MAKING SENSE OF MOUNTAIN WHITETAILS

A newly released report sheds light on the many factors driving northwestern white-tailed deer populations.

In this case, it turns out that northwestern Montana deer hunters were right all along.

For years, these whitetail hunters resisted attempts by wildlife managers to liberalize doe hunting opportunities. In 1999, fearing that northwestern deer populations had been severely damaged by a brutal winter a few years earlier, hunters went so far as to demand a closure to the region's doe harvest.

"No doubt about it. Hunters up here are very conservative when it comes to deer regulations," says Dr. Alan Wood, a white-tailed deer expert in Kalispell who works as the Montana Fish, Wildlife & Parks wildlife mitigation coordinator.

Results from a monumental FWP study on white-tailed deer in the state's northwestern region indicate hunters had it right. "The study suggests regulations designed to encourage doe harvest might go too far and reduce population size in years when adult doe survival is notably impacted by other types of mortality," says Gary Dusek, another FWP whitetail expert. Wood and lead author Dusek wrote the study report, "Population Ecology of White-tailed Deer in Northwestern Montana."

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TAKE ANOTHER LOOK? Hunters were right to be wary of liberal doe harvest regulations following the brutal winter of 1996–97. But now that deer numbers have rebounded, say FWP biologists, doe harvest can increase with no harm to the population.

BY TOM DICKSON

On the other hand, says Dusek, the study also showed that hunting districts with strong deer populations can withstand a higher level of doe harvest than many hunters ever thought possible. In one study area, FWP issued record numbers of antlerless deer permits, yet hunters were unable to kill enough does to lower the deer population. That's good news for hunters who like to take an extra doe each fall to fill the freezer, says regional wildlife manager Jim Williams.

"We now have much greater confidence in increasing doe harvest in some districts without reducing the deer population," he says.

FWP conducted the deer ecology study from 1988 to 2000 in two hunting districts (101 and 102) between Kalispell and Eureka. Located in the Salish Mountains, the area has one of the highest densities of whitetails in the region. It attracts deer hunters from Kalispell, Whitefish, Columbia Falls, and nearby towns. The study was designed to gather much-needed information about whitetails and their interactions with habitat and predators. It also aimed to find ways wildlife managers could reliably estimate whitetail populations each year.

Over the past decade, wildlife biologists have been using much of the research data in their management plans. Only recently, however, were researchers able to complete their analysis of the information and write the final report.

"This report was a long time coming," says Williams. "But now that we've got it, we're putting it to use to improve our management of white-tailed deer across the northwestern region."

Tom Dickson is editor of Montana Outdoors.

SLIMMER MARGIN

Like elk in southwestern Montana and mule deer and antelope in the state's eastern half, whitetails are the most abundant and accessible big game species in the northwest. Williams calls them "the bread-and-butter animal up here."

Managing northwestern whitetails requires thinking about deer differently than elsewhere in the state. The study found that one of the main differences in northwestern deer is more adult deer die in winter and fewer fawns are born each spring than in eastern Montana.

"That gives us a much slimmer margin of deer to work with when it comes to providing opportunities for additional doe harvest," says Wood.

Wood says the study showed that the northwest averages roughly 50 fawns added to the population each year per 100 adults, while loss of adults due to predation and other factors is around 30 per year.

"That only leaves 20 deer per 100 adults available for hunters to harvest without reducing the size of the population," he says.

Compare that with eastern Montana mule deer, where 60 fawns per 100 adults may be added each spring, and adult mortality (other than hunting) can be less than 10 per year. "That leaves 50 deer available for hunters," says Wood. "And that's why FWP can allow higher antlerless harvest in the eastern half of the state."

Nevertheless, the northwest still has plenty of whitetails. Deer densities in the study areas

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DENSE BUT VULNERABLE Northwestern deer densities can be as many as 25 per square mile. Yet due to fawn loss, fewer deer are available for hunters than elsewhere in Montana. Below: At hunter check stations, FWP staff gather essential population data.

JEFF HENRY

were roughly 15 to 25 deer per square mile.

"We never suspected it was that high," says Wood. "So if you're out hunting and don't see any deer, you should know the deer are out there and probably outsmarting you. They just aren't as easy to see as they are in eastern Montana."

COUNTING WHITETAILS

The key to deer management is knowing roughly how many deer are in a population, whether the population is going up or down from year to year, and what factors account for deer mortality.

"If you don't know how many are born, how many are dying, and how hunting contributes to overall mortality, it's difficult to know how many deer to allow hunters to harvest," says Wood.

Biologists in much of Montana monitor mule deer numbers from airplanes and helicopters. That doesn't work for whitetails in the densely forested northwestern region. To gather information about whitetails for their study, researchers captured, radio-collared, and tracked 390 individual deer. The researchers followed deer movement to learn how deer distributed themselves throughout the year and which habitats they used. When a collar was motionless for more than four hours, it pulsated at a different rate, indicating that the deer may have died and alerting biologists to examine the site and learn what killed the deer.

Equally important to the project was adding four additional hunter check stations to the study area's two. At the six stations, FWP biologists and technicians determined harvest rates as well as the sex and age (by examining teeth) of harvested deer. With this information, biologists later re-created the population as it existed before the hunting season and looked at harvest trends during the study period.

One of the most important contributions of the study, says Dusek, is that it confirmed the importance of check stations.

"What we learn from hunters there is invaluable to our ability to monitor whitetail populations," he says.

As part of the study, biologists altered the harvest regulations in two different but adjacent hunting districts (101 and 102) over a five-year period. In one district, FWP steadily increased the number of permits for antlerless deer to see at what point a measurable change in doe harvest would be sufficient to affect the deer population.

"There weren't nearly enough hunters wanting to kill a second deer for us to reach a point where doe harvest alone might impact the population," says Dusek.

In other words, when a white-tailed deer population is healthy and increasing, FWP can provide extensive doe hunting opportunities without concern that hunters may depress overall deer numbers.

But that's only true in certain cases. "I think if you'd try to allow high antlerless harvests where deer numbers are declining due to predation or a combination of other factors, you could really cut into the population," Dusek says.

Adds Williams, "One of the great values of this study is that we can now customize our antlerless deer permit recommendations to each hunting district, depending on the status of each individual deer population based on harvest information and spring recruitment surveys."

For instance, in 2005 FWP is offering 200 B licenses (permits that allow hunters to take an additional whitetail doe) for hunting districts 101 and 102.

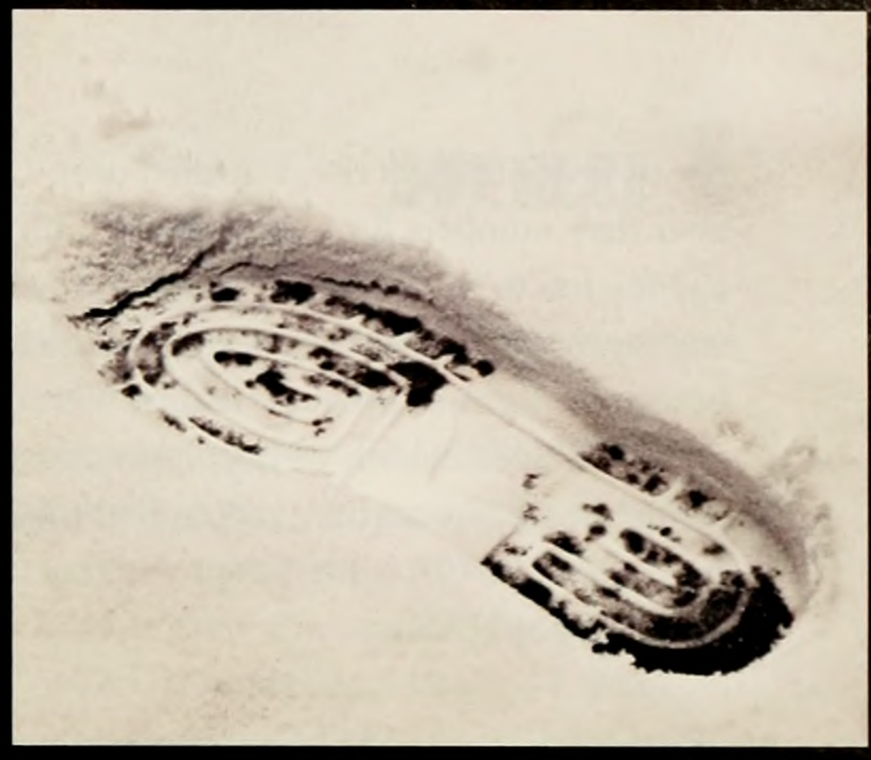
"We can do that because we know the population is growing and we have confidence from what we saw in the study that the populations in those districts won't decline from the additional antlerless harvest," says Williams.

NO SURPRISE: LIONS EAT DEER

Another key finding of the study: Other than hunting, mountain lions were usually the lead cause of adult doe mortality—ahead of bears, wolves, auto collisions, snowfall, and cold temperatures. (The exception was during the brutal winter of 1996–97.) Lion numbers have increased in northwestern Montana since 1971, when the cat became a protected game animal that could be killed only during regulated seasons.

Hunters don't need to panic that lions will wipe out the deer population, say FWP biologists. But wildlife managers will have to consider lion predation and abundance when deciding how many antlerless deer permits to issue each year.

"Lions are a natural and effective predator of deer," says Dusek. "Their numbers



CRUNCHY SNOW? LET'S HUNT!

The northwestern Montana deer study revealed information that may cause hunters to reconsider their fall plans.

For example, an evaluation of days when hunters killed deer revealed no "ideal" or "poor" hunting conditions.

"Factors that hunters talk about—like whether the snow is too crunchy or the ground is too dry, causing twigs to snap as you walk, or it's too windy, or too still—the data showed that none of that matters much," says study co-author Alan Wood.

What the study did show is that the number of deer shot each week is mainly determined by the number of deer and hunters in the woods.

"If hunters go out with confidence, they're likely to do as well one day as they would the next, no matter what the hunting conditions are," says Gary Dusek, lead author of the study.

Though environmental conditions don't appear to affect hunting success much, the time of year can. The study showed that the highest harvest rates came during the last week of the five-week either-sex deer season. Dusek thinks that's mainly due to bucks being more active during that last week, the height of the rut. "The rut peaks about November 21 or 22, when bucks are on the move around the clock," he says.

Dusek doesn't recommend that hunters change their traditional hunting dates based on the findings. "But I guess if all you are concerned with is efficiency," he says, "then that last week would probably be the best time to hunt a buck."

rise as deer numbers rise, but then drop after deer numbers drop. So I don't think anyone has to be concerned about northwestern Montana ever running out of deer because of lions or other predators."

In fact, adds Dusek, whitetail numbers across the northwest have rebounded nicely from the 1996–97 winter, even with current lion populations.

WINTER HABITAT

In addition to examining deer population dynamics, researchers also studied critical winter habitats of whitetails. Wildlife managers say the information is essential because forest managers regularly ask FWP to provide input about maintaining deer habitat on proposed timber projects.

In the past, FWP had only limited information to provide. Wildlife biologists knew conifer stands were essential for keeping snow from getting too deep on the ground and for creating thermal protection (acting like giant sleeping bags for groups of deer huddled within the groves). But they didn't know what percentage of the low-elevation winter cover needed to be conserved.

Soon they will. Though the final percentages are still being tweaked, Wood says FWP has already provided deer winter habitat information to the U.S. Forest Service.

"The Forest Service was planning a lot of forest thinning to reduce fire risks near rural homes," says Wood. "After they learned that we found up to 500 deer wintering on each square mile of key winter range, they redesigned thinning plans to address habitat needs of wintering deer."

The study also analyzed how 60 years of logging affected deer habitat. The findings, along with those of other studies in northwestern Montana and northern Idaho, challenged accepted wisdom. For years, people have believed that traditional timber harvests help deer survive winter by opening up forest canopies so sunlight can stimulate growth of chokecherries, serviceberries, and other browse deer like to eat.

However, by examining stomach contents of deer, FWP researchers found that in winter the animals were eating primarily Douglas fir, Oregon grapes, and lichens—food found in conifer stands. The deer weren't eating many shrubs, explains Dusek, because those plants grew where the snow got too deep.

"We found that in winter, deer eat what's available to them in the shallower snow cover," he says.

Another common belief is that northwestern deer numbers always plummet in severe winters. Yet the study showed annual snowfall barely affects adult doe survival.

Does that mean winter habitat isn't important to deer? Just the opposite, says Dusek. It's only when deer have critical conifer stands that they can escape deep snow and cold temperatures, which deplete body fat and weaken the animals.

What's more, critical winter habitat can improve recruitment (the number of new deer added to the population each year). The study showed that in winter, fawns start dying when temperatures regularly fall below 10 degrees. Quality winter range can help reduce that mortality.

Amazingly, the critical habitats that protect deer from harsh northern winters make up just a tiny part of the landscape.

"In one hunting district, 32 percent of the deer wintered on just 2 percent of the available habitat," says Dusek. "That's really cramming deer into a small area. You could draw the conclusion that maintaining the integrity of these winter ranges is critical to maintaining dense deer populations across the landscape," he says.

That's by no means the only conclusion Montana deer managers are drawing from the 12-year deer ecology study. They also now know predation (mainly from mountain lions, but also by other predators) must be factored into harvest recommendations. And that whitetail doe harvest can be fine-tuned from one hunting district to the next to account for population variations.

But what matters most to conserving northwestern whitetails and maintaining hunting opportunities over the long haul may be knowing which critical habitats deer use in winter—and how little of that exists on the landscape.

CONIFER COMFORT The study showed that deep-snow winters don't hammer deer populations if whitetails have adequate stands of critical conifer cover.