

SECTION V

MONITORING

As indicated within the Congressional guidelines, each state CWCS must describe how progress is monitored. Specifically, each CWCS must provide, “Descriptions of the proposed plans for monitoring species identified in Element #1 and their habitats, for monitoring the effectiveness of the conservation actions proposed in Element #4, and adapting these conservation actions to respond appropriately to new information or changing conditions”.

MONITORING WYOMING’S SGCN AND THEIR HABITATS

As evidenced within the species accounts and text related to Element #4, many of Wyoming’s SGCN are already the focus of considerable conservation attention. Monitoring the status of these species and the effectiveness of conservation actions are integral components of these efforts. However, for nearly 85 percent of Wyoming’s SGCN, the lack of baseline information (refer to Tables 31 to 37 in Section IV) eclipses all other issues and needs. The task of establishing baseline population status and subsequently monitoring the population trends of 235 SGCN is far beyond the WGFD’s capability. As with conservation actions (see Collection of Baseline Information, Section IV) the involvement and cooperation of partners will be an integral component of Wyoming’s monitoring strategy.

Fortunately, during Wyoming’s initial CWCS effort, some opportunities became apparent that could greatly facilitate these data collection and monitoring efforts. During March, 2005, the WGFD hosted a series of workshops (see Section VII and Appendix VIII) to review and refine the distribution maps for Wyoming’s SGCN. As a secondary effort related to monitoring, workshop participants were asked: “What’s happening now?”; “What needs to happen?”; and “Who needs to be involved?”.

WHAT’S HAPPENING NOW?

Birds:

Without question, birds are the most monitored taxa in Wyoming. Key efforts include the annual breeding bird surveys and strategies outlined within the *Wyoming Bird Conservation Plan* (Nicholoff, 2003). Additionally, the WGFD is involved in a variety of single species monitoring efforts related to raptors, waterfowl, and a few upland birds. Examples of efforts by partners include annual surveys of Audubon Wyoming’s Important Bird Areas, USFS monitoring of its avian Management Indicator Species, more geographically focused monitoring efforts by the Point Reyes Bird Observatory and Hawk Watch International, and various efforts made by mine and wind farm operators. More specific descriptions of monitoring activities conducted or proposed by the WGFD and Partners are described in Appendix VII.

Mammals:

Except for the Swift Fox, Moose, Sheep, Grizzly Bear, Prairie Dogs, Black-footed Ferret, some populations of Marten, and some populations of Lynx, the majority of Wyoming's mammalian SGCN are not truly monitored. A statewide plan is currently being developed for Wyoming's bats, White-tailed Prairie Dog distribution is being mapped in the Kemmerer area, and recent efforts related to the Meadow Jumping Mouse have provided baseline data. More specific descriptions of monitoring activities conducted or proposed by the WGFD and partners are described in Appendix VII.

Fish:

The majority of Wyoming's fish monitoring activities are conducted by the WGFD. In recent years, data collection and monitoring efforts have expanded to include previously overlooked waters and nongame fishes. Current efforts are focused on the Powder River, Green River, and Bear River drainages. Plans are in place to begin monitoring in the Bighorn and Wind River basins. Other entities working to monitor various fisheries include the U. S. Geological Survey, the University of Wyoming, the USFS, the FWS, and NPS. Finally, consultants for various industries are known to conduct fisheries-related work. More specific descriptions of monitoring activities conducted or proposed by the WGFD and partners are described in Appendix VII.

Reptiles and Amphibians:

Via the SWG program, the WGFD has been able to establish an initial program for the conservation and management of reptiles and amphibians. To date, efforts have focused on refining range maps for various species and conducting intensive inventories within the Green River and the Powder River basins. Within the Greater Yellowstone Area, the National Park Service monitors amphibians in order to develop population and distribution trends within Yellowstone National Park, Grand Teton National Park, and Bighorn Canyon National Recreation Area. The USFS, the University of Wyoming and a few private contractors are also known to be conducting amphibian-related research. More specific descriptions of monitoring activities conducted or proposed by the WGFD and partners are described in Appendix VII.

Invertebrates:

Working with two key volunteers, fisheries biologists within the WGFD have established an initial inventory program for mussels. Volunteers and WGFD personnel are conducting specimen collection. These specimens are being stored at the WGFD office in Casper, and the Wyoming Natural Diversity Database has developed a database to facilitate data storage and the generation of distribution maps. More specific descriptions of monitoring activities conducted or proposed by the WGFD and partners are described in Appendix VII.

There are no known programs to systematically inventory and monitor gastropods, fingernail clams, or any of Wyoming's crustaceans.

WHAT NEEDS TO HAPPEN?

Although participants at each workshop addressed this question, the responses were surprisingly similar. Each generated a list of necessary research and information, but two issues were identified as being vital if any additional data was to be collected. The first, and perhaps most important, involved the sharing of information. Wyoming lacks a consistent mechanism to allow members of the broader conservation community to share research findings or coordinate efforts to prevent the duplication of research. The second issue involved a general lack of human and financial resources to collect additional information. Wyoming's CWCS is intended to serve as a central plan to help entities direct their research attentions. The CWCS planning process will provide a regular opportunity for wildlife professionals to collaborate on SGCN, and State Wildlife Grants will provide some of the resources needed to collect baseline information and establish a more comprehensive set of monitoring programs.

WHO NEEDS TO BE INVOLVED?

By and large, each set of participants indicated any inventory and monitoring effort should be as inclusive of as many researchers as possible.

HOW WILL MONITORING OF WYOMING'S SGCN BE ACCOMPLISHED?

The WGFD plans to continue current SGCN monitoring. The effort to develop a CWCS has indicated a significant need for additional monitoring. Current and future monitoring efforts are described in Appendix VI and Appendix VII. Based on the workshop discussions, it is evident that many public and private entities are interested in participating in the implementation of Wyoming's CWCS efforts. During the first years of implementation, it will be incumbent upon WGFD personnel to expand reciprocal and cooperative monitoring strategies with partners for the conservation of Wyoming's SGCN.

MONITORING THE EFFECTIVENESS OF INDIVIDUAL CONSERVATION ACTIONS

The goal of each wildlife or fisheries project conducted by the WGFD is to maintain and perpetuate healthy wildlife populations. This can be accomplished at a variety of geographic and temporal scales, and it is this variability that leads to the various types of performance measures employed to assess overall effectiveness. For short-term projects, such as collecting baseline information, performance can be evaluated with simple measures (i.e. was the specified data collected, and was it reported in a format that will facilitate its use in future management efforts?). For other projects, such as individual habitat treatments implemented to benefit SGCN, the quantity and quality of the treatments must be assessed against the project goals and objectives. Finally, the WGFD works on long-term projects, such as habitat initiatives conducted on large geographic scales involving public and private partners, which may require decades before the ultimate benefits are realized.

In order to determine appropriate short-term, intermediate, and long-term effectiveness measures, the WGFD will utilize an adaptive decision making process. With 279 species, hundreds of conservation problems, variable funding, and many partners and key stakeholders, it is impractical to expect any agency could provide a comprehensive listing of effectiveness measures for all future projects. However, it is possible to provide insights on the process that will be used to generate new monitoring strategies and how appropriate effectiveness measures will be determined. Project-specific discussions will be included within specific project proposals, and this process will involve the following:

- **Identify Precise Project Goals**
This effort will identify how the project will be implemented what results are expected.
- **Identify WGFD Resources That Can Be Applied To The Project**
This discussion will identify the human and financial resources the WGFD will be able to allocate to the specific project and how long those resources will be committed.
- **Identify Partners And Resources They Can Apply To The Project**
As indicated throughout discussions of conservation actions (see Appendix II) the success of Wyoming's CWCS will depend upon the involvement of partners. This discussion will identify the human and financial resources partners will be able to allocate to the specific project and how long those resources will be committed.
- **Determine Appropriate Timeframes For Monitoring And Evaluation**
When working with biological systems, there is always a delay between project implementation and identification of results. The length of this delay can range from days to decades. Within this discussion, project managers will review available research and work with partners (if any) to determine an appropriate timeframe for short-term and intermediate monitoring. In essence, this discussion will determine how quickly project managers can expect to see results and how frequently those changes should be measured.
- **Determine Appropriate Monitoring Strategies And Effectiveness Measures**
Project managers and partners (if any) will review available research to determine the specific monitoring methodologies which will be used and the effectiveness measures that will provide a reasonable indication of how much progress is being made toward achieving the stated project objective. The available human and financial resources will be integral components of this discussion.
- **Determine Responsibility For Monitoring And Reporting On Effectiveness Measures**
Project managers and partners (if any) will work determine who will be responsible for conducting project monitoring and develop a format and schedule for reporting. If the project fails to achieve its specific goals, the report should hypothesize about the contributing conditions or circumstances and offer ideas on how those issues can be ameliorated. These reports can then be used to either prove the ultimate success of

the specific project or adapt project goals, methodologies, monitoring, of evaluation in response to new information.

It is WGFDs intention to utilize this methodology to evaluate the effectiveness of conservation actions implemented to address some aspect or issue identified within the CWCS. In CWCS-related efforts undertaken by partners, WGFD will work to be involved, at least in an advisory capacity in the project planning to ensure compatible performance measures are incorporated.

ADAPTING CONSERVATION ACTIONS IN RESPONSE TO NEW INFORMATION OR CHANGING CONDITIONS

There are two distinct aspects related to program adaptation in the face of new information or changing conditions. The first involves the modification of individual actions to accomplish conservation goals. The second involves the evaluation and adaptation of Wyoming's CWCS as experience is gained in the use of this new planning tool. Each are important, but neither, alone, is sufficient to facilitate the adaptive conservation of Wyoming's SGCN.

As indicated within Section VI, Wyoming's CWCS will be updated every five years, using a methodology similar to the initial Congressional guidelines. During the update process, the summary for each of Wyoming's SGCN will be reviewed in light of projects that have taken place during the intervening period. Again, working with partners to determine the comprehensive status of each species, it will be possible for the broader conservation community to evaluate historic efforts and guide future actions based on a broader base of information and experience.

The second facet associated with evaluating an individual CWCS must answer the fundamental question, "Is this process a more effective way to prioritize efforts and address the needs of Wyoming's SGCN?" In contrast to project level measures, this sort of evaluation will require a more expansive and collective review of how effective the WGFD and its partners were in working together to overcoming the problems identified for each of these species. Although somewhat qualitative in nature, in 2010, the following guidelines should provide an indication of how well Wyoming's CWCS performed and provide guidance on how it can be improved:

1. What percentage of Wyoming's SGCN are included within the 2010 CWCS because managers lack sufficient information to reclassify them as either a higher or lower status within Wyoming's borders relative to their status throughout the remainder of their range?
2. Which, if any, of Wyoming's SGCN identified during 2005 can be removed from this list during 2010?
3. Which, if any, of Wyoming's species were excluded from the 2005 list of SGCN must be included as a SGCN in 2010?

4. The percentage of SWG matching funds derived from all nonfederal sources (i.e. Wildlife and Natural Resources Trust Account, partners, private grants, etc.).
5. Which agencies, organizations, institutions, or individuals have contributed to addressing the conservation problems identified during 2005, and what was the nature of their participation?