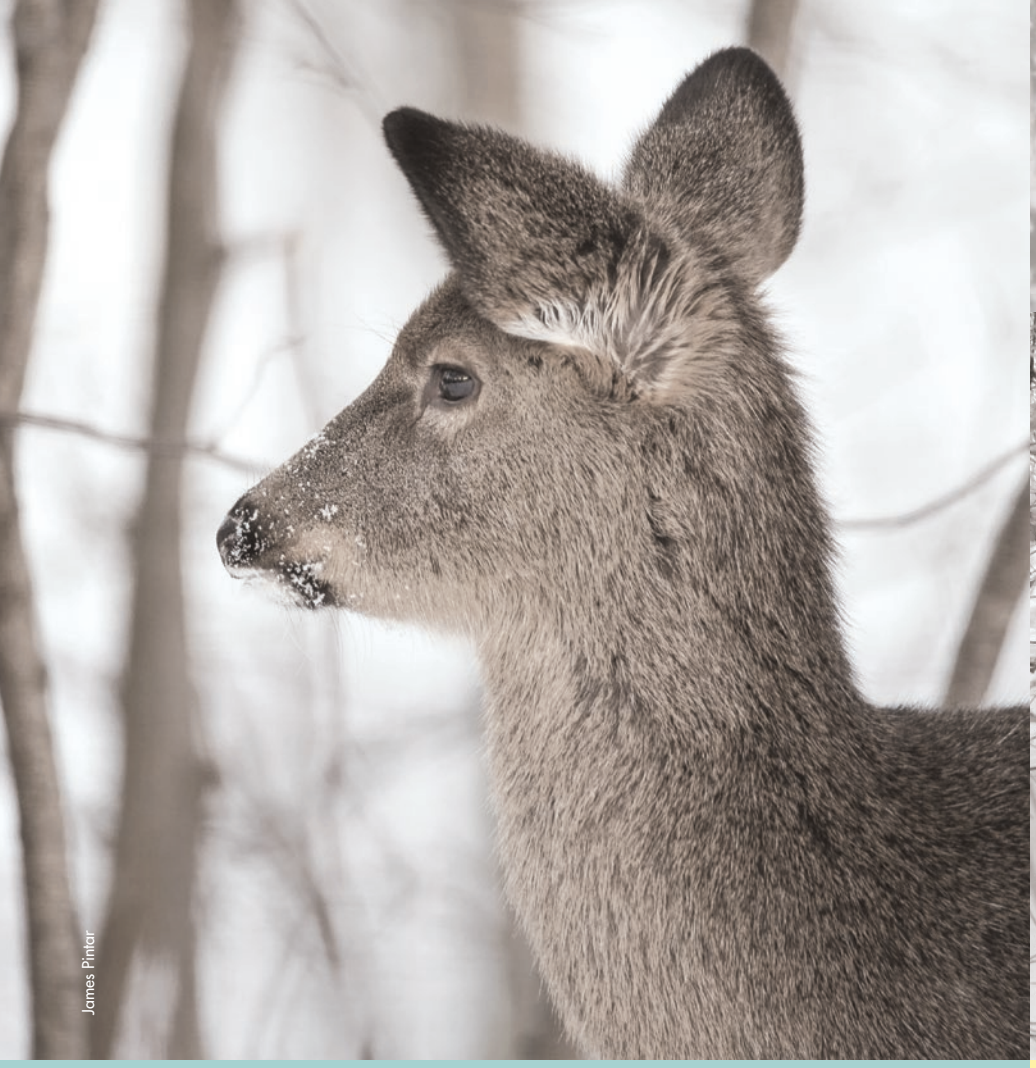


James Pintar

Steve Voiles

WHAT'S KILLING THE DEER?

by RICHARD P. THIEL

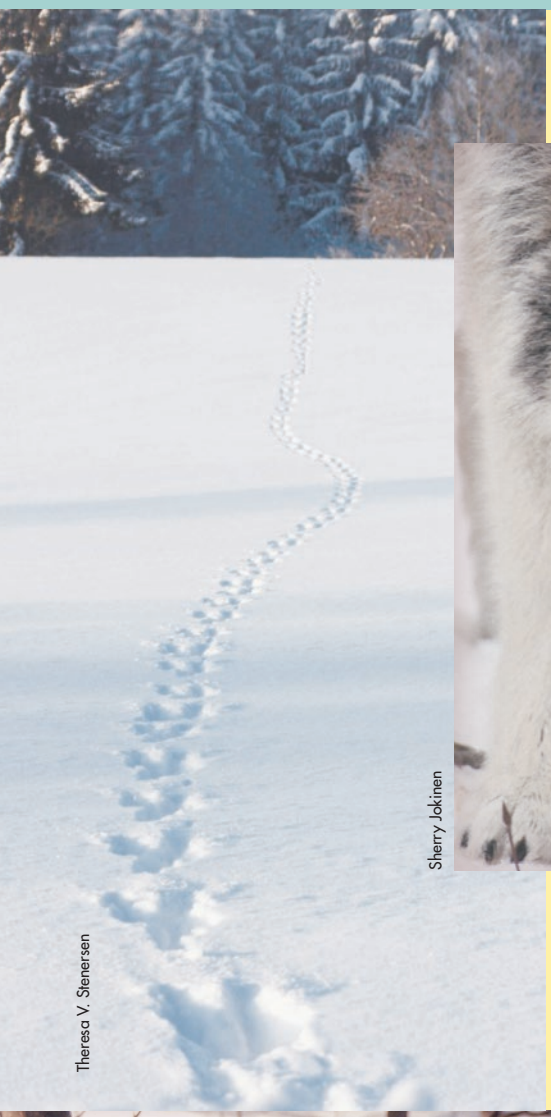
What's killing the deer in Wisconsin? It is a great question. The easy answer, wolves, comes into the conversation with all the subtlety of someone yelling "Fire!" in a crowded theater.

The logic follows something like this: Wolves are more numerous now than ever. Wolves eat deer. I saw fewer or no deer this year in my usual hunting area. Repeat this scenario throughout the deer camps and the conclusion is obvious: Wolves are to blame. Accusations that wolves caused recent declines in deer harvests and hunter satisfaction certainly stem from such stories. But the conclusion—foregone to many—and the truth of the matter may be two different beasts.

The testament that wolves abound, that deer sign is hard to come by, and that particular deer hunting camps harvested fewer deer than normal could all be true. But is there other evidence, overlooked, that could also be implicated in the very complicated undercurrents in predator-prey relationships?

Americans' acceptance of quick-fix solutions is part of our national psyche. We love food fast, sports team victories that are clear, no ties please, and our problems solved quickly regardless of their complexity. In the realm of wolf-deer matters, the deeply seated reputation of

Sherry Jokinen



Theresa V. Stenersen

Sherry Jokinen

A radio-collared deer found dead from exposure and starvation in Wisconsin's Central Forest.

Dick Thiel

the wolf as a menace, a taker of what is rightly ours, adds weight to the arguments and conclusions gained.

Central to this predator-prey question is competition. It is a fact that deer hunters compete with wolves, and wolves compete with hunters for deer. Hunters and wolves compete against deer that employ a number of defensive behavioral tactics to avoid detection (and killing). Deer compete with each other for survival on that same landscape.

In Wisconsin deer hunter satisfaction knew no bounds in the first decade of the present century. Deer were so numerous that state wildlife managers initiated liberal hunting tactics to curb growth. Statewide harvests soared to unprecedented levels. That is, until the autumn of 2008.

The Wisconsin Department of Natural Resources (WDNR) has 60 years of data based on a mandatory registry of harvested deer. Information about sex, age (fawn or adult), county, date of take and Deer Management Unit (DMU) are gathered on harvested deer, forming the basis of population estimates managers use to prescribe future harvest levels.

As a wildlife biologist for WDNR, I was manning one of those registration stations during the 2008 hunt. By the end of the first day it was obvious the harvest was down. Hunters were complaining of the lack of deer in the woods. The 2009 deer-hunting season was also relatively poor. Hunters blamed wolves.

The WDNR produces a statistically laden report each April following the hunt, entitled *Wisconsin Big Game Hunting Summary*. These reports can be mined for information on nearly everything related to the deer hunt, including the number of bucks harvested within each DMU.

I consulted these statistics between 1997 and 2012, comparing four DMUs inhabited by wolf packs to three DMUs in east-central Wisconsin where wolves

were absent. The number of harvested bucks dropped significantly between the 2007 and 2008 seasons not only in the wolf DMUs but in the wolf-free DMUs as well. The decline occurred again in 2009. Whatever caused the decline surely did not involve the wolves.[1]

Wolves certainly eat their fair share of deer, roughly 20 adult-sized deer per wolf per year. This number is but a fraction of the deer that die each year and cannot possibly explain the observed fluctuation in population. So what gives?

Winter weather. Specifically deep snows and unrelenting cold that appreciably reduce a deer's chances of gaining the three to four pounds (about one and one-half to two kilograms) of daily forage their bodies require. Deer rely on stored fat to make up the difference, so these reserves are largely extinguished by late February. When continued March snows deny deer access to necessary ground forage and continued cold temperatures require deer to keep the furnace turned up, they become susceptible to dying of exposure and starvation.[2]

Deer managers in Upper Great Lakes states have long known severe winter impacts on harvests. In a normal Wisconsin hunt more than 60 percent of adult bucks harvested are yearlings (one-and-a-half-year-olds). These same yearling bucks were last winter's fawns. Fawns are particularly susceptible to loss during stressful winters, and declines in the succeeding autumn harvests of 20 percent following a severe winter are not uncommon.

Since the 1980s climate change has altered weather patterns, and tough winters are less frequent. Deer hunters under roughly 40 years of age have little experience with the ups and downs of deer herds spawned by weather—and so the angst.

Historically, severe winters struck the Upper Great Lakes region about once every four years. But this is merely a statistic. What happens when a number of severe winters strike back-to-back? By coincidence, researchers including Dr. L. David Mech, Pat Karns and others involved in a study on deer-wolf dynamics in the Superior National Forest in northeastern Minnesota witnessed such a catastrophe in the late 1960s and early 1970s. In a seven-year period five severe winters hammered the region, and the impact on both deer and wolves was memorable.

The deer population declined by 60 percent and was systematically eliminated from the core areas of wolf pack territories. Average ages of hunter-killed deer taken at area registration stations increased from about two and one-half years before the severe winters to around five years during the severe winters (the herd grew "older" because very few fawns relative to adults survived each winter).

What about the wolves? Cases of surplus killings (killing more than they can immediately consume, and usually involving multiple deaths of deer in proximity) were recorded. As the severe winters stretched on, wolf kills declined from 40 kills per winter in

Since the 1980s climate change has altered weather patterns, and tough winters are less frequent. Deer hunters under roughly 40 years of age have little experience with the ups and downs of deer herds spawned by weather—and so the angst.

FOOTNOTES Author's note: Unlike anecdotal comments and stories that need no "backing up," scientists refer to documented evidence that is in most cases peer reviewed so that readers can seek these out and judge for themselves. These footnotes are presented in that spirit.

1. Wisconsin Department of Natural Resources. *Wisconsin big game hunting summary.* 1998 through 2010. WDNR, Madison.

2. An enormous body of literature is available on deer physiology and overwinter losses. I used:

   Karns, P. 1980. "Winter–the grim reaper." P. 47–51 in Hine, R. L. and S. Nehls (Eds.) *White-tailed deer population management in the North Central states.* Symposium proceedings, Midwest Fish and Wildlife Conference. North Central Section, The Wildlife Society.

   Marchand, P. J. 1996. *Life in the cold: An Introduction to Winter Ecology,* third edition. University Press of New England: Hanover, NH.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A gaunt buck in early May following a severe winter in Wisconsin's Central Forest.

When continued March snows deny deer access to necessary ground forage and continued cold temperatures require deer to keep the furnace turned up, they become susceptible to dying of exposure and starvation.

one pack to 8, undoubtedly in response to decreased availability of deer. Wolves began excursions into neighboring packs' territories to hunt, and territory sizes increased from 48 square miles (12,431 hectares) to 87 square miles (22,532 hectares) as deer were eliminated from core areas, forcing wolves to search along boundaries. Finally wolves began starving, and to stave off death wolves' activity bouts declined from roughly 40 percent to 12 percent per day to conserve energy in undernourished bodies.[3]

Remarkably both the deer and the wolves preying on them persisted and the populations of both rebounded. Fortunately these events, documented 40 years ago, are not representative of year-in, year-out happenings in wolf woods.

Predator-prey dynamics are very complex, and unraveling cause-and-effect is complicated by many variables, including humans themselves. Back in Wisconsin, scientists just released preliminary results of a comprehensive deer study carried out in one area where wolves are present and another where they are absent. Humans (hunting, vehicles and poaching in that order) were responsible for over half of deer deaths. Wolves rank near the bottom.[3] While this study has not yet been peer reviewed, it echoes results of others in both Minnesota and the Upper Peninsula of Michigan that document humans as a primary cause of deer mortality, whether in the presence (Minnesota) or absence (Upper Peninsula of Michigan, early 1990s) of wolves.[4]

To be sure there are places and circumstances where wolves have an impact on deer numbers and hence availability to hunters. Winters have an effect. Certainly hunters have an effect. In regions where these three mortality factors collide—most notably the "lake effect" zones downwind from the Great Lakes—deer, deer hunters and wolves are regularly affected.[5] A large body of scientific evidence exists suggesting that in most places where white-tailed deer, wolves and hunters exist there remain deer enough to go around.[6]

Anecdotal accounts of the ravages of wolves will continue unabated in some hunter circles. They make for good stories, sell copy and rally the troops around something more tangible than mere snowflakes. ■

Richard "Dick" Thiel is a former wildlife biologist for the Wisconsin Department of Natural Resources and a member of the International Wolf Center board of directors.

FOOTNOTES continued

3. Mech, L. D. 1977. "Population trend and winter deer consumption in a Minnesota wolf pack." P. 55–83 in R. L. Phillips and C. Jonkel (Eds.) *Proceedings of the 1975 predator symposium.* Bull. Forestry Conservation Exp. Station, University of Montana, Missoula.

   Mech, L. D. and P. Karns. 1977. "Role of the wolf in a deer decline in the Superior National Forest." For. Serv. Res. Paper NC-148., U.S. Dept. of Agriculture, Washington, D.C.

   http://www.jsonline.com/tablet/sports/study-sheds-light-on-top-causes-of-deer-mortality-b99190938z1-241992741.html#ixzz2rYg2dNKL

4. See for instance:

   Delgiudice, G.D., M.R. Riggs, P. Joly, and W. Pan. 2002. "Winter severity, survival, and cause-specific mortality of female white-tailed deer in North-Central Minnesota," *Journal of Wildlife Management* 66: 698–717.

   Van Deelen, T. R., H. Campa III, J. B. Haufler, and P. D. Thompson. 1997. "Mortality patterns of white-tailed deer in Michigan's Upper Peninsula," *Journal of Wildlife Management* 61: 903–910.

5. Stebler, A. 1951. "The ecology of Michigan coyotes and wolves." Ph.D. dissertation. University of Michigan, Ann Arbor.

   Vucetich, John A., Brett A. Huntzinger, Rolf O. Peterson, Leah M. Vucetich, James H. Hammill, and Dean E. Beyer, Jr. 2012. "Intra-seasonal variation in wolf *Canis lupus* kill rates." *Wildlife Biology* 18: 1–11.

6. For a good synthesis see:

   DelGiudice, G. D., K. R. McCaffery, D. E. Beyer, Jr., and M. E. Nelson. "Prey of wolves in the Great Lakes region." Pages 155 -173 in A. P. Wydeven, T. R. Deelen, E. Heske, (Eds.) *Recovery of gray wolves in the Great Lakes Region of the United States: an endangered species success story.* Springer: New York.