

Mule Deer in the West - Changing Landscapes, Changing Perspectives

A Publication by the Western Association of Fish and Wildlife Agencies Mule Deer Working Group



Supplemental Feeding - Just Say No

Anyone that has ever been a boy or girl scout has likely had the opportunity to build a bird feeder. Over 110 million Americans feed birds today, a pastime that makes it one of the most popular hobbies that knows no gender, age, or cultural boundaries. People enjoy feeding birds because it gives them an opportunity to view wildlife, and it makes them feel like they're helping wildlife survive, particularly in the winter.

People commonly make the mistake in thinking that feeding other kinds of wildlife, particularly species like mule deer, is equally helpful. When people see mule deer starving along the sides of roads in the midst of a severe winter, compassion makes them want to help the mule deer by feeding them hay. Like most things in life, this sounds like a simple solution. But it's not that easy, and in fact, supplemental feeding may do more harm than good to most deer populations.

The key to understanding how supplemental feeding affects mule deer is to study their stomach, or as in the case of mule deer, stomachs.

Mule deer are ruminants with a four-part stomach. Each of the stomach chambers plays a critical role in the ability to process food.

The first stomach is called the rumen, a large storage chamber that reduces bigger pieces of food to smaller pieces through microbial action, much the same way that a compost pile 's microbes begin to break down leaves. Microbes are decomposers that break down matter into nutrients and minerals that plants and animals reuse.

While resting, mule deer regurgitate or "spit up" food from the rumen, and rechew their food. This is also known as "chewing their cud." Mule deer chew their cud to make the food they eat smaller, so that it can pass on to the next stomach, the reticulum.

The reticulum does two things. First, it acts as a filter, sending larger particles back to the first stomach for additional breakdown. And second, it breaks down the cell walls of plants, then passes the smaller food particles to the third stomach, the omasum.

The omasum also acts as a filter, sending particles that are too large back to the rumen. The third stomach absorbs water and compacts the smaller food particles for the fourth stomach, the abomasum.

The fourth stomach is a true stomach that functions much like a human stomach, where food is digested with acids, and the nutrients are absorbed through the intestines.

This well designed digestive machine even has a bypass for young mule deer that are not yet feeding on plants. Mule deer fawns bypass the first three stomachs and send the milk from their mother directly to their fourth stomach because there is no need for the first three

[Home](#)

[WAFWA](#)
[Mule Deer](#)
[Working](#)
[Group](#)

[What's in a](#)
[Name?](#)

[Of Shipwrecks](#)
[and Captives](#)

[The West that](#)
[Was ... No](#)
[Longer Is](#)

[Losing Ground](#)
[The Mounting](#)
[Pressure of](#)
[Development](#)

[A Place for](#)
[Predators](#)

[Precipitation -](#)
[A Driving](#)
[Force](#)

[Wilderness](#)
[Reborn](#)

[Cleanup](#)

[Elk and Mule](#)

[Deer](#)

[Interactions](#)

[Mule Deer](#)

[Regions - No](#)

[Two are Alike](#)

[Plant](#)

[Communities in](#)

[Trouble . .](#)

[Mule Deer](#)

[Diseases](#)

[Supplemental](#)

[Feeding - Just](#)

[Say No](#)

[Learning By](#)

[Doing](#)

[Managing Deer](#)

[Herds with](#)

[Harvest](#)

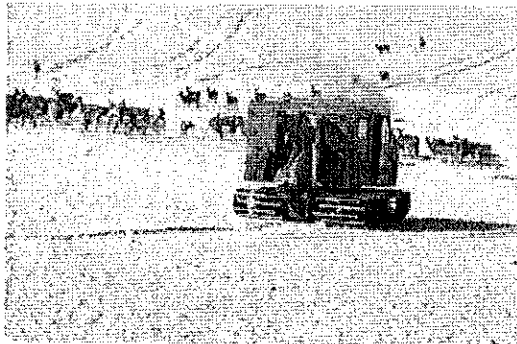
[Our Summary](#)

[WAFWA](#)

then travel directly to their fourth stomach because there is no need for the first three stomachs to break down plant cell walls or make large pieces of food smaller.

Sounds pretty efficient? In some respects it is. Because of the number of stomachs, mule deer can get a large amount of protein and nutrients from the foods they eat. But this comes at a cost, and understanding the costs highlights the complexity of supplemental feeding.

The microbes that break down the food in a mule deer's stomach are very specific to the types of food the mule deer eats. Some microbes are good at breaking down woody plants, while others do a great job breaking down forbs.



During times of the year when mule deer are feeding on woody plants, their woody plant microbes are abundant in their digestive tract. When mule deer are feeding on forbs and grasses, other kinds of microbes roll up their sleeves and take the lead in digestion as woody plant microbes become less abundant.

Len Carpenter, Southwestern Field

Representative with the Wildlife Management Institute, emphasized the importance of feeding mule deer the right type of food.

"With that smaller rumen, you have to provide them the right fiber mixture such that the animals can eat it without doing harm to the rumen," said Carpenter. "If you just feed them grains and hay, particularly low quality grass hay, there's a real problem."

A mule deer's digestive tract is so sensitive that natural climatic changes such as drought or excessive precipitation that can quickly change the quality and diversity of their foods can also result in malnourishment or starvation.

Does this mean that all supplemental feeding of mule deer is bad? Not necessarily, but be prepared to pay a hefty price for success. Supplemental feeding helps mule deer make it through a severe winter if the feeding is started early, long before the mule deer show signs of malnutrition or starvation. To effectively feed mule deer requires a three to four month commitment because it has to be started before poor range conditions and severe weather cause malnourishment. It must be continued until range conditions can support the herd.

These kinds of programs are costly, and can cause both short and long-term behavioral changes in wildlife. But the biggest threat to feeding mule deer is disease. Mule deer and other big game animals that are fed by humans tend to concentrate at feeding sites, where disease outbreaks can affect a large number of animals.

Mule deer are susceptible to chronic wasting disease and easily spread tuberculosis in crowded conditions (see article on Wildlife Diseases for a description of these diseases).

"The biggest problem right now with feeding are the disease concerns," said Carpenter. "That has become a big problem with tuberculosis and Chronic Wasting Disease. Michigan feeds and baits white-tailed deer and has a tuberculosis problem that affects their livestock. If you feed mule deer with elk, the brucellosis problems with elk and livestock are a real concern."

But Carpenter said there are some situations that are so severe for mule deer that consideration of supplemental feeding is warranted.

"There are some winter situations that are so bad, that if you don't feed, so many mule deer will die that a population won't be left, especially in high mountain areas," said Carpenter. "In very limited and extreme situations, it's okay to feed deer."

When mule deer feed across a large landscape, the microbes in their bodies adjust as their food sources gradually change. If a mule deer suddenly switches its diet from woody plants to high quality alfalfa hay, the microbes in its body do not have time to adjust, and it starves to death with a full stomach. Many a hay-fed mule deer has suffered this fate.

Disease isn't the only troubling side effect of supplemental feeding. Some mule deer are migratory, relying on traditional movements throughout a landscape to get the food, cover and water requirements they need year-round. Supplemental feeding can disrupt these movement patterns and cause mule deer that were once migratory to become year-round residents.

Year-round mule deer residents cause interactions human residents. Mule deer sometimes find alternative sources of food such as vegetable and flower gardens, and ornamental shrubs, much to the chagrin of homeowners. This problem can sometimes worsen during the spring, summer and fall. Numbers of vehicle/ mule deer collisions can increase in areas where mule deer are fed.

Supplemental feeding can cause a population of mule deer to increase beyond the capacity of the range to support it. This causes overbrowsing of existing shrubs and forbs that has long-term effects on the range. Many areas, particularly those in and around deserts, take decades and often centuries to recover from overbrowsing.

If mule deer numbers remain artificially high during times when range conditions are poor, two things happen. First, the range takes longer to recover because overbrowsing continues. And second, the number of malnourished deer actually increases because artificial feeding causes more animals to survive and reproduce. More mule deer means more competition for existing resources. The only option for these animals is to feed in an overbrowsed range when they are not being supplementally fed.

The bottom line? Leave supplemental feeding to the birds, and plan for healthy mule deer populations by providing adequate year-round habitat for mule deer.

Mule Deer, Changing Landscapes, Changing Perspectives, is a series of non-technical articles based on technical papers from the book, "Mule Deer Conservation: Issues and Management Strategies" Published by The Berryman Institute, Utah State University.

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