



Pronk stott mule deer © Ben Kraushaar

Mule Deer: Red Desert, Wyoming (USA)

Migration Description

Mule deer within the Red Desert population, part of the larger Sublette herd in Wyoming, make the longest ungulate migration recorded to date in the continental United States. The southernmost mule deer within this herd travel a one-way distance of 240 km from the Red Desert in the south to the Hoback Basin and surrounding mountain ranges in the north. Their migration originates on winter ranges in the desert sagebrush habitat of the Red Desert area in southwest Wyoming. In spring, an estimated 1,000 deer travel 80 km north across the desert to the west side of the Wind River Range. From there they merge with 4,000 to 5,000 other deer that winter in the foothills of the Wind River Range and then travel a narrow corridor along the base of the mountains for 100 km before crossing the upper Green River Basin. Deer must navigate several bottlenecks, one as narrow as 50 meters wide, at the outlets of Boulder, Fremont, and Willow Lakes. In the final leg of the journey, the deer travel another 50-80 km to individual summer ranges in the mountains that drain into the Hoback Basin and Upper Green River Valley. Another segment of the herd winters in sagebrush habitats just south of the town of Pinedale and also migrate to summer ranges in the northern Wyoming Range.

Threats to Migration

The fact that these mule deer move vast distances means they navigate through many obstacles along their migration. The Red Desert winter range is mostly U.S. government land, where energy development is a common land use. Agency policies help locate new developments to maintain the functionality of this corridor. The first leg of the spring migration is largely intact, as there are no paved roads or fences until deer reach Wyoming Highway 28. After crossing the road, the corridor weaves in and out of Wyoming's "working lands" comprised of large private ranches interspersed with patches of public land. The private lands that underpin this part of the corridor are at risk of development into housing tracts. Near the town of Pinedale, deer must navigate several bottlenecks where residential developments or fences press close to the lake outlets.

Notably, the Fremont Lake Bottleneck was protected from development in 2016. While the longest migrating deer traverse an estimated 100 fences, nearly 750 miles of fence have been converted to a wildlife friendly design within this landscape. Once the migration reaches the Bridger-Teton Forest lands, the habitats are secure. Overall, continued housing and energy development in this region are the biggest threats to this migration.

Local Population Facts

Migration



Threats



Species Facts

Common name: Mule Deer

Species name: *Odocoileus hemionus*

Range: Arid, rocky environments of the western North America

Diet: Herbaceous plants, and the leaves and twigs of woody shrubs

Global population: ~3.5 million

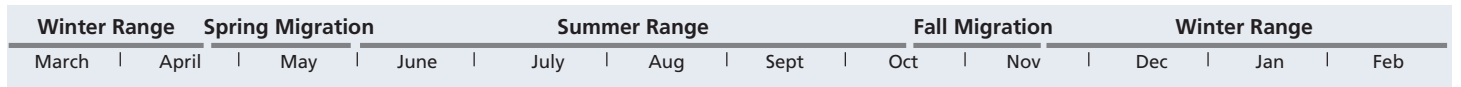
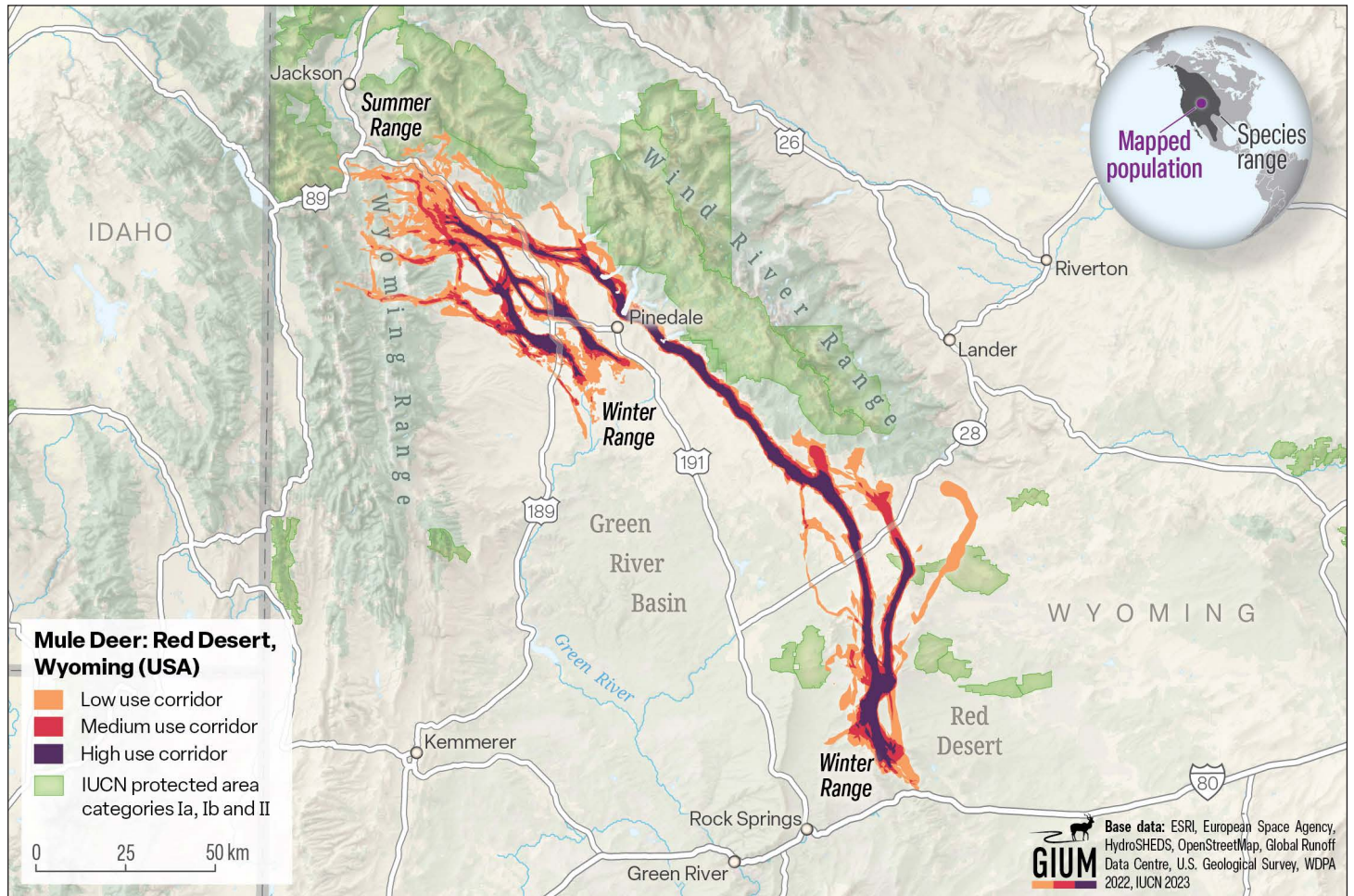
IUCN Conservation Status

NT Near threatened

CMS Status

Not listed

Mule Deer Migration



Study Information

- Sample size**
150 adult female mule deer
- Relocation frequency**
~ 2 hours
- Project duration**
2003–2017

Data Analysis

- Delineation of migration periods**
Net squared displacement to delineate migration between winter and summer ranges
- Models derived from**
Brownian Bridge Movement Model

Route Summary

- Migration start and end date (median)**
 - Spring: April 25–May 22
 - Fall: October 14–November 16
- Average number of days migrating**
 - Spring: 33 days
 - Fall: 31 days
- Migration route length**
 - Min: 14.5 km
 - Mean: 209.2 km
 - Max: 410.4 km

Data Providers

Data for this project was collected through the efforts of Hall Sawyer (WEST, Inc.), Matt Kauffman (U.S. Geological Survey), and Mark Zornes (Wyoming Game and Fish Department). Numerous personnel at the Bureau of Land Management assisted with project funding, logistics, and data collection.

In partnership with:



The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.



The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.



View and Download Map Data from the GIUM Migration Atlas

Kauffman, M.J., H. Sawyer, M. Valdez, and J. Randall. 2024. Mule Deer: Red Desert, Wyoming, (USA). Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.