

## Sand Hills Pocket Gopher

### *Geomys lutescens*

#### **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: G3, S1S3  
Wyoming Contribution: HIGH  
IUCN: Least Concern

#### **STATUS AND RANK COMMENTS**

Sand Hills Pocket Gopher (*Geomys lutescens*) is assigned a range of state conservation ranks by the Wyoming Natural Diversity Database due to uncertainty concerning its abundance in Wyoming and lack of information on population trends in the state. Also, note that the Global rank (G3) is provisional at this time – NatureServe (Arlington, Virginia) has not yet formalized a Global rank for this species.

#### **NATURAL HISTORY**

##### **Taxonomy:**

Sand Hills Pocket Gopher was formerly considered a subspecies of Plains Pocket Gopher (*G. bursarius*) and given the sub-specific designation *G. b. lutescens*<sup>1</sup>. It is now considered a full species based on a combination of genetic information and morphology<sup>2</sup>. Though two subspecies of *G. lutescens* have been suggested, none are widely recognized<sup>3</sup>. It is suspected to hybridize with *G. bursarius* in some localities<sup>4</sup>.

##### **Description:**

Like all pocket gophers, Sand Hills Pocket Gopher is adapted to fossorial life with large foreclaws, a heavy skull, strong jaw muscles, and relatively inconspicuous ears and eyes. It is similar in general appearance to the formerly synonymous *G. bursarius*, which has a sparsely-haired tail and relatively short pelage that can vary substantially in color from buff to black<sup>5</sup>. However, *G. lutescens* is somewhat smaller and lighter in pelage color than *G. bursarius* and other sympatric gophers<sup>2,4</sup>, the latter characteristic likely being adaptive coloration such that pelage color matches the generally light-colored, sandy soils in which they are found<sup>6</sup>.

##### **Distribution & Range:**

Sand Hills Pocket Gopher has a very small range that is restricted to northern and western Nebraska and small portions of South Dakota, Wyoming and Colorado<sup>2,3</sup>. Although the exact boundaries of the range are uncertain<sup>2</sup>, it is smaller than the range assigned to the former

subspecies *G. b. lutescens*, which included parts of Kansas and Colorado <sup>1</sup>. This change does not likely represent a range contraction, but rather improved delineation of species distributions resulting from recent surveys and refined taxonomic analyses. Like its former parent species, *G. bursarius*, Sand Hills Pocket Gopher distribution may be somewhat patchy within its range and dependent upon soil characteristics <sup>4</sup>, though there is no evidence of restricted gene flow among populations.

**Habitat:**

Like all pocket gophers, Sand Hills Pocket Gopher is largely fossorial, living entirely in burrow complexes that are often vigorously defended from the intrusion of other gophers <sup>5</sup>. *G. lutescens* burrows occur in grassland and steppe habitats <sup>7</sup> and are largely confined to areas of relatively fine, sandy soil characteristic of the Sand Hills region of Nebraska and neighboring states <sup>2</sup>. The only study occurring in Wyoming found Sand Hills Pocket Gopher (i.e., *G. bursarius* within the likely range of *G. b. lutescens*, and thus likely to be *G. lutescens*) was restricted to “deep, fine-textured soils covered by various vegetation on the floor of the plains, sand hills, and barrow pits along roads,” as opposed to the more generally-distributed sympatric Northern Pocket Gopher (*Thomomys talpoides*) <sup>8</sup>.

**Phenology:**

Very little information is available for the phenology of *G. lutescens*, though it is likely similar to *G. bursarius*. *G. bursarius* mating begins in early spring depending on local climate, with young born throughout the spring and summer (most commonly April–July) after an 18–19 day gestation. There are about 4 young per litter, and they stay with the mother for roughly 2 months before dispersing. Females can breed within 3 months of birth, but males often do not reach sexual maturity until the following year <sup>9</sup>.

**Diet:**

Sand Hills Pocket Gopher consumes a wide variety of plant material, primarily roots and stems of common grasses, rushes, and forbs <sup>10 11</sup>. Grass species seem to be most common in the diet, with Needle-and-Thread Grass (*Hesperostipa comata*) being potentially prominent <sup>10 12</sup>.

**CONSERVATION CONCERNS**

**Abundance:**

**Continental:** REGIONAL ENDEMIC

**Wyoming:** UNCOMMON

There are no studies quantifying the abundance of Sand Hills Pocket Gopher in Wyoming. One study elsewhere in the range of *G. lutescens* found them to be common, with fresh mounds occupying 4.8–8.4% of the landscape surface in study sites in the Niobrara Valley Preserve of central Nebraska <sup>11</sup>. Given *G. lutescens* association with particular soil types, the areas where such densities occur are likely patchy within its range <sup>4</sup>, so this species is probably less common, overall, than more generalist gophers like *T. talpoides*. Further, since *G. lutescens* range in Wyoming is very small, the total population size in the state is likely not large, even if the species is locally abundant.

**Population Trends:**

**Historic:** UNKNOWN

**Recent:** UNKNOWN

There are no estimates of population trends for *G. lutescens* anywhere within its range. Populations of its former parent species, *G. bursarius*, are considered stable by the International Union for Conservation of Nature <sup>13</sup>.

**Intrinsic Vulnerability:**

**MODERATE VULNERABILITY**

Sand Hills Pocket Gopher appears to be restricted to a narrow range of habitats typified by the Sand Hills of Nebraska (i.e., grassland and shrubland habitats with well-developed, sandy soils), thus resulting in a restricted range and relatively patchy distribution. Given that it is a small, fossorial mammal, dispersal ability may be limited, but there is no evidence that this is biologically restrictive. Sand Hills Pocket Gopher does not appear to exhibit reproductive restrictions that would make it particularly vulnerable.

**Extrinsic Stressors:**

**SLIGHTLY STRESSED**

Although most land altering disturbance has the potential to affect local populations, there is no direct evidence that Sand Hills Pocket Gopher populations are stressed by current anthropogenic activities. Habitats within Sand Hills Pocket Gopher range in Wyoming are affected by agriculture, including cattle grazing and conversion to cropland, but it is unknown how these activities affect the species. Much of the Sand Hills ecoregion is still intact, partly because the fragility of the soils has limited grazing and extensive crops; however, there is evidence that overgrazing, when it occurs, could result in reduction of forage species preferred by *G. lutescens*, such as Needle-and-Thread Grass <sup>14</sup>. Because pocket gophers are sometimes considered pests, they are subjected to local extermination due to conflicts with residential landowners or farmers concerned with potential damage to crops <sup>13</sup>.

**KEY ACTIVITIES IN WYOMING**

There are currently no activities in Wyoming directed specifically toward Sand Hills Pocket Gopher.

**ECOLOGICAL INFORMATION NEEDS**

Assessment of Sand Hills Pocket Gopher status in Wyoming is hampered by lack of information regarding its distribution, abundance, population trends, and potential stressors. Improved information on Wyoming distribution and habitat use is necessary to guide management activities. Better information on how Sand Hills Pocket Gopher responds to events that alter native grassland communities would be helpful in estimating the impact of potential stressors. Estimates of abundance (and/or occupancy rates) are important to establish an accurate conservation rank and as a baseline for eventual population monitoring that can be used to assess trends over time.

**MANAGEMENT IN WYOMING**

*This section authored solely by WGFD; Nichole L. Bjornlie.* Little is known about Sand Hills Pocket Gopher 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, habitat use and availability, and the impact of potential threats, all of which will ultimately be used to develop management and conservation recommendations. Because of the presumed low density and patchy distribution of

Sand Hills Pocket Gopher on the landscape, acquiring these data will likely require targeted survey efforts.

### **CONTRIBUTORS**

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### **REFERENCES**

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Figure 1: A Sand Hills Pocket Gopher in northwestern Nebraska. (Photo courtesy of Dale G. Luce)

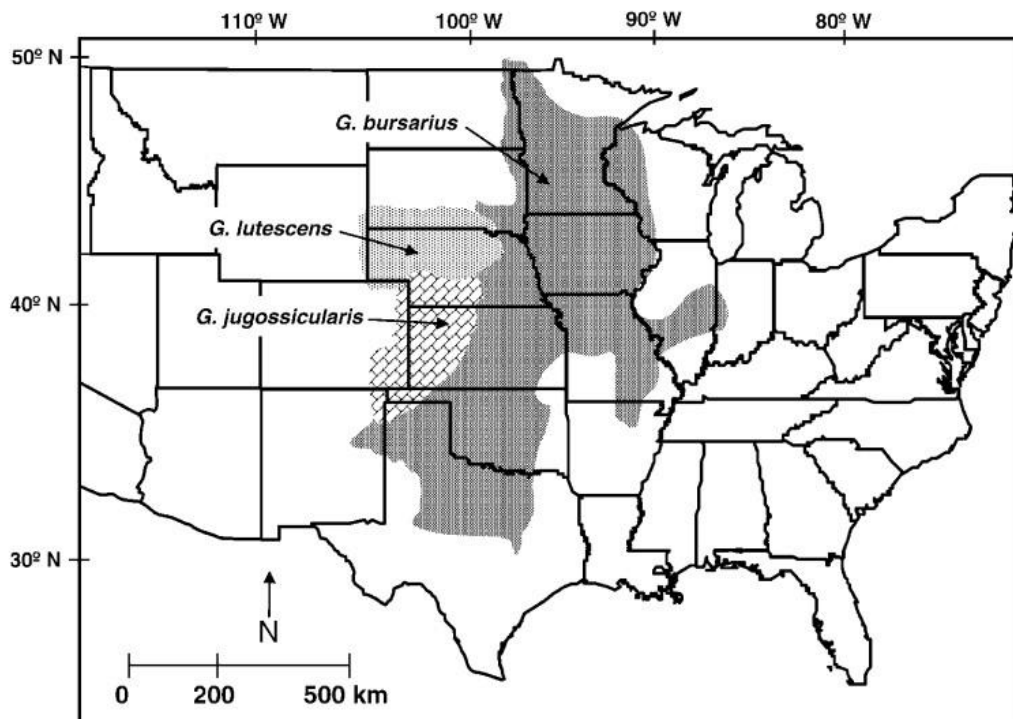


Figure 2: North American range of *G. lutescens* and other pocket gophers formerly conspecific with *G. bursarius*. (Map from: Genoways, H. H., et al. (2008) Hybrid zones, genetic isolation, and systematics of pocket gophers (genus *Geomys*) in Nebraska, *Journal of Mammalogy* 89, 826-836.)





Figure 3: Sand Hills Pocket Gopher habitat (with gopher mounds) in northwestern Nebraska. (Photo courtesy of Dale G. Luce)

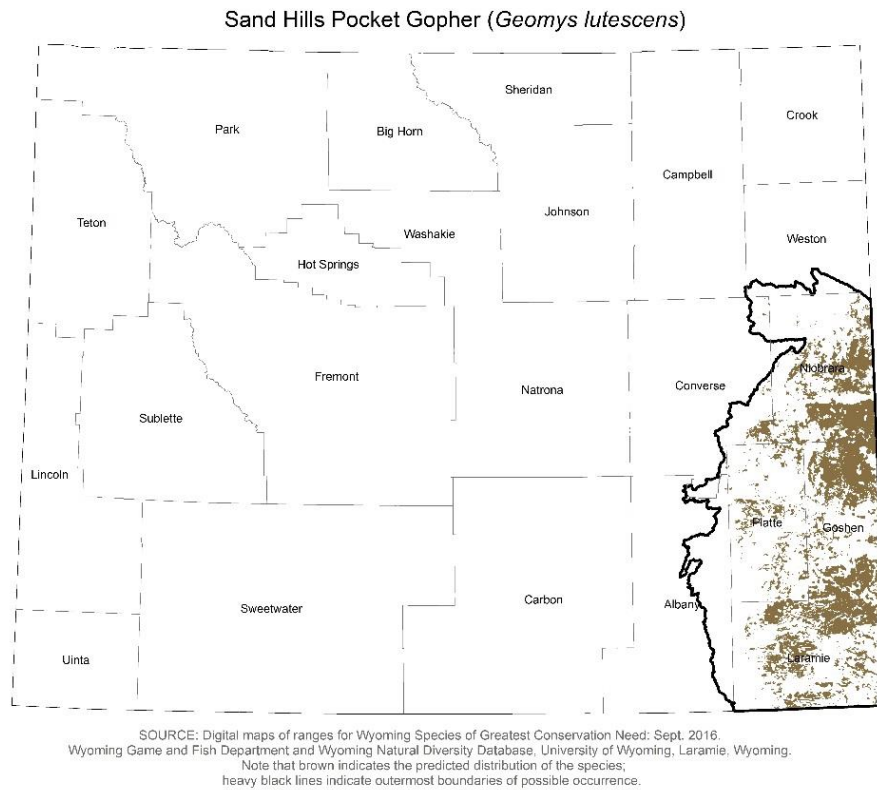


Figure 4: Range and predicted distribution of *Geomys lutescens* in Wyoming.