Calliope Hummingbird

Selasphorus calliope

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: Bird of Conservation Concern
WGFD: NSS4 (Bc), Tier II
WYNDD: G5, S2
Wyoming Contribution: MEDIUM
IUCN: Least Concern
PIF Continental Concern Score: 11

STATUS AND RANK COMMENTS

Calliope Hummingbird (*Selasphorus calliope*) does not have any additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

No subspecies of Calliope Hummingbird are currently recognized. The species is known to hybridize with Anna's (*Calypte anna*) and Costa's (*C. costae*) Hummingbirds [1]. Some argue that this species should be grouped in a much larger genus *Archilochus*, but currently there are no formal proposals to change this [2].

Description:

Identification of Calliope Hummingbird is possible in the field. Calliope Hummingbird is Wyoming's smallest hummingbird and the smallest bird in North America, north of Mexico [3]. Calliope Hummingbird males are somewhat easier to identify in the field than females. Male upperparts are bronzy-green, the head is bronzy-green on top, the cheek has a white stripe, and the neck has a diagnostic metallic magenta gorget that is divided into separate rays – Calliope Hummingbird is the only North American hummingbird with distinctly separated rays. Females also have bronzy-green upperparts, but are more buff below, and have a speckled drab neck versus a showy gorget. Juvenile Calliope Hummingbirds resemble adult females. Both sexes have grayish legs, feet, and bills [1]. Female Rufous (*S. rufus*) and Broad-tailed (*S. platycercus*) Hummingbird underparts are similar to the female Calliope Hummingbird; however, the overall size, short tail, and wingtip termination at tail tip all contribute to female Calliope Hummingbird identification [4].

Distribution & Range:
Wyoming forms a limited portion of the southeastern edge of Calliope Hummingbird's breeding range [1]. The species has been documented in 19 of Wyoming's 28 latitude/longitude degree blocks, with confirmed or circumstantial evidence of breeding occurring in 10 of those 19 degree blocks [5]. Breeding records tend to be clustered in the western and north-central areas of the state. Nine of the 19 degree blocks where Calliope Hummingbird observations have occurred are scattered throughout the state [5, 6]. Calliope Hummingbird is known to be profuse in Jackson Hole and Story, Wyoming during the summer [6]. The species winters outside of Wyoming in Mexico from Sinaloa and Durango to points as far south as Oaxaca [7]. Little is known about its spring migration, although, generally this species travels along the Pacific Coast before heading east to Wyoming. During fall migration, Calliope Hummingbird tends to utilize Wyoming's mid-elevation (~1,500–2,600 m) montane habitats, where there are plentiful flowering species. Calliope Hummingbird travels along the Rocky Mountains en route to winter grounds [6, 8].

Habitat:
In Wyoming, Calliope Hummingbird typically utilizes montane willow (*Salix* spp.) and alder (*Alnus* spp.) dominated riparian habitats during breeding season. Nests are usually constructed in conifer trees (typically *Pinus* spp.) adjacent to the riparian corridor [1, 6]. Range-wide, the species is known to breed at elevations as low as 185 m near the Columbia River and as high as 3,400 m in the Sierra Nevada Range [1, 9]. The species also utilizes deciduous species such as birch (*Betula* spp.), maple (*Acer* spp.), and Quaking Aspen (*Populus tremuloides*) for nesting in other portions of its range. As Calliope Hummingbird migrates along the Pacific slope in spring, it will stopover in desert washes and a variety of coastal habitats. During fall migration, it is typically found in high elevation meadows with many flowers, but is known to frequent hummingbird feeders and nectar-rich landscape plantings as well. In winter, Calliope Hummingbird is found in chaparral, low elevation scrub, desert, semi-desert, and human-influenced areas [1, 3].

Phenology:
Calliope Hummingbird arrives in Wyoming in mid-May, although there is an early report of 28 April [6]. Breeding records tend to be concentrated in the western half and north-central regions of Wyoming [5]. The species typically lays 1 clutch per season of 2 eggs. Incubation is usually 15–16 days, followed by a nestling period of 18–21 days; parental duties during both are performed entirely by the female. The species is not known to re-nest or produce a second clutch [1]. By late August, Calliope Hummingbirds begin migrating to wintering grounds, although there is a late report of 12 September [6].

Diet:
Calliope Hummingbird feeds primarily on flower nectar and small insects. Although research indicates a preference for red tubular flowers, it also consume nectar from purple, blue, white, and yellow flowers. Favored insects include true flies (Diptera), bees, wasps, ants, sawflies (Hymenoptera), and beetles (Coleoptera). Calliope Hummingbird uses a hawking method to capture insects, which consists of flying out from a branch to retrieve prey from the air. This species also obtains food from sap wells constructed by sapsuckers (*Sphyrapicus* spp.), as well as from residential hummingbird feeders [1, 3, 9].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD BUT DISJUNCT
Wyoming: UNCOMMON
Using North American Breeding Bird Survey (BBS) data, the Partners in Flight Science Committee estimated the global population of Calliope Hummingbird to be 2 million birds [10]. Approximately 3.0% of the global population, or an estimated 70,000 birds, breed in Wyoming [11], but this estimate is likely high and should be viewed with caution given the paucity of observation data on which it is based. The statewide rank of UNCOMMON is based on the limited area of the state known to be occupied in any given season, and the relatively small coverage of suitable habitat within that area. However, within suitable habitat in the occupied area, Calliope Hummingbird appears to be common and is usually encountered during surveys that could be expected to indicate its presence [5]. From 2009–2015, no Calliope Hummingbirds were detected on Integrated Monitoring in Bird Conservation Regions (IMBCR) survey grids in Wyoming [12].

Population Trends:
Historic: UNKNOWN
Recent: UNKNOWN
Population trends are not available for Calliope Hummingbird in Wyoming due to low detection rates during monitoring surveys and a general lack of documented observations. Currently, there are no robust North American BBS trend data for Calliope Hummingbird in Wyoming due to an extremely limited sample size (N = 11 routes; 1968–2013) and data that fall within a credibility category containing important deficiencies [13]. However, 1966–2013 BBS trend analyses for this species survey-wide and for the western region indicate an annual population decrease of 0.18% (N = 221 routes, 95% CI: -1.25–0.93), and an annual population decrease for the United States of 0.97% (N = 168 routes, 95% CI: -2.24–0.25) [13]. All BBS data presented in this account have been determined to fall within a credibility category containing data with deficiencies, likely due to low relative abundance and number of routes with Calliope Hummingbird detections [13].

Intrinsic Vulnerability:
MODERATE VULNERABILITY
In Wyoming, Calliope Hummingbird has moderate intrinsic vulnerability. The species' primary vulnerabilities stem from its somewhat limited breeding range in the western and northern mountain ranges and low fecundity, producing only 1 clutch of 2 eggs per breeding season [1, 6]. Additionally, the taxon's preferred breeding habitat appears to be restricted to montane riparian areas adjacent to mid-elevation conifer forests, generally within a landscape that supports an abundance of large-flowered plants [6].

Extrinsic Stressors:
SLIGHTLY STRESSED
Stressors to Calliope Hummingbird in Wyoming are most likely associated with land use practices in montane riparian corridors and adjacent mid-elevation conifer forests. Riparian lands constitute a small percentage of Wyoming's landscape [14] and their importance to avian migration, nesting, and foraging is well documented [8]. While local, state and federal measures may limit certain impacts in these areas, the cumulative effects of development (e.g., grazing, timber harvest, recreation), invasive species, and hydrologic regime change (e.g., impoundments, irrigation withdrawals, channel alterations) contribute to the degradation of riparian lands [8, 14].

Common impacts to conifer habitat in Wyoming include recreation, timber harvest, fragmentation due to roads and trails, livestock grazing, and residential development [8]. However, processes that maintain a diversity of seral stages, including the grass-forb stage, may be beneficial to Calliope Hummingbird. Despite numerous stressors, it is possible that Calliope Hummingbird also benefits from the presence of maintained sugar water feeders, especially when natural nectar sources are not yet available or are past their season [1].

KEY ACTIVITIES IN WYOMING

Calliope Hummingbird 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 [8]. The species is not adequately monitored by current national or regional avian monitoring efforts in Wyoming, including the BBS program conducted on 108 established routes since 1968 [13] or the IMBCR program initiated in 2009 (0 detections since initiation) [12]. No additional, targeted, systematic survey of Calliope Hummingbird has been implemented in Wyoming.

ECOLOGICAL INFORMATION NEEDS

More information is needed on Calliope Hummingbird distribution and breeding status in portions of its Wyoming range outside of the Jackson area, as well as overall population trends in the state. A more comprehensive survey of habitat use and preference would give resource managers information necessary to include Calliope Hummingbirds in management action planning and implementation.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Andrea C. Orabona. Calliope Hummingbird is classified as a SGCN in Wyoming due to insufficient information on breeding, distribution, and population status and trends. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming; the BBS [13] and the multi-partner IMBCR [12]. While these monitoring programs provide robust estimates of occupancy, density, or population trend for many species in Wyoming, Calliope Hummingbird may require a targeted, species-specific survey method to obtain these data. Best management practices for Calliope Hummingbird includes managing forests to include an open to intermediate canopy cover and a variety of seral stages, including early successional plant communities that support growth of flowering plants as a food source; reducing impacts of recreation, grazing, and wildlife foraging to flowering plants favored by this species; and managing for low to intermediate canopy cover within conifer stands near water for Calliope Hummingbird nesting sites [8].

CONTRIBUTORS

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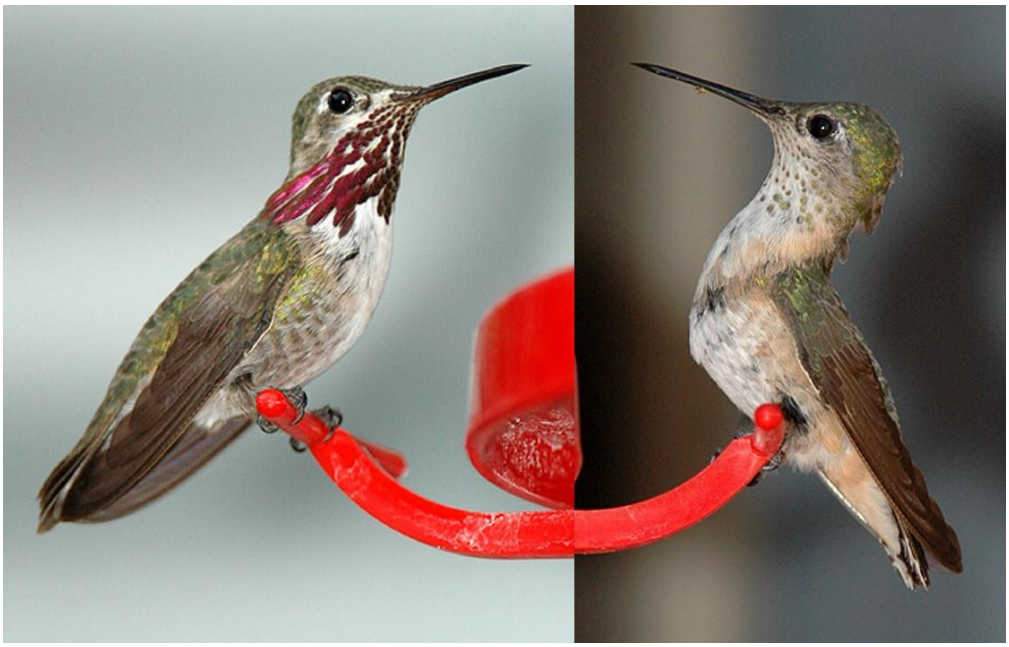

Figure 1: Adult male (left) and female (right) Calliope Hummingbirds in Durango, Colorado. (Photos courtesy of Bill Schmoker)

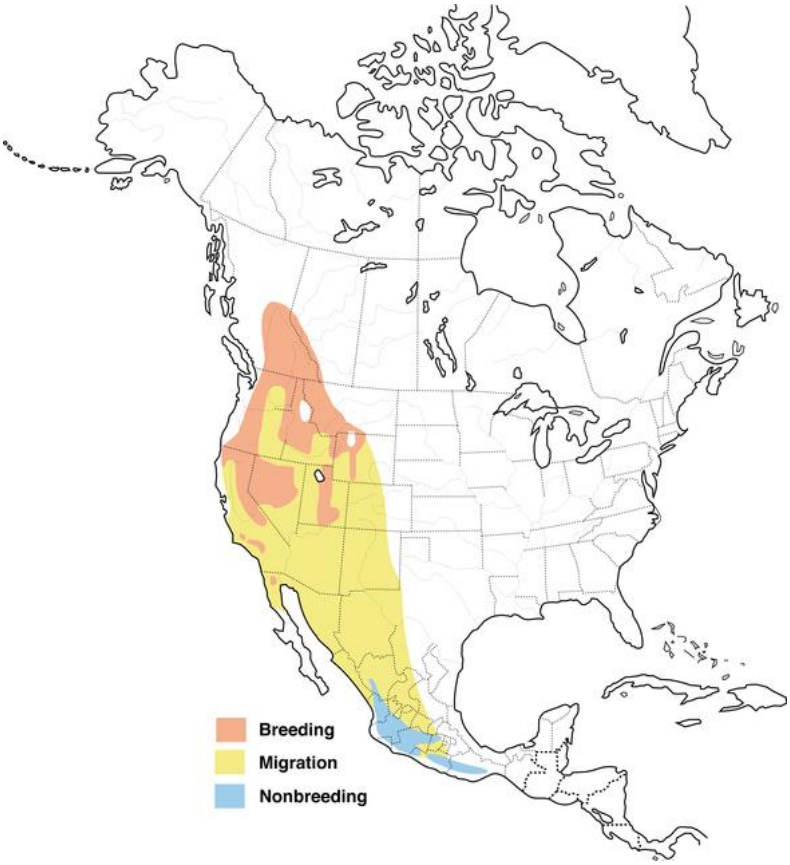

Figure 2: North American range of *Selasphorus calliope*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

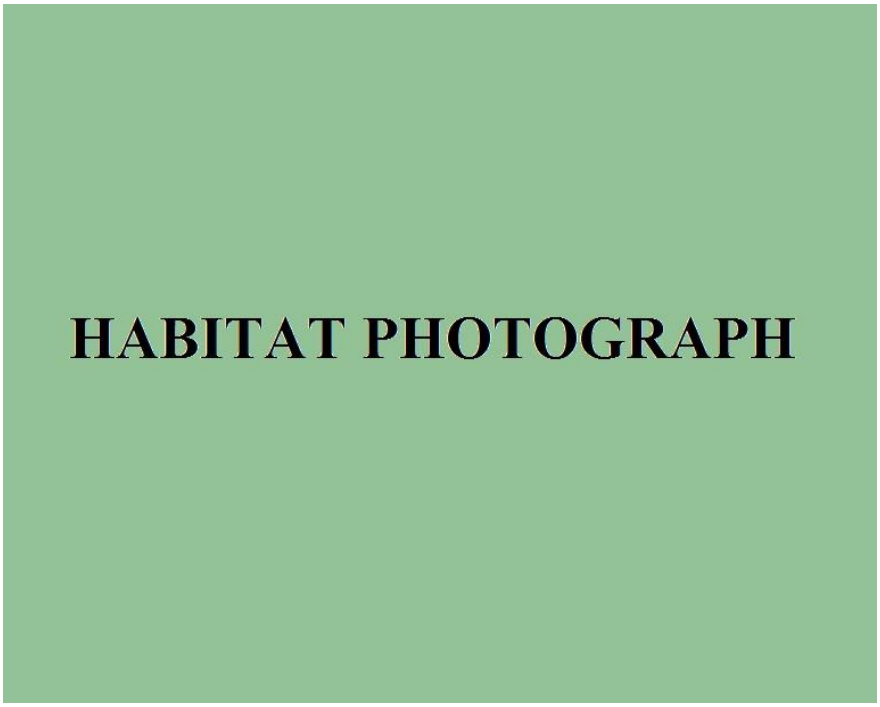

Figure 3: Photo not available.

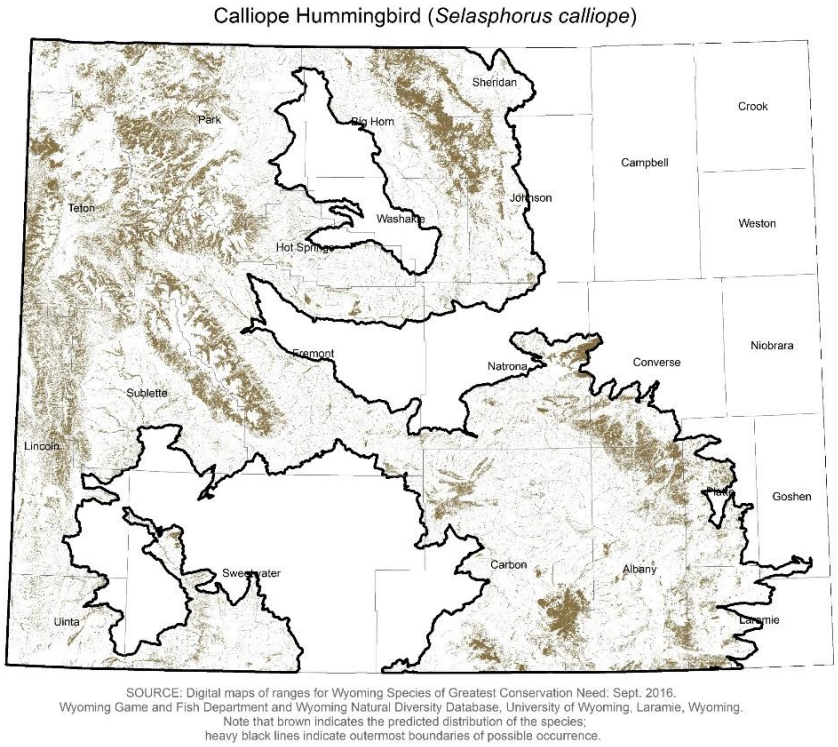

Figure 4: Range and predicted distribution of *Selasphorus calliope* in Wyoming.