Small pests a big problem for Idaho moose - Billings Gazette, The (MT) - November 21, 2022 - page 1
November 21, 2022 | Billings Gazette, The (MT) | ERIC BARKER Lewiston Tribune

Just like populations across the country, moose in Idaho are in decline.

Researchers at the University of Idaho and Idaho Department of Fish and Game are working to unravel the cause. There is more research to be done, but early results indicate survival of calves into adulthood may be a problem, and ticks and other parasites may be driving population declines. Thus far, **wolves** and other large predators like mountain lions and bears have not been shown to be a significant cause of mortality.

"When you think about what is preying on moose here, it's really the parasites," said Janet Rachlow, professor of wildlife ecology at the University of Idaho. "That is what comes up as being involved – if not the exact proximate cause of mortality – certainly being involved and compromising the health of adults and calves."

For hunters, the falling numbers have led to an erosion of opportunity. Idaho allows hunters to take just one moose in their lifetimes. But to do so, they must draw a tag, and the odds, which have always been long, are getting longer. There were 90 moose tags available in the Clearwater Region this year. But two decades ago, populations were robust enough to support nearly 300 tags.

The decline is also reducing the opportunity of wildlife watchers to observe moose — the largest big game animal in Idaho and among the most charismatic.

Rachlow, working with Fish and Game as well as graduate students, has led a multiyear effort to examine the causes of moose decline. In 2020, 112 adult cow moose were fitted with tracking collars. They registered an 89% survival rate into the fall of 2021.

The collaring study was repeated across 2021 and into 2022. Again, adult cow survival was high — 85% to 90%.

But calf survival has been lower. During the study, researchers noted the pregnancy rates of the cows and checked in with the animals from time to time to observe if they had calves, how many, and whether they survived their first few months of life.

Most of the cows, 85% to 90%, were pregnant and most of them delivered calves. Calf mortality through their first summer ranged between 60% and 80%.

Eric Van Beek, the lead graduate student working on the project, said a consistent survival of 80% would be good, but 60% is getting on the low side – especially when survival is tracked through the calves' first winter.

"Adult survival was pretty good, pregnancy rates were good – 85% to 90%. For the most part they are carrying their pregnancies to term. We had some variability in birth rates, but last year it was 82%. So for the most part, calves are being born," Van Beek said. "If they do survive through the summer, it seems like they are making it to the fall, but the big thing is those calves aren't making it through their first winter."

The researchers collared 17 calves who were 9 months old in February. That group has a survival rate of just 52% through late winter and early spring, the toughest time of the year for ungulates.

Rachlow said it's a time calves can be expected to be nutritionally stressed and vulnerable from winter ticks. She pointed to a study from Maine in which wildlife biologists collared 70 moose calves and tracked them through the winter. Just 14% survived. Researchers blamed the high mortality on winter ticks.

Thousands and sometimes tens of thousands of the ticks can infest a single moose, which often rub themselves raw and hairless in an effort to rid themselves of the parasitic arachnids. Ticks also cause moose to lose blood and devote critical resources to replacing it.

Rachlow said some moose perish from exsanguination, but they can also die of secondary causes related to

ticks.

"There are a number of different routes where ticks can feed into poor body condition and malnutrition. There is sort of a spiral they get into," she said.

Another study out of Isle Royale on Lake Superior backs the idea that climate change is leading to higher tick burdens for moose.

Rachlow and Van Beek can't say for sure if the same thing — high tick burdens driven by climate change and leading to poor calf survival — is happening in Idaho. But their initial data tells them it's an area worth pursuing.

The moose they are observing show signs of being nutritionally stressed, in poor body conditions and with scabs indicating they have tried to rub ticks off their bodies. And predators do kill moose. Van Beek said one of the older calves and one of the younger calves in the study group were killed by **wolves**, but it isn't a significant cause of mortality in their data.

They have collared 163 moose, most of which were adult cows. Of those, 30 died. The collars send an email to researchers when the animal hasn't moved in several hours, indicating it is likely dead.

"Most of these mortalities, we are out on within 24 to 48 hours," he said. "Almost every moose is usually fully intact. It doesn't have any bite marks and hardly any scavenging. There are no signs of predation on almost all of these."

Rachlow said the moose in the study also had a higher prevalence of carotid artery worm, a native parasite, and a blood parasite than they expected, and its possible other diseases are playing a role in the poor nutrition and body conditions observed in collared animals.

They'd like to expand the number of older calves collared. For now, Van Beek is working to put together enough demographic information gleaned from moose across the state and in different habitat types that researchers can begin to build models that will aid the hunt for what is driving declines.

Shane Roberts, wildlife research manager for Fish and Game, said the agency is in the process of mapping out future research needs and which ones will receive funding. He thinks moose are likely to remain a priority.

"There is a pretty high likelihood we will continue the moose research with a specific look at cause specific mortality and over-winter survival rates of 6-months-old calves," he said.