WOLF ADVISORY COMMITTEE MEETING

7/18/2013 Wausau Howard Johnson's

Review outline and writing plan for the background section of the wolf plan - Dave MacFarland (Handout – Wolf Management Plan Background Section Outline)

The 2010 plan can be used but is not constraining. Who will be responsible for writing various sections of the background was reviewed.

*There was a recommendation to include Voigt requirements under the Legal Background– Statutory authority and requirements section.

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*There is intent to include a section on tribal values as well. How and where to include that will be discussed.

Discussion followed: Recommendations for future management will be addressed in a different section of the plan. The 2010 plan was put on hold in order to avoid confusion around federal delisting attempts and administrative changes. The budget bill included a provision to eliminate night hunting of wolves. Fees for wolf licenses have also been changed in the budget bill.

Research Presentations

Adrian Treves and Jamie Hogberg, who were scheduled to give a presentation, were unable to make it. Possibly they will be re-scheduled for the August meeting. Adrian's work will be documented and available to committee members. Ecology topics were covered in the morning, sociology topics in the afternoon.

Tim VanDeelen (UW-Madison) – Biological Carrying Capacity and Population Dynamics (PowerPoint).

Tim described different potential models of population growth. The Wisconsin wolf population is clearly displaying density dependent growth. The model for simple density dependence seems to fit the best. The concept of biological carrying capacity was described. Growth rate is 0 when biological carrying capacity is reached. Differences between previous and current estimates of carrying capacity are due to the increased amount of data now available. Maximum recruitment occurs at ½ the carrying capacity. Growth rate and carrying capacity are used to calculate a sustained yield curve which can be used to inform decisions about harvest quotas. If the population is under harvested, it will grow; if it is over harvested, there will be fewer animals to harvest in the future, and the population will decline. This fact interacts with the shape of the sustained yield curve in a way that efforts to hold a population at low density may become unstable. At a population of 350 wolves, the sustained yield curve would recommend a maximum harvest of ~48 wolves, and the population would be in the area of dynamic instability. Dynamic instability is exacerbated by uncertainty in the population estimate, uncertainty in the form of density dependence, random variation in the growth rate, random variation in the carrying capacity, and incomplete control of the system. Harvest dynamics in

wolves are poorly understood. Research in Alaska suggested that the population could sustain ~30% human caused mortality before it began to decline. Other work by Creel et.al. suggested some wolf populations may only be able to sustain ~20% human caused mortality. Compensatory, additive, and super-additive mortality were described. Some of the harvest mortality is likely compensatory, but the magnitude of compensation is not known at this point. There was discussion of super-additive mortality and a lag effect. This is less of an issue for high density populations, but 350 would be a low density population for Wisconsin. There was discussion of age structure. The age structure of the population will change with high harvest of one age class. There was discussion of why Minnesota was not included in the model. It was felt that exchange of wolves between Minnesota and Wisconsin was not very important and would cancel itself out. Tim discussed using Jen Stenglein's individual based model, or a sustained yield model. While Jen's model performs well, sustained yield models are older, are well known and have been used for quite some time. They may be more legally defensible.

Jerry Belant (MS State) – Role of predators, winter survival, & habitat on white-tailed deer fawn survival in the south central UP of Michigan (PowerPoint).
The study area was southwest of Escanaba. They used both activity clusters and scat analysis to study the role of predators.

- 60 of 142 radio collared fawns were predated (58% survival); 25 by coyotes, 13 by bobcat, 5 by wolves, 4 by bears.
- 13 of 98 radio collared adult deer were predated (87% survival); 8 by coyotes, 3 by wolves, 2 by bobcats, 1 by bear.
- Wolf cluster site investigations – 13% were at livestock carcass dumps; clusters were also at 7 fawn & 4 adult deer predation sites
- A high percentage of bobcat clusters were at fawn predation sites; bobcats were killing fawns at a higher rate than other species, but the larger population of coyotes resulted in the majority of fawn predation.
- 62% of the 173 scats collected contained adult deer evidence.
- 8 wolves were collared with GPS collars; they used sites within 50, 200, & 500 meters of livestock dumps more than random.
- Wolves were moderate predators of adult deer.
- Bobcats exhibited a spatial shift during fawning, other predators did not. Foraging on fawns by coyotes, wolves, & bears was opportunistic.
- Does used several anti-predator strategies simultaneously; they shifted spatial use away from high wolf use areas, into higher coyote use areas, which may have resulted in higher fawn mortality.

It's difficult to distinguish between scavenging & predation in scat analysis. Other study sites may shed some light on whether livestock dumps had an effect on predation rates. The public seemed to accept the data, even though it was not what they had expected. Winter severity probably resulted in higher predation rates in March & April, and weaker fawns, some of which died at birth (5 or 6).
**This research is documented at www.fwrc.msstate.edu/carnivore/predatorprey/.*

Dan Storm (WDNR Science Services) – Survival and cause-specific mortality of white-tailed deer in Wisconsin (PowerPoint).

The study is looking at both fawn mortality & buck mortality in 2 study areas, one in northern WI near Winter & one in eastern WI near Shiocton. The study is attempting to estimate annual survival rates, determine when mortalities occur and which mortality causes are most important, and whether survival rates and mortality causes differ between study areas and years.

- Overall, survival to fall is high (~80%)
- Fawn survival –
    - In the east is ~60%, with most mortality occurring in the 1st month and starvation & coyotes being the most important causes.
    - In the north is 20-60% (more variable), with predation by bear, bobcats, & canids being the most important cause (not sure how much is scavenging as opposed to predation; they have yet to find a fawn definitely predated by wolf in summer).
    - High annual variability in fawn survival probably has to do with variations in green-up timing (hiding cover), doe condition, & availability of alternate foods for predators.
- Females >6 months - survival is ~80%
- Yearling males
    - Survival is 60-80% until fall (variable between years); annual survival is ~40% with hunting being the most important cause of mortality.
    - Yearling buck survival is lower & more variable than for older deer; they are more vulnerable to predation & starvation, especially in the north.
- Adult males
    - Survival is ~85% until fall, with little annual variation.
    - In the east, hunting & road kill are the most important causes of mortality, with predation & starvation being rare.
    - In the north, hunting & winter kill are the most important causes of mortality. Winter kill is primarily canid predation and/or starvation.

There was discussion of whether the effect of wolves is underestimated because little identifiable evidence is left from wolf predation. Even if you assumed unknowns in the study were due to wolf predation, the impact would not be large. Hunter harvest is by far the largest cause of deer mortality. There would be little impact on the deer population from reducing the wolf population. Interaction among predator species may limit the effect that decreasing one species will have on the deer population. If the wolf population decreases, the coyote population will likely increase, resulting in little change in impact on the deer population. The reproduction rate needs to be considered along with the survival rate in order to determine whether a population is increasing.

Tim VanDeelen (UW-Madison) – Predator impacts on deer populations (PowerPoint). Tim used 20 years of harvest data and modeling to investigate how hunters, bears, and wolves impact the Wisconsin deer population. Wolf data came from the territory mapping system WDNR uses, bear data came from Dave MacFarland's research, and data on human impact came from the deer harvest data. Tim looked at Deer Management Unit (DMU) level effects on deer population growth, mortality of adult does, and percent

of fawns in the antlerless harvest. He ran simulations with 1-predator, 2-predator, and 3-predator models.

- For DMU level deer population growth rate:
    - The hunters only model fit best.
    - The hunters + wolves model was the next best fit.
    - The sensitivity analysis indicated no effect by wolves & bears.
    - The deer population growth rate was driven by hunters.
- For percent fawns in the antlerless harvest:
    - Bear only was the best model, and bear explained most of the impact.
- For adult doe mortality:
    - The hunters + wolves model fit best.
    - Density & hunter terms were significant.
    - Hunter effect was fairly weak.
    - Bear & wolves effect was negligible.

The Kroll report advised continued study of impact of wolves on deer.

Bob Holsman (WDNR research, formerly UW-Stevens Point) – Wisconsin wolf management planning effort – Assessing social carrying capacity (PowerPoint).

Bob was involved in research on social carrying capacity for wolves in Michigan. Jordan Petchenik, WDNR research, was invited to the table for this presentation and discussion. Fundamental questions to address in a survey would be how many wolves should WI have, where should they be distributed, how should the population be reduced? Social carrying capacity is the wolf population which produces the least amount of issue activity. Issue activity is political or judicial activity that disrupts management authority or diverts resources such that the ability to serve the public is diminished. We can attempt to measure social carrying capacity scientifically. For any group, there will be a curve that describes their wolf tolerance between their "minimum demand" and "maximum tolerable". The area between these 2 extremes is called the latitude of acceptance where the least amount of issue activity will occur. Different groups will have different curves. The optimum social carrying capacity can be calculated by finding the overlap of the latitude of acceptance in the curves. Some curves may have no overlap.

The Michigan research is 8 years old. They used public meetings, focus groups, a questionnaire, and a mail survey to determine public attitudes. This approach takes time and money. With the current timeline, options will be limited in Wisconsin.
They assumed non-respondents to the survey (40%) were not interested, but they also included a "not interested" opt out category on the survey (21% of respondents chose this option). The framework of the survey should help to illustrate areas of conflict and consensus. They did not ask how many wolves people wanted. Instead, they asked what level of interaction was preferred and what level was the maximum & minimum they would want. Experiential data on levels of interaction were associated with population estimates. This assumes interaction is density dependent. Groups were divided by geography. Responses were weighted by region. UP hunters were the most intolerant group. Outdoor recreationists were pretty tolerant, even in the UP.

Comments followed including:

- Weighting responses differently may not be in keeping with managing a public trust resource; it may not be appropriate for some groups to have more influence on the study results than others. The survey is used to identify different attitudes. Weighting is not done by the survey. However, wolves have different levels of impact on different stakeholder groups, which is considered in management decisions.
- The survey may not find sufficient overlap in attitudes to identify a population sweet spot. Focus groups are better suited to address how/why questions of divergent views.
- Tolerance level is probably most influenced by a person's social network. Experiences with wolves had little relation to tolerance.
- The survey can help identify the least tolerant groups, and management can be used to address their problems. Wildlife populations can be adjusted to satisfy tolerance, or tolerance levels can move (this usually takes time).
- Issue activity is also related to methods used and how controversial they are.
- Michigan does not have a population goal.

Future Survey Discussion – Dave MacFarland, Bob Holsman, Jordan Petchenik

Bob Holsman will be the lead in developing the social attitudes survey. Jordan Petchenik will be involved, also. The committee agreed a survey should be done. There were concerns about how weighting should be done. That shouldn't be a concern at the level of this committee. There was some concern that the survey may mask the opinions of people most affected by wolves. The survey isn't a vote or referendum; it's an information gathering tool.

Who to you want input from? Possibilities suggested included:

- General population
- People in & out of wolf range
- Wolf hunters/trappers
- Deer hunters
- Hound hunters
- Agriculture community
- Livestock producers
- Tribes
- Conservation groups

Other suggestions:

- Design the survey so it can be sorted by northern & southern residents.
- Separate respondents by wolf harvest zones.
- Keep the survey short.
- Tribal members may be sensitive to the term "tolerance" to wolves.
- Try to determine sources of intolerance.
- DNR databases can be used to develop a survey list.

Questions should address population objectives and tools to use to meet those objectives. Michigan's survey was a 2 year effort. It will be difficult to deliver a multi-prong study within the current time frame. It may be necessary to contract with the UW, which may necessitate some dependence on their timeline.
**Dave, Bob, & Jordan will discuss and come up with a plan for a survey by the August meeting. Ideas for the survey can be sent to Dave.*

Public Input Opportunity

Laura Menefee (Sierra Club) thanked Peter David for emphasizing a more diversified perspective in wolf management.

Laurie Groskopf (Handouts) – Laurie presented information on votes by county boards to keep the wolf population goal at 350. She recommends keeping a population goal of 350. She also recommends surveying attitudes in rural townships in wolf range.

Next meeting – *August 22, 2013 at Howard Johnson in Wausau.*

Set September Meeting Date
September 24, 2013.