

## Eastern Spotted Skunk

*Spilogale putorius*

### **REGULATORY STATUS**

USFWS: Petitioned for Listing  
USFS R2: No special status  
USFS R4: No special status  
Wyoming BLM: No special status  
State of Wyoming: Predatory Animal

### **CONSERVATION RANKS**

USFWS: No special status  
WGFD: NSS3 (Bb), Tier II  
WYNDD: G4, S3S4  
Wyoming Contribution: LOW  
IUCN: Least Concern

### **STATUS AND RANK COMMENTS**

The plains subspecies of Eastern Spotted Skunk (*Spilogale putorius interrupta*) is petitioned for listing under the United States Endangered Species Act (ESA). The species as a whole is assigned a range of state conservation ranks by the Wyoming Natural Diversity Database (WYNDD) due to uncertainty concerning the proportion of its Wyoming range that is occupied, the resulting impact of this on state abundance estimates, and, to a lesser extent, due to uncertainty about extrinsic stressors and population trends in the state.

### **NATURAL HISTORY**

#### **Taxonomy:**

There are currently two species of spotted skunk commonly recognized in the United States: the Eastern Spotted Skunk (*S. putorius*) and the Western Spotted Skunk (*S. gracilis*)<sup>1-3</sup>. The distinction between the eastern and western species has been questioned over the years, with some authors suggesting that the two are synonymous<sup>4</sup>, while others maintain that they are distinct based on morphologic characteristics, differences in breeding strategy, and molecular data<sup>5-7</sup>. There are 3 subspecies of *S. putorius* recognized by most authorities<sup>3</sup>, but only *S. p. interrupta* (Plains Spotted Skunk) occurs in Wyoming, while the other two are restricted to portions of the southeastern United States<sup>1</sup>.

#### **Description:**

Spotted skunks are the smallest skunks in North America and are easily distinguished by their distinct pelage consisting of many white patches on a black background, compared to the large, white stripes of the more widespread and common striped skunk (*Mephitis mephitis*). It is very difficult to tell Eastern and Western Spotted Skunk from each other in the field, particularly based on visual sighting rather than a captured animal. The primary (and somewhat subjective) differentiating characteristic is that Eastern Spotted Skunk has less extensive white markings than Western Spotted Skunk. In particular, Eastern Spotted Skunk has a mostly black tail with a

small white tip, while Western Spotted Skunk has extensive white on the end and underside of tail. Pending development of suitable genetic differentiation, the two species are ultimately distinguished by chromosome number (Eastern has 64 chromosomes; Western has 60 chromosomes) and reproductive strategy (Eastern has a gestation period of 50–65 days with no delayed implantation; Western has a gestation period of 210–250 days and exhibits delayed implantation)<sup>1,6</sup>.

**Distribution & Range:**

Wyoming is on the western periphery of Eastern Spotted Skunk range and represents less than 5% of the species' global range. In Wyoming, it is assumed to occur throughout suitable habitat in the eastern basins of the state (i.e., east of the Laramie and Bighorn mountain ranges), but this is largely conjecture based on relatively limited occurrences<sup>8,9</sup>. Initially more restricted to the southeastern states, agricultural development may have facilitated the expansion of Eastern Spotted Skunk into the Great Plains early in the 1900s<sup>1</sup>. Population declines have been reported in the Great Plains (see Population Trends), but there does not appear to have been a concurrent contraction or shift in the species' range nationally or in Wyoming.

**Habitat:**

Eastern Spotted Skunk occurs in a variety of habitats but consistently avoids open areas in favor of those with dense vegetative cover<sup>1</sup>. It is often associated with dry, brushy, and rocky woodlands with thick understory such as second-growth deciduous forest, dense palmetto thickets, and oak-hickory forests<sup>1,10</sup>. Eastern Spotted Skunk uses dens, which can be virtually any natural cavity (e.g., talus or rock piles, hollow logs, stumps), burrow (self-excavated or from other small mammals), or man-made structure (e.g., haystacks, wood piles, farm buildings) as long as they provide shelter from the elements, protection from predators, and minimal human disturbance<sup>1</sup>. Limited information from Wyoming suggests a preference for wooded areas with rock outcrops and moderate to low overstory canopy cover<sup>9</sup>.

**Phenology:**

Eastern Spotted Skunk does not exhibit delayed implantation, which distinguishes it from the Western Spotted Skunk. Mating occurs in spring (March to April, depending on locality) and implantation occurs within a couple weeks<sup>5</sup>. Gestation lasts roughly 60 days; litters of 5–6 are born in late May or June; and weaning occurs after about 54 days<sup>1,5</sup>. Eastern Spotted Skunk typically has one litter per year, although there are reports of two litters in a year in warm climates<sup>11</sup>. Hibernation has not been reported, and spotted skunks appear active year-round throughout their range.

**Diet:**

Across its range, Eastern Spotted Skunk is omnivorous, but it may focus on particular dietary components depending on location and season<sup>11</sup>. The species is largely insectivorous where insects are consistently plentiful, but shifts to other prey sources (e.g., small mammals, birds and bird eggs, carrion, and plant material) during seasons when insects are not available<sup>1</sup>.

**CONSERVATION CONCERNS**

**Abundance:**

**Continental:** WIDESPREAD

**Wyoming:** RARE

In areas where they are not abundant, their secretive nocturnal nature means that spotted skunks can be difficult to detect unless targeted surveys are conducted to identify them. Population density is highly variable across the range. Eastern Spotted Skunk seems to be most plentiful in parts of Florida where densities can exceed 40 individuals per km<sup>2</sup> in good habitat, but densities seem to be much lower (e.g., ~8 per km<sup>2</sup>) in most other parts of their range<sup>1, 12</sup>. Abundance of Eastern Spotted Skunk in Wyoming is largely unknown, since there are no formal, quantitative estimates of abundance in the state, and most previous accounts report only few, opportunistic observations<sup>8</sup>. A recent survey effort targeting spotted skunks in Wyoming documented *Spilogale* spp. in 16 out of 160 locations that straddled the range of both species in the state<sup>9</sup> and likely includes detections of both species. Limited survey effort in Wyoming, combined with difficulty in identifying spotted skunks to the species level, has made it difficult to quantify abundance of *S. putorius* in the state.

**Population Trends:**

**Historic:** MODERATE DECLINE

**Recent:** UNKNOWN

Range-wide, the International Union for Conservation of Nature classifies populations of Eastern Spotted Skunk as decreasing<sup>12</sup>. Since the 1940s, the plains subspecies of Eastern Spotted Skunk (*S. p. interrupta*) has undergone large declines across the Midwest and Great Plains states<sup>1, 13</sup>, leading to its petition for listing under the ESA and subsequent positive 90-day finding suggesting that listing may be warranted<sup>14</sup>. This has resulted in an increase in its conservation status across most Midwestern states<sup>1, 15</sup>. It is unclear whether population declines have also occurred in Wyoming. The species has ever been abundant in the state<sup>8</sup>, but it does not seem to have experienced a change in distribution<sup>9</sup>, so it is possible that populations in Wyoming have not recently declined as markedly as elsewhere in *S. p. interrupta* range.

**Intrinsic Vulnerability:**

LOW VULNERABILITY

Although Eastern Spotted Skunk is found almost exclusively where there is ample vegetative cover, cover type is not restrictive. The species is quite opportunistic in den selection and is a relative omnivore, so den sites and diet are not limiting. It appears quite adaptable to human presence, which could even facilitate its persistence in some areas, such as the Great Plains<sup>1</sup>. Although it is hypothesized to be susceptible to a variety of diseases<sup>13</sup>, there is no evidence that any of them severely affect distribution or population abundance. From a reproductive perspective, Eastern Spotted Skunk does not have particularly limiting reproductive biology or unusually low fecundity.

**Extrinsic Stressors:**

MODERATELY STRESSED

Widespread declines in populations of *S. p. interrupta* have led to much speculation regarding stressors that could be driving such trends. Some of these stressors include the advent of large-scale pesticide use in agricultural systems, thus reducing insect prey and/or directly affecting spotted skunks; the advent of large-scale farming and concurrent reduction in wildland edge habitats, fence rows, and haystack construction that spotted skunks prefer; extensive trapping for the fur trade; long-term drought; changes in forest management practices that reduced brushy understory; and diseases such as distemper, rabies, and parvo viruses<sup>10, 13</sup>. However, there is no direct link between any of these stressors and population declines, and, moreover, is it unlikely that any of them are the sole cause<sup>13</sup>. Additionally, some of these stressors likely do not apply

directly to Wyoming's spotted skunk populations, since most of the species' Wyoming range is not subject to intensive, crop-based agriculture, and very few skunks are trapped in the state. The remaining stressors could impact spotted skunk populations in Wyoming, but there is substantial uncertainty regarding their actual level of stress in the state.

### **KEY ACTIVITIES IN WYOMING**

The Wyoming Game and Fish Department (WGFD) has recently funded a number of projects pertaining to spotted skunks. The WGFD conducted pilot surveys in the winter of 2014–2015 to assess the presence of spotted skunks in central Wyoming<sup>9</sup>. A subsequent project has been funded through the WYNDD and the University of Wyoming Department of Zoology and Physiology to conduct an extensive inventory of Eastern Spotted Skunk in Wyoming and assess its genetic divergence from and likelihood of introgression with Western Spotted Skunk. This project is expected to begin in the fall of 2016 and has an expected completion in 2018. Finally, the WGFD is coordinating with the University of Wyoming to solicit and compile trapping and observational records of spotted skunks throughout the state in order to help direct research efforts and develop a baseline distribution throughout the state.

### **ECOLOGICAL INFORMATION NEEDS**

Assessment of Eastern Spotted Skunk status in Wyoming is hampered by limited information regarding its distribution, abundance, population trends, and taxonomic distinctness. Improved distribution and habitat information are necessary to develop refined estimates of potential impacts from development activities across Wyoming's basins. Estimates of abundance and/or occupancy rates are important for establishing an accurate state conservation rank and as a baseline for eventual population monitoring that can be used to assess trends over time.

Assessing taxonomic distinctness of *S. putorius* and its subspecies will help direct conservation efforts relative to the current petition to list *S. p. interrupta* as a threatened or endangered species.

### **MANAGEMENT IN WYOMING**

*This section authored solely by WGFD; Nichole L. Bjornlie.* Little is known about Eastern Spotted Skunk in Wyoming. The current classification of all skunks in Wyoming as predatory animals makes management of Eastern Spotted Skunk difficult. Consequently, conservation concerns for both spotted skunk species in the state may necessitate the need to reevaluate the current classification of these species. Management priorities for the species in the short-term will focus on addressing data deficiencies, including data on presence, distribution, population status and trends, and the impact of extrinsic stressors, which will ultimately be used to develop management and conservation recommendations. Additionally, a better understanding of habitat use, range boundaries, and areas of overlap with the sympatric Western Spotted Skunk are needed at this western range boundary. Because of the difficulty in distinguishing between Eastern and Western Spotted Skunk in the field and the recent listing petition for Plains Spotted Skunk, upcoming projects will focus on the use of genetic analyses for positive identification, to delineate distribution, and to evaluate the potential for and degree of hybridization between the species.

### **CONTRIBUTORS**

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Figure 1: A recently released adult spotted skunk (*Spilogale* spp.) that was captured in Albany County, Wyoming. (Photo courtesy of Kristina M. Harkins)



Figure 2: Map not available.



Figure 3: Spotted skunk (*Spilogale* spp.) habitat in the Pedro Mountains in Carbon County, Wyoming. (Photo courtesy of Jesse Boulerice, WGFD)

**STATE MAP**

Figure 4: Map not available.