

# Loggerhead Shrike

## *Lanius ludovicianus*

### **REGULATORY STATUS**

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

### **CONSERVATION RANKS**

USFWS: Bird of Conservation Concern  
WGFD: NSS4 (Bc), Tier II  
WYNDD: G4, S4S5  
Wyoming Contribution: LOW  
IUCN: Least Concern  
PIF Continental Concern Score: 11

### **STATUS AND RANK COMMENTS**

The Wyoming Natural Diversity Database has assigned Loggerhead Shrike (*Lanius ludovicianus*) a state conservation rank ranging from S4 (Apparently Secure) to S5 (Secure) because of uncertainty over extrinsic stressors and population trends of the species in Wyoming. Loggerhead Shrike is classified as Sensitive by Region 2 of the U.S. Forest Service and the Wyoming Bureau of Land Management because of significant range-wide declines from historic levels that may impact the future viability of the species; the cause of the declines are currently unknown<sup>1,2</sup>. Although the species is not classified as Threatened or Endangered, the San Clemente Loggerhead Shrike (*L. l. mearnsi*) is Endangered throughout its range in California<sup>3</sup>. Finally, the International Union for Conservation of Nature and Natural Resources classifies the status of the Loggerhead Shrike as Least Concern<sup>4</sup>; however, population trends are decreasing.

### **NATURAL HISTORY**

#### **Taxonomy:**

Loggerhead Shrikes, also known as butcherbirds, and Northern Shrikes (*L. excubitor*) are the only North American species in the family Laniidae. The number and distinctness of subspecies of Loggerhead Shrike varies among reports<sup>5</sup>. For the purposes of this document, we follow Yosef (1996) and recognize 9 subspecies. Only *L. l. excubitorides* is found in Wyoming<sup>6</sup>.

#### **Description:**

Loggerhead Shrike is a robin-sized passerine identifiable by its gray back, head, and breast; white chin, throat, and belly; black mask; black primaries and secondaries with a white wing patch; black tail with white outer tail coverts; and small, black, slightly hooked bill<sup>5</sup>. Females are smaller than males and tend to have browner primaries. Loggerhead Shrike may be easily confused with Northern Shrike, which overlap throughout their range in Wyoming<sup>6,7</sup>. However, Northern Shrike is larger and paler with a larger white rump, has a black mask that is narrower

and does not extend above the eye, and is found in deciduous and coniferous woodlands as opposed to the open habitats of Loggerhead Shrike (see below)<sup>5</sup>. Loggerhead Shrike subspecies generally vary in color, bill size, and length of tail and wings.

**Distribution & Range:**

Loggerhead Shrike is a year-round resident throughout most of its range. Wyoming, however, only provides breeding habitat, and all Loggerhead Shrikes in the state are migratory. Breeding range extends from southern Saskatchewan and Manitoba, Canada, through the central and western United States, the entire southern half of the United States from the Pacific to Atlantic coasts, and the western third of Mexico south to Oaxaca. Wintering range extensively overlaps breeding range, and extends from non-migratory populations in the southern half of the United States at roughly 40° N latitude south throughout all of Mexico to Veracruz and Oaxaca<sup>5</sup>. Loggerhead Shrike has been documented in all of Wyoming’s 28 latitude/longitude degree blocks, with confirmed or circumstantial evidence of breeding occurring in all, with the exception of Yellowstone National Park<sup>7</sup>.

**Habitat:**

Loggerhead Shrike tends to use similar habitats throughout both breeding and wintering ranges. In general, Loggerhead Shrike is found in open habitats with short vegetation, especially hay fields and pastures. Other components of habitat include ‘pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands’<sup>5</sup>. Breeding sites include isolated trees and shrubs within this open habitat. The amount of cover provided at nest sites by trees and shrubs tend to be more important than specific species<sup>5</sup>. In the western United States, nests are placed in Russian Olive (*Elaeagnus angustifolia*)<sup>8</sup>, Big Sagebrush (*Artemisia tridentata*), Antelope Bitterbrush (*Pursia tridentata*), and Greasewood (*Sarcobatus vermiculatus*)<sup>9</sup>. In sagebrush habitat in Idaho, nests were typically placed low in shrubs (0.8 m above ground in shrubs averaging 1.6 m in height)<sup>9</sup>, although subsequent nests tended to be placed higher in trees as individuals re-nested throughout the season<sup>5,9</sup>. Fence lines and power lines provide important perches for hunting<sup>5</sup>.

**Phenology:**

Loggerhead Shrike returns to its breeding grounds in Wyoming in April<sup>6</sup>, and individuals occupy and defend territories and initiate nest-building shortly after arrival<sup>5</sup>. In northern Colorado, egg-laying peaks in late May, incubation lasts for 16 days (range is 15–17 days), and fledging occurs 17 days later<sup>8</sup>. Fledglings are able to fly approximately 1 week after leaving the nest; before that time, both parents continue to provide food. Clutch size is typically 5–6 eggs (range 1–9) and tends to be larger for populations in the northern and western part of the breeding range. Loggerhead Shrike usually produces a single brood, although it may have multiple broods in a season (especially following nest failure) with as many as 3 broods recorded in southern populations<sup>5</sup>. Fall migration likely occurs in August and September in Wyoming; the latest recorded observation of a Loggerhead Shrike in Wyoming was 18 November<sup>6</sup>. Although a handful of Loggerhead Shrikes have been observed in the southern part of the state during Christmas Bird Counts, these remain unverified<sup>6</sup>. Individual *L. l. excubitorides* has been observed overwintering in southern Texas and southern Mexico; no individuals of that subspecies have been observed in the southeastern United States, suggesting migration of Wyoming birds follows a north-south route and does not include movement eastward<sup>5</sup>.

**Diet:**

Loggerhead Shrike is an opportunistic carnivore and takes a variety of prey items including arthropods, reptiles and amphibians, small birds and mammals, and even roadkill and other carrion. Arthropods are main prey items, although vertebrates may become more important during the winter. Shrikes actively hunt and kill prey, using their hooked beaks to sever the spinal cord of vertebrate prey, which they then carry with their beaks or feet. Larger prey items are impaled on thorns or barbed-wire before eating to assist with prey immobilization and manipulation and as a method of food storage <sup>5</sup>.

**CONSERVATION CONCERNS**

**Abundance:**

**Continental:** WIDESPREAD

**Wyoming:** ABUNDANT

Using North American Breeding Bird Survey (BBS) data, the Partners in Flight Science Committee estimated the global population of Loggerhead Shrike to be 5.8 million birds <sup>10</sup>. Extrapolation suggests approximately 2.2% of the global population, or around 130,000 birds, could breed in Wyoming, but this estimate is likely high and should be viewed with caution <sup>11</sup>. The statewide rank of ABUNDANT is based on the large area of the state known to be occupied in any given season and the large coverage of suitable habitat within that area. Loggerhead Shrike appears to be common within suitable habitat and is usually encountered during surveys that could be expected to indicate its presence <sup>7</sup>. The Integrated Monitoring in Bird Conservation Regions (IMBCR) program is developing data with which to more precisely estimate abundance and densities of Loggerhead Shrike in Wyoming, but robust data are not yet available and will require additional survey years <sup>12</sup>.

**Population Trends:**

**Historic:** MODERATE DECLINE to STABLE

**Recent:** MODERATE DECLINE to STABLE

Although there is good evidence for large, long-term population declines elsewhere in the species' range <sup>5</sup>, there is no strong reason to suspect historic declines in Wyoming populations. Loggerhead Shrike population trend data from the BBS in Wyoming from 1968–2013 and 2003–2013 suggest annual declines of 0.73% ( $N = 90$  routes, 95% CI: -2.05–0.59) and 0.42% ( $N = 90$  routes, 95% CI: -3.65–3.21), respectively <sup>13</sup>; however, neither trend estimate is statistically significant.

**Intrinsic Vulnerability:**

LOW VULNERABILITY

Loggerhead Shrike uses a variety of natural and human-developed habitats; consequently, it tends to respond well to human-altered landscapes. High reproductive rates may also allow populations to expand quickly into new areas <sup>5</sup>. Loggerhead Shrike is susceptible to West Nile virus <sup>14, 15</sup>, although the impact of the disease at a population level is unknown. As arthropods represent a major prey item, the species may be at particular risk from pesticide <sup>5</sup>. Other life history characteristics do not predispose the species to declines from changes in environmental conditions.

**Extrinsic Stressors:**

SLIGHTLY STRESSED

Partners in Flight assigns the Loggerhead Shrike a threat level of 3, indicating that the species is expected to display a slight to moderate decline in the future suitability of breeding conditions<sup>10</sup>. The factors that may contribute to this decline are variable, and a number of threats may impact populations throughout portions of the range. Historically, shrikes were the target of removal efforts because of their behavior of impaling prey; however, this direct mortality is not as common currently. Pesticides may reduce availability of insect prey, as well as accumulate in individual Loggerhead Shrikes<sup>5</sup>, although the role of these pesticides in population declines is unclear<sup>16</sup>. Perhaps one of the most likely causes of decline, particularly in the eastern portion of the species' range, is from the loss of agriculture, pasture, and hedgerow habitat<sup>5</sup>, although it is unknown to what degree this loss is occurring in Wyoming or impacting populations. Habitat loss in winter range may be particularly important, especially for Midwestern populations<sup>17</sup>. However, much of the open habitat on which Loggerhead Shrike depends is created through anthropogenic land use activities (see Habitat section above), and much apparently suitable habitat is still available and unoccupied<sup>5, 18</sup>. Fire in sagebrush habitat may negatively impact density and nest survival, potentially due to the reduction of nesting habitat<sup>19</sup>. Predation and inclement weather are common causes of nest failure<sup>8</sup>.

### **KEY ACTIVITIES IN WYOMING**

Loggerhead Shrike is listed as a Species of Greatest Conservation Need (SGCN) in Wyoming by the Wyoming Game and Fish Department and as a Level II Priority Species requiring monitoring action in the Wyoming Bird Conservation Plan<sup>20</sup>. Current statewide efforts for monitoring annual detections and population trends of Loggerhead Shrike in Wyoming include the BBS program conducted on 108 established routes since 1968<sup>13</sup> and the multi-partner IMBCR program initiated in 2009<sup>12</sup>. Trend data are available on the U.S. Geological Survey BBS website<sup>13</sup>, and occupancy, density, and population estimates, along with other decision support tools, are available through the Rocky Mountain Avian Data Center<sup>12</sup>.

### **ECOLOGICAL INFORMATION NEEDS**

Additional information on the effects of pesticides on Loggerhead Shrike in Wyoming would be beneficial. Also, a better understanding of the spatial pattern and timing of arthropod productivity in Wyoming shrublands would provide resource managers some information on how to manage landscapes for the benefit of Loggerhead Shrike.

### **MANAGEMENT IN WYOMING**

*This section authored solely by WGF/D; Andrea C. Orabona.* Loggerhead Shrike is classified as a SGCN in Wyoming due to apparent, slight population declines. Two separate but compatible survey programs are 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<sup>13</sup>. Species must be detected on at least 14 routes for data analyses to be significant for tracking population status and trend over time. The IMBCR program 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. Data analyses produce density, occupancy, and population estimates at various scales; present habitat associations; and provide decision support tools for managers<sup>12</sup>. Best management practices or key management recommendations to benefit Loggerhead Shrike include maintaining a mosaic of open (5%) to moderate (25%) shrub cover in shrub-steppe landscapes that includes various ages and heights of

shrubs; providing a mosaic of short ( $\leq 10$  cm) and taller ( $> 20$  cm) vegetation within the shrub-steppe landscape as ground foraging and nesting areas; protecting known Loggerhead Shrike nest trees from browsing and rubbing damage due to livestock and direct loss due to prescribed burning; allowing at least 50% of annual herbaceous plant growth to remain through the following nesting season to provide cover for nest concealment; preventing large-scale fires, habitat conversions, and additional road construction that will eradicate or diminish large, continuous areas of shrub-steppe and woodland habitats; and minimizing insecticide use in shrub-steppe habitats to maintain a food source for Loggerhead Shrikes (and other insectivores)

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## **CONTRIBUTORS**

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Figure 1: Adult Loggerhead Shrike in Albany County, Wyoming. (Photo courtesy of Shawn Billerman)

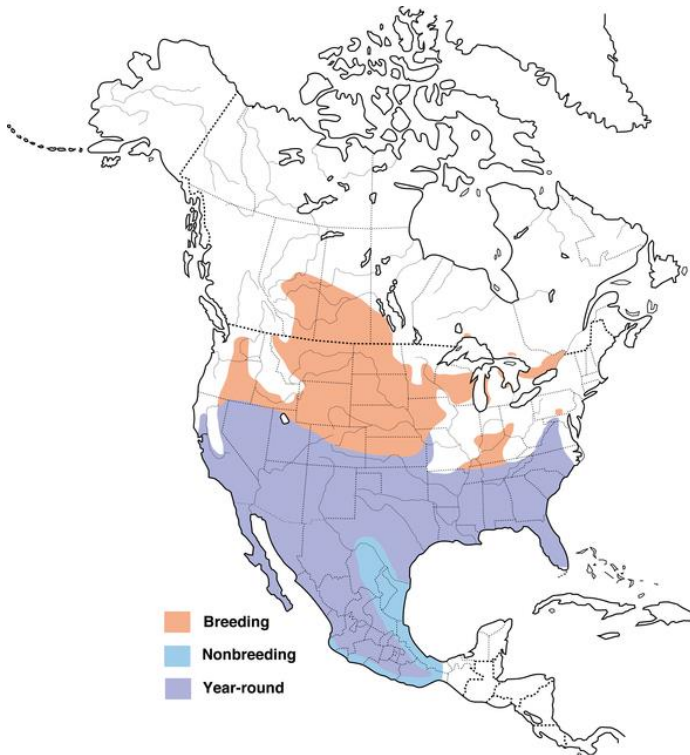


Figure 2: North American range of *Lanius ludovicianus*. (Map courtesy of Birds of North America, <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology)

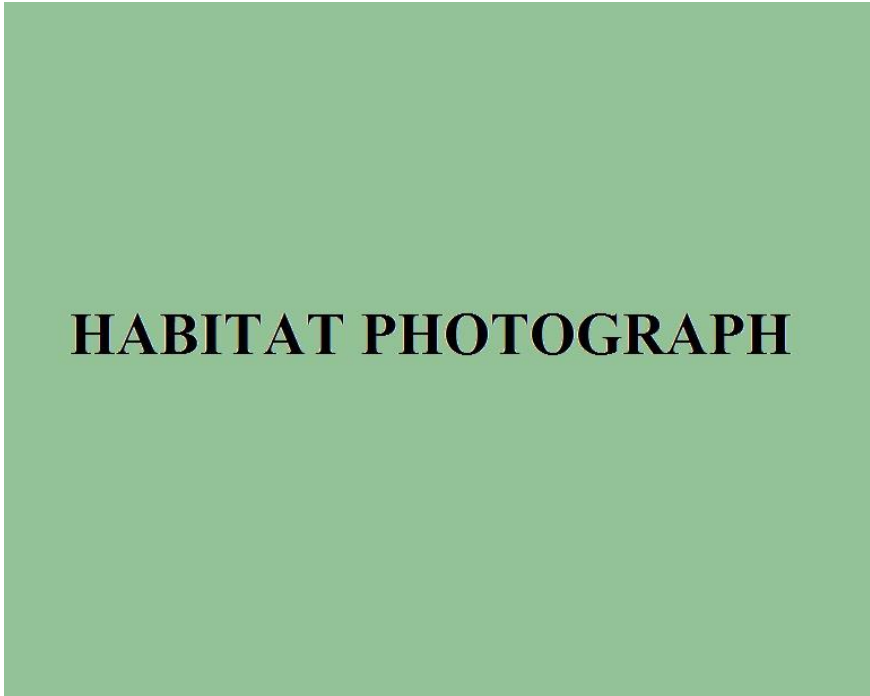


Figure 3: Photo not available.

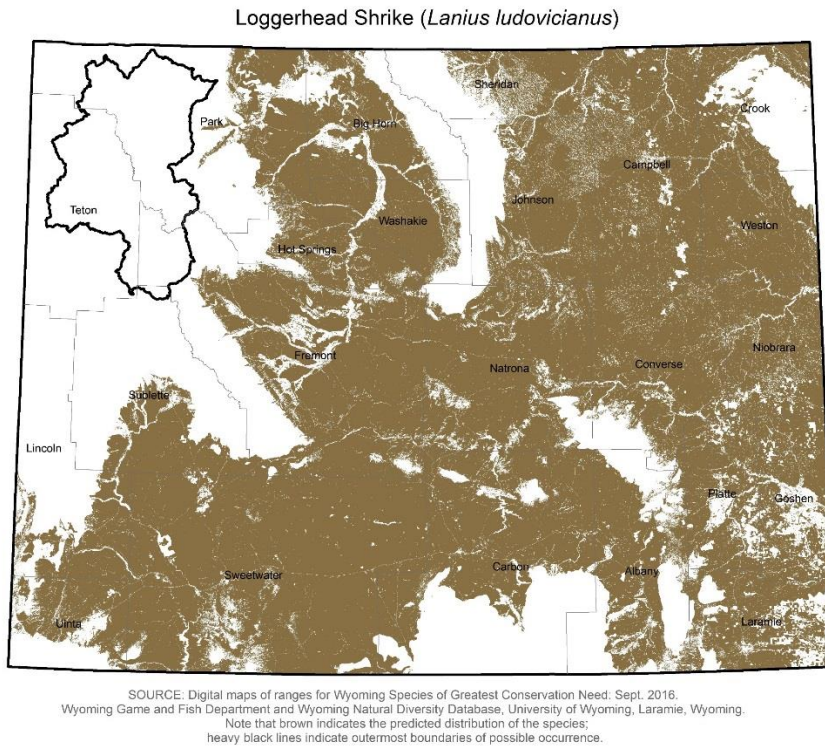


Figure 4: Range and predicted distribution of *Lanius ludovicianus* in Wyoming.