

**W**hen Mary Franzel saw a cow moose lying directly outside her window last winter, her first thought was, “It’s really weird that the mom decided to take a snooze against the house.”

The moose and her large male calf had been hanging around Franzel’s home in Clark Fork, Idaho, for a few days, resisting all efforts to shoo them away. Franzel assumed they were looking for a handout. Many of her neighbors feed deer, a practice strongly discouraged by Idaho Fish and Game, but mostly legal in that state. Other than not being afraid of her, Franzel says, the cow and calf in her driveway appeared normal. “You see some moose that are shedding and look kind of grayish. But these had beautiful coats, and they had good weight.”

But soon Franzel, a retired RN, realized the cow wasn’t napping. The moose lay motionless, head in the snow; her calf stood beside her. In a video Franzel filmed from inside the house, the agitated calf nibbles and paws at the cow’s face, his hoof making an audible clunk against her muzzle. But this moose would never wake up again. And within days, the young moose—the big, strong-looking calf with the beautiful coat—would be dead as well.

They weren’t killed by winter ticks, brain worm, or any of the other usual suspects. Instead, according to T.J. Ross, regional

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communications manager for Idaho Fish and Game, the moose were likely victims of a most innocuous-sounding substance: food.

The wrong food, at the wrong time of year, can prove deadly for big game.

Here in Montana, unlike Idaho, it’s illegal to intentionally feed big game. But according to officials with Montana Fish, Wildlife & Parks, wildlife are still fed—usually by well-meaning people who don’t realize they could be responsible for animals suffering and even dying, or that they might be putting entire populations at risk. “People think they are helping wildlife,” says FWP veterinarian Dr. Jennifer Ramsey, who heads the department’s Wildlife Health Program in Bozeman. “But actually they can cause enormous harm.”

#### **NATURAL DIETARY CHANGES**

All members of the deer family, called cervids, change diets with the seasons. In summer, the animals eat mostly high-carbohydrate leaves and forbs (flowering plants) to build and store fat for winter. As the days shorten and green foods become scarce, they eat less overall and transition to low-carb “browse”—shrubs, twigs, and tree bark. They also start burning more body fat for energy.

“Ultimately, this is what they’re adapted for,” says Rebecca Mowry, an FWP wildlife biologist in Hamilton. “It’s natural for them to lose weight in winter. It’s also natural for some of the weaker animals to die, especially calves and fawns entering winter



**TOXIC “TREATS”** Corn and other high-carbohydrate foods put out by well-meaning homeowners can disrupt the natural digestive systems of deer, elk, and other cervids, leading to an agonizing death.

PHOTO BY DONALD M. JONES



# DEATH BY FEEDING

The unintended—and sometimes fatal—consequences of providing food to deer, elk, moose, and other wildlife in winter. **BY JULIE LUE**

in poor body condition.”

The weeding out of weaker individuals may ultimately strengthen the population while helping vegetation recover from over-browsing. But that’s the cold, scientific perspective. Most people not trained in wildlife biology find it hard to watch animals struggle through the lean months of winter. It seems to make sense that providing food for

a hungry deer, elk, or moose will ease its suffering, or even save its life. But the opposite can be true, says Ramsey. “Feeding can actually decrease an animal’s chance of survival.”

#### BAD CARBS

Strangely enough, some of the most devastating effects are due to the animals’ gut

microbes. Like cows, sheep, and goats, cervids are ruminants. A cervid’s digestive system allows it to extract enough nutrients from plants to sustain a 1,000-pound moose or a 200-pound mule deer. But the success of this process relies on a finely tuned mix of bacteria, protozoa, and fungi in the largest stomach chamber, the rumen, where partially chewed food is fermented before being regurgitated as “cud” and chewed again.

A cervid’s gut microbes gradually adapt to different food sources over the seasons. In late fall they begin to accommodate the animal’s increasingly sparse winter diet of low-carbohydrate, high-fiber browse. Then in early spring, the balance of microbes slowly changes again as other natural foods become available. But sudden changes spell trouble.

A mismatch of meals to microbes can lead to digestive diseases, including rumen acidosis (known as “grain overload” in cattle), which Ross says the Idaho wildlife department “strongly suspects” is responsible for the deaths of the two moose in Clark Fork.

Ramsey says that acidosis is something she considers “when we have a really rapid



It’s natural for them to be losing weight in winter. It’s also natural for some of the weaker animals to die.”



LEFT TO RIGHT: DONALD M. JONES; RON HOFFE; ILLUSTRATION BY LIZ BRADFORD

death,” particularly in big game animals in otherwise decent condition with access to unnatural food sources. She explains that a high-carb meal of corn or other grain, birdseed, apples, or rich hay can set in motion a dangerous cycle—especially if the animal is not accustomed to that diet. The carbs trigger an explosion of stomach bacteria that produce lactic acid, which eventually kills healthy bacteria and causes inflammation and ulcers. “When it’s angry and inflamed, the rumen [stomach] wall is unable to absorb nutrients, so the animal can’t take advantage of the food,” says Ramsey. “The animal can actually be starving with a full stomach.”

The buildup of lactic acid also causes fluid to accumulate in the rumen. “In a necropsy we’ll see the rumen full of sloshy fluid and food, but the animal itself is dehydrated because all their fluid is being sucked into the rumen rather than hydrating the cells of their body,” Ramsey adds. To top things off, the lactic acid eventually reaches the bloodstream at dangerous levels.

At this point, most animals may look healthy, but “often they’ll die of acidosis within 24, maybe 48 hours,” says Ramsey. “And it’s a really painful way for an animal to die.”

Artificially fed deer, elk, and moose can also succumb to enterotoxemia, a deadly disease caused by the overgrowth of *Clostridium* bacteria in the stomach. And they can die simply because they gorge on a large quantity of food they are unable to process. Ramsey says that when a skinny, starving deer in late winter or early spring comes across a haystack stored for cattle, “rather than going out and looking for browse to eat, which their stomach has adapted to process, they zero in on this really nice big green pile of hay their body can’t handle and end up standing there and starving to death.”

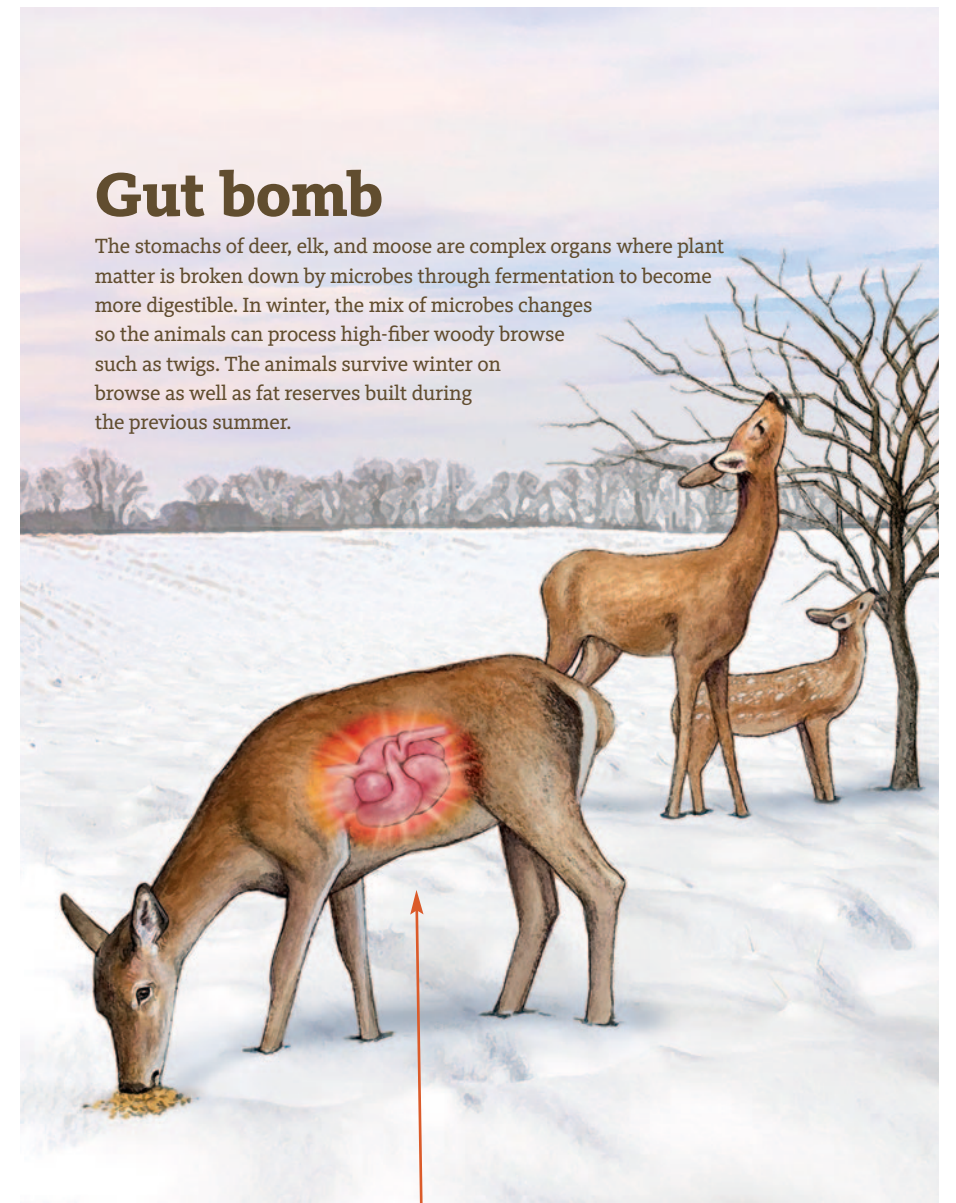
That’s not to throw blame at ranchers. “They don’t want deer or elk eating food meant for horses or cattle, but it can be hard to keep determined wildlife away from haystacks,” Ramsey adds.

#### FATAL ATTRACTION

Digestive diseases aren’t killing cervids at levels that affect entire herds. But illegal feeding does

## Gut bomb

The stomachs of deer, elk, and moose are complex organs where plant matter is broken down by microbes through fermentation to become more digestible. In winter, the mix of microbes changes so the animals can process high-fiber woody browse such as twigs. The animals survive winter on browse as well as fat reserves built during the previous summer.



But when people feed big game animals corn and other grain, birdseed, hay, or apples:

- ▶ The high-carb foods can cause an overgrowth of bacteria in the stomach that produces lactic acid, which leads to inflammation, abscesses, and ulcers in the stomach wall.
- ▶ The inflamed wall can no longer absorb nutrients, and the lactic acid leaks from the rumen into the bloodstream, destroying cells and tissues and eventually causing death.

cause wildlife to congregate and spread parasites and diseases. The biggest concern is chronic wasting disease (CWD), an always-fatal neurological malady that affects members of the deer family. Transmitted through an animal’s urine, blood, feces, saliva, and body tissues, CWD has spread across much of Montana. In these areas, anything that unnaturally concentrates deer, elk, or moose has the potential to turn a spark into a flame.

The town of Libby is one such hot spot, with both a large deer population and a high rate of CWD infection, says Neil Anderson, FWP’s regional wildlife manager in Kalispell.

“You’ve got a highly concentrated density of deer on the landscape in areas where they are lingering and sharing food sources,” he says. “That can result in a higher transmission rate for diseases like CWD.” Prevalence of the disease declines outside of Libby, Anderson says, where deer are more dispersed and less likely to be fed by people.

Animals that contract CWD don’t drop dead immediately; they may look normal for months or even years before showing symptoms. But once they are infected, Anderson says, “It’s a death sentence.” The disease can affect large numbers of animals; mule



**NATURAL SHELTER** Rather than feed big game animals in winter, which is illegal and harmful, Montanans can support conservation groups that protect and restore dense conifer stands and other vital winter habitat.



**NEITHER WAY** Some big game feeding is intentional, like setting out apples for deer. Some is accidental, like placing bird feeders where deer can get to the seeds and grains. But both can do lasting harm to the very animals that many people want to help during the cold winter months.

deer populations in Colorado and Wyoming have declined where CWD has been present for decades.

Feel-good feeding can also make wild animals lose their fear of humans, causing them to venture too close to people and homes. Mowry has received complaints from Bitterroot Valley residents about aggressive mule deer. Deer, elk, and moose can mow down costly landscaping plants. And while on the hunt for easy neighborhood meals, the big animals cross roads repeatedly, increasing



the odds of collisions. One orphaned moose calf fed by Hamilton residents during January 2021 was hit by a car and had to be put down by FWP game wardens.

Backyard feeding also attracts grizzlies, black bears, and smaller animals like rodents, foxes, skunks, coyotes, and raccoons. “If you’re consistently feeding big game, you’ll eventually end up with a raccoon that sets up shop under your porch,” says Torrey Ritter, FWP nongame wildlife biologist in Missoula. “And bird feeders can draw grizzlies and black bears before and after hibernation.” Unnatural concentrations of deer also attract mountain lions, creating stress especially for parents and pet owners.

“Bird feeders can draw grizzly and black bears before and after hibernation.”

**“WELCOME” SIGN** Any accessible foods—including birdseed—are an open invitation for grizzlies and black bears to venture dangerously close to where people live.

“Healthy habitat can do wonders to ease wildlife suffering in winter”

**HOW TO HELP**

Feeding big game animals is illegal, says Anderson, the FWP regional wildlife manager, because the state wants to prevent disease and other health problems caused by food handouts. What wildlife really need, he says, is more high-quality habitat. That’s where animals can find the natural foods they have traditionally eaten, as well as winter cover to help conserve body fat. Federal wildlife refuges, state wildlife areas and easements, other public lands, and properties of conservation-minded landowners can all provide these healthy natural environments.

Conversely, feeding wildlife corn or apples is “definitely not helping in the way people want to believe they’re helping,” Anderson says. He and other FWP officials suggest that those who want to assist wildlife consider joining a conservation group that

funds habitat protection and restoration. “Healthy habitat can do wonders to ease wildlife suffering in winter.”

Homeowners with larger lots can protect or plant more native vegetation on their land, and landowners can conserve winter cover like dense conifer stands and cattail marshes. They can also modify fencing so that wildlife can reach natural habitats.

During the critical period in late winter

and early spring when cervids’ energy stores are at their lowest, hikers, cross-country skiers, and antler hunters can avoid disturbing wildlife as much as possible—and ensure their dogs do the same—so the animals don’t burn up the last of their fat reserves.

But one of the most important ways to help big game is also the easiest. “If you’re feeding, just stop,” Anderson says. “And if you’re not feeding, please don’t start.”

**Yew don’t want these shrubs in your yard**



Native Pacific yew



Ornamental Hick’s yew

Deer and other wildlife have no problems eating native Pacific yews found in northwestern Montana. But many non-native ornamental yews sold at nurseries, like the Japanese yew and the hybrid Hick’s yew—popular evergreen shrubs or trees with red berries and flattened, needlelike leaves—can be fatal to wildlife and pets. “Our Pacific yew is not toxic to deer, which is probably why they may be fooled into eating the introduced varieties that are,” says Rebecca Mowry, FWP wildlife biologist in Hamilton. “Deer and elk learn what to eat from their parents, and thus probably avoid anything unfamiliar. But a toxic plant that looks just like a ‘safe’ plant they’re accustomed to eating? That’s trouble.”

**What about birds?**

Feeding wild birds is generally legal in Montana as long as you do it in a way that doesn’t attract big game, bears, or mountain lions.

But is feeding birds good for them?

According to Torrey Ritter, an FWP nongame wildlife biologist in Missoula, feeding can be beneficial “during winter and migration, because people have replaced so much habitat that birds need with homes and pavement.”

But you should think twice about attracting birds to a feeder where they are vulnerable to free-roaming cats and window strikes, or even avian predators like Cooper’s hawks, sharp-shinned hawks, or northern pygmy owls. And bird feeders, especially when not kept clean, can help accelerate the spread of disease. For the past three summers, FWP has recommended no artificial bird feeding due to the risk of spreading conjunctivitis, salmonella, and avian flu. In bear country, homeowners should not be feeding in summer anyway; bird feeders should be taken down before bears leave hibernation in the spring.

One way to help wild birds is to plant native shrubs, trees, and wildflowers that winged wildlife can use for food and shelter.



Black-capped chickadee in native habitat.

CLOCKWISE FROM TOP LEFT: DONALD W. JONES; DONALD W. JONES; TED CLUWICK; BOB MARTINKA; USDA; WIKIPEDIA; ROD SCHECHT