Western Spotted Skunk

Spilogale gracilis

REGULATORY STATUS

USFWS: No special status
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: NSSU (U), Tier III
WYNDD: G5, S3S4
Wyoming Contribution: LOW
IUCN: Least Concern

STATUS AND RANK COMMENTS

Western Spotted Skunk (*Spilogale gracilis*) 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:

Spotted skunks are carnivores in the genus *Spilogale* within the Mephitidae family. There are currently two species of spotted skunk recognized in the United States: Eastern Spotted Skunk (*S. putorius*) and Western Spotted Skunk (*S. gracilis*) [1-4]. The distinction between the eastern and western species has been questioned over the years, with some authors suggesting that *S. gracilis* is a subspecies of *S. putorius* [5, 6], while others maintain that the two taxa are distinct species based on morphologic characteristics, differences in breeding strategy, and molecular data [7-9]. There are 7 subspecies of *S. gracilis* recognized by most authorities [3, 4]. *S. g. gracilis* is the most widespread of these, occurring throughout the intermountain west and Great Basin, and is the only subspecies occurring in Wyoming.

Description:

Spotted skunks are the smallest skunks in North America and are easily distinguished by their distinct black and white pelage. Western Spotted Skunk has 3 pairs of white stripes, or oblong patches, on the front half of the body and 3 more vertical patches on the back half. This pattering is much different than the large, white stripes of the sympatric Striped Skunk (*Mephitis mephitis*). However, it can be very difficult to tell Western Spotted Skunk from Eastern Spotted Skunk in the field, particularly based on visual sighting rather than a captured animal. The primary and subjective differentiating characteristic is that Western Spotted Skunk may have

more extensive white markings than Eastern Spotted Skunk [4]. In particular, Western Spotted Skunk has more extensive white on the end and underside of tail and may have a somewhat longer white spot on the forehead. However, in Wyoming these pelage characteristics may not be definitive, and other methods of identification are needed[10]. 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) [1, 4, 8, 11].

Distribution & Range:
Wyoming is on the eastern periphery of Western 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 western basins of the state roughly west of the Laramie and Bighorn mountain ranges, but this is based on relatively limited occurrences [10, 12, 13]. There has been no apparent contraction or shift in the species' range, nationally or in Wyoming, although information is lacking [10].

Habitat:
Western Spotted Skunk occurs in a variety of habitats but is most commonly associated with relatively open wooded and shrub habitats with brushy and herbaceous components that promote a diversity of edge habitat, often along streams, and often in association with rock outcroppings [4, 14, 15]. Western Spotted Skunk uses dens, which are typically burrows excavated by the skunks, modifications of other burrows (e.g., ground squirrel burrows), natural cavities (e.g., hallows in rock piles or the roots and trunks of trees), or man-made structures (e.g., gaps under buildings or road cuts) [4]. Limited information from Wyoming suggests a preference for wooded areas with rock outcrops and moderate to low overstory canopy cover [13].

Phenology:
Western Spotted Skunk exhibits delayed implantation. Mating occurs in late summer or fall, typically in September, but likely earlier in southern latitudes [8]. Following fertilization, embryo development is retarded, and implantation does not occur until April. Young are born in May, resulting in a total gestation period of roughly 210–250 days [8, 11]. Litters range from 2 to 5 young (average = 4) [8]. Western Spotted Skunk typically has one litter per year, but southern populations can have a second litter following breeding in July or August [4, 8]. Hibernation has not been reported, and spotted skunks appear active year-round throughout their range.

Diet:
Western Spotted Skunk is an omnivore that predominantly consumes insects and small mammals [4]. Carrion, fruits, berries, herpetofauna, and human left-overs have also been reported as diet items [4].

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 variable across its range, but does not seem to be particularly high anywhere [16]. Capture rates of Western Spotted Skunk may reach peak levels in isolated island populations

(e.g., 5.7 captures per 1000 trap nights; Santa Crus Island, California). Old and second-growth western forests generally show moderate capture rates (e.g., 0.9–1.2 captures per 1000 trap nights; Olympic Peninsula, Washington and Coast Range, Oregon), with lower rates in other forest types (e.g., 0.2 captures per 1000 trap nights in regenerating stands of the Olympic Peninsula) [4]. Abundance of Western Spotted Skunk in Wyoming is unclear, since there are no formal, quantitative estimates of abundance in the state, but is likely to be quite low since most previous accounts report only few, opportunistic observations [10, 12]. 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 [13] and likely includes detections of both species. Thus, the actual occupancy rate of *S. gracilis* across its purported range in Wyoming could be much lower than 10%. Limited survey effort and difficulty in identifying spotted skunks to the species level hinder our ability to quantify abundance of these species without genetic analyses.

Population Trends:

Historic: UNKNOWN

Recent: UNKNOWN

The International Union for Conservation of Nature classifies populations of Western Spotted Skunk as decreasing, but suggests that, although it may be declining in parts of the U. S., declines are not sufficient to merit a more threatened classification [16]. In contrast, population increases have been reported for the endemic population on Santa Cruz Island, but the ecology of that system is sufficiently different from the rest of the species' distribution that such trends are unlikely to represent conditions elsewhere [17]. As with other parts of the range, Western Spotted Skunk does not appear to be abundant in Wyoming [10, 12]. However, very limited information suggests that the species persists where it was recorded historically in the state [13], so it is perhaps unlikely that populations in Wyoming have recently declined.

Intrinsic Vulnerability:

LOW VULNERABILITY

Ample vegetative cover is necessary to support populations of Western Spotted Skunk, but the type of cover varies across its range and does not, therefore, seem restrictive. The species is fairly opportunistic in den selection and is a relative omnivore, so den sites and diet are also likely not limiting. It appears adaptable to human presence, often denning in man-made structures [4], so it is not likely to be particularly vulnerable to human disturbance outside extensive control efforts, pesticide use, or habitat conversion. There is no information on disease susceptibility for the Western Spotted Skunk, but the closely-related Eastern Spotted Skunk is hypothesized to be vulnerable to a variety of diseases [18]. However, there is no evidence for either species that disease affects population distribution or abundance. Western Spotted Skunk does not have limiting reproductive biology or unusually low fecundity.

Extrinsic Stressors:

SLIGHLTY STRESSED

Widespread declines in populations of *S. p. interrupta*, a subspecies of Eastern Spotted Skunk, have led to speculation regarding stressors to populations of spotted skunks in general. Although none of these have been confirmed as definite contributors to spotted skunk declines, some hypothesized stressors include: 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 [18-20]. Some of these stressors are not likely to apply in Wyoming, 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 occur in Wyoming, but there is substantial uncertainty regarding their actual level of stress in the state and subsequent impacts on Western Spotted Skunks.

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 [13]. A subsequently project has been funded through WYNDD and the University of Wyoming Department of Zoology and Physiology to conduct an extensive inventory of spotted skunks in Wyoming. This study will focus predominantly on *S. putorius*, but will also cover much of the potential introgression zone between the two species and will assess the genetic divergence between *S. gracilis* and *S. putorius*. 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 Western Spotted Skunk status is hampered by limited information regarding its distribution, abundance, population trends, and taxonomic distinctness, all of which are also needed for *S. putorius*. Improved distribution and habitat information are necessary to assess whether development activities across Wyoming's basins might be a stressor. 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. gracilis* from *S. putorius* will help in directing species-specific conservation efforts.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Nichole L. Bjornlie. Western Spotted Skunk is assigned an NSSU rank because survey data that would provide for an assessment of population status are lacking. Additionally, the current classification of all skunks in Wyoming as predatory animals makes management of Western 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 Eastern Spotted Skunk are needed at this eastern range boundary. Because of the overlap and difficulty in distinguishing between Eastern and Western Spotted Skunk in the field, 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)

Figure 4: Map not available.