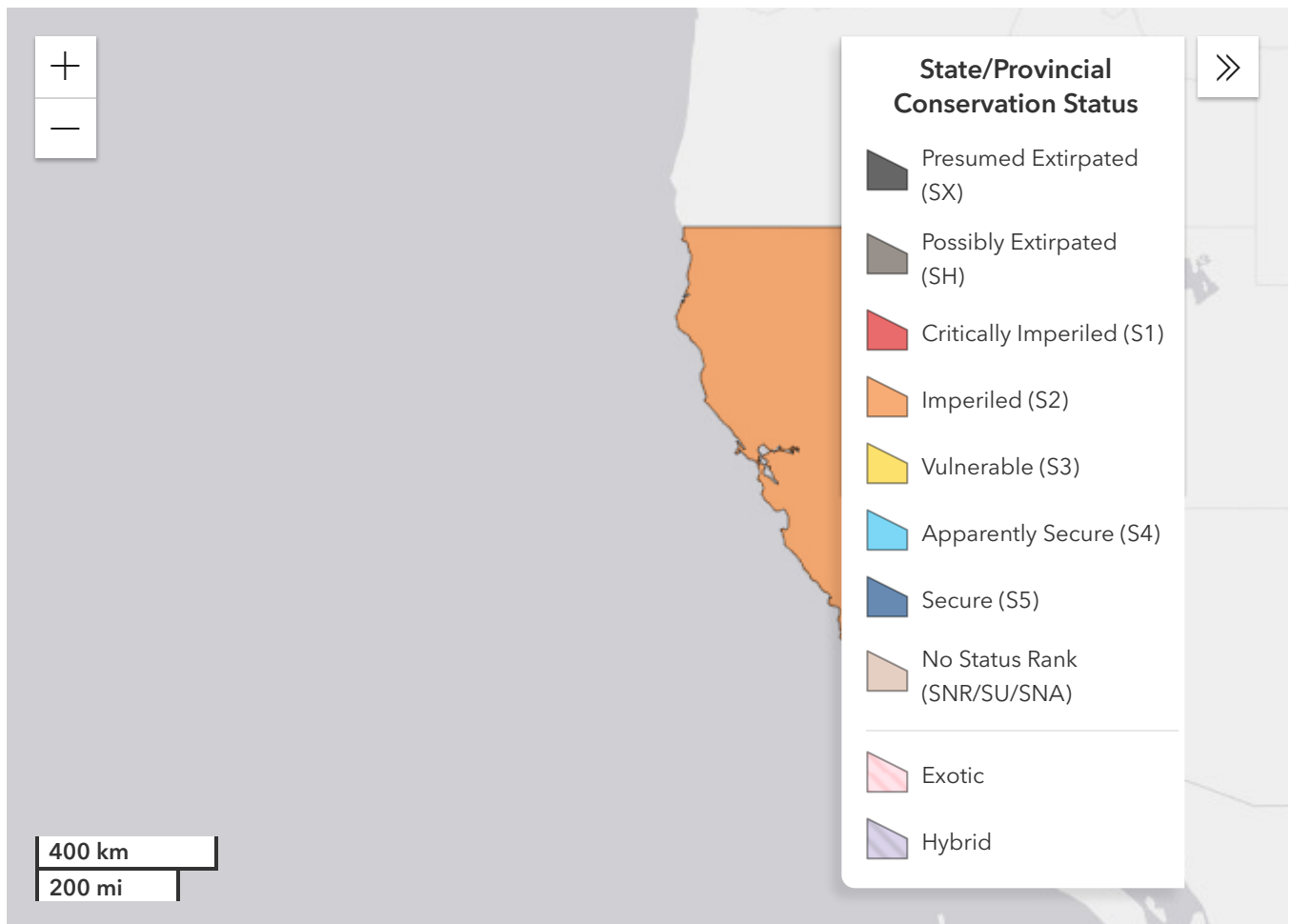


*Perognathus longimembris internationalis*  
**Jacumba Little Pocket Mouse**

T2  
Imperiled  
Subspecies



Esri, HERE

Powered by Esri

## Classification

**Scientific Name:** *Perognathus longimembris internationalis* Huey, 1939

**Kingdom:** Animalia

**Phylum:** Craniata

**Class:** Mammalia

**Order:** Rodentia

**Family:** Heteromyidae

**Genus:** Perognathus

**Concept Reference:** Hall, E. R. 1981a. The Mammals of North America, second edition. Vols. I & II. John Wiley & Sons, New York, New York. 1181 pp.

**Name Used in Concept Reference:** *Perognathus longimembris internationalis*

**NatureServe Unique Identifier:** ELEMENT\_GLOBAL.2.105572

**NatureServe Element Code:** AMAFD01044

**Parent Species:** *Perognathus longimembris*

## Conservation Status

### NatureServe Status

**Global Status:** G5T2T3

**Global Status (Rounded):** T2

**Global Status Last Reviewed:** 5/25/1993

*Global status needs review.*

### National & State/Provincial Statuses

**United States:** N2N3

**California:** S2

### Other Statuses

**U.S. Endangered Species Act:** None

**Committee on the Status of Endangered Wildlife in Canada (COSEWIC):** None

## Distribution

### National and State/Provincial Distribution:

**United States:** CA

## Ecology and Life History

### Mobility and Migration

**Colonial Breeder:** No

**Non-Migrant:** No

**Locally Migrant:** No

**Long Distance Migrant:** No

## Habitat

**Habitat Type:** Terrestrial

**Terrestrial Habitats:** Grassland/herbaceous, Desert, Shrubland/chaparral

**Habitat Comments:**

From EO descriptions: Habitat is desert willow wash. Habitat is disturbed grassland, with sandy, alluvial substrate. Non-native grassland, wash with mesquite & acacia scrub. Substrate sandy to gravelly. Plants consist of grasses, acacia greggii, prosopis glandulosa, & opuntia. Habitat is native grassland.

## Phenology

## Food

### Population / Occurrence Delineation

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**Group Name:** Default

**Separation Distance for Unsuitable Habitat:** 1 kilometers

**Separation Distance for Suitable Habitat:** 1 kilometers

### Population / Occurrence Viability

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See the [Generic Guidelines for the Application of Occurrence Ranks \(2008\)](#).

## References

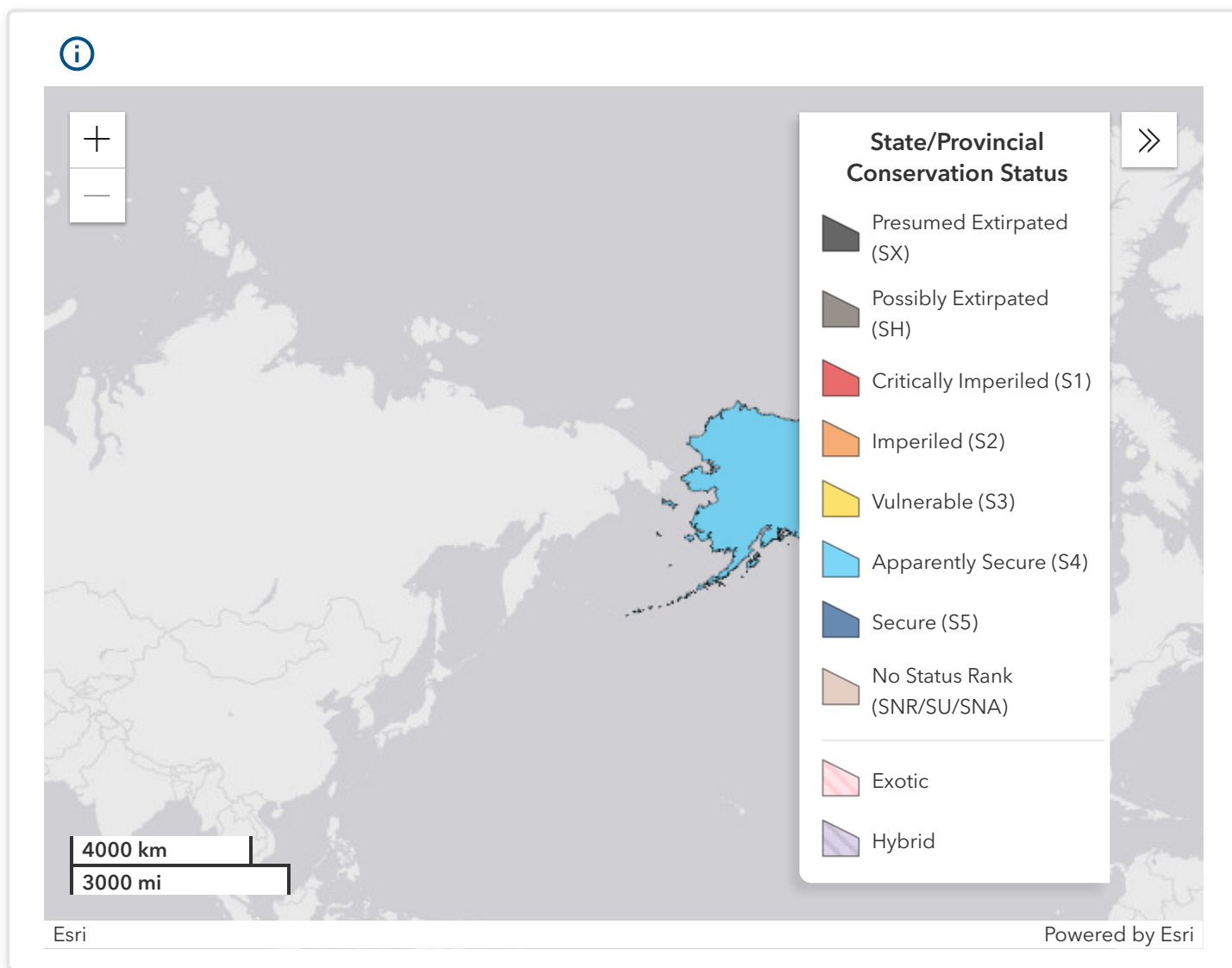
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**Page Last Published:** 10/3/2020

# NatureServe EXPLORER

## *Odocoileus hemionus* Mule Deer



### Classification

**Scientific Name:** *Odocoileus hemionus* (Rafinesque, 1817)

**Other Common Names:** Black-tailed Deer (EN), Cerf mulet (FR)

**Kingdom:** Animalia

**Phylum:** Craniata

**Class:** Mammalia

**Order:** Artiodactyla

**Family:** Cervidae**Genus:** Odocoileus

**Concept Reference:** Wilson, D. E., and D. M. Reeder (editors). 1993. Mammal species of the world: a taxonomic and geographic reference. Second edition. Smithsonian Institution Press, Washington, DC. xviii + 1206 pp. Available online at: <http://www.nmnh.si.edu/msw/>.

**Name Used in Concept Reference:** *Odocoileus hemionus*

**NatureServe Unique Identifier:** ELEMENT\_GLOBAL.2.101365

**NatureServe Element Code:** AMALC02010

**Related ITIS Names:** *Odocoileus hemionus* (Rafinesque, 1817) (TSN 180698)

**Taxonomic Comments:**

See Cronin (1991) for information on the restricted gene flow that occurs among extant populations of white-tailed deer (*O. virginianus*), mule deer (*O. h. hemionus*), and black-tailed deer (*O. h. columbianus* and *O. h. sitkensis*); there is a low level of introgressive hybridization of mtDNA from mule deer and black-tailed deer into white-tailed deer populations in a few areas in western North America. MtDNA and serum albumin data indicate that gene flow between white-tailed deer and mule deer in Montana is not extensive (Cronin et al. 1988). See Hughes and Carr (1993, Can. J. Zool. 71:524-530) for information on hybridization between white-tailed and mule deer in western Canada.

In most areas of sympatry between *O. virginianus* and *O. hemionus* in the southwestern U.S., there is little evidence of nuclear gene introgression, though electrophoretic data do indicate hybridization in some localities (Derr 1991). Carr and Hughes (1993) documented recent mtDNA gene flow between mule deer and white-tailed deer in western Texas. Carr and Hughes (1993) found that some populations of mule deer are genetically more closely related to white-tailed deer than to other populations of mule deer; see Carr and Hughes for possible interpretations.

See Cronin et al. (1991) for information on genetic differentiation among subpopulations of mule deer. Cronin (1992) found considerable intraspecific variation in mtDNA in *O. hemionus*; different subspecies (mule deer and black-tailed deer) had distinct genotypes. Mule deer and black-tailed deer interbreed to a limited extent in a zone along the Cascade Range. Cronin (1991) found evidence of considerable interbreeding of mule deer and black-tailed deer in a contact zone in British Columbia.

This species was included in the genus *Dama* by Hall (1981), in *Odocoileus* by Jones et al. (1992), Baker et al. (2003), and Grubb (in Wilson and Reeder 1993, 2005).

See Cronin (1991) for a phylogeny of the Cervidae based on mitochondrial-DNA data. See Kraus and Miyamoto (1991) for a phylogenetic analysis of pecoran ruminants (Cervidae, Bovidae, Moschidae, Antilocapridae, and Giraffidae) based on mitochondrial DNA data.

**Infraspecies:**

*Odocoileus hemionus columbianus*

## NatureServe Status

**Global Status:** G5

**Global Status Last Reviewed:** 4/4/2016

**Rank Method Used:** Ranked by inspection

### National & State/Provincial Statuses

#### United States: N5

**Alaska:** S4, **Arizona:** S5, **California:** SNR, **Colorado:** S4, **Idaho:** S4, **Kansas:** S5, **Montana:** S5, **Navajo Nation:** S5, **Nebraska:** S5, **Nevada:** S5, **New Mexico:** S5, **North Dakota:** SNR, **Oklahoma:** S3S4, **Oregon:** S5, **South Dakota:** S5, **Texas:** S4, **Utah:** S5, **Washington:** S5, **Wyoming:** S5

#### Canada: N5

**Alberta:** S5, **British Columbia:** S5, **Manitoba:** S3, **Northwest Territories:** SU, **Saskatchewan:** S4, **Yukon Territory:** S3S4

## Other Statuses

**U.S. Endangered Species Act:** None

**Implied Status under the U.S. Endangered Species Act:** PS

#### Comments on Endangered Species Act Statuses:

Subspecies *cedrosensis* of Isla Cedros (Mexico) is listed by USFWS as Endangered.

**Committee on the Status of Endangered Wildlife in Canada (COSEWIC):** None

## NatureServe Global Conservation Status Factors

**Range Extent:** >2,500,000 square km (greater than 1,000,000 square miles)

#### Range Extent Comments:

Native range extends from southeastern Alaska south through Canada and most of the western United States and Great Plains, to Baja California (including some islands in the Sea of Cortez) and the southern end of the Mexican Plateau (Sonora and northern Tamaulipas, according to Grubb, in Wilson and Reeder 1993). The species has been introduced in Hawaii (Tomich 1986) and Argentina.

#### Threat Comments:

Extensive, intensive land use by humans can reduce, eliminate, or displace local mule deer populations, but many kinds of human activities, particularly those that generate patches of early successional growth in heavily forested areas, may improve the habitat for deer. Grazing/browsing by domestic sheep in dry environments reduces the capacity of the

habitat to support deer (e.g., see Hall 1946).

Grinnell (1914) suggested that an absence or extreme scarcity of mule deer along part of the lower Colorado River (Arizona-California) probably was due to "rapid settlement of the river bottom." Presumably this involved habitat loss as well as excessive hunting (Grinnell suggested that hunting by miners eliminated bighorn sheep from Riverside Mountain, also along the lower Colorado River).

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy of mule deer, white-tailed deer, elk, and moose. It is caused by infectious agents known as prions (an abnormal form of a normal protein). Symptoms include lesions on the central nervous system, behavioral abnormalities, and, most obviously, chronic weight loss. CWD is always fatal. First recognized in captive mule deer in Colorado, CWD now occurs in the wild and has spread to at least dozen states and two Canadian provinces. It may be spread from one animal to another via saliva, feces, or possibly other body fluids. CWD does not cause rapid, widespread die-offs of deer, but there is concern about the long-term effects of the disease. No practical methods of CWD eradication are known; the focus thus far has been on learning more about CWD and how it is transmitted, and on preventing the disease from spreading by banning the transportation of live cervids across state lines.

## Distribution

### National and State/Provincial Distribution:

**Canada:** AB , BC , MB , NT , SK , YT

**United States:** AK , AZ , CA , CO , ID , KS , MT , ND , NE , NM , NN , NV , OK , OR , SD , TX , UT , WA , WY

## Ecology and Life History

**Length:** 1.99 meters

**Weight:** 215 kilograms

### Reproduction Comments:

Mule deer mate in autumn, often mainly late November to mid-December. Gestation lasts about 203 days Births occur in late spring, mostly in May-June in much of the range, sometimes as late as July or August. Litter size is 1-2, depending on age and condition of female. Fawns are born with spotted pelage and initially stay hidden. They lose their spots generally by late summer or early fall. Weaning begins at about 5 weeks, usually completed by 16 weeks. Males usually first breed at 2 years, males at 3-4 years.

### Ecology Comments:

Home range size may be 30-240 hectares or more; directly correlated with availability of food, water and cover. Deep winter snows are major factor limiting population size in Pacific Northwest (Schoen and Kirchoff 1990). Predators include: mountain lions; coyotes; dogs.

See Hatter and Janz (1994) for information on apparent demographic changes associated with wolf control on northern Vancouver Island.

Mule deer males use glands on their forehead to apply scent marks to trees. These scent posts communicate the presence and physiological status of the deer and seem to be important in the social and reproductive biology of the species.

## Mobility and Migration

**Colonial Breeder:** No

**Non-Migrant:** Yes

**Locally Migrant:** Yes

**Long Distance Migrant:** No

**Mobility and Migration Comments:**

In mountainous regions, mule deer tend to migrate (up to 100+ km) from high summer range to lower winter range. For example, in Nevada, deer migrate in autumn from areas where snow lies deeply in winter (e.g., higher mountains) to areas where there is little or no snow (generally lower elevations); in some areas the climate is mild enough to allow deer to occupy the same locations all year (Hall 1946). In southeastern Alaska, deer migrated from low elevation heavily forested winter range to higher elevation summer range in open canopy subalpine and alpine habitats (Schoen and Kirchhoff 1990). In the arid southwest, deer reportedly migrate in response to rainfall patterns (Longhurst and Chatten 1941), but this has not been documented. In southwestern Arizona, some mule deer were nonmigratory whereas others migrated seasonally between summer-dry-season ranges that had permanent water sources to other areas that lacked permanent water (Rautenstrauch and Krausman 1989). Mule deer are not migratory in many plains regions. They exhibit high fidelity to individual seasonal ranges (e.g, see Kucera 1992).

Dispersal distances range up to around 100-200 km (Anderson and Wallmo 1984).

Home range size varies with season, gender, age, body mass, habitat, and other factors. Within a single season, home range size may be as small as around 30-40 hectares or as large as several hundred hectares; generally, mule deer do not move very far on a daily basis (Mackie et al., in Chapman and Fledhamer 1983).

## Habitat

**Palustrine Habitats:** Riparian

**Terrestrial Habitats:** Savanna, Forest - Conifer, Forest - Hardwood, Grassland/herbaceous, Woodland - Mixed, Woodland - Hardwood, Forest - Mixed, Woodland - Conifer, Shrubland/chaparral, Old field, Suburban/orchard, Desert, Cropland/hedgerow

**Habitat Comments:**

Mule deer occupy many types of habitats in mountains and lowlands, including various forests and woodlands, forest edges, shrublands, grasslands with shrubs, and residential areas. They are often associated with successional vegetation, especially near agricultural lands, but in southeastern Alaska they use old growth forests almost exclusively in winter and spring (Schoen and Kirchhoff 1990). Mule deer are scarce or absent in portions of the Mohave and Sonoran deserts, particularly where permanent water is absent during the summer dry season (Rautenstrauch and Krausman 1989). In southern Arizona, mean distance of mule deer from permanent water in July was less than 3 km (most females averaged



southern Arizona, mean distance of mule deer from permanent water in July was less than 2 km (most females averaged less than 2 km) (Hervert and Krausman 1986); in early and late summer mule deer averaged 1.1-1.2 km from permanent water (compared to about 1.3 km for random locations) (Ordway and Krausman 1986). In winter, mule deer tend to be on warmer slopes or other areas with minimal snow cover. Snow depth in excess of 25-30 cm can impede movement, and snow depths greater than 51-60 cm discourage continuous occupation (Loveless 1967, Gilbert et al. 1970). Populations in Hawaii occur in moderately dry native and introduced forest.

In Nevada, mule deer inhabit most areas above the Lower Sonoran Life-zone; Hall (1946) observed that areas heavily grazed by domestic sheep have far fewer deer than those utilized only by cattle (possibly a result of competition for browse).

In northern Arizona, mule deer live in areas vegetated by yellow pine, buckbrush, snowberry, and aspen; elsewhere in Arizona they inhabit chaparral and more xeric habitats, except those in the far southwestern portion of the state (Hoffmeister 1986). Deer that occur in yellow pine and spruce-fir habitats in spring and summer migrate to lower elevations (pinyon-juniper) for winter (Hoffmeister 1986).

In southern Arizona, mule deer used and preferred mountainous vegetative associations, but males also used nonmountainous associations (Ordway and Krausman 1986).

A survey along the lower Colorado River (California-Arizona border) in 1910 yielded no evidence at all of mule deer, but in earlier years deer apparently were numerous "both in the river bottom and back through certain desert ranges, where there are springs which the deer could visit regularly for water" (Grinnell 1914). In 1902 deer were said to be common on both sides of the river near Cibola (Grinnell 1914).

## Phenology

**Immature Phenologies:** Circadian, Crepuscular

**Adult Phenologies:** Circadian, Crepuscular

**Phenology Comments:**

Throughout the year most activity occurs at dawn and dusk, though nocturnal and daytime activity is common.

Males grow antlers from late winter (March) through summer and into fall (October). Antler shedding occurs from December through April (mostly January-February).

## Food

**Immature Food Habits:** Herbivore

**Adult Food Habits:** Herbivore

**Food Comments:**

Browses on wide variety of woody plants and grazes on grasses and forbs. May feed on agricultural crops. Also commonly consumes mushrooms, especially in late summer and fall (Great Basin Nat. 52:321). In northern California, reproductive success apparently was reduced due to selenium deficiency (Flueck, 1994, Ecology 75:807-812).

## Management Summary

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### Management Requirements:

Cattle grazing results in loss of hiding cover for fawns, possibly may increase rate of loss of fawns to predation (Loft et al. 1987). On summer range in the Sierra Nevada in California, cattle evidently competed with deer, particularly at high stocking rates and during a year of below-average precipitation; adverse effects could be reduced by reducing or eliminating cattle grazing during early summer on all or part of a grazing allotment (Kie 1991; see also Loft et al. 1991 for further evidence of cattle-induced habitat shifts by mule deer).

See Wood and Wolfe (1988) for discussion of viability of intercept feeding to reduce deer-vehicle collisions.

See Andelt et al. (1991) for information on the relative effectiveness of various repellents for reducing damage to plants (when the deer were moderately hungry, even the best repellents failed to deter browsing).

### Monitoring Requirements:

See Mitchell (1986) for a description of a spotlight census method.

## Population / Occurrence Delineation

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**Subtype(s):** Migration route, Summer range, Winter range

### Minimum Criteria for an Occurrence:

Evidence of historical presence, or current and likely recurring presence, at a given location. Such evidence minimally includes collection or reliable observation and documentation of one or more individuals in appropriate habitat where the species is presumed to be established and breeding.

### Separation Barriers:

None.

### Alternate Separation Procedure:

Occurrence separations should be based on populations that exhibit specific migration patterns, or on appropriate resource agency management units, rather than on specific prescribed distances.

### Separation Justification:

Home ranges vary from 30 to over 3000 hectares (Anderson and Wallmo 1984). Males usually occupy home ranges of about 500 hectares, females usually 250 hectares (McCullough, in Wilson and Ruff 1999).

Mule deer are good swimmers; water is not normally a barrier. Unsuitable habitat, however, includes waters that do not freeze regularly, as well as urban centers (not suburban areas) and extremely rugged mountain terrain.

**Inferred Minimum Extent of Habitat Use (when actual extent is unknown):** 2.5 kilometers

**Inferred Minimum Extent Justification:**

Based on a home range of 500 hectares (McCullough, in Wilson and Ruff 1999).

**Date:** 2004-09-23

**Author:** Hammerson, G., and S. Cannings

## Population / Occurrence Viability

See the [Generic Guidelines for the Application of Occurrence Ranks \(2008\)](#).

## Authors and Contributors

**NatureServe Conservation Status Factors Edition Date:** 8/22/2011

**NatureServe Conservation Status Factors Edition Authors:** Hammerson, G.

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