

Abert's Squirrel

Sciurus aberti

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: NSS4 (Bc), Tier III
WYNDD: G5, S1
Wyoming Contribution: LOW
IUCN: Least Concern

STATUS AND RANK COMMENTS

Abert's Squirrel (*Sciurus aberti*), also known as Tassel-eared Squirrel, has no additional regulatory status or conservation rank considerations beyond those listed above.

NATURAL HISTORY

Taxonomy:

Six subspecies of Abert's Squirrel are recognized. Of those, only one occurs in Wyoming – *S. a. ferreus*¹.

Description:

Abert's Squirrel is a large-bodied tree squirrel; adults weigh 550–750 g², with adult males slightly smaller than adult females. The species can easily be distinguished from other tree squirrels by a gray dorsum, often with a reddish medial band, white venter, and thick gray tail tipped with white¹. Melanistic individuals may be locally common, especially in the northern part of the range³, and may be the dominant color phase in Wyoming (S. Buskirk, pers. comm.; G. Beauvais, pers. comm.). Abert's Squirrel is further identified from other large-bodied tree squirrels by its conspicuous ear tufts, or tassels, that can reach ≤ 40 mm during the winter months⁴.

Distribution & Range:

The current North American range of Abert's Squirrel is likely a result of Pleistocene isolation, subsequent post-Pleistocene dispersal, and intentional introductions by humans^{5,6}. Currently, Abert's Squirrel extends from southeastern Wyoming to south-central Arizona and New Mexico. Isolated populations exist in southeastern Utah and throughout the Sierra Madre in Mexico. Wyoming represents the northern limit of Abert's Squirrel range¹, where the species is limited to the extreme southeastern part of the state near Harriman⁷. The Wyoming population segment is assumed to derive from naturally-established animals, and not from human mediated translocations^{2,7}.

Habitat:

Abert's Squirrel is most often classified as an obligate of Ponderosa Pine (*Pinus ponderosa*) forests, which provide both food and shelter^{4,8}. However, the species may also be found in mixed-conifer forests, especially when established via intentional introductions by humans⁹. Mosaic and heterogeneous forests seem to be preferred¹, especially those with large, tall trees and closed and interconnected canopies, which are particularly important for constructing leaf nests, or dreys^{1,7,10}. Cavity nests are also used, although much less frequently, and are often located in large Aspen (*Populus tremuloides*) trees¹¹.

Phenology:

Abert's Squirrel is diurnal and active year-round⁴. Male Abert's Squirrels are capable of reproduction from approximately mid-March through the end of August⁴, although most breeding activity occurs during April and May³. During other times of the year, the testes are withdrawn into the abdomen⁴. Like many tree squirrels, females are in estrus for a single day per breeding cycle, during which time they mate with multiple males¹. Litters of 3–4 young are born in June and July after a 46-day gestation^{3,4,7}. Females produce a single litter per year, although second litters may be common in the southern part of the range⁴. Young disperse after 10 weeks and are capable of reproducing the following year¹.

Diet:

Abert's Squirrel is often considered a Ponderosa Pine-obligate, which can make up a substantial portion of the diet, and includes inner bark, phloem, seeds, buds, and flowers⁴. Clipped twigs are stripped of bark in order to access the phloem; discarded twigs may be used to evaluate presence and density of squirrels¹. Individual trees are selected for herbivory depending on their unique chemical compounds^{12,13}. In Arizona, Abert's Squirrel has been shown to reduce Ponderosa Pine production by 21%¹⁴. However, they will also eat seeds from a variety of other species, including other pine species, fir (*Abies* spp.), Douglas Fir (*Pseudotsuga menziesii*), and oaks (*Quercus* spp.), as well as fungi, carrion, and bones^{4,9}. Abert's Squirrel does not cache seeds, although they are known to pilfer seeds from other tree squirrels that do cache^{1,4}.

CONSERVATION CONCERNS

Abundance:

Continental: REGIONAL ENDEMIC

Wyoming: VERY RARE

Estimates of Abert's Squirrel abundance in Wyoming are not available. Given the limited range of the species in the state, total numbers are expected to be very low. In northern Colorado, near Boulder, densities of Abert's Squirrel varied between 82 individuals per square km in the winter and 114 individuals per square km in the fall after young became independent³. Population fluctuations are common⁴.

Population Trends:

Historic: UNKNOWN

Recent: UNKNOWN

Nothing is known regarding the population trends of Abert's Squirrel in Wyoming. In Colorado, populations began expanding in the early 20th century following the establishment of hunting regulations², and subsequent increases in records of occurrence suggest range expansions in the southern half of the state¹⁵. However, the northern distribution has remained relatively unchanged, and it is unlikely these increases also occurred in Wyoming.

Intrinsic Vulnerability:

MODERATE VULNERABILITY

Across most of its range Abert's Squirrel depends on Ponderosa Pine and other coniferous forests, which makes the species sensitive to changes in these forest types. However, a number of intrinsic factors may help buffer this specificity. The ability of populations to thrive in coniferous habitats where Ponderosa Pine is nearly absent may provide some resiliency. For example, Abert's Squirrels introduced into mixed conifer habitat maintained similar or slightly smaller home ranges than those in Ponderosa Pine forests, which may be the result of a broader food base¹⁶. Additionally, dispersing juveniles can move relatively large distances (≤ 1.44 km)³, which may allow individuals to expand populations to unoccupied environments. Abert's Squirrels also have the ability to establish and maintain populations with as few as 15 to 45 founders, and, as such, introduced populations tend to fare very well^{6, 17}. Finally, the species appears able to persist in areas of moderate human presence and low-density housing development (S. Buskirk, pers. obs.; G. Beauvais, pers. obs.).

Extrinsic Stressors:

SLIGHTLY to MODERATELY STRESSED

Because Abert's Squirrel depends on coniferous forests, and Ponderosa Pine in particular, they are subject to the stressors that threaten this habitat. Forest management practices such as logging and thinning can negatively impact populations, even when they are designed to mimic historic fire patterns^{18, 19}. Catastrophic, stand-replacing fires likely represent substantial habitat loss. The recent Mountain Pine Beetle epidemic has impacted coniferous forests throughout the state, including those within the range of the Abert's Squirrel. The species may also be exposed to habitat modifications from wind power development, which is predicted to increase within its Wyoming range²⁰. Abert's Squirrel is known to frequent bird feeders and other infrastructure in low density housing developments, indicating that such development may not be a significant threat to the species (S. Buskirk, pers. obs.; G. Beauvais, pers. obs.).

KEY ACTIVITIES IN WYOMING

Little work has been done to-date on Abert's Squirrel in Wyoming. Formal surveys are planned for 2016 and 2017 to evaluate presence of Abert's Squirrel throughout its predicted range in the state.

ECOLOGICAL INFORMATION NEEDS

In Wyoming, Ponderosa Pine forests are far vaster than the range of Abert's Squirrel⁵. Consequently, a better understanding of the physical and ecological factors that limit Abert's Squirrel at this northern range limit is needed. Although the strict dependence on Ponderosa Pine forests may be overstated, Abert's Squirrel still depends upon dense coniferous forests for food and shelter. The impacts of bark beetle outbreaks, climate change, wind power development, and forestry practices still need to be evaluated in Wyoming. Finally, quantifying the relative contributions of dispersal and in-state reproduction to persistence would assist managers in prioritizing resources and projects aimed at maintaining Abert's Squirrels in Wyoming.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Nichole L. Bjornlie. Little is known about Abert's Squirrel 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 the impact of potential threats, including the current condition of Ponderosa Pine habitat, which will ultimately be used to develop management and conservation recommendations.

CONTRIBUTORS

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SPECIES PHOTOGRAPH

Figure 1: Photo not available.



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

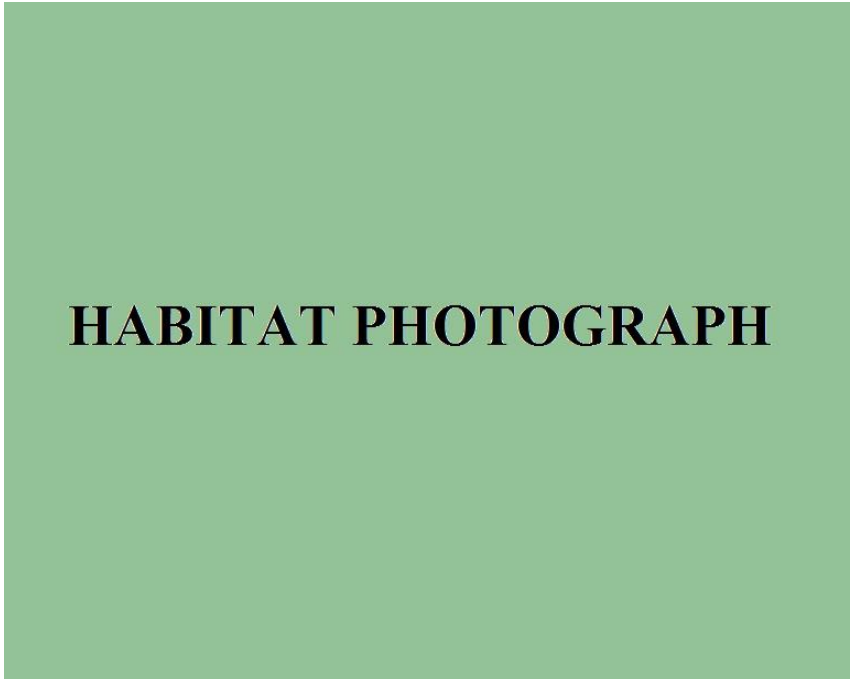


Figure 3: Photo not available.

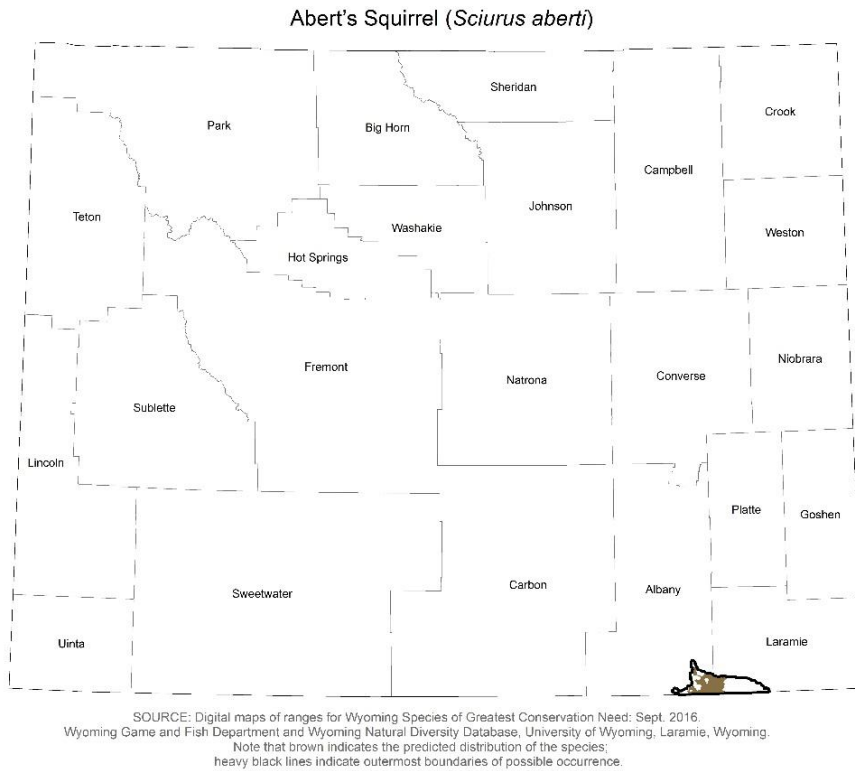


Figure 4: Range and predicted distribution of *Sciurus aberti* in Wyoming.