



BY DR. JAMES C. KROLL

REFLECTING ON 2014

Data from last deer season show hunter harvest again heading in the wrong direction. Emails to our Institute for White-tailed Deer Management & Research poured in as the season ended, many from hunters asking what was going on.

I've been asking myself this same question. So let's look at various factors that could have influenced your hunting results last season — and perhaps could keep doing so for years to come.

Above: Did challenging winter weather in early 2013 cause some whitetail herds trouble last autumn?
Photo by Brian P. Bower

POSSIBLE FACTORS

Many influences could cause a deer herd to decline. These include:

- 1) habitat deterioration caused by deer
- 2) other habitat changes (natural or man-caused)
- 3) weather events
- 4) diseases
- 5) predators
- 6) changing hunter interests and/or demographics
- 7) unknown agent(s)

HABITAT DETERIORATION

Whitetails tend to browse most heavily on their favorite foods, which are those that are highly digestible and provide vital nutritional needs. As deer densities increase, the most favored browses thus suffer from overuse. Canada yew and strawberry bush are excellent examples of prime forage plants whose decrease has closely followed the increase in whitetail populations. Nearly all places that have had long-term herd increases are seeing habitat damage.

Some wildlife agencies and organizations have put an interesting spin on these declines: that they've been accomplished "on purpose," and thus should be seen as positive. Others assert that herd declines are "normal" adjustments to the habitat.

The first claim is doubtful. But the second is true, in some respects. The habitat *is* deteriorating, and deer numbers *are* adjusting downward.

The concept of "carrying capacity" is flawed, in that lag times between growth and habitat deterioration, plus an unpredictable environment, never allow herds to reach equilibrium. Habitat damage drops the ability of the range to support deer to a new, lower level. And some damage is all but permanent; not all prime native plants ever return.

As deer herds and the number of record-class bucks increased in the Midwest, I heard the argument that soybean and corn agriculture produces a situation of "infinite" carrying capacity. Yet there clearly are

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times of shortage. Modern agriculture has become increasingly efficient, leaving only bare ground for many months of the year. Herds in these areas tend to expand and contract with the food supply.

In late fall and winter, deer are forced into woodlots and timbered stringers. I've visited these critical habitat features in most states, finding few remaining primary deer foods. Add in a dearth of winter thermal cover to shelter deer, and you can see why some herds are declining.

OTHER HABITAT CHANGES

There's been a growing sentiment against timber cutting and intensive forestry, especially in more developed regions of North America. In addition, we're seeing an increase

Meanwhile, in West Virginia and western Virginia, federal lands are dominated by aging hardwood stands, mainly oaks. Yes, these trees provide acorns — but closed-canopy forests provide little in the way of browse or cover, again resulting in nutritional and predation problems.

Lastly, we discovered in our assessment of Wisconsin deer management that state game agencies often don't consider private lands a critical part of deer management. Helping the private landowner manage deer habitat often is discouraged by biologists who feel this is in conflict with the "North American Wildlife Model," which holds that native wildlife exist only in a public trust.

This stance ignores reality. The No.

significant losses can occur. Absence of winter cover also has become a significant issue in much of the range.

You might or might not support the idea that man is causing "global warming," but today weather patterns are highly unpredictable. This suggests some dramatic change (either heating or cooling) in the future. The winter of 2013 had a significant effect on our herds, increasing mortality and decreasing the health of deer surviving the winter. This translated to reduced recruitment and "trickle" ruts in 2014. There also are potential impacts of warming due to increased disease vector agents.

DISEASE

Ask the average hunter what's the most serious deer disease, and you probably will hear chronic wasting disease (CWD). Yet there still is no credible evidence CWD has caused any decline in whitetail or mule deer numbers. Herds have declined substantially in recent times from epizootic hemorrhagic disease and bluetongue (collectively called HD): two similar diseases caused by a virus transmitted by biting midges (gnats).

Although once thought of as a Southern disease, HD's type localities were New Jersey and Michigan back in the 1950s. There are several strains, and two of these (EHD 2 and 6) are both exotic forms created by "crossbreeding" between strains. EHD 6 has been labeled "Indiana strain," and EHD 2 as "Alberta" strain, though neither really came from those areas; Type 6 came from Australia and Type 2 from Guadeloupe in the Caribbean.

There are differing opinions as to the exact mortality rates from HD, and many states don't consider it a significant deer threat. (For example, Missouri in recent times hasn't followed up on some reported cases.) Yet my estimates are that, across North American, 3-7 million deer have succumbed to HD in just the last five years! And I think this estimate is conservative.

We do know that the Milk River



The author conducts many necropsies (animal autopsies). These detailed examinations provide vital herd and habitat data. *Photo courtesy of Dr. James C. Kroll*

in "gentrification" (moving to rural areas and living on larger acreages) across the continent. The result of both trends is aging forests that can't sustain as many whitetails.

Prime examples of such forests can be found in northern Wisconsin and much of Virginia and West Virginia. Northern Wisconsin is characterized by old-growth conifer forests, most of which are controlled by the federal government or non-governmental agencies. Such forests offer little cover for deer and encourage population growth by large predators.

1 limiting factor to deer herd health is habitat, and private landowners control over 60 percent of that.

WEATHER EVENTS

Whitetails can thrive under cold conditions or wet conditions, but they can't handle cold *and* wet. Add the difficulty of feeding and escaping predators in deep snow, and

valley of Montana has lost up to 95 percent of its herd in recent times. The cyclic nature of HD diseases and their ability to recombine into different forms raise serious questions about future impacts.

PREDATORS

In the 1970s, I was one of the many biologists who routinely dismissed predators as a major factor in deer population dynamics. But in the last two decades this opinion has changed dramatically. Large predator populations have grown and expanded geographically.

The invasion of coyotes into the

Atlantic coastal states has been well documented as a significant deer mortality agent. Black bear and wolf populations are expanding rapidly in some regions, as are numbers of bobcats and mountain lions. This has caught biologists and wildlife agencies by surprise. There have been few ongoing studies on impacts of predators or population monitoring. Indeed, some states have encouraged predators through protection and/or restoration.

Predator biologists tend to focus on certain species, and they often assert that "their" predator has less impact on deer than hunting or

vehicle mortality do. But even if that's true, the additive effect (sum of each predator's contribution) can reach alarming proportions.

Bears, for example, can smell so-called "scentless" fawns, resulting in up to 30 percent of mortality. In the future, I fully anticipate mountain lions being added to the list of significant deer predators, and they tend to specialize in killing bucks.

Predator numbers will continue to increase over the next several years. Public sentiment against predator control, gentrification and changing land use all favor continued predator population growth.

ONLINE

Learning from Dr. Deer

Want to learn more about whitetails from a real expert, but can't quit your job to do it? Thanks to Dr. James C. Kroll's online courses, you don't need to leave home.

For several decades, his courses on whitetail management and biology were available only to on-campus students at Stephen F. Austin State University in Texas. But since 2012, the man known as "Dr. Deer" has been developing a comprehensive online whitetail management program for everyone: from students seeking a degree to hunters and land managers simply wanting to improve their hunting experience.

To make the level of expert instruction available to the public, the researcher has partnered with Kansas State University's Wildlife and Outdoor Recreation Management Program, the nation's most successful program of its type. To take one or more of the several courses now being offered, all you need is a computer and an Internet connection. Hunters and students will find a program that's flexible, offering education and training both for formal course credit and certifications in specific aspects of deer management. For example, individuals already involved in game management can be certified in topics such as food plot planning and management, inventorying and monitoring herds, landscaping properties for deer and other wildlife, deer herd and people management, and other critical components of managing game on public and private lands.

Those who mainly seek more practical information for hunting can take individual courses on topics such as aging and field-judging deer, allowing them to become adept at knowing more about a target animal before and after the shot.

This online program satisfies today's greater need for flexibility in education, allowing individuals to be certified as game managers without interrupting their current employment. The fact that anyone can take these courses is an added bonus.

Dr. Kroll points out that only a handful of colleges and universities today offer education and training in game management. The wildlife management profession is moving away from traditional programs in favor of conservation biology and non-game species. In fact, not many professors in these wildlife departments even hunt.

"We're quickly moving to a point where landowners and hunters will need to be educated enough to manage their own deer herd," Dr. Kroll says. "If not, they take their chances on a one-size-fits-all product that state agencies love to throw out, many of them designed by non-hunters."

For details on the specific courses now being offered online, visit: drdeer.com.



HUNTER TRENDS

Quality Deer Management Association recently issued a press release touting that hunter harvests are trending toward taking older bucks. This presumably is due to changing interests of hunters, and I feel that's one factor. But if populations are declining due to lower deer recruitment, an alternative opinion would be that there are fewer younger bucks available. Interest in older bucks, resulting in lower yearling harvest, was one factor that created problems with the computer population model in Wisconsin, which was based on the percentage of yearling bucks in the harvest.

A more significant factor possibly causing harvest decline could be that there are fewer and/or older hunters. For some time, we've been concerned that the average age of hunters is increasing and that as a group they differ demographically from the general population. Older hunters tend to take fewer animals, opting for the more esthetic benefits of being in the woods. If this is indeed a factor in harvest decline, hunter recruitment efforts must be increased.

UNKNOWN AGENT(S)

North American Whitetail editor in chief Gordon Whittington recently raised questions about whether or not genetically modified crops and/or some chemicals used on them might cause a drop in deer fertility

or present some other threat to our herds. Some researchers have questioned the potential negative impacts of these farming trends.

I have no real opinion at this time, but will point out there also are declining deer populations in places where such agriculture isn't prevalent. Still, that doesn't rule out GMOs or chemicals as possible factors. We need additional research on the potential negative impacts.

It's possible other disease agents are in play but that we don't yet know it. There's been so much dedication of manpower and money to CWD that most agencies and academics aren't interested in looking for other diseases these days. As a young biologist, I worked with state wildlife disease units that no longer even exist. This could open the door to finding out too late about a new deer disease.

IS IT JUST NATURAL?

Whitetail reproductive behavior could just be erratic, either due

to some unknown factor or a combination of the above factors — especially poor nutrition.

Each year, we conduct necropsies (animal autopsies) on deer at northern Michigan's Turtle Lake Club. This includes aging fetuses to determine timing of breeding. Our data suggest there was a "trickle" rut (one with several peaks over time) last season. The previous winter brought Great Lake States deer into spring in poor condition. This logically would translate to an effect on when does achieved estrus in 2014. But Turtle Lake does and bucks were in excellent shape going into last fall. This might suggest it takes more than a year for deer to recover from severe winter stress.

Also, major droughts experienced during the last few years could have had an impact on populations and breeding cycles. In 2014 I observed a heavy acorn crop throughout the range, probably the overall heaviest I've seen. This encouraged more nocturnality of deer movement,

adding to the hunting challenge. When coupled with early full moons, these factors could have had an impact on last year's hunt. However, deer in many areas without mast also exhibited strange behavior patterns.

WHAT DO I REALLY THINK?

It's my professional opinion many of these factors have affected and will continue to affect deer harvest. I'm convinced deteriorating habitat and nutritional issues, winterkill, predation and doe overharvest are significant causal factors in the Midwest. But anywhere herds are declining, it could be due to some combination of these factors.

Time will tell how 2015 goes. Regardless, the entire deer community — hunters, landowners, agencies, academics and the general public — must begin to focus on these issues. I'm convinced whitetails won't go extinct, but the quality of their lives and of our hunting experiences could be in jeopardy. **NAW**

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