

Long-billed Curlew

Numenius americanus

REGULATORY STATUS

USFWS: Migratory Game Bird

USFS R2: Sensitive

USFS R4: No special status

Wyoming BLM: Sensitive

State of Wyoming: Game Bird (see regulations); Protected Bird

CONSERVATION RANKS

USFWS: Bird of Conservation Concern

WGFD: NSS3 (Bb), Tier II

WYNDD: G5, S3S4

Wyoming Contribution: LOW

IUCN: Least Concern

PIF Continental Concern Score: Not ranked

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned Long-billed Curlew a state conservation rank ranging from S3 (Vulnerable) to S5 (Secure) because of uncertainty about the abundance and recent population trends for this species in Wyoming.

NATURAL HISTORY

Taxonomy:

The taxonomy of Long-billed Curlew is uncertain, with some authorities describing the species as monotypic while others argue for the existence of two subspecies based on difference in body and bill size^{1,2}. However, it is unknown if these proposed measurements can be used to definitively identify individuals to the subspecies level, and therefore there are currently no formally recognized subspecies of Long-billed Curlew¹.

Description:

Identification of Long-billed Curlew is possible in the field. It is the largest shorebird in North America; adults weigh approximately 590 g, have a body length of 50.0–65.0 cm, and a wingspan of 25.7–30.8 cm^{1,3}. The decurved bill is distinctly long (11.3–21.9 cm) and narrow¹. The sexes have similar plumage year-round, but females are typically larger-bodied and have longer bills (average 17.0 cm) than males (average 13.9 cm)¹. Adults have plain buffy-brown underparts; buffy cinnamon-tinged upperparts with dark brown streaking and barring; cinnamon underwings; a dark bill that lightens to pink at the base of the lower mandible; dark eyes; and long, pale gray legs^{1,3}. Five other species of sandpiper are known to breed in Wyoming^{4,5}, but all have straight bills that are significantly shorter than the bill of Long-billed Curlew. Long-billed Curlew also closely resembles Whimbrel (*N. phaeopus*), which is a rare migrant in Wyoming⁵; however, Whimbrel has a shorter bill (7.3–10.3 cm) and bold, dark crown-stripes^{3,6}.

Distribution & Range:

Long-billed Curlew is endemic to the Great Plains of the western United States and southwestern Canada during the breeding season ¹. The species winters primarily in Mexico and rarely on the Pacific, Gulf, and Atlantic Coasts of the United States ^{1, 7, 8}. Long-billed Curlew used to breed as far east as northwestern Indiana and was a common winter resident and migrant along the entire Atlantic Coast; however, the species has experienced westward contractions in both its breeding and wintering distributions over the last century-and-a-half ^{1, 9}. Central and western Wyoming lie within the current core breeding distribution of Long-billed Curlew ¹, although breeding has also been documented in eastern Wyoming ⁵. The species migrates through the state in the spring and fall and is a summer resident ^{4, 5}. Long-billed Curlew has been observed across Wyoming, and confirmed or suspected breeding has been documented in 19 of the 28 latitude/longitude degree blocks in the state ⁵.

Habitat:

In Wyoming, Long-billed Curlew nests in sparsely-vegetated shortgrass or mixed-grass prairie environments, often dominated by Wire Grass (*Juncus balticus*) and Mountain Timothy (*Phleum alpinum*), with low vegetation ($\leq 10\text{--}30$ cm) and topography that is flat or gently sloping ^{1, 4, 10}. This species typically avoids habitats with high densities of tall grass, forbs, shrubs, and/or trees ^{1, 4, 11}, but will nest in some agricultural landscapes including hay fields and grazed pasture ^{1, 11-13}. Long-billed Curlew is a ground nesting species ¹. Nests are constructed by scraping dirt from beneath the body with the feet to create a shallow depression, which is then lined with a variety of materials depending on availability (e.g., pebbles, bark, twigs, grass stems and leaves, seeds, and bird and mammal droppings) ¹. Long-billed Curlew spends the non-breeding season in coastal estuaries, mudflats, salt marshes, wetlands, flooded fields, agricultural fields and pastures, and a variety of manmade waterbodies ^{1, 11, 14, 15}.

Phenology:

In Wyoming, spring arrival of migrating and breeding of Long-billed Curlews occurs during the last two weeks of April, with most birds arriving by early May ⁴. In Wyoming, nest building begins in early May ¹, and clutches are initiated by the last week of May ⁴. Most clutches contain 4 eggs (range 2–5), and hatching typically occurs from mid-June to mid-July ¹. Newly hatched chicks are able to venture from the nest and feed themselves within a few hours, but parents will continue to brood and provide shade for several weeks ¹. Although females may cease care of young after just 2–3 weeks, males will often continue to provide protection from predators until young fledge at 38–45 days of age ¹. Long-billed Curlew is a single-brood species, but may re-nest following loss of the first clutch ^{12, 16}. Fall migration from Wyoming to wintering grounds begins as early as late June and continues through early September, with most migrants and residents leaving the state by mid-September ⁴.

Diet:

Long-billed Curlew is carnivorous and opportunistically consumes terrestrial insects and worms, marine crustaceans, benthic invertebrates, and small vertebrates such as songbird eggs and nestlings ^{1, 5}. This species uses its extremely long bill to probe terrestrial and aquatic holes and burrows, thus allowing it to extract subterranean prey such as earthworms and mud crabs ¹.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD

Wyoming: RARE

Long-billed Curlew is patchily distributed within its widespread North American distribution ¹. The species has an estimated global population of roughly 140,000 individuals and an estimated United States population of about 97,000 ^{17, 18}; however, there are no robust estimates of abundance for Long-billed Curlew in Wyoming. The species has a statewide abundance rank of RARE, and it appears to be uncommon within suitable environments in the occupied area ⁵. In 2013, Long-billed Curlew surveys conducted on 4 routes in northwestern Wyoming by the Wyoming Game and Fish Department (WGFD) recorded 70 individuals ¹⁹. From 1968–2015, state-wide annual Breeding Bird Survey (BBS) detections of Long-billed Curlew in Wyoming ranged from 0 to 38, with 15 recorded in 2015 ²⁰. Between 2009–2015, surveys for the Integrated Monitoring of Bird Conservation Regions (IMBCR) program detected a total of 27 Long-billed Curlews ²¹. While surveys conducted as part of the BBS and IMBCR programs may occasionally detect this species, neither is specifically designed to capture sandpiper observations.

Population Trends:

Historic: LARGE DECLINE

Recent: STABLE

Long-billed Curlew populations are believed to have experienced historic large declines over the last 150 years, and this species is considered vulnerable or imperiled in many parts of its current range ^{1, 9, 22, 23}. Despite high annual variability, recent detections of Long-billed Curlew in western Wyoming have remained relatively stable since the mid- to late 1990s ¹⁹, although declines have been reported in some areas of the state ²³. Trends for Long-billed Curlew populations in eastern Wyoming are unknown ⁴. Wyoming trend data from the North American BBS have deficiencies, and should be viewed with caution, but suggest that Long-billed Curlew numbers increased annually by 1.75% from 1968–2013 and 2.62% from 2003–2013 ²⁴. Neither trend estimate was statistically significant. Across North America, BBS trend data indicate that Long-billed Curlew numbers experienced a non-significant annual increase of 0.34% from 1966–2013 and a statistically significant annual increase of 2.48% from 2003–2013 ²⁴.

Intrinsic Vulnerability:

MODERATE VULNERABILITY

Long-billed Curlew has moderate intrinsic vulnerability in Wyoming due to low abundance, dependence on open grassland habitats for breeding, and nesting behaviors that leave the species inherently vulnerable to predation and disturbance. As a ground nesting species breeding in relatively exposed environments, Long-billed Curlew eggs and young are at risk for predation from both aerial and terrestrial predators, anthropogenic disturbance, and trampling by livestock in heavily grazed areas ^{1, 12, 23}.

Extrinsic Stressors:

MODERATELY STRESSED

Long-billed Curlew is moderately stressed by extrinsic factors in Wyoming, where prairie grassland habitats are vulnerable to development for energy, infrastructure, and agriculture; invasive plant species such as Cheatgrass (*Bromus tectorum*) and Canada Thistle (*Cirsium arvense*); anthropogenic disturbance from off-road recreational activities; altered fire and grazing regimes; and drought and climate change ²⁵. Loss and degradation of habitat is thought to be the current most pressing threat to Long-billed Curlew in Wyoming and across its distribution ^{1, 22, 23, 26}. This species will use agricultural landscapes for both nesting and foraging, which could help alleviate the loss of natural grassland habitat; however, nests in irrigated fields are vulnerable to

failure from flooding^{12, 27}. Conversion of sub-irrigated meadows to sprinkler irrigated alfalfa fields appears to be becoming an increasing threat in Wyoming²⁸. Fertilization and leveling of cultivated fields during the breeding season has also been shown to result in decreased nest success²⁹. Although grazing can increase the risk of nests and young being trampled^{12, 27, 29}, limited or controlled grazing can reduce the height and density of grassland vegetation and increase breeding habitat quality for Long-billed Curlew^{23, 30}. Although some invasive plant species are known to decrease suitability of breeding habitat for Long-billed Curlew, the species has been known to nest successfully in Cheatgrass-dominated landscapes¹. Long-billed Curlew has experienced documented mortality from shooting in Idaho in an area where recreational ground squirrel shooting occurs^{1, 31, 32}.

KEY ACTIVITIES IN WYOMING

Long-billed Curlew is classified as a Species of Greatest Conservation Need by the WGFD, and as a Level I Priority Bird Species requiring conservation action in the Wyoming Bird Conservation Plan¹⁰. Breeding Long-billed Curlews have been surveyed annually in western Wyoming by the WGFD since 1991¹⁹. Beginning in 2014, the WGFD partnered with the Intermountain Bird Observatory to deploy satellite transmitters on breeding adult Long-billed Curlews in Wyoming to collect information on migration patterns and habitat use³³. One breeding adult female was tagged on the National Elk Refuge in Jackson, Wyoming in 2014³³, and 7 additional adults were tagged in western Wyoming in 2015²⁷. In 2015, the Intermountain Bird Observatory conducted a study of curlew abundance and reproductive success in Sublette County where a previous study had been completed in the 1980s and also in the Cody area^{27, 34}. Additionally, WGFD initiated a targeted grassland SGCN monitoring program in 2015 for Long-billed Curlew, Mountain Plover, Upland Sandpiper, and Burrowing Owl³⁵. Current statewide bird monitoring programs are designed for monitoring breeding songbird populations and are unlikely to provide useful information on Long-billed Curlew. These monitoring programs include the BBS program conducted on 108 established routes since 1968²⁴, and the multi-agency IMBCR program initiated in 2009²¹.

ECOLOGICAL INFORMATION NEEDS

In Wyoming, Long-billed Curlew would benefit from research to determine the detailed distribution and annual abundance of migrating and breeding adults, especially in the eastern portion of the state where populations remain relatively unstudied. Little is known about nest success or fledgling survival of Long-billed Curlew across most of Wyoming, and it would be valuable to quantify the extent to which suspected anthropogenic and natural stressors are currently impacting breeding populations in the state. Coordinating monitoring efforts with other states in the region would be needed to understand the overall status and trend of the United States breeding population.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Susan M. Patla. The WGFD initiated annual breeding season roadside surveys in 1991 in western Wyoming but high annual variability and changes in methodology and observers over time have made it difficult to estimate trends¹⁹. Survey protocols are currently being revised to allow for estimating trends and abundance across the state¹⁹. Cochran (1983) studied reproductive success and habitat variables at two sites near Pinedale, Wyoming and found that nest success was greatest in sub-irrigated, native hay

meadows that were mowed annually in the Merna area ²⁹. Field dragging and grazing or fertilizing during the incubation period resulted in increased nest failure. In 2015, a study of reproductive success and habitat use in the same study areas near Pinedale found that the Merna site was still very productive with the highest density of nesting curlews compared to 5 other study sites in Wyoming, Idaho, and Montana ²⁷. Additional studies on nesting density, reproductive success and habitat use are continuing in the Jackson area (2016) and in Pinedale (2017). Eight additional curlews will be tagged with satellite transmitters across the state in 2017. Habitat loss and fragmentation from conversion of native, flood irrigated grasslands to cultivated crops or to rural subdivisions appear to be the greatest risk for nesting curlews in the state. Nesting in Wyoming is highly patchy and more survey work is needed to understand the distribution and abundance of curlews across the state and to quantify nesting density and success in different habitat types. Results from satellite tracking showed that Wyoming curlews travel to non-breeding destinations that were farther south and east than other curlews tracked in the Intermountain West ²⁷. Most curlews showed fidelity to specific wintering sites in Mexico or to the Imperial Valley of California. Data from recent and ongoing demographic and tracking studies will contribute towards a regional conservation strategy for this species ²⁷. Continued research on nest success and migration as well as development of a statistically sound state-wide monitoring scheme for this species are the highest management priorities. Conservation of agricultural lands where traditional grazing and irrigation methods continue to be used should also be a high priority in areas of the state where high concentrations of nesting curlews occur.

CONTRIBUTORS

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Figure 1: Adult Long-billed Curlew in Thunder Basin National Grassland, Wyoming. (Photo courtesy of Michael T. Wickens)

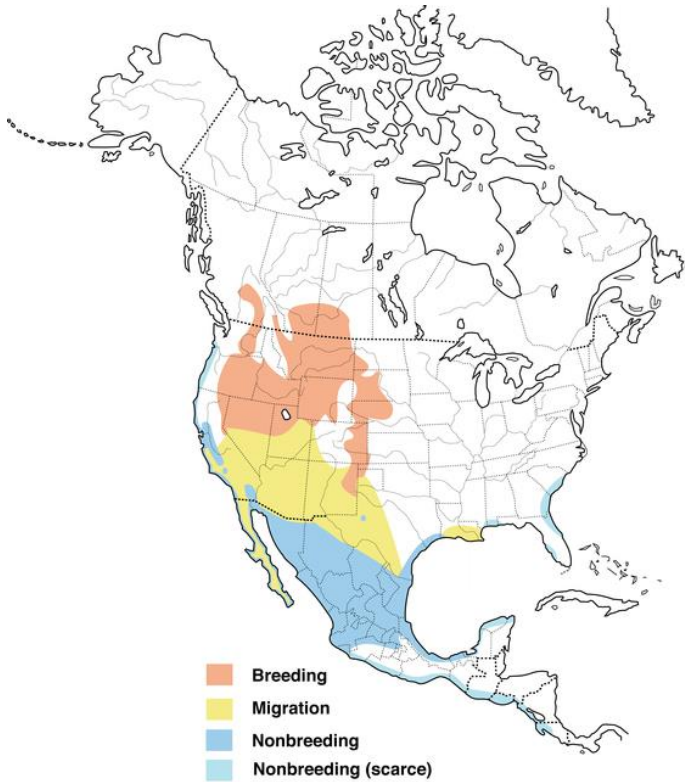


Figure 2: North American range of *Numenius americanus*. (Map courtesy of Birds of North America, <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology)

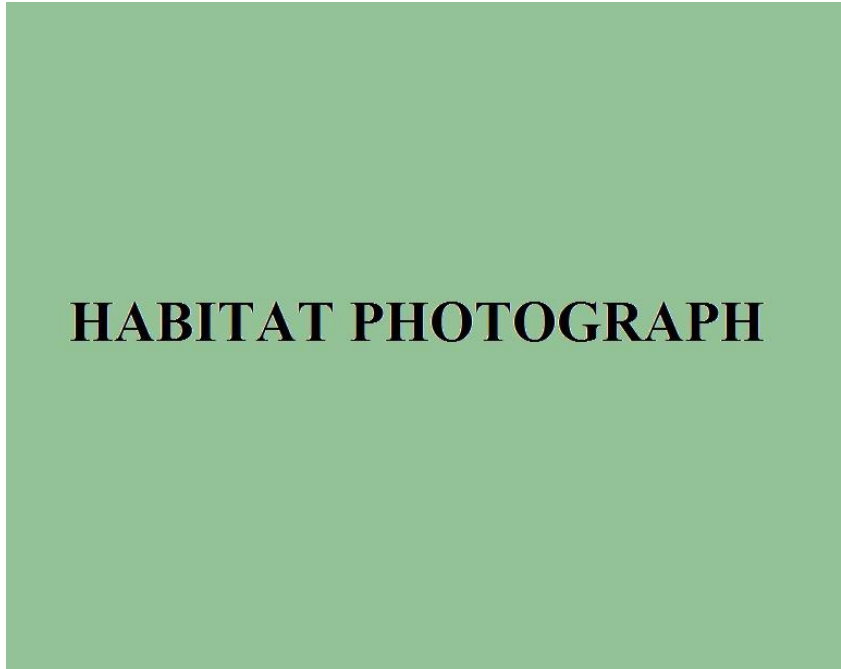


Figure 3: Photo not available.

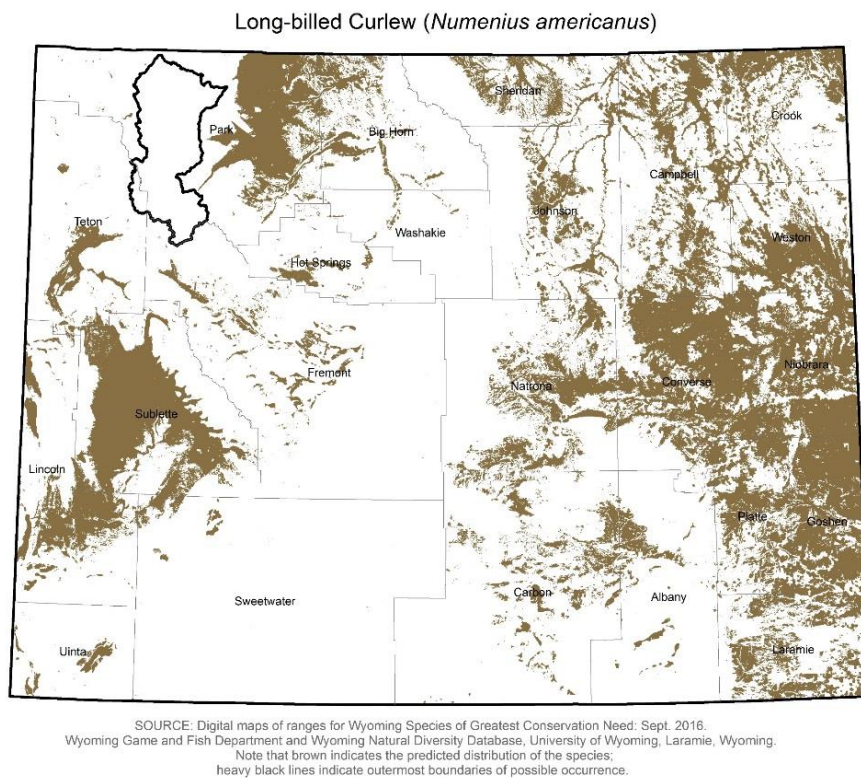


Figure 4: Range and predicted distribution of *Numenius americanus* in Wyoming.