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OPPORTUNITIES NOW

An Analysis of Priority Issues and Actions
for Wisconsin's Natural Resources

2021
2023

Meeting Wisconsin's Deer Conservation Challenges

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VOICES FOR CONSERVATION

Meeting Wisconsin's Deer Conservation Challenges

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About this Work:

Opportunities Now is an issue paper series published by Wisconsin's Green Fire that summarizes the science and background of key conservation and environmental issues and makes policy recommendations that support pro-conservation outcomes. Each of the papers in our Opportunities Now series is the product of an analysis of current literature, interviews with agency staff and experts, and the consensus of our subject matter teams. Policy makers, conservation organizations, and concerned citizens are all welcome to use and distribute Opportunities Now papers without restrictions.

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Source: WDNR

Meeting Wisconsin's Deer Conservation Challenges

Summary

Wisconsin's white-tailed deer herd is being affected by several large-magnitude stressors that, taken together, threaten the conservation of one of our most iconic wildlife species.

In this report Wisconsin's Green Fire examines,

- Chronic wasting disease (CWD) which is now found in 32 Wisconsin counties.
- Widespread habitat deterioration caused by deer over-browsing.
- An inability to control deer herd size in Wisconsin's farmlands.
- Long-term declines in the number of deer hunters which limits ability to manage herds through hunting.

Our current deer conservation policy is too inflexible, is too driven by short-term priorities, and is too under-resourced to allow effective response to these threats. These limitations put the future of our deer population and the benefits deer provide for Wisconsinites at risk. White-tailed deer are deeply intertwined in Wisconsin culture and quality of life. We have a public trust responsibility to ensure deer are properly managed for current and future generations.

Wisconsin needs a long-term vision and a new approach to deer conservation that addresses the following challenges:

- Our approach to CWD must give priority to reducing disease prevalence, reducing its spread, and rapid suppression of new disease sparks.
- The restrictions currently preventing efforts by County Deer Advisory Councils and the Wisconsin Department of Natural Resources (WDNR) to enact effective herd harvest controls should be removed.
- Deer management activities must recognize ecological land types and match population objectives to the capacity of those land types.
- Wisconsin needs a strategic plan to recruit, retain, and re-activate deer hunters who fuel our $2.2 billion deer economy and whose role is vital to deer herd management.
- Finally, we need the fiscal and staffing capacity within the WDNR to accomplish these actions.

Background

From the beginning of human existence in Wisconsin deer have been an important part of human cultures[1]. White-tailed deer remain one of our most cherished and economically important wildlife species. Today, deer are embedded in Wisconsin's tradition and quality of life as evidenced by Wisconsin's 630,000 deer hunters, who spend over 7 million outdoor recreation days annually hunting deer. Deer related activities generate nearly $2.2 billion annually[2].

For Native Americans and early European explorers and settlers, deer were an essential source of food, clothing, and tools. During the period of settlement and farming in the 1800s, deer became an economic commodity as meat and hides from harvested deer were sold and traded. The influence of deer in Wisconsin can be found in the names of many of our lakes, villages, towns, and cities. Deer-shaped effigy mounds are visible proof that Wisconsin's earliest human inhabitants held this animal in high esteem.

State and federal regulations ended commercial trading of wild deer around 1900. Regulated hunting managed by the Wisconsin Department of Natural Resources (WDNR) is now the norm.

A Public Trust

White-tailed deer, like all of Wisconsin's wildlife species, are legally considered a public trust resource, belonging to all Wisconsinites. The State of Wisconsin, which is the designated trustee, is required to conserve wildlife to the benefit of current and future generations of state citizens. Trustee responsibility for Wisconsin's deer herd is the statutory responsibility of WDNR and the seven-member Natural Resources Board.

Successfully executing the State's trustee role for white-tailed deer requires:

- Careful and continuous monitoring of our deer population, hunter harvest, and the habitats deer require.
- Regulating the annual harvest to achieve desired population objectives within safe and sustainable levels.
- Monitoring social and ecological trends affecting deer conservation and taking prompt action to mitigate negative impacts.
- Monitoring the impacts of the deer herd on native vegetation and other wildlife species.
- Educating Wisconsin's citizens on deer issues and engaging stakeholders in establishing policy and actions to manage the deer herd and habitats.

Wisconsin's Deer Management Framework

Much of our current deer management framework resulted from a reorganization of WDNR around 2011, under newly elected Governor Scott Walker. Responding to pressures from some hunting groups, Governor Walker commissioned an independent assessment of Wisconsin's deer program by Texas-based wildlife consultant Dr. James Kroll.

Following recommendations in *Dr. Kroll's Deer Trustee Report*, Wisconsin's long-standing deer management zones were dissolved and reorganized around county

boundaries. County Deer Advisory Councils (CDACs) were established in each county to provide local feedback to WDNR on deer management decisions.

Kroll's 2012 Deer Trustee Report[3] recommended Wisconsin change its Chronic Wasting Disease Response Plan[4] to a "passive approach". Since that time, efforts to stop the rising incidence and spread of CWD, or to detect and aggressively control new satellite outbreaks, were scaled back significantly.

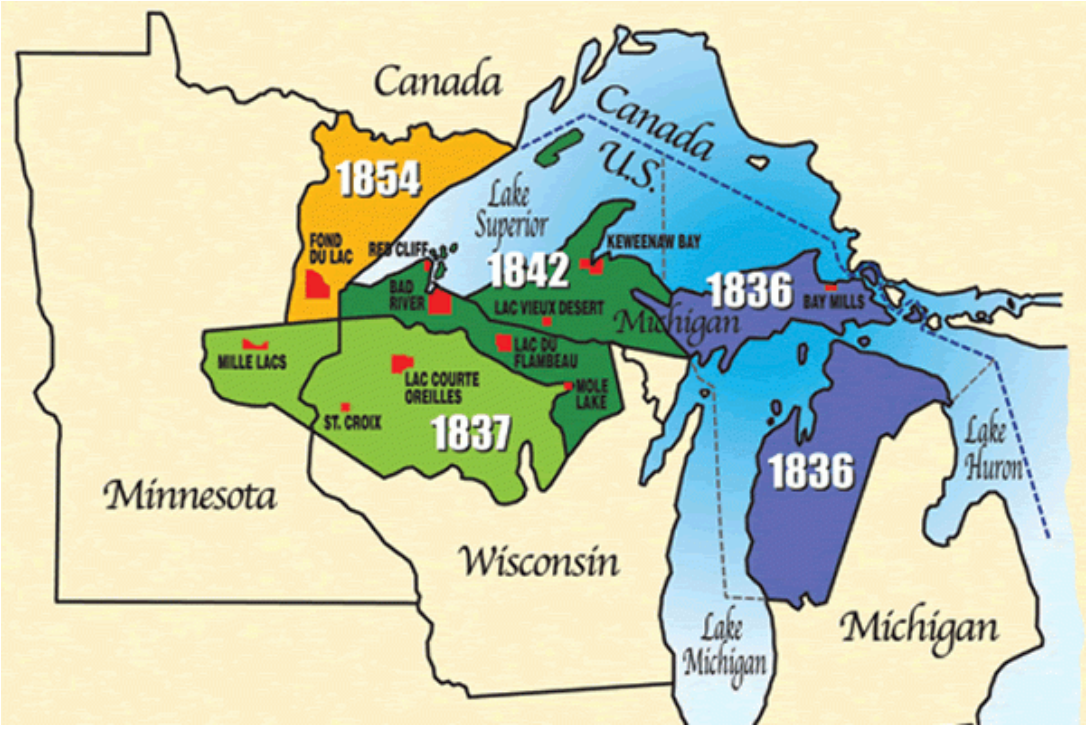
State and Tribal Partnership

The Ojibwe name for white-tailed deer is Waawaashkeshi. Deer conservation policy in most of northern Wisconsin is guided through coordination and consultation with tribes that have retained rights to harvest deer.

United States Indian policy recognizes Native American tribes as governments with inherent sovereignty that pre-exists that of the federal government or of any state. Meaningful tribal consultation has been a long-standing cornerstone of Wisconsin's responsibility in natural resource management.

Ojibwe Tribes in what is now northern Michigan, Wisconsin, and Minnesota retained rights in 19th century treaties to hunt, fish, gather, and use natural resources in the areas known as Ceded Territories, which include a large portion of northern and central Wisconsin. A 1983 U.S. Court of Appeals decision known as the LCO/Voigt Decision established the clear responsibility for states to make all reasonable efforts to reach a consensus with recognized tribes around hunting, fishing, trapping, and all other management issues of any treaty reserved resource.

Any deer management policy that impacts Ojibwe harvest rights in the ceded territories requires government to government consultation. Many of the State-Tribal deer conservation agreements are formalized in court stipulations between the parties.



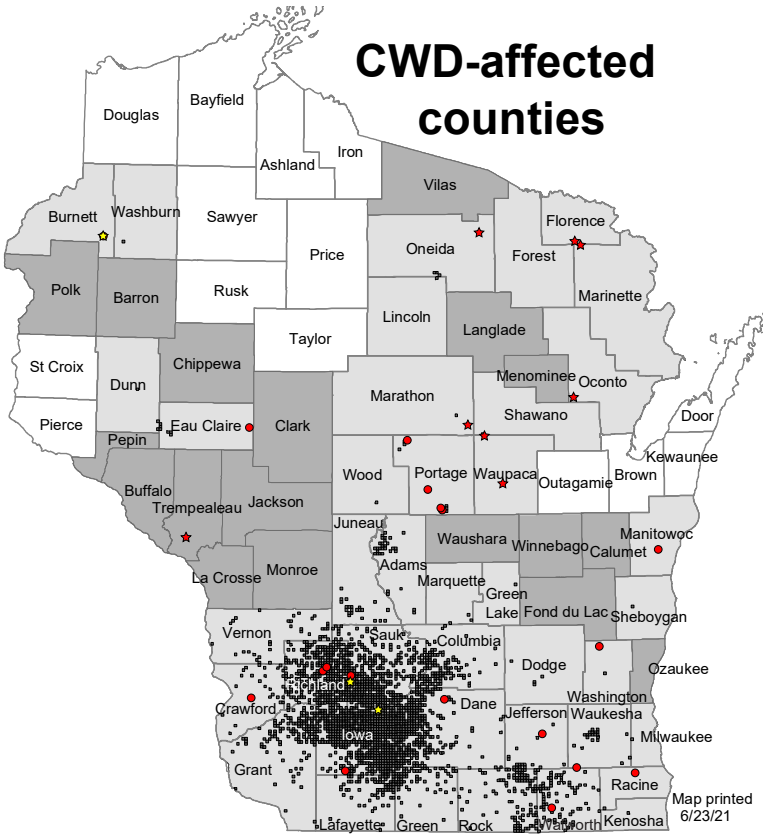
Ceded territories in the Upper Great Lakes States. Source: Great Lakes Indian Fish & Wildlife Commission. Pages that contain this image: Building Resilience in the Great Lakes (accessed 3/26/2021)

Primary Threats to Wisconsin White-tailed Deer

I. Chronic Wasting Disease is Spreading and Prevalence is Increasing

The primary biological threat to Wisconsin's deer herd is Chronic Wasting Disease (CWD)[5]. Among Upper Midwest states, Wisconsin had the earliest detection of CWD and now has a far higher prevalence of CWD infection.

This always fatal deer disease is spread via self-propagating deformed proteins known as prions. CWD has spread from the first Wisconsin wild deer detections in 2001 in Dane and Iowa Counties, and is now known to exist in 32 counties. An additional 25 counties are within 10 miles of a wild or captive CWD-positive deer. Where CWD is present, WDNR surveillance shows steady increases in prevalence.



Locations of positive CWD tests, Wisconsin counties currently affected, and counties on a "watch" list. Source: WDNR.

The primary goal in controlling CWD should be a reduction in disease transmission and prevalence. As CWD prevalence increases, the rate of new infections and CWD-related mortality also increases.

Infection rates in adult males have been recorded in excess of 50% in Iowa, Richland, and Sauk Counties. With this continued level of infection the average age of deer will decline and herd populations will diminish. The bottom line for hunters and consumers of venison is that an increasing percentage of the deer herd will be unfit for human consumption.

Adult bucks are particularly affected by the increased prevalence of CWD[6]. While Wisconsin's disease detection and carcass disposal efforts have led the nation, state action has been inconsistent and inadequate to stop or reverse the upward trend in prevalence and slow the spread of the disease.

Since the 2011 Deer Trustee Report, the WDNR has largely abandoned efforts to directly slow the spread of CWD, and instead surveillance and detections through testing have become WDNR's primary response. The Department of Agriculture, Trade, and Consumer Protection (DATCP), which regulates the captive deer farm industry, has likewise not used its authority fully to limit spread of CWD when detected in captive deer herds.

As prevalence and transmission continue to accelerate, management actions to mitigate CWD impacts will be challenging, costly, and will require changes in how we manage deer and CWD[7]. Baiting and feeding bans, harvesting antlerless deer, and using proper carcass disposal methods are important tools that need more consistent application.

Although research has not yet shown direct evidence of CWD transmission to humans, medical professionals remain concerned about the possibility[8]. The World Health Organization, Center for Disease Control, and Wisconsin's Department of Health all recommend avoiding consumption of harvested deer that test positive for CWD.

Caption: A mid-day lunch break from the hunt. CWD is the biggest threat to Wisconsin's cherished deer herds. Photo credit: Jerry Davis.

Environmental contamination by prions is also of concern. CWD Prions may persist in the soil at mineral licks[9], where animals congregate or where infected animals have died. Research from the National Wildlife Health Center demonstrates that prions can be taken up in the foliage of plants, including crops such as corn, and may then be absorbed by wild herbivores, livestock, and humans[10].

Wisconsin's Ojibwe tribes are very concerned about the spread of CWD into the ceded territories and the potential threat that the disease poses to the many tribal members who rely on venison as a source of food. In his 2019 State of the Tribes address to the Wisconsin Legislature, Oneida Nation Tribal Chair Tehassi Hill called CWD an unprecedented threat to deer and asked the Wisconsin Legislature to tighten deer farm regulations and devote more funding to research[11].

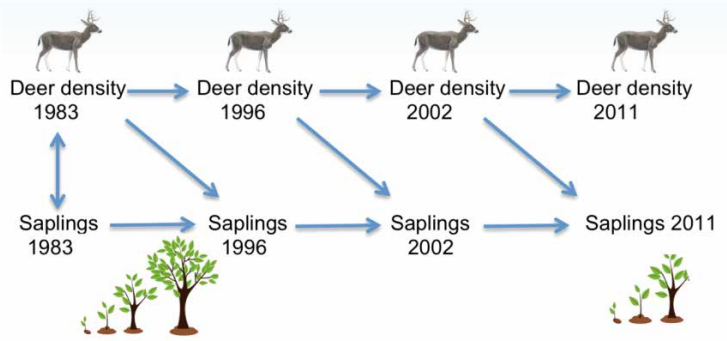
At this late stage of disease development in Wisconsin, elimination of CWD is not a realistic or achievable goal, at least not until research develops effective preventative treatments that could be deployed in the field at a large scale. Such treatments are not on the near horizon. There are still significant benefits, however, that can be achieved in slowing the spread of CWD through reduction in disease transmission and prevalence.

Because no practical treatment exists to eliminate CWD once it becomes endemic in an area, preventing the spread of CWD to uninfected areas is by far the most realistic and effective strategy in disease control. Wisconsin should increase efforts to slow the spread of CWD through effective disease management based on science and using existing tools and resources.

II. High Deer Densities Reduce Forest Productivity and Degrade Forest Habitat

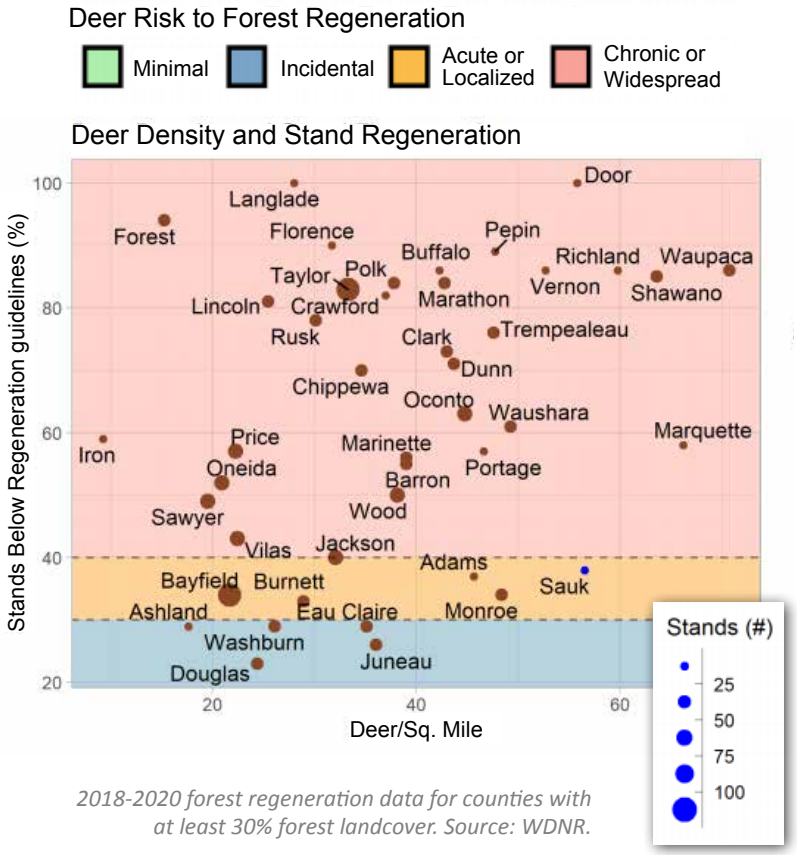
Since the early 2000s, the Wisconsin deer population has been higher than at any time in our state's history. Between 2007 and 2019 statewide post-hunt (winter) deer population estimates have averaged approximately 1.15 million animals.

Multiple research studies point to a loss of forest tree and ground flora species, a decrease in forest structural complexity, and deterioration in forest habitat quality across much of Wisconsin due to excessive browsing by high deer populations[12,13]. These changes in the forest structure and composition in turn affect other wildlife species, most notably depressing the abundance and diversity of breeding songbirds[14].



As the density of deer has increased over time the density of tree saplings has declined.

Bradshaw and Waller's 2016 analysis of tree composition data collected during 1993-2013 from 13,000 forest inventory and analysis plots located throughout Wisconsin's northern forest revealed deer browsing has depressed sapling density and altered tree composition to favor less palatable species[15]. Similarly, a recent WDNR analysis of deer impacts to forest stand regeneration point to profound long-term impacts and future risk to forest regeneration and forest productivity due to over-browsing in most of the assessed counties[16].



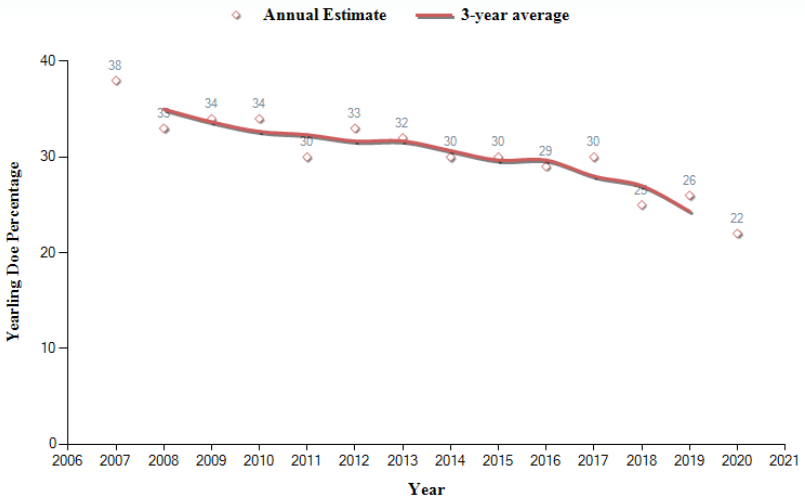
2018-2020 forest regeneration data for counties with at least 30% forest landcover. Source: WDNR.

Increased deer browsing pressure will also limit the ability of many tree species to respond to climate change. Some species projected to do well under a future climate are also preferred browse for deer, which will make survival and regeneration challenging.

Deer browse preference often also favors undesirable tree species and other woody vegetation that were not previously consumed, such as ironwood, or invasive plants like buckthorn. This shift in browse results in species shifts that cause loss of desirable natives like sugar maple and oaks.

III. Deer are Chronically Underharvested in Wisconsin Farmlands

Since 2002, deer populations have increased dramatically and consistently in farmland zones while the antlerless deer harvest has decreased during that same time period.

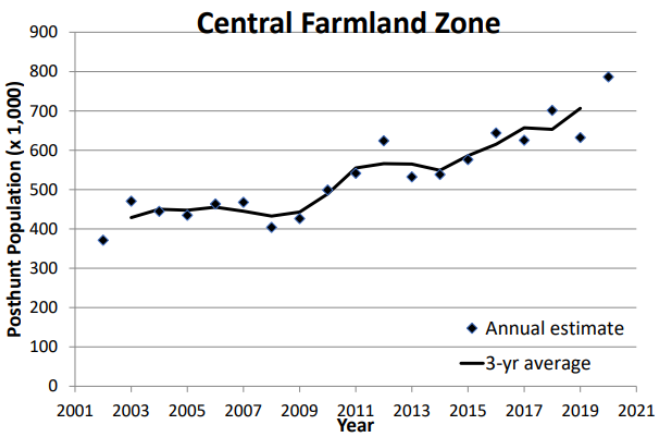


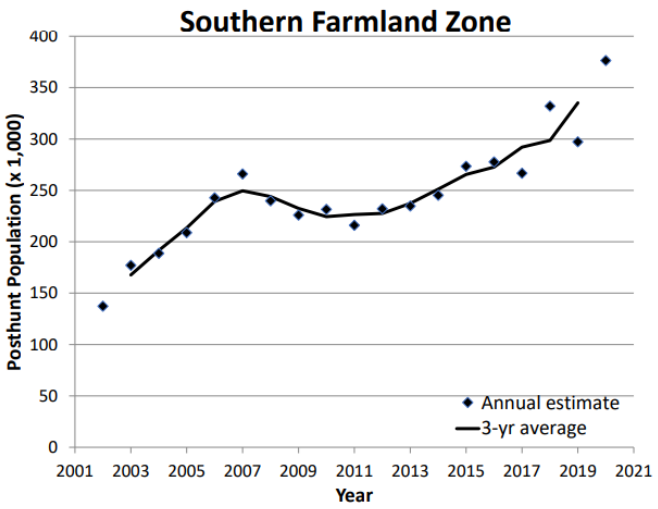
Yearling doe (1.5 year olds) as a percentage of the antlerless harvest in the Central Farmland Management Zone, 2007-2020. Source: WDNR.

Current population levels create high risks and costs for both people and deer. Over-populated herds harm forest productivity and damage crops, which is expensive for forest owners and farmers. Increased deer-vehicle collisions harm motorists and raise insurance premiums each year. Overly high deer populations contribute to increased opportunity for CWD transmission.

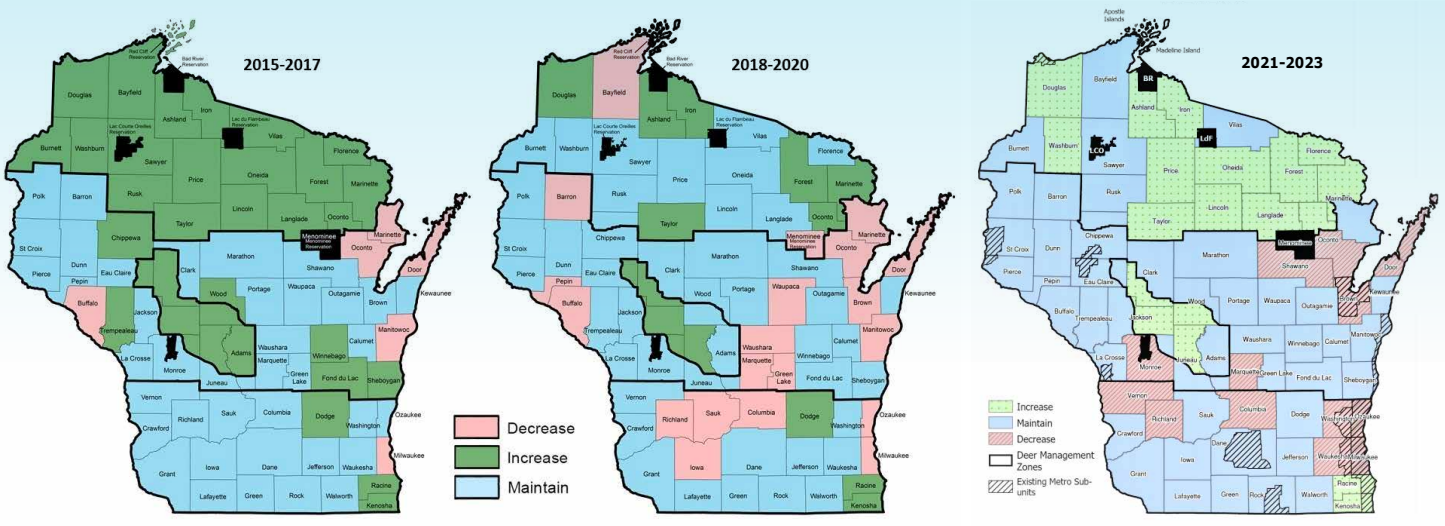
Controlling the growth of populations (herd control) in Wisconsin's Central and Southern Farmland Zones is dependent upon adequate annual hunting harvest of antlerless deer. The harvest of female deer (does) always has a higher impact on population reduction than harvesting male deer (bucks). 'Earn-a-Buck' hunting rules require hunters to harvest antlerless deer before harvesting an antlered deer. These rules are well-understood and effective tools for managing and reducing deer populations. Various prescriptions for antlerless harvest in Wisconsin were commonly used in Wisconsin until around 2009.

After 2009, when the implementation of antlerless harvest requirements declined, the harvest of antlerless deer by hunters decreased substantially. Legislation enacted in 2011 further limited the ability of WDNR to hold October antlerless firearm hunts and use Earn-a-Buck regulations[17]. Farmland deer populations responded dramatically to these restrictions and have grown consistently from 2009 until present.





Post-hunt deer population trends for the Central and Southern Farmland Management Zones, 2002-2020. Source: WDNR.



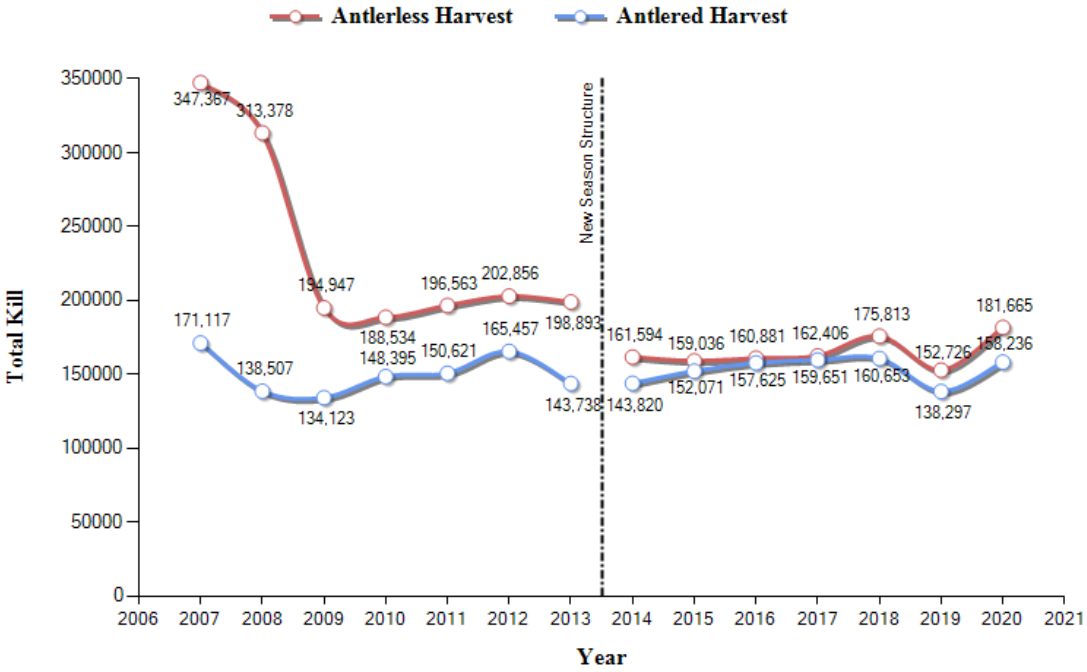
A comparison of the deer population objectives established for Wisconsin's deer management. Source: Wisconsin DNR.

As farmland deer herds have continued to grow, many CDACs recommended that their county deer population objectives shift away from "increase" to "maintain", or from "maintain" to "decrease". The Department approved their recommendations and began to take actions intended to decrease these herds. Although WDNR increased issuance of antlerless deer permits and authorized antlerless deer holiday hunts based upon CDAC endorsement, these methods alone have been ineffective at reducing the farmland deer numbers.

Earn-a-Buck rules are the most effective herd control tool in the deer managers' toolkit[18]. The current state laws preventing WDNR from applying Earn-a-Buck rules are a barrier to effective herd control and are contributing to deer populations that cannot be managed at stable levels with current tools.


Deer Hunter Demography:
Projecting Future Deer Hunters in Wisconsin

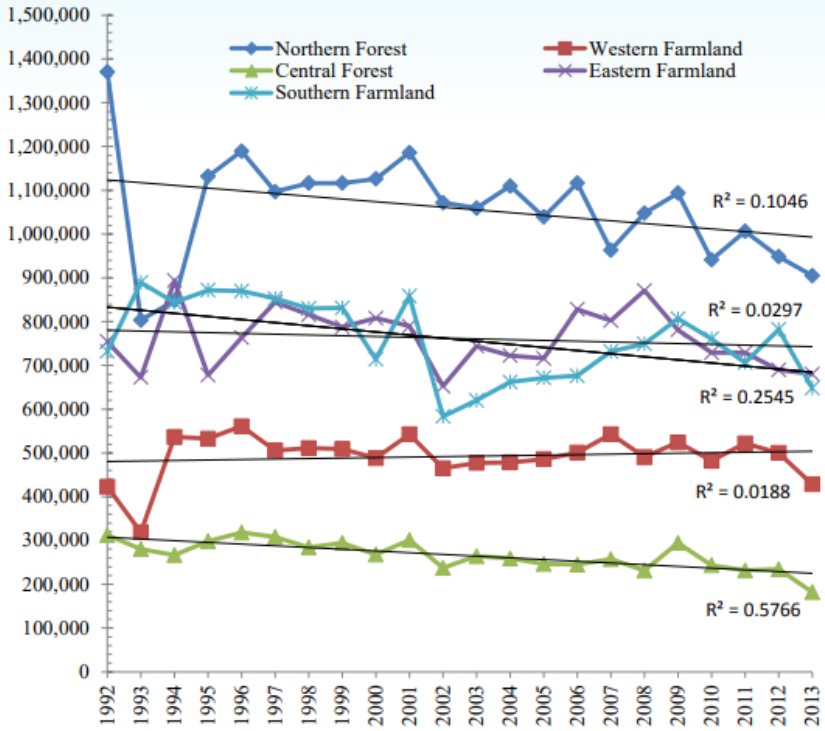
A UW-Madison analysis of deer hunter demographics forecast declining numbers. Source: Huck and Winkler, 2008



Total antlered and antlerless deer harvest in Wisconsin, 2007-2020. Source: WDNR.

IV. Deer Hunting is in Decline

Age and demographic studies conducted by researchers at the University of Wisconsin-Madison in 2011 predicted a 28 percent decline in the number of male gun deer hunters by 2030[19]. Declining participation among adult hunters has and will continue to create cascading effects on efforts to recruit youth into deer hunting.



Trends in hunter effort (number of hunter days) during the 9-day gun deer season, 1992-2013. Source: WDNR.

The baby boomer generation of deer hunters are aging, with related reduction in numbers able to hunt deer, and the exodus of older hunters is not being matched by the recruitment of new hunters. The net effect is fewer deer hunters spending fewer days afield and a diminished capacity for harvest.

Total deer hunting license sales dropped by 5.8% between 1999 and 2017, according to a new report by the Wisconsin Policy Forum, a nonpartisan group with offices in Milwaukee and Madison.

Hunter effort declined in three of the five deer management regions since 1992. The number of hunter days also declined 34 percent in the Northern Forest region over the same period. Hunters in the Southern Farmland region spent 11 percent fewer days hunting in 2013 than in 1992. Hunter effort remained relatively stable in the Western and Eastern Farmland regions. The largest decline in hunter effort occurred in the Central Forest region where hunter days declined 39 percent since 1992[20].

Other factors exerting downward pressure on hunter numbers and new hunter recruitment include a highly urbanized population and other recreational choices competing for available leisure time. Many Wisconsin hunters also no longer have a family connection to hunting land and must establish new hunting patterns.

The WDNR has recognized that the Recruitment, Retention, and Reactivation (R^3) of hunters and anglers is critical to future conservation efforts.

Efforts to slow declines in participation include encouraging "Learn to Hunt/Fish" events, offering special licenses for persons wanting to try hunting or fishing, and offering grants to organizations that wish to help with R^3 programming.

Wisconsin's R^3 efforts would benefit from a strategic plan similar to what WDNR uses for property management or species conservation. Development of a plan should engage and educate the public on the participation issues Wisconsin faces and what the R^3 priorities should be going forward.

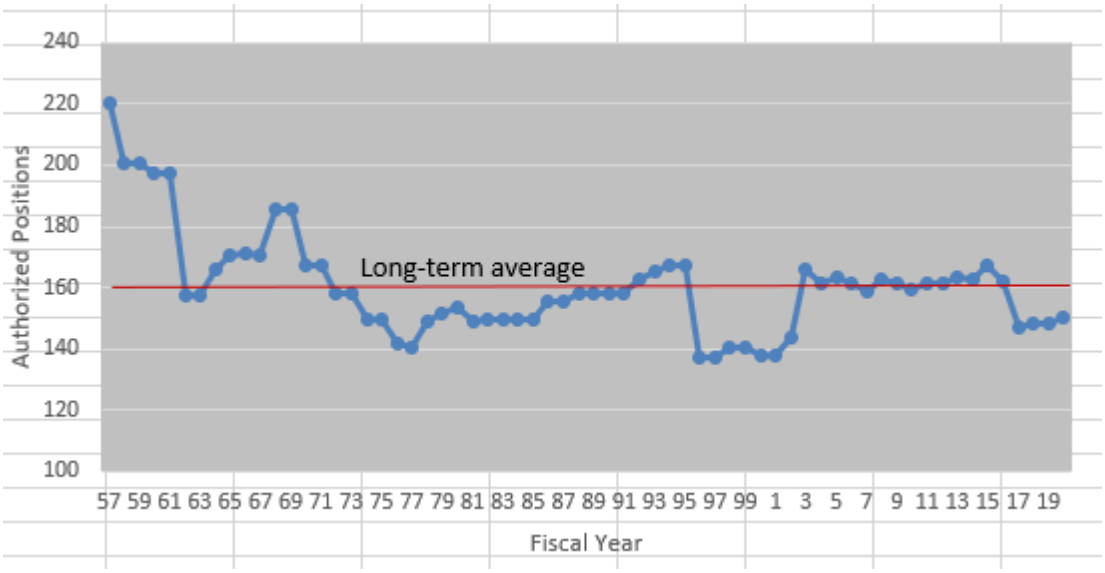
V. Deer Conservation Needs Exceed Agency Capacity

When modern-era, science-based conservation policies were put in place in the 1950s, Wisconsin's deer herds occurred primarily in the Northern and Central Forest regions of the state. Conservation efforts focused on building herd monitoring techniques, regulating the harvest, and reducing winter mortality. Today, deer are common in every county of the state.

Much has changed in the last 70 years. Wisconsin's human population has increased by 50% since the 1950s. Deer conservation efforts must now address overabundant deer herds and their related impacts, including deer-vehicle collisions, spread of disease, and damage to forest composition and agricultural crops. Current deer conservation must also consider other ecological changes, such as a growth in populations of deer predators (black bear, coyotes, wolves, and bobcats) and the decline in songbirds (especially those affected by changes in forest structure and ground flora).

The WDNR's deer conservation efforts are funded almost entirely by user fees from hunting licenses and federal excise taxes collected on purchases of hunting equipment. The number of department staff responsible for implementing deer conservation policies (conservation wardens, wildlife biologists, researchers) has remained static or has decreased since the 1950s. Most wildlife staff must balance deer management with many other responsibilities. The COVID-19 pandemic further reduced the capacity of WDNR to conduct deer conservation activities as programs faced hiring freezes and adjusted deer herd data collection to minimize human contact.

Responding to deer diseases is but one conservation need that illustrates a mounting capacity challenge. In 2019, hunters submitted 1,491 deer in Iowa County for CWD testing at a cost of more than $85,000. If all 4697 deer harvested in Iowa County



Authorized Wildlife Management Program positions (permanent, project, and seasonal), 1957-2020. Source: WDNR.

in 2019 were tested as recommended by public health officials, the cost would have been more than $267,000. Statewide, far less than 10% of harvested deer are submitted for testing each year, suggesting that as CWD continues to spread and the number of infected animals increases, funds available for education and increased CWD testing will need to be significantly increased in future years.

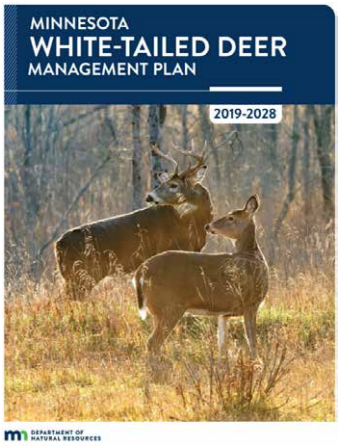
Proper disposal of CWD-contaminated deer carcass waste is another cost Wisconsin must fund. WDNR established an 'Adopt-A-Dumpster' program in 2019 in response to the increased need to provide proper disposal for deer carcasses from CWD-infected areas. Recognizing that it did not have the staff or funding to operate a large-scale dumpster program, the department recruited private individuals, businesses, and organizations to assist in funding the program. An estimated 220 tons of deer waste was safely disposed of in 2019 through a combination of 59 partner- and 32 WDNR-funded dumpsters. Carcass disposal costs will continue to increase as CWD continues to spread in Wisconsin.

WDNR does not currently have the staffing or the financial resources to respond effectively to CWD. Despite the important contributions of partners, the overall funding allocated for CWD response is inadequate for a public health concern of this magnitude.

VI. Wisconsin Needs a Strategic Plan for Conserving our Deer Herds

The long-standing and increasingly complex challenges impacting deer conservation require long-term and targeted solutions, ranging from an active CWD control program, to an administrative policy that allows more flexibility in regulations, to habitat management that no longer promotes larger deer herds where overpopulation is already a problem.

Wisconsin's current deer conservation policies are too inflexible, short-term, overly politicized, and do not adequately reflect local conditions for deer or their habitat.



The 2019 Minnesota White-Tailed Deer Management Plan provides a 10-year vision and strategic guidance for the state's deer herd. Wisconsin is in need of such a plan.

In 1995, WDNR prepared a comprehensive environmental assessment on deer population goals and harvest management[21]. The assessment included the ecological, socio-economic, and harvest management effects of various deer population densities. Since then, our understanding of these relationships has improved greatly. The assessment should be updated to incorporate the most recent scientific research to guide future deer conservation decisions.

Wisconsin currently needs a long-term strategic plan for deer conservation that is comprehensive in scope and with a long planning horizon. Such plans are used in Wisconsin and in other states for species such as wild turkey, ruffed grouse, beaver, elk, and wolves. Instead, Wisconsin deer conservation policy is largely prescribed in state statute and agency administrative rules.

A strategic planning process can be an especially effective way to ensure the wide variety of viewpoints about deer and deer policy held by hunters, hunter

organizations, conservation groups, and stakeholder groups can be considered and reflected in a planning process.

In contrast, updating statutes can be highly unpredictable from year to year due to political influences. And since passage of the 2011 Act 21, and 2017 Wisconsin Act 57 (the "Reins Act"), development of even the simplest administrative rules now require a multi-year effort requiring both legislative and gubernatorial approvals at multiple points. This is a flawed process that too often ends in failure, despite thousands of hours of staff efforts and even overwhelming public support.

Wisconsin's existing deer conservation policy is poorly adapted to current needs. Deer conservation can be improved by removing regulatory authority from political interests; relying on science and professional wildlife scientists; conducting reviews of management units and population objectives on longer, more ecologically relevant scales; and by matching deer herd monitoring and management to better correspond to ecological landscapes.

Conclusions

Deer are important to the citizens of Wisconsin and we face large conservation challenges. Meeting these challenges successfully requires new solutions and new commitments. If we wish to conserve our deer herd and the habitat they need, Wisconsin's citizens, hunters, wildlife managers, and elected officials will need to work together to reestablish a shared vision that addresses today's needs and that anticipates tomorrow's challenges.

Photo by Chuck Ledin

Recommended Actions

= Executive Action = Budget = Policy

1. Overhaul Wisconsin's 2010-25 CWD Response Plan. Prioritize efforts to reduce disease prevalence, slow its spread, and develop a rapid response to new detections.

a. Authorize WDNR to work with Wisconsin's Ojibwe Tribes and CDACs to implement hunting programs that increase the removal of CWD-positive deer and reduce disease transmission. Wisconsin should reward landowners and hunters for their disease suppression efforts.

b. Implement a permanent statewide baiting and feeding ban. Currently deer baiting and feeding is banned in 56 CWD-affected counties, but the ban lapses if additional CWD-positive deer are not detected within three years. A statewide ban would slimplify the current patchwork of rules, help reduce the risk of further spreading CWD, and gain better compliance.

c. Design and implement a statewide solution for deer carcass disposal that provides hunters with convenient and safe disposal options.

d. Conduct annual surveillance sufficient to: 1) inform the public of the likelihood of harvesting a CWD-positive deer (+/- 5%) within all CWD-infected deer management units, and 2) detect changes of 5% or more in CWD prevalence in each management unit over a 5-year interval.

e. Require rapid depopulation of CWD-positive deer farms in areas where CWD has not been detected in the wild deer herd.

f. Improve public reporting of CWD surveillance testing data on captive cervid farms as has been done in Pennsylvania.

2. Establish a long-term strategic conservation plan for white-tailed deer.

a. WDNR should work with Wisconsin's Ojibwe Tribes and CDACs to reconfigure deer management units to align with ecological cover types and establish measurable over-winter population objectives that match carrying capacity for each unit. Implement a new system beginning in 2024.

b. The conservation plan should include a comprehensive analysis of deer herd population fluctuations and habitat condition over time. These metrics should be used to inform regularly scheduled reviews of the management system, including the financial and staff resources needed to gather the data.

c. WDNR should update the 1995 environmental assessment for deer population goals and harvest management.

3. Complete development and approval of Wisconsin's Recruitment, Retention, and Reactivation (R^3) plan by 2023. The R^3 of deer hunters should be a top Department priority.

4. Remove statutory restrictions that prevent implementation of effective herd control using October firearm seasons and Earn-a-Buck.

a. Provide CDACs and WDNR the authority to recommend and implement October firearm seasons and Earn-a-Buck requirements in Deer Management Units that are not achieving their desired population objectives.

5. Create a 10-year deer conservation reinvestment fund for implementation of the white-tailed deer strategic conservation plan.

a. Provide support for a deer conservation initiative by establishing a $10 deer conservation stamp to hunt deer in Wisconsin and matching all fee revenues with general purpose tax revenues generated by Wisconsin's deer economy.

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