

# **Whitetail!: managing, observing and contemplating Wisconsin's deer herd. [Supplement, Vol. 17, No. 5] [October 1993]**

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# W h i t e t a i l !

MANAGING,  
OBSERVING AND  
CONTEMPLATING  
WISCONSIN'S  
DEER HERD







PARK FALLS HERALD

# Love 'em or loathe 'em

THE MIDDLE GROUND IS MIGHTY NARROW  
WHEN TALK TURNS TO THE WAYS OF THE WHITETAIL.

Mary K. Judd

**N**o other Wisconsin native animal stirs the emotions or sparks public debate quite like the white-tailed deer. Farmers and home gardeners curse it. Urbanites argue about it. Animal rights supporters presume to speak for it. Insurance adjusters lament over it. Wildlife watchers enjoy it. Novice and

experienced hunters alike tingle with delightful anticipation thinking about it. And old timers spin yarns about it.

There's good reason for such talk.

Deer have a significant impact on our lives. They help boost the economy: Deer hunters spend nearly \$23 million each fall on hunting licenses alone. Add equipment, ammunition, gasoline, food, lodging and other expenses, and the figure jumps to over \$350 million.

Locking horns over deer? Not this hunter.

Deer help establish Wisconsin's identity: Displays of deer paintings, shoulder mounts, racks, and tanned hides on the walls

of resorts, restaurants, taverns, gift shops and sporting goods stores across the state echo "this is whitetail country."

The love affair only goes so far, however. Spurred on by the need to eat three to five pounds of food a day per hundred pounds of body weight, deer consume the bounty of corn and alfalfa fields, apple orchards and tree farms; devastate native vegetation on many public lands, including some state parks; and munch on expensive ornamental shrubs and flowers in urban and suburban yards and gardens.

Deer boldly make their presence known: Colliding with automobiles, causing traffic hazards, crashing through plate-glass windows, and getting trapped in unlikely places such as Milwaukee's Summerfest grounds and the State Capitol.

And deer can be a nuisance even after death: In one year's time, from 1989 to 1990, over 38,300 dead deer had to be removed from Wisconsin's streets and highways.

Deer do give us quite a few headaches. Yet their beauty and grace brings joy to those who enjoy watching wildlife, and to those who take to the woods and farmlands each fall to pit their hunting skills against the survival instincts of the whitetail. If you are one of the thousands who fall into one or both of those groups, I know you'll enjoy this special report on the management of a very special species.

*From her stand in Madison, whitetail fan Mary K. Judd leads wildlife education programs for DNR's Bureau of Wildlife Management.*



ROBERT QUEEN



# More deer than you can count

WILDLIFE MANAGERS TEMPER THE SCIENTIFIC METHOD WITH A DAB OF ARTISTIC LICENSE TO DETERMINE ANNUAL HERD SIZES.

Mary K. Judd and Keith R. McCaffery

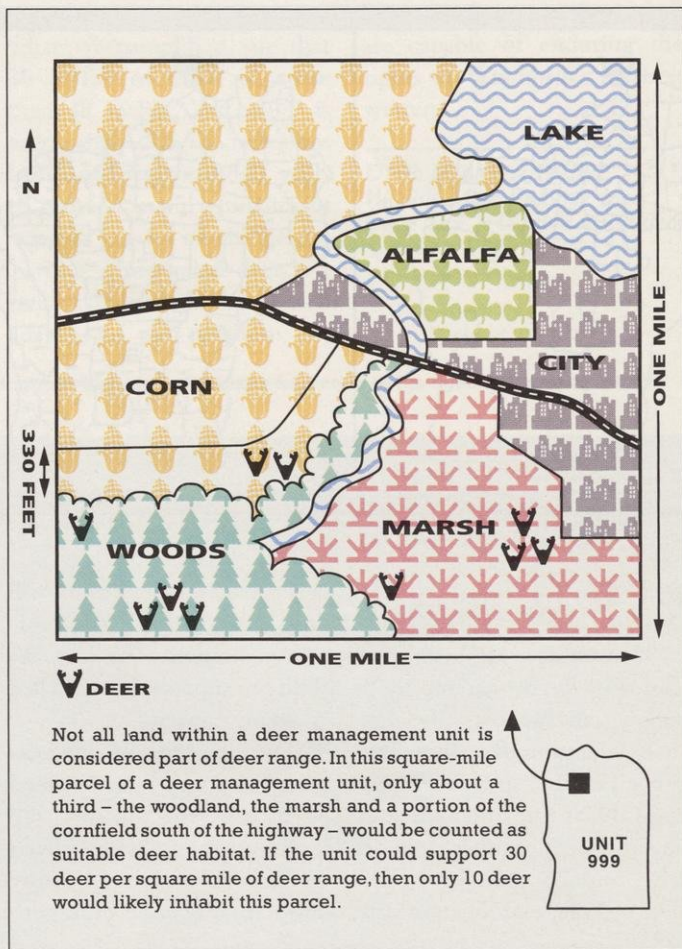
Estimating the size of the deer herd is both a science and an art. Although wildlife managers use mathematical formulas to arrive at herd numbers, the information they plug into those formulas is based on observation and experience. The huge numbers of deer scattered across the state and the

zard whirling through northern Wisconsin during the nine-day hunting season would deter or hinder hunters. With fewer, less effective hunters, more deer would remain alive. On that assumption, managers projected that some 1992 northern herds would be larger than they actually were.

But one year's error does not a failure make. Wisconsin's program is a model for deer management nationwide, and it will continue to improve as better means of collecting and analyzing data develop. So come along and learn what goes into a deer-herd estimate, and find out how you can help predict what nature and humans will do with deer this year, and in the years to come.

## ■ Deer management units

The state is chiseled into sections called deer management units, which give managers a framework for gathering data. Land use patterns, roads and rivers, as well as local preferences reflecting human values and desires help wildlife managers determine



At first, the herd's a blur...

unpredictable quirks of nature mean wildlife managers must allow plenty of room for interpretation to paint a picture of the annual herd.

Despite these limitations, Wisconsin's wildlife managers have delivered accurate predictions of the annual fall deer population for more than 40 years. But glitches do occur: In 1991, for instance, wildlife managers thought that a bliz-

the size of the units and the shape of their boundaries. Today, we have 123 units, up from the 78 that first were created in 1954.

Managers record deer harvests for each unit every year; over time, a history of the unit evolves. A harvest history is one of the tools a manager uses to make herd estimates.

## ■ Deer range

Not all land within the boundary of a deer management unit is habitable by deer. Certainly lakes are not. Extensive agricultural fields unbroken by windrows or a traffic-choked downtown don't count as prime wildlife habitat.

Managers determine how much usable deer habitat exists in their units by placing a grid of dots over photographs of the land taken from the air.

They count all the dots that fall on permanent cover — forest, woodlot, brush-covered land or marsh — at least 10 acres or more in size. They also count dots that go from the edge of the permanent cover about 330 feet into adjacent farmlands.

These "dot counts" help managers estimate the number of square miles in a unit that provide suitable habitat for deer. The number of square miles of deer range in a unit is always smaller than the total number of square miles in a unit.

When wildlife managers say there are "35 deer per square mile" in a unit, they are referring to the number of deer per square mile of **deer range**. Remember, not all land within a deer management unit is considered part of deer range.





Management units in 1956...and 1993.

## ■ Carrying capacities

If more deer are born in a unit than the habitat and food supply can support, the animals will spill over into any other available space they can find. But if that other space is already “full” of other deer, or lacks enough food or cover, deer will die, reproduction will

decline and the population will drop down to a size the habitat can support. The habitat’s ability to support deer is called “carrying capacity.”

The long-term carrying capacity of a unit is determined by its size, the quantity and quality of the food and cover, and the climate. In some northern Wisconsin units with

jack pine let more sunlight into the forest, more small plants will grow, and deer will have more to eat. This habitat may support a fall population of 35 to 40 deer per square mile.

In the agricultural regions of southern

dense stands of maple, basswood and fir, the habitat can produce only enough food to sustain, on average, a fall population of about 15 deer per square mile. Deep shade beneath the forest canopy prevents the growth of nutritious plants for deer to eat.

In units where oak, aspen and

Wisconsin, which offer some of the best deer habitat in the state, the deer population is limited by people’s tolerance of deer-ravaged crops and car-deer collisions. The southern ag deer management units could carry 80 to 100 (or more!) deer per square mile over winter — but people would never allow it. This



...but research, history and public input shape an outline...

The gang’s all here: Some parts of southern Wisconsin could support 100 deer or more per square mile of deer range, but conflicts with human activities would undoubtedly increase.

limit is sometimes referred to as “cultural carrying capacity.”



## ■ Goals

The goal for a deer management unit is a legally-established target population level at which wildlife managers aim to keep the deer herd. With recommendations from the public, wildlife managers propose a deer population goal for each unit to the Natural Resources Board (a group of citizens selected by the Governor to review DNR policies). Once approved by the board, the goals must then be approved by the Legislature. Public reviews of established goals are held at three-to-five year intervals. Suggested changes must be approved by the Natural Resources Board and the Legislature.

Ideally, the goals will produce a healthy herd, a healthy

HERBERT LANGE



ecosystem, and few damage complaints yet good hunting opportunities. Part of the "art" in deer management involves the wildlife manager's ability to facilitate a public discussion yielding deer herd goals that are ecologically responsible and that meet the desires of a majority of citizens.

Throughout Wisconsin, most overwinter deer population goals currently range from 10 to 30 deer per square mile of deer range.

In late spring, deer populations expand following the birth of fawns. Populations remain elevated throughout summer and early fall. Deer need to be hunted in the fall to bring the population in line with overwinter goals.

Because it is difficult to tell buck fawns from either adult does or doe fawns, they are included in a group called "antlerless deer." If the herd size is low or "below goal," perhaps due to a severe winter, then managers want fewer antlerless deer to be taken in the fall. If the fall herd size is high or "above goal," managers prescribe more liberal harvests of antlerless deer. When "at goal," the statewide gun and bow harvest should total about 250,000 deer.

## ■ Setting quotas

Wildlife managers keep a close eye on the deer herd to determine how many deer should be harvested each fall. They know that most of the adult and yearling bucks can be harvested with little effect on the size of the deer herd. In many parts of the state, particularly in the south, most of the bucks one-and-a-

half years old or older are harvested.

Managers are most concerned about the harvest of does, because does bear the next generation of deer.

If hunters harvest too many does, the deer population will decline. If enough does aren't harvested, the population will climb.

Wildlife biologists predict how many antlerless deer should be taken in each deer management unit in order to achieve the population goal for that unit. This figure is referred to as the **quota**. Typically, about two-thirds of the quota harvest is composed of adult does.

## ■ Registration

Registration is the backbone of the state's deer monitoring system. When hunters register their deer, valuable information is collected on the date, sex, deer management unit, and county in which the deer was harvested. Deer biologists also check the ages of deer at about 70 of the 565 registration sta-

plugged into a mathematical population model that estimates the size of that fall's deer herd.

## ■ Seasonal stability

Wisconsin traditionally begins its nine-day gun deer season the Saturday before Thanksgiving. With uniform

see "A record winter" on page 12.) The size of the antlerless deer quota in northern Wisconsin will vary from year to year depending on winter weather.

## ■ Summer observation

Each July, August, and September, managers and volun-



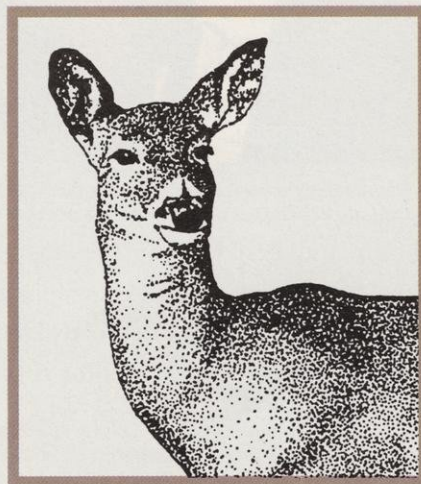
Deer "yard up" in Ashland County. Harsh winter weather is one of the natural factors controlling deer populations.

seasons, hunting patterns change little from year to year. The proportion of the adult buck population taken by hunters is also relatively uniform from one year to the next. Under such stable conditions, managers have found that buck harvest trends tend to very closely track with deer population trends.

teers across the state keep records of the number of does, fawns, and bucks they see. The ratio of fawns to does provides an index to current reproductive rates and is an essential component in the formula used to estimate herd size.

## ■ The S-A-K

Armed with the different kinds of information outlined above, managers compute a formula referred to as the Sex-Age-Kill, or S-A-K formula. The S-A-K is a series of mathematical equations using data on the sex of the deer, the age of the deer and the number of deer killed during the bow and gun deer seasons. With the S-A-K, wildlife managers can produce reasonably accu-



...gradually, the image becomes sharper...

tions around the state. This vital information is then

## ■ Winter weather

No matter how mild the winter, some deer will die. In very severe winters, losses can be dramatic. To keep tabs on winter weather conditions, the Department of Natural Resources maintains a Winter Severity Index (WSI) at about 35 stations across northern Wisconsin. (For details on how to compile your own WSI,



rate herd estimates and set quotas for each unit.

Each deer management unit is different in terms of the size of its herd, the sex and age of the herd, the percentage of deer harvested, habitat quality and the severity of winter weather. The S-A-K will vary according to the unit.

## ■ Painting the big picture

As you can see, monitoring deer populations requires a lot of information—the most essential of which is supplied by hunters themselves when they



GEORGINE PRICE

...until the big picture is clear.

register their deer. As more volunteers join Team Deer (see

sidebar), the quality and the quantity of the data gathered about deer is sure to increase.

Wisconsin's wildlife managers must take some artistic license with their science as they produce herd estimates and quotas for each deer management unit. Interpretation of the data allows room for differing viewpoints.

Producing an estimate of something as large and dispersed as the state deer herd

is much like displaying a piece of modern art in a museum of traditional masterpieces: Despite the public controversies it can stir up, it usually stands the test of time.

*Mary K. Judd is a DNR wildlife educator in Madison; Keith McCaffrey is a deer research biologist based in Rhinelander. DNR wildlife biologists Terry Valen, Dick Thiel and Arlyn Loomans also contributed to this story.*

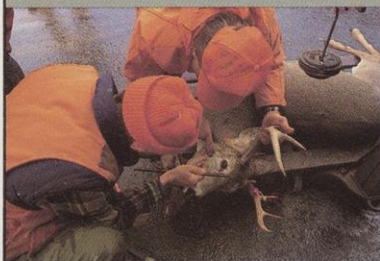
## TEAM DEER

Conservation-minded citizens can join with DNR wildlife managers to keep a collective finger on the pulse of the state's deer herd.

Team Deer, unveiled during the April 1992 Fish and Wildlife Conservation Rules Hearings, offers volunteers a chance to contribute in a meaningful way to DNR's deer management program. It's an incentive to observe deer through the seasons, and an opportunity to learn more about this magnificent mammal.

Volunteers participate in traditional data collection, including recording summer deer observations, keeping records of winter weather, checking winter deer yards, aging deer at registration stations during the gun deer season, and collecting, sorting and counting registration stubs.

New survey methods such as the Team Deer Bow Hunter Survey, in which volunteers would keep written records of the deer they observe while bow hunting, or the Logger Survey, in which interested loggers would keep notes on the number, con-



PHOTOS BY ROBERT QUEEN



Recordkeeping: Whether they track winter's progress (above) or age deer (below), Team Deer volunteers can help expand the base of knowledge about the whitetail.

dition and behavior of the deer that frequent their logging jobs, may be developed for the future.

Become a member of Team Deer! Please send your name, address, home and/or other daytime phone number, and the county in which you'd like to help collect survey information to: Team Deer, DNR Bureau of Wildlife Management, Box 7921, Madison, WI 53707-7921.

— Mary K. Judd



# Mother knows best...right?

A HERD LEFT TO ITS OWN DEVICES COULD BE DISASTROUS FOR HUMANS, DEER AND THE ENVIRONMENT WE SHARE.

Scott Craven

Opinions abound when it comes to the matter of how many white-tailed deer will call Wisconsin home. Farmers, hunters, animal rights advocates, foresters and tourists all have ideas on how DNR wildlife managers should handle the state's deer herd.

One opinion that surfaces from time to time suggests (sometimes strongly) that humans should get out of the picture entirely — that we should “let Mother Nature take her course” with the deer herd.

You've likely heard this notion many times with regard to environmental issues, but what does it really mean? I interpret the concept of letting nature take its course as a complete end to human intervention: No more deer hunting, no more habitat management, no more feeding, no more damage abatement programs, etc.

## A humongous herd

Nature is governed by a collection of physical and natural laws. One of the physical laws is that for every action there is an equal and opposite reaction. This law can be applied to human intervention in deer herd management. If we abdicated our role in deer management — a deliberate action — there would be some

predictable consequences, as well as some we did not anticipate. Here's what I think could occur if we returned the reins on the herd to Mother Nature.

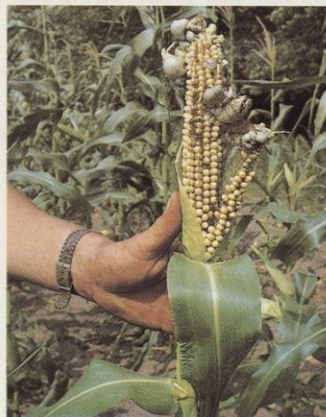
The immediate reaction would be an increase in deer. But how many, and for how long? In theory, nature would strike down the herd after a period of heavy increase. Populations would fluctuate and eventually be brought into a healthy balance with habitat.

That's the theory. But even after disease, parasites, weather and other mortality factors took their toll, the herd would be larger than what we see today.

I don't believe humans could tolerate the short-term increases in herd size.

Consider the following: In the past few years, estimates of the fall deer population ranged from 1.1 to 1.3 million animals. Herds of this size have

An ear damaged by deer.



DNR PHOTO

caused significant problems, including crop damage, deer-vehicle collisions, and habitat degradation. Imagine what a larger herd could do!

We'll never know for sure how many deer roamed Wisconsin a century or two ago, but we do know that modern land uses have created excellent deer habitat with the ca-

400,000 deer, central forests about 125,000, and farmland habitat about 1.7 million — a total of well over 2 million animals.

In the absence of severe winter weather, the herd could remain at this high level for years. Some probable economic results: Crop losses, estimated at \$36.7 million 10



HARRY BORNER

The Day the De Soto Stood Still. Car-deer collisions were a problem in 1957 and remain a problem today.

pability of supporting many more deer than were here prior to extensive European settlement. During the early 1980s, most of central Wisconsin sustained populations of 30 to 60 deer per square mile; parts of Iowa, Sauk and Columbia counties supported over 60. Numbers have exceeded 100 deer per square mile in protected locations or areas with ideal habitat.

With excellent habitat, no natural predators of any significance, and a hands-off policy by humans, the herd would flourish. Keith McCaffery, DNR deer researcher, estimates northern Wisconsin lands have the potential to support about 26 deer per square mile, and southern Wisconsin could carry as many as 80 to 100 deer per square mile. At these densities, northern forests would support about

years ago, could rise to the point that some farmers could be put out of business. The damage from deer-vehicle collisions, estimated at \$100 million in 1991, could double or even triple. And the hundreds of millions of dollars spent annually by hunters at grocery stores, motels, restaurants, sporting goods stores and other businesses all over Wisconsin would likely flow out to other states if Wisconsin no longer allowed deer hunting.

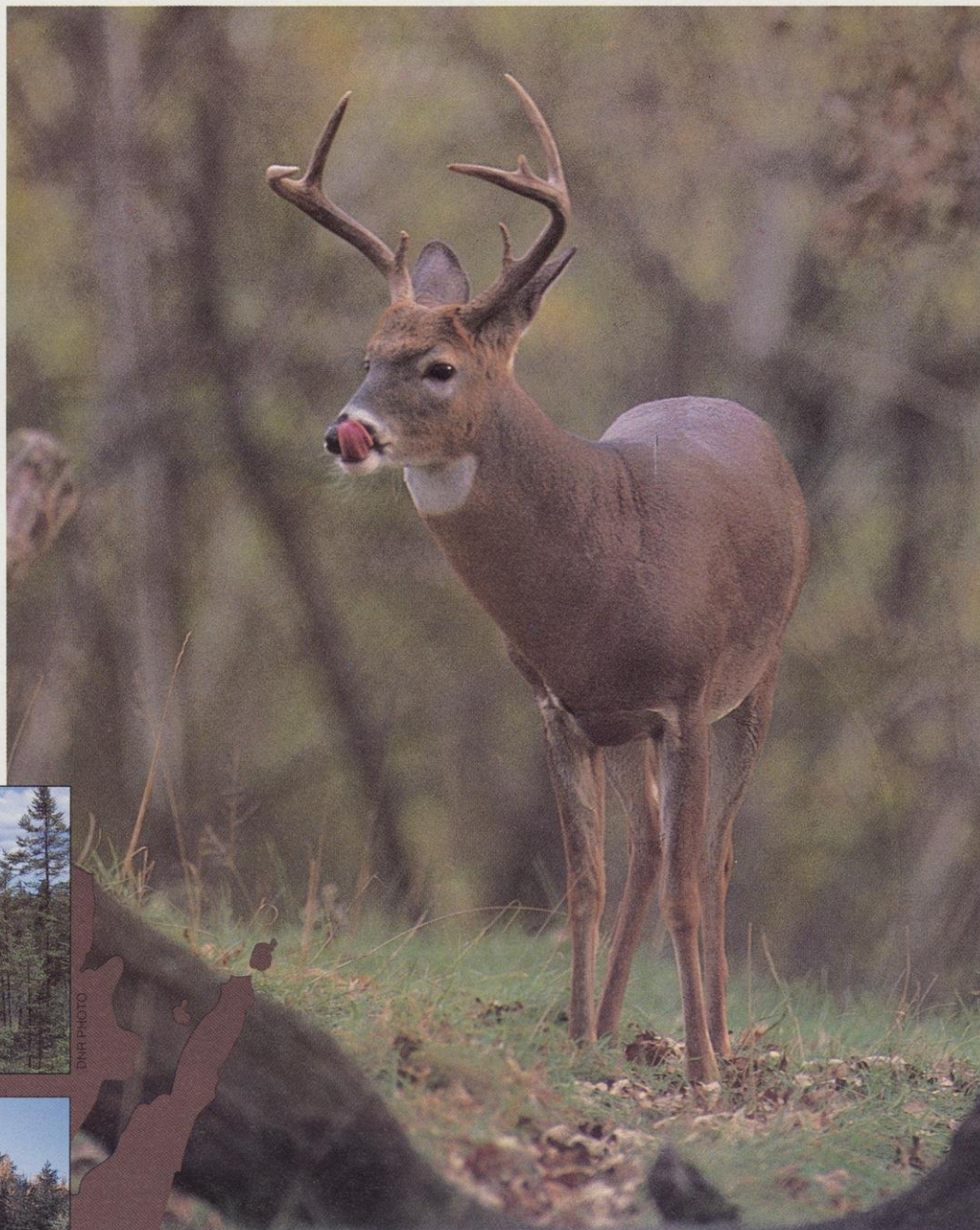
What about biological consequences? Native plant communities, especially in northern Wisconsin, might not be able to withstand repeated browsing by a large, hungry herd. There could be an increase in cases of Lyme disease, which is carried by the deer tick.

In short, the Wisconsin deer hunting season is a major social, biological and economic

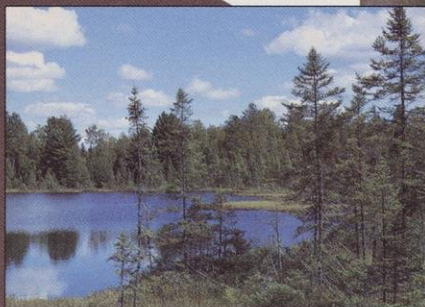


event. Its loss would be felt by many people.

Would there be any benefits from a rapid rise in the deer herd? Other than providing more opportunities to observe deer, I can't think of any. Saving the "cost" of deer management would be a false savings, because the revenues generated from deer hunting help support other wildlife programs. DNR wildlife managers strive to take all interest groups into account as they develop management plans and set population goals. While someone will always want more or fewer deer in a given area, wildlife managers must look for the big picture as they attempt to keep deer numbers within the tolerance range or need



STEPHEN J. LANG



DNR PHOTO



ROBERT QUEEN



DNR PHOTO

Nearly all of Wisconsin's landscape — north, central or south — provides habitat for deer, but the quality of habitat varies from region to region.

of most Wisconsin residents.

**Mother, we'd rather do it ourselves**

All in all, though she has marvelous and extraordinary powers, it

wouldn't be wise to let Mother Nature manage the deer herd. Humans have drastically altered natural systems over most of Wisconsin. Today, the only predator left in sufficient numbers to control the deer population in Wisconsin is us.

Where deer are concerned, human intervention in natural processes is an obligation. We must intervene to prevent the loss of rare and endangered species. We must control the

population of a species so prolific that it threatens habitat, its own health or human endeavors. We are fortunate that deer hunting, the most effective population control, provides all the benefits to the state that it does.

*Scott Craven is a UW-Extension wildlife specialist based in Madison.*



# Up close and personal

THERE'S NOTHING TO MATCH THE THRILL OF SPYING ON A WHITETAIL IN ITS NATURAL SURROUNDINGS.

Richard P. Thiel

A glimpse of deer bounding across a distant field is exciting, but much too brief. Wouldn't you rather see a fawn lying in the sun-dappled shade of a small patch of trees, or watch the interactions between several deer feeding in a nearby field? With a little bit of knowledge, some time and a bit of patience, you can increase the likelihood of viewing deer up close. You won't be alone: In recent DNR surveys, people who enjoy observing wildlife ranked deer as the number one species to watch.

## Know your animal

Deer have two basic behaviors:

- foraging for food;
- resting and digesting what they've eaten.

Deer are most visible when feeding or traveling to and from feeding and resting areas. After feeding, deer retire to one of several secluded areas to rest and digest their food — usually patches of brushy growth in open country and suburban areas, or thickets in forested areas in their 500-acre-plus home range. Here they will remain sheltered from mid-morning to mid-afternoon unless disturbed, out of sight, safe and sound.

Search the boundaries of suspected shelter areas for evidence that deer are present.

Look for droppings, and trails with tracks weaving in and out of brushy areas.

During spring and fall, deer seek food in small openings and along the edges of fields in search of early-season grasses and end-of-season clover. In farming areas, deer may be seen foraging along the edges of corn and soybean fields from July through October and occasionally in winter, if enough waste grain remains following harvest. Search for likely feeding sites and make a note of where these areas are located in relation to suspected shelter areas.

When you learn to recognize potential feeding spots and rest areas (and the paths that connect them) you're well on the way to success in observing deer!

In many places you can conduct your search from the comfort of a car, but I encourage you to get out and do a bit of sleuthing on foot — it's much more healthy and you'll find it an enjoyable way to soak in the sights and sounds of your surroundings. Remember to ask for permission before going afield on private property.

## Take time to enjoy the view

Deer actively feed and travel in the early hours of morning and the late hours of the after-



Want to know more about deer? Check your local library for *The World of the White-tailed Deer* by Leonard Lee Rue III (Lippencott, 1962) or *Whitetail Country* by Daniel Cox and John Ozoga (Willow Creek Press, 1988).



At rest on a bed of sedges. Getting a good glimpse of a wary buck requires reconnaissance and patience.

noon — times when most of us are scurrying to and from work, meals and family. Often it's more convenient to search for deer during twilight hours than at daybreak. However, deer tend to be less skittish in the wee hours of the morning than during the hustle-bustle hours around dusk. Viewers may be more successful observing deer at dawn, spying on them as they leave their feeding sites for the safety of a secluded area, or as they calmly chew a last clump of clover before traveling to favorite bedding sites.

After spending a bit of prep time, you'll be much better equipped to view deer. Alternate between mornings and evenings to determine which times fit best with your schedule and the animals' activity patterns. Then simply sit back, watch and enjoy!

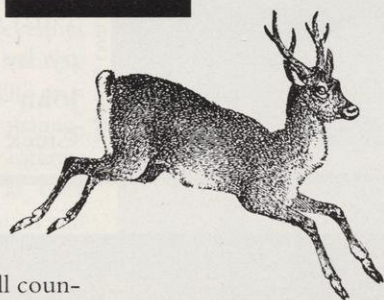
*Nature sleuth Richard P. Thiel doubles as coordinator of DNR's Sandhill Outdoor Skills Center in Babcock.*



# Bambi trivia

A COLLECTION OF SCIENTIFIC DATA AND FRIVOLOUS FACTS FOR THE WHITETAIL FANCIER.

Keith R. McCaffery



## SURPRISE!

■ Deer are present in all counties and every major city in Wisconsin.



## RUMINANT OF HISTORY

■ Prior to European settlement, deer were most abundant along the prairie-forest edge and savannas of southern Wisconsin.

■ Depleted by European settlers in the 1800s, the deer population bounced back in the mid-1900s in the forested regions of central and northern Wisconsin. Restrictive deer hunting seasons and good habitat — an unanticipated result of the heavy logging and fires that ravaged the Northwoods — allowed the species to thrive.

■ Since 1962, fall deer populations in the farmland of the southern two-thirds of the state have increased six-fold to about 600,000 deer.

■ The white-tailed deer vied for the title of Wisconsin state animal in 1957, only to be bested by the badger. The species was later dubbed Wisconsin's official *wildlife* animal.

## TERMS OF ENDEERMENT

■ The word "deer" is derived from the Old English "deor," or beast.

■ Sherlock Holmes' famous cap — with visors in the front and back, and with earflaps that may be tied up or down — is called a "deerstalker."

■ Deertongue, deer's ear and deerfoot are all names for the wild vanilla plant.



GERALD C. JOHNSON

change as ground plants die back in fall and in winter. Deer trails become apparent as the animals search for new food sources such as mushrooms and acorns. In forested areas, deer can sometimes be found feeding on fallen tree tops near timber cutting operations. Farmland deer seek windblown or melted areas in fields to forage for waste grains or residual crops.

■ Deer that die provide food for coyotes, bears, fishers, wolves and even a few cougars. Eagles, ravens, crows, blue jays, chickadees and a host of other creatures share the carrion.

## BABY BOOM

■ Fawning peaks in late May and early June.

■ The deer fetus puts on its greatest growth spurt in the final month of gestation. If the adult doe is healthy, there is an excellent chance that the newborn will survive.

■ Fawns weigh about six to seven pounds and are born after about 200 days of pregnancy.

■ Twins are common to adult does, triplets are uncommon, and quadruplets very rare.

■ Average net production statewide is about one fawn per doe.



DNR PHOTO

## CHOW

■ A deer eats about a ton of food annually — primarily grasses, evergreen plants and the leaves of aspen and maple trees in forested range; corn and alfalfa in farmland ranges.

■ Acorns are a deer delicacy — eagerly consumed, but available only infrequently in limited quantities at "participating" locations.

■ Deer eating habits



## DEER DUDS

■ In late spring, deer lose their winter coats and antlers begin to regrow on bucks. The animals shed their grey-brown hair, looking a bit motley for a time, but soon the familiar reddish-brown hair grows in.

■ Deer lose their red coats in September and for a short time wear a "blue coat," which is darker than the winter brown hair.

■ Deer have 16 hooves: Two large and two small hooves on each foot.

■ Bucks cast, or lose, their antlers in winter — normally after December but before March.





## WATCH 'EM... AND WATCH OUT!

■ Deer are most easily seen in the spring and in the fall as they seek out food in farm fields and on roadsides. Not incidentally, spring and fall also have the highest rates of car-deer collisions, due to spring dispersal and fall rut.

## HOMO SAPIENS ON THE HUNT

■ The firearm deer season occurs in late November, when 650,000 to 700,000 men, women and youth seek the whitetail, continuing a tradition that predates history.

■ From 20 to 40 percent of the herd may be harvested in the nine-day deer-gun season.

■ Human predation, or hunting, is designed to maintain populations at prescribed goals, resulting in healthy deer in a healthy environment.

*Keith R. McCaffery, deer research biologist for DNR's Bureau of Research, gathers deer data from his station in Rhineland.*

## MOVIN' OUT

■ Yearling deer disperse in spring to seek new home ranges in unfamiliar habitat.

## IN THE GOOD OLD SUMMERTIME

■ During mid-summer, deer seem secretive, taking shelter in brushy thickets or deep woods to rest in the middle of the day.

■ Does nursing fawns require three times as much food as other deer in summer.

## G'DAY, MATE

■ Breeding peaks in mid-November.

■ Breeding of an individual doe follows a very short courtship. A prime buck may breed several does.

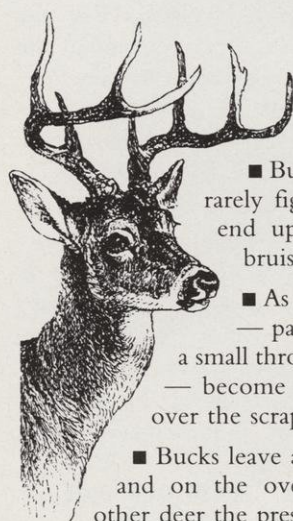
■ In the absence of prime adult bucks, younger bucks do the breeding.

■ Fawns in northern Wisconsin rarely breed during their first fall. But more than half of the fawns breed at about six months of age in the southern third of the state.



GERALD C. JOHNSON

## RUTTING THEIR STUFF



■ Antlers harden and velvet is shed in fall. Rubs — spots where bark has been worn away by deer scraping their antlers on shrubs and trees — serve as territorial markers.

■ Bucks spar to establish dominance. Bucks rarely fight to the death, although they may end up with many puncture wounds and bruises.

■ As rutting activity intensifies, buck scrapes — patches on the ground about the size of a small throw rug scraped bare by breeding bucks — become common. Usually, a branch hanging over the scrape is chewed and nuzzled.

■ Bucks leave a combination of scents on the scrape and on the overhanging branch that announce to other deer the presence of a prime buck.

■ Rubs on trees and shrubs are believed to be signs between bucks, while scrapes appear to be mainly for communication between bucks and does.

■ The peak of rutting frenzy occurs in early November.



DEAN TVEDT



# A record winter

KEEP TRACK OF WINTER'S IMPACT ON THE HERD WITH A YARDSTICK, A THERMOMETER, AND SOME KNOWLEDGE OF DEER BEHAVIOR.

Bruce Moss

**T**he winter storm ended sometime before midnight. Nearly a foot of new snow blanketed the area. Temperatures fell throughout the night, and the thermometer read -21° F.

This scenario may send a chill up your spine, but to a white-tailed deer, it's just another January day in Wisconsin. How do deer survive such fierce weather? The answer is that the animals have both physiological and behavioral adaptations that allow them to endure the worst a Wisconsin winter can muster—provided the deep snow and extremely

cold temperatures do not persist week after week.

Deer wear two very different fur coats during the year. In summer, the reddish-colored coat consists of very short hair that keeps the animal cool on hot summer days. During early September, deer change color as their brown and gray winter coats begin to grow and the reddish hair is shed. This winter coat has long guard hairs and thick, short underfur. The long hair traps air within the fur, keeping a blanket of warm air around the deer's body. The short fur acts



DEAN TVEDT

Deer starve during harsh winters when nutritious food is scarce.

as insulation, preventing the loss of body heat.

Summer and fall are normally periods of plenty for deer. The animals build up fat reserves for the lean winter months as they feed on lush summer vegetation plus abundant acorns and other fall mast.

By early December, a healthy deer should have a thick layer of fat. The fat helps insulate the deer and, more importantly, provides energy to keep the animal warm on cold winter days. When the temperature drops below 0° F, a deer begins burning its valuable fat reserves to stay warm.

Nutritious food is scarce during most winters. Deep snows cover acorns, grasses, and small green plants, putting them out of reach of hungry deer. The deer must resort to feeding on woody plant stems and green needles from coniferous trees—a diet low in nutrition. If forced to live on this type of food for several months, deer will die.

When snow is deep and nutritious food scarce, deer gradually reduce their move-

ments to conserve energy. They move little and feed little at this time. Healthy deer can normally withstand about 70 days of deep snow by conserving energy through reduced travel and feeding.

Once snow depths near one foot, deer move to heavy coniferous cover. The thick cover reduces exposure to strong winter winds, but temperature isn't the main reason deer gather in the pines, cedars and spruces. Deer concentrate in coniferous cover because the snow depth is lower, making travel easier. Packed-down deer trails develop rapidly as many deer head for the same sites. The lesser snow depths and firm trails allow deer to conserve energy as they travel, and to more readily escape predators. Deer can handle snow depths up to approximately 18 inches fairly well. Over this depth, deer have trouble traveling and must reduce their movements to conserve energy.

Wildlife managers predict whether deer will survive winter by measuring and record-

February 1993 Winter Severity Index

January 1993 Winter Severity Index

December 1993 Winter Severity Index

Date	Daily low temp below 0° F? (if yes, 1 point)	Snow deeper than 18 inches? (if yes, 1 point)
DEC. 1	0	0
DEC. 2	0	0
DEC. 3	0	0
DEC. 4	1	0
DEC. 5	1	0
DEC. 6	0	0
DEC. 7	1	1
DEC. 8	1	1
DEC. 9	1	1
DEC. 10	0	1
DEC. 11	0	0
DEC. 12	0	0
DEC. 13	1	0
DEC. 14	0	0
DEC. 15	0	0
DEC. 16	0	1
DEC. 17	0	1
DEC. 18	0	1
DEC. 19	0	1
DEC. 20	0	0
DEC. 21	0	0
DEC. 22	0	0
DEC. 23	1	1
DEC. 24	1	1
DEC. 25	0	1
DEC. 26	0	1
DEC. 27	1	1
DEC. 28	0	1
DEC. 29	1	1
DEC. 30	1	1
DEC. 31	1	1
TOTALS	13	15

15 = 28, WSI for 12/93



ing daily snow depths and temperatures to arrive at a *winter severity index*.

You can keep your own record of the winter's impact on deer in your area. Simply mark down one point for every day the daily low temperature drops below 0°F, and another point for any day on which the average snow depth exceeds 18 inches. For example: A day when the temperature dips to -10°F and you measure 20 inches of snow on the level would get two points.

When winter ends, add the total number of temperature and snow depth points. The sum is the winter severity index. If your total is less than 50 points, the winter is considered mild. Very few deer would die during a mild winter, and fawn production in the spring should be excellent.

A moderate winter falls between 50 and 80 points. This type of winter is very common in northern Wisconsin. Most deer survive moderate winters very well, and many healthy fawns are born in the spring. However, about 10 to 15 percent of the previous year's fawns, particularly those born later than normal, will die during a moderate winter.

A score of 81 to 100 points means the winter has been a tough one. During severe winters, perhaps a third of the fawns die and fewer healthy fawns are born in the spring. Some of the adult bucks that entered the winter in poor shape due to the rigors of breeding will likely die.

Occasionally, heavy snows come early in winter and last until spring. When this occurs, the winter severity index may top 100. Half of the fawns may die, many of the mature bucks may die, some of the adult does do not survive, and many fawns born the following year are so weak they do

not live more than a few days. The total deer population in a very severe winter may decline by as much as 25 percent. When a very severe winter is followed by a second very severe winter, the deer population can fall to quite low numbers and may not recover to normal levels for many years.

While the index is somewhat oversimplified, in that 30 inches of snow is worse than 18 inches, and -30°F is worse than -3°F, the index has been used for nearly 20 years to provide useful estimates of winter's impact on the herd.

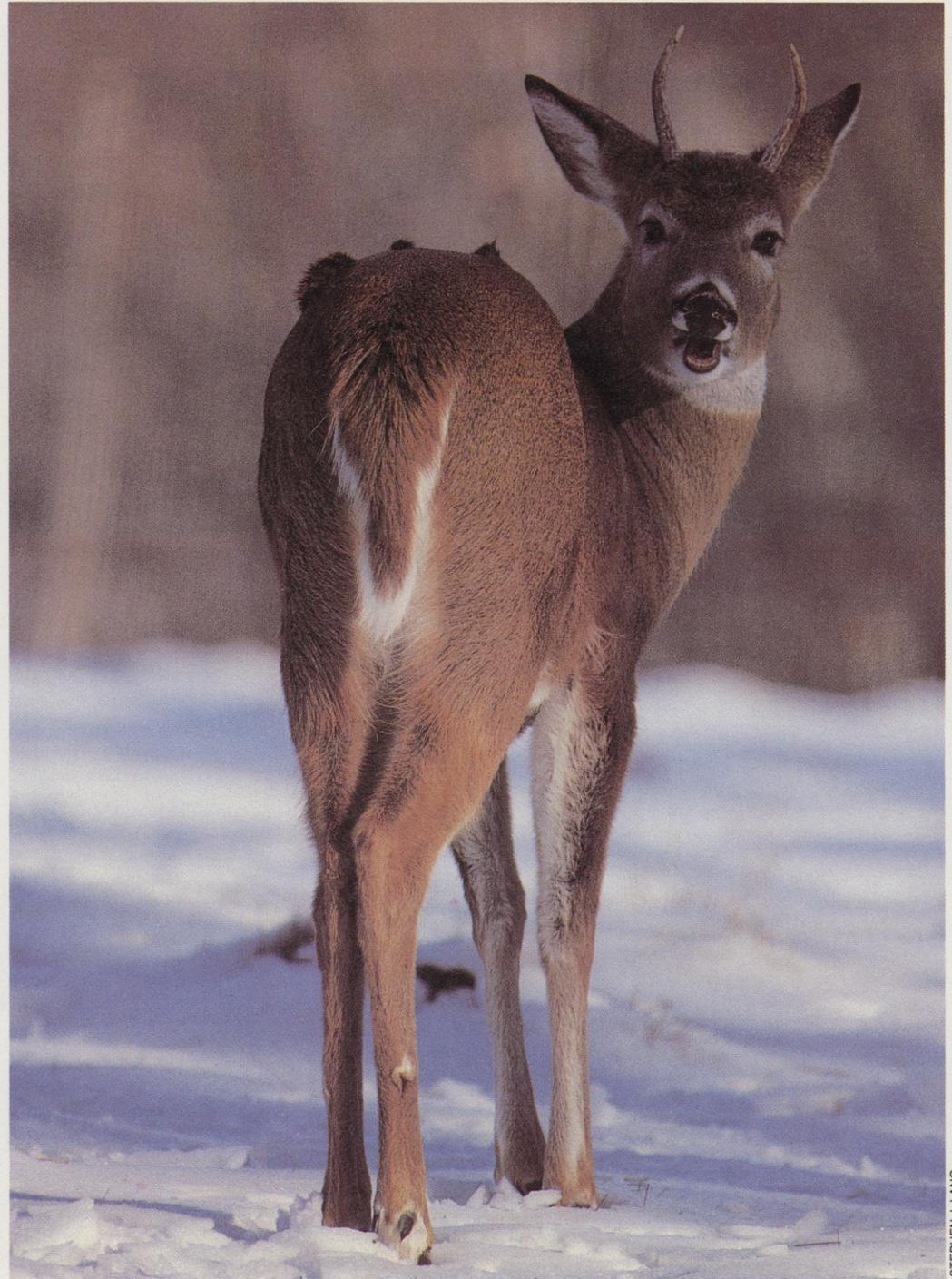
The white-tailed deer is a remarkable animal that is well adapted to our northern cli-

mate. Given good habitat, deer are capable of enduring the rigors of Wisconsin's harshest winters.

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*DNR Northwest District Wildlife Manager Bruce Moss keeps track of winter's wrath from Spooner.*

**A healthy buck can take a tough winter in stride, but some adult bucks weakened by the rigors of breeding may not make it through.**



STEPHEN J. LANG



# Reflections on the hunt

FOR SOME, WHAT COMES AFTER THE DEER IS REGISTERED IS JUST AS IMPORTANT AS WHAT COMES BEFORE.

Christine L. Thomas

Editor's note: *The experience of hunting lingers on long after the kill. Most hunters can recall moments when they stood face-to-face with the awesome power of nature. They remember the good times, the meals and memories with friends. And they never forget the joy of passing a tradition down through the generations. We asked hunter Christine Thomas, associate professor of resource management at UW-Stevens Point, to share her thoughts on the many facets of the hunt.*

## A SIMPLER LIFE

The light faded to that flat shade of gray that makes vision, particularly depth perception, very difficult. I left my deer stand at the edge of a swamp in the Headwaters Wilderness of the Nicolet National Forest and worked my

way down the trail back to a point where I would rendezvous with the rest of my party.

A fork in the trail...left or right? I wasn't sure, and I couldn't see well enough to make out my earlier tracks in the powdery snow. My heart raced a little. I chose the trail to the right.

After a few hundred yards, I recognized the main trail. I looked for a place to wait for the others. A fallen maple at the edge of the trail had a main trunk strong enough to support my weight; its ample branches protected my flank. Protected from what? I didn't know, but I liked the idea anyhow. It would be a long wait. The others were far away and most of the trip was through a thick wet swamp. They would sit until the last possible moment, the last chance for a big buck that season.

I imagined what it would be like to sit on that log all

night. Cold gripped my toes; I worked them inside my pack boots to generate a little heat. The moon began to rise, changing the whole look of the woods. As it crested the hill behind me, the coyotes yipped. I shivered a little and hunkered down in the branches, tightening my grip on my rifle. My thoughts keyed in on the basics of survival and the realities of life and death in a way they never can in the mental clutter of my physically comfortable urban environment.

Another half-hour passed. It was so quiet...dead calm. Suddenly, a crashing of tree branches that sounded as if elephants were descending upon me brought me to an alert, erect position. I chuckled as I realized it was a bird of some sort, late to the roost. As the blood pounding in my ears subsided, I heard footsteps far down in the swamp. I knew, with some measure of relief, that the others would join me shortly. As they approached, I stood to stretch my stiff, cold legs.

Another season passed. No meat this year. I let one go two days earlier. Why did I do that? Why do I do this at all?

In my heart I knew why, even though I may not have been able to say, exactly.

## THE HARVEST

I opened a picnic basket and produced assorted paraphernalia for setting the table. A red-and-white cotton tablecloth, blue plastic picnic ware (reusable of course), cloth napkins and crystal wine glasses. Crystal wine glasses? Elaine's eyebrows arched in disap-

Alone in the woods, accompanied only by private thoughts, a brisk chill wind and the anticipation of a rendezvous with a whitetail.



ROBERT QUEEN





The flag is up and the chase is on!

proval. This was supposed to be a camping trip and crystal wine glasses did not fit her notion of appropriate camping gear.

The setting was perfect, an 80° day. The trees sported the intense, deep shade of green they take on when they have achieved full summer growth

and are investing their energy in photosynthesis. Bobcat Lake glistened in the background.

I sliced the onions into very thin, transparent disks. Likewise, a large batch of white mushrooms. Jim cut potatoes and vegetables for a foil-cooked vegetable medley. Stan started the two-burner stove,

placed the griddle upon it and trimmed the venison.

I melted butter on the griddle and heaped on the onions and mushrooms. As the butter sizzled and the aroma of frying onions began to fill the air, I took over the trimmed venison, laid the steaks out on a board and

doused them with flour and coarse black pepper and, using the dull side of a large, heavy butcher knife, simultaneously tenderized the meat and incorporated the flour and seasoning into it.

As each steak was readied, I placed it on the griddle amid its vegetable accompaniments.

When the mushrooms, onions and venison were all just browned and barely crisp on the outside, all the food was



DNR PHOTO

Sharing the hunt with friends.

arranged on platters, and the November hunting party gathered at the July table. A fine bottle of Cabernet was uncorked, the deep ruby color transferred from green bottle to crystal glass. The late-afternoon sun danced in the wine.

Grace was said aloud. Dishes were passed and plates filled. The chatter that usually begins a meal subsided as attention diverted to the pleasant task of the feast. As the scents of outdoor cooking lingered in the forest air, the sinking sun reflected from contented faces. The taste of the venison mingled pleasantly with the Cabernet, the enjoyable afternoon and the memories of the past hunt as Bobcat Lake lapped lazily against its shore. Grace was said silently.

Elaine broke the silence. "It doesn't get much better than this — but I still don't know about the crystal wine glasses!"

We laughed.

MARK WALLNER



# THE ORAL TRADITION

"You remember the little green swamp, don't you? The one by all the cedar trees? Well, one cold day, late in November, I was there hunting in a ground blind, hidden by brush. And just before the sun went down I heard something..."

"Footsteps! Slowly, I turned my head in the direction of the sound. My eyes strained, my ears strained, my pulse quickened. A graceful brown figure made its way toward me. Closer, closer. I raised my rifle. Closer...closer..."

"It was a doe. I relaxed and lowered my rifle. She approached within five yards. If she realized I was there, she never let on. After a few moments she wandered away along the edge of the swamp."

"Ten minutes passed. The light faded, it got colder, and I heard the chickadees make their last little flutterings before night-fall. Then...footsteps! I slowly turned my head toward the west."

Passing on a tradition that predates history by introducing the next generation to the pleasures and responsibilities of the hunt.



DNR PHOTO



Meeting a buck nose to nose, eyelash to eyelash, is the stuff from which hunting tales are born and bedtime stories are made.

My pulse quickened. The footsteps were more deliberate this time. As the deer approached, I could see antlers. I raised my rifle. My heart beat harder. He was very large, a perfect eight-pointer! Should I?

"I had taken a nine earlier in the day. I didn't want to be greedy. I lowered my rifle and relaxed."

"The buck came closer...very close...a barrel length away. He raised his head from the doe trail and we stood face to face. I could see his eyelashes, each individual graceful hair. He stared at me. I swallowed nervously. At each swallow, he twitched

his ears.

"I might be in danger! I stood within three feet of a very large buck in the gathering twilight. What if another hunter should see him, but not see me? I tried to scare him off. "Psst! Psst!" I hissed softly at him. He cocked his head from side to side. In his own good time he lost interest in me, put his head down and followed the doe to the east. I did not see him again."

As I finished the story (all true, of course) my nine-year-old daughter snuggled closer to me. I tucked the blanket up under her chin and put her favorite stuffed toy next to her.

"Mom, will you tell me one more story?"

"It's late, we'll be heading

to the woods early in the morning."

"Please, Mom? I like the one about the Big Sniffer. Tell me that one again...just one time. Please?"

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