit birds that are the least sensitive to area size (e.g. Dickcissel).
- If patches smaller than 50 acres are the only option, they should be as numerous as possible and no farther apart than 1 mile.
- To help maintain grasslands, monitor grass height and eliminate woody vegetation that grows higher than the native grasses. Other techniques can be used to enhance shrub or shrub-grass complexes.
- In non-riparian habitat, plant shrubby hedgerows that are low growing and sparse (rather than dense, continuous hedgerows) to reduce encroachment of woody vegetation into grassland habitat.
- Eliminate or limit tree planting in the shortgrass prairie ecoregion. Tree planting in shortgrass prairie habitats increases nest parasitism by cowbirds, as well as predation by crows, grackles, and jays.
- If pest control is necessary, follow the principles of Integrated Pest Management (IPM) to determine the best course of action. The use of pesticides for insect and grasshopper control can greatly reduce the food base of many bird species by killing far more than just the target species.

## grazing

Historically, the species associated with tall, mixed, and shortgrass prairies evolved alongside large native grazers like bison, and grazing was integral to the ecology of grassland ecosystems. The large areas of native prairie that remain today are what is left of the great continental grassland that once supported herds of more than 30 million bison. The remaining grasslands must be properly managed to simulate these missing disturbances or the prairie species that depend on disturbances will eventually disappear. Therefore, live-



stock grazing and preservation of biological diversity are not necessarily incompatible (unless grazing becomes too intensive for too long a time over too large an area). From a management perspective, vegetation is usually the component over which the manager has the most control, that is the easiest to manipulate, and that responds the fastest to human influences. Choice and timing of management tools such as grazing and prescribed burning will be influenced by specific characteristics of the region (e.g. cool season grasses grow in the spring, mature by late spring or early summer, become dormant during the summer, resume growth in the fall, and become dormant when temperatures become cold, whereas warm season grasses grow in the late spring and summer, and become dormant from late summer into fall). The recommendations below focus on Best Management Practices that can be applied to different ecoregions.

- On a landscape level, use livestock grazing practices that allow large acreages of grasslands to mature to a climax successional stage for those species that require it (e.g. Long-billed Curlew, Short-eared Owl, Upland Sandpiper, Dickcissel, Chestnut-colored Longspur, Grasshopper Sparrow, and Bobolink).
- On a landscape level, use livestock grazing as a tool to maintain areas of short grass and open ground

for those species that require these habitat characteristics (e.g. Mountain Plover, McCown's Longspur, Long-billed Curlew, Short-eared Owl, and Burrowing Owl).

- On a landscape level, use livestock grazing and fire together to produce a mosaic of habitat patches to benefit a variety of grassland species.
- To help increase grassland bird nest survival, manage for a "nesting refuge" regime. Nest survival of grassland birds is often only 30% or less due to numerous hazards like predation, inclement weather, farm equipment, and cattle trampling. Grazing intensity affects vegetation structure, which, in turn, affects the appeal of the grazed habitat to certain species, the makeup of the bird community, and nest survival. A nesting refuge regime modifies the current practice of deferring grazing in some pastures for hay production. Nesting refuges can produce more young birds per acre than rotational grazing because of more nesting pairs and greater nest survival. Those able to defer grazing in any portion of their pasture system for six weeks or more in May and June can significantly increase the productivity of the grassland bird community on their land. Recommended guidelines for managing nesting refuges are as follows.
  - ★ Set aside a contiguous area up to 1/3 of the



*Grazing intensity affects vegetation structure, which, in turn, affects the appeal of the grazed habitat to certain bird species.*



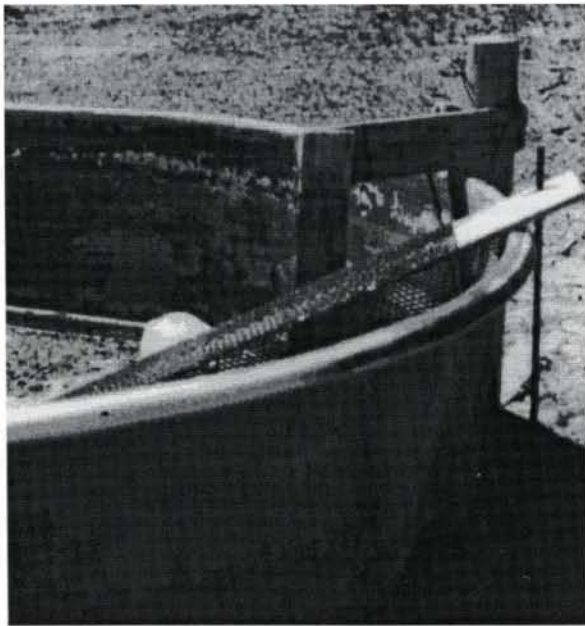
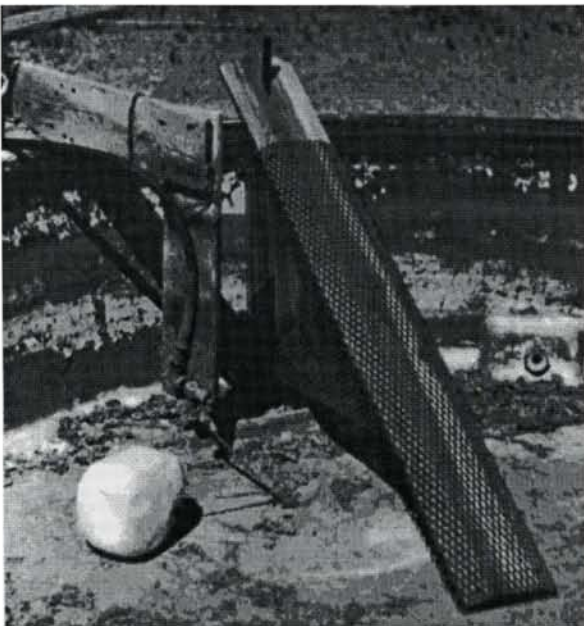
total pasture area, at least 10 to 20 acres in size, that is not disturbed between May 15th and June 30th (when most grassland bird nests are active), while the remaining acreage is rotationally grazed.

- \* Locate refuge pastures away from trees, buildings, and crop fields to minimize disturbance and reduce the potential for predation and cowbird nest parasitism.
  - \* In some areas, refuge pastures may be grazed lightly before May 15th.
  - \* Defer grazing for six weeks or more between mid-May and early July.
  - \* Graze or mow as desired no earlier than July 1st through the end of the grazing season.
- Changing grazing systems and/or fencing may be effective in maintaining or improving water flow within existing drainages, which will benefit plant production.
- Develop water and shade in upland areas to help spread grazing pressure. Keep in mind, however, that small birds can drown when they fall into stock tanks and troughs while drinking. Provide escape ramps to prevent drowning (see photographs below).
- Develop conservation partnerships between landowners, land managers, and private organizations. While landowners need to derive income from the land, this can often be compatible with maintaining regional biological diversity, depending on how the land is used and what land man-

agement tools are employed. Identify the habitat needs of the birds in the area and the economic needs of the landowner so a baseline need is established. Combine core preserves and landscapes. When possible, manage core preserves (national parks, national forests, national grasslands, buffer areas to maximize habitat size across the wilderness areas, etc.) strictly for biological diversity. Surround core preserves with buffer areas, like ranches, where some areas of natural vegetation can be sustained. Although buffer areas are used for livestock grazing and other land uses, they establish and protect large areas of habitat across the landscape. Also, important habitat on ranches can be protected with conservation easements. In some cases, ranchers can derive income from hunters, birders, and naturalists who visit the region.

## agriculture

While our nation's people are largely urban, our nation's land remains largely agricultural. About 70% of the United States (excluding Alaska) is privately owned, with half (907 million acres) in private cropland, pastureland, and rangeland (382 million acres, 126 million acres, and 399 million acres, respectively). Conversion of native habitats to agricultural land has caused local loss of many bird species; however, agriculture can also create habitat features favored by some birds for nesting, feeding, and migratory stopover sites, such as hedgerows, uncultivated areas, and edge habitat. Farmers, ranchers, and wildlife and habitat managers have an opportunity to develop partnerships to



PHOTOS BY MARK GORGES, BUREAU OF LAND MANAGEMENT

*Place escape ramps in stock tanks and troughs to prevent small birds and mammals from drowning.*



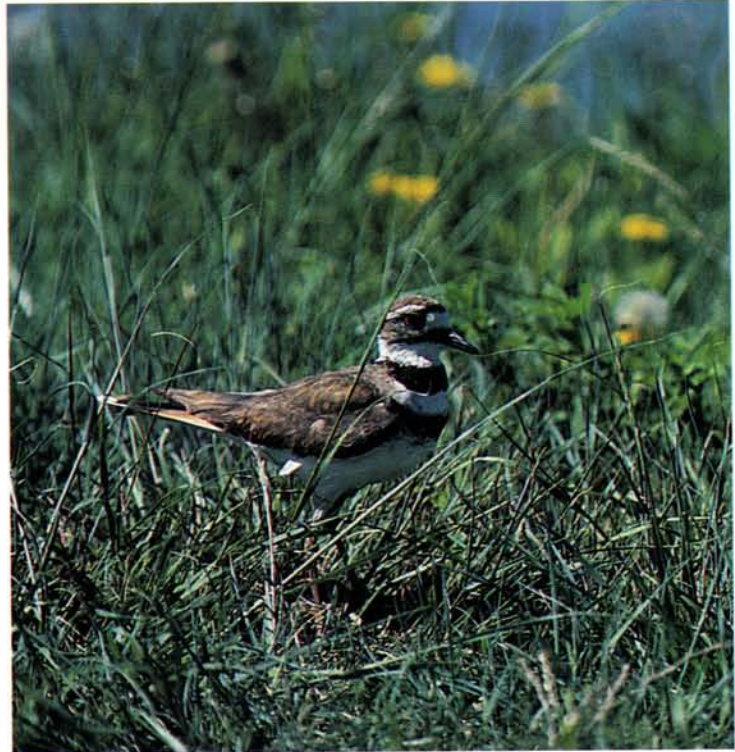


PHOTO (RIGHT) BY RON MAIER, WYOMING GAME AND FISH DEPARTMENT

*The Mountain Plover (above) looks somewhat like a small Killdeer (right), but without the two black bands across its chest.*

share resource knowledge and attain mutual resource goals. Structuring farmland and cropland production to benefit birds will also benefit agricultural operations by reducing soil erosion, water pollution, chemical use and associated costs, and energy costs from fewer tillage operations, while increasing soil fertility and favorable microclimates for crop growth. The recommended Best Management Practices below can help initiate successful agricultural operations.

- Match use and management of the land to the soil's capability. Soil supports plant growth and routes water, nutrients, and energy through the ecosystem. Maintain soil quality so it is capable of performing these beneficial functions over the long-term.
- Retain crop residue on the soil surface. Use reduced tillage and no-tillage agricultural methods, and refrain from burning crop residue. Residue sustains populations of arthropods that are food for a variety of birds, and it provides cover for foraging and nesting birds.
- Use Integrated Pest Management (IPM) for management of undesirable weeds and arthropods. IPM will reduce destruction of non-target arthropods that are food for many species of birds and minimize exposure of birds to harmful chemicals. Most species of grasshoppers require bare ground to lay and hatch eggs; using minimum or no-till practices will reduce the need for insecticides.
- Limit activity in the field during the breeding season (April 15th through July 15th), minimize the num-

ber of field operations that destroy nests, and where possible, use agricultural methods that destroy fewest nests, such as subsurface tillage or no-tillage.

- In hayfields, delay spring mowing as long as possible (preferably until nesting ends in late July), avoid night time mowing, and space mowings as widely as possible in time to allow the greatest probability of successful nesting. (However, even haying after July 15th may not protect late nesters such as the Dickcissel, Bobolink, Grasshopper Sparrow, and Short-eared Owl.) Consider growing alfalfa for seed or use late maturing legumes instead of traditional alfalfa management; this would allow cuttings to be delayed.
- Mow or plow a pasture or field starting in the middle, then proceed toward the outside so skulking birds will not concentrate in the center of the pasture and get run over by farm machinery; this will give them a chance to flee instead.
- If you flush adult birds while working in your fields, slow your equipment down to give flightless young a chance to escape.
- Apply inorganic fertilizers based on measured soil requirements because their excessive use can harm soil organisms that are food for many species of birds.
- In uncultivated areas, such as fencerows or grassed waterways, avoid mowing and spraying with herbi-





PHOTO BY RON MAIER, WYOMING GAME AND FISH DEPARTMENT

*As one of Wyoming's most common grassland birds, the Western Meadowlark's bubbling, flute-like song is familiar to most Westerners.*

*The different grassland bird species have diverse habitat requirements, including various mixes of bare ground, short grass, mixed grasses and forbs, and shrubs.*

cides wherever possible. Necessary field operations, such as thinning woody plant growth in fencerows or mowing grassed waterways, should be carried out either before April 15th or after July 15th (the main avian breeding season) to prevent destruction of nests.

- Preserve uncultivated edges (e.g. grassy strips) and allow them to develop a natural vegetation structure. Complex strip vegetation is used by many species of birds; it also reduces soil erosion and movement of agricultural chemicals off of fields.
- Maintain the Conservation Reserve Program (CRP) by planting plots with native species and, rather than plowing to plant annual crops, use the lands for haying (after nesting) or compatible livestock grazing. Whenever possible, cluster CRP fields to create larger expanses of native habitat.
- Maintain or enhance farmland diversity. This can be done in several ways.
  - \* Maintain unmowed grassy strips within fields for grassland birds that do not nest near edges. Grassy strips also provide refuges for arthropods, which are a food source for birds.
  - \* Increase crop diversity by adding to the number of crops rotated.
  - \* Create or increase the size of planted or "weedy" fallow fields; this is a good alternative

for areas that are difficult to access or have low productivity.

- \* Reduce cultivated field sizes by using land removed from production; e.g. CRP land could be allocated to strip cover within fields or along field edges to reduce field sizes.
- \* Preserve and protect actual or potential wetlands by encircling them with broad buffer zones of natural vegetation.
- \* Provide small, randomly placed scrapes (15 to 30 feet<sup>2</sup>) in fields or grasslands 10 to 20 acres or larger to expose bare ground for avian nesting, foraging, and dust bathing sites.
- Avoid conversion of grasslands to agriculture, especially in areas too dry to farm without irrigation. Center-pivot irrigation has recently increased the conversion of native habitat to agriculture in many areas, causing a landscape loss of grassland habitat. In addition, irrigating in arid and semiarid regions can concentrate salts in soil and water, causing severe production and environmental problems (about 30% of the contiguous United States has potential for soil and water salinity problems).
- Use soil-conserving practices where cropland erosion is a concern, such as crop residue management, contour tillage, strip cropping, and land retirement.





PHOTO BY W. A. RAFF FOR THE CORNELL LABORATORY OF ORNITHOLOGY

*Dickcissels breed in the grasslands of eastern Wyoming, where they require singing perches and dense herbaceous cover.*



PHOTO BY LURAY PARKER, WYOMING GAME AND FISH DEPARTMENT

*Ferruginous Hawks nest on the ground, usually on a knoll or rock outcrop, adjacent to open grassland or shrubland. They often use the same nest year after year, adding more sticks each year—some Ferruginous Hawk nests are over 10 feet tall.*





PHOTO BY LURAY PARKER, WYOMING GAME AND FISH DEPARTMENT

*For birds, a single large reserve is better than several small reserves because some species are area-sensitive and only breed in non-edge areas.*

- Use agricultural practices that promote organic matter in the soil to maintain soil quality and productivity, promote water infiltration, and reduce runoff. Organic matter enables the soil to hold nutrients and water, support microbes, and maintain the proper structure and texture for plant growth. Agricultural cropping, rotation, and tillage systems can be used to maintain or increase organic matter content.
- For landowners who both farm and ranch, use intensive rotational grazing, which converts row crop and alfalfa acreage to pasture and has the potential to provide significant high quality habitat for grassland birds.
- It is best for birds (and cats!) if cats are kept indoors. However, if you have domestic "barn" cats, spay or neuter them, and keep pet food and food bowls indoors so predators like raccoons and feral cats do not have an additional food source. Never intentionally feed feral cats. Cats (even well fed domestic cats) can be devastating to local song-bird populations. Natural predators, like owls and hawks, are very efficient at controlling rodent pests, even around human dwellings.

## habitat fragmentation

Habitat fragmentation—the breaking-up of contiguous areas of similar vegetation—occurs when a large, continuous tract of a particular vegetation type is converted to other vegetation types so that only pieces, or fragments, of the original vegetation type remain. Habitat fragmentation can be very detrimental to those species of birds and other wildlife that require these large patches to breed and forage successfully. In fact, habitat fragmentation, along with direct loss of habitat, is one of the main causes of population declines of many species of birds. Groups of species especially impacted by habitat fragmentation include those with large home ranges, very specific habitat requirements at the "micro-habitat" level, and poor dispersal skills. Fragmenting habitats also leads to an increase in the amount of edge (the junction between two different habitat types or successional stages) in relation to interior habitat. Creating more edge also leads to an increase in "edge effects"—increased rates of nest predation and nest parasitism, higher rates of competition between species for limited nesting and foraging sites, and reduced pairing and nesting success.

Use the suggested Best Management Practices to eliminate or reduce habitat fragmentation wherever possible.



- Avoid fragmenting existing grassland tracts. The larger the grassland, the greater the number of area-sensitive species, such as the Upland Sandpiper, that can nest successfully in the area.
- For birds, a single large “reserve” is better than several small reserves because several species are area-sensitive and only breed in non-edge habitat.
- Reserves should have a more or less circular or square shape to maximize the size of the core area. Edge effect increases predation and cowbird nest parasitism.
- Reserves and restoration sites should be clustered together, where possible, rather than spaced widely apart.
- Where fragmentation has already occurred, retain habitat quality in existing fragments. These sites may still be important for post-breeding dispersal habitat and as migration stopover spots for birds.



PHOTO BY LURAY PARKER, WYOMING GAME AND FISH DEPARTMENT

*Ferruginous Hawks forage by swooping down and pouncing on their prey from the air. They feed mostly on small mammals, especially ground squirrels, prairie dogs, and jackrabbits.*

## rehabilitation

Grasslands can be successfully restored or created if you plan ahead, take your time, and monitor your results. A number of federal, state, local, and private programs exist to help with technical and financial support. Contact the Natural Resources Conservation Service, your local Conservation District, your local Agricultural Extension agent, or the Wyoming Game and Fish Department for more information.

- When restoring grasslands, minimize the amount of edge habitat by designing roughly circular or square plots. Such programs should use native grasses and local seed sources.
- When creating or rehabilitating grasslands, start with a drawing of the area. Include existing vegetation (both desirable and noxious), buildings, roads, water sources, land uses, neighboring property, etc. Choose plants (preferably native plants) that are adapted to the soil type, climate, available moisture, drainage, and other desirable plants. Choose at least three grass species for your seed mixture to make the best use of “microsites” in your grassland.
- Proper seedbed preparation is very important to successfully establish or rehabilitate a grassland. It removes existing undesirable vegetation and weed seeds from the seedbed, which reduces competition for space and nutrients. The method you use to prepare the seedbed will depend on characteristics of the site and available funds. Some methods to consider include plowing or disking, herbicides, and solarization.



PHOTO BY O. S. PETTINGILL FOR THE CORNELL LABORATORY OF ORNITHOLOGY

*Since most pastures are managed to promote the growth of taller grasses, improved range management practices on existing grasslands have negatively impacted the Mountain Plover, which prefers short grass.*



- Determine the best method to apply seeds to the grassland you wish to establish or rehabilitate. Three commonly used methods are drill, no-till drill, and broadcast seeding. Drill seeding is used in areas that can be farmed intensively, but it creates uniform stands of plants that lack a natural appearance. No-till drill seeding is good for sites that are accessible to farm machinery, is less expensive than tilling, and reduces erosion, but is limited to sites that have been disked or sprayed to remove competing plants. Broadcast seeding is best for sites inaccessible to farm machinery, or for small-scale projects.
- Apply seeds in the fall to coincide with the availability of natural precipitation. Sites planted in the spring or summer may need to be irrigated throughout the summer to ensure seed germination and plant growth.
- To maintain your site as grassland habitat and discourage invasion by woody plants, mow, burn, or lightly graze sections of your site in rotation. Mow or hay at the end of the second growing season after seeds have set (July) and before fall precipitation. (To provide nesting and winter habitat for birds, mow or hay every other year or every three years, in rotation.) Conduct low-intensity prescribed burns every year for the first few years, then every three to five years, in rotation. Initiate grazing three to five years after your site has become established. Use a deferred rest-rotation grazing system that leaves one pasture per year ungrazed, concentrates the impacts of grazing, and limits livestock access during the avian breeding season.

- Control non-native weeds in your grassland through intensive mowing, hand-pulling, grazing, or herbicides. In some sites, prescribed burning may enhance native plant growth and reduce non-native, invasive weeds.

## fire

Prior to human settlement and agricultural development, grasslands evolved with periodic burning. Although fires can be detrimental to prairie birds during the summer when eggs and nestlings might be destroyed, the absence of fire for a long period of time



PHOTO BY MARY TREMAINE FOR THE CORNELL LABORATORY OF ORNITHOLOGY

***Most common in western Wyoming, Long-billed Curlews inhabit a variety of grassland types ranging from moist meadow grasslands to agricultural areas to dry prairie uplands.***



PHOTO BY CHRIS MADSON, WYOMING GAME AND FISH DEPARTMENT

***To benefit area-sensitive birds, grassland plots should be no smaller than 125 acres, and preferably 250 acres or more.***





PHOTO BY D. L. FLATH, MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS.

***Avoid fragmenting existing grassland tracts. The larger the grassland, the greater the number of area-sensitive species, such as the Upland Sandpiper, that can nest successfully in the area.***

can also create problems when unburned prairie is slowly replaced by shrubs or trees, effectively eliminating the grassland habitat they need. Even when woody plants do not invade the prairie, grasslands will gradually change if they are not burned for several years. On an unburned prairie, the soil is shaded by a layer of fallen dead grass and an overstory of standing dead grass. Dead vegetation intercepts both sunlight and rainfall; ties up nutrients; and creates cool, dry, dark conditions that are unfavorable for the growth of young grass shoots. When fire burns across a grassland, this blanket of dead vegetation is removed and nutrients within the ash fall to the soil surface. The soil has more nutrients and can now receive sunlight and warmth, plants have more growing space, and grass shoots grow quickly from the surviving root system. The young growth in a recently burned grassland is more succulent, more easily digested, and more nutritious than older vegetation in unburned prairie. The density of forbs usually increases immediately after a fire, so plant diversity also increases for the next few years. Consequently, grassland fires typically result in an increase in the density of herbivores, which leads to a better food supply for predators, such as insect-eating birds. From the viewpoint of many species, a prairie fire is a necessity, not a disaster.

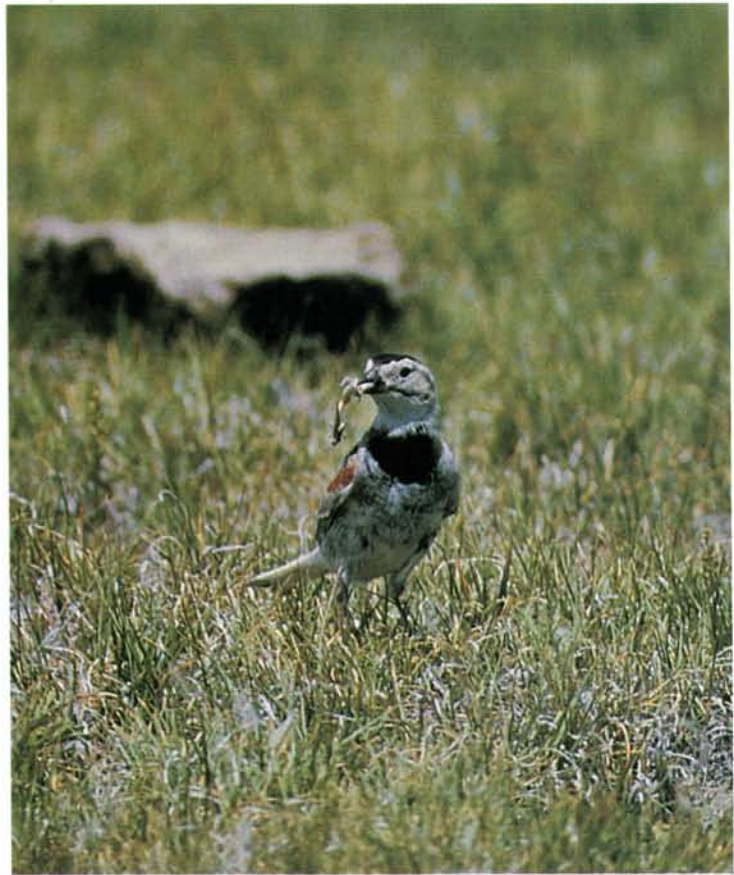


PHOTO BY O. S. PETTINGILL FOR THE CORNELL LABORATORY OF ORNITHOLOGY

***McCown's Longspurs forage on the ground on weed and grass seeds and insects, especially grasshoppers.***

- Learn about prescribed burning and evaluate the possibility of using this as a management tool. Prescribed burns are used to reduce litter build-up, to reduce cool season invaders and woody species, and to rejuvenate desirable grass species, including warm season natives. Depending on management objectives, burns are either done from April through June or August through September. Prescribed burning to control woody species is best done in August or September.
- To avoid loss of nesting cover in areas known to support nesting birds, do not conduct prescribed burns until fall. To retain adequate residual cover for ground nesting birds the following spring, burns should be relatively small so a portion of the area contains nesting cover at all times.
- Develop a fire use plan before burning. It should include the following.
  - ✱ Burn Area—Clearly define the boundaries of the burn area. Burn smaller sections within the larger area on a yearly rotational system to maintain habitat diversity.
  - ✱ Burn Objectives—Define the purpose of the prescribed burn, when it should be conducted, and the desired results.





PHOTO BY LURAY PARKER, WYOMING GAME AND FISH DEPARTMENT

*Burrowing Owls primarily eat insects, but also take small mammals and some birds and reptiles.*

- ★ **Burn Prescription**—Define the components of the burn that will accomplish your objectives. Time of year is a major burn prescription component to consider to obtain desired results. Burns should be conducted when preferred plants are dormant. Warm season grasses, like buffalo grass and blue grama, benefit from a spring burn. Cool season grasses, like blue-bunch wheatgrass, Idaho fescue, western wheatgrass, and prairie junegrass, benefit from a fall burn following their growing season. Forbs typically benefit from fall burns (especially forbs that grow from rootstocks) and are negatively impacted by spring burns. From a wildlife standpoint, seasonal timing of a burn can be critical. For example, ground-nesting birds, like the Sage Grouse and Chestnut-colored Longspur, can be severely impacted if burns are conducted between April and August. To prevent negative impacts to wildlife and still provide habitat benefits, conduct prescribed burns in fall or early spring.
- ★ **Burning Plan**—Clearly define how the prescribed burn will be carried out on the ground. Include components such as fuel treatments and fire lines to ensure the fire will carry into all

areas to be burned, will not burn too hot or flare up, and will be contained within natural or constructed boundaries (at least 10 feet wide, or 50 feet wide or more for downwind fire lines).

- Contact your local Agricultural Extension agent, the Natural Resources Conservation Service, the Wyoming Game and Fish Department's fire management supervisor or habitat personnel, or the U.S. Forest Service fire management officer in your area to learn more about prescribed burning.

## additional sources of information

Additional sources of information on Best Management Practices and bird habitat can be found at local offices of the Wyoming Game and Fish Department, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, County Extension offices, Conservation Districts, and at National Wildlife Refuges. Some of these agencies may have special programs, as well as funding assistance, to help implement the recommended practices.



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