McCown's Longspur

Rhynchophanes mccownii

REGULATORY STATUS

USFWS: Migratory Bird
USFS R2: Sensitive
USFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Protected Bird

CONSERVATION RANKS

USFWS: Bird of Conservation Concern
WGFD: NSS4 (Bc), Tier II
WYNDD: G4, S3
Wyoming Contribution: VERY HIGH
IUCN: Least Concern
PIF Continental Concern Score: 13

STATUS AND RANK COMMENTS

McCown's Longspur (*Rhynchophanes mccownii*) has no additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

There are no recognized subspecies of McCown's Longspur [1, 2]. McCown's Longspur was included in the genus *Calcarius* with other longspur species until 2010. Genetic analysis showed enough differentiation to move the McCown's Longspur to its own genus, and it is monotypic within *Rhynchophanes* [1, 3, 4]. Hybridization with Chestnut-collared Longspur (*Calcarius ornatus*) is possible but apparently rare [5].

Description:

Identification of McCown's Longspur is possible in the field. Adults are similar in size to most sparrows: weight 23 g, length 15 cm, and wingspan 28 cm [1, 6]. The species is sexually dimorphic. Breeding males have a grayish appearance, with pale gray cheeks, nape, rump, and belly that may also be washed with black; black crown, malar stripe, and breast; white lores, eyebrows, and throat; brown streaked back and wings; and bold rufous wing bars. Breeding females have duller, browner plumage overall, with no black markings, less-pronounced wing bars, and a pinkish bill. Both sexes have a white tail with an inverted dark "T" that is visible in-flight [1, 6]. Similar sympatric species in Wyoming include Chestnut-collared Longspur and Lapland Longspur (*C. lapponicus*) [7]. Chestnut-collared Longspur breeding males have a rufous nape and black belly, and both sexes have a black triangle on the otherwise white tail. Lapland Longspur occurs in Wyoming only in the winter (when McCown's Longspur is absent from the state) and both sexes have a dark tail with white along the sides [6].

Distribution & Range:
Both the breeding and winter ranges of McCown's Longspur are restricted to North America. Over the past ca. 120 years McCown's Longspur has experienced drastic contractions to its continental breeding range, which historically extended south to the Oklahoma Panhandle and east to Manitoba and western Minnesota [1, 8]. As shown in Figure 5, the species currently has two disjunct breeding centers in the northwestern Great Plains of Canada and the United States [1, 8, 9]. Wyoming encompasses a majority of the southernmost breeding center, which extends into north-central Colorado [1]. McCown's Longspur migrates through the state in the spring and fall and is a summer resident [7, 10]. Confirmed and suspected breeding has been documented in 16 of the 28 latitude/longitude degree blocks in Wyoming, primarily in the eastern half of the state [10]. However, there are also several disjunct breeding records in central and western Wyoming [7]. McCown's Longspur winters in the southwestern United States and northern Mexico [1, 8]. Winter distribution can vary annually, possibly due to temporal variation in weather and habitat conditions [8].

Habitat:
Across its continental range, including Wyoming, McCown's longspur breeds primarily in large tracts of open, semi-arid, shortgrass prairie and heavily-grazed mixed-grass rangeland with low and sparse vegetation, extensive bare ground, and little ground litter [1, 7, 8]. The species may also use recently burned areas [11], prairie dog (*Cynomys* spp.) colonies [12, 13], and cultivated fields [14, 15] with similar structural characteristics. McCown's Longspur is a ground-nesting species; females construct open cup nests out of grass in existing or excavated depressions, often directly adjacent to taller vegetation or features on the landscape (i.e., bunch grass, cactus, shrub, livestock dung) [1]. Habitat use by McCown's Longspur is often compared to that of Chestnut-collared Longspur; both taxa use grassland with relatively short and sparse vegetation, but the former uses notably more barren areas than the latter [1, 5].

Phenology:
In Wyoming, spring arrival of migrating and breeding McCown's Longspurs begins as early as mid-March, with most arriving in early and mid-April [7, 16]. Males typically arrive in the state several weeks before females [16]. Egg laying typically begins in early May, with most clutches containing 3 or 4 eggs (range 2–6 eggs) [1]. Females are entirely responsible for incubation, which lasts for approximately 12 days. Young are altricial at hatching and remain in the nest until about 10 days old (range 7–11 days). Fledglings are capable of limited flight by 12 days of age, but parents continue to provide food for at least 3 weeks. McCown's Longspur can produce 2 broods in a season [1]. In Wyoming, fall migration to wintering grounds peaks in mid-September, with most migrants and summer residents leaving the state by early October [7].

Diet:
During the breeding season, McCown's Longspur consumes grass seeds, forb seeds, a variety of terrestrial and flying insects (e.g., grasshoppers, moths, beetles, ants), and other available arthropods. Nestling are fed primarily of arthropods, with grasshoppers constituting a large proportion of the diet [1]. The winter diet consists primarily of seeds as well as some grains and berries [1, 8].

CONSERVATION CONCERNS

Abundance:
Continental: REGIONAL ENDEMIC

Wyoming: COMMON
McCown's Longspur has a statewide abundance rank of COMMON, and also appears to be common in suitable environments within its Wyoming range [10]. In 2013, Partners in Flight estimated the Wyoming population of McCown's Longspur to be around 160,000 individuals, or about 27.8% of the global population [17]; however, this abundance estimate is based primarily on Breeding Bird Survey (BBS) data and should be viewed with caution due to the low detection rate of this species in the state. From 1968–2015, annual BBS detections of McCown's Longspur in Wyoming ranged from 3 to 230 (average = 57), with 49 recorded in 2015 [18]. Annual detections of McCown's Longspur ranged from 21 to 148 during surveys for the Integrated Monitoring in Bird Conservation Regions (IMBCR) program between 2009–2015 [19]. Estimated mean density across this same time period was 2.16 birds per km^2 (standard deviation 1.12, standard error 0.42) in suitable habitats in Wyoming [19].

Population Trends:
Historic: LARGE DECLINE
Recent: STABLE
Long-term, historic declines of McCown's Longspur in North American are attributed to the fragmentation of native grasslands by agriculture, urbanization and associated infrastructure, and fire suppression [1, 8]. Estimates of recent trends from survey-wide, and Wyoming-specific, BBS data have deficiencies and should be viewed with caution. Across North America, McCown's Longspur numbers experienced a statistically significant annual decline of 6.18% from 1966–2013 and a non-significant annual decline of 2.93% from 2003–2013 [9]. In Wyoming, McCown's Longspur declined annually by 0.06% from 1968–2013 and increased annually by 1.16% from 2003–2013; however, neither trend estimate was statistically significant [9].

Intrinsic Vulnerability:
MODERATE VULNERABILITY
McCown's Longspur has moderate intrinsic vulnerability in Wyoming because it is restricted to a narrow range of habitat types and has nesting behaviors that may leave the species susceptible to nest loss. The species can tolerate some disturbances to grassland, and in fact may respond favorably to disturbances like heavy grazing and fire that maintain large patches of short and sparse vegetation. But McCown's Longspur may be negatively affected by processes that convert native shortgrass and mixed-grass prairie to other cover types, or that promote dense and heavy vegetation. As a species that nests on the ground in sparsely-vegetated environments, McCown's Longspur is vulnerable to predation and ground disturbance (both natural and anthropogenic) during the breeding season [1].

Extrinsic Stressors:
MODERATELY STRESSED
Prairie grassland habitats in eastern Wyoming are vulnerable to development for energy, infrastructure, and agriculture; invasive plant species such as Cheatgrass (*Bromus tectorum*) and Canada Thistle (*Cirsium arvense*); off-road recreational activities; altered fire and grazing regimes; and drought and climate change [10]. Habitat loss and conversion represent significant threats to McCown's Longspur across its continental distribution, and have already led to population declines and range contractions [1, 8]. The species experienced nestling mortality from direct poisoning following the aerial application of a commonly used rangeland insecticide (i.e., toxaphene) on experimental plots in Pawnee National Grassland in northern Colorado [20]. McCown's Longspur will breed in some agricultural landscapes [14, 15]. The species is known to be

very tolerant of livestock grazing and actually appears to prefer grasslands that are heavily grazed or "overgrazed" in some environments [1]. McCown's Longspur densities were similar on grazed pastures and patch-burn grazed pastures in northeastern Colorado [11]. A recent study found that McCown's Longspur reproductive success was not significantly influenced by the presence of wind energy or by turbine density at several wind farms in southeastern Wyoming [21, 22].

KEY ACTIVITIES IN WYOMING

McCown's Longspur is classified as a Species of Greatest Conservation Need by the Wyoming Game and Fish Department (WGFD), and as a Level I Priority Bird Species requiring conservation action in the Wyoming Bird Conservation Plan [23]. In 2009, the Wyoming Natural Diversity Database conducted migration and breeding season surveys of upland songbirds on the Laramie Plains National Wildlife Refuges. These surveys detected McCown's Longspur and provided baseline knowledge on habitat use and abundances for the species in that area [24]. From 2011–2012, the WGFD funded graduate research at the University of Wyoming, in conjunction with the Wyoming Cooperative Fish and Wildlife Research Unit, to examine potential indirect effects of wind energy infrastructure on the habitat use and reproductive success of McCown's Longspur and other grassland birds in southeastern Wyoming [21, 22]. Current statewide activities for monitoring annual detections and population trends for McCown's Longspur in Wyoming include the BBS program conducted on 108 established routes since 1968 [9], and the multi-agency IMBCR program initiated in 2009 [19]. There are currently no research projects designed specifically for McCown's Longspur in Wyoming.

ECOLOGICAL INFORMATION NEEDS

McCown's Longspur would benefit from research to learn more about the apparently isolated breeding populations in central and western Wyoming. Little is known about nest success and fledging survival. It is unknown how breeding McCown's Longspurs in the state respond to grassland management practices such as livestock grazing and prescribed fires. Additional research is needed to examine how the species is affected by various forms of industrial development in the state (e.g., wind energy, oil and natural gas, agriculture, urbanization), especially because Wyoming contains a significant portion of the species' global breeding distribution. Pesticide applications, especially in the context of grasshopper outbreaks in Wyoming, have the potential to drastically lower McCown's Longspur reproductive success and population performance, and should be studied further.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Zachary J. Walker. McCown's Longspur is classified as a SGCN in Wyoming due to habitat loss, fragmentation, and susceptibility to anthropogenic disturbances. Historic declines have been documented for McCown's Longspur, and it is important to monitor this species. Currently, there are two separate but compatible survey programs in place to monitor populations of many avian species that breed in Wyoming. The first is the long-term BBS started in Wyoming in 1968 with 108 established routes (Sauer et al. 2014). The second is the IMBCR program which was established in 2009 in Wyoming with many state, federal, and nongovernmental organization partners that contribute funding, field personnel, technical assistance, or in-kind services. It is recommended that these survey programs be continued into the future to help monitor McCown's Longspur. If future population declines are detected, targeted surveys could be warranted. It is recommended that nesting areas

for McCown's Longspur be managed to minimize habitat alteration and fragmentation. Pesticide application should be postponed when possible to avoid impacting breeding populations. Prescribed burns could be used to help manage for McCown's Longspur but should be conducted in early fall and designed to restore early seral habitats for this species.

CONTRIBUTORS

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Figure 1: Adult male McCown's Longspur in Albany County, Wyoming. (Photo courtesy of Shawn Billerman)

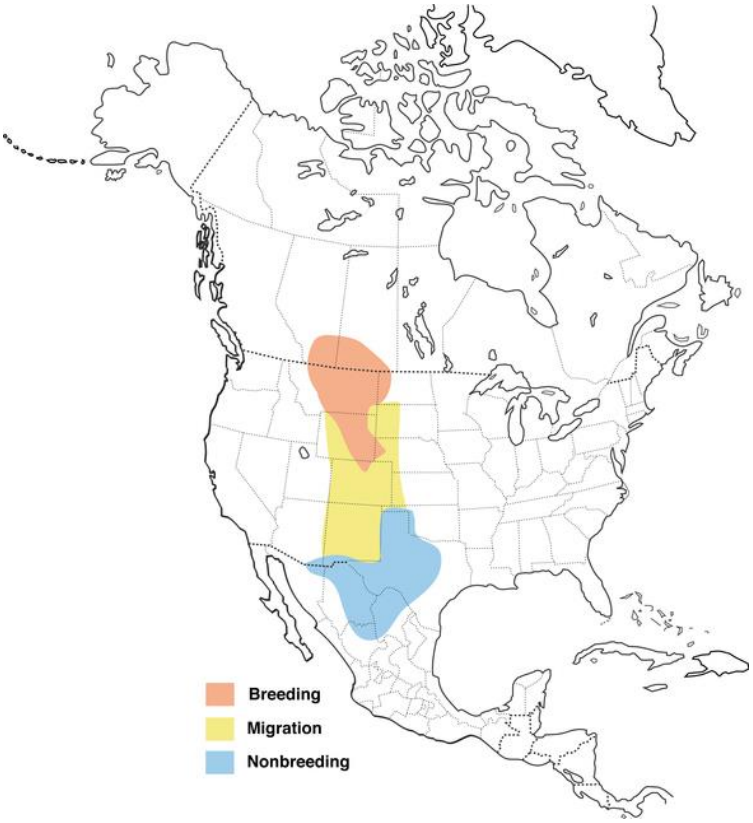

Figure 2: North American range of *Rhynchophanes mccownii*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

Figure 3: Shortgrass prairie habitat in Thunder Basin National Grassland, Wyoming, preferred habitat of McCown's Longspur. (Photo courtesy of Michael T. Wickens)

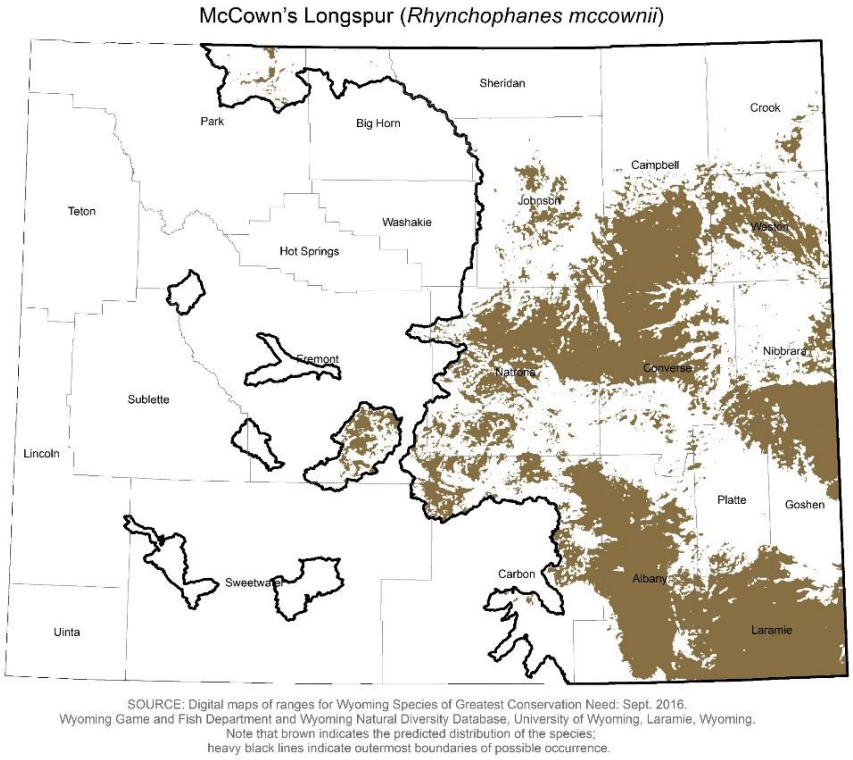

Figure 4: Range and predicted distribution of *Rhynchophanes mccownii* in Wyoming.

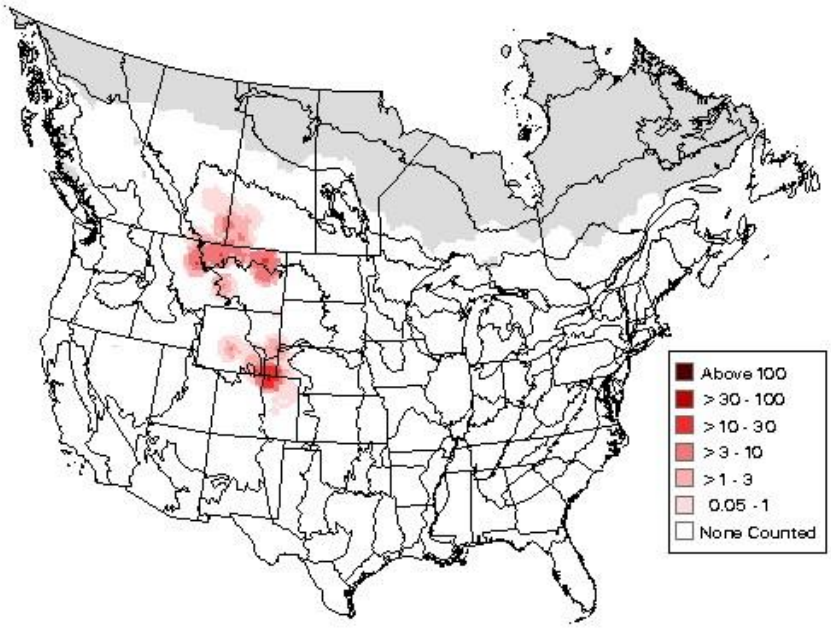

Figure 5: Relative breeding season abundance (average number of birds detected per BBS route per year) of McCown's Longspur from 2007–2013. (Map from: Sauer, J. R., et al. (2014) The North American Breeding Bird Survey, Results and Analysis 1966 - 2013. Version 01.30.2015, USGS Patuxent Wildlife Research Center, Laurel, MD.)