

Northern Pygmy-Owl

Glaucidium gnoma

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: NSSU (U), Tier II
WYNDD: G4G5, S1S2
Wyoming Contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: 11

STATUS AND RANK COMMENTS

The Wyoming Natural Diversity Database has assigned Northern Pygmy-Owl (*Glaucidium gnoma*) a state conservation rank ranging from S1 (Critically Imperiled) to S2 (Imperiled) because of uncertainty about whether the Laramie, Medicine Bow, and Sierra Madre mountain ranges can be considered part of the species' range.

NATURAL HISTORY

Taxonomy:

Seven subspecies of Northern Pygmy-Owl are currently recognized. The only subspecies found in Wyoming is *G. g. pinicola*, which is part of a group of structurally and vocally similar subspecies found in northwestern North America. Other subspecies are found in Baja California, southern Arizona into Mexico, and Central America. Uncertainty exists regarding the taxonomy of Northern Pygmy-Owl, which could consist of three unique species¹.

Description:

Identification of Northern Pygmy-Owl is possible in the field. This small owl stands 16–18 cm tall¹. Head, dorsum, and wings are gray-brown with whitish spots. The tail is dark brown with 5–6 white bars and is longer than that of owls of similar size. The back of the head has false eye spots consisting of two black ovals with white borders. The facial disk is brown and white and is not well-defined. Breast and flanks are white with brown vertical streaks and legs and toes are feathered. Northern Pygmy-Owl has yellow eyes and a pale yellow bill¹. Plumage generally does not vary with sex or age; however, juveniles can have a darker bill and fewer dorsal spots¹. In Wyoming, similar small owl species are Western Screech-Owl (*Megascops kennicottii*), Eastern Screech-Owl (*M. asio*), Flammulated Owl (*Psilosops flammeolus*), Northern Saw-whet Owl (*Aegolius acadicus*), and Boreal Owl (*A. funereus*). Northern Pygmy-Owl lacks ear tufts, distinguishing it from screech-owls. Unlike Northern Pygmy-Owl, Flammulated Owl has dark

eyes. Northern Saw-whet Owl and Boreal Owl have well-defined facial disks and lack false eye spots².

Distribution & Range:

Northern Pygmy-Owl is found in western North America from Alaska south to Central America, generally following the distribution of mountain ranges¹. In Wyoming, it has been documented in the northwestern part of the state in Yellowstone and Grand Teton National Parks and surrounding areas, the Wind River Range, and the Wyoming Range³⁻⁸. Thus far, the species has been documented only three times in southern Wyoming (all on Pole Mountain east of Laramie), despite regularly occurring in neighboring Routt and Roosevelt National Forests in northern Colorado and the Uinta-Wasatch-Cache National Forest in northeastern Utah⁹.

Habitat:

Northern Pygmy-Owl uses various forest types across its range, from deciduous bottomlands to high-elevation coniferous forests¹. The few observations of this species in Wyoming for which habitat data were recorded document the species in mature spruce/fir forests dominated by tall large-diameter trees³. In Montana, Northern Pygmy-Owl prefers to breed in spruce-fir forests dominated by Engelmann Spruce (*Picea engelmannii*), Douglas Fir (*Pseudotsuga menziesii*), and Subalpine Fir (*Abies lasiocarpa*), but will also use Quaking Aspen (*Populus tremuloides*) and mixed-pine (*Pinus* spp.) forests and riparian bottomlands dominated by Black Cottonwood (*Populus trichocarpa*)¹. Elsewhere in its range the species breeds in mature, structurally diverse hardwood, conifer, and mixed forests^{1, 10-12}. Some studies suggests that this species prefers forests with high (> 50%) forest cover^{11, 13, 14}. Northern Pygmy-Owl is a secondary cavity nester, using either natural tree cavities or those made by woodpeckers¹.

Phenology:

Northern Pygmy-Owl is non-migratory but may move to lower elevations between November and March¹. This crepuscular/diurnal owl typically calls at dawn and dusk all year long with call frequency increasing during the breeding season¹. Breeding phenology has not been studied in Wyoming, but in neighboring states copulation and cavity advertising have been observed from February to April, egg-laying in April and May, hatching from late May to June, and fledging from mid-June to early August^{1, 15-18}. Incubation is estimated to be 28–30 days and fledging occurs when the young are about 23–27 days of age^{1, 17}. At least one adult typically remains to attend the brood for approximately 1 month post-fledging¹⁸.

Diet:

Northern Pygmy-Owl eats small mammals, especially voles in the genus *Microtus*, small birds, insects, and small numbers of reptiles and amphibians^{1, 17}.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD

Wyoming: VERY RARE

Using Breeding Bird Survey (BBS) data, the Partners in Flight Science Committee estimated the global population of Northern Pygmy-Owl to be 80,000 birds¹⁹. However, this estimate is based on limited data and should be viewed with caution. Abundance is poorly understood across the range of Northern Pygmy-Owl, but likely varies among ecoregions and forest types^{12, 20}.

Abundance of Northern Pygmy-Owl in Wyoming is unknown. The statewide abundance rank of

VERY RARE is based on the rather small area of the state known to be occupied in any given season and limited suitable habitat within that area. However, within suitable habitat in the occupied area, Northern Pygmy-Owl appears to be rare, as it occupies only a small percentage of preferred habitat within its range and may not be readily detected during surveys expected to indicate its presence⁸. Northern Pygmy-Owl is one of the least-detected species during owl surveys in Wyoming^{3-5, 7, 21, 22}; however, the nocturnal call-back surveys used for owls in Wyoming might not be as effective at detecting this crepuscular/diurnal species as early morning surveys^{12, 20, 23}. The species also is rarely detected during formal surveys for both breeding and wintering birds²⁴⁻²⁶.

Population Trends:

Historic: UNKNOWN

Recent: UNKNOWN

Population trends for Northern Pygmy-Owl in Wyoming and across its range are largely unknown. Trend data from BBS routes across the species' range suggest that the overall population might be stable, however, data are insufficient to provide conclusive results²⁴.

Intrinsic Vulnerability:

MODERATE VULNERABILITY

Habitat restrictions and apparently low population density make Northern Pygmy-Owl vulnerable in Wyoming. The species prefers to breed in older, structurally diverse forest habitat^{1, 10, 20}, which is limiting in Wyoming. Availability and competition for nest cavities also could limit abundance¹.

Extrinsic Stressors:

MODERATELY STRESSED

Northern Pygmy-Owl has not been well studied; however, forest management practices that reduce breeding habitat, especially mature forests and snags, will likely effect Northern Pygmy-Owl¹. Insect infestations such as the recent Mountain Pine Beetle (*Dendroctonus ponderosae*) epidemic, disease, and wildfires also could threaten the species by reducing the amount of mature forest. Natural or anthropogenic habitat changes that affect prey species or primary nest excavators (i.e., woodpeckers) could threaten Northern Pygmy-Owl.

KEY ACTIVITIES IN WYOMING

The Wyoming Game and Fish Department and collaborators have conducted surveys for forest raptor species, including Northern Pygmy-Owl, most years since 2009. Surveys have been conducted in the Bridger-Teton and Shoshone National Forests in western Wyoming^{4, 5, 7, 22}, and in a small portion of the Sierra Madre Mountains in southern Wyoming²¹. An earlier study also surveyed for owls in the Greys River watershed in western Wyoming³. In all studies, Northern Pygmy-Owl was either one of the least-detected species or was not detected. However, surveys in Wyoming have not included early morning surveys designed specifically to target this crepuscular/diurnal owl.

ECOLOGICAL INFORMATION NEEDS

The taxonomy of Northern Pygmy-Owl is still unclear. Several subspecies, including *G. g. pinicola*, could represent unique species¹. Targeted early-morning surveys for Northern Pygmy-Owl are needed to gain a better understanding of the distribution of the species in Wyoming. The species has been detected in northern Colorado and northeastern Utah near the Wyoming border,

but has been reported only twice in southern Wyoming despite the presence of similar habitat⁹. Seasonal movements and habitat preferences are poorly understood in Wyoming, as is breeding phenology. Studies of Northern Pygmy-Owl abundance and demographic rates in Wyoming are needed.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Andrea C. Orabona. Northern Pygmy-Owl is classified as a Species of Greatest Conservation Need in Wyoming due to unknown population status and trends; the need for targeted, species-specific surveys; and the ongoing reduction or elimination of coniferous forest habitat due to beetle kill, logging, and climate change²⁷. Two separate but compatible survey programs are in place to monitor populations of many avian species that breed in Wyoming; the BBS²⁴ and Integrated Monitoring in Bird Conservation Regions²⁵. Although these monitoring programs provide robust estimates of occupancy, density, or population trend for many species in Wyoming, forest owls are one of the species groups that warrant a targeted, species-specific survey method approach to obtain these data. Best management practices and key management recommendations to benefit Northern Pygmy-Owl includes the following: implement a monitoring program in suitable Northern Pygmy-Owl habitat; manage nesting areas to minimize habitat degradation and conflicts with other forest users and land use managers; determine a crucial range delineation for Northern Pygmy-Owl; work cooperatively with other agencies to conduct surveys and manage habitat for Northern Pygmy-Owl; and work cooperatively with other forest users to avoid resource conflicts²⁷.

CONTRIBUTORS

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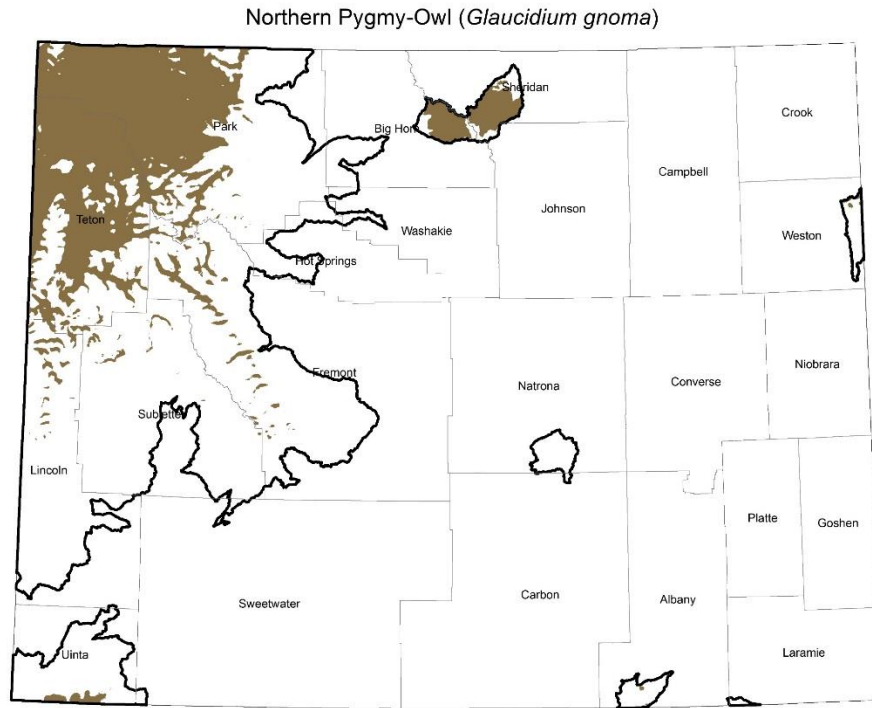
Figure 1: Northern Pygmy-Owl in Grand Teton National Park, Teton County, Wyoming. (Photo courtesy of Shawn Billerman)



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



Figure 3: Spruce-fir habitat in Yellowstone National Park. (Photo courtesy of Michael T. Wickens)



SOURCE: Digital maps of ranges for Wyoming Species of Greatest Conservation Need: Sept. 2016.
Wyoming Game and Fish Department and Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.
Note that brown indicates the predicted distribution of the species;
heavy black lines indicate outermost boundaries of possible occurrence.

Figure 4: Range and predicted distribution of *Glaucidium gnoma* in Wyoming.

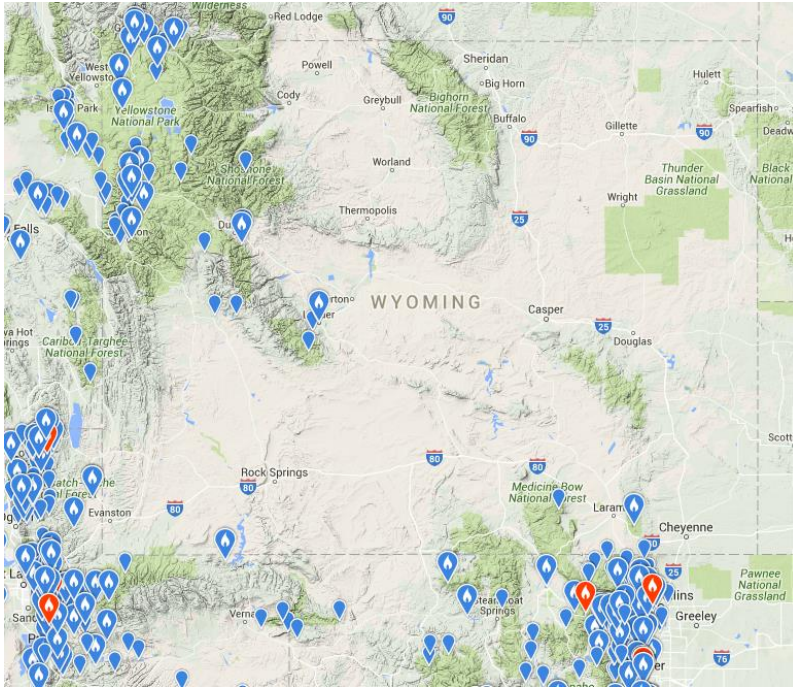


Figure 5: The blue and orange pins represent all eBird recorded sightings of Northern Pygmy-Owl in Wyoming, northeastern Utah and northern Colorado. Note that there are only three detections of the species in southern Wyoming, all just east of Laramie. (Image provided by eBird (www.ebird.org) and created April 17, 2016)