

## Briefing Statement

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**Bureau:** National Park Service  
**Issue:** Yellowstone – Brucellosis in Bison and Elk  
**Park Site:** Yellowstone National Park  
**Date:** March 8, 2006

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**Background:** The Greater Yellowstone Area (GYA) is one of the largest intact temperate zone ecosystems on Earth and includes approximately 28,000 square miles in Montana, Idaho and Wyoming. The GYA encompasses state lands, two national parks, portions of six national forests, three national wildlife refuges, Bureau of Land Management holdings, private and tribal lands. The GYA is home to the largest wild and free-ranging elk and bison populations in the United States. Approximately 125,000 elk occupy the GYA across 25 separate exclusive or trans-boundary elk management jurisdictions. There are 24 elk winter feedgrounds in northwest Wyoming (the National Elk Refuge and 22 state operations) that may support approximately 25,000 elk, depending on winter severity. Approximately 6,000 bison occupy the GYA across trans-boundary bison management jurisdictions in and adjacent to Yellowstone National Park (4,900) and Grand Teton National Park (1000).

All elk and bison populations in the GYA are variably chronically infected with brucellosis (*Brucella abortus*). Northern GYA elk exhibit low seroprevalence levels (1-3 %), whereas southern GYA elk associated with feedgrounds can exhibit much higher seroprevalence levels (15-60 %). Bison in Jackson Hole that utilize the National Elk Refuge feedground exhibit high seroprevalence levels (70-80 %), while there is a long-term trend of moderate (40-60 %) seroprevalence among Yellowstone bison. There are no efficient or effective surveillance diagnostics on live animals to separate those that have been only exposed to *B. abortus* versus those that are actually infectious at the time of sampling.

Arising from the highly successful national brucellosis eradication program among domestic livestock and captive wildlife, free-ranging GYA elk and bison are now recognized as the last large reservoir of *B. abortus* in the United States. The Greater Yellowstone Interagency Brucellosis Committee (GYIBC) is composed of state and federal employees that represent both wildlife and livestock interests. The group meets regularly to coordinate research needs, research results, technical application of new research results, and sharing of advances in resolution to this issue. The nine objectives of the GYIBC are diverse, but include visions for protecting biologically viable elk and bison populations, protecting state and federal jurisdictions for managing wildlife and livestock, and a commitment to basing brucellosis related management recommendations on defensible and factual information. Protecting economic interests of the livestock industry is an important objective for solving this issue.

### **Current Status:**

- Spatial and temporal separation of bison and elk from cattle is the key to reducing or eliminating risk of brucella transmission. This is a common strategy throughout the GYA and has been successful in managing risk of brucellosis transmission from Yellowstone bison to cattle in the surrounding area.
- Systematic vaccination of elk and bison will, over the long-term, reduce disease prevalence in elk and bison populations, especially if vaccine technology is improved, and methods for remote vaccine delivery to free-ranging wildlife are improved.
- The GYIBC Memorandum of Understanding has expired and is in the process of being updated for an additional five-year term. The National Park Service recommends that the MOU represent a balanced perspective on the eventual elimination of brucellosis from the GYA.

- The National Park Service also believes that development of more effective vaccines, more effective vaccine delivery techniques for free-ranging wildlife, and better diagnostic techniques for identifying infection in live animals are priority research and development needs. The Greater Yellowstone Interagency Brucellosis Committee in collaboration with the U.S. Animal Health Association sponsored a symposium in August 2005 to evaluate creative options for developing new technologies in vaccine development, delivery systems for wildlife and for diagnostics of brucellosis in elk and bison.
- Brucellosis was confirmed in several cattle herds from Wyoming in December 2003. Subsequently, Wyoming lost their class-free status, important to the livestock industry of the state. Measures have been implemented to eliminate the reactor cattle herds and develop a plan to more intensively monitor the probability of cattle being infected with brucellosis. Recently, the state has petitioned USDA to regain their class-free status as the state has had no new cases in livestock for more than one year.
- The state of Idaho identified two brucellosis test positive cattle herds in late 2005. Consequently, Idaho's brucellosis status was downgraded from class-free to class A. The state agriculture department is conducting an epidemiology investigation to determine the cause and the distribution of the infection and is developing a plan of action to eliminate the infection from the area where it was discovered. The current information implicates a wildlife vector, as a state feedground for elk is located in the near vicinity of the reactor cattle herd.
- The National Park Service will continue to collaborate with USDA and the states of Idaho, Montana, and Wyoming to maintain wild and free-ranging populations of elk and bison in the GYA, and to work together to continue long-term planning processes for the eventual elimination of brucellosis from GYA bison and elk.

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