Blue-gray Gnatcatcher

Polioptila caerulea

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: NSS4 (Bc), Tier III
WYNDD: G5, S3S4
Wyoming Contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: 7

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned Blue-gray Gnatcatcher (*Polioptila caerulea*) a state conservation rank ranging from S3 (Vulnerable) to S4 (Apparently Secure) because of uncertainty about the abundance and population trends for this species in Wyoming.

NATURAL HISTORY

Taxonomy:

Blue-gray Gnatcatcher has seven identified subspecies [1]. Nine subspecies have been described, but two are thought to need additional validation [1, 2]. The western subspecies, *P. c. obscura*, occurs within Wyoming [2].

Description:

Identification of Blue-gray Gnatcatcher is possible in the field. Blue-gray Gnatcatcher is bluish-gray in dorsal coloration, with a white belly and prominent white eye-ring. Sexes are similar in plumage. Males can be distinguished from females while in alternate plumage, exhibiting a black forehead and supercilium [1]. Juveniles are similar to adults, but are grayish in coloration. Blue-gray Gnatcatcher has a long, black tail with white outside feathers that comprises about 45% of its total body length [1]. Overall adult body length is approximately 12 cm, with a mass of approximately 6 g [1, 3, 4]. Within its Wyoming breeding distribution, Blue-gray Gnatcatcher is similar in appearance to Plumbeous Vireo (*Vireo plumbeus*), Gray Vireo (*V. vicinior*), and several species of *Empidonax* flycatcher; however, Blue-gray Gnatcatcher can be distinguished from all by its bi-colored tail and lack of white wing bars [5].

Distribution & Range:

The breeding range of Blue-gray Gnatcatcher occurs throughout the eastern and southwestern portions of the United States. This species is considered a permanent resident within northern Central America. Northern breeding populations winter along the Pacific Coast of Central

America to Honduras, southern Florida, and Cuba [1]. This species is mostly absent in the northwestern United States and Great Plains. However, Blue-gray Gnatcatcher has begun to expand its range northward [1, 6, 7]. It is estimated that this species has shifted its range approximately 300 km to the north [1]. Blue-gray Gnatcatcher is thought to have expanded into Wyoming in the mid-20th Century [2, 7], and is considered most abundant in the southwestern portion of the state [2, 8]. Blue-gray Gnatcatcher has been documented in 21 of Wyoming's 28 latitude/longitude degree blocks [8]. Confirmed breeding observations have been documented in 4 degree blocks, and circumstantial evidence of breeding has been noted in 2 additional degree blocks [8].

Habitat:
Blue-gray Gnatcatcher can be found in a variety of habitats. It may occur in shrublands, mature forests, and riparian zones [1]. Blue-gray Gnatcatcher is typically absent from needle-bearing conifer habitats [1]. Throughout its range, Blue-gray Gnatcatcher prefers gap edge habitats [1]. In the southwestern United States, Blue-gray Gnatcatcher is typically found in pinyon-juniper (*Pinus* spp.-*Juniperus* spp.) woodlands and adjoining chaparral habitats [3]. Within Wyoming, Blue-gray Gnatcatcher is found primarily in juniper and deciduous riparian habitats [2]. Blue-gray Gnatcatcher has been documented in southwestern Wyoming in select high density shrub ecotones, preferring shrubs within the family Rosaceae [9]. The cup-shaped nest is built by both sexes and takes around a week to build. Nests are constructed out of plant fiber, spider webbing, and lichen [1].

Phenology:
Blue-gray Gnatcatcher is primarily diurnal. Migrating patterns and movements of subpopulations are unclear. Northern individuals may leap over populations in Central America, and the degree of subpopulation mixing remains unknown [1]. Blue-gray Gnatcatcher arrives within the state during the first week of May [2]. Both males and females appear to migrate at the same time, with both sexes arriving simultaneously [1]. The earliest accepted observation of this species in Wyoming is 14 April [2]. Birds begin to leave the state in mid-August and are typically gone by October. The latest accepted observation of this species in the state is 18 December [2]. Pairing typically occurs within a day of appearance at breeding areas [1, 10]. Blue-gray Gnatcatcher has been documented to re-nest and produce a second brood. Nests are typically only used in a single nesting attempt, and may be recycled to construct new nest structures [1, 11]. A banded Blue-gray Gnatcatcher female was documented to recycle nesting materials for 6 consecutive nests up to 500 ft away [10]. Clutch size is typically 4–5 eggs [4]. Incubation is typically 15 days, with fledging occurring around 10–15 days [1]. Brood parasitism by cowbirds (*Molothrus* spp.) has been documented for this species and can be a limiting factor [10].

Diet:
Blue-gray Gnatcatcher is an invertivore. This species feeds in dense vegetation, gleaning small insects and spiders. Blue-gray Gnatcatcher has also been known to sally and hawk prey [1]. It is thought that tail movement may have a functional role while foraging [3].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD
Wyoming: RARE to UNCOMMON

Using North American Breeding Bird Survey (BBS) data, the Partners in Flight Science Committee estimated the global population of Blue-gray Gnatcatcher to be 160 million birds [12]. Approximately 0.04% of the global population, or around 60,000 birds, is estimated to breed in Wyoming [13]; however, this abundance estimate should be viewed with caution given the low detection rate of this species in the state. The statewide rank of RARE to 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. Within suitable habitat in the occupied area, Blue-gray Gnatcatcher appears to be uncommon, occurring in relatively low densities and requiring intensive survey efforts to detect the species [8]. Blue-gray Gnatcatcher density (number of birds per square km) and population size estimates for Wyoming are available from the Integrated Monitoring in Bird Conservation Regions (IMBCR) program for the years 2009–2015, although detections are limited so data must be interpreted with caution [14].

Population Trends:
Historic: INCREASE
Recent: UNKNOWN
Population trends are not available for Blue-gray Gnatcatcher in Wyoming due to a limited distribution in the state and low detection rates during monitoring surveys. Currently, there are no robust North American BBS trend data for Blue-gray Gnatcatcher in Wyoming due to an extremely limited observation sample size (N = 11 routes; 1968–2013) and data that fall within a credibility category containing important deficiencies [15]. Low relative abundance and number of routes with Blue-gray Gnatcatcher detections likely contribute to this classification [15]. However, 1966–2013 BBS trend analysis for this species survey-wide indicates a slight annual population increase of 0.39% (N = 2,178 routes; 95% CI: 0.08–0.70).

Intrinsic Vulnerability:
MODERATE VULNERABILITY
Blue-gray Gnatcatcher occurs in shrublands, mature forests, and riparian zones. Pinyon-juniper habitats have shown increased occupancy of this species, and it is surmised that mountain mahogany (*Cercocarpus* spp.) may be important to this species in Wyoming [9]. The preference for ecotones may make this species more accessible to cowbird nest parasitism. Blue-gray Gnatcatcher is one of the smallest regular hosts for Brown-headed Cowbird (*M. ater*) and is not able to eject or puncture cowbird eggs [1].

Extrinsic Stressors:
MODERATELY STRESSED
Extrinsic stressors for the Blue-gray Gnatcatcher are largely unknown. There is evidence that increased urbanization and nest parasitism by cowbirds have impacted populations [1, 11]. Blue-gray Gnatcatcher has been found to avoid urban situations [1]. Areas inhabited by this species in the state have increased energy development potential. Increased infrastructure associated with development may impact the persistence of this species within Wyoming. However, direct impacts of energy development on this species are unknown.

KEY ACTIVITIES IN WYOMING

Blue-gray Gnatcatcher is classified as a Species of Greatest Conservation Need (SGCN) by the Wyoming Game and Fish Department. This species is not adequately monitored by current national or regional avian monitoring efforts in Wyoming, including the IMBCR program initiated in 2009 (87 detections since initiation) [14] or the BBS program conducted on 108

established routes since 1968 [15]. No systematic surveys of Blue-gray Gnatcatcher has been conducted in Wyoming. A study to address data deficiencies of bird and mammal juniper obligates in southwestern Wyoming, including Blue-gray Gnatcatcher, was funded for calendar years 2016 and 2017. This project will address a number of objectives, including evaluating species distribution and richness, estimating relative abundance and occupancy rates, and quantifying and evaluating habitat characteristics.

ECOLOGICAL INFORMATION NEEDS

The range and status of the Blue-gray Gnatcatcher remain unclear in Wyoming. More information is needed to determine breeding range and population extent within the state. More information is needed regarding impacts of land management activities on breeding and survival, impacts of herbicides and pesticides, and climate change.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Andrea C. Orabona. Blue-gray Gnatcatcher is classified as a SGCN in Wyoming due to unknown population status and trends in the state; a need for robust information on breeding status; limited distribution of required breeding habitat; loss, degradation, and fragmentation of Utah Juniper (*J. osteosperma*) habitat due to industrial developments; and incompatible management practices. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming; the BBS [15] and IMBCR [14]. While these monitoring programs provide robust estimates of occupancy, density, or population trends for many avian species in Wyoming, survey efforts do not tend to detect Blue-gray Gnatcatcher at adequate levels, suggesting targeted, species-specific monitoring efforts are needed. Management priorities for the species 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. Best management practices to benefit Blue-gray Gnatcatcher are similar to those for sympatric Utah Juniper obligate species in Wyoming and include implementing a sufficient monitoring technique, maintaining mature stands of Utah Juniper habitat where Blue-gray Gnatcatcher nests, and coordinating Utah Juniper management to provide a mosaic of juniper woodland conditions [16].

CONTRIBUTORS

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Figure 1: Adult male Blue-gray Gnatcatcher in Laramie County, Wyoming. (Photo courtesy of Pete Arnold)

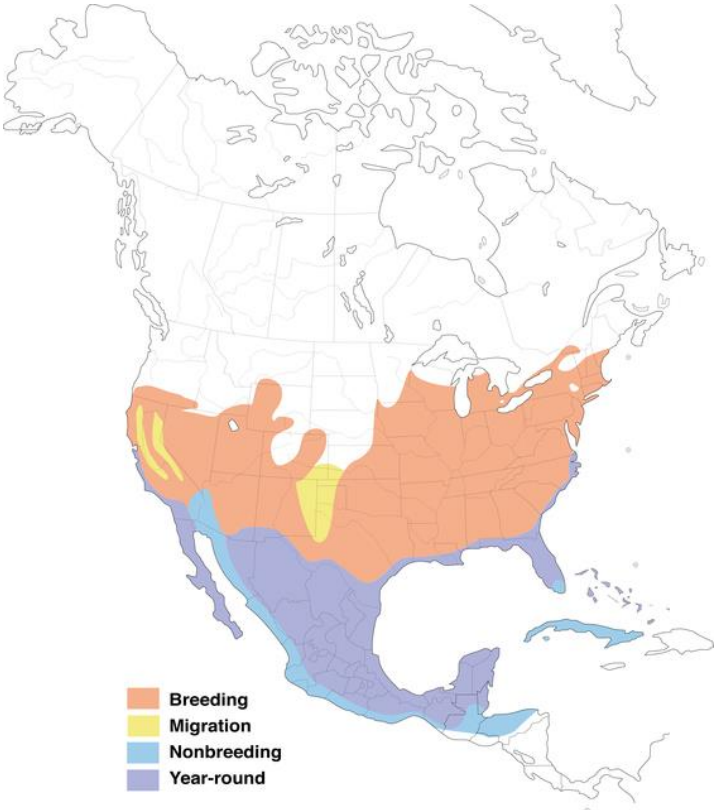

Figure 2: North American range of *Polioptila caerulea*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

HABITAT PHOTOGRAPH

Figure 3: Photo not available.

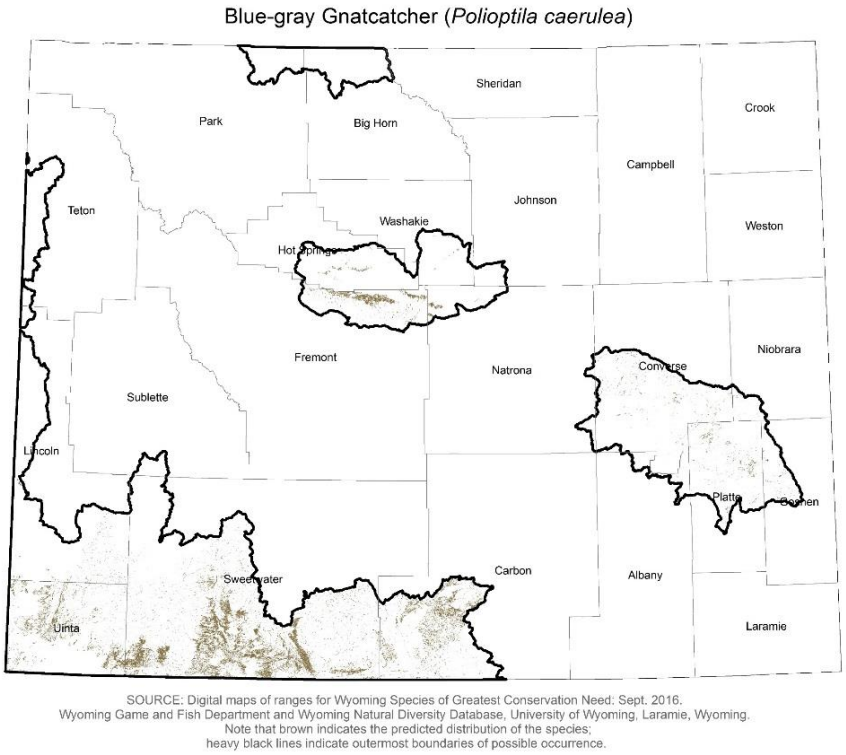

Figure 4: Range and predicted distribution of *Polioptila caerulea* in Wyoming.