

## **WLCI/USGS State of the Science WLCI Science & Technical Advisory Committee Review 2010**

In the WLCI Science and Management Integration Plan and the WLCI Strategic Plan, the Science and Technical Advisory Committee (STAC) is charged with periodically reviewing science activities of USGS and other WLCI partners as a means of identifying the most urgent science needs that are not being met and recommending additional research. Such a review is meant to facilitate adaptive management by ensuring that science activities are most closely aligned with existing management needs.

The USGS Science Strategy for the WLCI (Science Strategy) was developed by USGS in 2007, based in part on the 2007 WLCI Science Workshop. The Science Strategy, which was adopted by WLCI, listed 7 science and management needs:

1. Identify the key drivers of change.
2. Identify the condition and distribution of key wildlife species, habitat and species' habitat requirements.
3. Evaluate wildlife and livestock responses to development.
4. Identify the most effective and needed restoration, reclamation and mitigation activities, as well as locations that maximize conservation benefits.
5. Develop an integrated inventory and monitoring strategy.
6. Develop a data clearinghouse and information management framework.
7. Evaluate the cumulative effects of development activities in Southwest Wyoming.

For the first round of science activities conducted in FY 2008, the USGS Science Team developed Statements of Work (SOWs) outlining specific research and technology development tasks to address these needs. The SOWs comprised approximately \$5 million worth of USGS research, based on initial (and optimistic) USGS budget projections. The SOWs were reviewed and prioritized by STAC on behalf of the WLCI partners, and the STAC provided USGS with a prioritized ranking. The ranking provided a means for USGS to determine how to allocate funding for the work. Once the USGS WLCI budget was finalized, USGS received far less funding (\$1.5 million) than the \$5 million expected, so it was only able to initiate work on the highest priority tasks. Some tasks were initiated with only partial funding (i.e., work was initiated, but scaled back in scope). Even though the STAC may identify some inadequacies in the work completed to date, the committee commends the USGS for what it has accomplished given the fiscal shortages it has faced.

The activities of USGS that are being guided by the SOWs that were developed by USGS in 2007 and ranked by STAC are addressing the science and management needs listed in its science strategy. The work of other WLCI partners is as well. As a relative and coarse measure of how well the WLCI is addressing the management needs, the numbers of posters and presentations at the 2009 WLCI Science Workshop addressing each need are shown in the following table. It should be noted that this is admittedly an incomplete picture of work going on in the WLCI area, of management needs currently being addressed, and of the relative importance each management need may have. But, it is the information that is available. Several more posters and presentations were proposed by prospective presenters for the Science Workshop, but time and space restricted the combined allowable total to approximately 54 of both formats. Some research was sufficiently complete to be presented. Additional proposals to address science needs have been developed by the USGS Science Team, and that work is ready to be implemented when funding becomes available. Insufficient funding and recent budget cuts have restricted the full implementation of the USGS WLCI Science Strategy. In addition, other science is being conducted in the WLCI area by other, non-WLCI entities; and more of this science is proposed and funded for the upcoming years.

<b>Management Need</b>	<b>Number of Posters and Presentations at the 2009 WLCI Science Workshop</b>
1. Identify the key drivers of change	19
2. Identify the condition and distribution of key wildlife species, habitat and species' habitat requirements	24
3. Evaluate wildlife and livestock responses to development	33
4. Identify the most effective and needed restoration, reclamation and mitigation activities, as well as locations that maximize conservation benefits	9
5. Develop an integrated inventory and monitoring strategy	27
6. Develop a data clearinghouse and information management framework	16
7. Evaluate the cumulative effects of development activities in Southwest Wyoming	45

The table shows that there is significant technology and information available to address Management Need #7, that of evaluating cumulative effects. Much of the work directed at the other management needs also addresses #7. A significant amount of effort is also being focused on Management Need #3, with considerable

attention being paid to evaluating the response of wildlife to development, but not as much focus to date on responses of livestock. Next is work on Management Need #5, developing an integrated inventory and monitoring program. That is followed by work on Management Need #2, identifying the condition and distribution of key wildlife species, habitat and species' habitat requirements. The amount of work appears to be less for Management Need #1, Management Need #6, and finally, Management Need #4. Research, inventory, monitoring, and the development of tools appear to be generally on track in addressing identified needs. An evaluation should be made as to whether sufficient effort is being directed at working toward improved restoration, reclamation and mitigation activities (Management Need #4). This is an important need to be addressed in order to achieve conservation in southwest Wyoming. Further, it must be determined whether these activities are truly effective from a functional standpoint, meaning they result in actual positive responses and benefits to the fish and wildlife species for which they are done.

We offer the following recommendations based on STAC's review of the state of WLCI science. This is primarily drawn from the 2009 Science Workshop, but includes additional observations as well. Items are prioritized as **Immediate priority**, **High priority**, and **Moderate priority**. The order of the items in each prioritization category signifies their relative importance within that category. Based on discussions with the WLCI Science Team, work on some of these items has begun. In particular, the Science Team is pulling together science priorities, maintaining an emphasis on effectiveness monitoring, pursuing work on wind energy development, and updating the WLCI Web site.

### **Immediate priority**

❖ **Determine estimates of threshold levels of development so the levels at which development renders areas unsuitable for various species is known.**

Development is going to occur, and it needs to be determined at what level it renders areas unsuitable for various species. This information would also provide insight on what areas provide essential features for certain species' existence, thereby allowing some distinction between those areas that can be or should not be developed. The state of WLCI science is such that this type of detailed spatial analysis is now possible. The STAC recommends that the USGS Science Team work closely with the Coordination Team and other partners to develop a WLCI Conservation Plan that prioritizes key geographic areas for development, restoration, mitigation, and conservation where development should be minimized. Of the recommendations listed here, this is one of the highest priorities.

❖ **Wind energy needs to be added as a priority.**

This has become very important and is an example of the key gaps that need to be assessed, which weren't considered when the WLCI was initiated >2 years ago. We need a lot more work and information on wind energy development so we can better understand the impacts and how to address this rising challenge.

❖ **Increase and improve monitoring throughout the WLCI area to assess natural and man-made changes and to better understand the effects of conservation projects.**

These efforts are ongoing and should continue in order to strengthen our understanding of environmental changes and our activities.

❖ **Continue to identify and fill knowledge gaps.**

We now know a great deal, mainly from the cumulative assessment, from efforts to centralize data from partners and simply from making one another aware that the data exist (e.g., WLCI Science Workshops). We need to continue to identify and fill knowledge gaps by informing partners and others working in the WLCI area of those needs; by making the information we collect, compile and analyze available and sharing it through the USGS, University of Wyoming and WLCI data sites; and by prioritizing funding for research, monitoring and modeling.

**High priority**

❖ **Improve the amount and dependability of funding for the initiative.**

Much work by partners has gone into developing an integrative Science Strategy for WLCI. This Science Strategy is unique in its comprehensive approach to designing a coordinated set of science and technical support activities to sustain fish and wildlife resources in southwest Wyoming. Unfortunately, the Science Strategy is not fully funded, and progress is clearly impeded by low funding levels. STAC recommends that WLCI partner agencies seek means of better leveraging agency research funds to get this integrated work done. For example, most partner agencies have other non-WLCI funding mechanisms that could help fund WLCI related science activities.

❖ **Develop better knowledge about the effectiveness of conservation projects intended to restore sage steppe ecosystem function.**

Although much effort has been invested in restoration of sage steppe ecosystems, there is limited information available about the effectiveness of the techniques being used. A general consensus about how best to use management (e.g., fire, mechanical treatment) to restore healthy sagebrush

habitats is just beginning to emerge. This type of science-based information is critically needed. Although the USGS Effectiveness Monitoring study should address this objective. But, it is unclear to the STAC the extent to which such work is underway. We suggest a review of the Effectiveness Monitoring science activity to ensure that it will provide critical information regarding how best to restore sagebrush. Perhaps a comprehensive literature review could also be sanctioned. It should be determined to what extent the information is available from the interagency (Western Association of Wildlife Agencies) effort associated with sage-grouse conservation in response to petitioning, including literature reviews, white papers, BMPs, and annotated bibliographies.

❖ **Provide better clarification and collaboration on monitoring and assessment methods.**

Improve the understanding of how these relate to one another. Focus and expand upon collaborating on surveys and monitoring, much like the 'Monitoring Without Borders' effort in south central Wyoming.

❖ **Provide basic information on species where it is lacking, especially for Species of Greatest Conservation Need (SGCN) that are classified by WGFD as NSSU (status unknown) and those that can serve as indicator or umbrella species.**

A first step in this is to determine which data would be the highest priority to collect. The Wyoming State Wildlife Action Plan is being revised with a deadline of October 2010. Between now and then, or at least by that time, updated information on which species are SGCN and what information is generally lacking for each will be available to WLCI in order for needs to be prioritized.

❖ **The WLCI website is in need of a very serious upgrade.**

At a minimum, anyone should be able to go to the site and learn about every science activity (objective, methods, map of study areas – 1 pager) and every habitat project. This is a simple thing that could easily be done. The website is, for many, the 'face' of or portal to WLCI and is the primary means of obtaining information about and produced by the initiative. We understand that USGS is undertaking this modification.

❖ **Better staffing and administration support is needed for some committees.**

Is there a consistent role for the Ruckelshaus Institute? There is a very real sense that all involved in WLCI are stretched, especially some committees. For example, STAC, which is a pivotal group with key responsibilities bridging science and application of on the ground conservation, is composed of representatives of the partner agencies who have busy, full-time positions and

struggle to meet the expectations of STAC. How can the effort be better supported? Should the Chair of STAC be a half- or full-time position?

- ❖ **Maintain attention on long-term sustainability and planning for the future.**  
What do we want WLCI to look like in 10 years, and how do we make that happen? The WLCI is primarily focused on addressing its urgent and immediate needs. Some focus of the Executive Committee and its subgroups should be directed at developing a more long-term perspective and ensuring the initiative is taking the proper steps to meet the associated needs.

### **Moderate priority**

- ❖ **Additional information is needed for species that are categorized by WGFD as NSSU and to 'truth' the distribution/range maps for all Species of Greatest Conservation Need (SGCN).**  
There needs to be more work like the WYNND distribution/range map effort and the current investigations of the WY pocket gopher to help clarify those parameters for SGCN.
- ❖ **Continue to place emphasis on identifying and filling knowledge gaps regarding climate change.**  
We need to know how climate change interacts with existing stressors on the landscape (i.e., development). In addition, promote adapting WLCI conservation efforts to respond to climate change as information becomes available and partner agencies are better equipped to address it.
- ❖ **'Prove up' (demonstrate) utility of indicators/umbrella species as surrogates for others in WLCI work and monitoring.**  
With this knowledge, partners and others working in the WLCI area are provided more options, flexibility and certainty in their conservation efforts.
- ❖ **Improve and continue to stress communication between partners and others working in the WLCI area.**  
Feedback the STAC has received indicates that partners see a great value in the inter-agency coordination that is being facilitated by the WLCI. How do we enhance it and build on what is working, without having more meetings, more committees, etc?
- ❖ **Partners need to provide better notification/coordination regarding work being done or to be done in the WLCI area.**  
This would help keep partners aware of work going on in the WLCI area and would strengthen relationships between them.