

Purple Martin

Progne subis

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: No special status
WGFD: NSSU (U), Tier III
WYNDD: G5, S1
Wyoming contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: 8

STATUS AND RANK COMMENTS

Current long-term monitoring data are inconclusive for Purple Martin (*Progne subis*) in Wyoming, resulting in a Native Species Status (NSS) designation of unknown.

NATURAL HISTORY

Taxonomy:

Purple Martin belongs to the subfamily Hirundininae, including swallows and martins. There are nine species in the genus *Progne* which closely resemble one another ¹. There are three subspecies of the Purple Martin differing in body size and plumage of the adult female, with *P. s. arboricola* occurring within Wyoming.

Description:

Purple Martin is the largest swallow. Purple Martin located in the Rocky Mountains and Pacific Northwest are larger than those in the eastern and southwestern United States ¹. Adult male Purple Martin is the only swallow in North America that exhibits a dark belly. Adult males are entirely glossy blue-black. The adult female resembles other swallows, but can be distinguished by their large size and brownish-gray collar around the nape. During their first year, male plumage resembles that of females, but males exhibit varying amounts of blue-black plumage on the head and belly. First year females resemble adult females but have less blue plumage on their back and lack dusky centers on the undertail-coverts ². Purple Martin is typically has a wing span of 134–151 mm in wing length, and mass of 54 g ¹.

Distribution & Range:

Purple Martin breeds throughout eastern North America, along the Pacific northwest coast, and in isolated locations in the southern Rocky Mountains and southwestern deserts ³. Purple Martin winters in the central South American lowlands from Bolivia to southern Brazil. The Amazon River basin is thought to be a staging area for spring and fall migrations. Wyoming populations

fall with Rocky Mountain segment of the National Range. Within Wyoming, the only known breeding colony of Purple Martin exists on the western flank of the Sierra Madre Mountains in the south-central part of the state⁴. Purple Martin has been observed in areas surrounding the known breeding colony, suggesting additional breeding pairs may exist in the state. Purple Martin has been documented in nine of Wyoming's 28 latitude/longitude degree blocks, which are dispersed throughout the state⁵. A historic breeding observation was documented within latitude/longitude degree block 21 along the North Platte River^{4,5}. The 2004 breeding observation was recorded in latitude/longitude degree block 25⁵.

Habitat:

Purple Martin was historically known to occupy forest edges and riparian habitats with abundant snags^{1,3}. Purple Martin also prefers wooded ponds, including those created by American Beaver (*Castor canadensis*). In Wyoming, Purple Martin has been documented breeding in aspen stands adjacent to water below 2,100 m⁴. Purple Martin is an obligate cavity nester. Natural preferred breeding habitat is patchily distributed and localized across the landscape. Throughout the eastern United States, Purple Martin has altered its nesting habits and primarily utilizes birdhouses specifically constructed for the species. Because of birdhouse availability, Purple Martin is now observed almost exclusively in association with human settlements in eastern portions of its range¹. The species frequently inhabits urban environments, and has been documented breeding in large cities. During winter months, Purple Martin occupies savannas and other agricultural areas in central South America. In winter, the species frequently roosts in trees associated with human developments¹.

Phenology:

Purple Martin is primarily diurnal. Within Wyoming, the earliest observation of spring arrival occurred on 10 May 1980^{3,4}. Females arrive later than adult males, and males may remain unpaired for up to three weeks. Breeding pair formation occurs several days after females arrive on breeding grounds following investigation of potential nest sites and subsequent cavity ownership by both sexes¹. Purple Martin typically lays a single clutch of approximately 5 eggs, but may attempt to renest if the first nest fails. Young Purple Martins typically fledge in 27–36 days¹. Fall departure is thought to occur in early August. The latest accepted fall observation in Wyoming was documented on 7 August 1978. There remains a later unaccepted observation on 8 September 1969, near Sheridan⁴.

Diet:

Purple Martin aerially forages for flying insects often at altitudes of greater than 50 m^{1,6}. However, Purple Martin has been documented foraging from a few meters in altitude to more than 150 m⁶. This species rarely gleans insects from the ground or water surface. Purple Martin is insectivorous, and feed on most insect orders as well as spiders. Purple Martin is documented to additionally feed on small bits of gravel and eggshells to aid in digestion of their prey¹.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD

Wyoming: VERY RARE

Purple Martin is considered a rare summer resident in Wyoming⁵. Using Breeding Bird Survey (BBS) data, Partners in Flight have estimated the global population of Purple Martin to be 7 million birds⁷. In 2014, statewide results from the Integrated Monitoring in Bird Conservation

Regions (IMBCR) program estimated a Purple Martin population size of 787 (% CV = 103, $n = 1$ detection) individuals in Wyoming⁸. These results are not robust, and should be interpreted with care. However, this is currently the only population size estimate of Purple Martin in Wyoming. The statewide rank of VERY RARE is based on the rather small area of the state known to be occupied in any given season, and the small coverage of suitable habitat within that area. Purple Martin is only known to breed in one location along the west flank of the Sierra Madre Mountain Range⁴. This species is considered possibly extirpated from Wyoming by some sources⁹.

Population Trends:

Historic: UNKNOWN

Recent: UNKNOWN

Purple Martin population trends within Wyoming are unknown. There are currently no BBS trend estimates for this species within the state. Purple Martin populations have been fairly stable in recent years (2003–2013), although Purple Martin has been estimated to decline in all BBS regions (eastern, central, and western) in the last 5 decades¹⁰. The greatest levels of decline have occurred in the western region, but trend estimates are not robust for this region¹⁰. Western populations may be decreasing due to competition by European Starling (*Sturnus vulgaris*) and House Sparrow (*Passer domesticus*) for nesting cavities^{9, 10}. It is suspected that this species has historically occurred in the state at low levels.

Intrinsic Vulnerability:

MODERATE VULNERABILITY

Purple Martin is an obligate cavity nester. Humans have long provided specialized nesting structures, and Purple Martin has opportunistically adapted to human-dominated environments. The species is a secondary cavity nester and is dependent on existing cavities which likely have a localized and patchy distribution across the landscape. Within more native environments, Purple Martin prefers a narrow window of habitat conditions, comprised of snags, forest edges, wooded ponds, and wet meadows^{1, 3, 4}.

Extrinsic Stressors:

UNKNOWN

It has been shown that human activities can reduce naturally occurring nesting habitat in montane habitats³. Factors that could influence Purple Martin abundance include: harvest of mature aspen, lack of aspen regeneration, and changes in water management. In addition to loss of natural nesting cavities; pesticides, road mortalities, and human roost removal have also been documented as extrinsic stressors¹. Human activity and habitat alteration have resulted in modification of Purple Martin nesting behavior. Anthropogenic sources now provide a majority of nesting sites through specialized nest boxes¹.

KEY ACTIVITIES IN WYOMING

Purple Martin is classified as a Species of Greatest Conservation Need (SGCN) in Wyoming due to limited information on breeding status and population trend in the state. No systematic survey of Purple Martin has been conducted in Wyoming, and existing data are not robust enough to support estimates of occupancy, density, or population trend. One breeding colony has been confirmed along the west flank of the Sierra Madre Mountains⁴. Observations of this species are reported to the Wyoming Game and Fish Department and vetted through the Wyoming Bird

Records Committee (WBRC). Purple Martin is a species for which the WBRC requests documentation on all sightings.

ECOLOGICAL INFORMATION NEEDS

The distribution of Purple Martin in Wyoming remains unclear. Purple Martin breeding may remain undocumented in the southwestern flank of the Bighorn Mountains, and along the Wyoming Range ⁴. A majority of information for the Purple Martin comes from eastern populations of this species. Basic natural history information is needed for Purple Martin in western states including data on general life history, delineating migratory corridors, demography, food habitats, and response to habitat management practices ^{3, 4}.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Zachary J. Walker and Andrea C. Orabona. Purple Martin is classified as a SGCN in Wyoming due to a lack of information on breeding status and population trends. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming; the BBS ¹⁰ and IMBCR ⁸. While these monitoring programs provide robust estimates of occupancy, density, or population trend for many species in Wyoming, Purple Martin may need a targeted, species-specific survey method to obtain these data. Management priorities for Purple Martin in the short-term will focus on addressing data deficiencies. Information should be gathered on species presence, distribution, population status, and the impact of potential threats. Any information gathered will ultimately be used to develop management and conservation recommendations for this species, and to designate a known NSS ranking. In order to adequately manage for this species in the state, more information on breeding status and general life history is required.

CONTRIBUTORS

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Wyoming Species Account

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Figure 1: Adult male (left) and female (right) Purple Martins at nest cavity in Garfield County, Colorado. (Photos courtesy of Bill Schmoker).

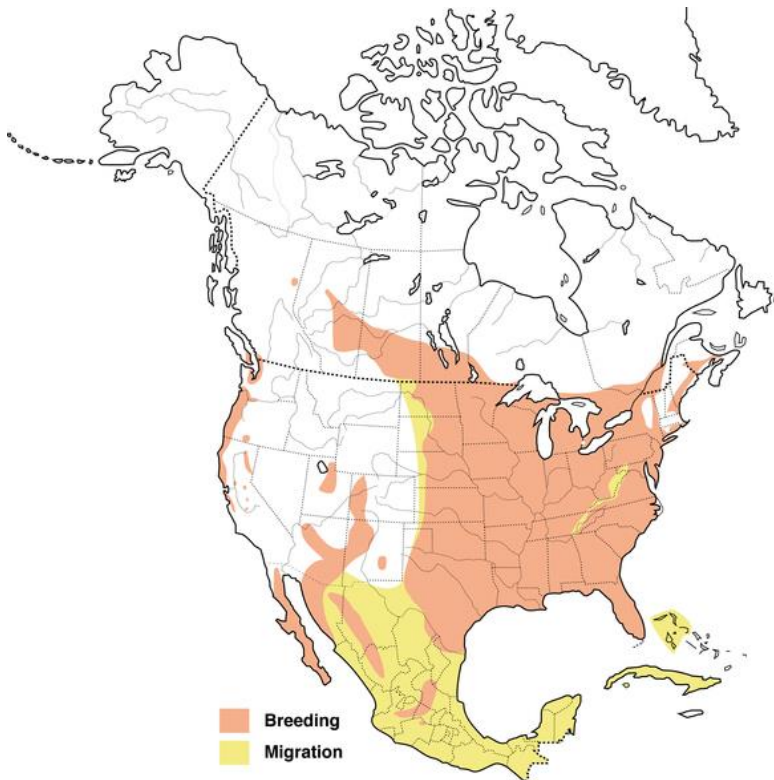


Figure 2: North American range of *Progne subis*. (Map courtesy of Birds of North America, <http://bna.birds.cornell.edu/bna>, maintained by the Cornell Lab of Ornithology)

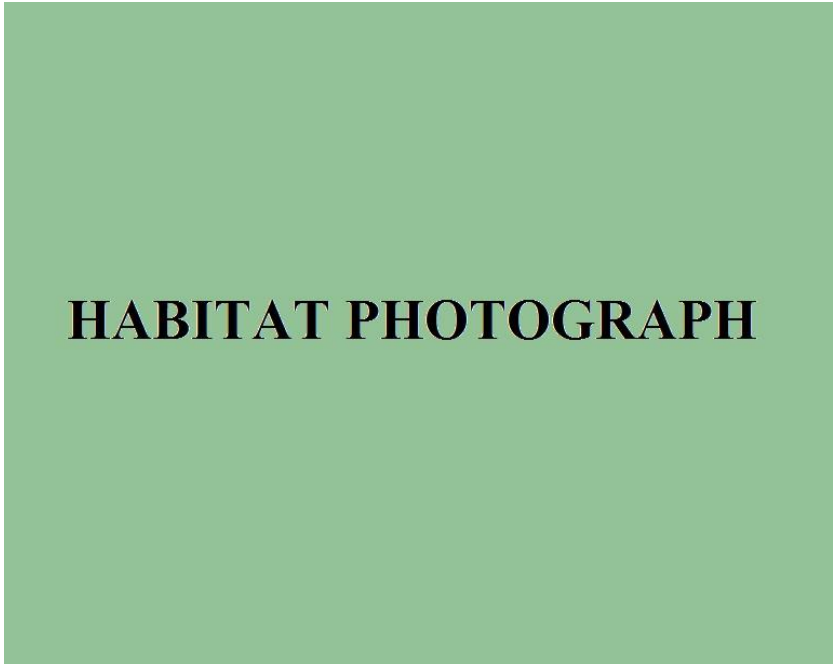


Figure 3: Photo not available.

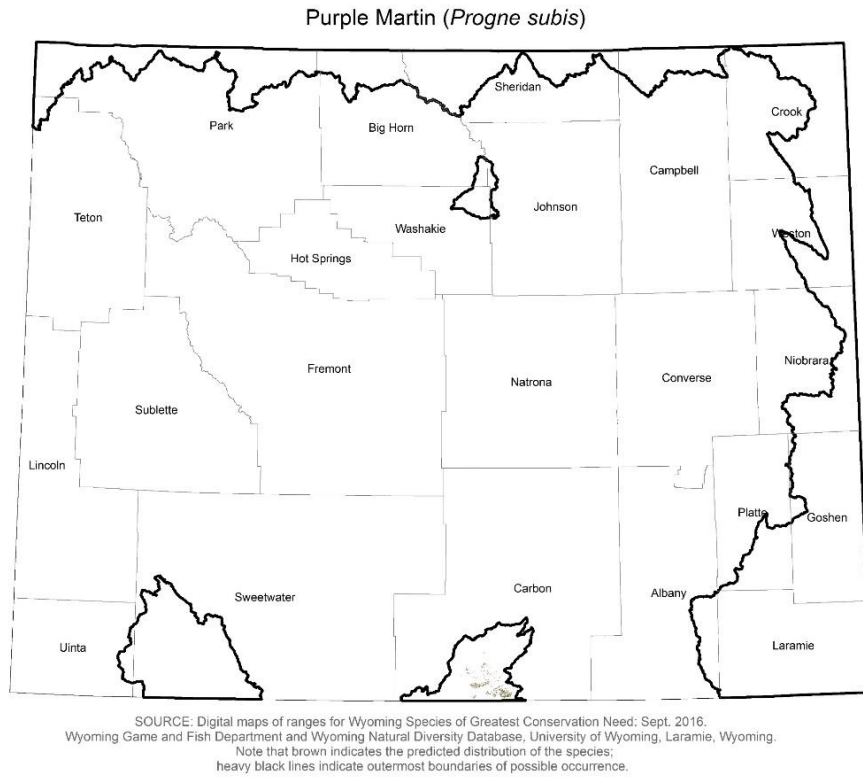


Figure 4: Range and predicted distribution of *Progne subis* in Wyoming.