Public Action Team Implementation Proposal

Action Team: **Science & Research**	**Science & Research–A.1**
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This document shows the original Deer Trustee Report recommendation that the Public Action Team considered when developing proposals for implementing the recommendation in Wisconsin. The Public Action Team's implementation proposal is presented then followed by additional background information.

I. ORIGINAL DEER TRUSTEE REPORT RECOMMENDATION

Limit the use of SAK/accounting style models to monitoring deer population size and trends at the state and regional levels. We agree with the 2006 SAK Audit Report that estimates at the state level likely reflect actual conditions, and this is the scale at which most other states that use similar models report estimates of population size. With increased sample sizes of deer bio-checked by DMAP cooperators, precision of estimates at the regional level may be appropriate for setting policy and monitoring trends at that level. Statistical estimates such as those from aerial surveys in the CWD management zone should be used for estimates at the DMU or finer scale as appropriate. Unfortunately, we cannot recommend alternative population estimating procedures that are less susceptible to assumption violations or sample size requirements at the DMU level.

II. PUBLIC ACTION TEAM PROPOSAL FOR IMPLEMENTING THE ABOVE RECOMMENDATION

Below is the Public Action Team implementation proposal along with their rationale and supporting evidence, potential implementation obstacles and consideration of the proposal's potential impact on the overall deer management in Wisconsin.

1. Action Team Implementation Proposal:

- Use SAK at the level that is appropriate for management (DMU level) and scientific inference.
- Target efforts towards DMUs with less certainty/more controversy in population estimates.
- Find a way to rigorously examine and incorporate local knowledge into deer estimation.
- Keep collecting registration and harvest age-data during firearm deer season.
- Augment population estimates with data derived from metrics.

2. Supporting data, references, rationale and other information behind it.

- State and regional estimates don't help manage the herd because they are not linked to management decisions
- Ongoing research will improve the SAK
- Rationale:
    - The Science and Research Action Team does not believe that Wisconsin should abandon attempts to quantify deer in the state.
    - The 2005 SAK Audit indicated that there is not a cost effective alternative to SAK for use at the scale of DMUs in Wisconsin. Even if a promising alternative technique were to become available suddenly we feel that it would be prudent to maintain the current technique so that the relative cost and benefits of each could be measured.
    - SAK should continue, as a single component in a more comprehensive deer count. Continuing to use SAK does not preclude more emphasis on the use of other criteria to make deer management decisions.

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- Research is needed that will specifically improve SAK and Lambda (population growth) and address potential problems (e.g., opening day weather, hunter selection, baiting, overall herd mortality and predation, and other factors).
- Use of SAK has required the standardized gathering of harvest and herd structure data and this data now represents a comprehensive state-wide database that stretches back more than 30 years. This is a uniquely valuable asset for deer managers in Wisconsin because it can be analyzed to retrospectively address key management questions that were never anticipated when the data-gathering began (e.g. effects of Earn-a-buck, effects of baiting). We think that it's prudent to continue to build on this database for future management issues.
- Research suggests that SAK is sensitive to variation in its input parameters and that naïve calculations can produce unacceptably large confidence intervals. However examination of actual SAK estimates produced over the last 20 years indicated that the precision of field based SAK estimates in Wisconsin are dramatically more precise than examples produced from simulation modeling (e.g. the 2005 SAK audit report). This suggests that intelligent use of input variables (e.g. smoothing to reduce yearly variation, borrowing from neighboring units to mediate field data that are unrealistically extreme; topics unaddressed in the 2005 SAK Audit) is important. This process should be evaluated, formalized, and made transparent.
- Research suggests that SAK is accurate when its assumptions are met (stable-stationary age structure). Populations quickly converge on a stable age structure and biases associated with growth are minimal. Special consideration should be given when populations are not stable.
- When management prescriptions are made, considerations need to be made for professional judgment and additional metrics.
- Newly available statistical techniques show promise for rigorously incorporating and evaluating local observations in SAK. The potential and value of these techniques should be studied.
- DNR has a public process for re-examining DMU boundaries every 3 years. The trend in this process has been movement from larger to smaller DMUs indicating that Wisconsin deer hunters expect management to be more responsive to local conditions. Reversing this trend to improve SAK precision should be done more gradually and in consultation with local deer hunters and landowners.
- DNR has a large investment in on-going research designed to improve SAK and provide input on key assumptions. This research is a direct outcome of recommendations in the 2005 SAK report and enjoys wide support from deer hunters, landowners and even the Deer Trustee report itself. The implications of this research should be evaluated before a dramatic shift away from SAK at the DMU level.
- An emphasis on communication and education regarding deer population estimation (including the SAK) and deer population dynamics. **Especially a clear interpretation of precision and accuracy of the SAK.**

3. Consider and describe potential implementation obstacles or drawbacks.

- This will be controversial with some of the public and some policy makers.

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- Kroll Report recommendation replaces current "top down" approach with a new "bottom up" approach, implemented over time.
    - Current approach is to:
        - Establish deer population goals based on carrying capacity of the habitat, tempered by social tolerance level for agricultural damage, forest browsing impacts, car-deer collisions, etc.
        - Estimate deer population with SAK model.
        - Compare population with goal to determine number of doe permits to issue, by DMU. DNR decides whether to increase or decrease herd.
    - New approach is to:
        - Allow local stakeholders to decide whether deer population is too high, too low, or just right. This is what DMAP is all about.
        - No population estimates or goals are needed. Whether to increase or decrease herd comes down to desire of stakeholders.
        - Focus on herd health and habitat health.
- Problem with current approach:
    - Hunters distrust DNR and SAK because field observations are often inconsistent with SAK estimates.
- Problems with new approach:
    - Carrying capacity or impacts on habitat are not considered.
    - No reliable measures exist to quantify herd health and habitat health.
- Science & Research Team feels SAK should be maintained until adequate measures of herd health and habitat health are developed.

4. Overall, how will this proposal simplify or complicate deer hunting, management, or research in Wisconsin.

- May require increased cooperation by hunters in research
- Additional research needed on metrics for herd health & habitat health.