

Biologists research how climate change may impact elk

Potential harm to reproduction

By **DICK MASON**
The Observer

STARKEY — Rocky Mountain elk in northeastern Oregon may fall prey to climate change.

U.S. Forest Service research biologist Mike Wisdom and Casey Brown, a research biologist with the Oregon Department of Fish and Wildlife, are among a growing number of people who are concerned about the role climate change is playing in nature.

Wisdom and Brown are helping conduct a Starkey Project study aimed at determining if climate change will hurt Rocky Mountain elk reproduction.

The study is not complete and intensive data analysis remains to be done, but preliminary findings indicate that climate change could cause elk populations to decline in northeastern Oregon and other areas.

"We are definitely concerned," Wisdom said.

The reason for the worry is that rising temperatures resulting from climate change are reducing the amount of time quality vegetation is available to elk.

"The nutrition window for elk is shifting," Wisdom said. "It is more compressed."

Fat reserves

Wisdom said cow elk now have less time in the spring and early summer to build up fat reserves, which are critical for having successful pregnancies and producing the milk needed to raise their calves.

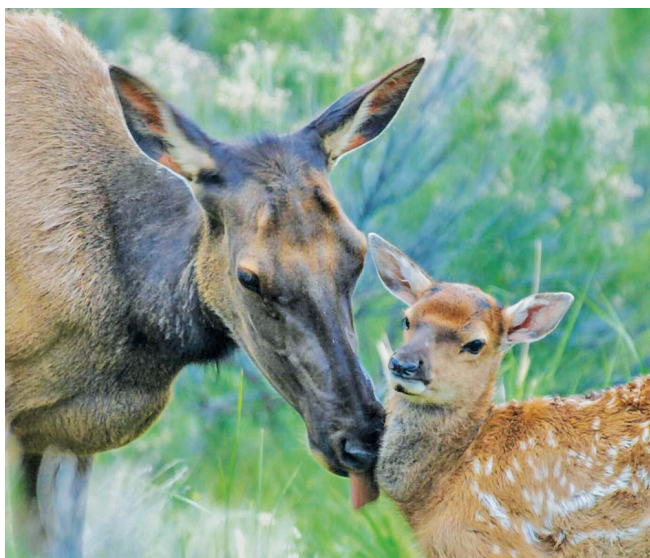
"Lactating females have higher energy demands and thus are more sensitive to climate change," he said.

Brown said that in the past the most nutritious vegetation available to elk, grasses and forbs flush with new growth, were available in northeastern Oregon from early spring to early summer. This vegetation is now available on a less nutritious — but still valuable level — from early summer to midsummer, followed by a brown period when there is little precipitation, from mid-July through the fall, a time when most of the vegetation available is dried out and offers little nutritional value.

Today, the best forage for elk is available for about two fewer weeks than before, and the brown periods run three to four weeks longer.

"There is now a more pronounced period of low precipitation during the summer and fall," said Wisdom, co-project leader of the Starkey Project with Darren Clark of the Department of Fish and Wildlife.

Brown anticipated, when she and research biologist



Jim Ward

A female elk licks a calf.

Priscilla Coe started their plant study at Starkey in 2015, that they would find less forage was available to elk than three decades ago. But she was surprised by how much it had decreased.

"It was greater than I thought it would be," she said.

Rising temperatures are impacting vegetation growth for a number of reasons, Brown said. Snowpacks in mountains are melting earlier and faster each winter and early spring. Previously, snowpacks would melt slowly, allowing rivers and streams to maintain strong flows longer.

"Winter snowpacks before provided a steady, slow delivery of water to the region during the spring and

summer," Wisdom said.

Slow melts of winter snow meant that moisture needed for the growth of grasses and forbs was available longer, giving cow elk more time to consume them and develop fat reserves needed for successful pregnancies and lactation.

Another climate change factor that may be hurting elk is that much more of the precipitation the region is receiving is now in the form of rain rather than snow. The change is hurting elk because rain runs off faster from the region in streams and rivers, unlike snowpacks, which slowly disperse moisture as they melt.

"Replacing snow with rain is not good for elk," Wisdom said.

Groundbreaking work

Biologists understand how changing weather patterns impact the growth of grasses and forbs because of extensive studies conducted at the Starkey Project site in the 1990s by Coe and research biologist Bruce Johnson, now both retired. The biologists measured plant growth at plots there throughout the year and determined how changes in temperature and precipitation in the region impacted it.

Wisdom admires how forward thinking Coe and Johnson were when they did their study in the 1990s.

"It took a lot of foresight," he said. "This was before climate change was a major issue."

The plant study conducted in the 1990s by Coe and Johnson was followed by Brown and Coe's study from 2015 to 2019. Brown and Coe measured plant growth at the same plots used in the 1990s study.

The Starkey Project, based at a 25,000-acre fenced facility, is a joint wildlife research project conducted by the Department of Fish and Wildlife and the Forest Service at the Starkey Experimental Forest and Range, 28 miles southwest of La Grande.

The project is designed to measure the population response of deer and elk to the intensively managed forests and rangelands of the

future. Research at the Starkey Project began in 1989.

Research done at the Starkey Project is one reason scientists understand how critical it is for cow elk to develop fat reserves needed for successful pregnancies and to raise their young. The Starkey Project site is one of the places that body fat levels of cow elk were measured during a breakthrough study by John and Rachel Cook, a husband and wife team of biologists who were working for the National Council for Air and Stream Improvement.

The Cooks compared levels of body fat in cow elk to their pregnancy rates and their lactation levels. They did this with elk that were easy to handle because they were comfortable around humans after being raised at the Starkey Project site by the Cooks.

"They did groundbreaking work," Wisdom said.

Mountains of animal, plant and atmospheric data have been collected at the Starkey Project site the past three decades. It includes temperature statistics indicating that in the past three decades the average monthly temperatures have risen 2-1/2 to 3 degrees. Such temperature jumps are concrete and disturbing evidence of a changing world, Wisdom said.

"Climate change has already occurred," he said. "It is not hypothetical."

Elk: Key is to remain flexible and in close touch with one another

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The declaration of cooperation that the Clatsop Plains Elk Collaborative signed Wednesday is the result of a multiyear effort to get on the same page.

The document lists a number of strategies and commitments to address the elk. The recommendations include increased educational outreach to visitors and residents about living with elk and how to avoid interactions with the wild animals, the possibility of opening elk hunts in new areas, changes to local rules and policies, land use questions, fencing, enhanced wildlife corridors and an elk festival in Warrenton, among others.

The elk festival would be one of the easiest things to accomplish right away, Warrenton Mayor Henry Balensifer said. But communities are unlikely to see an immediate change in how officials address elk-related safety and nuisance concerns. The process of vetting, researching and implementing the strategies and proposals could take several years.

Oregon Solutions

Gov. Kate Brown designated the elk collaborative as an Oregon Solutions project in 2019, an important tag that boosted the priority of the work and opened the door to state funding. The toolkit the group developed will help others in Oregon who face similar wildlife conflicts, the governor wrote in a letter of appreciation to the members Wednesday.

"This feels like the end, but it is really the beginning of very hard work," Johnson, D-Scappoose, said in her own remarks to the group.

Each stakeholder has agreed to their own list of recommendations and actions, but the goal is to continue to work together. Certain initiatives will require a high degree of continued cooperation, community engagement and some outside funding, stakeholders said.

Culling — always a controversial proposal — remains on the table, but will take some time to implement and requires more data and community outreach. Warrenton plans to pursue hunting as an option to control urban herds, however.

Balensifer anticipates some trepidation about wild-

life management in city limits, but exactly how the city will proceed with such management involves questions that have not been answered yet, he said.

Any culling activities will occur outside city limits first.

"I do think as we learn from that, that will inform practices closer and inside," Balensifer said.

He expects the City Commission will tackle other issues first, though, such as reexamining Warrenton's wildlife feeding ordinance and how it is being enforced.

Gearhart City Administrator Chad Sweet expects some of the recommendations city leaders agreed to will begin to appear on meeting agendas in the near future.

There are some items the city can begin to tackle sooner rather than later, he said. Things like reviewing sections of the city code that deal with fences, providing information about types of landscapes that deter elk

from an area rather than entice them, or installing more educational signs.

Data

Then there are other proposals that will require more research and a more nuanced understanding of herd movements. In many cases, this data is still being collected and analyzed. In some areas, it has not been collected at all.

This winter, staff at Lewis and Clark National Historical Park plan to analyze various data tied to elk movement in and around the park.

For around a dozen years, park rangers and volunteers have tracked herd movements through elk pellet monitoring and driving surveys. Beginning in 2020, rangers worked with state wildlife experts to fit six elk across three different herds with radio collars.

While they have managed to get collars on elk in two different herds that range around Camp Rilea and the Astoria Regional Airport,

they were not able to collar elk in a herd that travels into the park from the south. These elk have proven more elusive, said Carla Cole, chief of resources at the park.

The final two collars instead went to elk that wander the coast between Sunset Beach and Gearhart.

After the combined pel-


let, driving survey and radio collar data is analyzed, Cole hopes to have more concrete information about elk movement by early 2022.

Members of the elk collaborative do not expect to find a one-size-fits-all solution to the issues connected to the elk herds. The key is to remain flexible and in close

touch with one another, they said.

Vanessa Blackstone, a wildlife ecologist and member of the elk collaborative who previously worked for the state, cautioned the group on Wednesday, "As we find solutions that fail, remain open-minded to find the ones that will succeed."


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