

39th Midwest Deer and Wild Turkey Study Group Meeting
Perlstein Resort and Conference Center
Lake Delton, WI September 8-11, 2015
Notes by Krista McGinley and Robert Rolley

Welcome to Wisconsin. We were welcomed by Kevin Wallenfang of the Wisconsin Department of Natural Resources.

Land Ethic Reclaimed: Perceptive Hunting, Aldo Leopold, and Conservation - Tim Van Deelen, UW-Madison. UW-Madison offered a Massive Open Online Course (MOOC) last winter related Aldo Leopold and the land ethic. The idea of a MOOC fits well with the Wisconsin Idea. The Leopold MOOC lasted 4 weeks, with each week dedicated to a different concept.

1. Modern recreational hunting in North America
2. Ecological dimensions of hunting (population management, sustainable hunting, predators)
3. Private lands – controversies and community models (political ecology, private lands models from Leopold)
4. Emergence of the perceptive hunter (perceptive hunting, diverse ethical cultures)

Each week included a roadmap for the week's instruction, short video lectures, selected readings accessible via the public domain or an easily-secured license, an activity for students to complete on their own and report back, a quiz, and a discussion forum. A total of 6,847 students registered for the MOOC, and 4,751 actually participated. While 74% of the registered students were from North America (representation from all 50 states, though mostly Wisconsin), 127 different countries were represented.

SnapShot Wisconsin - Jennifer Stenglein, Wisconsin DNR. SnapShot Wisconsin is a citizen-based trail camera project to monitor wildlife, with goals of providing data for wildlife management decision making by filling spatial and temporal gaps in knowledge, developing new metrics to monitor the deer and predator populations at state and county levels, and increasing citizen participation in wildlife monitoring. The project was based on recommendations from the Deer Trustee Report, including assessing statewide distribution and abundance of carnivores, developing new methods to monitor deer populations, increasing citizen involvement, and creating better relationships between the agency and the public. The basic procedure for wildlife management is to determine a population goal, estimate the population size, and establish a manipulation of that population. SnapShot Wisconsin can help by contributing to a better understanding of a population's spatial extent, temporal extent (phenology), and data consistency and rigor.

Why Fewer Gun-deer Hunters Bought Licenses in 2010 and 2011 - Robert Holsman, Wisconsin DNR. Wisconsin's hunter population is declining due to both reduced recruitment (fewer young people replacing older hunters who age out of hunting) and a retention problem (established hunters ceasing or suspending their participation). A UW-Madison demographic study showed an 8% drop in deer hunting among 40-year-old males between 2000 and 2009 (cascading effects on youth recruitment) and projected a 27% decline in license sales by 2025. Why are we losing adult male gun-deer hunters? Prior studies have found that major reasons for hunter drop-out to be lack of time and lack of places to hunt (land access). We conducted 7 focus groups and mail surveys of lapsed and annual hunters. While Wisconsin has substantial amounts of public land, focus groups showed that public lands are viewed as overcrowded and overharvested. Survey results showed that major factors driving current drop-out include dissatisfaction with deer encounters, frustration over deer management (esp., earn-a-buck

regulations and extra seasons [e.g., youth seasons]), land access issues, and license cost. There are a number of factors that could be contributing to fewer deer encounters, lower deer population size, but also hunters hunting smaller parcels, an increase in the number of private land refuges, a decrease in land access, lower participation in drives, the use of tower stands, the practice of baiting leading to nocturnal and/or reduced movements, climate change leading to less snow and warmer temperatures, and increased bow hunting pressure and harvest. A comparison of lapsed hunters to annual hunters found that lapsed hunters were more likely to only hunt deer, rely on public land, hunt with a smaller number of other hunters, and tended to have a lower quality of hunt. Suggested that land access and availability of deer may create a carrying capacity of hunters.

Recruitment, Retention, and Reactivation in Hunting and the Shooting Sports - Keith Warnke, Wisconsin DNR. “One and done” events for kids do not result in NEW hunters. Success requires goals, objectives, and evaluations that clearly demonstrate R3 outcomes. Without change, we know how this story will end. Actions and goals within Wisconsin can be aligned with the National R3 Plan, a collaboration between agencies, NGOs, and active industry participants (Council to Advance Hunting and the Shooting Sports). Goal: increase participation in and public support for hunting and the shooting sports. What do we have now? Wisconsin’s Learn to Hunt Program: 91-96% of 2006-2007 LTH participants said they bought a license. LTH is effective at serving hunters, because participants are not new to hunting. Program sponsors tend to recruit participants from hunter safety classes. We also have the Mentored Hunting Law.

The millennial generation is the largest and most diverse generation in America. They care about social issues (like where their food comes from) and are highly networked. Quality of life is one of their primary focuses, and they are willing to take time off for recreation. Many of these adults are interested in hunting. Why? They have the authority, they have the money, they want to be more active participants in acquiring food, and they have or will have kids they can introduce to hunting at the same time. The investment point is low for adults. All they need is a mentor, a place to hunt, and some equipment to borrow.

Three critical questions must be asked and answered correctly. 1) How are you tracking participants? 2) Can you show the results/outcomes of your efforts to recruit new license buyers? 3) Where are the survey data?

County Deer Advisory Councils - Kevin Wallenfang & Ben Beardmore, Wisconsin DNR. Among the Deer Trustee Report’s many recommendations were more local involvement, increased communications, more involvement from the Wisconsin Conservation Congress (WCC), and qualitative population objectives rather than numeric goals. In response, Wisconsin developed County Deer Advisory Councils (CDACs). CDAC membership includes representatives from the WCC, forestry, agriculture, tourism, local hunting/sportsmen’s clubs, the urban/metro area, transportation, and a participant in the Deer Management Assistance Program. County staff from the DNR bureaus of Wildlife, Law Enforcement, and Forestry served as non-voting liaisons to the councils. At least 3 CDAC members must have deer hunter credentials. Member from the Chippewa tribes were invited to join CDACs in counties within the Ceded Territory but they opted not to participate. The CDAC charter is to gather public opinion on deer populations and objectives, antlerless quotas, and herd management strategies; review and consider scientific metrics on deer herd trends, impacts to habitat and agriculture, and human/deer interactions; provide the department with recommendations on deer population objectives and antlerless quotas. Starting in 2016, they can also provide recommendations on season frameworks.

An evaluation was conducted after the first year of CDAC in order to learn from the experiences of the 70+ councils, generate information to improve departmental support for councils, and establish a baseline for assessing trends in the attitudes of CDAC participants. Methods included focus groups with CDAC chairs, interviews with DNR biologists and council members, participant observations of seven spring meetings, and surveys of all CDAC members and DNR field staff. The evaluation concluded that overall, CDAC members are happy with the new process. Each county, however, had its own successes and challenges. Primary issues/challenges included the question of increasing public participation, filling vacancies on councils, working within the new DMU boundaries, achieving deer population objectives with the available tools, and managing various “hats” (i.e. personal vs. professional, WCC delegate vs. neutral chair, etc.).

WICCI: Understanding Climate Change in Wisconsin - David S. Liebl, UW-Madison

The Wisconsin Initiative on Climate Change Impacts seeks to understand ways we can adapt to the consequences of climate change by creating regionally relevant climate history and climate projections; assessing climate change impacts on specific Wisconsin natural resources and ecosystems; evaluating potential climate vulnerabilities of industry, agriculture, tourism, and other human activities; identifying climate adaptation strategies; and facilitating climate outreach and learning. WICCI consists of ~200 scientists and resource managers at state and local levels.

We've been measuring temperature and rainfall since the 1800s. Wisconsin has warmed by 1-1.5°F since 1950. Wisconsin's growing season has lengthened by 1-4 weeks since 1950. 55 ecological indicators of spring occurred on average 1.2 days earlier per decade from 1936 to 1998. The month of maximum snow cover has shifted from February to January, accelerating spring melt by almost 2 weeks. From 1970 to 2010, the rate of decrease in snow cover was 7-11%.

In order to make global climate model simulations relevant for decision makers, they were scaled down to a resolution of around 10 km. These models predict a 6°F change in average mean temperature between 1980 and 2055, with the seasonal change in precipitation greatest in winter (just like temperature).

Wisconsin's projected climate can be summarized as follows: warmer winter and nighttime temperatures, frequent hot summer days, heat waves, and dry periods, increased frequency and intensity of precipitation, and more rainfall and less snow during winter and spring. Wisconsin's tension zone is projected to move north due to a warming climate. As a result, many northern plant and animal species will have to adapt. Please remember that short-term variability (weather) and extreme events cannot be predicted by these models!

As far as impacts on ecological landscapes go, oak savannas may persist. They are already intensively managed, and climate changes that favor prairie conditions may help maintain or increase these habitats. Red pine and red maple are more vulnerable. There will be an increased disconnect between photoperiod and temperature-dependent interactions.

There will be some winners and losers in the wildlife world. Winners will have short generation times, wide distributions, will move easily across landscapes, will have general habitat requirements, and will not be sensitive to human activity. Loser characteristics will essentially be the opposite, including long generation times, narrow distributions, poor dispersal abilities, specific habitat requirements, and sensitivity to human activity. Some species that are expected to be negatively impacted include brook trout, American marten, and snowshoe hare.

Our adaptation strategies will need to focus on conserving and connecting habitat. The principle and objective of a land acquisition strategy are to adapt to changing circumstances by protecting and restoring lands to facilitate species' adaptation to shifting land use and climate impacts. Business adaptations would include production, harvest, and transport practices, technological developments, financial management, and government programs and insurance.

The WICCI 1st Adaptive Assessment Report includes a summary of changes (climate trends in Wisconsin, understanding adaptation), impacts (water resources, natural habitat and biodiversity, agriculture and the soil resource, coastal resources, and people and their environment), and actions (implementing adaptation, moving forward).

Chronic Wasting Disease: a national update - *Bryan Richards, National Wildlife Health Center*. Funding from USDA for disease surveillance has decreased resulting in reduced understanding of disease distribution. Recent events include documentation of 80% prevalence in a depopulated captive facility in Iowa, detection of disease in free-ranging deer in northeastern Iowa across the Mississippi River from Wisconsin, detection of positives well south of known affected area in Missouri, detection of 2 captive facilities in Ohio with CWD, 6 new counties in Kansas, new positive captive game farms in Alberta and Utah, a new positive farm in Wisconsin with a history of escapes, detection in wild deer in Michigan, 2 new counties in Illinois, and CWD in a captive deer herd in Texas. Recent research has documented population impacts of elk in Rocky Mountain National Park in Colorado, prion shedding in urine and saliva 3 months after infection, prior uptake by plants and ability to transmit disease when bound to plants, detection of subclinical disease in humanized mice that on second passage caused clinical disease, and the accuracy of rectal mucosa biopsies decreased with repeated testing resulting in false negative test results. Live animal tests are not accurate for clearing animals for movements. Vaccine research is showing potential for extending the life of infected deer but has not yet demonstrated complete protection.

Deer Breakout Session

Big Data for Big Game: Custom Web Apps to Automate and Simplify the Wildlife Workflow - *Josh Nowak, University of Montana*. Josh and others at U. Montana have been working with South Dakota Game, Fish and Parks and other state agencies on automation of the analysis of data collected for various wildlife species. Currently for South Dakota they have included data for both species of deer. They have developed a user-friendly website that biologists can use to analyze harvest, herd composition, survival, and pregnancy data. Project goals are data accessibility, automation, consistency and repeatability, and to enable proactive management. They have developed integrated population models that allow managers to project deer populations into the future while considering different harvest regimes. Plans are to develop additional models for elk, mountain lions, and other species. Looking to add mapping capabilities.

Integration of Harvest and Time-to-event Data Used to Estimate Demographic Parameters for White-tailed Deer - *Andrew S. Norton, University of Wisconsin-Madison*. Approximately 1,000 were captured and collared during 2011-14. In the northern forest, predation was the leading cause of mortality outside of the hunting season, but mortality was greater during more severe winters. It appeared that predation was largely compensatory mortality as most deer that died were in poor physical condition. In the eastern study area human-caused mortality was the leading cause outside of the hunting season. Starvation of juveniles was documented in 2 winters. Hunting season mortality was similar between age classes in the north and was fairly stable among years. In the eastern study area hunting season mortality was higher for adult bucks than

for yearling bucks and varied among years. Opening weekend mortality was affected by corn harvest and temperature. Developed a Bayesian state-space model to integrate data on recruitment, hunting and non-hunting season survival, and harvest age structure. The integrated model compared well to SAK estimates in the northern forest study area but was consistently higher than SAK estimates in the eastern Study area.

Deer Dispersal Research - *Brittany Peterson, University of Wisconsin-Madison*. Using data from the deer survival study to better understand the factors governing dispersal of yearling males. Have data from 140 bucks in the northern forest and 176 bucks in the eastern farmland. Dispersal rates were fairly stable in the eastern farmland with ~50-60% of yearlings dispersing. Dispersal rates were more variable in the northern forest study area with 60% in 2012 but only 30% in 2013. Dispersal rate was inversely related to winter mortality rate. Dispersal may be a condition dependent behavior, dispersers were more likely to have forked antlers rather than spike antlers. Assessing the effect of barriers to movement on dispersal direction and distance.

National Deer Alliance Update - *Kip Adams, Quality Deer Management Association*. The NDA grew out of the 2014 North American Whitetail Summit that was organized by QDMA. Representatives from 6 major stakeholder categories were invited to the summit. Participants concluded that there was a need for a national organization. The Board of Directors is composed of members from Whitetails Unlimited, QDMA, and the Mule Deer Foundation along with the executive director of AFWA. NDA is organized as a 501c4 to allow it to participate in lobbying. Membership is free and members get a weekly newsletter. Currently, more than 11,000 members. Currently, recruiting a CEO/President. Specific action items for the next few years include hunter recruitment and retention, political influences on hunting, landscape changes and habitat loss, public perception of hunting, and the captive deer industry.

Wisconsin's Deer Management Assistance Program - *Bob Nack, WDNR*. Program objectives are to promote sound land stewardship, assist landowners with habitat and deer management, provide for site-specific management and improve relationships between landowners and the DNR. The program guided by an advisory committee made up of numerous stakeholder groups and agencies. There are 3 levels of enrollment with different acreage requirements and costs. Levels 2 and 3 receive site visits by wildlife manager and forester, a property management plan, and an annual harvest report. In 2015 there were 43,000 acres enrolled. A survey of program participants found that most were interested in learning more about deer ecology, improving habitat for deer and other game species, most rated their deer habitat as good to very good, rated the ease of sign-up as fairly to very easy, were somewhat to very satisfied with the web-based resources, were very satisfied with the site visit, were somewhat to very satisfied with the management plan, and most were planning to implement most or all of the plan recommendations. However, cost and time remain barriers to plan implementation.

E-registration and Biological Checkstation Pilots - *Brian Dhuey and Dan Storm, WDNR*. Wisconsin is implementing electronic registration of deer in 2015 after requiring in-person registration for over 60 years. Conducted a pilot study in 2014 to test the e-reg system. Selected hunters were notified that they could use e-reg, about 1/2 of hunters who killed a deer used in-person registration, about 1/4 registered online, and about 1/4 used the phone. Hunters who used e-reg were surveyed about their experience. Those who used the computer found it to be easy to very easy, no changes are planned. Those who used the phone had some problems with voice recognition, found it hard to get the confirmation number, and felt it took longer than expected. Based on these results are modifying the phone process. Also piloted using meat lockers for collecting ages of harvested deer. Paid processors \$1/head to tag deer with county of kill and remove heads. Tested system in 8 counties. Obtained good sample sizes in 2 counties. Yearling

bucks tended to be over-represented in meat locker samples compared to mandatory registration station samples. This was expected as adult buck heads were no longer at most lockers when biologists aged heads. Surprisingly, yearling does tended to be under-represented in meat locker samples. We do not understand why. Almost 60% of yearling bucks had antlers removed and data on antler characteristics (forked vs. spiked) were lost. Take home message is the need to be flexible and adapt to meat processor work flow. May need to double payment to get better quality data.

Assessing Deer Reproduction and Nutritional Condition in Wisconsin - Dan Storm, WDNR.

As part of the implementation of recommendations from the Deer Trustee Report, WDNR is developing a set of metrics to assess deer health conditions. As one metric, they are assessing reproduction and body condition from late-winter roadkilled deer. Assessing subcutaneous fat reserves (rump fat and xyphoid process), organ fat (heart and kidney) and bone marrow. Also assessing pregnancy and fetal counts. Target sample size is 10 deer/county. Recording age and location. Plans to relate condition to landuse, soils, and weather data. Completed 521 assessments in 2014 and ~500 in 2015. Data from northern forest is limited. Adult pregnancy rate is high and consistent across regions and years. Fawn pregnancy rate much lower in southern farmland than in mid-1980s. General patterns of fat reserves appear to be logical; adults > juveniles, farmland deer > forest deer, 2015 (milder winter) > 2014 (very severe winter).

Deer Status Reports

Illinois. Total harvest ~145,700 (42% antlered, 58% antlerless). Total harvest was down 1.9%, buck harvest increased 5% while antlerless harvest decreased 6%. Factors contributing to harvest reduction included efforts to reduce rates of deer-vehicle collisions, EHD losses, closure of counties to late winter season, and reduced permit levels. They have detected CWD in 2 new counties, for a total of 16 counties. Agency sharpshooting was conducted again in winter 2014-15. Research projects are looking at the effects of culling on dispersal and potential for disease spread, dispersal patterns in fragmented environments, and effects of CWD on gene expression. With reduction of populations toward goals, seeing development of new stakeholder groups to promote population increase. Continuing to operate in-person checkstations in counties with CWD to facilitate testing. All archers may use a crossbow during the late archery season. Archery harvest now makes up 38% of total harvest. They are conducting hunter surveys to assess attitudes toward restrictions on archery harvest.

Indiana. Total harvest ~120,100 (38% antlered, 62% antlerless). Total harvest decreased 4% from 2013, lowest harvest since 2003. Have been working to reduce herd, hunter complaints of not enough deer are increasing. In response to bovine TB in a captive cervid facility and in 2 cattle operations, they have been testing free-ranging deer since 2009 with no wild deer testing positive. Suffering from staff shortage with 40% vacancies among district field biologists.

Iowa. Total harvest ~101,600 (45% antlered, 55% antlerless). Total harvest was 33% lower than in 2006 due to lower population size, reduced antlerless quotas, and elimination of January antlerless season. There is a block of counties in northwestern Iowa that are bucks-only during the first shotgun and early muzzleloader seasons. Crossbows can be used by all resident hunters during the late muzzleloader season. Have detected a total of 4 CWD+ deer in NE Iowa, near the Wisconsin border. Continuing to test in that area and around positive captive cervid facilities. They have a research project studying fawn survival, initial results were high survival with little coyote/dog mortality. They are starting a project to assess the effects of soils, genetics, and landuse on antler development.

Kansas. Total harvest ~97,400 (~94,900 WTD [55% antlerless], 2,500 MD [20% antlerless]). Total harvest increased 5% with a 1.6% increase in number of hunters. Interest from non-residents continues to increase. Crossbows have been allowed for all archers for last 2 years and amounts to 17% of the archery harvest. Monitor population trends using index from deer-vehicle collisions and spotlight distance sampling surveys. Staff classify deer and calculate ratios of bucks/doe, fawns/doe, and yearling/adult buck. Fawn:doe ratios and % of yearling bucks show declining trends over past 10 years. KS manages over 200 special hunts on public land, waterfowl refuges have high deer populations and tend to be hot-spots for conflicts with surrounding landowners. CWD has been detected in 22 counties. Surveillance sampling is at a lower level than when funded by USDA grants (2003-2011). Sampling is currently rotating among regions, with the southwestern and southcentral regions sampled in 2014 (10 positives detected out of 640 deer tested). Will sample the northwest region in 2015 where most CWD+ deer have been detected. Public land makes up only 2% of land area but 12% of deer hunters hunt public land and 5% of total deer harvest comes off of public land. In response to a buck with distinctive antlers that was poached, entered into a big buck contest, and recognized by the landowner, legislation was introduced to allow the landowner to keep the antlers. The proposed legislation was defeated due in part to concerns about privatization of public wildlife. KS is proposing to increase resident hunting licenses from \$18 to \$25 and either-sex deer permits from \$30 to \$40.

Kentucky. Total harvest ~138,900 (47% antlered, 52% antlerless). Total harvest was down 4% from 2013, but was the second highest harvest on record. The deer population has been stable to slightly declining over past 5 years. Archery hunting only accounted for 15% of total harvest in 2014. Landowners can hunt without a license, but are required to report their harvest. Crop damage is a concern. Landowners and tenants are allowed to shoot deer causing damage out of season without a license or permit. Pressure is growing to pay for crop damage. Developed a CWD risk map to focus surveillance sampling, focusing more on “high risk” deer and less on hunter harvested deer due to reduced federal funds. Research is ongoing to estimate reproduction and survival of adults and neonates in southeastern KY.

Michigan. Total harvest ~322,400 (~55% antlered, 45% antlerless). Total harvest decreased 15%, due in part to fewer hunters because of a new license package, significant population reduction in the Upper Peninsula from 2 severe winters, and more standing corn than average in the Lower Peninsula. Yearling beam diameter in southern Lower Peninsula has decreased over past 30 years despite reduced population size. Most of the Upper Peninsula is bucks-only in 2015, including the archery season. CWD was detected outside of East Lansing. Sharpshooting over the summer removed nearly 400 deer from a 2 mile radius of the index case, 2 additional positive deer were detected, and all 3 positives were closely related and were within a mile of each other. Plan to resume sharpshooting this winter. Research is documenting population recovery following an EHD outbreak and assessing landscape factors associated with the geographic distribution of trophy bucks throughout the Midwest. The predator-prey project is continuing in the UP, wrapping up the 2nd phase in the moderate snow zone, with plans to move to the high snow zone.

Minnesota. Total harvest ~139,400 (~58% antlered, 42% antlerless). Total harvest was down 19% from 2013 and lowest harvest in nearly 30 years. In a conservative “rebuilding” phase, was bucks-only in northern forest. They have been revising deer population goals and this past year approved new goals for 40 of 128 permit areas. Goal increases were approved for 26 of 40 areas, decreases for 6 areas. Hunter complaints of low deer numbers resulted in the legislature requesting an audit of their program focusing on the goal setting process, deer population estimation, and funding for deer management activities. The audit is being coordinated through the Office of Legislative Auditor. They will be hiring a consultant to address the technical aspects

of population estimation/modeling. Additional work on goal setting is on hold until after the audit is completed. Still conducting hunter and landowner surveys of attitudes related to population size and regulations. Currently plan to rely on targeted surveillance of clinical deer for CWD detection. Research is being conducted to evaluate effectiveness of agricultural damage shooting permits on reducing crop damage. Additional research is looking to increase the efficiency of spotlight survey design.

Missouri. Total harvest ~256,800 (45% antlered, 55% antlerless). Total harvest was 2% higher than in 2013 but substantially lower than peak harvest in mid-2000s. Deer population size in northern Missouri has declined over the past decade due to liberal harvests and EHD outbreaks. Populations in much of southern Missouri have been stable to slightly increasing due to conservative antlerless harvests. Missouri updated their deer management plan. Starting in 2016, will allow all hunters to use crossbows during the archery season and will reduce the limit of antlered bucks from 3 to 2 during the combined archery and firearms seasons, with only one bucks firearms season. CWD was detected in 2 new counties, one well south of the core area. In response, they are expanding their management zone, repealing antler point restrictions, and increasing availability of antlerless permits. MO is currently in court over their captive cervid regulations. They have started research to estimate survival, reproduction, and movements in 2 landscapes (Ozarks and northwest). Data from this research will help inform statistical age-at-harvest models.

Ohio. Total harvest ~175,800 (~39% antlered, 61% antlerless). Total harvest was down 8% from 2013, in part due to reduced population size but mainly due to reduced antlerless opportunities. Archers accounted for 46% of all deer harvested in 2014, 58% of archery harvest is with crossbows. Ohio had a 2-day mid-October antlerless-only muzzleloader season; this was eliminated for 2015. Added a 2-day either-sex gun season between Christmas and New Year's. A proposed fee increase on non-resident licenses was not adopted. A proposal to move the youth season from mid-November to early October was not approved because of concerns related to the fall sports events. Shifting management strategies from population reduction to stabilization. Planning a new round of goal setting and are updating surveys of production landowner and hunter attitudes toward deer population size. Been working toward shifting from county-based management units to a smaller number (26) ecologically- and sociologically-based management units. Ohio published a booklet *Quality vs. Quantity: A closer look at deer herd condition trends in Ohio* that summarizes trends in herd productivity, condition, and trophy bucks over the past three decades, all 3 metrics declined with increases in population size and loss of high quality, early successional habitats. Nineteen deer from 2 captive facilities tested positive for CWD. Both facilities have been depopulated. To date, have not detected CWD in wild deer outside of these facilities.

Nebraska. Total deer harvest ~52,000 (~42,800 WTD [41% antlerless]; 9,200 MD [19% antlerless]). Mule deer population peaked 7-8 years ago, drought, EHD and brain worm reduced populations, attempting to increase herds in most management units with reduced antlerless harvests. White-tailed deer populations peaked ~5 years ago, EHD reduced populations by 1/3, trying to increase herds in most management units. Limiting antlerless deer harvest in areas with large amounts of public land by requiring use of either-sex permits. Still have high deer populations along major river corridors and offer river zone antlerless permits for use on private land.

North Dakota. Total deer harvest ~34,500 (~31,200 WTD; 3,300 MD). Total harvest was down 22% from 2013, lowest harvest since late 1970s. Populations were affected by substantial habitat loss combined with a series of severe winters. License availability for 2015 will be reduced by

10% from 2014, to lowest level since 1978. To date, CWD detections have been limited to a small area adjacent to the South Dakota border. ND has been partnering with SD Game Fish and Parks and SD State University on a large population dynamics study conducted in a series of study areas across both states. Plans are to combine data from all study areas into a monograph. Planning a human dimension project of hunters on attitudes related to license allocation. Testing liver samples from deer for presence of neonicotinoid insecticides.

South Dakota. Total deer harvest ~46,500 (~41,100 WTD [35% does]; 5,400 MD [18% does]). Total harvest was down 16% from 2013. The number of licenses and tags issued were substantially reduced from peak levels in the late 2000s. Recruitment surveys are conducted in September and October, 2014 showed good recruitment following recent mild winter. Populations in eastern SD appear to be starting to recover and availability of antlerless tags was increased in 2015. Attempting to increase mule deer populations in all units. SD is updating their CWD management plan. Only 150 cervids were tested for CWD in 2014 (mostly elk), 17 positives were detected. SD recently had a review of their big game program conducted by the Wildlife Management Institute. Overall the review was supportive of agency direction, but a few of the substantial recommendations included additional research and development of management plans. In response they are funding/conducting projects on population size estimation in the Black Hills, evaluations of herd composition surveys, late summer deer forage quality, fawn survival of both species in various areas of the state, mule and white-tailed deer population dynamics in the Black Hills, impacts of energy development in western North and South Dakota, and effects of neonicotinoid insecticides on physiology and reproduction of white-tailed deer. They are working with the University of Montana to develop databases of the agencies deer data that will feed into integrated population models. SD is updating their deer management plan. Habitat loss is a major concern with loss of 1.5-2 million acres of grasslands, including conversion of native grasslands/CRP, removal of shelterbelts, and wetland drainage.

Turkey Breakout Session

The Pros and Cons of a Continuous, Statewide Spring Turkey Season vs. Separate Zones & Time Periods

- Indiana has an open/continuous season with no permits. In Minnesota, hunters get one chance to hunt during a 5-day time period.
- In order to maintain hunter satisfaction, it is necessary to retain the ability to manage hunter distribution across space and time
- Hunters in each state seem to be satisfied with what they're used to.
- Turkey hunters are a little more accepting of being interfered with by another turkey hunter, compared to other people recreating in the woods. A common issue is that folks think the land should only be used for what THEY'RE using it for, and have a hard time understanding/accepting alternate uses. Some of the use conflicts are reflective of how much public land is available. The more land there is, the better everybody gets along. When the land is limited, the conflicts increase.
- The full, open season benefits the more avid hunters, compared to the average hunters. The avid hunters want to hunt until they get their turkey, and may not appreciate being limited by a time period.
- Property turn-over! If the landowner has 5 weeks to hunt, they won't let anybody else onto their land until they get the chance to fill their tag. If it never happens, that land sits there idle. If the landowner only has one week during which they can hunt, they're generally much more willing to let others come onto their land to hunt during the other 4 weeks.

- Maintaining separate zones and time periods preserves the sense of a privileged, big game hunt. Hunters have to take care to remember to apply and plan ahead because the hunt is limited to a certain window. The restrictions make the hunt more valuable.
- It's great when people have the time to travel to multiple states in the pursuit of a turkey grand slam, but we still have an obligation to the average person who's only going to get one tag and one chance to hunt. If we don't keep their satisfaction level up, they may quit hunting. Interference is perceived much more negatively when it's coming from somebody with out-of-state plates.
- All of the open seasons in other states are just 4 weeks long. When seasons are parceled out into time periods, they tend to last longer.

Update/Discussion regarding the 11th National Wild Turkey Symposium - *Steve Backs*

- All of the manuscripts are in, so this may be the first time in history that the proceedings are available when folks sign in, as opposed to after the conference is complete.
- The facility is across the street from the Tucson airport, so transportation won't be an issue.
- When does early registration end? October 30th.
- Is the tech meeting going to take place at the symposium?
- Any additional sponsors are welcome! Pass those contacts along to Steve.
- The opportunity to visit the Gould's Turkey habitat is outstanding.

Wisconsin Wild Turkey Research Update - *Chris Pollentier, Wisconsin DNR*

- Recent research
 - Gobbler study (2004-2007)
 - Hen study (2010-2012)
 - Distinct patterns in distribution and abundance emerged
 - Individual cover types didn't appear to be as important as proportion of open and/or forest cover
 - Turkeys generally moved to areas with even proportions of open and forested cover
 - Can manifest at different scales
 - Example: hunters on properties near one another may encounter different numbers of turkeys
- Current research – northern WI
 - Distribution and patch occupancy in northern Wisconsin
 - Much of northern WI is heavily forested (>70%)
 - Gobbler distribution may be uneven, resulting in highly localized hunting and harvest pressure
 - The number of permits allocated is, in part, determined by the amount of forest cover. If we better understand turkey distribution, we could allocate permits more accurately in this part of the state.
 - 3-year project: 2014-2016
 - Roadside-based occupancy surveys
 - Account for imperfect detection due to wind speed, time, date, noise, sky condition, etc.
 - 157 total routes, stratified by forest cover
 - Surveys conducted 8 weeks during March-May, corresponding to the spring hunting season, which also corresponds to peak gobbling activity. 3 surveys of each route per year, 877 surveys to date.

- Occupancy models
 - Multi-season occupancy model using Program Presence
 - Link occupancy to landscape characteristics
 - Composition: % forest, % open, forest strata
 - Configuration: patch size, edge density, clumpiness, interspersion/juxtaposition
 - Colonization and local extinction
 - Winter weather
 - Agricultural practices/crop rotation
- Upcoming research
 - Begin occupancy surveys in spring of 2016 in southeast WI (2-year project)

Midwest Wild Turkey Consortium - Chad Parent

- Analyses of the trends and drivers suggests several important conclusions:
 - Wild turkey trends vary considerably across space
 - We probably shouldn't simplify turkey/habitat relationships
 - The factors that drive turkey population trends are different depending on the region
 - Wild turkey trends are stable in most states at a state-level
 - To draw these conclusions requires fairly strong assumptions about harvest covariates
 - Nevertheless, harvest does appear to reasonably index turkey populations. This is something we can take advantage of as we start to think about how we will develop a common survey protocol. A cost- and logistic-neutral common survey protocol is likely not feasible. Too much survey effort would be required, different methodologies exist for collecting data, and timing of data collection differs. We do not necessarily need a common survey, but rather, a tool to permit comparison of trends between states. We further established that the tool would need to be able to detect a 25% decline over a 3-year period.
- Can harvest data actually detect a 25% change in the population over a 3-year period? This necessitates an analysis of the power of harvest data to detect trends.
 - Chad developed a series of simulations to evaluate our power to detect trends under the following scenarios:
 - Does power change if we artificially increase or decrease sample size (i.e., sites, which appear to be management zones)?
 - All states appear to have sufficient power to detect such a change with 80% certainty. Power doesn't improve appreciably if we artificially increase the sample size (able to detect 1 to 2% difference in population). Similarly, reducing the population doesn't have a dramatic effect either. Information on hunter effort is helpful because it allows us to detect much smaller population trends, though this may be an artificially high ability. We can meaningfully compare turkey trends across states using turkey harvest. The outlier is Wisconsin, and we shouldn't be overly concerned. Part of the issue is that this is a regional analysis, and the data that we have gets aggregated to our sites, and Wisconsin only has 7 management zones! Chad needs to see our county-level harvest!
 - Everybody but Wisconsin can detect trends at current sample sizes at 80% power, about half at 90%, only 4 at 95%, and no states at 99%.
 - Conclusions
 - Taken collectively, Chad recommends a focus on the ability to detect trends at an 80% power

- This solves our desire for a tool to compare trends between states (to the extent harvest is a good index to population size)
 - Implementation is pretty straightforward... compare current year's harvest to previous time steps and calculate % change
- Picking up where we left off at the end of last week's conference call
 - We've effectively wrapped up the original objectives for the consortium... what's next for year 3? Some possible research objectives include:
 - 1, identify spatial synchrony in harvest & productivity
 - 2, evaluate risks of harvesting without knowledge of hunter effort or catchability.
 - 3, identify statistical power to detect changes in productivity
 - How could we even detect changes in productivity? We could only do it for some states. It's deserving of considering because it's never been done, but we couldn't apply it across the entire Midwest. Maybe we're satisfied with how we already study productivity in our own states and wouldn't need this kind of analysis.
 - 4, continue developing turkey/habitat relationships
 - How do we rank these research objectives? What would be the benefits in terms of management insight?

Business Meeting

Kentucky volunteered to host the meeting in 2016. Proceedings, meeting notes and information about upcoming meetings are available on the web at: <http://mdwtsg.org/>. South Dakota has been maintaining the web site, is willing to continue to do so, but would be happy to hand it off if anyone else is interested. The study group approved a resolution related to federal funding for CWD management. The group also voted to request commitment by state Directors to fill vacant turkey project leader positions. The vacancies are resulting in knowledge gaps and limiting the analyses of the Midwest Wild Turkey Consortium. There is interest in updating the multi-state CWD guidelines. A subcommittee agreed to discuss this with the Midwest Wildlife Health Committee. The study group agreed to update the deer harvest density maps that were compiled in 2009. Over the next year the study group will work on compiling regional deer research needs.