

## Black-crowned Night-Heron

*Nycticorax nycticorax*

### **REGULATORY STATUS**

USFWS: Migratory Bird

USFS R2: No special status

USFS R4: No special status

Wyoming BLM: No special status

State of Wyoming: Protected Bird

### **CONSERVATION RANKS**

USFWS: No special status

WGFD: NSS3 (Bb), Tier II

WYNDD: G5, S2S3

Wyoming Contribution: LOW

IUCN: Least Concern

PIF Continental Concern Score: Not ranked

### **STATUS AND RANK COMMENTS**

The Wyoming Natural Diversity Database has assigned Black-crowned Night-Heron (*Nycticorax nycticorax*) a state conservation rank ranging from S2 (Imperiled) to S3 (Vulnerable) because of uncertainty about the abundance, proportion of range occupied, and population trends for this species in Wyoming.

### **NATURAL HISTORY**

#### **Taxonomy:**

Worldwide, there are currently four recognized subspecies of Black-crowned Night-Heron with slight differences in body size and coloration. *N. n. hoactli* is the only subspecies found in North America, and therefore also Wyoming<sup>1,2</sup>.

#### **Description:**

Identification of Black-crowned Night-Heron is possible in the field. It is a medium heron; adults weigh approximately 883 g, range in length from 58–66 cm, and have a wingspan of approximately 112 cm<sup>1,3</sup>. The sexes are similar in appearance, but males are slightly larger<sup>1</sup>. Black-crowned Night-Heron has a stocky build, large head, and shorter neck and legs than most other heron species<sup>1,3</sup>. Breeding adults have a black crown that does not extend below the eye; white throat and cheeks; black nape with several long, thin, white feather plumes that extend down the solid black back; gray wings and tail; light gray to white underparts; a large, thick black bill; and bright red eyes<sup>1,3</sup>. The legs are typically yellow but develop a pink or red hue during the breeding season. Adults are unlikely to be confused with any other species in their Wyoming range. Juvenile Black-crowned Night-Herons may be confused with American Bittern (*Botaurus lentiginosus*), but juvenile night-herons have red eyes, a short neck, white spots on their wings, and pale spots or streaks on their underparts instead of bold, vertical stripes<sup>1,3</sup>.

**Distribution & Range:**

In North America, Black-crowned Night-Heron is distributed across most of the United States and Mexico, and can also be found in the Prairie Potholes Region of south central Canada <sup>1</sup>. Black-crowned Night-Heron migrates through Wyoming in the spring and fall and is a summer resident <sup>4,5</sup>. Southern and far northwestern Wyoming are on the edge of the species' core breeding distribution <sup>1</sup>, with nearly all breeding records occurring in the southern half of the state at elevations below 2,134 m (7,000 ft) <sup>4,5</sup>. Although the species has been observed at waterbodies across the state, confirmed breeding has been documented in just 10 of the 28 latitude/longitude degree blocks <sup>4</sup>.

**Habitat:**

Black-crowned Night-Heron is associated with a wide range of aquatic, wetland, and riparian habitats across its breeding and wintering ranges <sup>1</sup>. In Wyoming, Black-crowned Night Heron may be observed at a variety of waterbodies, but breeding colonies are typically associated with larger marshes and lakes that support stands of bulrushes and cattails <sup>4,5</sup>. This species will use numerous substrates for nesting across its breeding distribution (e.g., living and dead trees, willows, shrubs, vines, reeds, anthropogenic structures, rocks, the ground) <sup>1</sup>, but most nests in Wyoming are in emergent aquatic reeds, island trees and shrubs, or on the ground of islands <sup>4,5</sup>. Nests are constructed primarily of twigs and sticks, but may be mixed or lined with local roots, grass, or reeds <sup>1</sup>.

**Phenology:**

In Wyoming, spring arrival of migrating and breeding Black-crowned Night-Herons occurs the second week of April <sup>5</sup>, but little is known about the specific nesting and breeding habits of this colonial nesting species in the state. Dates of nest initiation, egg laying, hatching, and fledging vary widely by geographic location <sup>1</sup>. Clutch size increases with latitude, but typically ranges from 3–5 eggs <sup>1</sup>. Eggs hatch after being incubated by both sexes for 23–26 days. If disturbed, chicks can leave the nest just 10 days after hatching, but typically do not leave until they are 29–34 days old. After vacating the nest, young remain in the surrounding vegetation until they are approximately 6 weeks old and able to fly <sup>1</sup>. Black-crowned Night-Heron is a single-brood species, but will renest following loss of the first clutch <sup>1</sup>. Fall migration from Wyoming to wintering grounds begins in mid-September, with most migrants and residents leaving the state by October <sup>5</sup>.

**Diet:**

Black-crowned Night-Heron forages in productive shallow-water habitat primarily at night and during dawn and dusk <sup>1</sup>. This species feeds opportunistically on a wide variety of terrestrial and aquatic prey including freshwater and marine fish, prawns and crayfish, shellfish, leaches, aquatic and terrestrial insects and worms, amphibians, lizards, snakes, turtles, small mammals and birds, eggs, carrion, plant materials, and even garbage from dumps and landfills <sup>1</sup>. Black-crowned Night-Heron has been documented using both passive and active bait-fishing techniques to catch fish <sup>6</sup>.

**CONSERVATION CONCERNS**

**Abundance:**

**Continental:** WIDESPREAD

**Wyoming:** RARE

There are no robust estimates of abundance available for Black-crowned Night-Heron in Wyoming. The species has a statewide abundance rank of RARE and appears to be uncommon within suitable environments in the occupied area<sup>4</sup>. Colonial nesting waterbird surveys conducted from 2002–2006 by the Wyoming Game and Fish Department (WGFD) recorded a range of 29 to 78 individuals annually across all surveyed sites<sup>7-11</sup>. From 1968–2015, annual Wyoming Breeding Bird Survey (BBS) detections of Black-crowned Night-Heron ranged from 0 to 10, with none recorded in most years<sup>12</sup>. Black-crowned Night-Heron was not detected during surveys for the Integrated Monitoring in Bird Conservation Regions (IMBCR) program between 2009–2015<sup>13</sup>. While surveys conducted as part of the BBS and IMBCR programs may occasionally detect this species, neither is specifically designed to capture heron observations.

**Population Trends:**

**Historic:** UNKNOWN

**Recent:** UNKNOWN

Robust population trends are not available for Black-crowned Night-Heron in Wyoming because the species is infrequently detected during monitoring efforts. North American BBS survey-wide trend data have deficiencies, and should be viewed with caution, but suggest that Black-crowned Night-Heron numbers decreased annually by 0.62% from 1966–2013 and increased annually by 2.29% from 2003–2013<sup>14</sup>. Neither trend estimate was statistically significant.

**Intrinsic Vulnerability:**

MODERATE VULNERABILITY

Black-crowned Night-Heron has moderate intrinsic vulnerability in Wyoming due to low abundance, a dependence on a narrow range of habitats types, and colonial nesting behaviors that can expose large numbers of breeding individuals to disturbance. Like other wading birds, Black-crowned Night-Heron forages in productive shallow-water environments, which are relatively uncommon and unstable in the state. Natural or anthropogenic disturbance to breeding colonies could potentially have a large negative impact on local populations of Black-crowned Night-Heron.

**Extrinsic Stressors:**

MODERATELY STRESSED

Black-crowned Night-Heron is moderately stressed by extrinsic stressors in Wyoming, where already limited natural aquatic habitat is potentially vulnerable to climate change and drought, invasive plant species, and development for infrastructure, energy, and agriculture<sup>15, 16</sup>. Black-crowned Night-Heron has demonstrated sensitivity to drought and has already lost nesting habitat to prolonged drought conditions in Wyoming<sup>5, 17</sup>. However, this species will use constructed wetlands and anthropogenic structures for foraging and nesting<sup>18-20</sup>, which may support the idea that man-made aquatic habitats could help alleviate the loss or contraction of natural habitats in Wyoming<sup>15</sup>. Black-crowned Night-Heron nestlings are sensitive to disturbance from aquatic and terrestrial recreation near breeding colonies<sup>21</sup>. Finally, this species is at risk for bioaccumulation of heavy metals and other environmental contaminants from feeding in polluted aquatic habitats<sup>5, 17, 22-26</sup>.

**KEY ACTIVITIES IN WYOMING**

Black-crowned Night-Heron is classified as a Species of Greatest Conservation Need (SGCN) by the WGFD. Current statewide bird monitoring programs are designed for monitoring breeding songbird populations and are unlikely to provide useful information on Black-crowned Night-

Heron. These monitoring programs include the BBS program conducted on 108 established routes since 1968<sup>14</sup>, and the multi-agency IMBCR program initiated in 2009<sup>13</sup>. Since 1984, WGFD has conducted annual or periodic monitoring at the most important and productive sites for colonial waterbird SGCN to determine species presence and distribution, and to estimate number of nesting pairs. The most recent effort was the culmination of a multi-year cooperative agreement between the WGFD and the United States Fish and Wildlife Service to conduct an intensive survey of all historic, known, potential, and new colonial waterbird breeding sites statewide as part of a western range-wide effort to track population size, trends, and locations of breeding colonial waterbirds in the western United States<sup>27, 28</sup>. In 2014, an online Atlas of western colonial waterbird nesting sites was produced with data collected and submitted by participating states<sup>29</sup>. Every three to five years, WGFD personnel visit known colonial waterbird nesting sites outside of Yellowstone National Park to evaluate water level conditions, determine species present at each site, and estimate the number of nesting pairs of colonial waterbirds. There are currently no research projects designed specifically for Black-crowned Night-Heron in Wyoming.

### **ECOLOGICAL INFORMATION NEEDS**

Black-crowned Night-Heron would benefit from research to determine its detailed distribution, the location and habitat characteristics of current breeding colonies, and the annual abundance of migrating and breeding adults in Wyoming. Very little is known about the specific breeding habits of this species in the state, with the exception of approximate arrival and departure dates, and nothing is known about nest success or fledgling survival at the few known breeding locations. Due to the scarcity and inherent vulnerability of aquatic habitat in Wyoming, it would be valuable to identify current and future anthropogenic and natural stressors to ensure the persistence of breeding and foraging habitat for Black-crowned Night-Heron.

### **MANAGEMENT IN WYOMING**

*This section authored solely by WGFD; Zachary J. Walker.* Black-crowned Night-Heron is classified as a Species of Greatest Conservation Need due to limited distribution of breeding sites, and breeding site instability. Colonial water bird surveys are conducted within the state, but existing data are not robust enough to support estimates of occupancy, density, or population trend. Targeted, species-specific survey methods may be warranted for this species. Management priorities in the short-term should focus on addressing data deficiencies. Best management practices to benefit Black-crowned Night-Heron include protection of suitable breeding locations, minimize nesting disturbance, and maintenance of stable water levels throughout the nesting season.

### **CONTRIBUTORS**

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Figure 1: Adult Black-crowned Night-Heron in Albany County, Wyoming. (Photo courtesy of Shawn Billerman)

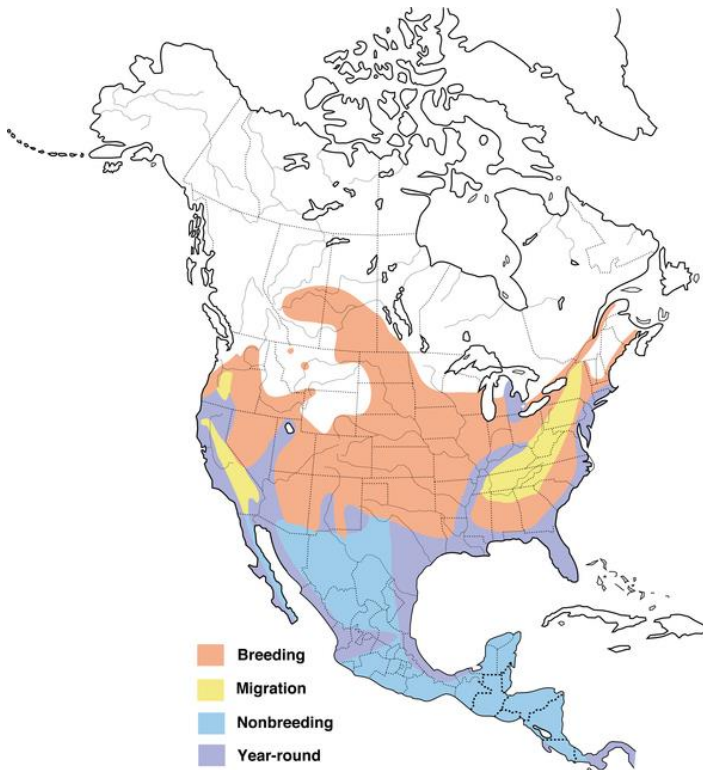


Figure 2: North American range of *Nycticorax nycticorax*. (Map courtesy of Birds of North America, <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology)

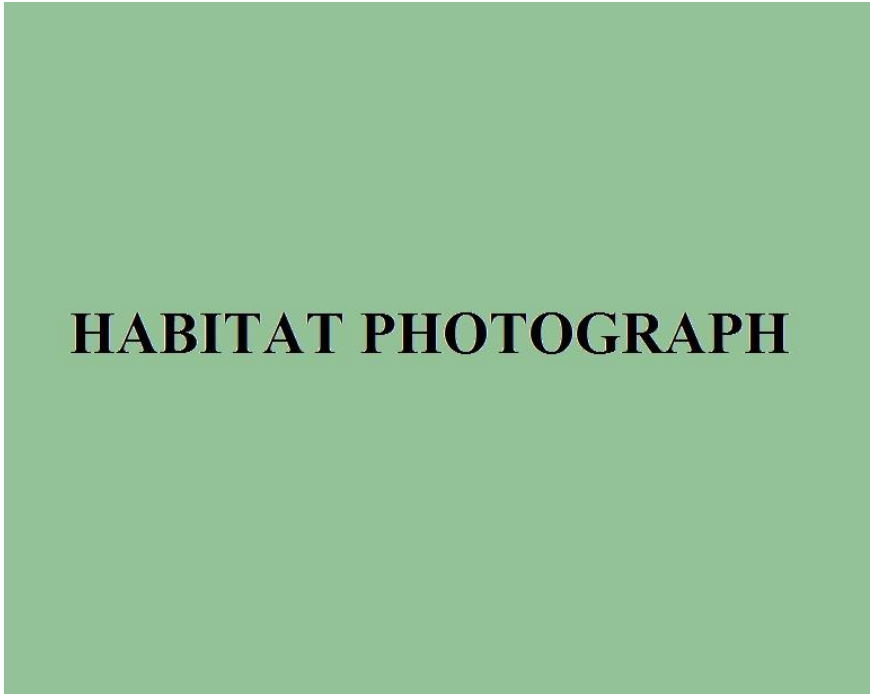


Figure 3: Photo not available.

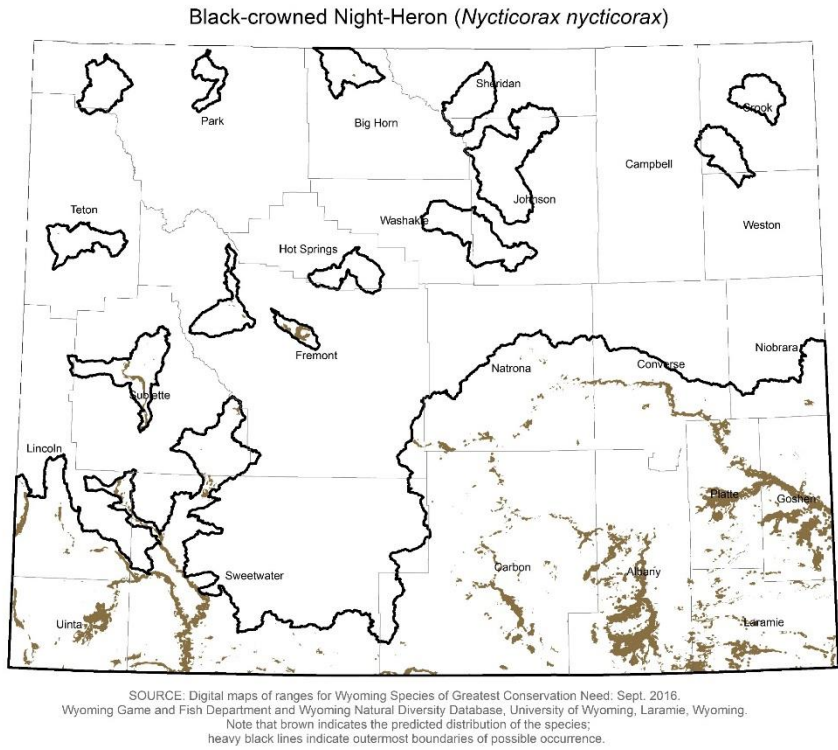


Figure 4: Range and predicted distribution of *Nycticorax nycticorax* in Wyoming.