Caspian Tern

Hydroprogne caspia

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, S1
Wyoming Contribution: MEDIUM
IUCN: Least Concern
PIF Continental Concern Score: Not ranked

STATUS AND RANK COMMENTS

Caspian Tern (*Hydroprogne caspia*) has no additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

Following the reclassification of the genus *Sterna* in 2006, Caspian Tern (formerly *S. caspia*) was moved to the genus *Hydroprogne* [1]. Although American and Australian subspecies have been suggested, there are currently no formally recognized subspecies of Caspian Tern [2, 3].

Description:

Identification of Caspian Tern is possible in the field. It is the largest species of tern; adults weigh between 530–782 g, range in length from 47–54 cm, and have a wingspan of approximately 127 cm [2, 4]. The sexes are similar in size and appearance [2]. Caspian Tern has a slightly crested crown and a dark cap that extends below the eye (solid black in the breeding season and mottled dark gray in the non-breeding season), white underbody, pale gray wings, primaries that are dark on the underside, a short slightly notched tail, dark eyes, thick red bill with a dark grey tip that fades to a pale orange or red at the extreme tip, and black legs and feet [2, 4]. Two other species of tern are known to breed in Wyoming: Black Tern (*Chlidonias niger*) and Forster's Tern (*S. forsteri*) [5, 6]. Caspian Tern resembles Forster's Tern in the breeding season, but Forster's Tern has a smaller orange bill with a black tip and orange legs and feet [4].

Distribution & Range:

The breeding distribution of Caspian Tern is widely scattered within five main regions of North America: Pacific Coast/Western Region, Central Canada, Gulf Coast, Atlantic Coast, and Great Lakes [7]. There is recent evidence of limited gene flow between the Pacific Coast/Western Region, Central Canada and the Great Lakes breeding populations, as well as genetic

differentiation between sites on the Pacific Coast and those located east of the Rocky Mountains [8]. Wyoming borders the northeastern edge of the Pacific Coast/Western region [7], and contains several small breeding areas [2]. Caspian Tern migrates through the state in the spring and fall and is a summer resident [5, 6]. Although this species has been observed at many waterbodies across the state, confirmed breeding has been documented in just 4 of the 28 latitude/longitude degree blocks [6].

Habitat:
Caspian Tern is found in a diverse range of marine and freshwater habitats across its range, including coastal beaches, estuaries, barrier islands, lagoons, bays, harbors, salt and freshwater marshes and lakes, wetlands, and major rivers [2, 7]. This species also frequently uses, and even benefits from, artificial and manmade habitats, such as dredge spoil islands, dikes, artificial lakes and reservoirs, levees, and landfills [7]. However, Caspian Tern breeds exclusively on islands in large lakes and reservoirs in Wyoming [5]. Preferred nesting sites are on the ground in sparsely vegetated, open areas that are > 2–3 m above the water surface to prevent flooding [2]. Nests are typically shallow depressions scraped into soft substrate, or existing/natural depressions in harder substrate, which may be lined with small pebbles, shells, sticks, or pieces of vegetation [2].

Phenology:
In Wyoming, spring arrival of migrating and breeding Caspian Terns occurs in mid-April. Very little is known about the specific nesting and breeding phenology of this species in Wyoming, but they are often seen nesting in close proximity to other colonial bird species [2, 5]. Clutches of 1–3 eggs are initiated 2–3 weeks after arrival at the breeding colony [2]. The incubation period lasts for 25–27 days, and fledging occurs when the young are about 37 days old [2]. Caspian Tern is considered a single-brood species, but will often renest following loss of the first clutch [2]. Fall migration from Wyoming occurs in September, with all migrants and residents departing the state by the end of the month [5].

Diet:
Caspian Tern is almost exclusively piscivorous, consuming many different species and sizes (5–30 cm) of fish depending on location and time of year [2]. In addition, it may also opportunistically feed on insects and crayfish [2].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD BUT PATCHY
Wyoming: VERY RARE
There are no robust estimates of abundance available for Caspian Tern in Wyoming. The species has a statewide abundance rank of VERY RARE but appears to be uncommon within suitable environments in the occupied area [6]. Colonial nesting waterbird surveys conducted from 2002–2006 by the Wyoming Game and Fish Department (WGFD) recorded 12 to 43 individuals annually across all surveyed sites [9-13]. From 1968–2015, annual Wyoming Breeding Bird Survey (BBS) detections of Caspian Tern ranged from 0 to 6, with none recorded in most years [14]. Caspian Tern was not detected during surveys for the Integrated Monitoring in Bird Conservation Regions (IMBCR) program between 2009–2015 [15]. While surveys conducted as part of the BBS and IMBCR programs may occasional detect this species, neither is specifically designed to capture tern observations.

Population Trends:
Historic: UNKNOWN
Recent: UNKNOWN
Robust population trends are not available for Caspian Tern 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 Caspian Tern numbers declined annually by 0.18% from 1966–2013 and increased annually by 3.16% from 2003–2013 [16]. Neither trend estimate was statistically significant.

Intrinsic Vulnerability:
HIGH VULNERABILITY
The high intrinsic vulnerability of Caspian Tern stems from very restricted habitat use in the state, low density of occurrence colonial nesting behaviors that can expose large numbers of breeding individuals to disturbance, and inherent risk of bioaccumulation of environmental toxins. In Wyoming, Caspian Tern only breeds on islands in large lakes and reservoirs [5], which is a rather rare habitat. Natural or anthropogenic disturbance to Caspian Tern breeding colonies can potentially affect large numbers of nesting individuals and negatively impact local populations. Caspian Tern is known to be highly sensitive to direct human disturbance, which can lead to high rates of nest abandonment and mortality of eggs and chicks [2, 17, 18]. As a primarily piscivorous species, Caspian Tern is at risk for physiological and reproductive stress caused by bioaccumulation of environmental contaminants from feeding in polluted aquatic habitat [2, 17, 19-23].

Extrinsic Stressors:
MODERATELY STRESSED
Caspian Tern is moderately stressed by extrinsic factors in Wyoming, where already limited island and aquatic habitat is potentially vulnerable to climate change and drought, invasive plant species, and development [24]. Drought and remediation projects in the state have exposed previously protected island breeding colonies to predation, disturbance, and abandonment [5].

KEY ACTIVITIES IN WYOMING

Caspian Tern 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 Caspian Tern. These monitoring programs include the BBS program conducted on 108 established routes since 1968 [16], and the multi-agency IMBCR program initiated in 2009 [15]. 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 [25, 26]. In 2014, an online Atlas of western colonial waterbird nesting sites was produced with data collected and submitted by participating states [27]. 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 Caspian Tern in Wyoming.

ECOLOGICAL INFORMATION NEEDS

In Wyoming, Caspian Tern would benefit from research to determine its detailed distribution and the annual abundance of migrating and breeding adults. Beyond approximate arrival and departure dates, very little is known about migratory pathways, or the phenology of local breeders in Wyoming. Likewise, nothing is known about nest success or fledgling survival at the few known breeding locations in the state. Given Caspian Tern's demonstrated sensitivity to human disturbance, and the scarcity and inherent vulnerability of Wyoming's aquatic habitats, current and future anthropogenic and natural stressors should be identified to ensure the persistence of existing nesting locations.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Zachary J. Walker. Caspian Tern is classified as a SGCN in Wyoming due to varying annual availability and suitability of breeding sites and sensitivity to human disturbance during the nesting period. 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. Best management practices or key management recommendations to benefit Caspian Tern include protection of suitable breeding locations, minimize nesting disturbance, and maintenance of stable water levels throughout the nesting season [24].

CONTRIBUTORS

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Figure 1: Adult Caspian Tern in Weld County, Colorado. (Photo courtesy of Bill Schmoker)

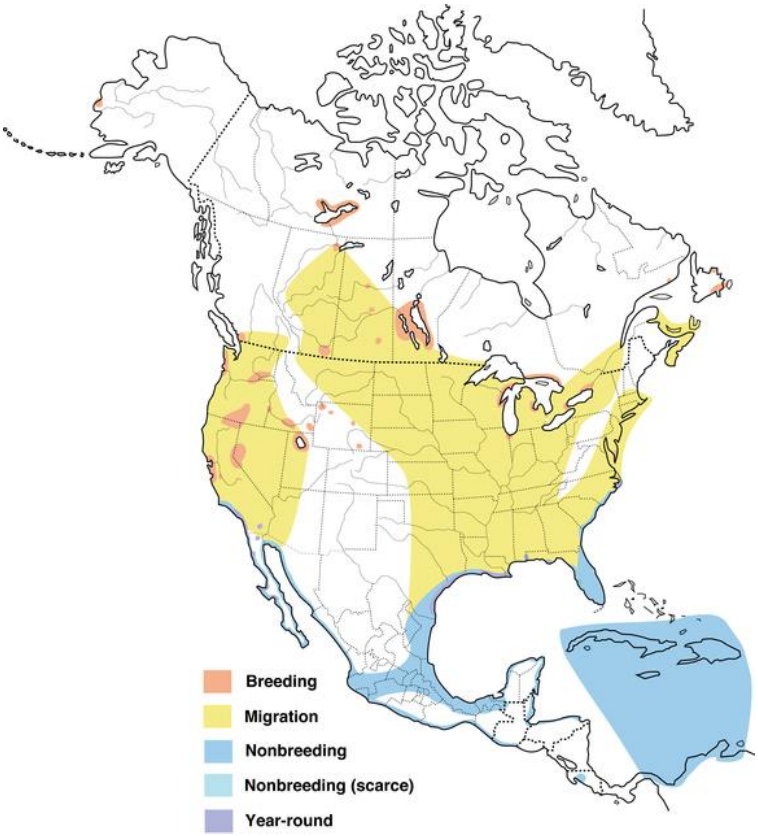

Figure 2: North American range of *Hydroprogne caspia*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

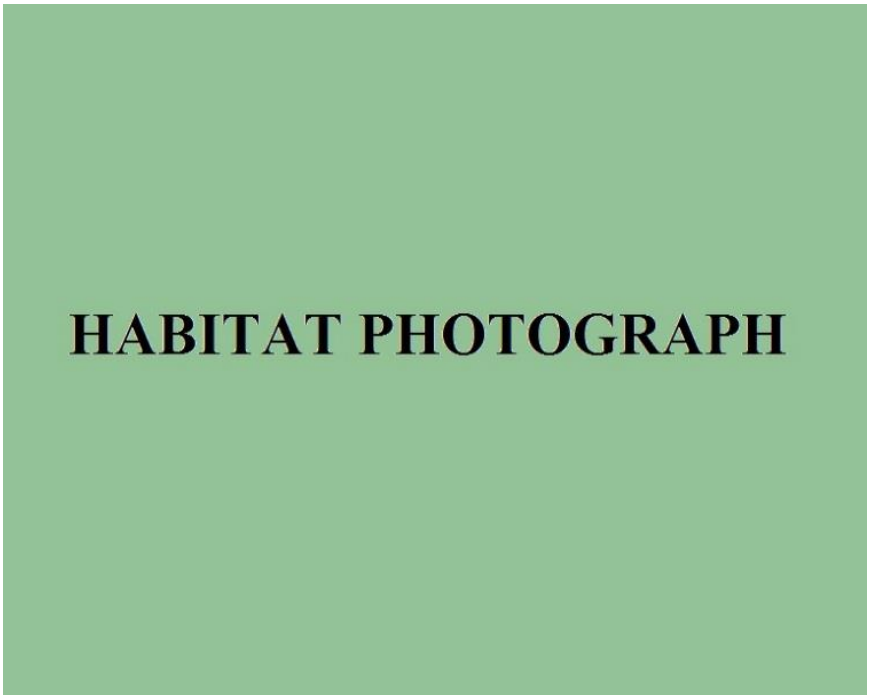

Figure 3: Photo not available.

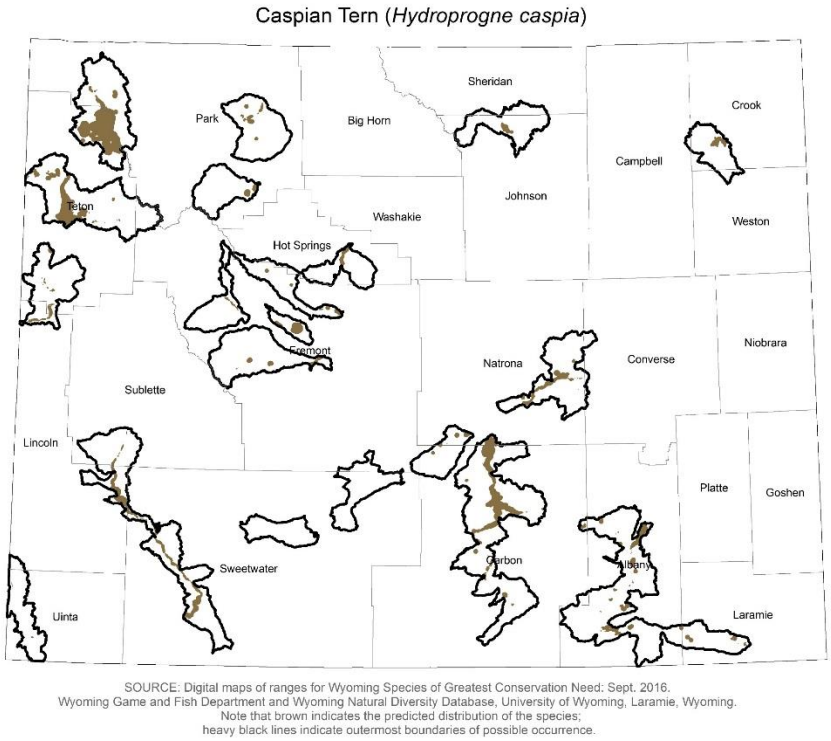

Figure 4: Range and predicted distribution of *Hydroprogne caspia* in Wyoming.

Figure 5: Adult Caspian Tern (with leg bands) in flight over Elk Lake, Montana. (Photo courtesy of Elizabeth Boehm)