

## Alaska hare

*Lepus othus*

Class: Mammalia  
Order: Lagomorpha

### Conservation Status

*NatureServe:* G Rank: G3G4  
*Agency:* USFWS: IUCN: Least Concern  
S Rank: S3S4 ADF&G: Species of Greatest Conservation Need

Final Rank		
Conservation category: <b>V. Orange</b>		
V = unknown status and either high biological vulnerability or high action need		
<u>Category</u>	<u>Range</u>	<u>Score</u>
Status:	-20 to 20	0
Biological:	-50 to 50	-42
Action:	-40 to 40	4
<b>Higher numerical scores denote greater concern</b>		

**Status** - variables measure the trend in a taxon's population status or distribution. Higher status scores denote taxa with known declining trends. Status scores range from -20 (increasing) to 20 (decreasing).

**Score**

*Population Trend (-10 to 10)*

0

Unknown. Historical counts in the 1950s and 1960s were not standardized or may have reflected peaks in population cycles (L. E. Olson, pers. comm.). Additional research is needed to determine whether populations are cyclic.

*Distribution Trend (-10 to 10)*

0

Unknown. Historically reported from the North Slope, but no sightings have been documented since the 1950s (Cason et al. 2016). Specimens and records of its occurrence there are equivocal (Cason et al. 2016). Its distribution is expected to change in response to climate change, but models disagree on whether suitable habitat will increase (Hope et al. 2015; Leach et al. 2015) or decrease (Marcot et al. 2015).

Status Total: 0

**Biological** - variables measure aspects of a taxon's distribution, abundance and life history. Higher biological scores suggest greater vulnerability to extirpation. Biological scores range from -50 (least vulnerable) to 50 (most vulnerable).

**Score**

*Population Size (-10 to 10)*

-10

Occurs at low densities throughout its range (Carroll and Merizon 2017). Population size is unknown, but it is estimated that ~7,500 individuals were harvested in Alaska in 2013 (Merizon et al. 2015). We therefore assume that there are at least 25,000 individuals occurring in the state.

*Range Size (-10 to 10)*

-8

Restricted to western Alaska from the Alaska Peninsula north to Kotzebue (Anderson 1974; Anderson 1978; Cason et al. 2016). Occasionally reported on Little Diomed Island, and recent evidence suggests that this species may be present on other Bering Sea Islands including Unimak and Hagemeister (Cason et al. 2016). Estimated range size is ~230,000 sq. km., calculated in GIS based on the map in Cason et al. (2016).

*Population Concentration (-10 to 10)*

-10

Concentrates during spring breeding season (L. E. Olson, pers. comm.), but number of sites (and fidelity to these sites) are unknown. Number of sites likely >250.

*Reproductive Potential*

Age of First Reproduction (-5 to 5) -5

Breed within their first year of birth (Anderson and Lent 1977; Best and Henry 1994).

Number of Young (-5 to 5) 1

One litter per year, with litter size ranging from 5 to 7 (Anderson and Lent 1977; Best and Henry 1994).

*Ecological Specialization*

Dietary (-5 to 5) -5

Herbivorous, but little information is available. Feeds on several common tundra plants including willow bark, leaves of ericaceous shrubs, lichens, and graminoids (Anderson 1974; Best and Henry 1994).

Habitat (-5 to 5) -5

Found in a variety of habitats on the coastal tundra, including wet meadows, low-lying flats, and hillsides (Best and Henry 1994). Often concealed in dense shrub thickets.

Biological Total: -42

**Action** - variables measure current state of knowledge or extent of conservation efforts directed toward a given taxon. Higher action scores denote greater information needs due of lack of knowledge or conservation action. Action scores range from -40 (lower needs) to 40 (greater needs).

**Score**

*Management Plans and Regulations (-10 to 10)* -10

Sport and subsistence harvest is permitted, but is subject to closed season and bag limits (ADFG 2018c). The meat or the hide must be salvaged for human use (ADFG 2018c).

*Knowledge of Distribution and Habitat (-10 to 10)* 2

There has been much confusion about the distribution of the Alaska hare. Although its range has recently been clarified by Cason et al. (2016), the northern limits of its range are not fully resolved (Cook and MacDonald 2006; Cason 2016) and its presence on Bering Sea islands warrants further investigation (Cason et al. 2016). Habitat associations have been described (reviewed in Best and Henry 1994), but few data are available. Specific habitat requirements may explain why this species does not occur on the North Slope, even though there are no geographic barriers to dispersal (Cason 2016).

*Knowledge of Population Trends (-10 to 10)* 2

Locally monitored using hunting questionnaires, but population size and trends are unknown (Carroll and Merizon 2017). Comparisons with historic counts are difficult because counts were not standardized (L. E. Olson, pers. comm.).

*Knowledge of Factors Limiting Populations (-10 to 10)* 10

Little is known about the ecology of the Alaska hare. Climate change is expected to impact this species' habitat and range, but models disagree on whether the effects will be positive or negative (Hope et al. 2015; Leach et al. 2015; Marcot et al. 2015). *Lepus othus* may not warrant distinct status as a species: preliminary genetic results suggest conspecificity with the mountain hare, *L. timidus*, which is broadly distributed across much of northern Eurasia. *Lepus timidus* appears to be able to cross the sea ice between Russia and Alaska, possibly using the Diomedes as stepping stones (Cason 2016).

Action Total: 4

**Supplemental Information** - variables do not receive numerical scores. Instead, they that are used to sort taxa to answer specific biological or managerial questions.

<b>Harvest:</b>	Substantial, regulations
<b>Seasonal Occurrence:</b>	Year-round
<b>Taxonomic Significance:</b>	Monotypic species
<b>% Global Range in Alaska:</b>	>10%
<b>% Global Population in Alaska:</b>	Endemic
<b>Peripheral:</b>	No

## References

---

Alaska Department of Fish and Game (ADFG). 2018c. 2018-2019 Alaska hunting regulations. Alaska Department of Fish and Game. Juneau, AK, USA.

Anderson, H. L. 1974. Natural history and systematics of the tundra hare (*Lepus othus* Merriam) in western Alaska. M.Sc. thesis, University of Alaska Fairbanks, AK, USA.

Anderson, H. L. 1978. Range of the tundra hare. *The Murrelet* 59(2):72-74. DOI: 10.2307/3534616

Anderson, H. L., and P. C. Lent. 1977. Reproduction and growth of the tundra hare (*Lepus othus*). *Journal of Mammalogy* 58(1):53-57. DOI: 10.2307/1379727

Best, T. L., and T. H. Henry. 1994. *Lepus othus*. *Mammalian Species* 458:1-5.

Carroll, C. J., and R. A. Merizon. 2017. Status of grouse, ptarmigan, and hare in Alaska, 2015 and 2016. Division of Wildlife Conservation, Alaska Department of Fish and Game, Palmer, AK, USA.

Cason, M. M. 2016. Distribution and biogeography of the Alaskan hare (*Lepus othus*). MSc thesis, University of Alaska Fairbanks, AK, USA.

Cason, M. M., A. P. Baltensperger, T. L. Booms, J. J. Burns, and L. E. Olson. 2016. Revised distribution of an Alaskan endemic, the Alaska hare (*Lepus othus*), with implications for taxonomy, biogeography, and climate change. *Arctic Science* 2(2):50-66. DOI

Cook, J. A., and S. O. MacDonald. 2006. Mammal inventory of Alaska's National Parks and Preserves, Arctic Network [...]. Report NPS/AKRARC/NRTR-2004/01. National Park Service, Alaska Region, Anchorage, AK, USA.

Hope, A. G., E. Waltari, J. L. Malaney, D. C. Payer, J. A. Cook, and S. L. Talbot. 2015. Arctic biodiversity: increasing richness accompanies shrinking refugia for a cold-associated tundra fauna. *Ecosphere* 6(9):159. DOI: 10.1890/ES15-00104.1

Leach, K., R. Kelly, A. Cameron, I. W. Montgomery, and N. Reid. 2015. Expertly validated models and phylogenetically-controlled analysis suggests responses to climate change are related to species traits in the order Lagomorpha. *PLoS One* 10(4):e0122267. D

Marcot, B. G., M. T. Jorgenson, J. P. Lawler, C. M. Handel, and A. R. DeGange. 2015. Projected changes in wildlife habitats in Arctic natural areas of northwest Alaska. *Climate Change* 130(2):145-154. DOI: 10.1007/s10584-015-1354-x

Merizon, R. A., S. J. Carson, and L. S. Honig. 2015. Statewide small game hunter survey, 2014. Wildlife Management Report ADF&G/DWC/WMR-2015-1. Division of Wildlife Conservation, Alaska Department of Fish and Game, Palmer, AK, USA.

---

Review status: Peer-reviewed

Version date: 2/14/2019

Alaska Center for Conservation Science  
Alaska Natural Heritage Program  
University of Alaska Anchorage  
Anchorage, AK

