



**WHITETAILS  
UNLIMITED**

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*A closer look at*

# **Trophy Deer Management**

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**WTU'S COMPREHENSIVE DEER MANAGEMENT PROGRAM**



Photo by John R. Ford

**TROPHY DEER MANAGEMENT ATTEMPTS TO ACHIEVE GREATER PROTECTION FOR ALL BUCKS UNDER 5½ YEARS OF AGE, COUPLED WITH A CONSERVATIVE HARVEST OF BUCKS AGED 5½ AND OLDER.**

## GOALS OF TROPHY DEER MANAGEMENT

**T**raditional management of deer as practiced in most states of the Upper Midwest involves open public hunting with no limit on the harvest of antlered bucks, complemented by limited antlerless harvests using a quota system to achieve a population goal. This system normally allows unlimited numbers of hunters to hunt every year, all season, in the area of choice, with a reasonable chance of bagging a deer. The goals of Trophy Deer Management (TDM) and Quality Deer Management (QDM) are quite different.

QDM as conceived by Joe Hamilton, wildlife biologist and founder of the Quality Deer Management Association, was originally aimed at reducing overpopulated Southeastern herds to improve the overall “quality” of the entire herd. In practice, “QDM emphasizes restraint in harvesting young bucks combined with an adequate harvest of antlerless deer to maintain a healthy population in balance with existing habitat conditions” according to Joe Hamilton. QDM attempts to bring the ratio of adult bucks to adult does closer to 1:1.5 and improve the overall quality of the herd and its habitat, primarily through herd reduction.

TDM goes a step further than QDM and attempts to achieve greater protection for all bucks under 5½ years of age coupled with conservative harvests of

bucks aged 5½ years and older. Thus, TDM is more directly aimed at antler production than QDM. Under trophy management, herds are maintained at approximately 30% of habitat carrying capacity – referred to as “K” – the maximum number of animals that the habitat will support. This “low” density allows bucks to manifest their genetic potential in antler development. By comparison, under QDM, deer herds may be maintained at 50-60% of K. Obviously, TDM is far costlier than QDM in terms of harvest opportunity, and like most QDM applications in the Upper Midwest, it normally results in less buck hunting opportunity as well.

By John Kubisiak  
WDNR Wildlife Biologist (retired)

## ELEMENTS OF TDM INCLUDE THE FOLLOWING:

### Balanced Adult Sex Ratio

**B**ucks and does are born in near equal proportions, but through hunting bucks are generally harvested at twice the rate of does. Therefore, the prehunt ratio of adult does to adult bucks in most free-ranging Upper Midwest deer herds is 2 does or fewer to 1 buck. Management under TDM would attempt to achieve a 1:1 adult sex ratio.

This adult sex ratio was observed from 1981-89 during a “trophy” management demonstration on the Sandhill Wildlife Area, a 9,150-acre tract in central Wisconsin surrounded by a “deer-proof” fence. Daily hunting pressure was kept at 11 hunters per square mile of deer range and the bag limit was one deer of any sex or age during a one-day hunt open to the general public. There were no antler or point restrictions so hunters were free to choose any deer. Hunters removed about one-third of the adult bucks in the prehunt population. Also just under half of the adult bucks harvested were 3½ years and older compared to less than 5% in surrounding deer management units. One of the largest typical bucks taken (193 lb. 5½ year-old) achieved a Boone and Crockett score of 181 in 1977 before TDM was fully implemented. Buck

## WTU’s COMPREHENSIVE DEER MANAGEMENT (CDM) PROGRAM IS AIMED AT PROVIDING DEER HUNTERS WITH:

- ◆ a background on the history of whitetail deer management
- ◆ a basic understanding of white-tailed deer ecology and their habitats
- ◆ a general overview of deer management principles
- ◆ a variety of strategies and techniques to improve wildlife habitat on both public and private land. Whitetails Unlimited’s CDM Program focuses on the white-tailed deer, and its intent is to encompass aspects of traditional, quality and trophy deer management strategies.

***This publication focuses on Trophy Deer Management (TDM) and the pros and cons of its place in whitetail deer management.***

harvests were complemented by liberal removals of antlerless deer. For every 10 bucks taken, 15 antlerless deer were harvested.

During this 9-year demonstration at Sandhill, hunting opportunity (hunter-days per square mile per year) was 6% (11 vs. 170) of that which occurred on nearby lands under traditional hunting. This unique Sandhill “demonstration” proved to be rather costly since hunting opportunity was severely restricted, not to mention that this form of management could not be easily implemented over large areas.

## Antlerless Harvests

**L**andowners considering TDM must recognize that the number of does must be reduced to accommodate a higher number of adult bucks in the herd. TDM requires very aggressive harvests of antlerless deer, somewhat more than under QDM. These goals may be achieved by requiring liberal removals of antlerless deer while limiting buck harvests or the opportunity to shoot small-antlered bucks. Once herds are reduced to about 30% of K-carrying capacity (about 50% of fawns should be breeding), liberal harvests of about one-third of the resident herd must be maintained. The harvest ratio of antlerless deer to adult bucks may average about 1.5 or higher. This harvest ratio would vary with the desired over-winter herd density goal, habitat quality, and winter severity among other factors. Under this strategy, antlerless deer might average about 60% or more of the registered harvest. The posthunt herd would be composed of more adult males and lower numbers of producing does than under QDM or traditional management.

## Age Structure of Adult Bucks

**A**ge, nutrition, and genetics determine the body and antler development of adult bucks. During the first 3½ years of life, body development takes precedence over antler growth. A buck does not reach his potential until 3½ years of age, and most are “prime” at 5½ years of age. With some exceptions, body and antler size may decline after that. Generally, yearling bucks comprise 60-90% of the fall buck harvest in heavily hunted farmland of the Upper Midwest under tradi-

tional management. Under TDM, the age structure of harvested adult bucks would be altered considerably to achieve a more even distribution of young and old bucks. TDM seeks to reduce harvests of yearlings and 2½ to 4½ year-old bucks. This approach would require hunters to pass up all small antlered bucks, while removing some prime-age older bucks. Adult bucks aged 2½-4½ years old should be protected, but some deer in this age class would likely be shot. Over-harvest — even accidental harvest, of 2½-4½ year-old bucks would result in very few, if any, bucks surviving to trophy status at age 5½-6½. This would require careful attention to restrictions on hunter effort and selection of deer harvested. In fact, this implies the type of controlled hunting that might be practiced on shooting preserves or by private hunting clubs. If

hunters shot most of the deer they should have protected, the result would be an increased harvest of bucks before they achieved their optimum body size and antler development. Hunters participating in TDM would have to exercise extreme caution to avoid accidental or illegal kill.

It should be recognized that it is unrealistic to “stockpile” older bucks. Studies have shown that mature bucks are more vulnerable to winter stress, predation, and other causes of natural mortality, including fighting and cranial abscessation syndrome (injuries to the skull resulting from aggressive encounters between antlered bucks during the rut). Therefore, under TDM adult bucks should be harvested during their “prime,” usually at age 5½-6½ years. As they grow older, antler size and body weight should decline, reducing their trophy status.

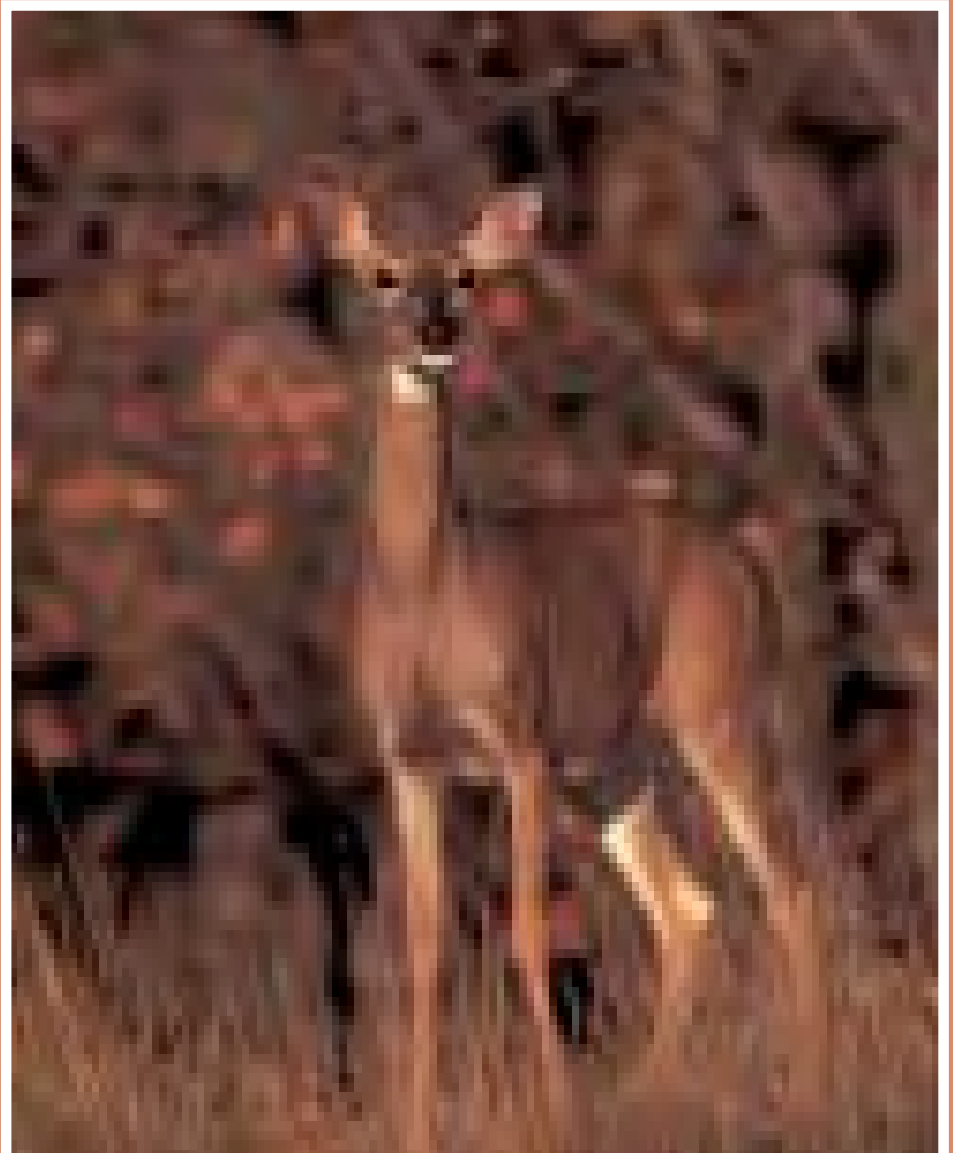


Photo by John R. Ford

**LANDOWNERS CONSIDERING TDM MUST RECOGNIZE THAT THE NUMBER OF DOES MUST BE REDUCED TO ACCOMMODATE A HIGHER NUMBER OF ADULT BUCKS IN THE HERD.**



Photo by Mark Romanack

**LIBERAL ANTLERLESS HARVESTS THROUGHOUT MUCH OF THE UPPER MIDWEST HAVE ALLOWED MORE BUCKS TO SURVIVE TO ANOTHER YEAR.**

## Healthy Herd in Balance With Existing Habitat

Like any other strategy, TDM requires some knowledge of soil fertility and how it affects habitat. Depending on the setting, efforts to maintain or improve habitat quality would differ. Depending on soil fertility, habitat quality would be expected to be higher in areas with good interspersions of agricultural and forest land. By comparison, habitat quality is expected to be lower where poor soil fertility dominates or where large contiguous blocks of older monotypic forest occur. Generally, an aggressive effort to maintain a good interspersions of forest types and age classes should be considered to optimize the capability of the habitat to support deer.

Whatever is done to maintain habitat quality, the over-winter population goals or herd density for any property should be based on consultations with wildlife professionals. To strive for a higher herd density than is recommended on surrounding lands could have some serious drawbacks. Higher deer numbers could result in increased damage to agricultural crops and ornamental trees and shrubs or gardens on adjoining lands, and higher vehicle collisions, in particular.

It must be recognized that it is very difficult for the lay person to determine

herd density without input from wildlife biologists who have responsibility for local and statewide deer management programs. An understanding of the current deer population is vital to any deer management program. Few if any landowners have the expertise or capability to determine how many deer there are on their property. It would even be difficult for professional wildlife biologists to obtain accurate estimates on relatively small parcels within a deer management unit. When deer populations are in balance with the habitat, the desired doe harvest would equal recruitment of females into the breeding cohort, assuming representative harvests of various sex and age classes. Appropriate antlerless harvests would have to consider herd status and the ratio of antlerless deer to adult bucks in the local harvest. In practice, landowners implementing TDM should consult with a local wildlife biologist to determine the appropriate harvest ratio of antlerless deer to adult bucks and consider the other factors mentioned earlier.

## CONSIDERING TDM? CONSIDER THE ISSUES

### The Big Picture

Any effort to pursue TDM should consider what is occurring regionally and on immediately surrounding lands. For example, in central and southern Wisconsin there has been a general

increase in the proportion of adult bucks 3½ years and older since 1990. Prior to 1990, the percentage of bucks aged 3½ years and older averaged less than 5% in most of central and southern Wisconsin. Since then, the percentage has increased to 10-15% in many areas, and more than 20% in some areas. A larger percentage of older bucks has been due in part to local “refuges” that have sprouted up in many rural settings as residential development has increased. Landowners in these settings may be concerned about safety, so they often close most or all of their property to hunting. Others are either opposed to hunting, or severely restrict hunting opportunity. Liberal antlerless harvests throughout much of the Upper Midwest have also allowed more bucks to survive to another year. Thus, many hunters may be satisfied to take 1-2 antlerless deer per year under current liberal hunting regulations and may forgo shooting a buck if they do not see a “trophy.” In addition, some hunters are practicing QDM and passing up small antlered bucks to allow more bucks to reach an older age on private lands. Whatever the situation, there are still many areas in any state where bucks are not under a lot of hunting pressure, and where true trophy-hunters that are willing to travel can scout and seek out older-aged bucks.

### What is a Trophy?

Depending on the hunter, the definition of a trophy buck may differ consider-



Photo by Donald M. Jones

**DEPENDING ON SOIL FERTILITY, HABITAT QUALITY WOULD BE EXPECTED TO BE HIGHER IN AREAS WITH GOOD INTERSPERSION OF AGRICULTURAL AND FOREST LAND.**



Photo by George Barnett

**ADULT BUCKS THAT DISPERSE FROM A PROPERTY MANAGED TO PRODUCE MORE OLDER BUCKS MAY NOT BE AVAILABLE TO HARVEST DURING HUNTING SEASON.**

ably. The young or first-time hunter may be very satisfied with a small antlered buck, adult doe, or fawn. Another hunter may only go for a buck with 10 or more points. Whatever our conviction or preference, we have to respect the right of others to make their choice. In recent years, many hunters have been accustomed to harvesting small antlered bucks or antlerless deer. This has now resulted in more hunters preferring large-antlered deer over quantity of harvest. Emphasis on going after a big buck also has been repeatedly drilled into our mentality by hunting magazine articles and commercial Deer Classics, so anything less is sometimes considered less than desirable.

### Movement of Bucks

**A** study in southern Illinois indicated 80% of the radio-tagged yearling bucks and 10% of the older bucks moved

from the Crab Orchard Wildlife Refuge to adjoining private lands during the rut. The average distance moved was 5 miles among yearlings. By comparison, only 13% of yearling does, 7% of older does, and 4% of fawns dispersed off the refuge. A similar pattern was observed in Georgia where bucks dispersed much more than does. Dispersing bucks remain more vulnerable to hunting and other causes of mortality, and may not survive to return to their original home range. Given this information, adult bucks that disperse from a property that is managed to produce more older bucks may not be available for harvest where intended. This situation would be more severe if the TDM property is too small to insure that most of these bucks could be recovered. The minimum size of a tract managed for more older bucks should probably be several thousand acres.

### Unretrieved Wounding Mortality

**W**hatever the harvest strategy on an area managed for older bucks, you have to allow for some level of unretrieved wounding. There are some risks. Generally, it is assumed that about 10-15% of the legal harvest will be unrecovered due to hunting season injuries during conventional hunting seasons. At Sandhill, during hunts where adult bucks were protected and antlerless deer were the only legal game, about 10% of the harvest consisted of accidental and illegal kills, principally spike bucks with antlers more than 3 inches long. Some hunters had difficulty determining whether a deer was legal. Requiring that legal deer have antlers is one thing, but proving a deer DOES NOT have antlers is another matter. Some of the loss was due to careless shooting — taking shots at running deer that were not positively

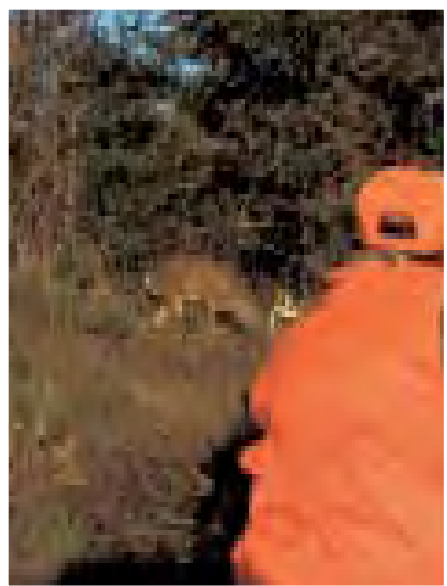


Photo by George Barnett

**UNDER TDM, LANDOWNERS MIGHT BE INCLINED TO IMPOSE HIGHER USER FEES, SINCE HUNTERS ARE WILLING TO PAY RELATIVELY HIGH FEES FOR AN OPPORTUNITY TO HARVEST A TROPHY BUCK.**

identified as antlerless deer. Most of these deer were shot and left to rot. Some hunters accidentally shot bucks with forked antlers, and it appeared they could not easily shift to hunting antlerless-only. They may also have had an ingrained mentality that if you see a buck you shoot it. It also might be logical to expect some hunters to take long distance shots or deliberately attempt to shoot at running large antlered bucks, and this would be especially discouraging on a property managed for more older bucks. Shooting at any running deer, especially at long distances could easily exacerbate the level of unretrieved wounding mortality. If small antlered bucks are designated to be protected, expect that some of these deer will be accidentally shot. Hunter performance elsewhere may differ from Sandhill where hunters were restricted to a one-day hunt, but whatever the circumstances it remains difficult for hunters to decide when and what deer to harvest, unless strict guidelines are imposed.

## IMPLICATIONS OF TDM

A percentage of hunters and landowners who practice TDM may feel compelled to take greater interest in understanding more about deer and the property they hunt or manage. Hunters

would have to exercise greater self control and be sure of their target before shooting. Hopefully, hunter ethics and respect for the animal would improve. Hunters would have a greater opportunity to observe older bucks and learn more about deer behavior. Most hunters obtain considerable satisfaction from just seeing deer or finding any telltale signs of bucks, including trails, scrapes, rubs, and other evidence. As a result, hunters might feel more compelled to explore the world of the whitetail on a property managed for more older bucks.

## Privatization

Wildlife is considered the property of all of the people and should be managed for the benefit of all citizens. Given this perspective, many are concerned that TDM will further undermine the long held North American tradition of free hunting on public lands, or free-by-permission hunting on private lands. However, private landowners can restrict public access and have the right to charge a fee for the privilege to hunt on their land. In effect, they can decide the degree of privatization they will dictate. They can decide who is allowed to hunt or observe wildlife, and when it is appropriate to step foot on their land. Landowners also might be inclined to impose high user fees, since many hunters are willing to pay relatively high fees for an opportu-

nity to harvest an older buck, particularly a trophy buck. Conspicuously wealthy trophy hunters are already paying exorbitant fees for a chance to harvest trophy animals in various parts of the country. One question that all hunters should ask is, "Does the excessive fascination with shooting very large antlered bucks threaten the future of our hunting heritage?" On the other hand, programs that provide financial or tax incentives for the landowner are a legitimate expectation, and if they promote land management practices that favor deer and other wildlife, they should be encouraged. The federal Conservation Reserve Program (CRP) is an example of a successful program that provides tax incentives for landowners who manage a portion of their property for the benefit of wildlife.

## Mineral Supplements

Individuals interested in TDM may be inclined to provide mineral supplements to enhance antler growth and body development among bucks on their property. Harmon P. Weeks Jr., associate professor of wildlife ecology at Purdue University compiled information on this in his chapter entitled *Mineral Supplementation for Antler Production* in the book entitled *Quality Whitetails, The Why and How of Quality Deer Management* published in 1995. In the final analysis, Mr. Weeks indicates "there is no proof



Photo by George Barnett

**HUNTERS WOULD HAVE A GREATER OPPORTUNITY TO OBSERVE OLDER BUCKS AND LEARN MORE ABOUT DEER ACTIVITY.**

that mineral supplementation assists in producing quality antlers in wild deer, but some studies suggest possible benefits.” He goes on to say “even if it ultimately proves beneficial, mineral supplementation is only one of several factors (including age structure, genetic quality, population density, and food quality) that must be considered to produce a quality deer herd.” In a study in Alabama, comparisons of antler size were made between two groups of captive 1½ and 2½ year-old bucks, one fed a vitamin and mineral supplement recommended for domestic livestock, and the other a normal diet. Each age class was monitored until they were 4½ years old. No difference in antler size was detected between the two groups or by age class. In another independent study in Louisiana, investigators compared the effects of mineral licks on body and antler size in captive and wild deer. The same conclusion was reached. No measurable benefits were found to supplementing the diet using mineral supplements. Another question hunters might ask is, “Do we really want to apply principles of domestic animal husbandry to white-tailed deer management?” Aldo Leopold (1933) said, “The recreational value of a game animal is inverse to the artificiality of its origin and the intensiveness of the management system that produced it.”

## Image of Hunters

**E**mphasis on the taking and exhibiting of trophy animals raises concerns among anti-hunters and some of the general public, particularly an individual who’s primary concern is inflating his/her ego. The non-hunting public is much more supportive of hunters who hunt for food rather than a trophy. Trophy hunters may inadvertently downgrade those hunters who harvest small antlered deer, does, or fawns. It should be acceptable to be an everyday hunter who simply enjoys being afield and is satisfied with just seeing deer as opposed to taking a deer, let alone a trophy buck. People really get alarmed when they hear about individuals who shoot big bucks strictly for selling the head and cape as a mount, or antlers for use as aphrodisiacs. Shooting deer over bait, coupled with illegally hunting after hours incites additional anti-hunter sentiment. So hunters have an ongoing

responsibility to maintain high ethical standards if they expect to be respected, and the sport of hunting is to continue as a source of legitimate outdoor recreation. Finally, TDM is not for everyone. In fact, it may be for an exclusive few who can afford it. When asked, most hunters are very interested in shooting more older bucks, but most are unwilling to forgo the opportunity to harvest a small-antlered buck where they hunt.

## SUMMARY

TDM remains much more difficult to achieve than QDM and is far costlier than QDM, since the opportunity to harvest adult bucks would be considerably reduced. In order to achieve a more even distribution of young and old bucks, hunters would have to pass up all small-antlered bucks. Reduced harvests of 2½-4½ year-olds would also be necessary, while targeting prime-age 5½-6½ year-old and older bucks. In practice, this would require careful attention to restrictions on hunter effort (number of hunters allowed to participate throughout the hunting season) and selection of deer to be shot — a very tall order. Hunters participating in TDM would have to exercise much greater caution to avoid accidentally or illegally killing animals that were intended to be protected.

TDM would also require very aggressive harvests of antlerless deer. Under trophy management, deer herds are maintained at 30% of the carrying capacity of the habitat (referred to as K – the maximum number of animals that the habitat will support). Under QDM, deer herds may be maintained at 50-60% of K. In order to maintain the deer herd in balance with the desired over-winter density that is compatible with the habitat, removal of antlerless deer would have to be more liberal than under QDM. The ratio of antlerless deer to adult bucks in the harvest may average 1.5 or higher, but would vary with habitat quality, the

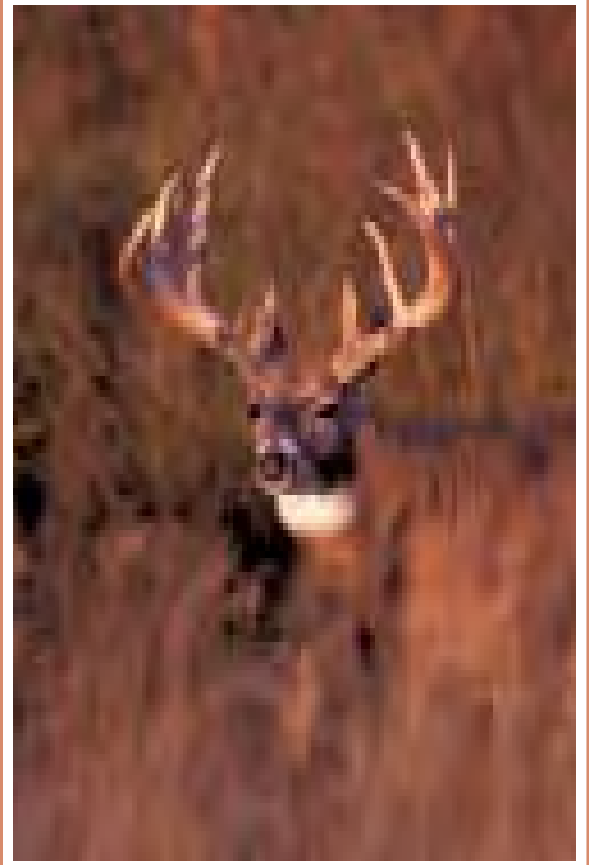


Photo by Steindorf Photography

**MOST HUNTERS ARE VERY INTERESTED IN SHOOTING OLDER BUCKS, BUT MOST ARE UNWILLING TO FORGO THE OPPORTUNITY TO HARVEST A SMALL-ANTLERED BUCK WHERE THEY HUNT.**

over-winter herd density goal, and winter severity, among other factors.

For those hunters who are looking for more exceptional large-antlered bucks to shoot, TDM may be an option to consider. For some others, QDM may be a viable option. Both of these harvest strategies has various implications and risks, including the potential for greater unretrieved wounding mortality and accidental or illegal kills, and movement of bucks to adjoining lands where they could be shot by other hunters, among other factors. Inadequate removals of antlerless deer and more privatization of deer hunting that only the elitist hunter could afford are other concerns. Both QDM and TDM have many complexities that at first glance may not be recognized. If you are considering either of these strategies, it’s important to consider all of the implications. Finally, there already is an opportunity to harvest an exceptional trophy buck in many areas of the Upper Midwest today. 🏹

**S**ince our beginning in 1982, Whitetails Unlimited has remained true to its mission and has made great strides in the field of conservation. We have gained the reputation of being the nation's premier organization dedicating its resources to the betterment of the white-tailed deer and its environment.

*In keeping with tradition, Whitetails Unlimited will continue to design and implement programs based on the best information research has to offer, yet routinely assess the quality of WTU's existing programs.*



*A National Organization  
"Working For An American Tradition"*

**Whitetails Unlimited, Inc.**

*National Headquarters*

PO Box 720, Sturgeon Bay, WI 54235

1-800-274-5471 • [wtu@itol.com](mailto:wtu@itol.com)

[www.whitetailsunlimited.com](http://www.whitetailsunlimited.com)

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#### **ABOUT THE AUTHOR:**

John Kubisiak earned a B.S. degree in Wildlife Management from the University of Michigan in 1961. He retired in 1996 following a 34-year career in wildlife management and research with the Wisconsin Department of Natural Resources. He was honored with numerous awards for his research on ruffed grouse, wild turkeys and deer, and he received the WDNR Bureau of Research Award for Excellence in 1987. He has authored or coauthored more than 30 publications including contributions to books on ruffed grouse, wild turkeys and quality deer management. He is the lead author of a forthcoming book covering 30 years of deer and hunter management on the Sandhill Wildlife Area in central Wisconsin.