NATIONAL ACADEMIES

Bison Study Marks Radical Shift for Research Council

Are Montana cattle at risk from Yellowstone National Park bison carrying a disease that causes cows to abort? The National Research Council (NRC) is studying the question, and its answer is likely to be controversial—but perhaps not as controversial as the process the NRC is using to arrive at its weighty opinion.

The debate over the infected bison, pitting the U.S. Department of Agriculture (USDA) and ranchers against National Park Service officials and environmentalists, is so fierce that the Park Service decided to ask the NRC for an impartial scientific assessment of the problem. But the council, the operating arm of the National Academies of Sciences and Engineering and the Institute of Medicine, is itself embroiled in controversy over whether its procedures for such studies must follow federal guidelines for public access. So instead of assembling a panel of experts for a series of closed meetings—the time-honored process that a federal court has called into question—the council is hiring two scientists to carry out the $200,000 study.

Academy officials hope that this radical departure from normal practices will shield them from legal challenge. "It would be absolutely immune [from lawsuits] because no committee is involved," says William Colglazier, executive officer for the NRC. But the larger question is whether it will damage the council's reputation for quality. "It's a good experiment," says Paul Risser, president of Oregon State University in Corvallis and chair of the NRC's board on environmental studies and toxicology. "But it's a huge risk."

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No bull. Cheville says he'll be impartial.

Council officials say it will be more difficult to produce in-depth and balanced reports with paid principal investigators than with volunteers serving on committees. "Something is lost by not abiding by the traditional consensus approach," Colglazier admits. But the council's spate of legal problems has forced its hand. In separate lawsuits, the NRC is currently battling animal-welfare and environmental groups, which contend that the council must abide by federal rules on openness that apply to government advisory committees (*Science*, 30 May, p. 1328).

Ironically, the council's new procedures may further inflame the bison debate. Environmentalists are angered at the selection of Norman Cheville, a veterinary pathologist at Iowa State University in Ames, as one of the two principal investigators. Cheville is a longtime employee of USDA, which has threatened to decertify the safety of Montana beef because the wandering Yellowstone bison herds are infected with brucellosis. To stop the spread of the disease, the government killed nearly 1100 bison last winter. "He's got very good credentials, but he has spent most of his career working for USDA," says D. J. Schubert, a

Study Shows One-Fifth of Female Bison Infected

BOZEMAN, MONTANA—As the National Research Council begins its novel study of the threat to cattle posed by Yellowstone's bison herd (see main text), scientists are beginning to make headway in understanding the source of that threat: brucellosis, the chronic bacterial disease that can cause bison and cattle to abort their calves. At a meeting on bison ecology and management here 2 weeks ago, veterinarian Thomas J. Roffe of the Department of Interior's National Wildlife Health Center in Bozeman reported that one-fifth of females in Yellowstone's herd appear to be infected.

In past studies, about half of the park's bison have tested positive for antibodies to the bacterium *Brucella abortus* with standard blood tests for cattle. But the test can't distinguish between animals that have an active infection and those that were exposed but fought off the disease. So Roffe and other members of a team of state and federal scientists spent days kneeling in the snow beside dozens of bison carcasses, dissecting out lymph nodes and reproductive tissues from animals that were shot as they wandered out of the park in search of forage.

DOUG LONEMAN

Dead end. Yellowstone Park bison have been killed to prevent the spread of brucellosis.

Tissue cultures completed so far have turned up the disease agent in eight out of 20 female bison that had tested positive on antibody blood tests. Because about half the herd tests positive, the researchers calculated that about 20% of females carry the bacterium. Team members haven't completed tests on samples from males; at present, they are concentrating on the females because the disease is believed to spread primarily through brucella-laden birthing tissues left on the range after a calf is born or aborted.

The new finding is only one small piece of the larger question of whether Yellowstone bison pose a significant threat to cattle grazed on lands outside the park. Scientists still don't know, for instance, what fraction of the bison herd is infectious at any one time, among a host of other mysteries. "I was amazed when we started this [how] little baseline work had been done," says team member Jack C. Ryan, a veterinary pathologist at the Department of Agriculture's National Veterinary Services Laboratory in Ames, Iowa.

Indeed, Roffe would like to see the central question in the debate about the herd reframed: Instead of seeking to quantify the precise risk to neighboring cattle, he thinks researchers should be trying to learn enough about the disease so that managers can work to minimize the risk of bison-to-cattle transmission—an occurrence that's never been documented. Toward that end, the team is radio collaring up to 60 bison females, which the researchers are planning to follow for 5 years. **–Yvonne Baskin**

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