

Brucellosis and the Future of Greater Yellowstone

*Summary of the National Brucellosis Symposium
September 27-28, Jackson, Wyoming
by Mark S. Boyce*



Brucellosis is a bacterial disease that infects a diversity of wild and domestic animals, and can cause serious, but easily treatable, disease in humans. In particular, *Brucella abortus* is a bacterium that infects cattle often resulting in abortion of calves. The disease is usually transmitted through ingestion of milk or placental fluids. Since the 1930s the U.S. Department of Agriculture (USDA) has supported an aggressive program to eradicate brucellosis from the United States; overall the program has been highly effective at virtually eliminating the threat of the disease in domestic livestock. As of 1994, only 200 livestock herds in the United States are known to harbor the disease. Protocol for eradication entails testing cattle herds in which the disease has been found, and slaughtering all that test seropositive for antibodies to the disease. If the disease persists, the entire herd of cattle must be slaughtered.

The bane of the brucellosis eradication program is, however, that bison and elk in the Greater Yellowstone Ecosystem (GYE) carry brucellosis and serve as a reservoir for the disease. Thus, it would appear virtually impossible to eradicate

the disease because existing technology does not provide a means by which brucellosis can be eliminated from free-ranging herds of bison and elk. The only alternative by which the USDA might possibly accomplish its eradication objective given existing technology is by depopulation of elk and bison from the GYE. Depopulation means slaughtering every elk and every bison over 18 million acres of the GYE—perhaps more than 100,000 elk and 4,000 bison! Given the learned migratory behavior of elk herds in the region, centuries would be required before the GYE would recover from such a drastic management scheme.

It is frightening to realize that there exists a precedent. During the 1920s, more than 22,000 deer were destroyed in the Stanislaus National Forest of California to control foot and mouth disease. Happily, according to Robert Keiter, professor of law at the University of Utah, the USDA's Animal and Plant Health Inspection Service (APHIS) does not appear to have jurisdiction over wildlife within Yellowstone National Park.

Dr. Paul Nicoletti (University of Florida) and I shared the responsibility of

summarizing the recent National Brucellosis Symposium that immediately preceded a meeting of the Greater Yellowstone Interagency Brucellosis Committee, September 28-29, 1994. The conference included 34 papers given during two days. There were presentations from politicians, ranchers, bureaucrats, epidemiologists, wildlife biologists, and veterinarians. The governors of Wyoming, Montana, and Idaho gave presentations, as did high-level representatives from the U.S. Departments of Agriculture and Interior.

Universal among the presentations by politicians and bureaucrats was a theme of how important it was for agencies and interest groups in the GYE to cooperate and compromise to resolve the brucellosis problem. Repeatedly, we were told how, given the apparent conflicting interests of the livestock industry and wildlife, it will be necessary for all parties to yield in some way in order to permit closure to the problem of brucellosis in the GYE.

Another theme emerging from the symposium was the party line expressed by administrators representing the USDA. Repeatedly, we were told that APHIS

was going to accomplish brucellosis eradication by 1998. Over the years, the federal government has invested \$3.5 billion in their mission to eradicate brucellosis, and to fail now, when so close to finishing the task, would to the minds of those involved constitute squandering of this investment. We were told repeatedly by officials from the USDA (but not scientists) that this goal of eradication by 1998 was practical and feasible, and that it would happen.

We were reassured by representatives from the Fund for Animals and the National Park Service that brucellosis was a non-problem. Brucellosis exists in wildlife, but does not seem to present a serious problem for wildlife populations. Resolution of the problem, in this view, should not be too difficult if we can simply avoid contact between potentially infected wildlife and livestock during critical times of the year.

But we were all taken aback by a rancher who dug in his heels and warned us that compromise was not on his agenda. He emotionally made a plea to the audience that rancher's livelihoods were threatened by brucellosis, or at least by the rules established by APHIS regulations. These regulations require extraordinary expenses for brucellosis testing and quarantine before any interstate shipment. The livestock industry is clearly very concerned. They are concerned because of a growing public intolerance of livestock grazing on public lands, and because of the serious risks associated with the Uniform Methods and Rules imposed by APHIS (curiously there seemed to be little concern about the risks associated with the disease itself).

Is there a comfortable solution to this problem? I believe so, and it requires that we step back to look at the big picture. We must recognize the extraordinary natural values of the GYE. But we must also acknowledge that we have 5.5 billion people on the planet. An appropriate model for sustainable development can be conceived for the GYE. Indeed, I believe that it is possible to have ranching and wilderness in the region. It may not be necessary to eliminate livestock from the GYE, because we can modify livestock use to minimize risk of transmission of brucellosis from wildlife to live-

stock. We know how.

The federal agency representing livestock interests, the USDA, sent its chief spokesperson, Lonnie King, to advise that the status quo is not good enough. He insisted that there absolutely must be compromise and we cannot permit the situation to remain as it stands today. No one at the conference proposed clear resolution to the problem, but it was clear that a number of things could be accomplished that would greatly alleviate the threat (whether real or perceived) of brucellosis in the GYE. These changes from the status quo will require compromises by all parties involved.

It was my reading of the symposium that action on the following objectives could substantially reduce the problem of brucellosis in the GYE.

1. Livestock at risk on elk and bison calving grounds should be appropriately managed so as to minimize the possibility of transmission of brucellosis. For example, Grand Teton National Park allows cattle grazing in the Elk Ranch Reservoir area while elk calving is in progress. Similar cases exist throughout the GYE, and these situations could be modified if agencies would adopt strict policies to minimize risk of transmission.

2. Reduce and eliminate elk feedgrounds wherever possible. Concentration of elk at feedgrounds facilitates transmission of the disease. Dr. Tom Thorne indicated that brucellosis is not sustained in elk populations except when concentrated by winter feeding.

3. Manage winter habitats for wildlife, and to keep wildlife away from cattle.

4. Reduce the high bison population in Yellowstone National Park by reducing snowmobile winter recreation in Yellowstone National Park. Improved access to foraging areas by bison afforded by travel along groomed snowmobile routes appears to have resulted in a large population size that increases the likelihood of a substantial exodus of bison from the park in the future (Dr. Mary Meagher's presentation). Permitting continued snowmobile trail disruption of ecological processes in Yellowstone would appear to be inconsistent with park policy.

5. Vaccinate livestock in all ranges within the GYE. This would seem to be a reasonable price to pay for imposing ex-

otic ungulates on this largely wild landscape.

6. More money must be allocated towards research on the epidemiology of brucellosis and the development of oral vaccines. Several participants in the symposium indicated that the risk of transmission from wildlife to livestock was seriously exaggerated, but sufficient data do not exist to evaluate this risk. A vaccine for brucellosis in bison does not exist.

7. Modify the USDA's unrealistic objective to eradicate brucellosis from the United States, and acknowledge that eradication is not feasible given current technology. Management of the disease is certainly feasible, and much can be done. But having an unrealistic objective interferes with making true progress with brucellosis management in the GYE.

8. Reevaluate APHIS's Uniform Methods and Rules with an eye towards realistic disease threats, and an appreciation of the esthetic value to wildlife resources in the GYE. It is not clear that we must slaughter every bison that leaves the park—even if it is infected with brucellosis. Treatment may be expensive, but it is certainly possible. If animal-rights groups feel strongly enough about saving the lives of these animals, perhaps they will finance alternatives to the draconian Uniform Methods and Rules.

Compromise on the part of agencies, ranchers, and interest groups is possible in the GYE in a way that will make the brucellosis problem manageable. But there is one thing that we must not compromise: the GYE is a global treasure. We must keep it forever really wild and really wonderful. Priorities for livestock management must not take priority over that need within the GYE.

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