

Wildlife Diseases

RESOURCE BRIEF

Importance

In national parks and other areas where the goal is to minimize human intervention in natural ecological processes, disease may be an acceptable cause of wildlife mortality. However, diseases that are not indigenous to the area and have spread into Yellowstone as a result of human activity have caused population declines (e.g., wolves and trout) and required management interventions (e.g., bison and elk). In addition, some diseases carried in wildlife could potentially be transmitted to humans.

Status

Significant diseases present in Yellowstone wildlife:

- **Brucellosis.** Many bison and elk in the GYE have been exposed to the bacterium that causes brucellosis, which originated in domestic livestock. It does not appear to have had substantial population-level impacts in wildlife, but infected females may abort their first calf, and the disease can be transmitted to livestock if they have contact with infected birth materials.
- **Canine diseases.** Parvovirus, distemper, mange, and hepatitis are believed to have been a major factor in wolf population declines in Yellowstone in 1999, 2005, and 2008; these diseases also appear to have affected coyotes, foxes, and possibly cougars and other smaller carnivores.
- **Amphibian diseases.** Ranavirus and chytrid fungus (*Batrachochytrium dendrobatidis*), which are of uncertain origin and commonly cause amphibian die-offs, have been identified in the park. During 2010, twelve sites were found containing clusters of dead amphibians, including a die-off of more than 20 tiger salamanders (*Ambystoma tigrinum*).
- **Whirling disease.** *Myxobolus cerebralis*, the parasite from Europe that causes whirling disease in some salmonid species, infects about 20% of the cutthroat trout in Yellowstone Lake.

None of these diseases pose a significant threat to humans. Hantavirus, considered native in origin, has been found in some Yellowstone voles and deer mice, but transmission to humans in the park is not known to have occurred.

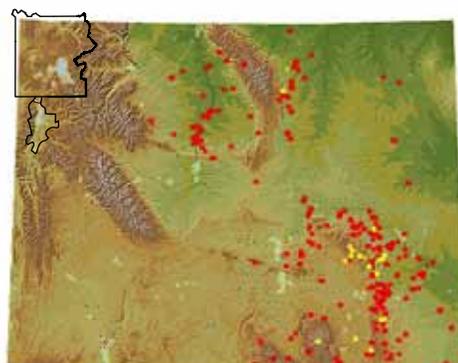
Wildlife diseases that could potentially appear in Yellowstone include chronic wasting disease (deer, elk, and moose) and West Nile virus (birds), and white-nose syndrome (bats), which is believed caused by a fungus adapted to the cold and humid conditions of the hibernacula used by wintering bats.



Left, the bacteria that cause brucellosis; right, the mite that causes mange; both shown much larger than actual size.

Discussion

Intervention is sometimes considered necessary to reduce the impact of or the risk posed by a wildlife disease. However, none of the diseases mentioned here can be eliminated from non-captive animal populations by any currently available method. Park policy therefore calls for minimizing the spread and impact of non-indigenous disease when feasible and supporting research that will aid in early detection and other means of forestalling disease transmission. The Yellowstone Wildlife Health Program, established by the park service, Montana State University, and the University of California–Davis School of Veterinary Medicine Wildlife Health Center, monitors and wildlife diseases and health indicators as part of the Greater Yellowstone Network Vital Signs Monitoring Program. Funding provided by the Yellowstone Park Foundation has helped facilitate cooperation among scientists seeking grants for wildlife health research and development of on-site veterinary services, diagnostics, and laboratory facilities.



Chronic wasting disease found in
■ Elk ■ Deer

Locations where the Wyoming Fish and Game Department confirmed deer and elk with chronic wasting disease, 2009–2011.