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The problem with plastics

Litter a threat to Mat-Su moose, reindeer

By CHRIS FORD Frontiersman.com Aug 5, 2017



Research biologist Bill Collins shows Liz Jackson of Hatcher Pass Bed and Breakfast one of the moose from the small herd he keeps at the Palmer Experiment Farm. The mammals have fistulas on their sides allowing researchers and scientists direct access to their rumen where the first stage of food digestion takes place. Courtesy photo

WASILLA – According to the Wall Street Journal, 100 billion plastic shopping bags are distributed throughout the United States each year, costing retailers an estimated \$4 billion annually. Included in that tally is 90 percent of all grocery bags and only 1 to 3 percent of the total is recycled.

A portion ends up in landfills, while others are spotted floating in lakes and rivers, stuck to trees or blowing across the landscape. Some of those are consumed by a multitude of wildlife and domesticated animals. Here in the Mat-Su, plastic bag consumption has led to the death of reindeer and caribou.

Plastic bags are made of polyethylene, a petroleum product. According to the national watchdog group EcoWatch, it takes approximately 1,000 years for polyethylene to break down. They do not biodegrade but instead photodegrade—breaking down into smaller and smaller bits. It's at this point where most reported cases of the product entering the food stream take place.

It is estimated approximately one billion seabirds and mammals die each year as a result of plastic bag ingestion. Death can also be painful. For larger animals such as mammals that ingest the entire bag or large piece of plastic, the product can wrap around their intestines or they choke and suffocate.

Dr. Bill Collins, a research biologist at the University of Alaska Matanuska Experiment Farm in Palmer, is heading up a program for Alaska Department of Fish and Game. He maintains a small herd of moose at the Palmer facility to study feeding habitats and nutritional values of the animal. As part of the research, the moose have fistulas located outside their rumen. The fistula is basically a hole with a rubber stopper that allows for direct access into the rumen.

The rumen is the first stomach of a ruminant, or mammal, which receives food or cud, and nutrients from esophagus. There the food is partially digested with the aid of bacteria and enzymes. The animal then regurgitates the food, or cud, and then chews it further allowing it to enter the digestive tract.

In a video supplied by the Mat-Su Zero Waste Coalition, Collins pours the contents of a moose's rumen onto the ground. It is littered with plastic shopping bags and Zip-Lock style plastic bags. Collins said he periodically finds the plastic in the samples.

Collins said given the Farm's location, it is subject to strong winds. That makes it easy for plastic-based litter to frequently find its way onto the open pastures and surrounding land.

"It blows into the pens," Collins said. "It has happened elsewhere."

Collins said he spent 20 years in a similar position in Kenai where he observed the problem appearing in livestock. He's been in the Mat-Su for the past 35 years and started his current program gathering nutritional data on moose 12 years ago. Although he hasn't lost an animal, at least not a direct cause and effect, he is not ruling out that digestion of plastics hasn't impacted any of the animals in his study.

"If a portion of their rumen is filled partially with plastic, it limits the rumen's capacity and reduces digestion which can reduce nutrition. That can range from light to severe to death."

Collins said he constantly scours the landscape for stray plastics, adding there is no shortage. Collins added he hasn't seen an increase in the amount that makes its way onto the farm.

"Every time the wind blows, it's always there. If you're downwind from anything, it's prevalent," Collins said.

Carol Montgomery, chair of the Coalition's Plastic Bag Committee, said Williams Reindeer Farm has lost many animals over the years from plastic bag ingestion. She said the farm has necropsy reports to verify the cause. Agate Inn owners Harvey and Sandy Bowers, who have reindeer, or domesticated caribou, also confirm the plastic bag issue.

Harvey Bowers said vigilant scouring of their property results in approximately one pickup truck bed load of collected plastics each year. He said since the bags don't decompose, his animals are often digging up 30-year-old plastic bags while grazing. He made the age determination based on imprinted logos on the recovered bags.

"It's a long-term thing so we have to be constantly vigilant," Bowers said. "We've done necropsies on some of the reindeer. It's a miserable death...our age will be known as the age of plastic."

He said most of the collected trash through his property is blown-in plastic.

Montgomery said regarding wildlife, the only way to determine cause of death is through necropsy, which is expensive and not often done.

"We were able to confirm the death of a musk ok calf in Nome from plastic bag asphyxiation through Kimberlee Beckmen, M.S., D.V.M., PhD, a wildlife veterinarian at ADFG in Fairbanks," Montgomery said. "She also confirmed a sea turtle death from plastic obstruction in the Gulf of Alaska.

"So, while there are few necropsies done on wild animals, we are able to confirm deaths in domesticated animals, and efforts to prevent further casualties by patrolling their environment. This raises concerns about the mortality from plastic ingestion in the wild where animals are not protected in these ways. We know that moose eat plastic, but so far I have not heard of any necropsies done on them, so we don't know if it is killing them as often as it kills the caribou and reindeer. With all the pressure on subsistence and game resources it seems a shame to lose wildlife to such a preventable human cause," Montgomery concluded.

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