

Bighorn Sheep Pneumonia

National Park Service
U.S. Department of the Interior

Biological Resources Division
Wildlife Health Branch



Animals play essential roles in the environment and provide many important benefits to ecosystem health. One Health is this recognition that animal health, human health, and environmental health are all linked. Similar to people, wild and domestic animals can be victims of disease. The information presented here is intended to promote awareness and provide background for certain diseases that wildlife may get.



See the [Guidance for Park Visitors](#) section below for tips to safely enjoy your national park trip.

Disease Background & Health Implications:

- ❖ Bighorn sheep pneumonia complex has caused serious mortality events in bighorn sheep (*Ovis canadensis*) over many decades and in some areas has significantly limited population size and resilience.
- ❖ The primary cause of disease has been debated for many years.
- ❖ The current consensus is disease etiology is multifactorial and may be initiated by a variety of pathogens most often from the mycoplasmataceae and pasteurellaceae families.

Transmission:

- ❖ Transmission often occurs initially from domestic sheep and/or goats passing the disease to naive wild populations.
- ❖ Domestic species do not show clinical signs of disease; however, commingling and transmission of bacteria to susceptible bighorn sheep herds can result in significant illness and death in the wild sheep.
- ❖ Following outbreaks, bighorn sheep survivors often carry the bacteria and transmit disease to lambs in subsequent years causing lamb death and poor lamb survival for years.

Species Affected:

- ❖ Bighorn sheep pneumonia occurs in the western U.S. among populations of bighorn sheep (*Ovis canadensis*). The disease can also affect other wild sheep species such as thimhorn sheep (*Ovis dalli*).

Clinical Signs:

- ❖ Clinical signs can include nasal discharge, coughing, respiratory distress, exercise intolerance, and general depression but animals are often found dead.

Course of Disease:

- ❖ Depending on what pathogens are involved the disease may progress rapidly or more slowly. While this is often a fatal disease some adults may also recover and become chronic bacterial carriers.
- ❖ Different pathogens will induce different patterns of histopathology. With advanced disease nearly the entire lung can be affected.

Epidemiology (Incidence of Disease):

- ❖ When a naive herd of bighorn sheep is exposed to disease an all-age die-off often occurs.
- ❖ Following initial herd infection lamb survival is generally poor because they do not have any immunity to disease. Up to 100% lamb mortality may be expected following an outbreak.
- ❖ The pathogens involved in disease do not survive well in the environment outside the host indicating that there are likely carriers in the herds serving as ongoing sources of infection.

Prevention:

- ❖ There is currently no vaccination or treatment for bighorn sheep pneumonia.

Public Health Implications:

- ❖ There is no evidence that bighorn sheep pneumonia can be transmitted to or cause disease in humans.

Guidance for Park Visitors:

The guidelines below can be followed to ensure you and your family safely enjoy the wonderful natural and cultural resources protected by the NPS.

- ❖ Notify a Park Service employee as soon as possible and avoid contact with the animal if you see any sick or dead wildlife.
 - Most wild animals in parks are healthy and thrive in their natural environment, but sometimes wildlife can get sick just like people.
 - Some disease-causing organisms can be passed between wild animals and people. Therefore, always avoid touching or handling sick or dead wild animals.
 - Park Service employees trained in wildlife health use specific protective measures to safely deal with a wild animal that may have died of disease.

- ❖ Domestic sheep and goats may be carriers of disease despite not showing clinical signs. Releasing domestic sheep and goats into the wild poses risks for wild sheep and goats. Prevent co-mingling between wild and domestic populations of sheep and goats.