Pygmy Nuthatch

Sitta pygmaea

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, S2S3
Wyoming Contribution: HIGH
IUCN: Least Concern
PIF Continental Concern Score: 10

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned Pygmy Nuthatch (*Sitta pygmaea*) a state conservation rank ranging from S2 (Imperiled) to S3 (Vulnerable) because of uncertainty about the species' abundance and population trends in Wyoming.

NATURAL HISTORY

Taxonomy:

Six or seven subspecies of Pygmy Nuthatch are recognized, depending upon the reference used. Only one subspecies occurs in Wyoming, *S. p. melanotis* [1]. The remaining subspecies are found from coastal California south to Mexico [1].

Description:

Identification is possible in the field. Pygmy Nuthatch is a small songbird (9–11 cm) with a short tail. The species has a gray-brown cap coming down to a dusky or nearly black eye-line [1]. The face, breast, and underparts are white to buff and sides are bluish-gray. The back, rump, and tail are bluish-gray, and the wings are brown to dark slate. The species has a pale or whitish spot on the nape and primaries are edged with white. Males, females, and juveniles are similar in appearance [1, 2]. In Wyoming, similar species include Red-breasted Nuthatch (*S. canadensis*) and White-breasted Nuthatch (*S. carolinensis*). Pygmy Nuthatch differs from both species by it its gray-brown cap, lack of any white above the eye, and small size [2].

Distribution & Range:

Pygmy Nuthatch is patchily distributed throughout its range in western North America [1], and the species is a year-round resident in Wyoming [3, 4]. Pygmy Nuthatch has been documented in most mountain ranges in the state, but is most common in the Black Hills region and in the southeastern mountain ranges [5, 6]. Confirmed or suspected breeding has been documented in 9 of the 28 latitude/longitude degree blocks in Wyoming, primarily in the southern half of the state [4].

Habitat:
In Wyoming, Pygmy Nuthatch is strongly associated with forests dominated by old-growth or mature Ponderosa Pine (*Pinus ponderosa*), preferably with a number of large snags [1, 7]. Ponderosa Pine provides nesting locations in the form of cavities, foraging areas, and winter food in the form of pine seeds [7]. Pygmy Nuthatch is a cavity nester and will excavate new cavities as well as use existing cavities. Nest cavities are typically located in dead snags or dead sections of trees [1, 7]. The species will occasionally nest in cavities in other tree species within Ponderosa Pine stands [7].

Phenology:
Nesting phenology of Pygmy Nuthatch has not been studied in Wyoming. In other areas, the breeding season of Pygmy Nuthatch begins early April to early May and pairs can have up to 2 clutches per breeding season. Cavity excavation occurs 3–6 weeks prior to breeding [1, 7]. In Colorado, nest building has been observed in early May to early June. Incubation lasts approximately 12–17 days and young fledge at 14–22 days of age. Fledglings are partly dependent on adults for food until at least 30 days post-fledging. Family groups typically stay together through the winter [1, 7]. Although individuals and family groups may wander after the breeding season, the species does not migrate [7].

Diet:
During the breeding season, Pygmy Nuthatch primarily eats insects from the orders Coleoptera (beetles), Hymenoptera (ants and wasps), and Hemiptera (true bugs), as well as the larva of Lepidoptera (caterpillars). In winter, the diet consists primarily of pine seeds [1].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD BUT PATCHY
Wyoming: RARE to UNCOMMON
Based on results from Breeding Bird Survey (BBS) data, Partners in Flight estimated the global population of Pygmy Nuthatch to be 3 million and the Wyoming population to be 1,200; however, this state abundance estimate should be viewed with caution due to the low number of detections of the species in Wyoming [8]. Pygmy Nuthatch has a statewide abundance rank of RARE to UNCOMMON and appears to be uncommon within suitable environments in the occupied area [4]. Most records of this species in Wyoming come from the southern Laramie Range in southeastern Wyoming and the Black Hills region in northeastern Wyoming [6, 7].

Population Trends:
Historic: STABLE
Recent: UNKNOWN
There are no population trend data for Pygmy Nuthatch in Wyoming. Across the species' range, BBS data suggest the population is stable [9]. Christmas Bird Count (CBC) results suggest a possible increase in the range-wide population, though limited CBC results from Wyoming suggest the population is small and fluctuates across years [10]. Long-term research in Colorado and Arizona show that local populations can fluctuate dramatically year to year, likely due to variation in cone crops and/or climactic conditions [7].

Intrinsic Vulnerability:
HIGH VULNERABILITY

In Wyoming, Pygmy Nuthatch has high intrinsic vulnerability due to the species' dependence on mature and old-growth Ponderosa Pine forests, which are limited across the species' range, including Wyoming [1, 7]. More specifically, Pygmy Nuthatch prefers Ponderosa Pine forests with high snag density (including live trees with some dead limbs), high foliage volume, and a heterogeneous forest structure consisting of old and intermediate aged Ponderosa Pines [7]. These characteristics are necessary to provide cavities for nesting and roosting, foraging substrate during the summer, and sufficient cone crops for winter food. Research suggests that the availability of cavities for nesting and roosting may limit Pygmy Nuthatch abundance [11, 12].

Extrinsic Stressors:

MODERATELY STRESSED

Pygmy Nuthatch is threatened by disturbances that reduce the number of large mature trees and snags. Most forms of timber harvesting negatively impact Pygmy Nuthatch by reducing foliage volume and removing nesting and roosting trees, and numerous studies report lower abundances of Pygmy Nuthatch in heavily managed forests [7]. However, thinning practices and selective cutting that removes only some mature trees can benefit the species by reducing crowding and allowing the remaining trees to grow larger [7]. Fuelwood harvesting that removes standing dead trees also negatively impacts Pygmy Nuthatch, but collecting fuelwood from fallen trees and downed woody debris can positively impact the species by reducing fuel loads and decreasing the likelihood of high-intensity, stand-replacing fires [7]. Fire has mixed effects on Pygmy Nuthatch depending on severity. Low-intensity fires reduce the density of young trees and maintain open park-like forests dominated by large mature trees preferred by Pygmy Nuthatch. Low-intensity prescribed burns have little or no negative impact on Pygmy Nuthatch abundance but may benefit the species by reducing the risk of stand-replacing fires [7, 13-15]. High-intensity, stand-replacing fires reduce or eliminate Pygmy Nuthatch habitat [7]. The current Mountain Pine Beetle (*Dendroctonus ponderosae*) epidemic occurring across the Rocky Mountain region has been predicted to drastically reduce the seed supply of Ponderosa Pine forests, which is an important food for overwinter survival of Pygmy Nuthatch [16].

KEY ACTIVITIES IN WYOMING

Currently, there are two monitoring efforts in Wyoming that detect Pygmy Nuthatch. These are the BBS and the Integrated Monitoring in Bird Conservation Regions (IMBCR) programs [9, 17]. Both have low numbers of detection for the species, limiting inferences about population size and trends; however, results have refined our knowledge of the species' range in Wyoming.

ECOLOGICAL INFORMATION NEEDS

Pygmy Nuthatch would benefit from information regarding the distribution, population size, and population trends of the species in Wyoming. A better understanding of immigration and dispersal of the species between and among habitat patches is needed in order to better understand population dynamics [7]. Information on the projected response of Pygmy Nuthatch to the Mountain Pine Beetle epidemic and to climate change are needed for Wyoming.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Zachary J. Walker. Pygmy Nuthatch is classified as a Species of Greatest Conservation Need in Wyoming due to limited information on breeding, distribution, population trends, and habitat requirements. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming; the

North American BBS [9] and the multi-partner IMBCR [17]. While these monitoring programs provide robust estimates of occupancy, density, or population trend for many species in Wyoming, a targeted, species-specific survey method may be warranted to obtain these data for Pygmy Nuthatch. Best management practices or key management recommendations to benefit Pygmy Nuthatch include maintenance of suitable mature forest habitat [18, 19]. Snags and trees with suitable nesting cavities should be retained on the landscape. Where snags are unavailable, nest boxes may be used to supplement breeding cavities. Low intensity fire may be used as a management tool to maintain open woodland conditions and to reduce fuel loads.

CONTRIBUTORS

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Figure 1: Adult Pygmy Nuthatch in British Columbia, Canada. (Photo courtesy of Lanaye Baxter)

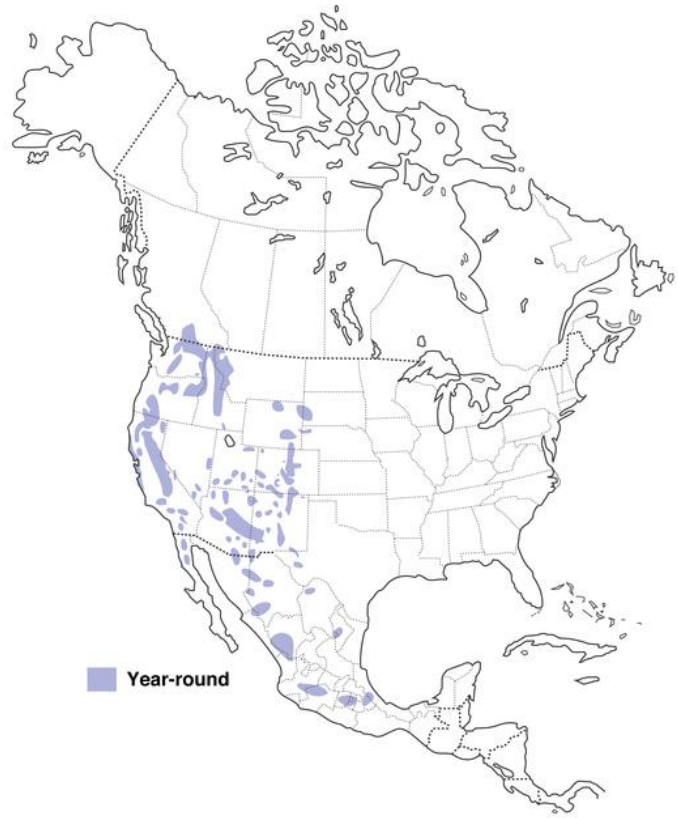

Figure 2: North American range of *Sitta pygmaea*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

Figure 3: Ponderosa Pine habitat in Medicine Bow National Forest, Laramie Peak region, Wyoming. (Photo courtesy of Michael T. Wickens)

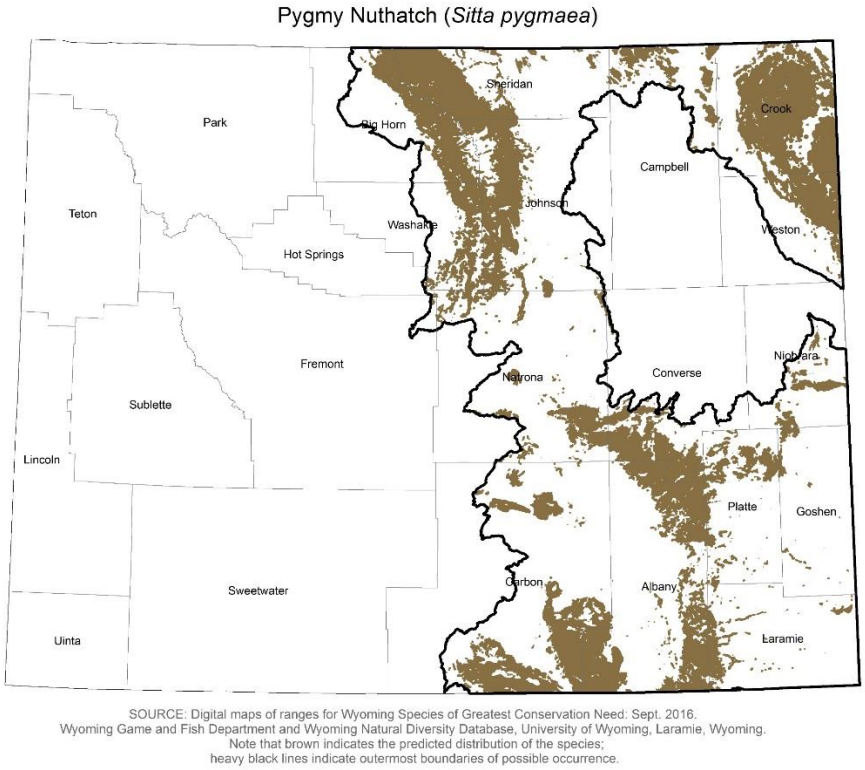

Figure 4: Range and predicted distribution of *Sitta pygmaea* in Wyoming.

Figure 5: Pygmy Nuthatch pair attending a nest cavity in Mt. San Jacinto State Park, California. (Photo courtesy of Glen Tepke, http://www.pbase.com/gtepke/profile)