

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—those that have spread into Yellowstone as a result of human activity—can impact wildlife populations (e.g. wolf population declines in 1999 and 2005 and Yellowstone cutthroat trout population declines), and focus management actions on wildlife populations (e.g. bison). 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 Greater Yellowstone have been exposed to the bacterium that causes brucellosis, which originated in domestic livestock. It does not appear to have had population-level impacts in wildlife, but infected females may abort their first calf, and the disease can be transmitted to livestock through 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.
- **Chytridiomycosis.** This amphibian disease, caused by a fungus of uncertain origin, has contributed to the worldwide decline in frogs. Dead Columbia spotted frogs found at a Yellowstone site in 2004 were diagnosed with chytridiomycosis and the widespread ranavirus, but the effect on the population is not known.
- **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).



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, will monitor and evaluate wildlife diseases and health indicators as part of the Greater Yellowstone Network Vital Signs Monitoring Program. Five-year funding provided by the Yellowstone Park Foundation will help pursue objectives that include facilitating cooperation among scientists seeking grants for wildlife health research and development of on-site veterinary services, diagnostics, and laboratory facilities.

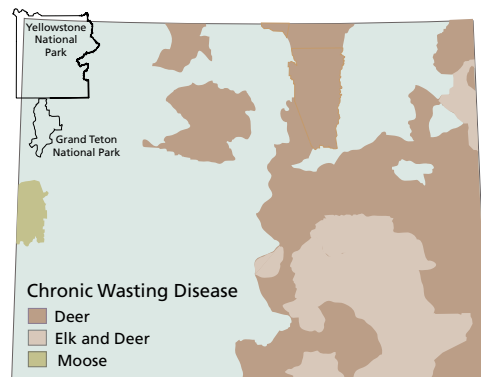


Figure 1. Areas in which the Wyoming Game and Fish Department has identified deer, elk and moose with CWD through December 30, 2008.