American Bittern

Botaurus lentiginosus

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: NSS3 (Bb), Tier II
WYNDD: G4, S2S3
Wyoming Contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: Not ranked

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned American Bittern (*Botaurus lentiginosus*) a state conservation rank ranging from S2 (Imperiled) to S3 (Vulnerable) because of uncertainty about population trends for this species in Wyoming.

NATURAL HISTORY

Taxonomy:

There are no recognized subspecies of American Bittern [1, 2].

Description:

Identification of American Bittern is possible in the field. The species is similar in shape to most herons, but smaller. Males and females are identical in plumage. The head has a brown cap, yellow eye, and a long dagger like bill. The species has a large white throat patch, and a black patch running down both sides of the neck. Adults are brown above with fine black flecking, and heavily streaked on the underside with brown and white. Juveniles are generally similar to the adult, but lack the black patches on the neck [1, 3]. The only similar species in Wyoming is juvenile Black-crowned Night-Heron (*Nycticorax nycticorax*). Juvenile Black-crowned Night-Heron lacks black neck patches, and are darker brown overall than American Bittern [1].

Distribution & Range:

During the breeding season, American Bittern is found throughout the northern half of the United States and across much of Canada. In the intermountain west, including Wyoming, the species is locally distributed where appropriate wetland habitat exists. The range of the species has slowly shifted northward from its historical distribution [1]. The species migrates south in winter were it is broadly distributed throughout Mexico and portions of several Central American countries as well across the southern United States from California to Florida [1].

Habitat:
Primary foraging habitat for the American Bittern includes freshwater marshes with tall, emergent vegetation [1]. Breeding habitat includes wetlands and adjacent upland grassy habitats. Appropriate breeding habitat is characterized by proximity to suitable foraging areas, and an overall area of at least 3 ha [4]. Studies conducted outside Wyoming suggest the species prefers habitat with 30–70% emergent vegetation cover averaging 69–133 cm tall, and 10–50% open water with an average depth of 24–56 cm [5, 6]. Habitat associations have not been studied in Wyoming, but are expected to be similar to other mountain states [4]. Habitat use during migration is similar to summer habitat use. In winter, a wider variety of wetland habitats are used, including brackish coastal marshes [1].

Phenology:
In Wyoming, spring arrival of American Bittern occurs from late April to May [7]. Nesting phenology of the species has not been studied in Wyoming, and little studied elsewhere. Incubation lasts 24 to 28 days. Young stay in the nest for one to two weeks, and then remain near the nest area until two to four weeks of age [1]. Age at fledging is unknown. Fall migration occurs in October, with the latest migrants leaving by November [7].

Diet:
The primary foods of American Bittern are insects, amphibians, crayfish, small fish, and small mammals [1].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD
Wyoming: VERY RARE
There are no robust estimates of abundance available for American Bittern in Wyoming. The species has a statewide abundance rank of VERY RARE and appears to be uncommon within suitable environments in the occupied area [8]. From 1968–2015, annual Wyoming Breeding Bird Survey (BBS) detections of American Bittern ranged from 0 to 6, with none recorded in most years [9]. American Bittern was not detected during surveys for the Integrated Monitoring in Bird Conservation Regions (IMBCR) program between 2009–2015 [10]. While surveys conducted as part of the BBS and IMBCR programs may occasional detect this species, neither is specifically designed to capture bittern observations.

Population Trends:
Historic: LARGE DECLINE
Recent: UNKNOWN
Historic large declines of American Bittern in parts of its range resulted from the drainage and conversion of wetlands [4]. Survey-wide trend data from the North American BBS indicate that American Bittern numbers experienced a non-significant annual decline of 0.64% from 1966–2013, and a statistically significant annual increase of 3.18% from 2003–2013 [11]. Robust population trends are not available for American Bittern in Wyoming because the species is infrequently detected during monitoring efforts. Wyoming BBS trend data suggest that American Bittern experienced annual declines from 1968–2013 and from 2003–2013, but these state estimates have low credibility and are not statistically significant [11].

Intrinsic Vulnerability:

HIGH VULNERABILITY

American Bittern is restricted to undisturbed wetland habitats that are larger than 3 ha, which are rare in Wyoming [4]. Because American Bittern is reliant on these habitats, it is susceptible to changes in localized management. Factors that affect habitat suitability include invasion of exotic vegetation, grazing, and other anthropogenic forms of ground disturbance [4]. American Bittern may show sensitivity to toxin bioaccumulation [1, 4]. Wetlands are often susceptible to accumulating chemical runoff from herbicide and pesticide application, among other forms of pollution. More information is needed to determine direct chemical impacts on this species. Bioaccumulation of toxins has been shown to affect species related to American Bittern, and their prey items [4].

Extrinsic Stressors:

MODERATELY STRESSED

The most prevalent threat to American Bittern is continued loss and degradation of wetland habitats. Drainage and conversion of wetland habitat and degradation of upland areas around wetlands by agriculture and livestock use are ongoing threats. These activities reduce habitat quality and size of wetlands. Disturbance of breeding sites by human activities can cause nest and territory abandonment. Changes to water quality within wetlands such as siltation, eutrophication, and herbicide contamination negatively affect the species through habitat destruction and by reducing prey availability [4]. Additionally, American Bittern has been shown to decline with increasing amounts of human recreational activities [4].

KEY ACTIVITIES IN WYOMING

Annual surveys for American Bittern are conducted by the Wyoming Game and Fish Department (WGFD) using standardized call-playback techniques. Initial monitoring was conducted at Cokeville Meadows National Wildlife Refuge (NWR) in western Wyoming. These surveys began in 2007. In 2015, additional monitoring routes were established at Yellowtail Wildlife Habitat Management Area (WHMA), Table Mountain WHMA, Dad Wetland, and Hutton Lake NWR. There are currently 10 established American Bittern monitoring routes across Wyoming. While monitoring data are limited, results suggest an increasing population at Cokeville Meadows NWR[12]. In addition to these species specific surveys, WGFD implemented secretive marsh bird surveys in Wyoming in 2015. Additionally, monitoring is needed to ascertain population trends in the state. Wetland restoration efforts are ongoing in Western Wyoming, specifically within the Green River watershed. Habitat restoration efforts could increase habitat for American Bittern within the state.

ECOLOGICAL INFORMATION NEEDS

Very little is known about the ecology of American Bittern in Wyoming. The extent of the distribution of the species in the state is unknown [4]. Nesting phenology is unknown. Population size and population trends in Wyoming are unknown.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Zachary J. Walker. American Bittern is classified as a Species of Greatest Conservation Need in Wyoming due to limited breeding habitat, breeding habitat modification, and lack of information. Due to low detection rates and specific habitat requirements, American Bittern is currently monitored in Wyoming by using standardized marsh

bird monitoring protocols. Annual monitoring should be continued within the state at established sites. New monitoring routes should be implemented as funding and personnel allow. Management should maintain suitable undisturbed wetland habitat within the state. Wetland management could include promoting tall emergent vegetation and shallow water, limiting water fluctuations during the breeding season, and protecting wetlands from degradation and pollution [13, 14]. In areas where American Bittern is known to nest; mangers should limit mowing, burning, and grazing to a 2–5 year cycle.

CONTRIBUTORS

Michael T. Wickens, WYNDD
Kaylan A. Hubbard, WYNDD
Zachary J. Walker, WGFD
Ian M. Abernethy, WYNDD
Douglas A. Keinath, WYNDD

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Figure 1: An American Bittern at Meeboer Lake, Albany County, Wyoming. (Photo courtesy of Shawn Billerman)

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

Figure 3: Potential American Bittern habitat in Grand Teton National Park, near Moran Bay. (Photo courtesy of Michael T. Wickens)

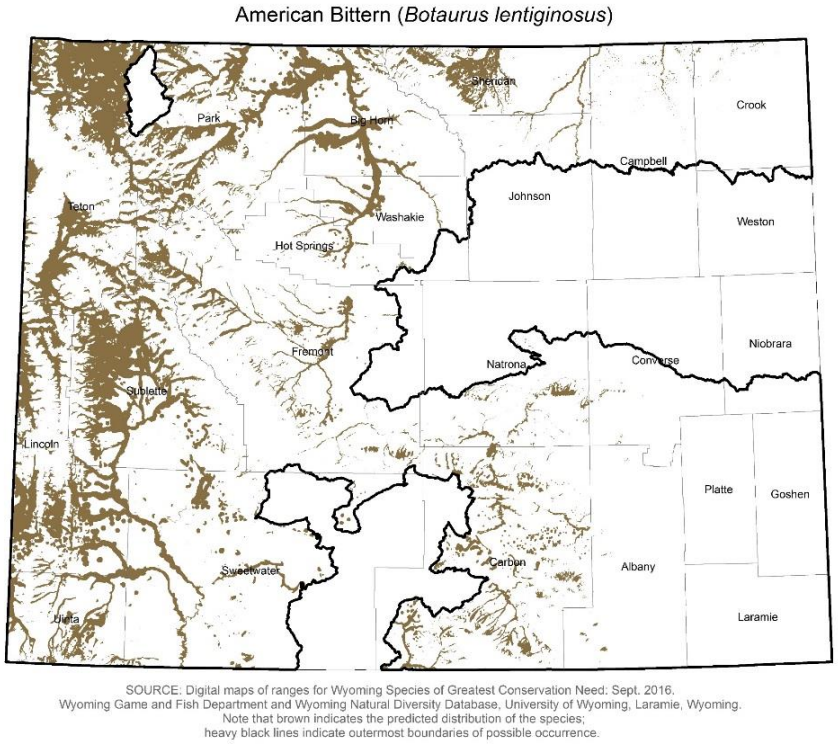

Figure 4: Range and predicted distribution of *Botaurus lentiginosus* in Wyoming.