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Biologists are seeking answers

By Cara Eastwood

LARAMIE - As natural-gas development makes a steady march across the Powder River Basin northwest of here, sage grouse are suffering, and now there's data to prove it.

Preliminary results from a doctoral thesis by Brett Walker of the University of Montana show that sage grouse abandon breeding grounds that are near natural-gas wells and pumping stations and flock to leks that are outside the edges of development.

"Inside the natural-gas fields, sage grouse leks are 25 percent of what they were (before development)," Walker said last week to a roomful of professional wildlife managers and biologists.

Walker's research project was one of many discussed at a meeting of The Wildlife Society on the University of Wyoming campus.

The five-day conference drew about 150 wildlife biologists and students from the Central Mountains and Plains Section that includes Kansas, Colorado, Nebraska, South Dakota, North Dakota, Wyoming, Utah and two Canadian provinces.

The diverse papers presented at the meeting ranged from a study of hunter satisfaction in Kansas to an analysis of mortality rates in free-ranging deer associated with chronic wasting disease in South Dakota.

Walker's research, which he conducts with fellow graduate students Kevin Doherty and Dave Naugle, focuses on the Powder River Basin that stretches from north central Wyoming into Montana. Their preliminary findings show that the outlook for sage grouse there is grim unless researchers and industry can find alternative methods of gas extraction that disturb the habitat less than current techniques.

Between 1989 and 2005, the overall population of sage grouse dropped 84 percent, Walker said.

"Development seems to be three to seven times more dense than what sage grouse can tolerate," he said.

Almost every day there are new roads, power lines, compression stations and a large amount of water being added to the arid landscape. Walker said these large-scale changes to habitat will only increase with more drilling.

"There needs to be more research devoted to finding out what is causing the problems," Walker said. "Is it roads, is it power lines? What is it?"

The discouraging part of his recommendations, Walker added, is that by the time the research is completed, it might be too late.

"With the current speed of development, it might be like arranging deck chairs on the Titanic," he said.

Although the federal Bureau of Land Management's goal is to manage the land for multiple uses, the needs of sage grouse and oil and gas developers are somewhat incompatible, Walker added.

Walker expects his part of the project to be completed by this fall, but other students will continue to research the effects of oil and gas development on the native birds.

Humans & wildlife behavior

Walker's findings on sage grouse were not the only data presented last week that reflected surprising changes in wildlife behavior resulting from human activities.

Chris Peterson of Utah State University discussed her doctoral research on the effects of emergency feeding on mule deer herds in northern Utah. During severe winters, several western states implement emergency feeding sites for deer and elk in hopes of improving the animals' chance of survival.

Peterson's research examined 81 radio-collared mule deer over three years to determine if the emergency feeding improved the animals' chances of making it through the winter.

Starting with a hypothesis that there would be no difference between fed and non-fed deer, Peterson and a team of researchers examined the body condition, mortality rates, fawn productivity and behavior of deer over three years.

The fed deer did experience better health, reproductive rates and survival, Peterson said, but there also were some unsettling behavioral changes that resulted from the establishment of feed grounds.

"The fed deer spent more time on their winter range and migrated later," she said. The difference in the timing of migration became more marked over three years, she added.

Deer spending weeks longer on their winter range could negatively impact the quality of the forage there, limiting food available to other animals and even reducing the quality of food available the next winter.

"(Emergency) feeding is going to continue to be popular," Peterson said, "but it needs to be conducted in the best way for each site."

The transmission of disease is another major issue arising at feed grounds. While Peterson acknowledged the concern about disease, she said monitoring it wasn't apart of her study design.

But in order to reduce disease transmission and ensure that the bulk of a herd gets enough to eat, Peterson said it might be better to change the way that feed grounds are designed.

"Deer have a culture, and when the lead doe comes in with her fawns, they eat what they like and then they leave. We don't know if the other deer in the herd get what they need," she said.

If feeding areas were scattered throughout a typical route of travel, Peterson said more deer might get more to eat than they do at a traditional feed ground.

Figuring out when to start feeding in order to give deer the optimal nutritional benefit is a tricky choice for wildlife managers, Peterson said.

"Should we start now before they really need it or wait until it's so bad that it might be too late?," she said.

Understanding disease

Research on chronic wasting disease and brucellosis made up the bulk of the presentations to The Wildlife Society on Aug. 30.

David Edmunds of the University of Wyoming discussed his study to find out more about the transmission and spread of chronic wasting disease in white-tailed deer in southeast Wyoming.

Edmunds' preliminary data found the disease to be present in 24 percent of the white-tailed population in the study area.

Most animals tested negative for the disease as fawns, but as they got older, their chances of catching the disease increased.

Since most hunters aim to kill male deer, the study found a higher prevalence of CWD in hunter-harvested male deer than in the general population.

"It seems that hunters are unknowingly selecting for CWD-positive deer," Edmunds said.

The animals with the disease might move slower or be less aware of predation than other deer, he said, thus making them more vulnerable to hunters.

When the study is complete, Edmunds said he hopes to shed light on how long CWD takes to kill a deer and at what point it alters the normal behavior of an animal. He also hopes to be able to predict how and where CWD will spread next.

As Edmunds collects data, the Wyoming Game and Fish Department also is working to find answers on CWD.

Jessica Jennings, a technician at the wildlife disease laboratory in Laramie, discussed the volume of samples that she and other staff test and map every year to help monitor the spread of the disease.

In 2004, the department took in 4,059 tissue samples from elk, white-tailed deer, mule deer and moose. Of these samples, 102 were positive for CWD.

In 2005, the samples increased to 4,576 and, among these, 140 were found to be positive for the disease.

In the 2006 season, Game and Fish hopes to collect between 4,000 and 5,000 samples and increase their collection efforts on tribal lands in the state.

The resurgence of brucellosis in Wyoming cattle was another topic discussed at the meeting. University of Wyoming graduate student Laura Linn presented preliminary data from the test and slaughter study of elk in western Wyoming feed grounds that started in January and will continue for five years.

The study focuses on female elk that are at risk for abortion due to the disease and serve as transmission vehicles for brucellosis. Curiosity about the aborted fetuses is a major way that other animals get the disease.

"We bait the elk into chutes, and the bulls and calves are separated out," Linn said. "The adult females are tested and held overnight in a holding area. Those that are positive are sent to slaughter, and the meat is given away."

The controversial program has faced criticism from sportsmen and animal rights activists for its removal of elk from wild populations and for treating wild animals like cattle, Linn said.

"But of all those who have a stake in this, the ranchers have been supportive of it because it's showing that the Game and Fish is doing something to try and combat the disease," she said.

To assuage the criticism from sportsmen, Linn said the culling has been capped at 10 percent of the herd unit each year.

The project is modeled after an effective program that eliminated brucellosis from cattle in the 1930s.

In only its second year, Linn said the project data is too preliminary to be of any analytical value. But in the next few years, she hopes to gain insight in the epidemiology of brucellosis in order to minimize the risk of transmission between wildlife and livestock.