Sharing Your Land with Northern Prairie Birds

A LAND MANAGER'S GUIDE

Bird Conservancy of the Rockies

Sharing Your Land

Summary

The Northern Great Plains (NGP) is a critical landscape in North America in that it provides vital ecological, hydrological, agricultural and recreational ecosystem services. Unfortunately, grasslands are one of the most threatened systems in the world and, due to a number of threats, grassland bird populations are declining at one of the fastest rates of all guilds in North America.

The NGP has been a stronghold and contains the largest contiguous intact grassland landscape in North America. The majority of the region is privately owned, with ranching being the predominant land use. Abundant opportunities exist for the ranching community and resource professionals to work together to continue careful stewardship of the land to maintain healthy ecosystems upon which livestock, wildlife and humans depend.

How to Use this Guide

This guide is about how you can provide a little assistance to help grassland birds thrive on the land while you do the same. It offers information about land management that can provide the things birds need while maintaining ranching operations.

Information in this guide is applicable on both public and private lands but goals for management should be determined by site potential. Not all birds will be on your land. The first step is to determine which species are present or could be present if the right habitat conditions were available. Compile a list of the birds present with the help of a local birdwatcher, biologist or Bird Conservancy of the Rockies representative (visit www.birdconservancy.org).

Alternatively, you can look over the species distribution maps for each species account in this guide and decide which species could potentially be on your land, based on their distributions. Management goals and objectives are usually very site specific and will be different under different circumstances.

This guide includes:

- basic information about the NGP,
- information about general bird biology,
- general management guidelines,
- bird species accounts that includes information about how to identify, habitat types used, natural history and nesting information, and more specific guidelines for each species in need of conservation, and
- simple tools you can use to help with conservation of prairie birds and other wildlife.

These guidelines will help you manage the land to provide the necessary habitat conditions for an array of species. In some cases, the management recommendations for one species contradict the recommendations for another species. If both species are on your land, follow both sets of recommendations but in different areas, or consult with local bird experts to determine which species is a higher conservation priority in your area.

Acknowledgements

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Northern Great Plains

Ecology and Land Usage

Ecology

The Northern Great Plains (NGP) is a geographic area spanning five northern states (MT, WY, ND, SD and NE) and two Canadian provinces (Saskatchewan and Alberta). Experts identify the boundaries as including anywhere between 110 and 235 million acres. This vast area is characterized by semi-arid rolling plains with occasional buttes or badlands.

The primary habitats are native grasslands, with isolated wetlands, rivers and woodlands. Most of the native grasslands are mixed- and short- grass prairie, with extensive areas of shrub steppe. Mixed grass prairie consists predominantly of two cool-season grasses – wheatgrasses (*Agropyron)* and needlegrasses (*Stipa*) – and two warm-season grasses – blue grama (*Bouteloua gracilis*) and buffalograss (*Bouteloua dactyloides*). A pasture with both cool- and warm-season grasses will have a longer season of green vegetation than if only one of these classes is present. Cool-season grasses green-up earlier in the year and later in the fall. Warm-season grasses have the ability to use soil moisture more efficiently and can often withstand drought conditions and grow more during midsummer. Both types provide different levels of vegetative structure important within a grassland ecosystem.

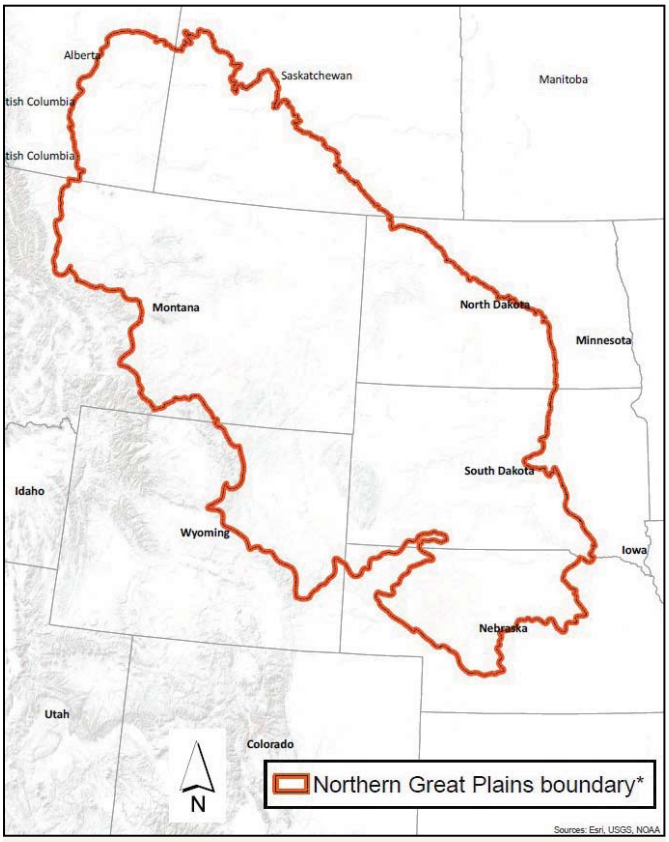
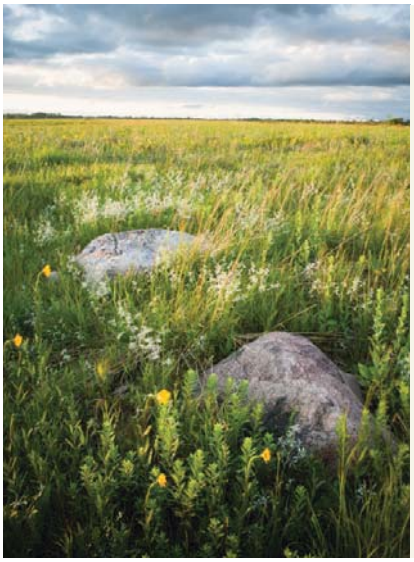


Fig. 1: The Northern Great Plains (NGP) boundary as identified in the National Fish and Wildlife Foundation's NGP Business Plan.

Rolling hills of the northern shortgrass prairie.
Photo by Justin Meissen (Flickr Creative Commons)



Flowering plants incorporated into this tallgrass prairie.

Photo by Justin Meissen (Flickr Creative Commons)

Northern Great Plains

Ecology and Land Usage

Ecology (continued)

The grassland ecosystem has been shaped over the last five-thousand years by the interactive effects of disturbances like climate, grazing and fire. The variability in the amount and seasonal distribution of precipitation from year to year is the driving climatic factor for the area. Moisture is positively correlated with the production of native vegetation. Droughts are not uncommon, however, and vegetation growth is variable from year to year. Total snowfall amounts varies between 20 and 40 inches (<⅛ of the total annual precipitation). Most (60–80 percent) precipitation falls during the growing season, from April to September.

The region also experiences very high summer temperatures (avg. = 80–92° F) and very low winter temperatures (avg. = -2–12° F). As a general rule, precipitation and relative humidity decrease going from east to west; air temperature increases from north to south. Soils and topographic factors will also affect plant composition. Lowland, moist habitats favor cool-season species and the upland dry habitats accomodate the warm-season species.

Prairie dog town at Theodore Roosevelt National Park.
Photo by Jasperdo (Flickr Creative Commons; cropped for size)

Before widespread settlement by European-Americans, a major grazing force came from the expanding, contracting and shifting prairie dog colonies. Herds of bison, pronghorn and elk wandered widely but at times concentrated in small areas, so the impact of their grazing and trampling was spread unevenly over the landscape. The result of such animal activities was that, at any given time, some areas were grazed intensively and others not at all, creating a diversity of grassland habitat conditions across the landscape.

For the larger Great Plains landscape, studies suggest the effects of fire often depend upon season of burning and occurrence or frequency of past fires. Historically, fires on the NGP were highly variable resulting in continual shifts in the abundance and distribution of individual species, primary productivity, and plant and animal species richness and diversity. Because of the historical interactions of fire, grazing and climate, prairie wildlife had access to a mosaic of vegetation with different structural and functional attributes. As such, the Northern Great Plains is home to nearly 1,600 plant species, 260 breeding birds, and 95 mammals.

Land Usage

Today, land ownership in the NGP is mostly private with significant ownership in some areas by Tribal and federal agencies and with smaller, more fragmented areas owned by state agencies. Most private landowners plow and plant crops and run cattle on the prairie. Generally, highly productive land is used for intensive cropping and less productive land is used for grazing. Landowners are deeply connected with the prairie and, for some, have instilled a tradition of careful and effective management of the land (stewardship), a necessity in a dry region where so little vegetation grows.

In more recent history, landowners are faced with constant changes in markets, technology advances, and political shuffling that influence land management decisions. Although the region has experienced little urbanization, challenges exist to sustaining natural habitats, including conversion of native grassland to cropland, fire suppression, altered/unsustainable grazing, mineral and energy development, invasive species and climate change. Potential consequences to these threats may include compromised water quality, wildlife habitat loss/fragmentation, and decreased carbon sequestration and soil stabilization, which ultimately lead to a degraded environment for humans.

Because birds are important indicators of habitat quality and landscape health, they can be useful for assessing conditions on the ground.

Bird Conservation

Why Birds Matter

Birds provide critical ecological services to the world including insect control, seed dispersal, and serving as prey for a diversity of wildlife species. Birds also play an economic role, as bird-watching and hunting generates billions of dollars in tax revenues. All over the world, however, various factors have contributed to the degradation, fragmentation, and loss of habitat, resulting in widespread population declines of birds.

Agriculture and energy production have a greater footprint on the landscape in more recent years, affecting both people and birds. Photo by Jan Buchholtz (Flickr Creative Commons)

Grassland birds are now one of the highest conservation priorities among all North American bird guilds, showing steep declines (as much as 80 percent). Some of these declining species such as McCown's and Chestnut-collared Longspurs and Baird's Sparrows are unique to the NGP. They are listed in state wildlife action plans as "Species of Greatest Conservation Need" and are the focus of other conservation plans. All plans concur the most effective contribution for bird conservation is to ensure the continued availability of quality habitat over the long term. Conservation of these grasslands is critical for both human communities and wildlife populations. It's not too late for us to reverse the trends for grassland birds. Land management can be adjusted to provide opportunities for species persistence. Understanding habitat needs of bird species can be a critical piece to making more enhanced land management decisions.

For landscapes that require management of multiple resources, management plans should balance both the needs of people (i.e., food and fiber) and ecological services (i.e., recreation, clean water, and wildlife habitat) to sustain natural ecological systems. Public land management agencies are tasked with managing the land for multiple uses. Private landowners are also generally interested in managing for more than one type of resource in addition to meeting their bottom dollar for agriculture.

Supporting Conservation Efforts

Because birds don't recognize jurisdictional boundaries it is important that management efforts and conservation plans occur across these boundaries. Due to the majority of the NGP landscape being privately owned, it is imperative that landowners be involved and are leaders in implementing conservation actions. Resource agencies and conservation groups work proactively and cooperatively with agricultural producers to provide technical and financial assistance to willing landowners to ensure solutions for both conservation and for farm/ranch management. A number of programs are available from government agencies and private organizations to assist landowners and land managers in protecting, restoring, and enhancing habitat in the NGP.

Resource professionals and landowners discussing different options for land management. Photo by Seth Gallagher

Basic Bird Biology

Basic Bird Biology

An animal's habitat is the place that provides everything needed to survive and reproduce. For a bird, this means food, water and nest area (during the breeding season):

- **Food** is an obvious need, essential for the survival of all organisms. What is not so obvious is that birds may require large areas in which to find enough food and a diversity of food sources. This is especially true for hawks and large birds with widely scattered food supplies.
- **Water** is also an obvious need, although many birds of the mixed grass prairie do not need access to open water for drinking or bathing. They eat moisture-rich foods and "bathe" in fine prairie dust that absorbs excess oils from their feathers.
- **Nest area** is the nest site itself (for example, a clump of grass) and the area around the nest site. This is the area needed by the bird for gathering nest materials and enough food to feed itself and its growing family.

Each species is adapted to a particular habitat, and to the features of that habitat, such as the climate, food and vegetation. Birds choose a particular site to breed or spend the winter at based on the suitability of the habitat.

They judge the habitat at several geographic scales which organize different bird communities within the prairie ecosystem:

- At the widest scale, the site must be within a broad geographic area that has the proper climate, with suitable temperatures and precipitation.
- Second, at a smaller geographic scale, birds choose breeding sites with an area that incorporates proper vegetation types and food resources for that species—grassland birds can't survive in the forest or shrublands.
- At an even smaller scale, birds choose local sites (their "home range") that contain habitat elements, including vegetative structure (horizontal and vertical) and configuration (density and adjacency to other landscape features), and enough space to suit the species' needs. Within the grassland ecosystem, different species will utilize different habitat types (see figures 2 and 4). In addition, many species are area/edge sensitive, meaning they can't simply set their home range in a grassland plot that is surrounded by development. The general rule is that most songbirds can require a minimum of 125 acres and up to 500 acres and other larger species like hawks and grouse require over 10,000 acres.

Species	Preferred grassland growth form			Shrubs	Avoids woody vegetation	Seeps, wet habitat
	Short	Medium	Tall			
Sharp-tailed Grouse	x	x	x	x		x
Mountain Plover	x				x	
Upland Sandpiper	x	x	x		x	x
Long-billed Curlew	x	x	x	x		x
Swainson's Hawk	x	x	x	x		x
Ferruginous Hawk	x	x				
Burrowing Owl	x				x	
Loggerhead Shrike	x		x	x		
Sprague's Pipit		x	x		x	
Chestnut-collared Longspur	x	x			x	
McCown's Longspur	x				x	
Lark Bunting	x	x	x	x		
Grasshopper Sparrow	x	x	x	x	x	
Baird's Sparrow		x	x		x	
Western Meadowlark		x	x	x		

Fig. 2: General habitat conditions and preferences by species

General Recommendations

Managing with Birds in Mind

Practical Guidance

Grassland birds are sensitive to different land uses such as grazing, cropland and energy development. Mortality from roads, fences, haying, power lines and other sources can also impact some populations by further fragmenting or degrading habitat.

This section includes guidelines to help minimize negative impacts to birds and enhance habitat on your land. Keep in mind these are ***recommendations***—they are not rules or regulations. Every farm and ranch is unique and every landowner has differing goals and objectives to meet. Feel free to follow as few or as many as you like or are able. The more you follow, the more your land can contribute to regional success of grassland bird conservation.

These practices also will benefit other at-risk wildlife species, including soil microbes, insect pollinators, reptiles and mammals. Even further, it is possible some of these practices will have benefits to your farm/ranch including increased economic return, improving soil quality and plant production, improving water holding capacity of your soil and contributing to plant health and vigor.

Grassland Conservation

- Protect large, intact tracts of native prairie from being plowed. Once plowed, it requires decades for a similar plant community to return. Grasslands did evolve with natural disturbances including native grazing and periodic wildfire. Similar disturbances, such as domestic grazing and prescribed fire, can be used to help maintain optimum grassland health.
- Understand the ecological potential to your site for insight on how management or other disturbances can produce distinctive kinds and amounts of vegetation. These are often determined by the geography, soils and climate in specific Ecological Sites in Major Land Resource Areas, which vary widely across the NGP (Fig. 3, below).
- Discuss concerns or questions with natural resource practitioners at Bird Conservancy, Natural Resources Conservation Service, state Extension/wildlife agencies, local Conservation Districts, Pheasants Forever, and Partners for Fish and Wildlife Service, to name a few. These practitioners can provide technical and, potentially, financial assistance to address concerns.

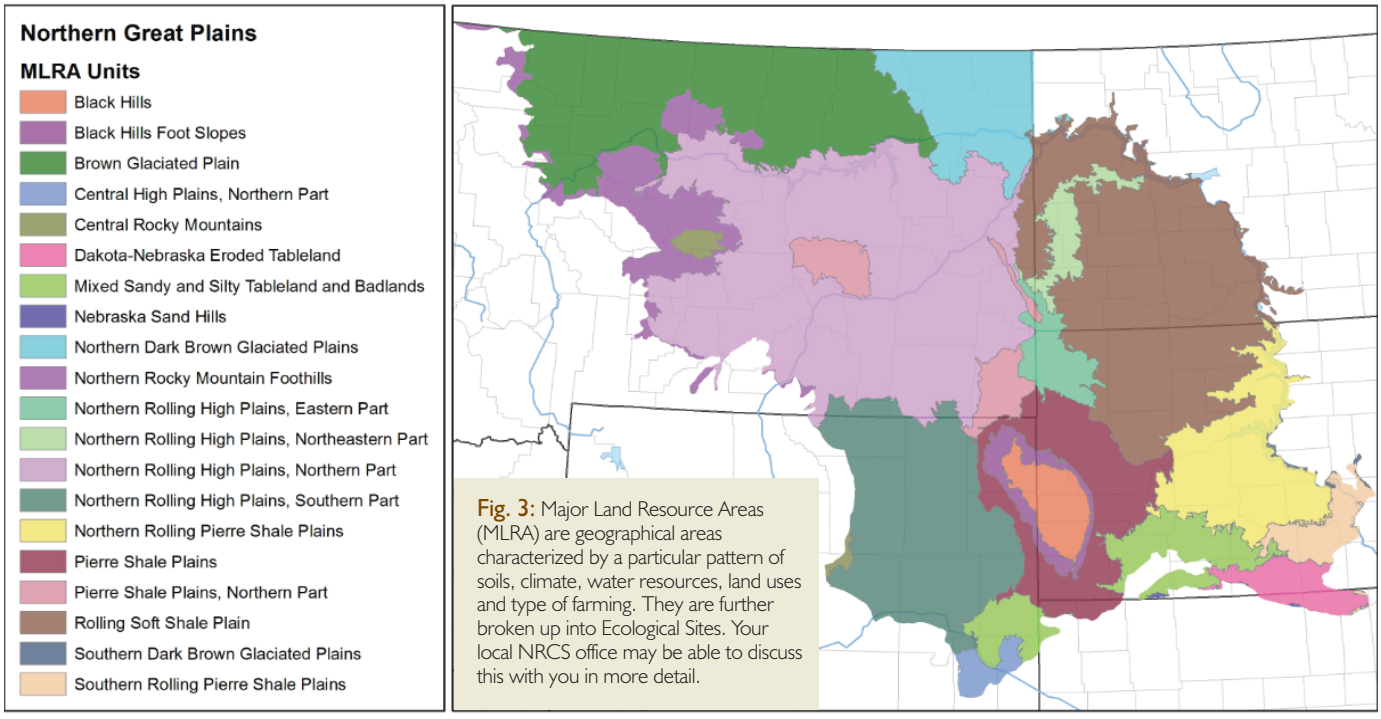


Fig. 3: Major Land Resource Areas (MLRA) are geographical areas characterized by a particular pattern of soils, climate, water resources, land uses and type of farming. They are further broken up into Ecological Sites. Your local NRCS office may be able to discuss this with you in more detail.

General Recommendations

Managing with Birds in Mind

Grassland Conservation (continued)

- Restore very heavily disturbed grassland areas (i.e., barren) to historic condition, if possible.
- Control non-native plant species, emphasizing early detection, controlling spread and facilitating re-colonization by native plants.
- Discourage growth of encroaching woody shrubs including juniper and cedar.
- Do not plant living shelterbelts adjacent to open grassland. They harbor predators and Brown-headed cowbirds, which parasitize grassland bird nests. Most grassland birds avoid nesting near woody vegetation.
- Retrofit existing fencing to be wildlife friendly. Mark fences with plastic tags or other materials to increase the visibility of fences to wildlife, thereby reducing potentially fatal collisions. Download: birdconservancy.org/wff2012
- Control, rather than eradicate, prairie dog colonies if they are a nuisance to your operation. They do provide critical habitat for several at-risk bird species (see Burrowing Owl and Mountain Plover sections).
- Connect grassland habitat patches with grassland corridors so patches are not isolated and wildlife can move between the patches.
- Protect wet seeps and wet meadow habitat.

Conducting a rangeland inventory of vegetation using the line-intercept method. Photo by Mary Beth Albrechtsen

Moving cattle on the prairie. Photo by Matt Mortenson (Flickr Creative Commons; cropped for size)

Grazing Management

Implementing grazing management in planned pastures is one of the most sustainable uses of native grasslands. Adaptive grazing management activities will include the manipulation of the intensity, duration and frequency of grazing so as to maintain or enhance the densities, heights and diversity of vegetation.

- Manage pastures and other grassland parcels as large units, rather than as many small units. Many bird species are more attracted to large grassland patches than small isolated ones.
- Follow the "take half, leave half" rule. Take 50 percent of the weight of the main forage species (i.e., not all the plant species in the pasture). When grazed, sufficient photosynthetic tissue must remain on plants for production of carbohydrates to meet growth and respiration demands of the plant.
- Use forage inventories to assess the stocking rate of a given area and help reach desired vegetation structure results to manage for short and long-term drought periods.
- Give pastures 45 days rest between grazing events and change the grazing period by two weeks each year.
- Manage grazing so your pastures reflect various intensities of grazing, ranging from light to heavy.
- Allow for periods of rest or deferment to provide a greater diversity of residual cover for birds. Residual cover helps moderate temperatures at the soil surface. This also allows for contingency pastures - one solution in times of drought.

General Recommendations

Managing with Birds in Mind

- Design your grazing system so each pasture is used in different seasons from year to year. This will improve plant vigor and provide undisturbed nesting cover in a portion of the grazing unit.
- Graze in the spring only if grazed plants are given an opportunity to regrow without being used again. Grasses are most negatively affected when grazed during their reproductive period and least affected during dormancy.
- Incorporate both warm- and cool-season grass species into your pastures. This will provide a longer season of green vegetation than if only one of these classes is present.
- Install escape ladders in stock tanks so that birds and other small animals can climb out (see Conservation Tools section).

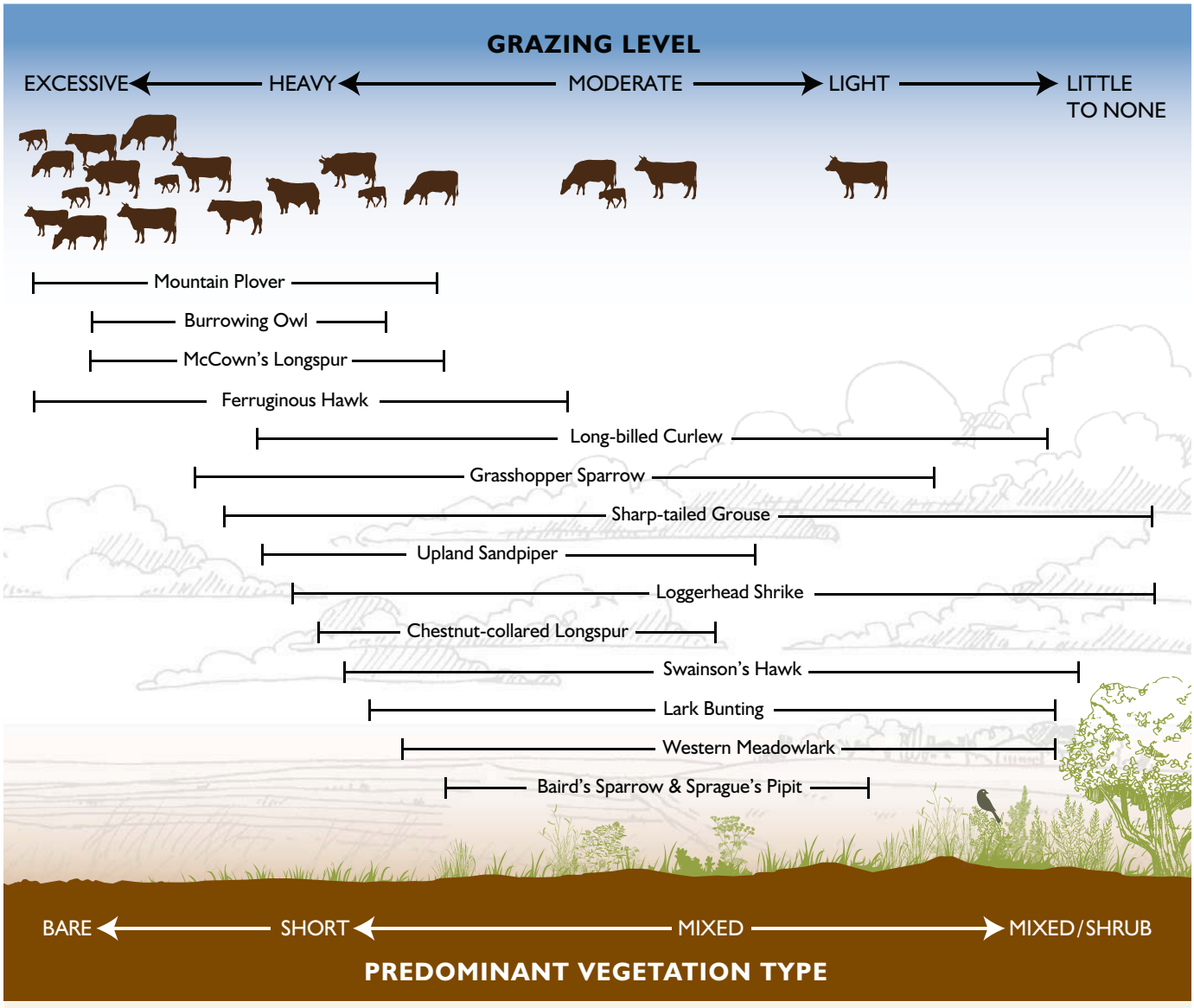


Fig. 4: In some cases, management approaches for one species may contradict the recommendations for another species. If both species are on your land, consider following both sets of recommendation but in different areas, or consult with local bird experts to determine which species is a higher conservation priority in your area. Figure adapted from F. Knopf 1996.

Managing with Birds in Mind

General Recommendations

Crop Management

- Follow the basic soil health principles of minimizing disturbance, increasing diversity, keeping living roots growing and maintaining residual cover.
- Schedule any haying, plowing or burning (when feasible) in the spring before April or after mid-July to protect nesting birds and their young. Such activities during the nesting season can disrupt breeding activities, destroy nests and expose nests and birds to predators.
- Use a flush bar, flush chain or similar device attached to the swather of the mowing machine if you must mow during nesting or fawning season. Also, use a wildlife friendly harvest pattern such as beginning at one end of the field and working back and forth or starting at the center and working outward. These tools will cause a bird to "flush" in front of the mower and are most effective when operating at less than top speed (see Conservation Tools section).
- If you are going to mow, mow early and often to deter ground-nesting birds from establishing nests.
- Avoid mowing at night if possible, when birds are on their nests.
- Reseed with native species—if you have land enrolled in Conservation Reserve Program (CRP), use native grass species. Birds have a long history with specific plants and plant communities and are more likely to breed successfully where the plants are natives.
- Mow or burn uncultivated areas in rotation, leaving some areas uncut and unburned each year.

Grasshopper invasion. Photo by Kay Ledbetter (via Flicker)

- Manage croplands under a conservation tillage system (no-till or minimum tillage), which can provide crop residue that acts as cover for birds, their nests and their prey, resulting in higher nest success than in either conventional or organic farms. Delay first tillage until at least late June (mid-July would be even better) to avoid destroying nests.
- Apply Integrated Pest Management practices (IPM), including alternatives to chemical control of insects, to preserve the food supply for insect-eating birds. If chemical controls are necessary, use pesticides that degrade rapidly. Contact your local resource professionals (NRCS, Extension, etc.) for more information about IPM.
- Protect agricultural land from grasshopper damage by using a bait line only along the boundary between agricultural and range land.

Development

- Avoid constructing new roads through known grassland bird habitat to avoid increased predation and collision risk.
- Speed limits should be posted at 25 mph on dirt surface resource roads and 35 mph on county dirt surface roads during breeding and brood rearing season (April – late August).
- Site development areas where there will be significant activity away from known bird breeding locations by at least 350 meters to ½ mile.
- Clump development sites together to avoid further fragmenting the landscape.
- Cap, close, fill, screen or remove exposed vertical pipes 1–10 inches in diameter. They pose a large source of mortality for many cavity-nesting bird species that will enter pipes in search for a suitable nesting site. Many birds become trapped inside and die.
- Minimize use of lighting on wind-power generators and other electrical or cell towers. Birds can be attracted to and disoriented by lights, especially during migration. Remove non-flashing lights and replace with strobe or flashing lights. This will also reduce attraction of potential insect prey.

Species Accounts

Because of their dependence on habitat conditions and their higher reproductive potential and ability to move quickly across the landscape, many birds can respond quickly to changes in habitat features. As such, they can be considered indicators of habitat condition and can be used to gauge the integrity of the habitat. Even further, birds can also be used to evaluate grassland conditions. The presence and absence of specific birds can be used as an index for performance monitoring for land management actions. For example, if your management goals are to maintain mixed- or tall-grass prairie and leave it idle to retain residual cover, the presence of Baird's Sparrows is one indicator that you are effectively managing your land. Use the following species accounts to learn about habitat needs for each.

Each species account will include the following information:

- Identification–description of adult birds in breeding season plumage and includes different visual or auditory features to help you identify the species
- Habitat – primary habitat(s) the species uses for nesting, feeding and/or roosting
- Natural history–description of aspects of their behavior during breeding and migration, including when they arrive and depart from their breeding grounds
- Nest – description of what a typical nest would look like and where it might be found
- Eggs – number of eggs usually found in the nest, egg size and color(s)
- Did you know? – Interesting fact
- Conservation need – provides information about the population trend for the species over the past 20 years and potential threats to the species
- Management recommendations – suggestions for how to maintain, restore or manage for habitat to promote the presence of the species
- Associated species – a short list of other species you may also find if the species is present
- Diet – primary sources of food
- Range maps for all species include the areas for which they breed, migrate, winter or are otherwise located year-round in North America (created with Bird Life International data (ca. 2016); Five species (Sprague's Pipit, McCown's Longspur, Chestnut-collared Longspur, Lark Bunting and Baird's Sparrow) include predictive distribution maps (created with data from the Integrated Monitoring in Bird Conservation Region program - see Bird Conservancy section at the end of this manual) which display the likely density of each species across the NGP determined by the habitat types present.

Burrowing Owls.
Photo by Robert Martinez

Sharp-Tailed Grouse

Tympanuchus phasianellus

Identification

The Sharp-tail is a medium-sized grouse, somewhat intermediate in appearance between Greater Prairie-Chicken and female Ring-necked Pheasant. Its underparts are mottled dark and light; in the southern parts of its range it has a pale belly. Sharp-tailed Grouse has a medium-length, pale, pointed tail and feathered legs (pheasants have unfeathered legs). Males and females have similar plumage, but males are larger, with a yellow comb over each eye that enlarges and brightens during display season. Males also have pinkish-violet air sacs on the sides of their necks that they inflate during display and which amplify their low cooing. Though Greater (and Lesser) Prairie-Chickens can be similar, that species is easily differentiated by the extensive horizontal barring underneath.

Habitat

Sharp-tailed Grouse primarily uses open grasslands interspersed with shrubs and abundant forbs and legumes for nesting and brooding in the summer. They may relocate to sheltered and wooded habitats (deciduous hardwood shrub draws, riparian areas, woodlands or windbreaks) when grasslands become snow-covered.

Natural history

Sharp-tailed Grouse are typical of lekking grouse with males gathering in early spring and displaying to attract females. Leks are comprised of a few to 25 males (occasionally more). Females visit leks to assess male quality and to solicit matings, most of which are performed by the one or two dominant males on the lek, even in large leks. Females will often visit multiple leks, sometimes multiple times, before mating. The grouse forage on seeds, leaves and buds. They commonly feed in trees, eating buds (like Ruffed Grouse), much more so than do prairie-chickens, particularly in winter when snow covers other food supplies.

Sharp-tailed Grouse. Photo by Alan Schmierer (Flickr Creative Commons)

Nest

Females lay eggs in an oval-shaped, shallow depression scraped into the ground, under a shrub where vegetation is dense and at least 30 centimeters tall. The depression is filled with various materials, including moss, grasses, and leaves, and lined with sedges and some of her own breast feathers.

Eggs

Usually about 12 (up to 14), about 1¾ inches long, olive-buff to pale brown with various brown speckling.

Sharp-Tailed Grouse

Tympanuchus phasianellus

Did you know?

Sharp-tailed Grouse may migrate short distances (often <3 miles, but up to 40 miles) to winter away from the breeding grounds. This species and Greater Prairie-Chicken have been known to hybridize where their ranges overlap.

Conservation need

Loss of habitat is the main source of population decline, primarily through conversion of native grassland to cropland but also due to development, urbanization and overgrazing. They are a Species of Greatest Conservation Need in Montana and North Dakota.

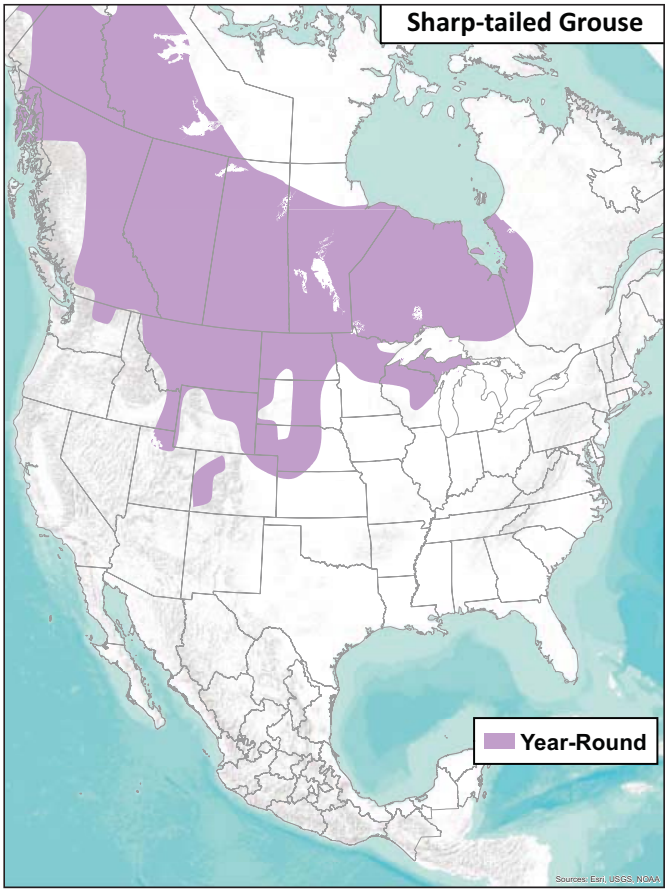
- Conserve large blocks of unfragmented, native grasslands.
- Maintain a patchwork of pastures containing short grass, taller grass and scattered shrubs for lekking, foraging, nesting, brood-rearing and wintering. This mosaic can be produced by light to moderate grazing or by burning at intervals of 3-4 years. However, in the south-central part of the range (eastern Wyoming, western Nebraska), burn intervals should be longer, as the shortgrass prairie does not recover from burning as quickly as does tallgrass prairie.
- Avoid or minimize sheep grazing in shortgrass habitat occupied by Sharp-tailed Grouse as sheep graze an area more completely and to a shorter height, and their habit of traveling in tight herds results more often in nest destruction.
- Control non-native plants, including annual brome, leafy spurge, and knapweed, which replace the grasslands favored by these grouse.
- Encourage native forbs (broad-leafed plants) including sunflowers, clover and dandelion.
- Minimize extensive agriculture development.
- Retire cropland and enroll into programs such as CRP.
- Ensure grazing plans result in multiple levels of vegetation height and structure, including residual vegetation.
- Avoid disturbance at leks during the breeding season and within a 1.25 mile radius.

Associated species

Other species that may benefit from habitat management for Sharp-tailed Grouse include Greater Prairie-Chicken, Swainson's Hawk, Lark Bunting and Western Meadowlark.

Diet

Seeds/grains 40%, leaves/buds 40%, insects 20%.



Mountain Plover

Charadrius montanus

Identification

In summer, the Mountain Plover is mostly light brown with a white throat and breast, and white under the wings. It has a white forehead and white line over the eye, which contrast with a dark brown cap. Plovers blend in extremely well with the background, making them very difficult to spot, especially when they hunker down on their nests. The winter plumage is similar to the summer plumage, but the brown colors are paler. Plovers lack the black bands across the chest found on their more common (and noisier) relative, the Killdeer. They are a little smaller than Killdeer—about 8 inches tall.

Habitat

Despite the name, Mountain Plovers breed in shortgrass prairie where the land is fairly flat or gently sloped. They favor areas where vegetation is sparse (at least 30 percent bare ground) and very short (2 inches or less). Dry alkaline lakes are attractive to plovers, as are areas where grazing livestock or prairie dogs have reduced vegetation height and density. They will also nest in areas with low, widely scattered shrubs. Plovers will forage and nest in agricultural fields that are bare or contain short vegetation.

Natural history

These birds leave their wintering grounds (primarily in California) in mid-February or March, and begin to arrive on the breeding grounds in March. Egg laying period runs from May through June (but if first nest was unsuccessful it may run into July). Incubation lasts about one month; chicks stay with their parent for another month until they are old and strong enough to fly. In extreme hot or cold weather, young birds (less than a week old) are quite vulnerable if not protected by an adult. Adults protect their nests from trampling by flying up into the face of cattle that get too close. Mountain Plovers don't need access to water for drinking, as they get enough from their diet. Although they are often found near water sources such as stock ponds, it may be the low, sparse vegetation that attracts them.

Mountain Plover. Photo by Clay Edmondson

The adults usually begin leaving for the wintering grounds as early as July, arriving in mid-September to November. During migration, they sometimes form flocks of hundreds of birds.

Nest

A shallow bowl on the ground, sometimes lined with dried grasses or pebbles, often decorated by the male. Unlike some other ground-nesting prairie birds, Mountain Plovers do not place their nests next to tall vegetation, although they often place them next to dried manure.

Eggs

Usually 3 (sometimes 2 or 4), 1½ inches long, buffy or olive-colored, with small dark brown splotches; well-camouflaged and extremely difficult to find.

Did you know?

Female Mountain Plovers will lay 2-3 eggs in one nest and leave it in the male's care while she lays 2-3 eggs in a second nest, which she tends. This mating strategy doubles their chance of success.

Mountain Plover

Charadrius montanus

Conservation need

The Mountain Plover's population and distribution are declining at an alarming rate. Although they are a low-density species and have historically not had as high of population numbers as other grassland birds, their stark decline is alarming. Between 1966 and 2015, the population has dropped an estimated 3.41 percent per year. The current total population is estimated at less than 18,000 birds. Causes for declines include conversion of native shortgrass prairie to cropland, urbanization (especially on the wintering grounds), removal of prairie dogs, oil and gas development, and plowing/planting on the nesting grounds (the bare ground of fallow and plowed fields is very attractive to plovers, but many nests are destroyed when the fields are planted or tilled). They are a Species of Greatest Conservation Need in Montana, Nebraska and Wyoming.

Associated species

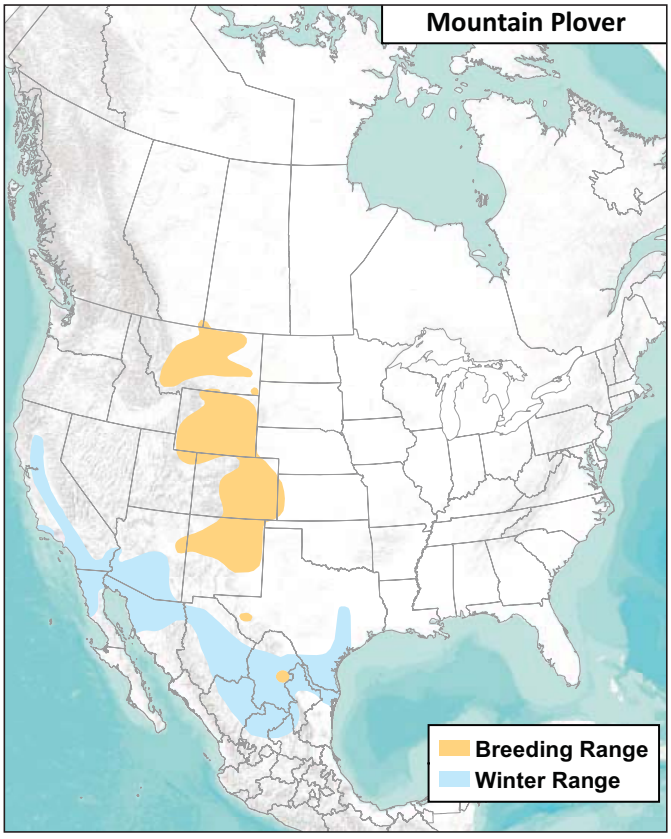
Other species that may benefit from habitat management for Mountain Plovers include Greater Short-horned Lizard, Long-billed Curlew, Burrowing Owl, Horned Lark and McCown's Longspur.

Management recommendations

- Maintain native shortgrass prairie.
- Develop an adaptive grazing strategy to graze heavier in wet years and moderately in dry years for breeding plover habitat on rangelands.
- Burn shortgrass prairie outside of the nesting season to create favorable vegetation conditions.
- Retain populations of prairie dogs at levels compatible with economic activities on the land. Efforts to control prairie dogs may be detrimental to plovers, as prairie dogs provide the low, sparse vegetation structure favored by plovers.
- If prairie dog control is necessary, defer grazing in mixed-grass prairie in wetter years. With adequate moisture, vegetation may grow faster than the prairie dogs can clip it in the spring, impacting their abilities to settle in or expand in these areas. If using chemical controls, poison only active prairie dog burrows.
- Delay discing croplands until July, to allow plovers to complete their nesting. If delay is not possible, try to locate the nest to avoid it and till using an undercutting technique to avoid nests (undercutting may also reduce soil erosion).
- Plant native shortgrass species (blue grama and buffalograss) rather than taller, non-native species. Plovers will not use areas with tall grasses.
- Control non-native plants, including annual brome, leafy spurge, and knapweed, which displace native shortgrass prairie plants and do not provide the structure favored by plovers.
- Avoid disturbance to nesting plovers by restricting activities such as oil and gas exploration, water well development, and other similar activities during the nesting season.

Diet

Invertebrates (mostly grasshoppers, beetles, crickets, ants) 99%, Seeds 1%.



Upland Sandpiper

Bartramia longicauda

Identification

Brown on the back and wings, but lighter on the breast, belly and underwings. Long neck, and eyes that look like they're too large for the small head. Just under 1 foot tall. Upland Sandpipers are often seen perched on fence posts. Adults sometimes feign injury to draw humans and predators away from nests.

Habitat

Upland Sandpipers can be found near wet meadows and other areas with tall grasses, up to 24 inches, although they sometimes nest in grass as short as 4 inches. Their typical nesting habitat is the tall, dense vegetation found in mixed-grass and tallgrass prairies, with up to 50 percent forbs, few shrubs, and little bare ground. They also nest in wet meadows and hayfields, and sometimes in weedy fallow fields, roadsides, Conservation Reserve Program lands, and row crops. Litter cover is usually moderate to dense and 1½ –3½ inches deep. Their nesting territory usually includes rock piles, stumps or fence posts for displaying. They prefer short vegetation (up to 10 inches tall) for foraging, and may use grazed pastures, plowed fields, stubble and croplands. Brooding areas contain vegetation 4–8 inches tall.

Natural history

Upland Sandpipers leave their wintering grounds in mid-February, arriving on the northern breeding grounds by May. Nesting in the southern part of their range begins in late April and May, and in the northern areas in late May and June. Most young birds leave the nest in June and July. They depart for the wintering grounds by late July.

Nest

A depression in the ground, the nest is 2–3 inches deep, lined with grasses, inside diameter 4–5 inches, usually covered by overhanging vegetation.

Eggs

Usually 4 (sometimes 3 or 5), 1¾ inches long, buff-colored with brown speckles and blotches concentrated on the large end of the egg.

Upland Sandpiper. Photo by Greg Albrechtsen

Did you know?

Upland Sandpiper numbers dropped substantially during the 1880s as market hunters ran out of Passenger Pigeons and switched their aim to the sandpipers.

Conservation need

Populations are increasing on the Great Plains, but declining in other areas, such as the Upper Midwest and New England. They are most common in the mixed-grass and tallgrass prairies, and have never been very common in the shortgrass prairie. They are a Species of Greatest Conservation Need in North Dakota and Wyoming.

Associated species

Other wildlife that may benefit from habitat management for Upland Sandpipers include Ring-necked Pheasants, Sharp-tailed Grouse, Greater Prairie-Chicken, Baird's Sparrows, Grasshopper Sparrows and Western Meadowlarks.

Upland Sandpiper

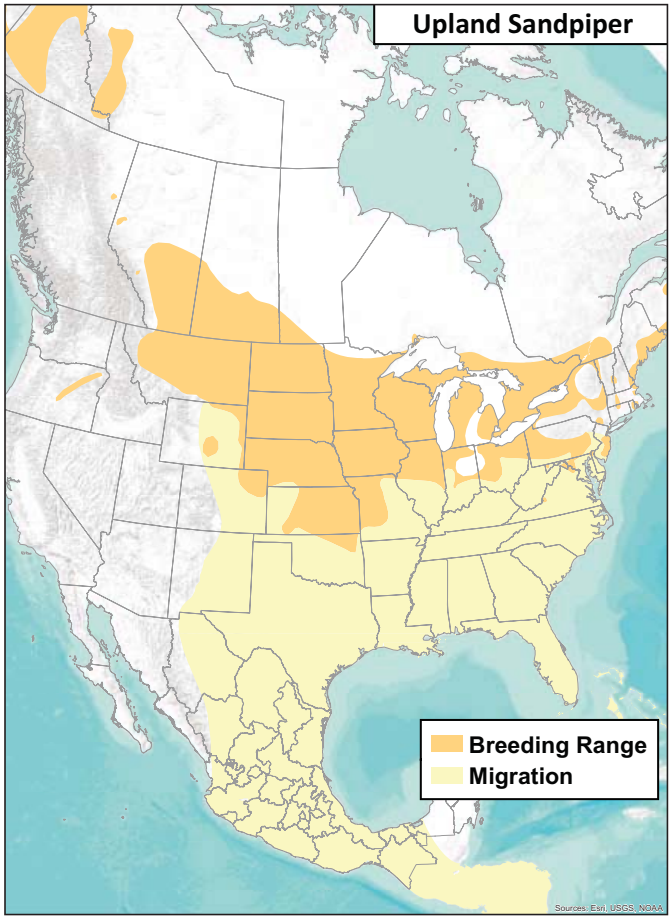
Bartramia longicauda

Management recommendations

- Maintain large (>247 acres) blocks of grassland that includes a mosaic of shortgrass and other grasses of different heights and densities to provide habitat for foraging, nesting and brood-rearing.
- Avoid grazing in areas known or suspected to be used for nesting sites, which removes the taller grasses preferred by Upland Sandpipers for nesting.
- Protect taller grasses around water, which may be the only suitable habitat for Upland Sandpipers.
- Delay mowing or pesticide applications until late July, to allow the birds to complete their nesting cycle.
- Provide display perches (i.e., fence posts, rock pile).
- Leave small pockets of uncut hay as refuges for young birds (if hayfields must be cut before late July).
- Use a flush bar or similar device if you must mow earlier than mid-July (see Conservation Tools section).
- Use a back-and-forth mowing pattern (see Conservation Tools section).

Diet

Invertebrates (mostly grasshoppers, crickets, weevils; also beetles, grubs) 97%, seeds 3%.



Upland Sandpiper. Photo by Andy Reago and Chrissy McClarren (Flickr Creative Commons)

Long-Billed Curlew

Numenius americanus

Identification

This is North America's largest shorebird, standing about 16 inches tall. The overall color is cinnamon brown, lighter on the breast and belly, with brown markings. But the most striking feature of these birds is the extremely long, downward-curving bill approximately 5.4 inches for the male and 6.7 inches for the female. Their long bills are used to pick up insects and probe for food deep in mud, soft soil and animal burrows. Their "cur-lee" calls can be heard for long distances across the prairie.

Habitat

Curlews nest in shortgrass and mixed-grass pastures and sagebrush prairie, and occasionally in idle cropland such as wheat stubble. They prefer short vegetation, and nest where vegetation is less than 12 inches and more often where it is less than 4 inches tall. Total vegetation cover should be less than 50 percent. After hatching, the adults will move the chicks to areas of taller grasses and scattered forbs and shrubs, apparently for protection from predators and weather extremes, although they avoid areas of dense vegetation and litter, possibly due to low visibility and difficulty of travel for chicks.

Curlews are often found within ¼ mile of standing water, and often much closer, although the birds are rarely seen actually using the water. The water is often from human sources (stock tank overflow, stock ponds, etc.). They often search for food in wet meadows or areas of moist soil.

Natural history

Nesting usually begins early April to May, with most young birds leaving their nests during June and July. Most birds depart their breeding grounds by the end of August. Territories, which range from 15–35 acres in size, are often reused in subsequent years. Curlews will not re-nest if their nest is destroyed by predators or other causes, but instead will wait until the following year to try again.

Long-Billed Curlew. Photo by Bill Schmoker

Nest

A depression in the ground about 2 inches deep, lined with grass or weeds, inside diameter about 8 inches.

Eggs

Usually 4 (sometimes 5), 2½ inches long, pale green or buff-colored, heavily marked with dark brown blotches.

Did you know?

The nest is often placed next to dried manure, probably to help hide the nest from predators, or to mask its scent.

Conservation need

Long-billed Curlews are one of the highest conservation priorities on the Great Plains. Their populations in the shortgrass prairie have declined 10 percent per year for several decades, likely due to the loss of suitable breeding habitat as prairie is converted to cropland or urban developments. Other possible causes include loss of habitat and pesticide use on the wintering grounds. They are a Species of Greatest Conservation Need in Nebraska, North Dakota, South Dakota and Wyoming.

Long-Billed Curlew

Numenius americanus

Management recommendations

- Utilize prescribed grazing or periodic prescribed burns to maintain a patchwork of pastures containing shortgrass, taller grasses and scattered shrubs for foraging, nesting and brood-rearing.
- Preserve native shortgrass and mixed-grass prairie, as its conversion to cropland often renders it unacceptable to curlews.
- Avoid grazing sheep in shortgrass habitat occupied by nesting curlews. Sheep grazing may be more detrimental than cattle grazing, as sheep graze an area more completely and to a shorter height, and their habit of traveling in tight herds results more often in nest destruction.
- Include native shortgrass species such as blue grama and buffalograss, forbs and legumes rather than taller, non-native species in rangeland plantings. Curlews will not nest in areas with tall grasses.
- Control invasive plants such as annual brome, leafy spurge and knapweed, which do not provide the structure favored by curlews, and displace native short and mixed-grass prairie plants.
- Avoid disturbance to curlews at known nesting sites by restricting activities such as oil and gas exploration, water well development, and other similar activities during the nesting season.

Long-Billed Curlew. Photo by Greg Albrechtsen

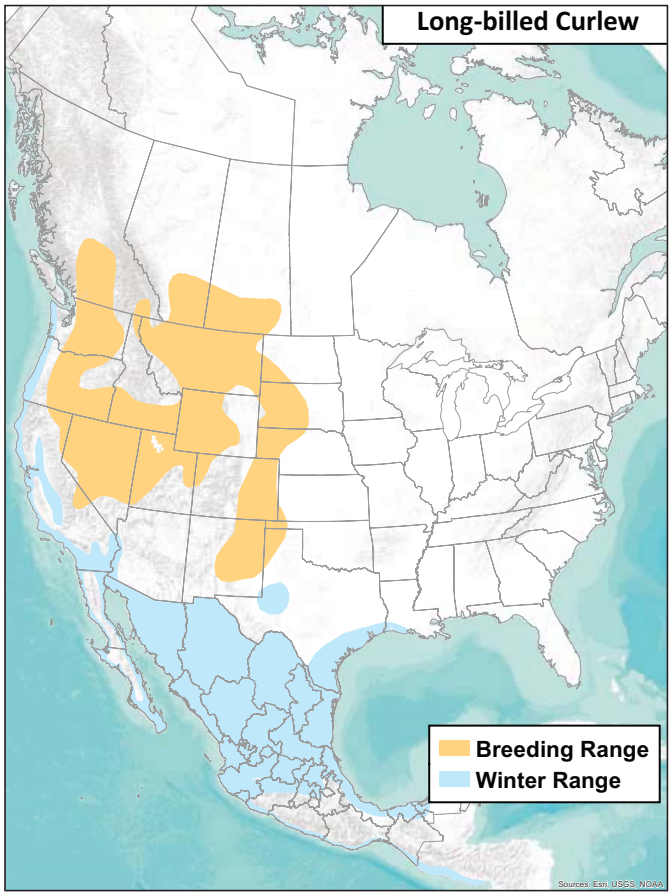
- Protect the area around known nest sites because some curlews will return to nesting territories in subsequent years including their offspring who will return to nest near where they hatched.
- Protect existing wetlands and wet areas such as moist draws and meadows, as curlews utilize these areas for foraging with their young.

Associated species

Other species that may benefit from habitat management for Long-billed Curlew include Greater Short-horned Lizard, Mountain Plover, Horned Lark and Swift Fox.

Diet

Invertebrates (insects, worms, burrow-dwelling crustaceans, mollusks) 90%, Toads/eggs /nestlings 10%.



Swainson's Hawk

Buteo swainsoni

Identification

These birds are identified by a dark brown head and bib (female) or gray head and reddish bib (male), contrasting with white chin and belly. Some individuals are dark brown underneath rather than white. The tail has several dark, narrow bands with a wider one near the tip.

Habitat

Nesting habitat includes open shortgrass, mixed grass, and tall grass prairie, riparian areas, isolated trees, shelterbelts, cropland, hayland and wetland borders. The hawks hunt in open habitats such as grasslands, hayfields, open shrublands or croplands.

Natural history

Swainson's Hawks begin to leave their wintering grounds in February, and arrive on the breeding grounds in March and April. They begin nesting in April and May, with young birds usually out of the nest by June or July. Many ranchers and farmers are familiar with this species' habit of following farm equipment through the fields to pick up injured rodents and insects. The birds leave for the wintering grounds in September, migrating in large flocks sometimes containing thousands of birds.

Nest

A large stick nest, 2–4 feet across and about 1 foot tall, is usually placed high in a live tree but sometimes in a large bush, on a rock outcrop, or on artificial nest platforms. Swainson's Hawks often reuse the same nest each year, or use old nests of other birds, especially magpies, as the base for their nest.

Eggs

2 (sometimes 3 or 4), 2¼ inches long, white with dark brown blotches.

Did you know?

Swainson's Hawks are long-distance migrants—the trip between their breeding grounds and South American wintering grounds covers 5,000–8,000 miles and lasts 15–35 days ***each way***.

Swainson's Hawk. Photo by Bill Schmoker

Conservation need

Swainson's Hawk numbers have been stable overall but more recent declines are due to a loss of prey and nesting sites. Continued consolidation of farms into larger agribusiness operations eliminates nesting habitat and threatens breeding populations. They are a Species of Greatest Conservation Need in Nebraska, North Dakota and Wyoming.

Swainson's Hawk

Buteo swainsoni

Management recommendations

- Maintain native shortgrass prairie.
- Preserve existing stands of trees, especially known nesting sites since pairs often use the same nest year after year.
- Protect nest trees from livestock rubbing by using fences or other barriers, and from destruction by fire, herbicides or other causes (see Conservation Tools section).
- Control rather than eradicate the primary prey species (including rodents and grasshoppers), at levels compatible with economic activities on the land. Eliminating those animals may be harmful to Swainson's Hawk populations—less food means fewer hawks.
- Leave unused utility poles for use as hunting perches; provide artificial nest platforms (see Conservation Tools section) near cultivated fields where nesting sites are limited.

Diet

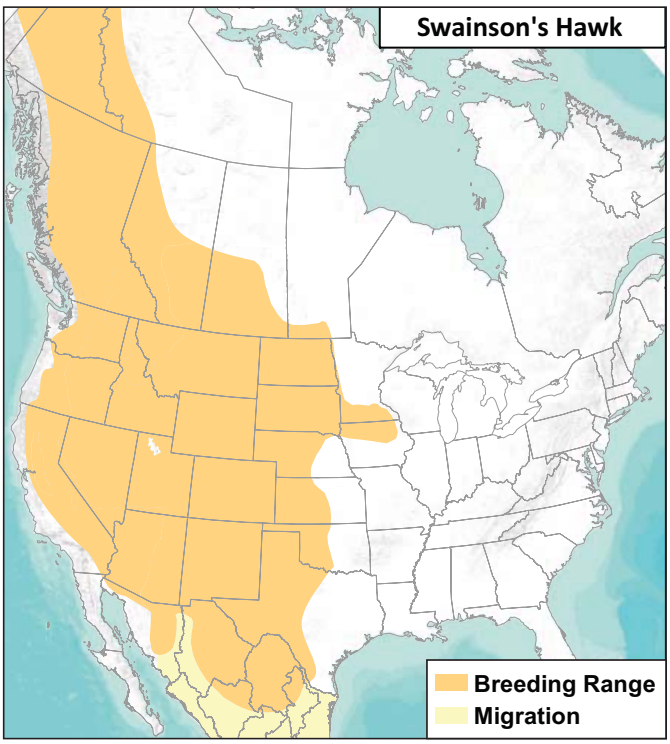
Small mammals 67%, birds 25%, snakes/frogs/insects 8%.

Swainson's Hawk. Photo by John Carr

Swainson's Hawks showing dark and light color morphs. Light morphs make up 90% of the population, especially in the mountain and prairie states. Photo by Pat Gaines (Flickr Creative Commons)

Associated species

Other species that may benefit from habitat management for Swainson's Hawk include Red-tailed Hawk, Ferruginous Hawk, Rough-legged Hawk, Golden Eagle, American Kestrel, Western and Eastern Kingbird and Loggerhead Shrike.



Ferruginous Hawk

Buteo regalis

Identification

Often seen while soaring, these hawks are rust-colored on the back and shoulders, mostly white under the wings and on the breast, belly, and tail (which lacks the dark bands of other hawks). The rust-colored legs contrast with the white body and look like a dark "V" when the bird is flying overhead. Some individuals are all dark. This is the largest hawk in North America, with a 53 inch wingspan. It gets its name, Ferruginous (***fer-OO-jin-us***) from the red coloration, like rusty iron (ferrous).

Habitat

Habitat, summer and winter, includes grasslands, deserts and other open areas with isolated shrubs or trees where less than 50 percent of the land is under cultivation. Ferruginous Hawks are often found around colonies of prairie dogs.

Natural history

These birds arrive in the northern part of the breeding grounds in March and April. Nesting does not start until May in the Northern Great Plains. Young leave the nest during late June and July.

Nest

A bulky nest of sticks 3 feet across and 2 feet tall is placed in an isolated tree or in a tree within a small grove of trees. Nests can also be placed on other elevated sites such as large shrubs, rock outcrops, buttes, haystacks, transmission towers and low cliffs. The same nest can be used year after year, with the birds adding more sticks each year—some Ferruginous Hawk nests are 12–15 feet tall. Nests are located adjacent to open areas such as grasslands or shrublands.

Eggs

3 or 4 (sometimes up to 6), 2½ inches long, off-white, sometimes with brown blotches.

Ferruginous Hawk. Photo by Alan Schmierer (Flickr Creative Commons)

Did you know?

In the Old West, Ferruginous Hawks used not only sticks but also ***bison bones*** to build nests, and used bison wool and manure to line the nests.

Conservation need

Ferruginous Hawk numbers are low—a 1993 estimate placed the population as low as 12,000 birds. The populations are stable in some areas but declining in others. Causes for declines include loss of habitat (by conversion of native prairie to cropland, energy development and urban expansion) and degradation of habitat from invasive species and loss of diversity. This species is also extremely sensitive to human disturbance around the nest. They are a Species of Greatest Conservation Need in Nebraska, North Dakota, South Dakota and Wyoming.

Associated species

Other wildlife that may benefit from habitat management for Ferruginous Hawk include Swainson's Hawks, Red-tailed Hawks, Rough-legged Hawks, Golden Eagles, American Kestrels, Mountain Plovers, Mourning Doves, Great Horned Owls, Burrowing Owls, Western and Eastern Kingbirds and Loggerhead Shrikes.

Ferruginous Hawk

Buteo regalis

Management recommendations

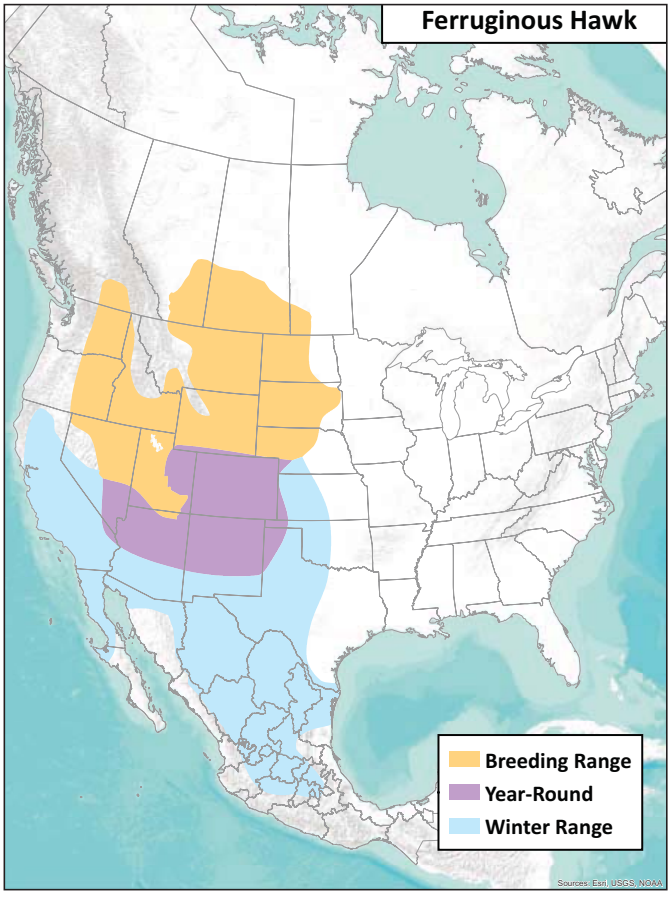
- Preserve large tracts of native grassland, as its conversion to cropland is considered the main factor in population declines.
- Control rather than eradicate the primary prey species (ground squirrels, prairie dogs and jackrabbits). Retain populations at levels compatible with economic activities on the land.
- Deferred grazing in mixed-grass prairie may help control prairie dogs. With adequate moisture, the vegetation may grow faster than the prairie dogs can clip it in the spring, impacting their abilities to settle in or expand in these areas.
- Avoid the use of strychnine to poison rodents. Hawks can die from eating the poisoned animals. If you use chemicals only poison active prairie dog colonies.
- Avoid disturbances (any human activity) near Ferruginous Hawk nests during the nesting season. Such activities result in fewer young birds produced, or even nest abandonment by the adults. Limit brief disturbances to no closer than ½ mile, prolonged disturbances no closer than 1 mile, and long-term disturbances (such as construction) no closer than 1½ miles.

Ferruginous Hawk and nest.
Photo by Bryant Olsen (Flickr Creative Commons)

- Preserve existing stands of trees, especially known nesting sites since pairs often use the same nest year after year. As with Swainson's Hawks, some nest sites are in those areas, and as those trees are lost, nest sites become scarcer.
- Protect nest trees from livestock rubbing by using fences or other barriers (see Conservation Tools section), and from destruction by fire, herbicides or other causes.
- Construct artificial nest platforms (see Conservation Tools section) away from human activity.

Diet

Rodents (mostly ground squirrels and prairie dogs) 64%, Rabbits 20%, birds/snakes 16%.



Burrowing Owl

Athene cunicularia

Identification

These are small, long-legged owls, 8–10 inches tall, brown with white spots on the back and wings, and dark brown barring on the light brown breast and belly. They are often seen in the daytime perched on fence posts or on the ground in or near prairie dog colonies. They have the peculiar habit of bobbing up and down while looking at prey or other animals.

Habitat

Burrowing Owls nest in treeless areas with short (less than 4 inches tall), low density vegetation usually where there are prairie dogs. The owls nest underground in burrows dug by prairie dogs, badgers or foxes. They successfully raise more young where there is a high density of prairie dogs, either because the owls are less conspicuous to predators in areas with many prairie dogs, or because prairie dogs are good at spotting predators and barking to alert all residents of the colony including the owls. Burrowing Owls benefit from some areas of tall, dense vegetation (at least 12 inches tall), which provides habitat for insect and small mammal prey.

Natural history

Burrowing owls leave their wintering grounds in March and April, arriving on the breeding grounds as late as May. They begin laying eggs in late March in the southern part of the range, and mid-May in the north. Burrowing Owls nest in loose colonies, with nest burrows about 100 yards apart. The adults and young birds move around and use "satellite" burrows in addition to the nest burrow. Owls further north leave for their wintering grounds by mid-October, while more southern birds remain all year.

Unlike many other owls, Burrowing Owls will hunt during the day. This is when they capture insects near the nest burrow and in other areas of short vegetation. They also hunt at night, capturing small mammals in areas of taller vegetation. Contrary to popular belief, they do not share their burrows with prairie dogs or rattlesnakes.

Burrowing Owls rely on prairie dogs to maintain the burrows that they use for nesting and resting. Without prairie dogs, burrows remain usable to owls for only 1–3 years, depending on the soil type. Although they will do minor excavating, the owls are unable to dig new burrows or clear out collapsed burrows.

Burrowing Owls. Photo by Alan Schmierer (Flickr Creative Commons)

Nest

The nest is located underground at the end of a burrow 3-10 feet long. The nest is usually lined with plants or dried manure, probably either to disguise its scent or to help absorb water.

Eggs

Usually 5–7 (sometimes as few as 3 or as many as 10), 1¼ inches long, white, almost round.

Did you know?

Before egg laying, Burrowing Owls will lay animal dung around their burrow entrance to attract dung beetles and other insects which the owls catch and eat.

Conservation Need

Significant range contractions and population declines have occurred in some areas, especially Canada and California, where 60 percent of the breeding birds disappeared in the 1980s and 1990s. Over the past

Burrowing Owl

Athene cunicularia

100 years, Burrowing Owl populations in British Columbia, Alberta, California, Nevada, Colorado and New Mexico have dropped by more than 50 percent. In Saskatchewan, the population declined 88 percent between 1988 and 1997. Causes include loss of habitat (to urbanization and conversion to croplands or to taller, non-native haylands), and eradication of prairie dogs. They are a Species of Greatest Conservation Need in Nebraska, North Dakota, South Dakota and Wyoming.

Management recommendations

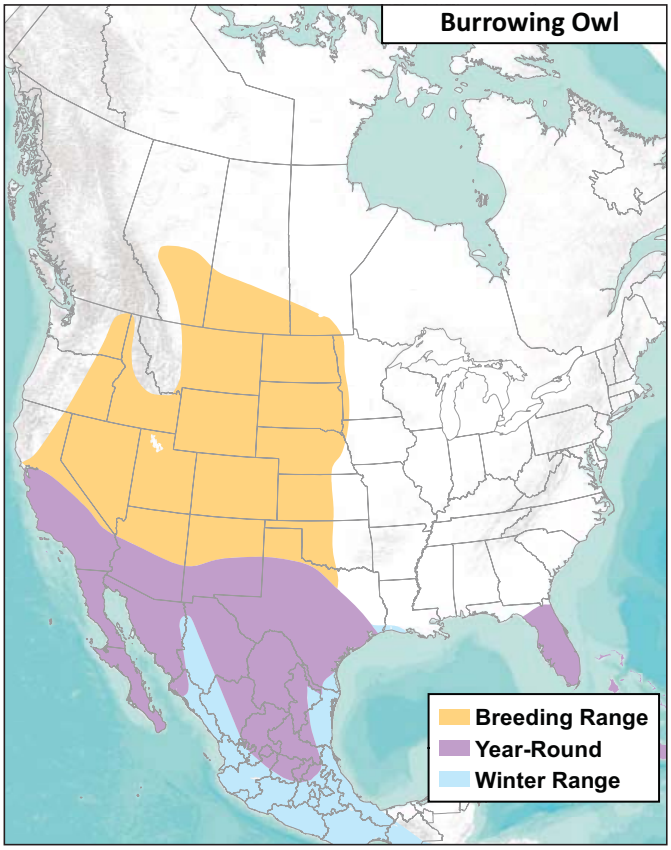
- Retain populations of the principal insect prey species (grasshoppers, crickets, beetles) at levels compatible with economic activities on the land. Insecticides have direct (poisoning) and indirect (loss of prey) effects on the birds. If insecticides are necessary, postpone their use until after the young owls have left the care of their parents (i.e., after the end of July).
- Retain populations of prairie dogs at levels compatible with economic activities on the land because Burrowing Owls are heavily dependent on prairie dogs for nest burrows. Consider the use of barrier fences to control the distribution of prairie dogs.
- If prairie dog control is necessary, defer until November to mid-March to prevent unintentional harm to nesting burrowing owls and their young. If using chemical controls, poison only active prairie dog burrows.
- Leave inactive burrows open to provide roosting sites and future nesting sites for owls.
- Educate varmint hunters about the owls, and instruct them to be sure of their targets. Given the owls' habit of perching on the ground outside a burrow entrance, some owls could be mistaken for prairie dogs or ground squirrels.
- Protect known nest burrows because the owls will often reuse the same burrow in subsequent years.
- Maintain a buffer zone of 100–300 yards (up to ½ mile, if possible) around owl nest burrows; limit insecticide applications, rodent control, and other human disturbances in this area.
- Graze areas of shortgrass prairie used by owls to maintain a low vegetation profile and provide manure for owl nests.
- Maintain areas of taller vegetation, such as weedy fallow fields or fencerows, within 1½ miles of known owl nest burrows, to provide habitat for the owls' prey species.
- Drive slowly by colonies to avoid collisions with owls—vehicles often hit owls when they fly low over roads in search of prey.

Associated species

Other wildlife that may benefit from habitat management for Burrowing Owls include Swainson's Hawks, Red-tailed Hawks, Ferruginous Hawks, Rough-legged Hawks, Golden Eagles, Mountain Plovers and Horned Larks.

Diet

Invertebrates (mostly crickets, grasshoppers and beetles) 88%, Small mammals and birds 12%.



Loggerhead Shrike

Lanius ludovicianus

Identification

Slightly smaller than a robin, gray with black wings and tail, white throat and breast, white patches on the wings (especially visible when the bird is flying), and a black mask across the eyes. At close range, the hooked beak can be seen.

Habitat

Loggerhead Shrikes require areas with scattered or clustered trees and shrubs in open country, with a mix of short (less than 4 inches) and tall (more than 8 inches) grasses. They usually forage over areas of shorter grass, probably because prey is easier to detect. Popular shrubs for nesting include greasewood, saltbush and sagebrush; popular trees include hackberries, hawthorns and red cedar. Shrikes hunt from elevated perches, such as utility lines and poles, fences, trees, shrubs and even tall weeds. They sometimes impale their prey on barbed wire or large thorns to store it for later consumption, or to hold it while they eat.

Natural history

Loggerhead Shrikes return from their wintering grounds in early April and May. They are early nesters, beginning their nesting activities as early as February in the south and late April in the north. Young birds usually leave the care of their parents in June. Shrikes further north leave for their wintering grounds by October. An almost identical species, the Northern Shrike, moves into the shortgrass prairie from northern Canada each winter.

Nest

A bulky nest of small twigs and bark strips is lined with softer material such as grass, feathers and fur. It is placed in tall shrubs or small trees (especially those with thorns) in open country.

Eggs

4 or 5 (sometimes as many as 7), 1 inches long, creamy white with light brown and gray blotches.

Loggerhead Shrike. Photo by Alan Schmierer (Flickr Creative Commons)

Did you know?

Some insects and amphibians are naturally toxic to birds, so shrikes store these toxic animals on thorns or barbed wire for a day or two until the toxins have degraded and the food is safe to eat.

Conservation need

Loggerhead Shrikes are declining in many areas of the U.S., with the declines accelerating recently. Causes include the loss of both breeding and wintering habitat (conversion of pastures and hayfields to row crops, urbanization), loss of insect prey due to chemical controls, and pesticide contamination (especially on the wintering grounds). They are a Species of Greatest Conservation Need in Nebraska and North Dakota.

Loggerhead Shrike

Lanius ludovicianus

Management recommendations

- Avoid heavy grazing (especially in areas where grass is naturally short or sparse)—tall vegetation, more than 8 inches, provides habitat for prey.
- Control rather than eradicate populations of the principal insect prey species (grasshoppers, crickets, beetles), at levels compatible with economic activities on the land. Insecticides have direct (poisoning) and indirect (loss of prey) effects on shrikes.
- Protect known nest trees and shrubs from browsing or rubbing by livestock and from destruction by fire, herbicides or other causes.
- Maintain tall grasses, shrubs and other vegetation along fence lines and other areas within 200 yards of known nest trees because they provide habitat for prey.
- Establish new thickets with thorns, where appropriate.

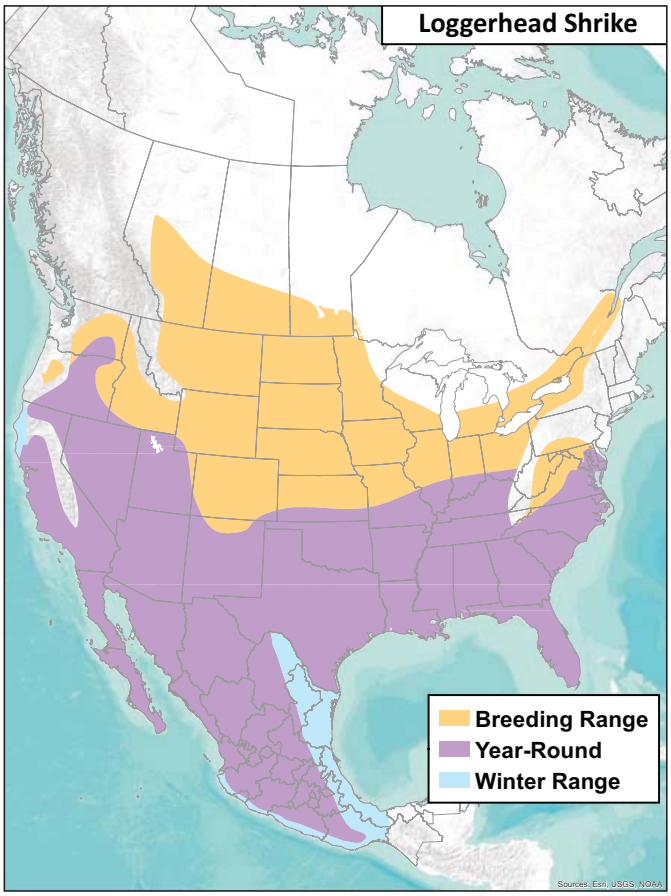
Associated species

Other species that may benefit from habitat management for Loggerhead Shrikes include Swainson's Hawk, American Kestrel, Burrowing Owl, Long-eared Owl, Northern Shrike and Northern Mockingbird.

Diet

Invertebrates (mostly grasshoppers) 72%, small mammals 14%, birds 14%.

Some people refer to the shrike as "Butcher Bird" due to their habit of impaling prey—including other birds—on sharp thorns or barbed wire. This fascinating predator is rapidly disappearing and the reasons are poorly understood. Photo by Marshal Hedin (Flickr Creative Commons)



Sprague's Pipit

Anthus spragueii

Identification

A little brown songbird about 4–7 inches long with dark streaking on back and crown. They have two pale indistinct wing-bars, streaked pale breast, white belly and pink-orange or pinkish-brown legs. They have a pale eye-ring and white outer tail feathers that are noticeable in flight. The male emits a distinctive high-pitched song that sounds like ringing bells while circling high overhead.

Habitat

Sprague's Pipits require areas composed of native mixed- and tall-grass prairie vegetation, low visual obstruction, little to no shrubs or forbs, and with little bare ground and low litter depth. They are rarely found in pastures with introduced species or crops and tend to avoid areas with intense grazing. They prefer sites in patches greater than 470 acres.

Natural history

They arrive on breeding grounds April to mid-May and nest between June and July. In some of their breeding areas, they have two breeding periods. Territorial males perform an aerial display, singing and gliding into the wind, often remaining airborne for 30 minutes or more. In the fall they will flock up with other bird species after the breeding season and migrate south in late September through early November.

Nest

A cup woven of fine grasses on the ground sometimes covered with a dome or canopy. There is typically a covered runway up to 6 inches long leading to the nest.

Eggs

4 to 6 eggs, pale whitish with brown blotches.

Sprague's Pipit. Photo by Melanie (Flickr Creative Commons)

Did you know?

With the longest known flight display of any bird, one male was recorded as being continuously airborne for 3 hours!

Conservation need

Sprague's Pipits are declining at an alarming rate (more than 3 percent per year between 1966 and 2015 with a cumulative decline of 79 percent) due to habitat conversion to crops, degradation and fragmentation. They are a Species of Greatest Conservation Need in Nebraska, North Dakota and South Dakota.

Sprague's Pipit

Anthus spragueii

Management recommendations

- Maintain open grasslands and remove encroaching shrubs and trees.
- Delay mowing or burning until after mid-July to protect nesting birds.
- Avoid placement of windbreaks or shelterbelts in native grasslands. Woody plantings should be no closer than 300 feet to patches of grasslands greater than 70 acres.
- Control invasive or non-native species.
- Restore cropland to native vegetation.

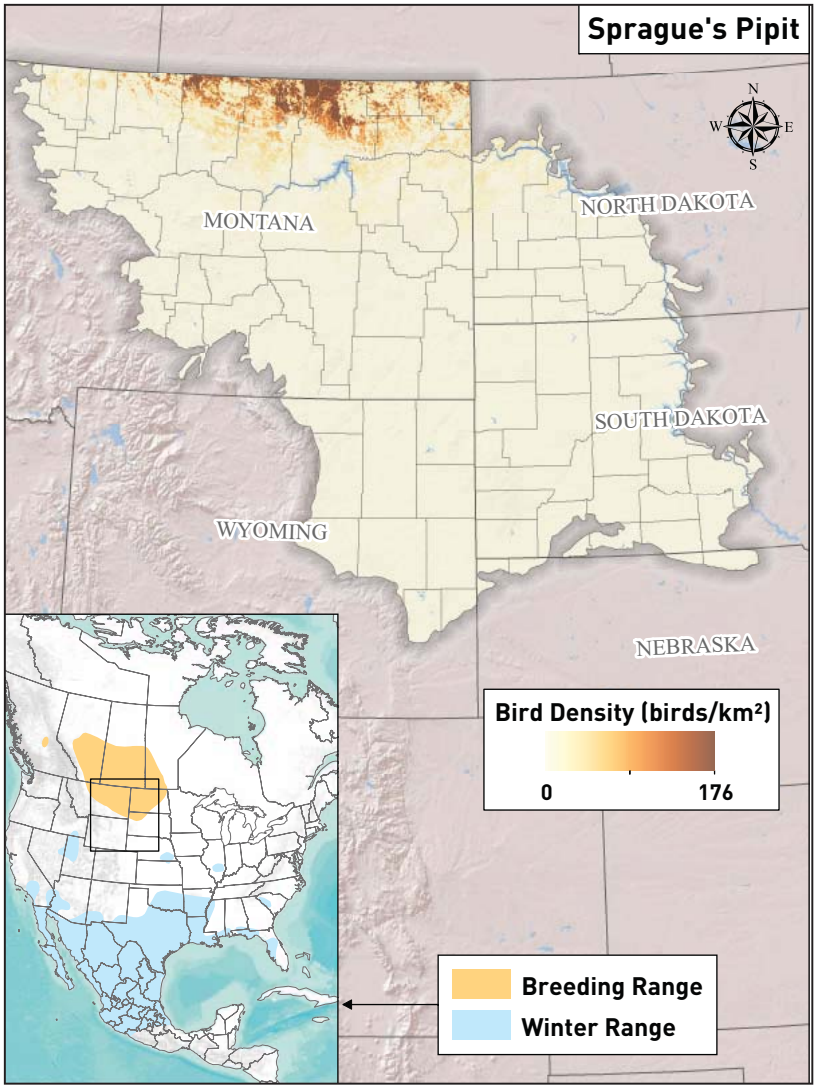
Associated species

Other wildlife that may benefit from habitat management for Sprague's Pipit includes Upland Sandpipers, Grasshopper Sparrows, Baird's Sparrows and Western Meadowlarks.

Diet and Feeding

Invertebrates (grasshoppers, crickets, spiders, ants, beetles and caterpillars) 98%, Seed 2%. Collects insects and a small amount of seed from the ground.

Sprague's Pipit. Photo courtesy of Dover Images



Chestnut-collared Longspur

Calcarius ornatus

Identification

Chestnut-collared Longspurs are 4½ - 6 inches long. The male is dark brown overall with some lighter brown streaking on the back. He has a black crown, white eyebrow, black and white on the face, and pale yellow on the throat and face up to the eye. The nape of the neck is chestnut. The female has brown streaks on the back and crown, a white throat, a brown "necklace," white belly with faint brown streaks on the sides. Like the male McCown's Longspur, male Chestnut-collared Longspurs perform an aerial song display over their territory.

Habitat

Chestnut-collared Longspurs prefer shortgrass or grazed mixed-grass prairie with some bare ground and clubmoss, and few to no shrubs. In dry areas with sparse vegetation, they seek out wet meadows and other low, moist areas where the vegetation is taller and denser. They appear to prefer a mix of short and tall grasses, especially bunchgrasses, and usually avoid the tall, dense cover common to some Conservation Reserve Program lands. They will nest in mowed hayfields and grazed pastures, provided some vegetation is 8–12 inches tall, but they avoid cultivated fields for nesting. They prefer native pasture over planted grasses or hayfields, and they avoid areas with dense litter.

The territory is usually centered on a large rock, fencepost, or shrub, which is used as a singing post. Some research has shown them to nest most successfully in grassland patches of at least 140 acres.

Natural history

Birds arrive in early April through mid-May and begin nesting within two weeks of pair bonding. Most young fledge from their nests by mid-June. However, because some pairs nest a second time, young can be found in nests as late as mid-August. The female will perform a flittering distraction display to simulate an injury to draw predators away from her nest. After the nesting season, the birds will forage in large flocks. Most birds migrate south by September or October.

Nest

A nest of fine grasses, feathers and rootlets placed in an area of sparse vegetation, the rim below or level with the ground, placed under grass tufts or near dried cow manure.

Eggs

3–5 (sometimes 6) eggs, ¾ inches long, white with dark brown speckles and blotches.

Male Chestnut-collared Longspur. Photo by Bill Schmoker

Chestnut-collared Longspur

Calcarius ornatus

Male Chestnut-collared Longspur. Photo by Bill Schmoker

Did you know?

Unlike many songbirds that live in forests, Chestnut-collared Longspurs and other grassland birds do not hop on the ground, but walk or run. The elongated claw of the backward-facing toe may aid in this—it is this elongated claw that gives the bird its name, "longspur."

Conservation Need

The breeding range has contracted, and the population has declined by more than 87 percent since the 1960s. Regional declines are highest in Alberta, Manitoba and Wyoming. Causes for the declines on the breeding grounds include loss and degradation of native prairies due to conversion to cropland, oil and gas development, and urbanization. They are a Species of Greatest Conservation Need in Montana, Nebraska, North Dakota, South Dakota and Wyoming.

Associated species

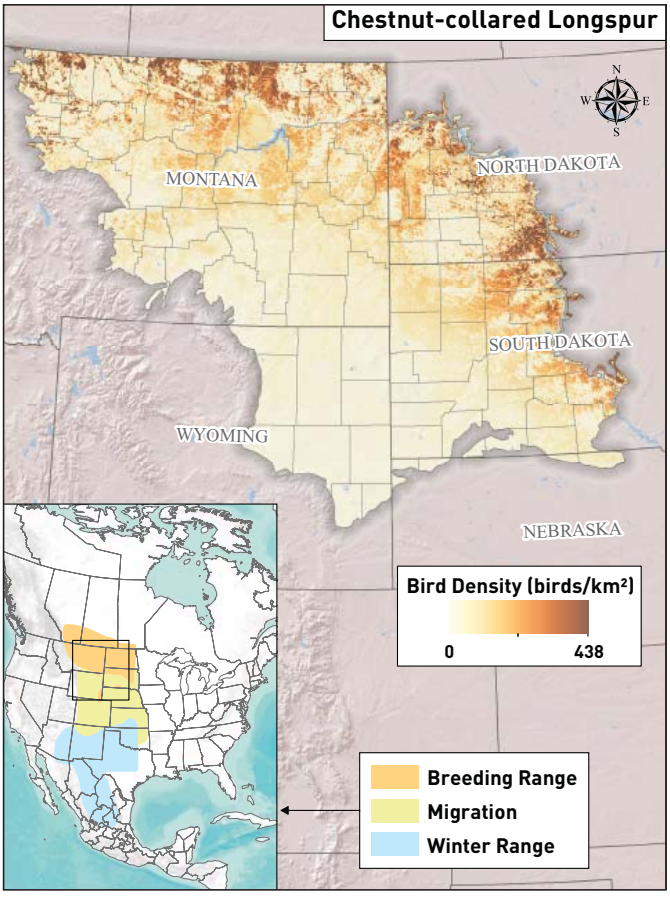
Other wildlife that may benefit from habitat management for Chestnut-collared Longspurs include Greater Short-horned Lizards, Lark Buntings, Western Meadowlarks and Swift Foxes.

Management recommendations

- Protect known nesting sites because the birds will nest in the same areas year after year.
- Allow moderate levels of grazing in mixed-grass prairie, leaving some areas of vegetation at least 6 inches tall—longspurs are more abundant in properly grazed grassland than in ungrazed grassland.
- Use a twice-over rotation system, which creates more suitable habitat than either season-long or short-duration grazing.
- Preserve native prairie because longspurs will not nest in croplands.

Diet

Invertebrates (mainly beetles, grasshoppers, spiders) 72%, Seeds 28%.



McCown's Longspur

Calcarius mccownii

Identification

These birds are 5–6 inches long from beak to tail. The male has a gray face with black crown and "moustache," gray back with black streaking, white throat, black across the breast, and white belly. Chestnut-colored "shoulders" are especially noticeable in flight. An inverted "T" can be seen in the tail in flight, formed by a black band across the end of the tail, black central tail feathers, and white outer tail feathers. The female is similar to the male, but the colors are muted. The aerial song of the male consists of a tinkling warble, which is more complex than when perched.

Habitat

McCown's Longspurs breed in shortgrass, especially where vegetation cover is sparse due to soil moisture or grazing, or is interspersed with shrubs or taller grasses. They are also found in grazed mixed-grass prairies and stubble fields. Individuals often use sparsely vegetated hilltops for displaying and nesting. They require areas of bare soil, and nest sites are often on barren hillsides. Early in the breeding season, nests are often placed on south-facing slopes. Nesting territories usually include 45–80 percent grass cover and 15–25 percent bare ground, with little or no cover by forbs, woody plants, or cactus (although nests started late in the season are more likely to be in denser vegetation or near shrub cover, perhaps for protection from the sun's heat). Longspurs breed in loose colonies.

Natural history

Longspurs leave the wintering grounds in late February and March, arrive on the breeding grounds in late March and April, and often linger into mid-October. The male displays by flying up above his territory, then floating down on outstretched wings while singing his territorial song. Nesting begins by mid- to late May, with most young out of the nest by mid-July. Paired birds are strongly attached to each other and stay close together, even walking side by side when foraging.

McCown's Longspur. Photo by Bill Schmoker

Nest

A simple open, grassy cup, the rim level with the ground, placed next to a grass tuft, cactus, or small shrub, in an area of very sparse plant cover. Additional or replacement nests can occur within 100 feet of a nest.

Eggs

2 to 6 eggs, ¾ inches long, buff-colored with faint brown blotches.

Did you know?

The nests are difficult for predators (and humans) to find because the female sits tightly on her nest until practically stepped upon, relying on her superb camouflage to avoid detection. Females also have a strong instinct to protect the eggs. One researcher who wanted to count eggs in the nest of a particularly protective mother had to first lift her off the nest because she refused to abandon her eggs even momentarily.

McCown's Longspur

Calcarius mccownii

Conservation Need

While the population fluctuates considerably, it is down and the range has contracted since at least the early 1900s, probably because of loss of breeding and wintering habitat through fire exclusion, conversion of native prairie to cropland, and urbanization. They are a Species of Greatest Conservation Need in Nebraska, North Dakota and Wyoming.

Management recommendations

- Maintain populations of the principal insect prey species (especially grasshoppers) at levels compatible with economic activities on the land. Limit pesticide use.
- Graze at moderate to heavy intensity to improve McCown's Longspur habitat by reducing vegetation height and density.
- Graze in summer, rather than winter.
- Protect the area around known nest sites because some longspurs will return to nest in subsequent years.
- Limit shrub density close to known nest locations; maintain native shortgrass prairie because longspurs cannot nest successfully in croplands or in tall non-native grasses.
- Control non-native plants, including annual brome, leafy spurge, and knapweed, which do not provide the vegetation structure preferred by longspurs.
- Maintain prairie dog towns.

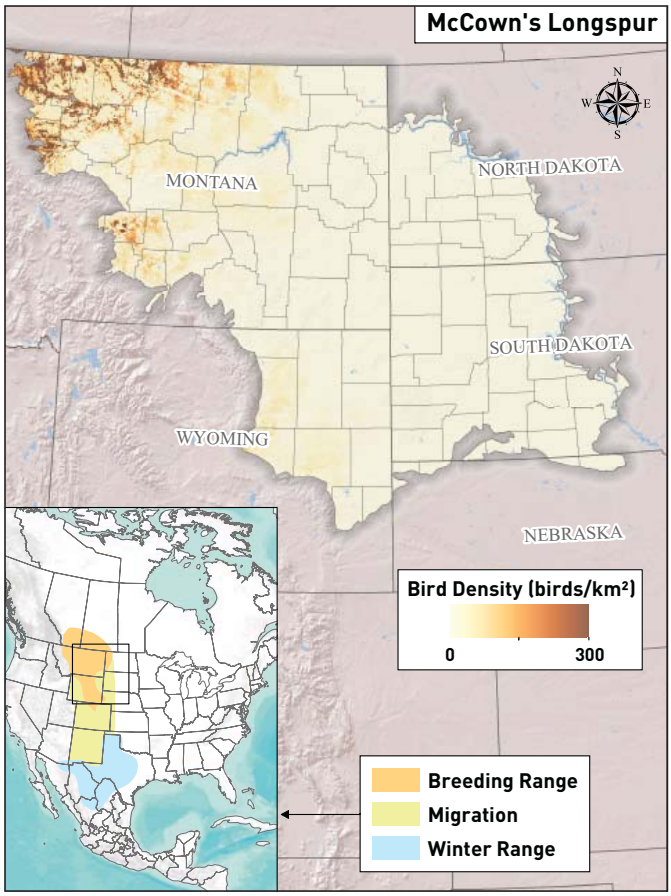
Female McCown's Longspur on nest. Photo by Denis Perez

Associated species

Other wildlife that may benefit from habitat management for McCown's Longspurs include Greater Short-horned Lizards, Mountain Plovers, Long-billed Curlews, Burrowing Owls and Horned Larks.

Diet

Seeds 70%, Invertebrates (mostly grasshoppers) 30%.



Lark Bunting

Calamospiza melanocorys

Identification

These birds are 6½ inches from the tip of the beak to the end of the tail. In summer, the males are black with bold white wing patches, while the females are mostly brown, with white wing patches, dark brown streaks on a white breast and cream-colored corners on the tail. Beginning in early spring, males fly up above their breeding territory, then slowly glide down across it while singing an exuberant song of whistles and trills. There are two songs, a primary song consisting of both whistles and trills, and an aggressive flight song, which has more pauses.

Habitat

Lark Buntings nest in open grasslands with a mixture of short and tall grasses and scattered shrubs, and in sagebrush shrublands with grassy openings. They prefer to nest in areas with 60–70 percent low grass cover and 10–15 percent bare ground. Also important is 10–30 percent cover of shrubs, tall grasses, or other plants taller than the blue grama and buffalograss (tall vegetation is necessary for protecting nests from the hot prairie sun). They will not nest in areas with less than 30 percent grass cover or more than 60 percent bare ground. Other nest sites include fallow fields with weeds and residual stubble, Conservation Reserve Program lands with tall grasses, and unmowed alfalfa and other hayfields, but they avoid mowed hayfields.

Natural history

Birds leave the wintering grounds in early March, arrive on their breeding grounds in April and May, and begin nesting in May and June. Young birds leave the nest during June and July. Migration to the winter grounds occurs by late September, although some birds may stay over the winter in the southern parts of their range. During migration, large flocks (sometimes hundreds) of Lark Buntings are often seen in weedy roadsides. Most of their food is picked off the ground, although they sometimes catch insects in flight.

Lark Bunting. Photo by Bill Schmoker

Nest

A cup of fine grasses often sunk into a slight depression in the soil. The inside diameter is about 2½ inches, with the rim at ground level, usually partially concealed with grasses or other vegetation. It is often placed next to a shrub or other tall vegetation. Neighboring nests are sometimes just 10–15 yards away.

Eggs

Usually 4 or 5 (but as few as 3 or as many as 7), ¾ –1 inches long, pale blue or greenish-blue, sometimes with reddish-brown spots.

Did you know?

In the 1800s and early 1900s, some farmers waited for the arrival of Lark Buntings each spring before planting, as the arrival of the birds generally coincided with more settled and favorable spring weather.

Lark Bunting

Calamospiza melanocorys

Conservation Need

Although the bird is common in some areas, it is declining significantly across its range. Ornithologists first began reporting a steady shrinkage of the breeding range and population declines in the 1800s, and the situation has not changed since. They are a Species of Greatest Conservation Need in North Dakota, South Dakota and Wyoming.

Management recommendations

- Avoid heavy summer grazing of shortgrass on the breeding grounds. This removes grass and forb cover needed by prey (especially grasshoppers) and taller vegetation needed to shade nests.
- Graze shortgrass lightly in summer or heavily in winter.
- Graze at moderate to heavy intensity in the northern and eastern parts of the species' range where grasses are taller (12 inches or more) to improve Lark Bunting habitat by reducing vegetation height and density.
- Use short-term rotational grazing rather than long-term grazing in shortgrass prairie to maintain the tall vegetation these birds need.
- Delay mowing until mid-July, when young birds should be out of their nests.
- Use a flush bar or similar device if you must mow earlier than mid-July (see Conservation Tools section).
- Retain shrubs, cacti, and other tall vegetation, which are needed by Lark Buntings for perching and for shading nests.
- Preserve the taller, weedy vegetation found along fence rows as habitat for migrating buntings.

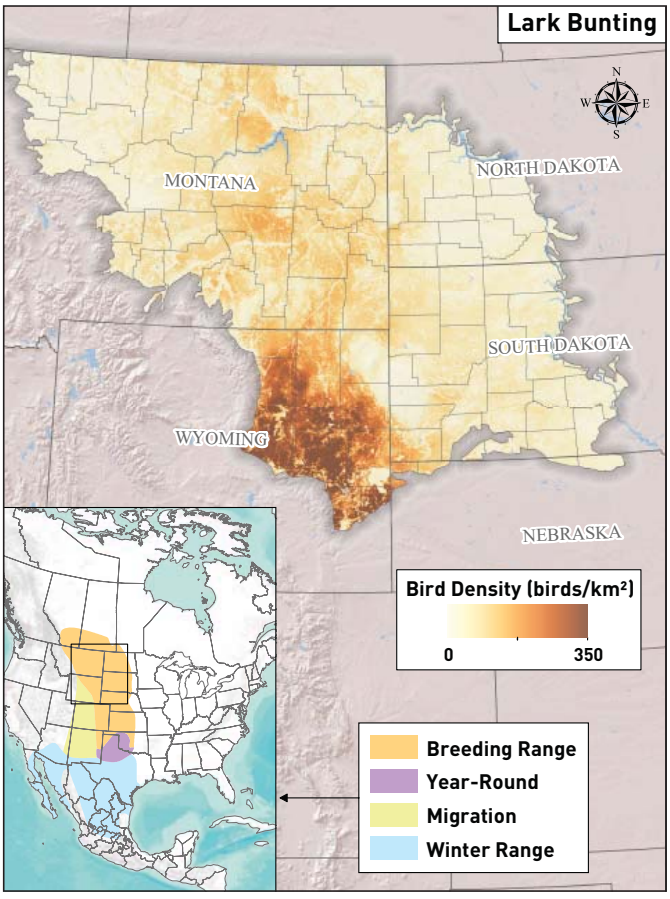
Associated species

Other species that may benefit from habitat management for Lark Buntings include Swift Fox, Western Meadowlark and Chestnut-collared Longspur.

Diet

Invertebrates (mostly grasshoppers) 60%, seeds 40%.

Lark Bunting chicks in nest. Photo by Amber Carver



Grasshopper Sparrow

Ammodramus savannarum

Identification

Grasshopper Sparrows are 4–5 inches long. They have a flat, stockier head and orange-yellow lores extending thinly over and behind the eyes. The back is chestnut and gray with some dark brown markings. The throat is white or off-white. There is a buffy tinge on the breast and sides with faint brown streaking, and a plain white belly. The males sing an insect-like buzz—the origin of the bird's name. When approached by a human, Grasshopper Sparrows often run along the ground rather than fly.

Habitat

Grasshopper Sparrows are found in most types of grassland, especially tallgrass and mixed-grass prairies, but also shortgrass, especially where scattered shrubs, trees, or other tall plants are present, and in Conservation Reserve Program lands, which provide the only suitable habitat in some parts of the shortgrass prairie. In addition to native grasslands, they will nest in fallow fields with tall weeds. Grasshopper Sparrows require some areas of bare ground, up to 35 percent of their territory, since they forage on the ground. In general, they prefer large tracts of grassland where much of the vegetation is at least 4 inches tall. These birds are highly territorial and prefer areas with tall forbs or scattered trees or shrubs to use as singing perches. However, they avoid areas with more than 35 percent shrub cover.

Natural history

Birds start leaving the wintering grounds as early as March. Nesting begins in May and June, and most young are out of their nests by the end of July. Most birds have migrated off the breeding grounds by late September. Grasshopper Sparrows sometimes nest close together, and populations in a particular location can vary widely from year to year, as the birds move around in response to changes in their habitat.

Grasshopper Sparrow. Photo by Alan Schmierer (Flickr Creative Commons)

Nest

A simple cup on the ground, made of grasses, and usually partly domed with a side entrance. It is often at the base of grass clumps or other dense vegetation. The nest is concealed by overhanging vegetation.

Eggs

Usually 4 or 5 (sometimes 3 or 6) eggs, ¾ inches long, white with reddish-brown blotches heaviest on the large end.

Did you know?

Grasshopper Sparrow singing is unusual in the bird world: the males sing two completely different songs (one is the insect-like buzz, the other more musical), and the females sing a trill to attract males.

Conservation Need

Like several other grassland bird species, Grasshopper Sparrow populations are declining wherever they are found. Causes include loss of habitat by urbanization, conversion of native grassland to cropland, and overgrazing. They are not a species of concern in NGP state wildlife action plans.

Grasshopper Sparrow

Ammodramus savannarum

Management recommendations

- Provide pastures and grassland parcels of at least 30 acres because Grasshopper Sparrows prefer large tracts of suitable habitat. Nests in smaller tracts are more likely to be found and destroyed by predators.
- Avoid grazing shortgrass, or delay grazing until after the end of nesting (the end of July), because the grazed vegetation often becomes too short and sparse to suit Grasshopper Sparrows.
- Graze tall grass light or moderately.
- Delay mowing until after the end of July to avoid destroying nests.
- Use a flush bar or similar device if you must mow before mid-July (see Conservation Tools section).
- If pastures of shortgrass prairie are burned, they should be burned at relatively long intervals (>8 years), as the tall vegetation and shrubs needed by Grasshopper Sparrows take several years to reach heights suitable for the birds.

Associated species

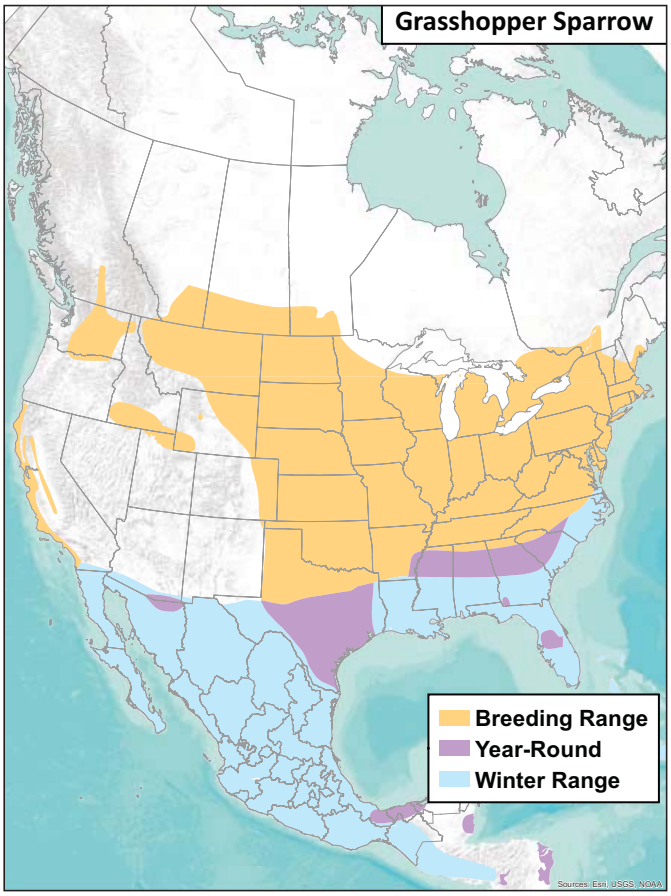
Other wildlife that may benefit from habitat management for Grasshopper Sparrows include Ring-necked Pheasants, Greater and Lesser Prairie-Chickens, Upland Sandpipers, Vesper Sparrows and Western Meadowlarks.

Diet

Invertebrates (mostly grasshoppers) 61%, Seeds 39%.

Grasshopper Sparrow nest and eggs.

Grasshopper Sparrow singing. Photo by Dover Images.



Baird's Sparrow

Ammodramus bairdii

Identification

The Baird's Sparrow measures about 4 – 5 inches from beak to tail with buffy, blackish streaking on the back as well as a narrow buffy band of streaks along the white breast. Adults have yellowish tints on the face and broad, central stripes on the crown. The tail is slightly notched. They often run along the ground rather than fly. Baird's Sparrows are usually identified by their distinctive song, consisting of three short notes followed by a trill.

Habitat

Baird's Sparrows are found in open mixed-grass prairie with abundant medium to tall grasses, high, patchy forb coverage, and moderate amounts of litter. They generally avoid nesting in areas of short grass, such as heavily grazed pastures, as well as cropland. They also tend to avoid nesting in sites with high shrub cover and woody vegetation; however, Baird's Sparrows will use available shrubs as singing perches.

Breeding pairs tend to establish territories in areas dominated by native vegetation that is left idle, but can also be found in dense stands of grass within seeded pasture and hayland, indicating that they may benefit from programs that convert cropland to perennial vegetation. Research shows that nesting success is higher in grassland patches of at least 155 acres. Baird's Sparrows may shift their nesting locations each year, depending on the amount of precipitation and its effect on vegetation growth.

Natural history

Birds leave the wintering grounds as early as March. Nesting begins in late May and continues until mid-August. Pairs sometimes nest near other pairs. They are partially nomadic, with breeding populations changing geographically from year-to-year. The birds begin leaving for the wintering grounds in August (but some linger until October), with the first migrants arriving on the wintering grounds by mid-August.

Baird's Sparrow. Photo by Alan Schmierer (Flickr Creative Commons)

Nest

A shallow open cup of weeds and grasses, on the ground in a slight depression or built into the base of dense grass or herbaceous vegetation. Nests are often well-hidden by overhanging vegetation.

Eggs

3–5 (sometimes 6) eggs, ¾ inches long, white-gray colored with reddish brown speckle, often covering the entire egg.

Did you know?

Each spring, male Baird's Sparrows battle for prime territories. An early naturalist described the battles: "Rival males leap up from the concealing grass like jack-in-the-boxes, face to face, wings pumping rapidly and claws raking wildly." This continues for several days until the males sort out ownership of the territories, which average 1 or 2 acres in size.

Baird's Sparrow

Ammodramus bairdii

Conservation Need

Once considered common, the Baird's Sparrows have all but disappeared from some areas where they were formerly abundant. Declines are probably due to habitat loss, including conversion of native prairie to cropland, overgrazing, loss of large grassland patches, and replacement of native grasses with non-native (especially smooth brome). They are sensitive to disturbances on the breeding grounds, and will sometimes abandon them in response to mowing or grazing. They are Species of Greatest Conservation Need in Nebraska, North Dakota and South Dakota.

Management recommendations

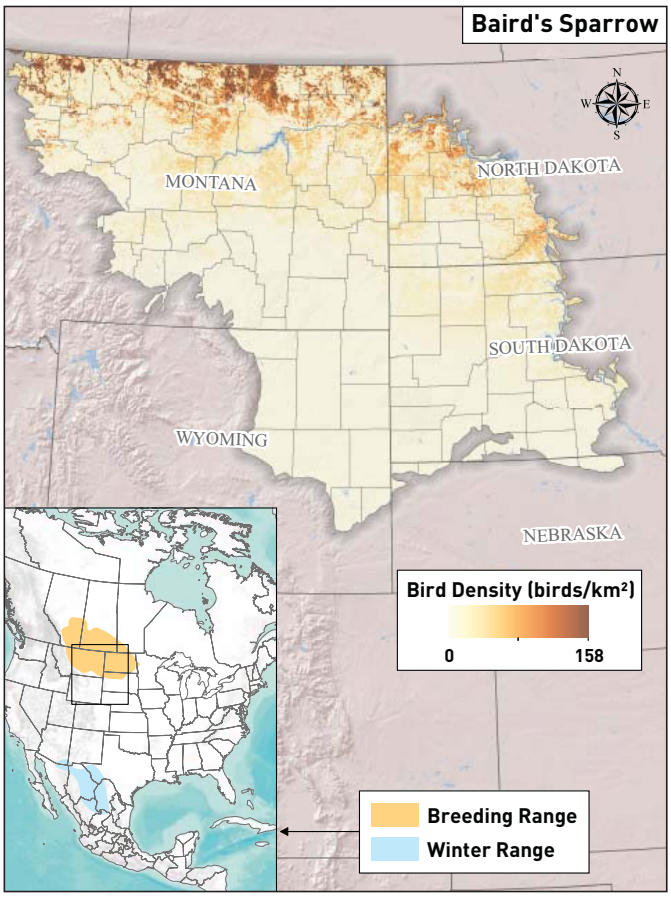
- Protect large tracts of native grasslands and maintain vegetative diversity.
- Graze lightly or for short duration. Heavy or continuous grazing can remove too much cover, especially where grass cover is already short and sparse.
- Graze native pastures in fall or winter, and tame pastures in winter or spring.
- Rejuvenate dense grasses by burning every 8-10 years, or longer if necessary, to allow litter to accumulate between burns.
- Delay mowing until early-August to allow the birds to complete their nesting cycle.
- Use a flush bar or similar device if you must mow before mid-August.
- Retain fairly dense residual cover preferred for nesting.
- Control invasive plants and prevent encroachment of woody vegetation by burning or mechanical removal.
- Control rather than eradicate populations of the insect species (grasshopper) at levels that are compatible with economic activities.

Associated species

Other birds that may benefit from habitat management for Baird's Sparrows include Upland Sandpipers, Sprague's Pipits, Savannah Sparrows, Grasshopper Sparrows, Chestnut-collared Longspurs and Western Meadowlarks.

Diet

Invertebrates 75%, Seeds 25%.



Western Meadowlark

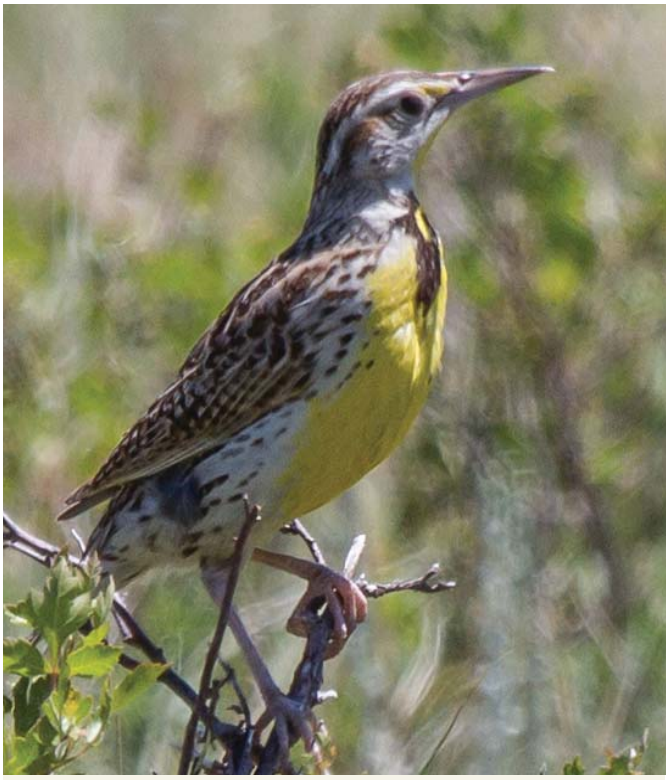
Sturnella neglecta

Identification

They are a medium-sized bird (7½ – 9.5 inches) with a long slender bill, short tail and long legs and toes. They are black and brown on the back and wings, have a yellow throat, breast and belly with a black "V" on the breast. Their head is dark with a light median stripe and light stripes over eyes, becoming more yellow towards the bill.

Habitat

Western Meadowlarks use a variety of grassland types from shrub steppe and shortgrass to mixed-grass and tallgrass prairie, with high forb and grass cover, low to moderate litter cover, and little or no woody cover. They do avoid extremely sparse or tall cover and generally have a higher occurrence in bigger patches with less woody or suburban edges. They are also found in a variety of habitats including idle native and tame grasslands, pastures, hayland, field edges, cropland, wet meadows, pine foothills, windbreaks and riparian areas.



Western Meadowlark. Photo by Alan Schmierer (Flickr Creative Commons)

Natural history

Western Meadowlarks arrive on their breeding groups from mid-February to mid-May. Second nests and broods in the same summer are common. Males and females both exhibit site fidelity – they return to the same breeding territory year after year. They migrate south from mid-October to mid-November. In the southern part of their range, some will overwinter.

Nest

Often in a shallow depression, grasses, stems and fine bark are interwoven and attached to surrounding vegetation and usually partially roofed with a runway extending from the nest entrance.

Eggs

Typically 5-6 (sometimes 3-7) eggs, 1 inch long, muted white and speckled different shades of brown over entire surface.

Did you know?

In 1914, California grain growers initiated one of the earliest studies of the Western Meadowlark's diet to determine whether the bird could be designated as a pest species. Although they do eat grain, Western Meadowlarks also help limit a number of crop-damaging insects.

Conservation Need

Breeding populations are declining in North America, but populations in north and central states appears to be stable, likely due to amounts of remaining native grassland. They are a Species of Greatest Conservation Need in North Dakota.

Western Meadowlark

Sturnella neglecta

Management recommendations

- Protect large, native grassland areas.
- Provide a mosaic of successional stages by treating (burn, graze, mow) portions of a large area on a rotational schedule.
- Control encroaching woody species.
- Mow hayfields after mid-July.
- Undercut wheat stubble in spring instead of using surface tillage to avoid destroying nests.
- Minimize pest management; use rapidly degrading chemicals of low toxicity only when necessary.

Associated species

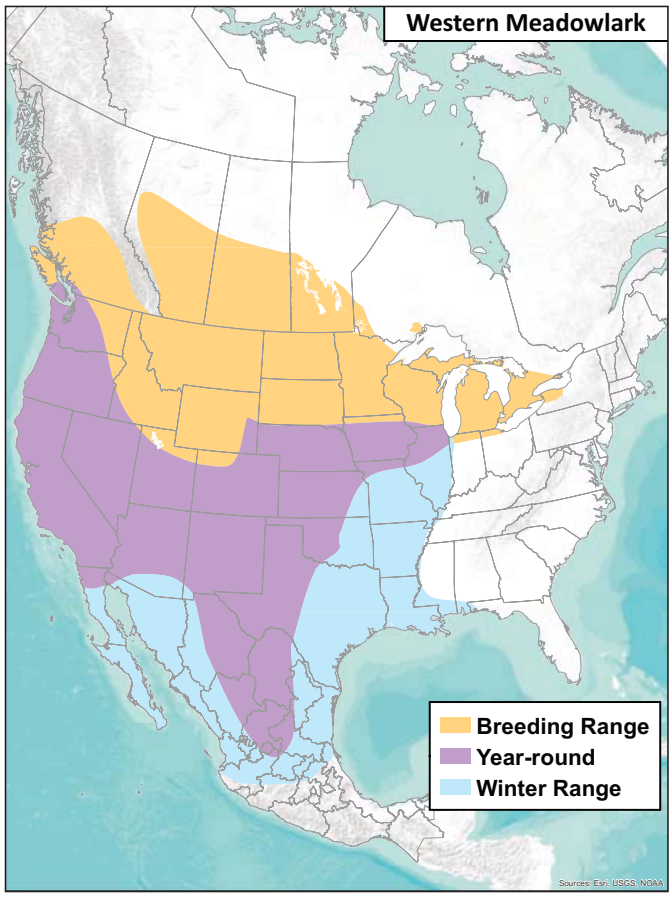
Other birds that may benefit from habitat management for Western Meadowlark include Upland Sandpipers, Sprague's Pipits, Savannah Sparrows, Grasshopper Sparrows and Chestnut-collared Longspurs.

Diet

Insects (beetles, weevils, grasshoppers, crickets) 80%, Seeds (20%).

Western Meadowlark singing. Photo by Michelle Desrosiers

Western Meadowlark eggs in nest. Photo by Tom Koerner, U.S. Fish & Wildlife Service (Flickr Creative Commons)



Conservation Tools

Stock Tank Escape Ladder for Wildlife

Research shows that wildlife escape ladders are an effective way to reduce the threat of birds and other animals drowning in stock tanks. This not only helps wildlife, but also prevents livestock water sources from becoming polluted and unusable.

Build your own

Stock tank ladders can be made using inexpensive materials. The design shown here meets requirements for NRCS practice standard number 614 for Watering Facility which requires installation of a wildlife escape ladders.

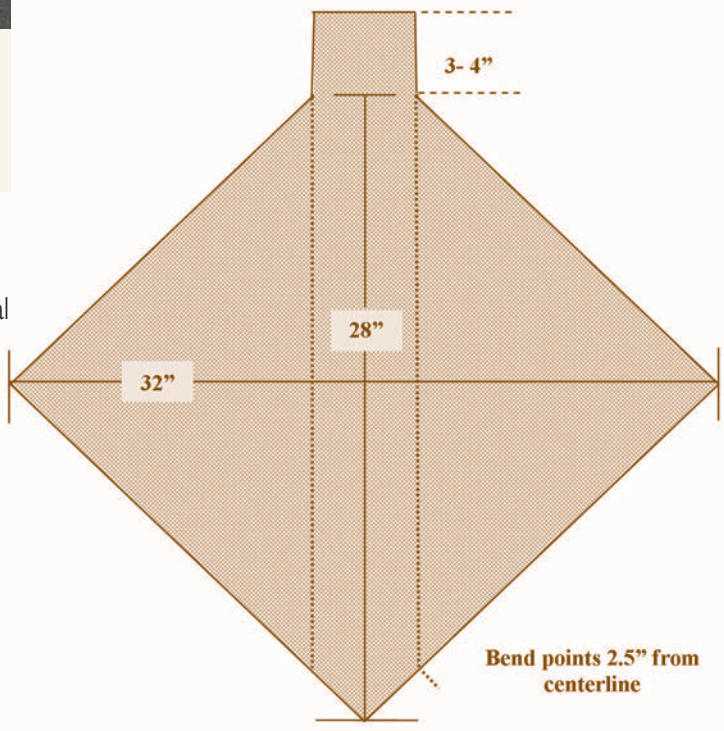
The ramp hugs the sides of the tank vertically, making it easier for the animal to find the ramp. Designs without this result in the trapped animal swimming along the perimeter of the tank, passing underneath it until exhausted and eventually drowning.

The ramp is diamond shaped where the length is 28 inches and the "wings" to be bent down are 32 inches across. The ramp is made of 14-gauge expanded metal with ¾ inch mesh. A pattern can be made from sheet metal, which is clamped on the expanded metal and used as a template for cutting. One 4'x10' sheet of expanded metal will yield six ladders.

After cutting out the design with a cutting torch, the metal is bent with a metal brake 4 inches between bends to make the sloped side or "wings" for the ramp. A 3⁄16 inch rod can be used to form the hangers for round rim and rimless tanks or use a bolt, washer and nut to secure the ladder to the tank.

Dead Red-tailed Hawk and
Western Meadowlark in stock tank.

Another option for hanging is to leave a ¾ inch tail on your diamond-shaped cutout making it more kite-shaped (see diagram below). After bending the wings, bend the tail in a half-circle and use it as a hanger. The ladders can be painted or dipped with a neutral color farm implement paint to prevent rusting.



Conservation Tools

Ferruginous Hawk Nest Platform and Tree Crib

Got hawks?

It is important to recognize that, historically, the Ferruginous Hawk preferred to nest on the ground using bison bones and large sticks to construct a nest. Now, however, about half of all Ferruginous Hawk nests are located in trees and shrubs. Most of these trees were planted during the homesteading days and are now old and dying. We recognize that trees were not as prominent in the past on the shortgrass prairie but are important today for nesting Ferruginous Hawks. Discretion must be used when constructing a nest platform for the Ferruginous Hawk in the prairie, and platforms alone will not bring Ferruginous Hawks to your property.

Ferruginous Hawk Nest Platform

Where appropriate, platforms are useful tools to assist in Ferruginous Hawk conservation. They provide hawks with additional nesting sites if natural sites are limited. Nest "cribs" (pictured below) provide protection from livestock rubbing up against a tree or platform pole.

Before constructing a nest platform, evaluate:

1. Records of Ferruginous Hawks on your property. Historical and current records of nesting Ferruginous Hawks are a good indicator that you have suitable habitat.
2. Disturbance near the nest platform. Hawks are sensitive to disturbance and have been known to abandon nests when a prolonged disturbance (e.g., construction) is within a mile.
3. Availability of prey. Small mammals are the primary prey items of the Ferruginous Hawk. Habitat to maintain populations of these animals must be available to provide a food supply during the breeding season.
4. Condition of current nest tree.

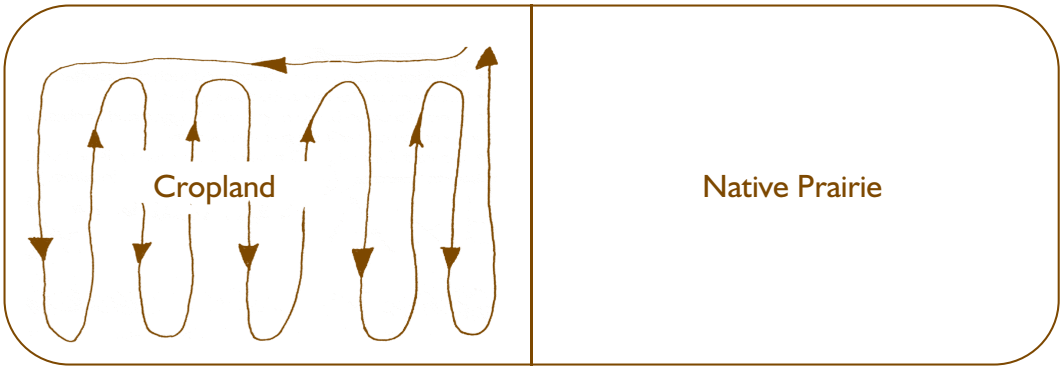
Tree crib

Conservation Tools

Mowing and Flush Bars

Mowing Technique

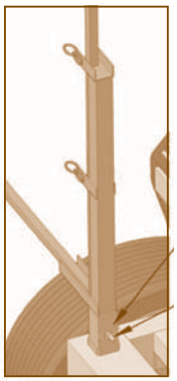
During harvest, reduce your machine's speed and use a cutting pattern that gives birds a chance to escape from the cutting device. The most effective technique is to start from the edge of the plot and use a back-and-forth pattern to push birds toward uncut areas, such as native prairie. The birds will use the standing cover for concealment until they reach the native prairie.



Flush Bars

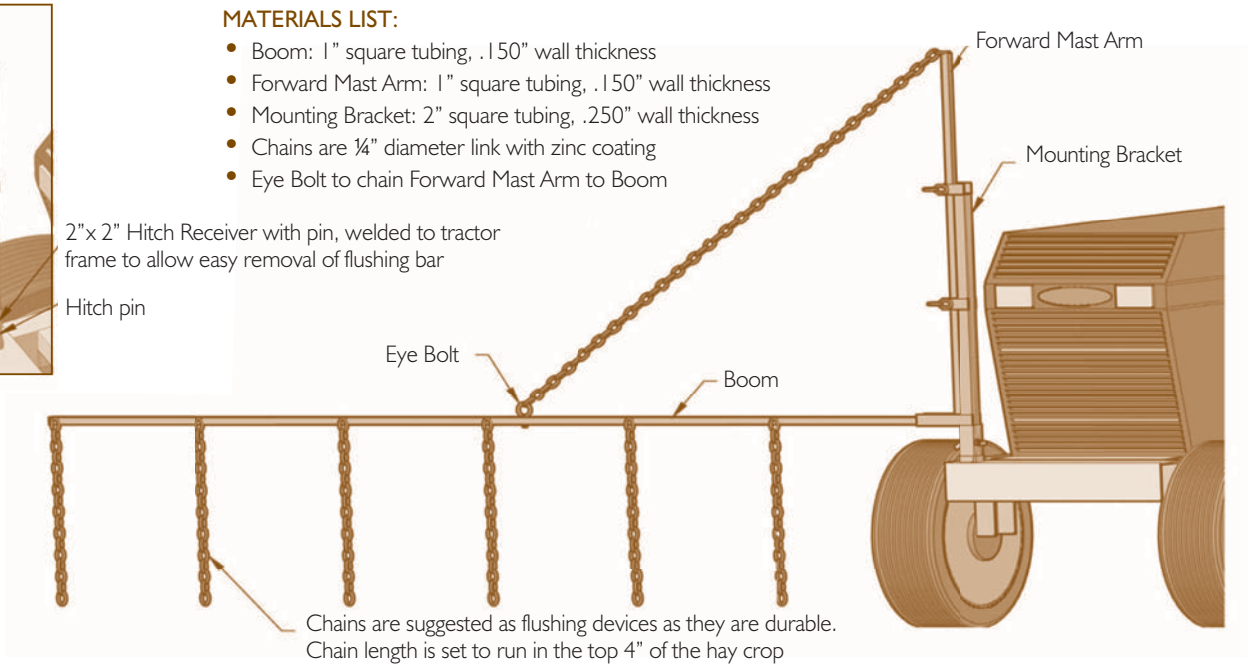
Flushing bars mounted on the front/side of mowing devices can reduce the number of birds killed when harvesting a field. The photo at right shows a flushing bar connected to a self-propelled hay mower. The diagram below, from "NRCS ANM10 Flush Bars" shows how to make your own side-mounted flush bar. Visit the NRCS website (www.nrcs.usda.gov) for supplemental information specific to your state.

Photo courtesy Ducks Unlimited Canada



MATERIALS LIST:

- Boom: 1" square tubing, .150" wall thickness
- Forward Mast Arm: 1" square tubing, .150" wall thickness
- Mounting Bracket: 2" square tubing, .250" wall thickness
- Chains are ¼" diameter link with zinc coating
- Eye Bolt to chain Forward Mast Arm to Boom



Bird Conservancy of the Rockies

Connecting People, Birds and Land

Mission and Vision

We believe the world needs birds, and envision a future where birds are forever abundant, contributing to healthy landscapes and inspiring human curiosity and love of nature. It is the mission of Bird Conservancy of the Rockies to conserve birds and their habitats through an integrated approach of science, education and land stewardship. Our work radiates from the Rockies to the Great Plains, Mexico and beyond.

Our Goals

- Guide conservation action where it is needed most by conducting scientifically rigorous monitoring and research on birds and their habitats within the context of their full annual cycle.
- Inspire conservation action in people by developing relationships through community outreach and science-based, experiential education programs.
- Contribute to bird population viability and help sustain working lands by partnering with landowners and managers to enhance wildlife habitat.
- Promote conservation and inform land management decisions by disseminating scientific knowledge and developing tools and recommendations.

Biologist discussing research with a landowner. Photo by Seth Gallagher.

Our Approach

Our work is advanced through sound science, achieved by empowering people, realized through stewardship, and sustained through partnerships.

This multi-disciplinary approach guides our actions, whether the focus is thousands of acres or one small child. Together, we are improving native bird populations, the land and the lives of people.

Technician conducting a survey for birds.

Science

The Science team conducts scientifically rigorous monitoring and research to better understand bird populations. Data collected from the monitoring and research programs directly inform conservation and management actions via maps, habitat guidelines, manuals, web-based applications, and other tools.

Monitoring is necessary to track changes in bird populations and to provide an understanding of how management actions or natural disturbances affect populations. This information is especially important for species of conservation concern. Bird Conservancy of the Rockies began monitoring bird populations with the Integrated Monitoring in Bird Conservation Regions (IMBCR) program in 2008, and has since expanded across the western U.S. and Great Plains.

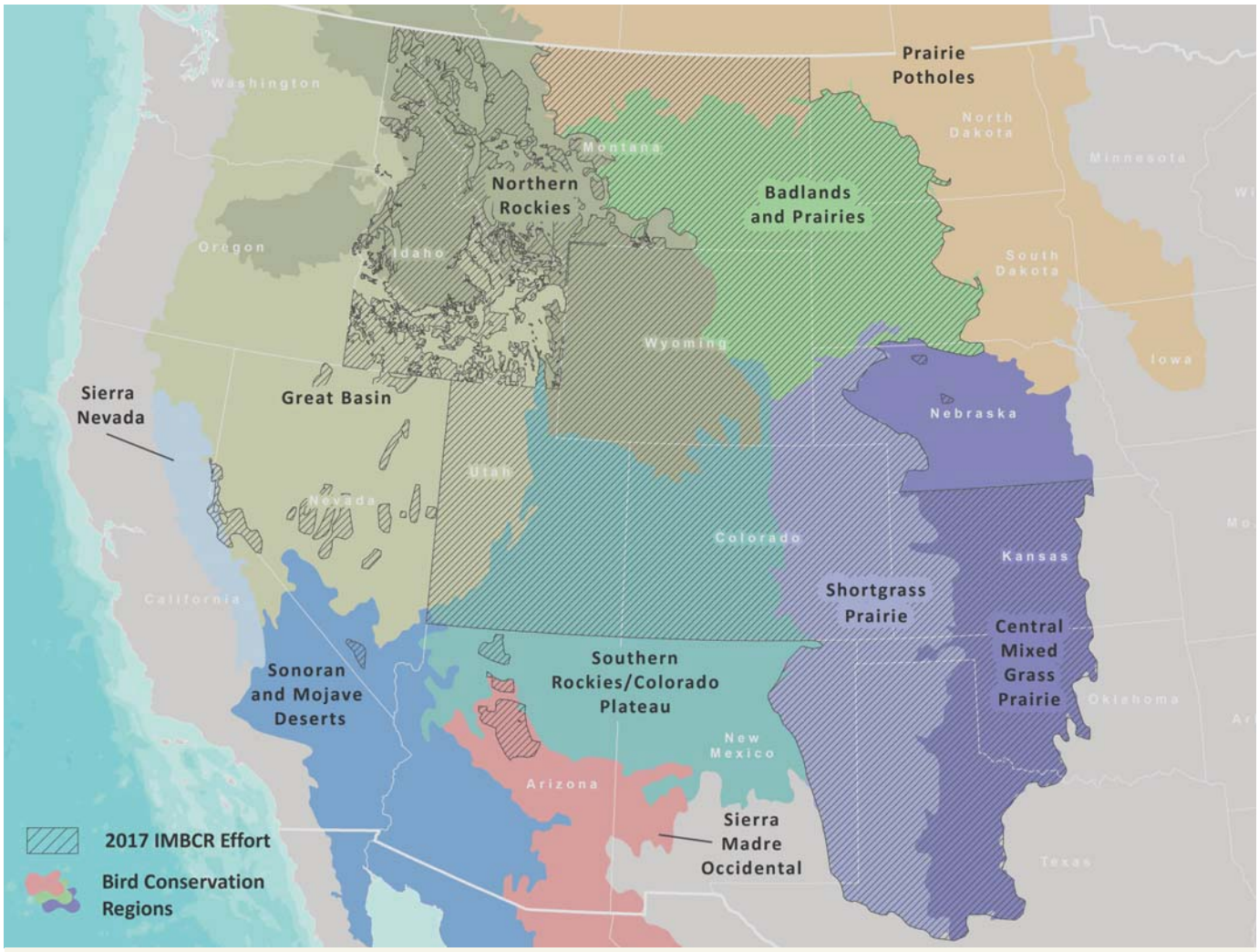


Fig. 5: Coverage of the Integrated Monitoring in Bird Conservation Regions (IMBCR) as of 2017 across multiple Bird Conservation Regions

Each spring and summer, biologists and technicians survey birds on private and public land using standardized protocol. They also collect data on habitat, such as percent ground cover and average height of the understory, at each survey location.

The IMBCR program is based on a rigorous design with random sampling on both public and private land. Estimates of bird abundance are available at large scales, like states and Bird Conservation Regions or for smaller areas of interest, such as National Forests or Grasslands. The IMBCR program is a large, collaborative effort with many partners, and provides information to assist partners in making management decisions.

The data collected through IMBCR can be used in a variety of ways to inform management and conservation decisions.

Some examples include:

- Comparing bird populations in smaller management units to larger regions for context,
- Looking at bird population trends over time and investigate factors of population change, such as fire or climate,
- Associating bird abundance with vegetation and predict how a species may respond to changes in habitat, like shrub density or grass height,
- Create predictive distribution maps to determine areas for conservation versus restoration (see Sprague's Pipit, Chestnut-collared Longspur, McCown's Longspur, Lark Bunting, and Baird's Sparrow species accounts in this guide),
- Evaluating the effectiveness of conservation practices, such as easements or targeted grazing, for promoting bird populations.

Stewardship

Our Stewardship programs span both public and private land, recognizing that producers (i.e., farmers and ranchers) play a vital role in providing habitat for birds and other wildlife, as well as food and other resources for people.

Mountain Plover love to nest on working lands.

We believe healthy wildlife habitat and healthy human communities can more than just co-exist – they can thrive with proper management and stewardship. Our biologists and rangeland ecologists work alongside private landowners, land managers and resource professionals in local communities to build trust and foster proactive, voluntary conservation efforts.

Providing technical support, tools and other resources to help landowners meet operational and conservation objectives.

Our biologists can help landowners:

- Find funding support through the Farm Bill or other programs to help ensure projects address regional resource concerns,
- Develop grazing management plans to meet the needs of wildlife without compromising the profitability of working lands,
- Develop projects that address other resource concerns including invasive species, wetland and riparian health, and native species restoration.

Bird Conservancy's outreach efforts include workshops, presentations, landowner visits, bird inventories, and the distribution of educational materials. Our collaborative, consistent approach and presence in local communities has proven effective at helping forge lasting relationships between private landowners and state, federal and private conservation entities.

Conservation on private lands helps deliver win-win outcomes and solutions for people, birds and business from the Rockies to the Great Plains, Mexico and beyond.

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