April 14, 2019

To: Dr. Scott Walter, WDNR Large Carnivore Specialist

Subject: Wisconsin Green Fire Review of Draft Black Bear Management Plan, 2019 -2029

Thank you for the opportunity to offer our comments on the draft black bear management plan. Our wildlife work group membership has extensive experience in the conservation of this species and are very interested in helping WDNR develop a plan to guide future efforts. We want to express our thanks to all involved in producing this draft of the plan. We understand that a lot effort went into draft plan and it is a great improvement of the last published black bear management plan of 1981.

Our understanding is that the Department intends to review all the public comments received from the five public hearings and online comments and prepare a final version of the plan for Natural Resources Board adoption at its May 22nd meeting. We are very concerned that there will be inadequate time for the public to review and discuss the final version of the plan before having to provide their support or concerns to the Natural Resources Board. _We strongly recommend that the Department delay Natural Resource Board consideration of the final plan until the June or August meetings._ This is a 10-year plan and the public deserves adequate time to consider the merits of this proposed plan prior to its adoption.

Section 1. Black Bear Ecology and Population Dynamics

We don't have any suggestions or concerns with this section. It offers a very good and concise overview of black bear ecology and basic population parameters that will help Wisconsinites learn about this iconic species**.**

Section 2. Black Bears in Wisconsin

Section omissions - There are several additions we believe would strengthen this section. 1. We agree with your conclusion that Wisconsin's black bear population does not seem to be regulated by biological carrying capacity constraints and that cultural carrying capacity drives most bear conservation considerations. *Given the importance of human-bear interactions, we believe this section of the report should provide an overview of human population density and housing impacts occurring across bear range in Wisconsin*. 2. As habitat generalists, Wisconsin's black bear population has an increased resiliency to climate change impacts. *We believe it would be helpful to the plan's readers to include an overview of the potential impacts of predicted climate change (e.g., longer growing seasons, increased precipitation).* A risk assessment of black bears to climate change might be a worthy research product. 3. Black bear conservation isn't free. WDNR annually invests significant resources to monitor the population, oversee the harvest programs, enforce the laws, respond to bear damage and nuisance complaints, and undertake needed research and educational outreach. This section lacks a discussion on the costs of bear conservation. With public interest in bear hunting at all-time highs, funding generated from hunting this species should be able to fully fund all conservation measures required to

sustain it. This plan outlines new areas of research or data collection that will require additional funding and added capacity to complete. *This section and, if needed, Section 3 should outline the current state of revenues versus expenditures and make recommendations on whether new revenue and staff resources are needed.* As Wisconsin's deer management programs face challenges of CWD, increased private landowner partnerships and forest habitat improvements, it is important that programs that can be fiscally self-sufficient do so. Deer hunters shouldn't be subsidizing bear management. 4. *The final plan should include an additional appendix that provides readers with a summary of bear hunting seasons and regulations from other states*. This would help readers of the plan put Wisconsin's bear hunting seasons and regulations in context. 5. The National Shooting Sports Foundation recently contracted with Responsive Management to conduct a survey of public attitudes on hunting, fishing and trapping. *This informative report contains up-to-date information on public attitudes on hunting of black bears and use of baiting. The final plan should include the relevant findings of this report and contrast to Wisconsin surveys on public attitudes if such data exist.*

Population monitoring and modeling - The draft management plan states that accurate and precise annual information on bear abundance is needed to manage bear populations at desired levels within bear management zones (page 19). The plan describes a previously used population model that was adapted from one developed by the Minnesota DNR. The draft plan then suggests that age-at-harvest models are more robust and defensible methods for supporting harvest management decisions. However, no citation is provided for the age-at-harvest model and Figure 5 (Modeled population size estimates, 1988-2017, by BMZ and statewide) appears to be based on Table 3 of Dennison, Roberts and MacFarland 2018 which used the previous model.

Figure 5. Modeled population size estimates, 1988 - 2017, by BMZ and statewide.
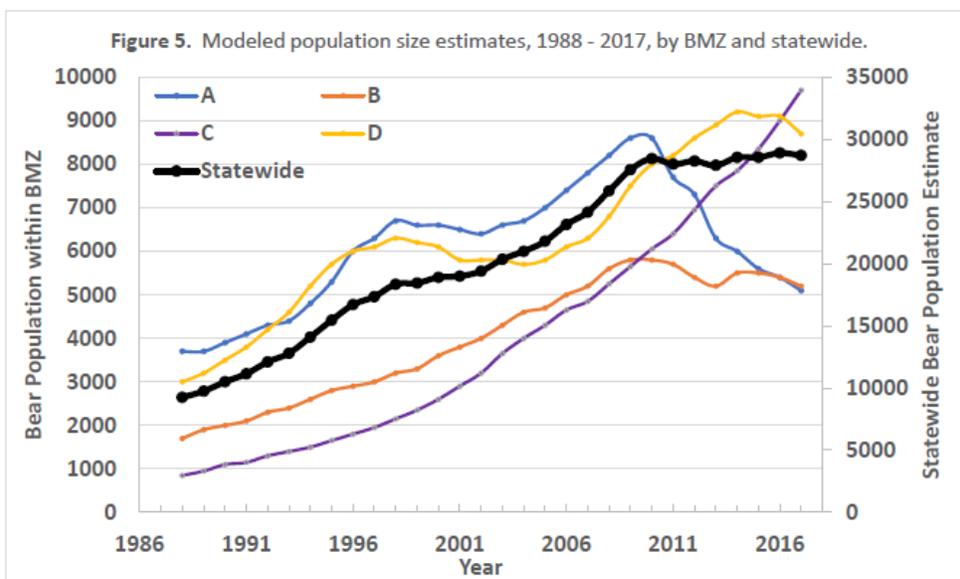
Figure 5 suggests that the statewide population is stable to slowly increasing; however population trends differed substantially among bear management zones with a substantial decrease in zone A and a marked increase in zone C.

In contrast, Figure 4 of Allen et al. 2018 (A Bayesian state-space model using age-at-harvest data for estimating the population of black bears [*Ursus americanus*] in Wisconsin, Scientific Reports 8, 12440) shows a moderate decrease in the statewide black bear population during 2009-2017 which was consistent with a decline in catch per unit effort.

Figure 4

From: A Bayesian state-space model using age-at-harvest data for estimating the population of black bears (*Ursus americanus*) in Wisconsin
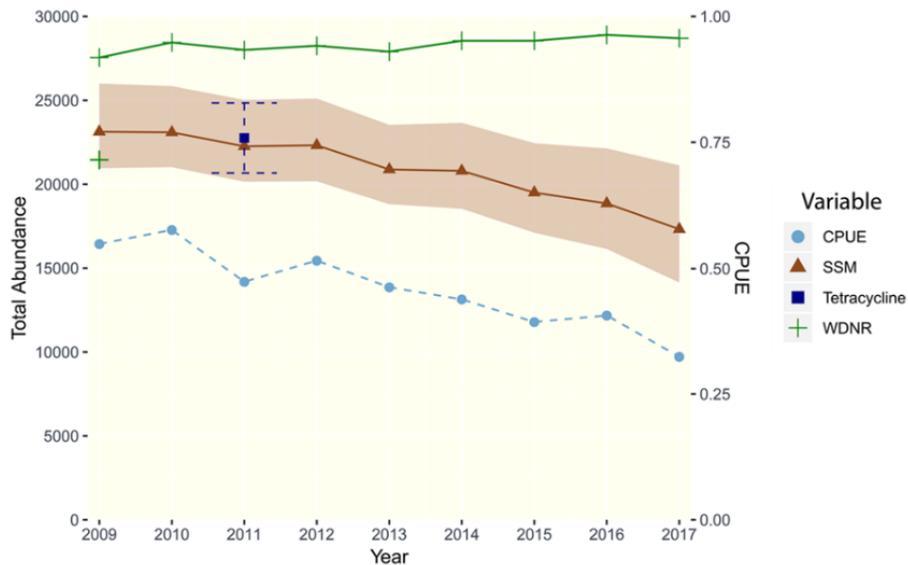
A comparison of our statewide population estimates and 95% credible intervals from the Bayesian state-space model (SSM, in brown) for Wisconsin (2009 to 2017) and the 2017 WDNR population estimate trend (in green). Also shown for comparison are the WNDR population estimate from 2009 (the initial population size for our SSM), the statewide trend in catch-per-unit-effort (CPUE, on the secondary y-axis in light blue), and the independent capture-recapture population estimate (for bears 1.5+) from tetracycline marking in 2011 with 95% confidence intervals (in dark blue).

Further, Figure 5 in Allen, Roberts, and Van Deelen no date (Age-at-harvest models as monitoring and harvest management tools for Wisconsin carnivores, Final Report) suggests decreasing population trends in zones A and B and a stable trend in C.
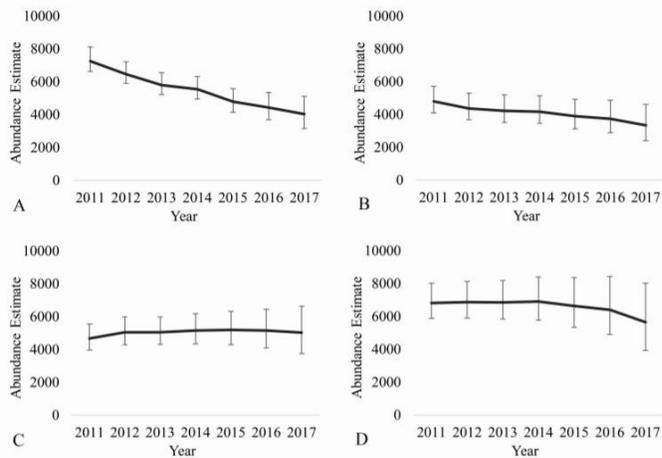
Figure 5. Results of AAH state-space model population estimation for each black bear management zone in Wisconsin and their 95% credible intervals.

It is not clear why population projections from the age-at-harvests model were not presented in the draft management plan given the plan recommended adoption of this type of modeling. *Given the apparent discrepancies between the model results a more thorough discussion of the population status of black bears in Wisconsin should be provided.*

The draft management plan indicates that bait station surveys provide information on trends in bear populations but presents no data from these surveys. Bait-station surveys were conducted annually from 1985-2017 but were not conducted in 2018 (Roberts 2018). There is no mention in the draft plan of future use of bait station surveys for monitoring population trend or discussion of reasons for discontinuation of these surveys. *Given the importance of bait station surveys for monitoring bear population trends in the past, the final plan should contain a more thorough discussion of their role in the future.*

The draft plan calls for periodic genetic mark-recapture estimation of bear population size to calibrate population models (Product E1a). Mark-recapture estimates using tetracycline baits were made in 2006 and 2011. A reassessment was planned for 2016 but was not conducted. *A new population estimate is overdue, and our understanding is that such an effort is planned for this summer.*

Bear Population Goals - The numeric population goals currently established in Administrative Code are clearly out of date. The plan does not indicate whether the Bear Advisory Committee considers the current population size to be too high, too low, or about right. Table 1 provides bear density estimates for each of the existing bear management zones and for Zone C indicates the estimate only applies to counties with recent bear harvest. It would be helpful to clarify whether this means on those Zone C counties that are shaded in Figure 3 or whether some other number of counties are the basis for this density estimate.

The plan provides a great deal of information on the volume of bear conflict situations but similar to the current population size, the plan does not provide the reader with an assessment of whether the Bear Advisory Committee considers the current levels of conflicts too high or acceptable. *It would also be helpful for the reader to know whether Zone population level reductions are required to reduce conflicts or whether more local approaches (e.g. Grantsburg model) are more appropriate.*

Section 3: Black Bear Management in Wisconsin, 2019 – 2029: A Plan for the Future

Bear advisory committee responsibilities - The plan proposes to place a lot of new responsibility on the bear advisory committee in forging future management direction for bear management. It also mentions the need to increase transparency of management decisions. Based upon our experience, bear advisory committee meetings are not well advertised, nor are the important agenda items and supporting informational documents available to the general public in advance of the committee meeting. Currently, the department's web pages for bear obscure the important role this committee plays. Website users should not have to go 3 pages deep on the bear pages before learning about bear committee mtgs and decisions. Contrast this with the well-defined Natural Resources Board meetings and documents. *Without changes to how the bear advisory committee functions, we don't see how transparency concerns will be addressed.* While the committee meetings do include time for public comments, the plan does not indicate whether formal public input processes will be used in advance of committee decision-making on issues. A fundamental issue that needs to be addressed is who is making what decisions and how will the public provide information into those decisions. For example, what will be the public input processes into the bear advisory committee's establishment of thresholds triggering a management response for the zone-specific cultural carrying capacity metric identified.

Bear management zones – We agree the proposed reconfiguration of bear management zones will better match the distinct landscapes where bear populations exist. However, changes in management zones greatly complicates population monitoring emphasizing the importance of a current estimate of population size with sufficient precision for the new zones

Population Monitoring and Modeling - The draft plan indicates that recommendations for the frequency of mark-recapture population estimates will be determined by WDNR Office of Applied Science staff in consultation with members of the WDNR Bear Advisory Committee. The draft identifies the time intervals for periodically assessing bear harvest registration compliance and should similarly identify the intervals for periodic population estimates. This is a critical part of the long-term monitoring. *Population estimate frequency should be identified in the final version of bear management plan so that funding is budgeted for these reassessments. This frequency should be determined based on a power analysis of the magnitude of population change that is important to detect within each bear management zone.* Further, it is likely the intervals between these population estimates will need to be closely tied to the timeframes for decision making on bear population changes within zones. For example, if based upon cultural parameters, the bear population objective in a given zone is to increase

populations, it is likely that it will take a minimum of 5 years to evaluate if the management direction is achieving the desired impacts on the cultural parameters. *It will be highly desirable to produce population estimates to coincide with this period.*

The draft plan indicates that zones of 5,000 square miles or greater are adequate to gather enough population data to track bear populations at desired levels of precision. Low bear populations within proposed Zones E and F will likely prevent monitoring bear populations using the same methodologies as used for the other zones. The draft does not provide details on what methods will be used to monitor bear populations in these zones. This should be addressed in the final plan.

Bear Population Goals - The draft management plan proposes to eliminate numeric population goals and instead base harvest management recommendations on cultural carrying capacity (product A2a). The plan does not identify the population objectives for the newly configured zones. In year 1, will the population objective be to maintain, decrease or increase the bear population in the new zones? *This should be clearly identified in the final plan as was done in the recent beaver management plan update.*

The plan suggests that assessments of cultural carrying capacity would be made annually by the Bear Advisory Committee based on indices of agricultural damage, nuisance complaints, hunter crowding, hunter success, hunter satisfaction, and bear disease/health issues. The plan further states that thresholds of unacceptable impacts will be developed for each metric. Since such thresholds are not currently proposed, key decisions are left for the future. Further, since cultural carrying capacity reflects public tolerance for bear-human interactions it is not clear how indices of hunter crowding, success and satisfaction are relevant to these assessments.

The plan cites data from Petchenik, Bradshaw, and Holsman (2018, Public awareness of and attitudes towards black bears and their management in Wisconsin. Wisconsin DNR report) but does not propose to incorporate such data in the Bear Committee's assessment of cultural carrying capacity. This survey found generally high levels of acceptance for current bear population levels across all regions of the state. *We believe these data should be given considerable weight by the Department while formulating bear population management objectives.* Further, periodic reassessments of public attitudes toward bears and their management would appear to be the most direct measure of the success of the bear management program and may be warranted part way through the 10-year planning horizon to determine whether there is need for a mid-course correction.

Protect and monitor bear health (and health of other wildlife) – The opening phrase of the proposed bear management program goal is to "Maintain a healthy and sustainable black bear population". Despite having identified that bear baiting in Wisconsin frequently includes chocolate, and the known toxicant theobromine, the plan product A7a does not indicate any action to eliminate this harmful substance from the landscape. *We recommend the final plan indicates that WDNR will pursue a rule change to eliminate the use of chocolate as has been done in Michigan.*

We are concerned by the findings that >40% of the diet of northcentral Wisconsin black bears is coming from human placed baits (Kirby et al. 2017). As Kirby et al. (2017) points out the long baiting period in Wisconsin may have increased the ecological carrying capacity in the state. In addition to the potential health concerns this poses to individual bears and impacts on reproductive rates, the baiting may also be facilitating bear-human conflict (Kirby et al. 2017). Wildlife feeding and supplementation can also pose infectious disease transmission risk to other wildlife (Sorensen et al. 2014).

We note that important reference by Bump et al. (2013) on potential impact of bear baiting on exacerbation of wolf –dog conflicts is missing from the bear plan. Bump et al (2013) demonstrate that the long bear baiting season in Wisconsin may be a contributing factor to increased rates of wolf-hunting dog conflicts in Wisconsin compared to Michigan. Early baiting in Wisconsin may be an important factor in wolf selection of rendezvous sites in summer and potentially create conflict situations between bear hound hunters and local wolf packs.

Past research has shown that most bear hunters haven't started to place baits on the landscape until mid to late July. *We recommend the final bear management plan indicate that WDNR will pursue a rule change to delay the start date for bear baiting in order to significantly reduce the total volume of bait bears consume, as well as, decrease the likelihood that wolf packs establish rendezvous sites based upon bait site availability. We recommend establishing a baiting season that provides adequate opportunities for hunters to attract bears, but reduce overdependence of bears on supplemental foods, reduce chance for wolf-dog conflicts, and minimize potential negative impacts to other wildlife by having bait on the landscape for long periods. Baiting seasons like Minnesota and Michigan seem to provide adequate opportunities for harvesting bears while minimizing some of the negative impacts of feeding wildlife.*

The members of Wisconsin's Green Fire Wildlife Work Group appreciate the opportunity to provide these comments. We look forward to continued participation in your planning efforts. Please feel free to contact me for any additional information or to discuss these recommendations.

Thanks for all you do to conserve Wisconsin's wildlife resources!

Tom Hauge　　　　　　　　*Adrian Wydeven*

Co-chairs, Wildlife Working Group
Wisconsin's Green Fire

Literature Cited

Bump, J.K., C.M. Murawski, L.M. Kartano, D.E. Beyer Jr., and B.J. Roell. 2013. Bear-baiting may exacerbate wolf-hunting dog conflict. PLOS/ONE 8 (4): 1-7

Kirbry, R., D.M. MacFarland, and J.N. Pauli. 2017. Consumption of intentional food subsidies by a hunted carnivore, Journal of Wildlife Management 81: 1161-1169.

Sorensen, A., F.M. van Beest, and R.K. Brook. 2014. Impact of wildlife baiting and supplemental feeding on infectious disease transmission risk: a synthesis of knowledge. Preventive Veterinary Medicine 113 (4):356-363.