

Connecting research and management of wildlife disease around Yellowstone National Park, U.S.A. (Cross, P).

Paul C Cross, U.S. Geological Survey, Northern Rocky Mountain Science Center, Bozeman, Montana 59715

pcross@usgs.gov

The region around the Yellowstone National Park of the United States has a long history of wildlife research, and many scientific and management-related controversies—from grizzly bears and garbage dumps, to brucellosis in bison and cattle, to the re-introduction of wolves. In this talk, I will discuss the role of science in these controversies with an emphasis on wildlife disease issues. My own work has focused on brucellosis in elk, cattle and bison as well as sarcoptic mange and canine distemper virus in wolves. These diseases move among multiple host species and across management boundaries, and the government agencies sometimes have opposing mandates and missions, such as protecting cattle operations from disease introductions or preserving wildlife populations. Cattle herds in Montana, Idaho and Wyoming have been infected by brucellosis over the past several years, and the available data suggest that elk (*Cervus elaphus*) are the most likely source. New research suggests that increasing brucellosis in elk is correlated with elk density at a variety of scales and that the status of free-ranging elk as a viable reservoir for brucellosis has changed as their populations increase in number and density. This shifts the current management focus away from bison towards the larger risks posed by an expanding epidemic in elk.

Wolves were re-introduced to Yellowstone National Park in 1995 relatively free of their historic parasite and pathogen community. The wolf population grew very well after the reintroduction, and over time this naïve population acquired many of the pathogens of the carnivore community, including sarcoptic mange (*Sarcoptes scabiei*) and canine distemper virus (CDV). Mange and CDV cause significant mortality and morbidity and are shared among several carnivore species inside and outside of Yellowstone National Park. The management of these natural resource issues is complicated by scientific uncertainties, multiple government and non-governmental organizations, and contrasting social opinions. In a democratic society with diverse values, controversies are often not solved. More often they are compromises that are continually re-negotiated, where science provides a foundation for that continued discussion.

