

LEGISLATIVE AUDIT DIVISION

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MEMORANDUM

TO: Legislative Audit Committee
FROM: Jim Pellegrini, Deputy Legislative Auditor of Performance Audits
DATE: April 11, 2005
RE: Follow-up Performance Audit 04SP-23:
Big Game Inventory & Survey Process (orig. 02P-05)
Department of Fish, Wildlife and Parks

INTRODUCTION

We presented our performance audit of the Big Game Inventory & Survey Process within the Wildlife Division of the Department of Fish, Wildlife and Parks (FWP) to the Legislative Audit Committee in November 2002. The performance audit report contained one recommendation to FWP with five parts. This memorandum summarizes information on the implementation status of each audit recommendation.

Overview

FWP has partially implemented the overall recommendation to refine its survey and inventory techniques for all species. Of the five recommended areas to refine its survey and inventory techniques in, one is implemented, two are being implemented, one is partially implemented, and one is not implemented.

FWP has increased efforts for certain species and is continuing to address several parts of the recommendation as a long-term process. In several instances, the Wildlife Division and Regional Offices personnel indicated parts of the recommendation were implemented at different levels because of limited resources. The department has made budget requests to include more survey and inventory items.

Overall, FWP is making progress for some species on a statewide level and could improve communication of the changes to the regional personnel conducting the surveys.

BACKGROUND

The Wildlife Division in FWP is responsible for wildlife and habitat management. Division programs are intended to protect, regulate, and perpetuate wildlife populations; maintain and enhance wildlife habitat; provide wildlife recreational opportunities; and provide information on conservation of wildlife populations and habitats.

The division monitors the status of wildlife through biologists' daily activities, which include game surveys. There are two main activities conducted by division and regional personnel regarding wildlife management: 1) survey and inventory, and 2) season setting. Survey and inventory involves counting and classifying various species and collection and analysis of data on the characteristics, interrelationships, and dynamics of wildlife populations. Biologists are involved in numerous activities to accomplish these responsibilities. The main activities include aerial and ground surveys, data and trend analysis, check station monitoring, and discussions with landowners, hunters, and the general public.

The other main activity is season setting. Hunting and trapping seasons and quotas are established for all species managed by the department. Biologists use data and information collected during the survey and inventory process to determine whether changes are needed in current hunting seasons and quotas. Recommendations for changes then proceed through various levels of review and approval. The FWP Commission has final approval over hunting seasons and quotas.

To examine the implementation status of report recommendations, we:

- Requested and received information from FWP personnel regarding progress towards implementation of the recommended change;
- Interviewed FWP personnel about agency implementation efforts; and
- Collected recent agency documents to verify implementation status in each area.

Audit Findings

The following sections summarize the 2002 report's findings and recommendations, and our assessment of the agencies' actions to implement the recommendations.

Recommendation

We recommend the Department refine its survey and inventory techniques for all species to better incorporate the concepts of:

- A. Repetitive surveys of representative management areas;
- B. Standardized and documented protocol that is easily transferable;
- C. Use of visibility bias adjustments and required sample sizes;
- D. Tying survey results directly to management objectives and subsequent recommendations; and
- E. Understandable and concise presentation to the public based on objective analysis.

Status:

A. Repetitive surveys of representative management areas;

Partially Implemented

Review of agency management plans and responses from agency personnel indicated that repetitive surveys of representative management areas are only being conducted for census areas for some species. The current Elk Management Plan (EMP) refers to repetitive surveys for elk in representative management areas per available resources.

According to wildlife biologists, the survey process has not changed since the time of the audit due to budget constraints, and little direction from management to change the process at this time. They continue to try to be as consistent as possible with the survey process dependent upon weather conditions and pilot availability. Replicas of flights are completed when weather and resources permit.

The division is working on adding repetitive survey process direction into the management plans for big horn sheep and antelope similar to the EMP and has an established plan for sage grouse.

B. Standardized and documented protocol that is easily transferable;

Being Implemented

FWP has written protocol in the form of management plans for some species and is progressing in developing plans for other species. Biologists indicated that the procedures and methodologies listed in the EMP and Adaptive Harvest management plans are generalized and processes vary per individual. The Sage Grouse Management Plan has more well-defined methodologies and procedures to follow. There is also established written protocol for furbearers to follow.

All biologists conducting elk surveys said the new Elk Management Plan has not affected the way they currently conduct surveys.

The Wildlife Division biologists are using similar processes and forms to report information to management. However, all interviewees indicated there were no standardized documented procedures to follow. One biologist had Region specific written procedures detailing timing and overall design of aerial and ground surveys.

Survey reports collected from biologists to management did detail survey steps that could be repeated by a successor. In fact, these reports and survey files are used to conduct the surveys in the same manner as they have always been conducted for consistency purposes.

Review of agency documents found one standardized form used to request harvest changes called a justification form. Published scientific literature was another source mentioned for guidance of acceptable practices.

The department is utilizing new technologies to the extent possible for all surveys that vary per species and available resources. More work and direction from management is needed to establish standard and easily transferable protocols.

C. Use of visibility bias adjustments and required sample sizes;

Not Implemented

There have been no changes in this area of the recommendation since the time of the audit. FWP has not directed or specified the use of these at this time. The census site set-ups for mule deer use a visibility index per the Adaptive Harvest Management plan that was in effect at the time of the audit.

Biologists use trend data, as they always have to determine minimum sample size requirements on aerial surveys. They know what the population trends are, how many of each species should be there, and survey until they find at least that population trend number or close enough to be comfortable with the results.

The survey reports include visibility factors of the observed population of a flight as fair, poor, good, and excellent, but there is no definition of these conditions and it is based on the judgment of the reporting individual.

The department has improved the use of “observed” versus “total” when reporting population estimates. However, the FWP website is still reporting “total” population estimates for elk on the Hunter Planner. Confidence intervals are used when reporting the population estimates on the website, but the methodologies for determining the size of the intervals and population estimate models and equations are questionable.

D. Tying survey results directly to management objectives and subsequent recommendations;

Implemented

Biologists use survey reports to provide survey information to management. The surveys conducted are mostly trend data collection working toward agreed upon objectives. These reports tie results to management objectives and if changes are needed to meet population status objectives, a justification form is submitted. The justification forms recommend harvest adjustments in accord with management objectives.

E. Understandable and concise presentation to the public based on objective analysis.

Being Implemented

Overall, the FWP website contains a variety of information about the department and reports it in an understandable, concise, and user-friendly manner. On this website, there was one area of concern.

In 2001, Senate Bill 209 passed requiring FWP to publish the game count for each species of game per hunting district and the administrative regions. The department posts this information on its website. Currently, the deer, elk, sheep, moose, and antelope estimated populations are

posted and they are working towards posting population estimates for other big game species. For example, goat and black bear information is gradually appearing for some hunting districts.

We reviewed the published information and the methodologies used to derive the population estimates. Analysis of the process and mathematical formulas used resulted in questions of the reliability and science of the published data.

Examples include:

- The formulas are the same for a species for all hunting districts even though district conditions may vary across the state.
- The mathematical formulas used to determine the population estimates for deer are based on the harvest data and the ratios observed from the December surveys. The harvest data number is a calculated (decimal) number and not an actual (whole) number. The estimates are dependent upon the December survey quality and conditions, which can widely vary from year to year. One species population estimate showed a difference of approximately 500 between two consecutive years. In addition, the deer male to female ratios are set in the formulas used at 50/50 and the bear sex ratios are set at 55/45 female to male with no explanations or source.
- Other species population estimates are based on surveys plus professional opinion and/or harvest data plus professional opinion. The professional opinion portion of the formula adds multipliers and precision based on unknown factors.
- Several hunting districts have the same elk population estimates due to extrapolation of data from a district with surveys to a district with no available survey information.
- Elk population estimates and some other species estimates are published with a smaller confidence level than deer. A smaller confidence level indicates greater accuracy of the data and there is no published explanation on the FWP website or supporting population models that explain why elk data or other species would be more accurate than deer data.
- White tail deer and mule deer are surveyed differently, but the population estimates are determined using the same model and parameters.

The reasoning we received for the differences did not appear concise for the level of visibility of the information. For data that is more readily available and easily scrutinized by the public, a more scientific approach is easier to defend when tying management decisions to these results.



Montana Fish, Wildlife & Parks

INTEROFFICE MEMORANDUM

April 5, 2005

TO: Misty Wallace
FROM: Don Childress
SUBJECT: S & I Follow-up Response

RECEIVED

APR 06 2005

LEGISLATIVE AUDIT DIV.

Thank you for the excellent review of the current status of the recommendations regarding our Survey and Inventory activities in the Wildlife Division. The five areas of the recommendation are being implemented at different levels of success as you accurately pointed out. This is to be expected since the recommendation on tying survey results to management actions is directly tied to the completion of management plan. In the case of the recently adopted elk plan, it was a two-year process for completion. We hope that our development of other species plans will be timelier but the public involvement requirements necessitate the lengthy comment periods.

The recommendation that has not been implemented is the use of visibility bias adjustments and required sample sizes. The development of these parameters requires a significant investment in marking animals and repetitive flights under varying conditions to establish the index. This level of funding has not been available to date. We have made a request that is in the legislative process at this time. While this request is less than originally developed, it will allow us the opportunity to begin the process in representative areas.

Your review of the information that is posted on the website is of value to us. The data posted last year was the first generation and there were obvious areas for improvement. Our review of the program will include your analysis as we update in the future.

As I indicated during your visit, we are currently undergoing a detailed review of the protocols for all the survey and inventory activities. This is in anticipation of the additional funding being available. The managers, at their April meeting, will be assigned to develop the protocols for the species that do not have a specific management plan and outlined protocol for surveys.

At the same time there is a national working seminar in Nevada. It is devoted to review of the current state of survey and inventory and monitoring. The department will participate in the meeting in an effort to gain new knowledge on possible techniques as well as the chance to evaluate our current state of activity.

The protocols developed by the managers will be used to assess the opportunities for meeting the recommendations as outlined in the original report as well as the follow up. Budgets are being allocated based on that review. In addition to the operational funding that was requested the proposal to the legislature also included the addition of another pilot. The department has aircraft available for use west of the divide if a pilot is hired. This will significantly reduce the use of private aircraft and normal ferry time from Helena.

I am confident that our efforts later this spring will result in a program that meets the recommendations to a level that is acceptable. I encourage your review of our success in the future.

c: Jeff Hagener