

# Spotted Ground Squirrel

## *Xerospermophilus spilosoma*

### **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; Pest

### **CONSERVATION RANKS**

USFWS: No special status  
WGFD: NSS4 (Bc), Tier III  
WYNDD: G5, S2S5  
Wyoming Contribution: LOW  
IUCN: Least Concern

### **STATUS AND RANK COMMENTS**

In Wyoming, management of Spotted Ground Squirrel (*Xerospermophilus spilosoma*) is shared by the Wyoming Game and Fish Department (WGFD), which classifies the species as Nongame Wildlife, and the Wyoming Department of Agriculture, which classifies all ground squirrels as Pest species. The Wyoming Natural Diversity Database has assigned Spotted Ground Squirrel a state conservation rank ranging from S2 (Imperiled) to S5 (Secure) because of uncertainty about the abundance, state range, proportion of range occupied, and population trends for this species in Wyoming.

### **NATURAL HISTORY**

#### **Taxonomy:**

Following the reclassification of the genus *Spermophilus* in 2009, Spotted Ground Squirrel (formerly *S. spilosoma*) was moved to the genus *Xerospermophilus*<sup>1,2</sup>. There are 13 recognized subspecies of Spotted Ground Squirrel<sup>1</sup>, but only *X. s. obsoletus* is found in Wyoming<sup>3-5</sup>.

#### **Description:**

Identification of Spotted Ground Squirrel is possible in the field. Spotted Ground Squirrel is a small ground squirrel. Dorsal pelage ranges from smoke gray to various shades of brown with scattered white or buff dorsal spots, and the venter is whitish. The head is characterized by small ears and large, dark eyes rimmed by white or buff hair<sup>3,4,6</sup>. Males and females are similar in size and appearance. Adults weigh between 166–195 g, and total length ranges from 185–253 mm<sup>4</sup>. Tail, hind foot, and ear length ranges from 55–92 mm, 28–37 mm, and 6–8 mm, respectively<sup>4</sup>. Within its Wyoming distribution, Spotted Ground Squirrel can be distinguished from Wyoming Ground Squirrel (*Urocitellus elegans*) by its smaller size and presence of dorsal spots, and from Thirteen-lined Ground Squirrel (*Ictidomys tridecemlineatus*) by its lack of dorsal stripes.

**Distribution & Range:**

Spotted Ground Squirrel is widely distributed from southern South Dakota to central Mexico<sup>7</sup>. Southeastern Wyoming is on the extreme northwestern edge of the species' distribution, and Spotted Ground Squirrel is restricted to the southeastern corner of the state<sup>3, 8</sup>. Confirmed breeding has been documented in 3 of 28 latitude/longitude degree blocks in Wyoming<sup>8</sup>.

**Habitat:**

Spotted Ground Squirrel is found in a wide variety of arid and semi-arid environments across its continental distribution including vegetated sand hills and dunes, desert scrubland, oak-mesquite grasslands and mesquite savanna, short-grass prairie, and sand sagebrush (*Artemisia filifolia*) grasslands<sup>4-6, 9, 10</sup>. This species may also utilize disturbed habitat adjacent to roadways and active cropland, as well as heavily grazed rangeland<sup>6, 11</sup>. Vegetation structure and soil type are important components of Spotted Ground Squirrel habitat. This burrowing species is most common in open environments with deep, dry, sandy soil and short, sparse vegetation<sup>4-6</sup>. In Wyoming, Spotted Ground Squirrel is known to inhabit High Plains vegetated dunes and short-grass prairie interspersed with Soapweed Yucca (*Yucca glauca*) or sagebrush (*Artemisia* spp.), with sand or loamy sand soil, dominant vegetation > 25 mm high, and < 60% vegetation cover<sup>4, 6</sup>.

**Phenology:**

The breeding phenology and life history of Spotted Ground Squirrel in Wyoming are not well known. This species is diurnal but will regulate above-ground activity based on temperature and weather conditions<sup>4-6</sup>. Adults enter hibernation beginning in July (males) or September (females), with both sexes emerging in April. Breeding likely occurs between April and July. The gestation period of this species is unknown, but females give birth to a single litter of 4–12 altricial young. Young first venture from the nest burrow when they reach a body weight of 40–50 g but remain dependent on the mother for an additional 2–4 weeks<sup>4-6</sup>.

**Diet:**

Spotted Ground Squirrel consumes a variety of seeds, flowers, grasses, forbs, and arthropods and may opportunistically prey on small mammals and reptiles<sup>4, 6, 9, 10</sup>.

**CONSERVATION CONCERNS**

**Abundance:**

**Continental:** WIDESPREAD

**Wyoming:** RARE

There are no robust estimates of abundance available for Spotted Ground Squirrel in Wyoming. The species has an estimated statewide abundance rank of RARE and also appears to be rare within suitable environments in the occupied area<sup>8</sup>.

**Population Trends:**

**Historic:** UNKNOWN

**Recent:** UNKNOWN

Historic and recent population trends for Spotted Ground Squirrel in Wyoming are unknown.

**Intrinsic Vulnerability:**

MODERATE VULNERABILITY

Spotted Ground Squirrel has moderate intrinsic vulnerability in Wyoming. Spotted Ground Squirrel appears to have low abundance in the state, even within suitable habitat. Although the

species will use a wide variety of arid and semi-arid habitat types across its distribution, the High Plains vegetated dune and shortgrass prairie environment in the southeastern corner of the state is limited in extent in Wyoming. Spotted Ground Squirrel would likely have little opportunity for range expansion within the state should disturbance or loss of existing habitat occur.

### **Extrinsic Stressors:**

#### **SLIGHTLY STRESSED**

Primary potential extrinsic stressors to Spotted Ground Squirrel in Wyoming are loss or degradation of existing habitat from natural or anthropogenic disturbances. Prairie grassland environments in the state are vulnerable to development for energy, infrastructure, and agriculture; invasive plant species; anthropogenic disturbance from off-road recreational activities; altered fire and grazing regimes; and drought and climate change<sup>12</sup>. Spotted Ground Squirrel has shown tolerance for disturbance from grazing and agriculture in other parts of its continental distribution<sup>6, 11</sup>. As a species that prefers open environments with a high percentage of bare ground, Spotted Ground Squirrel may be negatively affected by Cheatgrass (*Bromus tectorum*), Canada Thistle (*Cirsium arvense*), and other invasive plant species that can form tall, dense stands. However, it is not currently known how potential extrinsic stressors may impact Spotted Ground Squirrel in Wyoming.

### **KEY ACTIVITIES IN WYOMING**

Spotted Ground Squirrel is classified as a Species of Greatest Conservation Need by the WGFD. There are currently no research or management projects designed specifically for Spotted Ground Squirrel in Wyoming.

### **ECOLOGICAL INFORMATION NEEDS**

Spotted Ground Squirrel is not well studied in Wyoming, and little is known about the natural history or reproductive habits of this species in the state. Spotted Ground Squirrel would benefit from research to better understand its distribution and abundance. The impacts of natural and anthropogenic disturbances within Spotted Ground Squirrel's limited Wyoming distribution are largely unknown.

### **MANAGEMENT IN WYOMING**

*This section authored solely by WGFD; Nichole L. Bjornlie.* Spotted Ground Squirrel is classified as both a pest and a nongame species in Wyoming, and, as such, both the Wyoming Department of Agriculture and the WGFD have shared management authority for ground squirrels, which makes management of Spotted Ground Squirrel difficult. Overall, little is known about the species in Wyoming. Consequently, management priorities for the WGFD for the species in the short-term will focus on addressing these data deficiencies. Of particular importance are data on distribution, presence and abundance, population status and trends, and the impact of extrinsic stressors, all of which will ultimately be used to develop management and conservation recommendations.

### **CONTRIBUTORS**

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## **REFERENCES**

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- [12] Wyoming Game and Fish Department. (2010) State Wildlife Action Plan, p 512.

## SPECIES PHOTOGRAPH

Figure 1: Photo not available.



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

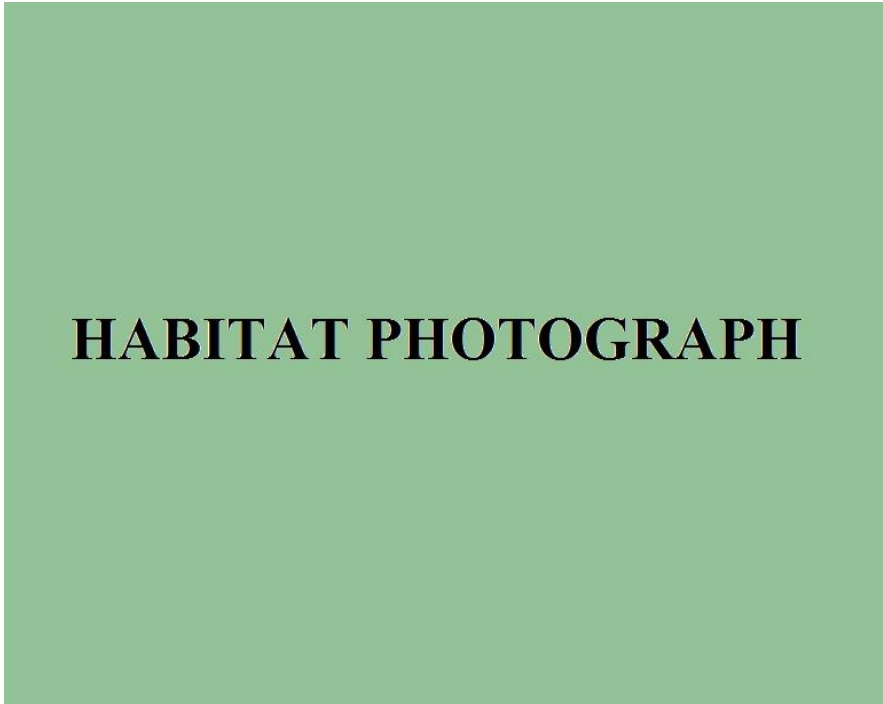


Figure 3: Photo not available.

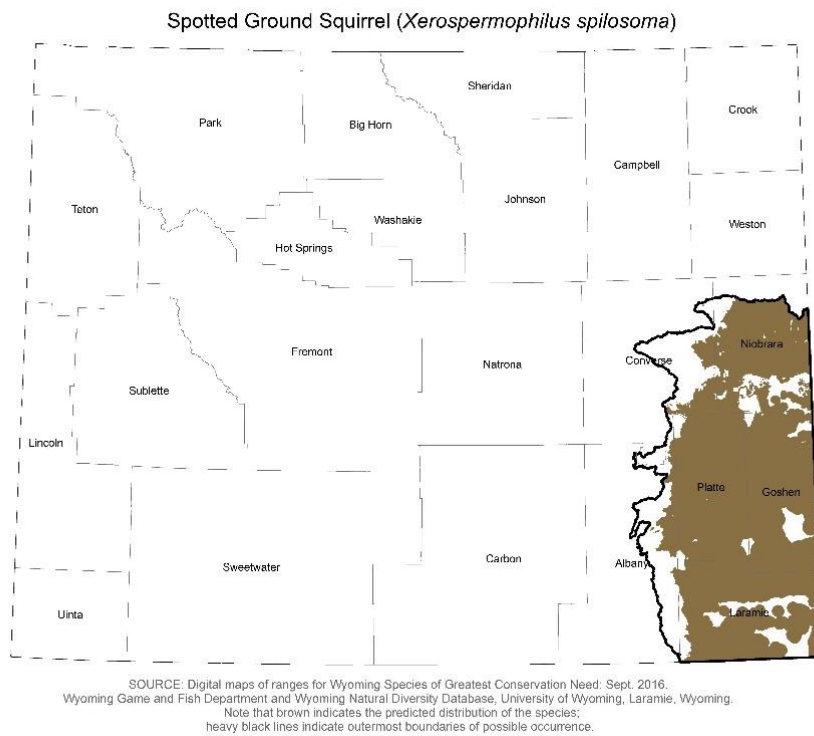


Figure 4: Range and predicted distribution of *Xerospermophilus spilosoma* in Wyoming.