



Wisconsin Department of Natural Resources

# Investing in Wisconsin's Whitetails





Over the last 60 years, the department has developed a deer herd monitoring and management system that seeks to use the best science and data possible. The deer monitoring system is more comprehensive, complex, and intensive than for any other wildlife species managed in Wisconsin. A recent audit (2006) by an international panel of experts found the department's deer population modeling system to be a sound program, as good as or better than that of any state. Yet, no system is perfect and challenges remain, including hunter concerns with deer population model accuracy. Nonetheless, we continue to strive to be responsive to Wisconsin's citizens and enhance the accuracy and precision of deer population estimates. To that end, the department is investing a record amount of its resources for Wisconsin whitetails.

The purpose of this document is to describe the actions we have taken or will take to improve our deer population monitoring. Putting all the actions in one place allows us to ensure that we are addressing all the issues, tracking progress, and communicating our efforts. The goals of this document are to:

- make people aware of the department's actions for improving the deer population monitoring system,
- optimize the accuracy and precision of deer population estimates and projections, and
- increase public confidence in department deer population estimates and management.

We invite you to help implement these actions. We are seeking to build partnerships to help make these actions successful.



# Objectives and Strategies

## Objective 1: Fully implement recommendations of the Sex-Age-Kill model audit.

In 2006, an international panel of external experts conducted an audit of the department's primary deer population estimation system, called the Sex-Age-Kill (SAK) model. The audit report can be found on the DNR website. The audit panel's recommendations are being implemented through the following improvements.

### Completed:

**Abundance vs. Density Estimates** – Auditors recommended that deer population size be communicated to the public as abundance (total) rather than densities (number per square mile of deer range). Density communications can lead to the mistaken belief that deer are evenly distributed. The department is providing both deer population size and density to the public.

**Yearling Buck and Doe Averages** – Yearling buck and doe averages are used to estimate buck harvest rates and adult sex ratios, key components of the Sex-Age-Kill population estimates. Auditors recommended that 5-year averages be used in the model to develop population estimates. The department is using 5-year averages.

**Stakeholder SAK Audit Steering Committee** – A stakeholder steering committee met following the audit and recommended that the department make communication and outreach its top priority. They recommended 5 actions which the department is following through on including: 1) update the deer management guide (in progress); 2) develop a SAK information sheet (completed); 3) include a SAK audit segment in the Deer Hunt TV show (completed); 4) put an article on deer herd estimation in the Natural Resources Magazine (completed); and 5) develop a DVD to expand on the TV show audit segment (exploring use web video clips and web marketing strategies to expand viewership).



## In progress:

**Deer Management Unit (DMU) Consolidation** – The audit panel suggested that larger deer units would provide increased precision for unit deer population estimates. This concept and a consolidation proposal were brought to public meetings in 2009, and public input was split on the proposal. Lacking strong public support, the department did not advance DMU consolidation in its 2009 deer management unit review rule. The department will again propose unit consolidation in the next Deer Management Unit Review (2013), with options for combining comparable adjacent units into larger units.

**Relationship of Over-Winter and Fall Population Size** – Auditors recommended analysis of data to better understand the growth rates of populations from winter to fall to aid in projection improvements. Department staff are working with University staff on this analysis.

## Scheduled for 2010:

**Monthly Fawn:Doe Ratios** – Fawn:doe ratios are a measure of productivity. They are used in the Sex-Age-Kill estimate of deer population size. Auditors recommended that only August and September observations be used to estimate fawn:doe ratios. The department did not immediately implement this recommendation. A review of fawn:doe data shows that use of existing August and September data would result in higher population estimates, but the number of observations for August and September are currently inadequate for precise estimates of fawn:doe ratios. The department will focus staff efforts on gathering sufficient fawn:doe observations this August and September and no longer collect July observations.

**Buck Recovery Rate Study** – Auditors recommended that buck recovery rates (proportion of total mortality that is hunter harvest) should be estimated through field studies. The buck recovery rate is a key factor in the model for expanding the hunting season buck kill to the total population estimate. The department plans to initiate such a study this year (see Objective 2).



## **Objective 2: Conduct research and data analyses to enhance understanding of deer populations and deer hunters.**

Beginning in 2010, the department will make its greatest investment ever in Wisconsin deer research. Federal Wildlife Restoration Act funds will be used to conduct a number of research projects to improve our deer population knowledge. The University of Wisconsin will be a key partner in these research efforts. We will be looking for help from additional partners to increase our capacity for gathering valuable information through these research studies. Most of these studies are multiple-year projects. They include:

**Buck Mortality Study** – This study will provide information on the magnitude and relative importance of various causes of buck mortality (hunting, predation, vehicle collisions, weather, etc.) for the areas studied. This study will be conducted in northwestern and eastern Wisconsin. It will begin in winter 2010-2011.

### **Predation Study** –

This study will provide information on the causes of mortality and rates of loss of fawns, including the roles of predation, habitat, and weather for the area studied. It will complement a similar study under way in Michigan. This study will be conducted in northwestern Wisconsin. It will begin in 2011.



### **Deer Population Goals** –

This study will provide information on deer population levels that provide for both sustainable deer hunting recreation and sustainable forests. This study will be conducted in northern and central Wisconsin. It will begin in 2011.

**Deer Survey Techniques Study** – This study will provide information on the value of an alternative deer population estimation technique using aircraft. This method is called the “distance sampling method”. The study will be conducted in western and eastern Wisconsin. It was initiated in February, 2010.

**Deer Hunter Study** – The University of Wisconsin and the department are studying hunter and landowner attitudes, beliefs, and confidence in deer population management. This study will be expanded to look at factors affecting deer hunter numbers with the goal of increasing hunter participation and retention rates. It will begin in 2010.

**Predation Impacts** – Department and University staff are working to review past research and develop models to better understand the impacts of wolves, bears, coyotes, and bobcats on deer in Wisconsin. Their report will be available in March, 2010.



**Chronic Wasting Disease Research** – The department will continue to work with research partners from universities and other agencies to increase knowledge of CWD and its potential short-term and long-term effects on health and size of the herd.

**Other Deer Studies** – The department will seek insights from research projects on deer population dynamics in other states, including Minnesota and Michigan.

### **Objective 3: Use and evaluate other sources of information on deer population abundance.**

The department will continue to review and collect data on other measures of deer abundance. Strategies include:

**Vehicle Collisions** – The department will continue to track deer-vehicle collision data from salvage operators, Department of Transportation summaries of officer-investigated accidents, and insurance claims. The department will contract with a university post-doc to evaluate the usefulness of these data for deer population monitoring purposes.



**Aircraft Surveys** – Deer surveys will continue to be conducted from helicopters and fixed-wing aircraft in the Chronic Wasting Disease Management Zone. As mentioned earlier, research is being initiated on the value of using a “distance sampling technique” with fixed-wing aircraft in western and eastern Wisconsin.

**Accounting Model** – The department will continue to use and refine an “accounting” model to estimate deer population size in deer management units where the Sex-Age-Kill model cannot be used. The SAK model is not used in units with recent earn-a-buck seasons due to impacts of this regulation on buck harvest rates.

## **Objective 4: Involve hunters in collection of data on deer numbers and hunting conditions.**

The department has regularly sought hunter input through public involvement processes and surveys. Hunters have expressed interest in greater involvement in collection of deer population data. Conservation groups have also expressed a desire to become more involved. In response, the department has initiated the following forms of hunter involvement:

**Hunter Observations** – Beginning in 2009, hunters were asked to report how many deer they saw while hunting and the hunting conditions they experienced. They could report their observations on their deer registration stub and on the department website. This information was collected on over 300,000 deer registration stubs. Hunters also reported their observations on the department website from nearly 20,000 hunting trips during 2009. Deer hunter registration and online reports will be compared among years and compared to changes in model estimates of population size. It will take a number of years of collecting these observations before this data can be interpreted relative to deer herd abundance changes.

**Fawn:Doe Ratios** – A number of hunters are being added as cooperators in this survey of annual recruitment of fawns to the population. The department will evaluate opportunities for expanding hunter participation in this survey.

The department will continue to review methods used by other states to involve hunters and will work with stakeholder groups to see how they might want to be more involved in collecting population data or indices.



## Objective 5: Implement actions that provide healthy deer population goals.

The department is implementing the following strategies:

**Updating Deer Range** – Unit deer herd goals are a product of deer range and deer density goals (for example, 400 square miles of deer range multiplied by a goal of 25 deer per square mile of range = 10,000 deer goal for the unit). The department will evaluate the usefulness, availability, and affordability of dataset options for calculating current deer range in Wisconsin's deer management units.

**Deer Population Environmental Assessment** – The department will work to update a comprehensive environmental assessment on deer population goals. The assessment will consider impacts of various deer population densities on deer population health and sustainability, recreationists, natural resources, and economic interests. This assessment will provide valuable information for setting new deer population goals in the next deer management unit review.



## **Objective 6: Increase timely communications with stakeholders on survey results, research findings, and department procedures.**

The department is stepping up communications with the public to keep them aware of deer population information. Examples of the department's investment in communication strategies include:

**Deer Communications Team** – The department has assigned staff to a team that is responsible for getting information to hunters and the general public through outlets they use.

**Deer Communication Plan** – The department has developed a calendar of news releases that will get important information to the public in a timely manner.

**Alternative Outreach Methods** – The department is increasing use of website, video, social networking technology, and radio to get messages out to the public.

**GovDelivery** – The department is using an internet system to instantly update all people who have signed up for this notification service online.

**DNR Web Page** – The department is revamping its web page to make it easier for people to find the information they are looking for.

**Wisconsin's Deer Management Program: The Issues Involved in Decision-Making** – This deer management guide, written to help the public understand deer management procedures, is being revised and will be printed and posted for public consumption.

**Natural Resources Magazine** – The department's magazine will be used to update readers on new deer population information.



**Regional Focus** – Department communications will focus on deer region and CWD zone population size, rather than statewide deer population size. Regional information is more relevant to hunters' experiences.

**March Herd Status Meetings** – Department biologists will continue to meet with the public each March to review data and observations on deer population size and to discuss potential harvest prescriptions for the coming year. The department will explore additional alternatives for informing and engaging the public.

**Sex-Age-Kill (SAK) Fact Sheet** – A fact sheet has been prepared to explain how this deer estimation model works and what it can and cannot do. This fact sheet will be placed on the department web site.



**Chronic Wasting Disease Outreach** – The department is working with professional communication firms to improve information about CWD management needs and efforts.

## Partnership Opportunities

The department will invest significant funds and staff in the initiatives outlined in this document. However, additional funds and stakeholder collaboration are needed for success and full implementation of this plan. The department appreciates participation thus far by the University of Wisconsin and the U.S. Forest Service. The department looks forward to working with hunting groups and other stakeholder groups willing to contribute to the actions that will attain our common goals. Many opportunities exist for partners to provide funds, materials, and labor for these important projects.





# Wisconsin

## Department of Natural Resources

### Our Mission

To protect and enhance our natural resources:  
our air, land and water;  
our wildlife, fish and forests  
and the ecosystems that sustain all life.

To provide a healthy, sustainable environment  
and a full range of outdoor opportunities.

To ensure the right of all people  
to use and enjoy these resources  
in their work and leisure.

To work with people to  
understand each other's  
views and to carry out  
the public will.

And in this partnership  
consider the future  
and generations to follow.





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Printed on  
Recycled  
Paper

Publication Number: WM-528-2010



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