Science briefs

Bison disease still threatens cattle

A dispute as bitter as a Montana winter rages between ranchers and environmentalists over Yellowstone National Park bison and a disease called brucellosis, which can harm cattle. In a National Research Council report, UC Berkeley and Iowa State University researchers have studied the problem and made recommendations.

The report, "Brucellosis in the Greater Yellowstone Area," contains findings from Dale R. McCullough, UC Berkeley wildlife biologist, and Norman Cheville, veterinary pathologist at Iowa State.

Brucella abortus, the bacteria that causes brucellosis, can cause spontaneous abortion in cattle and other animals. It is transmitted primarily through reproductive fluids and nursing.

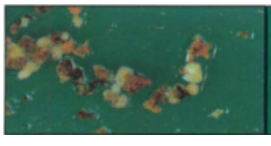
Last winter was extremely harsh in Yellowstone, and hundreds of bison died of starvation. Record numbers left the park, searching for forage at lower elevations. Alarmed that some of the itinerant animals might be infected with brucellosis, Montana livestock officials killed nearly 1,100 of them.

Ranchers worry not just that the disease will be detected in their beef herds, but that it will be detected in their states — which could lead to cattle trading restrictions. California has had brucellosis in the past, but recently regained its brucellosis-free status.

This winter has been mild in Yellowstone. No bison are known to have been shot. But McCullough and Cheville say their fate — and that of the area's elk (another carrier) and cattle — depends on steps taken to manage them all.

"To make the Yellowstone area brucellosis-free," the authors write, "the disease must be eradicated in all three species simultaneously. A lot more research is needed to determine whether and how such an ambitious goal can be met."

The draft report is on the Internet at *www2.nas.edu/besthome/bisonelk.htm.*



Research update

Bats can pack a punch in pest control

Bats from a single colony can consume millions of insect pests each growing season and may someday play a key role in integrated pest management, if studies in the Sacramento Valley are any indication.

UC research has confirmed that Mexican free-tailed and Yuma myotis bats in the Sacramento Valley prey upon night-flying insects which include serious farm and urban pests — moths, beetles, flies, midges, mosquitoes and plant bugs (see p. 8).

In the growing recognition that bats offer a natural and inexpensive means of pest control, hundreds of growers and homeowners statewide are seeking advice on how to attract these mammals to their property, according to Rachael Long, UC field crops farm advisor in Yolo and Solano counties.

"In the last couple of years in the Sacramento Valley alone, I've advised at least 60 growers on how to build bat houses." Long says. "There has been a great deal of interest in the ability of bats to control pests on high value crops, such as codling moths which prey on orchards."

Bronwyn Hogan, a graduate student at California State University, Sacramento, and co-investigator with Long, notes "A typical colony of 150 bats will eat several million insects each season, according to research from Texas. And bats may also protect crops from pests by 'chasing' insects away with their echolocation calls."

A number of moths, including cutworms, armyworms and bollworms, are sensitive to bat echolocation up to 120 feet away, and turn away or dive to the ground when exposed to pulsed sounds, she says.

"In spite of their benefit to farms and the environment as whole, bats have been maligned and even today are subject to eradication campaigns. Little effort has been made to protect