

# Long-billed Curlew Conservation Strategies for the Mission Valley, Montana



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This *Conservation Strategies* guide is designed for land managers and conservationists interested in providing and enhancing habitat for Long-billed Curlews in the Mission Valley, Montana. This is part of a larger collaborative effort, **The Long-billed Curlew Initiative**, started by the [Montana Bird Conservation Partnership](#) (MBCP) to enhance curlew numbers and provide for healthier, more resilient grassland ecosystems across Montana. Our goal is to focus conservation action in key grasslands and agricultural lands using management techniques that are beneficial for landowners and for maintaining habitats for curlews and other grassland birds. Much of this guide is taken from a larger report developed by Dan Casey (see “Addition Information” for link to full report).

Effective conservation of the Long-billed Curlew will require continued collaborative efforts of agency personnel, tribal land managers, NGOs, landowners, and citizen scientists to ensure that important breeding sites and habitats are identified and managed to meet the habitat needs of the species. Please help contribute sightings (especially nesting locations), success stories, and information learned so we can make sound adaptive management decisions. This document is designed to be updated as new information and strategies come to the fore. Please contact the authors if you have suggestions, relevant data, or ideas for distribution. Montana Audubon hosts a [webpage](#) where you can download this Strategy Guide, and here you can also find our Long-billed Curlew tri-fold brochure to share with landowners, ways to submit sightings of curlews, and more.

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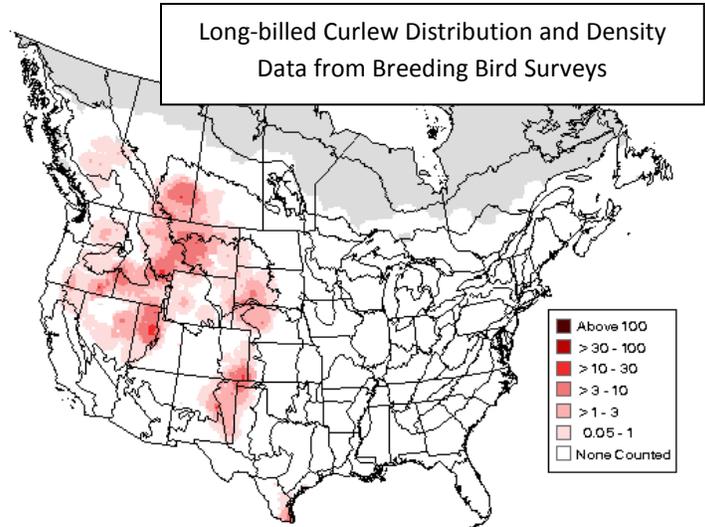
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*Looking for Curlews in the Mission Valley*

## Background

The Long-billed Curlew (*Numenius americanus*) is known to breed in the Mission Valley and surrounding grasslands. Across its range Curlew populations have declined throughout much of their range due to conversion of native grasslands to other habitat types. Long-billed Curlews currently breed from Texas to central British Columbia, and from Nebraska to California, reaching their highest relative abundance in those parts of their range with intact grassland landscapes. Recent Breeding Bird Survey (BBS) data indicate a significant downward trend for North America as a whole. Because of these trends and concerns, the Long-billed Curlew is on ABC and Audubon's Watch List, as a U.S. Fish and Wildlife Bird of Conservation Concern, is considered a sensitive species by the BLM, and a species of concern for the State of Montana (S3B). Habitat conversion has been a primary factor in these declines, especially across the Great Plains, as native grassland habitats have been converted to cropland. Urban/suburban growth and energy development have also replaced, altered, and fragmented habitat.



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***Perhaps the single biggest opportunity to stem the tide of continued Long-billed Curlew population declines is to prevent the further plowing of native prairie wherever it occurs within the species' range.***

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This document recommends habitat protection, enhancement, and management actions to benefit curlews and the habitats they depend on. Activities that enhance native grasslands within this species range can maintain and perhaps even boost curlew densities. Most curlews are detected in grasslands with short grasses and pastures, and these short grass habitats appear to be necessary for nesting. Well-managed livestock grazing can be compatible with, and in some cases benefit, this species' habitat needs. Some agriculture such as flood-irrigated or sub-irrigated hayfields can provide seasonal feeding areas for curlews. Care will need to be taken to better understand how conservation practices to enhance curlew numbers affect other grassland bird species and wildlife to ensure that such recommendations are made in light of varying habitat needs across a suite of species. Thus we suggest ongoing monitoring and encourage land owners and citizen scientists to report curlew sightings and any nests found and for land managers to relay back results of efforts in the Mission Valley area so we can employ Adaptive Management in the future.

## HABITATS

Across its North American Range, the Curlew is species of the prairie grassland. During their rangewide breeding season surveys in support of the USFWS 2009 status assessment, Saalfeld et al (2010) detected most curlews in shortgrass prairie (52%) and pasture grasslands (37%), finding negative correlations with coniferous forest and scrub-shrub, but positive correlations with wetland presence at landscape scales (Saalfeld et al. 2010).

Dechant et al (1999) provide a thorough summary of the rangewide variation in habitat selection by curlews. Virtually all studies of have indicated that relatively short graminoid vegetation is among the key habitat variables selected by nesting curlews. Changes in vegetation height resulting from grazing, mowing, fertilization, and moisture (precipitation or irrigation) can all influence habitat selection and curlew nest success (Bicak et al. 1982, Redmond and Jenni 1986, Paton and Dalton 1994). Preferred grass heights have been described variously across the range as from <10 cm (Bicak et al 1982) to <30 cm (Pampush 1980). They also seem to require bare ground elements, some (though sparse) additional tall forb or shrub cover. Though they do nest in some areas far from permanent water sources, areas within 1-3 km of wetlands (playas, potholes, wet meadows) are preferred. As noted by Fellows and Jones (2009), habitat relationships vary widely enough across the range of the species, and herein we focus on what is preferred for this species in western Montana.

**Grasslands.** Curlews nest in a wide variety of native and non-native grassland habitats. Historically, Long-billed Curlews responded to the grassland habitat conditions provided under grazing by bison, prairie dogs and other ground squirrels, and relatively frequent fire. Because of their preference for relatively short (10-30 cm or less) and relatively sparse grass for nesting, they will often nest on sites grazed by livestock. While this means that they can be compatible with working rangelands, the timing and intensity of grazing can affect both habitat suitability and nest success. Within the low, sparse relatively level grasslands they prefer, curlews often select sites for nesting with slightly taller vegetation, more cover, and slightly elevated with respect to the surrounding area (e.g., hummocks).

**Wetlands.** Though they are highly reliant on wetlands during migration periods and during winter throughout much of their range, studies have varied widely on the importance of wetland habitats to Long-billed Curlews during the breeding season. Only one study (Faanes and Lingle 1995) indicated that curlews nested in higher densities in wet meadow than in upland prairie. Several authors have suggested that preferred nesting habitats must be within 1-3km of wetlands, and yet in many parts of the breeding range the only wetlands are ephemeral (e.g. playas), and the birds are apparently well adapted to cope with drier periods. Still, we can generally assume that the highest quality nesting landscapes do include wetland elements.

**Agriculture.** Curlews have been documented using a wide variety of agricultural habitats during the breeding season, with a likely preference for the fields most similar to native grasslands. Both native and non-native pastures, dry or irrigated, may be used for nesting, particularly where fields have not been leveled for planting. Hay meadows are often used for feeding but less so for nesting. Cropland, fallow and stubble are used rarely for nesting and variably for feeding. Flood (or sub-) irrigated fields can provide feeding opportunities for adults and newly hatched broods. Presently, for this region, we do not know how breeding success in agriculture lands compares to that in native prairie, and we do not recommend additional replacement of grassland habitat with cropland agriculture.

**Shrub-steppe.** Curlews are known to nest in shrub-steppe habitats with low shrub densities, a dominance of grass in the understory, and an open ground component. They can be found in former shrub-steppe stands now dominated by cheatgrass. Efforts to eradicate cheatgrass and restore shrubs may be detrimental to some curlew populations, albeit beneficial to other wildlife species.



*Bob Martinka, photo*

## Needs and Opportunities

Habitat conversion and degradation is the primary reason Long-billed Curlew populations are declining. Farm Bill programs such as the Agricultural Lands Easement program can help limit further plowing of native prairie. The Conservation Reserve Program (CRP) is returning tilled croplands to grass cover however, the grass species planted are often too robust to provide curlew habitat. Program adjustments that encourage the use of native grasses inter-seeded with legumes and other forbs; or burning, mowing, light disking or controlled grazing, could benefit curlews and other grassland species reliant on shorter and more heterogeneous habitat structure. Other Farm Bill programs such as the Environmental Quality Incentive Program (EQIP) provide funding and technical assistance to landowners for rangeland enhancement and restoration to benefit wildlife. Continued funding for these programs is in question, so there is a need to find innovative ways to fund and continue such work.

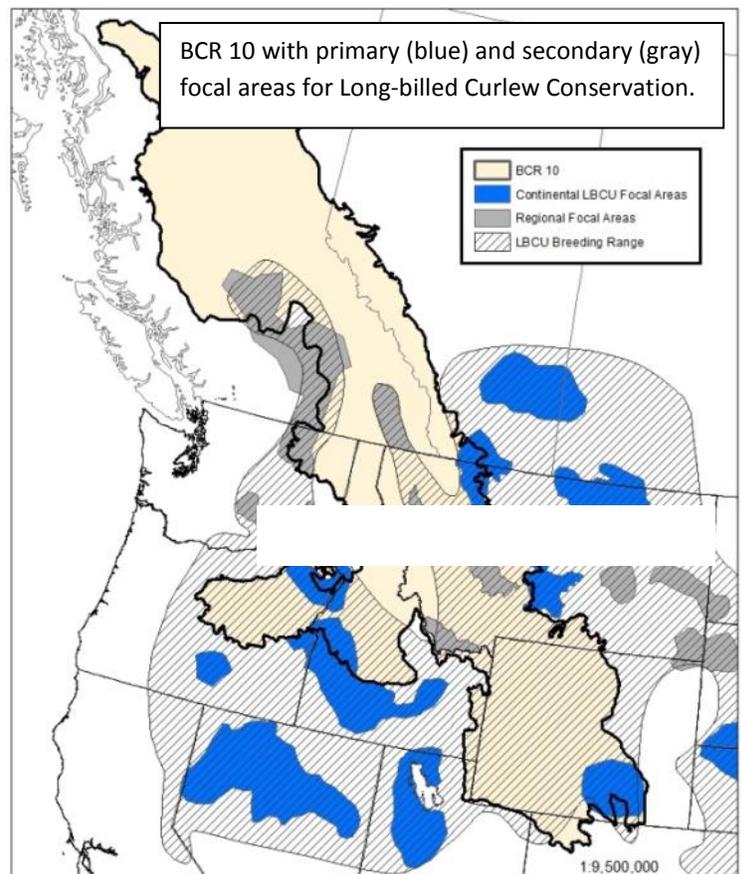
The protection of large blocks of native grasslands is a pressing conservation need for the species. Some curlew breeding habitats become unsuitable when roads, buildings, energy developments and other factors reduce the size of habitat patches. Work in Idaho indicated a minimum patch size of about 120 acres (Redmond et al. 1981). Many government and non-government programs and organizations focus on long-term stewardship agreements, conservation easements, and acquisition of important habitat blocks. These tools can prevent habitat conversion and could put more focus on the largest and highest quality blocks occupied by curlews. Tools to identify those blocks could include the identification of focal areas, analysis of stewardship, and the incorporation of citizen science (including landowners and managers themselves) to identify occupied areas.

## Land Management Recommendations

Preferred management prescriptions will preserve or create large blocks of low-structure grassland (for nesting) mixed with, or in proximity to, wetlands or moister meadow habitats (for feeding and brood-rearing). Grazing should be managed to provide cover levels compatible with the needs of curlews; grazing systems (particularly late summer, fall or winter) that leave grass 10-30 cm in height have the best potential for use by curlews. Where nesting curlews are present, disturbance should be avoided during the nesting season.

The foremost recommendation is to prevent conversion of upland prairie to cropland (Faanes and Lingle 1995). Breeding habitat should be protected from detrimental human activities, such as vehicular use, and shooting (Sugden 1933, Redmond and Jenni 1986). Ideally, curlews appear to need habitat areas greater than 100 acres with buffer strips 300-500 m wide around the edge (Redmond et al. 1981).

If appropriate for the goals of particular agricultural lands, curlews do best when most of the tall (over 15"), dense, residual vegetation is removed *before* the pre-laying period (March or April) so that adults



do not have to leave their territories to forage (Redmond 1986; R. L. Redmond, University of Montana, Missoula, Montana, pers. Comm.). Removal of residual vegetation is especially important after years of above-normal precipitation. Early season haying and grazing can be used to provide short vegetation preferred by nesting curlews (Cochran and Anderson 1987). The timing and intensity of grazing should be adjusted based on local environmental factors such as rainfall and soil productivity (Bicak et al. 1982, Cochran and Anderson 1987, Bock et al. 1993). Grazing during the incubation period should be avoided. Burning can be used with caution where fire will improve habitat by reducing shrub coverage and increasing habitat openness (Redmond and Jenni 1986, Pampush and Anthony 1993). Overall, consider these recommendations concomitantly with those of other grassland-dependent species.

## **Specific Best Management Practices**

The following set of recommended management actions and guidelines should be implemented wherever practicable and appropriate within the breeding range of the Long-billed Curlew in North America. They are adapted from Dechant et al (1999) and Cannings (1999), and are meant to also benefit other grassland species associated with native grassland habitats. In every case, these guidelines will be most effective if implemented on landscapes already known to be inhabited by breeding curlews; ideally implementation should be accompanied by local surveys to verify important nesting or brood rearing areas. The timing of breeding, appropriate stocking rates, seed mixes and opportunities will vary regionally, as well as by site.

The largest blocks of suitable/occupied curlew habitat should be targeted for long-term protection through fee-title purchase, conservation easement or management agreements. Those already in public ownership or stewardship need to be managed to provide the habitat conditions required by curlews.

Though they are highly reliant on native rangeland habitats, the Long-billed Curlew also uses multiple habitats on working lands, from pastures and hay meadows to certain cropland types. Land management prescriptions should account for meeting the needs of nesting curlews by providing a heterogeneous mixture of grass cover <30 cm (12") tall, bare ground, and native forbs, particularly in proximity to seasonally flooded meadows or wetlands. Cost-share and landowner incentive programs (e.g. NRCS conservation practices under EQIP and WHIP) should be used to encourage management toward these objectives. Land management plans of the BLM and other land management agencies should account for and incorporate these recommendations in their alternatives for public land management direction.

We present these as overall guidance to land managers across western Montana, but urge local partner cooperation and consultation during their implementation, ensuring that local expertise and other site management objectives are taken into account. For Long-billed Curlews in Montana, the approximate dates for phenological benchmarks are spring arrival (15 April), nest initiation (1 May), and fledging (15 July) (Fellows and Jones, 2009).

### **Halt Habitat Conversion**

- Prevent conversion of grassland or shrub-steppe, particularly in landscapes with wetland elements.
- Maintain or manage for grassland block sizes of >120 acres.
- Manage the forest fringe to minimize/reverse forest encroachment using slashing or other suitable method.



*Curlew nestling. B. Weber Photo*

### **Manage Grazing Appropriately**

We recommend developing a grazing management plan that yields good to excellent range conditions (as defined by NRCS). Appropriate grazing management should encourage the use of multiple pastures and include rotational grazing that will provide heterogeneity across the landscape, so that cumulatively good quality habitat will be available for the suite of grassland birds including curlews at any given time. Any one pasture may provide high quality habitat for curlews in a given year, but may not provide optimal curlew habitat in every year, dependent upon when grazing occurs in any given year. We suggest:

- Avoid grazing of high-use curlew areas during the incubation and nestling period, to avoid potential for trampling. Target dates: 15 April – 15 July.
- Encourage dragging of hayfields to break up cowpies only outside of the incubation and nesting periods (typical incubation and nesting periods: 15 April – 15 July).

### **Emphasize Native Grasses and Forbs**

- Burn areas only where and when fire intensity will reduce shrub coverage and increase habitat openness without reducing the diversity of native grass and forbs. Only in this region
- Avoid seeding with non-natives (e.g. crested wheatgrass).
- Use locally-appropriate native bunchgrass/forb seed mixes for restoration and revegetation efforts.
- Where necessary, manage taller non-native grass cover with grazing, mowing or fire to maintain low profile vegetation prior to the nesting season.
- Use grazing and other strategies (except herbicides) to minimize and manage invasive plant species

### **Avoid Disturbance during Sensitive Periods**

- Protect breeding habitat of curlews from detrimental human activities, such as vehicular use, construction activities, and shooting.
- Do not construct additional roads in occupied curlew habitat unless there is no other practicable option. Limit road use during the breeding season (March 15-July 15).

### **Adjust Certain Agricultural Practices**

- Reduce pesticide use on grasslands, especially near water, to maintain both terrestrial and aquatic invertebrates as a food source.
- Avoid widespread pesticide applications aimed at controlling grasshoppers.
- Reduce herbicide use to maintain nesting, loafing, and brood-rearing cover.
- Postpone tilling until at least mid-June in those agricultural habitats used for nesting.
- Whenever possible and practicable, favor flood-irrigation of hay meadows over sprinkler systems.

### **Additional Information:**

- **Conservation Strategies for the Long-billed Curlew:** Focal Areas, Desired Habitat Conditions and Best Management Practices. 2013. Dan Casey, American Bird Conservancy. [www.mtaudubon.org/issues/grasslands/curlew.html](http://www.mtaudubon.org/issues/grasslands/curlew.html) or from the author: dcasey@abcbird.org.
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