

Piñon Deermouse

Peromyscus truei

REGULATORY STATUS

USFWS: No special status

USFS R2: No special status

USFS R4: No special status

Wyoming BLM: No special status

State of Wyoming: Nongame Wildlife

CONSERVATION RANKS

USFWS: No special status

WGFD: NSS3 (Bb), Tier II

WYNDD: G5, S1

Wyoming Contribution: LOW

IUCN: Least Concern

STATUS AND RANK COMMENTS

Piñon Deermouse (*Peromyscus truei*) has no additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

There are between 11 and 15 recognized subspecies of Piñon Deermouse, but only *P. t. truei* is found in Wyoming¹⁻⁴.

Description:

Identification of Piñon Deermouse is possible in the field. Piñon Deermouse is a medium-sized *Peromyscus* with long, silky hair; large, naked ears; white feet; and a bi-colored, hair-covered tail with longer hairs at the end²⁻⁵. Ear size, tail length, and pelage color vary geographically, but in Wyoming Piñon Deermouse has large ears, a tail that is slightly longer than the head and body combined, and grayish-brown dorsal hair^{2,4,6}. The underbelly hairs are white with gray at the base^{4,5}. Males and females are comparable in size^{3,4}. Adults weigh between 25–28 g and can reach total lengths of 171–190 mm. Tail, hind foot, and ear length ranges from 80–120 mm, 22–25 mm, and 20–26 mm, respectively⁴. Three other species of *Peromyscus* are found in Wyoming, but only Canyon Deermouse (*P. crinitus*) and North American Deermouse (*P. maniculatus*) have distributions that overlap with Piñon Deermouse in the state⁴. Piñon Deermouse can be distinguished from both Canyon Deermouse and North American Deermouse by its larger, hairless ears, and from North American Deermouse by its longer tail⁴.

Distribution & Range:

The distribution of Piñon Deermouse extends from north-central Oregon south along the Pacific Coast to the northern Baja Peninsula, central mainland Mexico as far south as Oaxaca, and as far east as western Kansas^{2,7}. Piñon Deermouse is a peripheral resident in Wyoming and is limited to the far southwestern part of the state^{4,8}. Most of the existing habitat for this species in

Wyoming is likely found near Flaming Gorge Reservoir in Sweetwater County⁴. Confirmed breeding has been documented in just 1 of 28 latitude/longitude degree blocks in the state⁸.

Habitat:

Piñon Deermouse is most commonly associated with arid and semi-arid, rocky, piñon-juniper woodlands and shrublands, but can also be found in a variety of other habitat types across its continental distribution^{2, 3, 5, 9-13}. In Wyoming, Piñon Deermouse is found in rocky slope and cliff habitat in woodlands dominated by Utah Juniper (*Juniperus osteosperma*)^{4, 14, 15}. Areas with high canopy cover and low shrub cover away from woodland edges provide important habitat¹⁴. Most nests are formed from shredded juniper bark and grass in the hollow cavity of a juniper tree, although rock crevices may occasionally be used⁴.

Phenology:

Piñon Deermouse is nocturnal and active all year^{3, 5}. Females are seasonally polyestrous, typically producing 2–9 litters per year starting in the spring^{4, 5}. Litter size can range from 2–6 with litters of 3 or 4 being most common, and gestation lasts 25–27 days^{3, 4, 16}. Females nurse young for up to 30 days, and female offspring are able to reproduce at the age of 2 months^{4, 5}.

Diet:

Piñon Deermouse is omnivorous and consumes a variety of food items depending on availability, including juniper seeds and berries; seeds from other trees, shrubs, cacti, grasses, and forbs; mushrooms; vegetation; and insects^{3, 4, 13}. This species is known to scatter-hoard seeds and cache seeds in burrow larders^{17, 18}. Piñon Deermouse obtains most water needed for survival from food⁴.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD

Wyoming: VERY RARE

There are no robust estimates of abundance available for Piñon Deermouse in Wyoming. The species has a statewide abundance rank of VERY RARE and appears to be rare even within suitable environments in the occupied area⁸. Piñon Deermouse lost historic habitat in Wyoming to flooding when the Green River was dammed to create Flaming Gorge Reservoir in 1962^{4, 14}. Research conducted in 1998 and 1999 recorded just 19 individuals across 5 of 14 rocky slope and cliff habitat sites sampled in juniper woodlands east of Flaming Gorge Reservoir for an overall capture rate of 0.008 captures per trap night throughout suitable habitat^{14, 19}. Abundance in Wyoming seems to be much lower than nearby populations in northeastern Utah¹⁹.

Population Trends:

Historic: MODERATE DECLINE

Recent: UNKNOWN

Because of its restricted distribution in Wyoming, Piñon Deermouse likely experienced historic moderate population declines due to the aforementioned habitat loss following the creation of Flaming Gorge Reservoir half a century ago. However, recent population trends for this species in Wyoming are unknown.

Intrinsic Vulnerability:

HIGH VULNERABILITY

Piñon Deermouse has high intrinsic vulnerability in Wyoming due to very low abundance, a narrow range of habitat requirements within a very restricted distribution, and limited dispersal ability. This species has high fecundity but is likely to be affected by any natural or anthropogenic disturbances to occupied habitat within its already restricted distribution. The environment of Flaming Gorge is unique in Wyoming, and supports wildlife species, including Piñon Deermouse, that are not found anywhere else in the state. Therefore, this species has little opportunity for range expansion within the state, and would likely have an increased risk of extirpation should disturbance or loss of existing habitat occur.

Extrinsic Stressors:

MODERATELY STRESSED

Loss and degradation of existing habitat as well as disturbance, both natural and anthropogenic, could negatively impact Piñon Deermouse in Wyoming. Rocky habitats in southwestern Wyoming are threatened by potential oil shale and other energy development, as well as exposure to anthropogenic disturbance from recreational activities^{15, 20}. Furthermore, juniper woodlands are potentially vulnerable to changes in fire regime; invasive species such as Cheatgrass (*Bromus tectorum*); drought and climate change; habitat fragmentation; and human disturbance, including juniper removal and thinning programs¹⁵. However, recent expansion of juniper woodlands into shrub-grasslands might provide additional habitat that could offset some of these threats. Piñon Deermouse may be exposed to some anthropogenic disturbance within its Wyoming distribution, and the species has been shown to avoid habitats with high grass cover including those dominated by Cheatgrass^{21, 22}. Despite being adapted to arid environments, Piñon Deermouse can experience abbreviated breeding seasons and lower breeding rates during severe drought conditions, which may lead to decreased population densities in drought-affected areas^{16, 23}. The species has experienced geographic and elevational range shifts in parts of its distribution, which may be attributed to climate change and increased temperatures²⁴⁻²⁶. Currently, it is not known how these potential extrinsic stressors could be impacting Piñon Deermouse in Wyoming.

KEY ACTIVITIES IN WYOMING

Piñon Deermouse is classified as a Species of Greatest Conservation Need by the Wyoming Game and Fish Department (WGFD). In 1998 and 1999, the WGFD funded a University of Wyoming graduate research project that examined habitat use for three rare, small mammal species in southwestern Wyoming, including Piñon Deermouse¹⁴. In 2016, the WGFD will begin a two-year project designed to collect crucial data on the distribution, relative abundance, and habitat use of piñon-juniper obligate species, including Piñon Deermouse, in the woodlands of southwestern Wyoming.

ECOLOGICAL INFORMATION NEEDS

Little is known about the current status of Piñon Deermouse in Wyoming. This species would benefit from research to determine its actual distribution, current abundance, habitat use, reproductive rates, and basic life history in Wyoming. Additionally, the distribution of juniper forests in Wyoming is far vaster than the distribution of Piñon Deermouse, and a better understanding of habitat use and requirements at this northernmost range boundary is needed, including a better understanding of the current range boundary for both the species as well as the

juniper habitat on which it depends. Perhaps most importantly, potential extrinsic stressors should be identified within the species' limited distribution to ensure the persistence of available habitat for this species in Wyoming.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Nichole L. Bjornlie. Little is known about Piñon Deermouse in Wyoming. Consequently, management priorities for the species in the short-term will focus on addressing these data deficiencies. Of particular importance are data on presence, distribution, population status and trends, and the impact of extrinsic threats. Upcoming projects will address these needs, including evaluating habitat requirements and potential changes in presence and distribution in response to juniper removal and juniper expansion. These results will be used to develop management and conservation recommendations as well as develop monitoring protocols to establish trends.

CONTRIBUTORS

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Figure 1: A recently released, adult Piñon Deermouse (with ear tag) that was captured in Flaming Gorge, Sweetwater County, Wyoming (Photo courtesy of Jessica Grant, WGFD)



Figure 2: North American range of *Peromyscus truei*. (Map from: Patterson, B. D., et al. (2007) Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, NatureServe, Arlington, Virginia.)



Figure 3: Rocky juniper woodland habitat east of Flaming Gorge Reservoir in Sweetwater County, Wyoming. (Photo courtesy of Kaylan A. Hubbard)

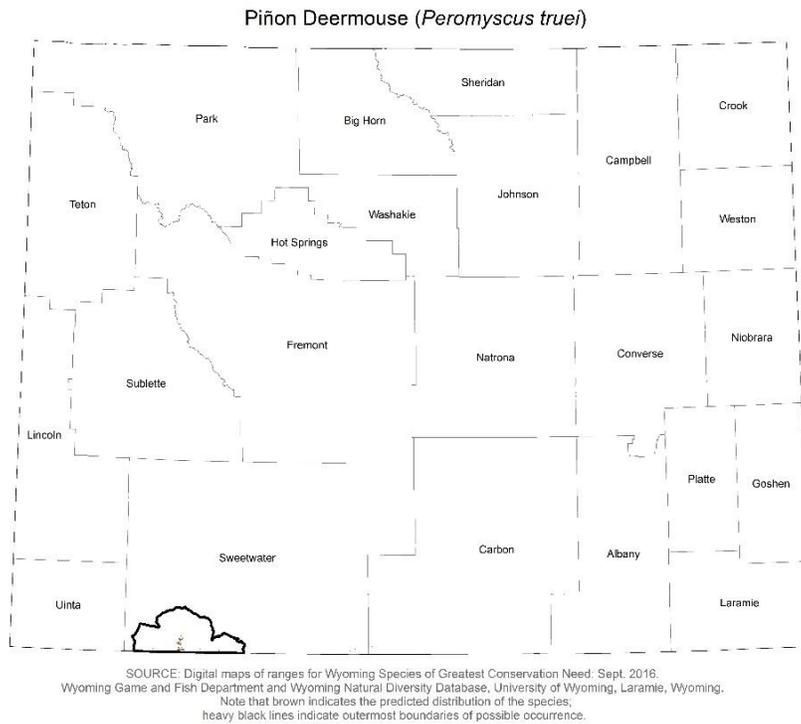


Figure 4: Range and predicted distribution of *Peromyscus truei* in Wyoming.