



# Climate Change Vulnerability Assessment in the Upper Snake River Watershed

## Mule Deer

MORE WARMING

Low Vulnerability

**MEDIUM VULNERABILITY**

High Vulnerability

Extreme Vulnerability

LESS WARMING

**LOW VULNERABILITY**

Medium Vulnerability

High Vulnerability

Extreme Vulnerability

Results above highlight **mule deer climate change vulnerability in the 2050s** for two different climate change scenarios. The higher climate change scenario (RCP 8.5) is labeled “More Warming” and the lower climate change scenario (RCP 4.5) is labeled “Less Warming”. Generally, more greenhouse gas emissions over a longer time will lead to more severe impacts from climate change.

Relative vulnerability rankings were determined by combining the best available climate change science with the local and traditional knowledge of the Upper Snake River Tribes (USRT) Foundation’s four member tribes. These rankings are based on climate change projections, species-specific sensitivities, and the ability of species to adapt and respond to the projected changes.

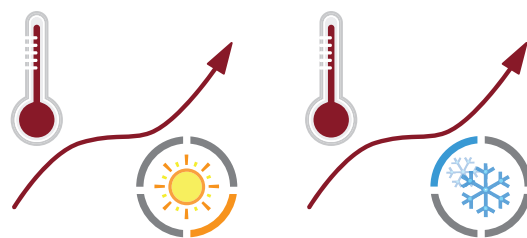
### Mule Deer and the USRT Member Tribes

Mule deer populations have been declining in the region. USRT member tribes have noted that the deer, which used to browse along alfalfa fields, may have been pushed out by development. Human land use has constrained traditional movement patterns and may have increased opportunities for predators to access deer.



## Key Climate Impacts

By the 2050s, summer maximum temperatures are projected to increase 6.5° to 8.5° Fahrenheit and maximum winter temperatures are projected to increase 8° to 9.5° Fahrenheit in the Upper Snake River Watershed. Mule deer are highly mobile and thus are expected to move as climate change alter habitats across the landscape.



Maximum summer temperatures are projected to increase 6.5°F to 8.5°F.

Maximum winter temperatures are projected to increase 8°F to 9.5°F.

## Mule Deer have:

factors that “**somewhat increase**” vulnerability

### Sensitivity to drought

Mule deer require adequate water supplies during heat events. Higher temperatures paired with less water availability could negatively impact mule deer.

### Man-made barriers

Fences can act as a barrier to movement and increase mule deer mortality. Suburban and rural housing developments can fragment habitat, preventing successful movement across the landscape as climate conditions and habitats change.

### Sensitivity to disease

Climate change could intensify the effects of diseases and parasites, such as bluetongue virus, which is most common during the summer months when biting gnat populations can transmit the disease. Projected increases in drought and warming temperatures could benefit biting gnats and expand opportunity for bluetongue outbreaks.

### Sensitivity to competition

Mule deer habitat selection can be partially explained through mule deer avoidance of elk. Elk consume a greater variety of forage than mule deer. If climate change further constrains deer habitat, this type of competition could impede mule deer adaptation.



Photo by: Calla Hagle, Wildlife Biologist, Burns Paiute Tribe

These are select results of a more comprehensive climate change vulnerability assessment developed collaboratively by the Upper Snake River Tribes Foundation, Burns Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, Shoshone-Bannock Tribes, Shoshone-Paiute Tribes, Adaptation International, the University of Washington Climate Impacts Group, and Oregon Climate Change Research Institute.

For more information on this assessment or to get involved, visit: [www.upper-snake-river-tribes.org/climate](http://www.upper-snake-river-tribes.org/climate) or contact Scott Hauser, Executive Director, USRT at [scott.hauser@usrf.org](mailto:scott.hauser@usrf.org).