WHITETAIL Magic

BY DAN BERGERON

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I wake up to the unmistakable call of a cardinal, reminding me it’s time to get up and get into the woods! Archery season will be here in two weeks, and, as usual, I have left my scouting ’til the last minute. I brew a quick cup of coffee, grab some gear and head out.

As I enter the woods, my senses are awakened. I scan the forest for signs of deer activity and notice a set of fresh tracks. Looking ahead, I discern a well-used run winding through the leaf litter — a good sign that deer are routinely traveling through the area. Then I spot a hemlock sapling in the distance with an unnaturally light spot on the bark.

I move closer to investigate, and my suspicions are confirmed: it’s a rub. The bark has been worn smooth by a buck’s antlers. I can tell it’s fresh by the sap still oozing from the tree’s wound. My anticipation for the upcoming hunting season grows, as I know this is one of the first signs that the rut is starting.

New Hampshire’s deer population is in great shape, but reproductive measurements have been slowly declining. New research helps explain why.

**Love Match**

In New Hampshire, white-tailed deer are at the northern limit of their range. Because of our climate, their breeding season, or rut, follows a fairly consistent annual cycle. The strict timing of the rut ensures deer fawns are born late enough to take advantage of ample spring foods and early enough for them to attain adequate body size and fat reserves before the onset of our long cold winter.

Biologists believe the start of the rut is triggered by decreasing daylight, as the calendar moves toward autumn. Deer can sense the dwindling daylight through their “internal clock,” which causes an increase in hormone production. These hormones drive the changes experienced by deer throughout the rut.

The first outward sign is the hardening of a buck’s antlers, usually around late August. As their antlers harden, the blood-vessel-rich velvet, which nourished the antlers as they grew, begins to shed. Antler velvet is usually shed by late August or
During the rut, or breeding season, the whitetail buck experiences physical changes brought on by the increase of hormone production. This includes a swelling of the neck muscles that causes a bulging effect and may communicate dominance or intimidation over other competing bucks.

Deer hunters pay close attention to the rut, and motorists are advised to do the same. Deer are very active at this time of year and have their minds on things other than traffic! Almost 30% of deer-vehicle collisions each year occur from late October through the end of November.
early September, and deer will often aggressively rub their antlers on trees, trying to remove any remaining bits.

Rubs continue to be a common sight to most hunters throughout the rut. Bucks also mark rubs, using scent glands on their forehead, as they gore the tree with their antlers. These rubs serve as a form of communication, invoking both sight and smell, alerting other deer to the buck's presence in the area. Soon after the velvet is shed, bucks begin to spar with each other. These sparring matches are different from the “fights” that occur later in the rut. Sparring is merely a shoving match used to establish a buck's place of dominance in the herd. They are most common in younger deer that are unsure of their position, not unlike many young teenagers!

The second phase of the rut begins about a month after the onset of sparring. Bucks begin breaking away from the bachelor groups they have been in since the beginning of spring, and the hunt to find a doe begins. This change is likely due to a flux of hormones in the buck and/or a change in the doe's scent as she approaches estrus. Estrus is the period when a doe will allow a buck to mate. As her hormone levels increase, the doe moves steadily toward this state. Bucks have a short window to take advantage of this opportunity, as she only remains in estrus for 24 hours. Until she reaches estrus, the doe has little patience for her relentless suitor and may chase him off if he gets too close.

During this time of year, bucks have only one thing on their mind...find a doe! All mature bucks participate in breeding, even fawns if they reach puberty in time, so competition can be fierce. During this period, “fights” may take place between closely matched individuals. If there is any great disparity in size, a few aggressive postures by the bigger buck are all that's needed to scare away any would-be competitors. If a buck misses his chance, the doe will continue to cycle into estrus every 28 days until she is bred or decreasing daylight and weather trigger the end of the rut.

The final stage of the rut takes place when a doe enters estrus and allows a buck to mate. During this period, pairs isolate themselves to breed. After breeding, the buck often stays with the doe for up to 24 hours to defend her from other bucks. Recent genetic tests have discovered cases where twin fawns were conceived by two separate bucks, showing does can be bred more than once during one 24-hour estrus cycle. The peak of the rut takes place in mid- to late November. In healthy deer populations, most breeding-age does are bred. It is common for bucks to lose substantial weight during the rut and enter the winter in poor condition.

Clockwise from top left: As the whitetail buck enters the breeding season, the blood-vessel-rich velvet that covers the antlers starts to shed; soon after, the bucks begin to spar with each other in an effort to establish dominance in the herd; as the second phase of the rut gets underway, bucks will separate from their bachelor groups and begin the search for a doe.
**Spring Fawns**

With a gestation period of about 200 days, does give birth to fawns roughly 6½ months later. The behavior of the doe changes little until shortly before the fawn is born. Labor proceeds quickly, and fawns are usually born within two hours. Immediately after the fawn is born, the doe will begin to lick the fawn clean. Within half an hour, the fawn attempts to stand and the doe will nurse it.

Unfortunately, every May and June people take in “orphaned” fawns, separating them from their mother and reducing their chance of survival. Does intentionally leave newborn fawns alone for several hours and will return to feed them. If you think a fawn is abandoned or orphaned, leave it alone and allow time for the doe to return. Do not move the fawn. Remember, the fawn’s best chance for survival is with its mother. For more information go to wildnh.com/fawns or call 603-271-2461.

For the first several weeks, does spend little time with their newborns, leaving them alone for extended periods, returning only 3-4 times a day to feed them. Although this may seem neglectful based on human standards, it is an effective strategy to keep the fawn safe from predators. The doe avoids extended contact with the fawn in order to disassociate her scent. The fawn (with little scent and its spotted camouflage coat) remains motionless, bedded in high grass or thick vegetation, remaining hidden from potential predators. Fawns don’t remain helpless for long; after about a month, they can elude most predators. After 2-3 months, they are weaned and rely on vegetation.

**Health of the Herd**

To check on the health of the deer herd, Fish and Game uses data collected at biological check stations, staffed by biologists, during the hunt. A deer population’s potential to increase is based on how productive it is. The ratio of fawns to does, and the proportion of adult females lactating when harvested, both typically provide insights into productivity. Other measures, such as body weight and antler measurements, are used to gauge the herd’s health.

While weight and antler measurements suggest New Hampshire’s deer population is in great shape, both reproductive measurements collected during the harvest have been slowly declining since the 1970s. This trend led Fish and Game to initiate cooperative research with the University of New Hampshire (UNH) in 2011 to determine if this drop in productivity was real, and, if so, what was causing it.

Nick Fortin, a graduate student from UNH, headed up the study. With the help of Fish and Game staff, Fortin collected road-killed female deer from December through mid-May during the winters of 2011 through 2013. Since does are pregnant at this time of year, Fortin and his team were able to collect biological samples that would indicate how productive the deer were.

Researchers established the age of each deer by sectioning a tooth and counting growth rings, called “cementum annuli.” They determined ovulation and pregnancy rates by examining the ovaries and uterus. Physical measurements allowed them to estimate the age of fetuses. Knowing the age of the fetus and when the doe was killed, they could calculate the date of birth and conception.

After all the data were gathered and analyzed, Fortin concluded that the productivity of New Hampshire’s deer herd had actually increased over time. This rise was primarily due to an increase in the number of older does (which are more productive) in the population, a result of the reduction in antlerless harvests put in place in the 1980s to address low deer numbers.

Fortin found that nearly all of the deer one year and older were pregnant. Yearling deer (1.5 years old) typically had one fawn, while twins were the norm for older deer, with triplets occurring on occasion. He also found an obvious peak in breeding during the rut. Nearly 80% of all does were bred during a three-week period from November 11-30. This concise breeding period shows that New Hampshire has sufficient bucks to ensure that nearly all does are bred during their first estrus.
Fewer Fawns?

Evidence pointed to a healthy population with high reproductive potential, but decreased fawns per doe in the fall harvest, which may indicate an increase in summer fawn mortality. Fortin suggested several possible explanations for the trends in the biological data collected in the fall.

Periodic severe winters may be having an impact. Fawns born to malnourished does following cold winters with deep snow may be underweight and not receive adequate care from the doe. These fawns are more susceptible to disease, malnourishment and predation. Meanwhile, with predator populations increasing in New Hampshire, fawn predation in the spring and early summer may also have increased over time.

Another factor could be a gradual change in hunter selectivity, as more mature does became available with the reduction in antlerless harvests. After 30 years of limiting antlerless harvest as a means of increasing deer numbers, some hunters may now avoid harvesting fawns or does with fawns. In addition, increasing deer numbers in the state may simply have allowed hunters to be more selective and take larger deer, reducing the proportion of fawns in the harvest.

Whatever the cause may be, Fortin reassures us that, “These data clearly indicate a population in excellent health, with high reproductive potential. Importantly, recruitment during 2011-2013 was still sufficient to allow for population growth and increased harvest.” He also notes that while summer fawn mortality may have increased since the 1980s, the estimated mortality rate in 2011-2013 was typical of most white-tailed deer populations.

Whether any one factor or a combination of several, Fortin suggests continued research is warranted to better understand these complex relationships. Studies like this are funded in large part by Federal Aid in Wildlife Restoration, supported by your purchases of firearms, ammunition and archery equipment. This research has been critical over the years in making informed decisions based on current scientific data for a number of wildlife species in New Hampshire, including turkey, bear, moose and deer. They allow Fish and Game to effectively manage wildlife for all the state’s residents and ensure that hunters like myself have the opportunity to get into the woods, see some wildlife sign, and hopefully come home with venison… or at least some good stories to tell.

Dan Bergeron is the deer biologist for the New Hampshire Fish and Game Department.
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