Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2013-14) **October 31, 2013**

To: Bill Bradbury, Chair, Northwest Power and Conservation Council

From: Greg Ruggerone, ISRP Chair

Subject: Review of Progress Report for the Upper Columbia United Tribes' Wildlife Monitoring and Evaluation Program (UWMEP; 2008-007-00)

Background

In response to the Northwest Power and Conservation Council's September 2013 request, the ISRP reviewed a "Report of Progress from 2009 ISRP Wildlife Categorical Review and Final Report for Contract #5297" for the Upper Columbia United Tribes Wildlife Monitoring and Evaluation Program (UWMEP; project #2008-007-00). The report covers the project sponsors' Analysis of Terrestrial Vertebrate and Vegetation Response to Ecological Restoration.

This project was first proposed and reviewed in the Wildlife Category Review process. The ISRP concluded that the project met scientific criteria (ISRP 2009-17) but offered the qualification that the project should provide a preliminary analysis of data to better assess statistical procedures, analytical approaches, and results in two years. The Council agreed with the ISRP's recommendation and specifically recommended, "The UCUT M&E project be advanced as a 'pilot' monitoring program to be reviewed and evaluated on its applicability to a greater geographic area based on an ISRP review of results after three years of work."

Recommendation

Meets Scientific Review Criteria

The progress report meets the ISRP's previous qualifications from the Wildlife Category Review by providing a very good summary of analytical approaches and a thoughtful and rigorous preliminary analysis of data. The ISRP believes this wildlife M&E approach can be used in other areas. However, if the use of the approach is expanded to other areas, the ISRP recommends that the sponsors develop a companion document where the analytical approaches are explained in more detail. This companion document can be provided to the ISRP during the next review process.

Comments

Statistical procedure and analytical approaches
As stated above, the project sponsors provided a very good summary of the analytical approaches (as detailed in sections 7, 7.1, 7.2). The inclusion of vegetative, avian, small mammal, and amphibian species provides a promising approach for detecting changes dues to protection and restoration activities.

It is unfortunate that this monitoring activity has not occurred in concert with ecological restoration activities, but the sponsors have effectively demonstrated that their monitoring approaches can detect changes that are likely to be associated with future ecological restoration.

The sponsors have a good record of presenting their work at scientific meetings and have also published in scientific literature. The preliminary data analysis appears thoughtful and rigorous. They are using probabilistic methods for sampling and analysis as recommended by the ISRP in the past. As more data are collected, the ISRP encourages the sponsors to evaluate the sensitivity of their monitoring efforts to detect differences between site types. The plan for sharing data through an electronic database is a necessary step in successful implementation of the project.

Additional comments and editorial suggestions
The ISRP appreciated the sponsors' discussion of the statistical approach and procedures that are used and encourages the sponsors to begin a discussion about thresholds that could be used for assessing if/when the restoration objectives are met for individual parcels, habitat types, and the project as a whole.

There is a well-referenced discussion on the role of goals and measurable objectives as a critical component of successful restoration. There was also acknowledgment of the fact that individual projects/treatments may require different objectives since the degraded conditions being restored may have developed under different conditions and contexts.

The reference-condition approach is a well-established method of measuring long-term progress of a restoration action. For example, this approach is being used to monitor restoration of oil-sand sites in Alberta relative to undisturbed forest. A challenge associated with this approach is matching the "ages" of restored and reference stands. For example, consider restoration after a clear cut. In year 0, the restored site has no large trees and is very disturbed. The reference site may be mature (e.g., 40 years old). Ten years from now, the restored site would have species typical of a 10-year old stand, but at that time the reference stand would be 50 years old. There will be changes in both the reference and restored sites over time, but they will always be separated by 40 years.

In the reference-condition approach, multiple reference sites of different ages are often measured so that a trajectory that an undisturbed site is expected to follow can be established.

Then the trajectory in the disturbed site can be compared to that of the reference sites. How will the trajectories for a reference site be determined if all the reference sites are currently the same age?

In the UCUT Project, all of the sampling is done over a fairly narrow window (3 year time span), so they are treated as a single snap-shot in time. Consequently, Figure 3 cannot show a trajectory to see if the restored site is moving towards the reference conditions. Hopefully in a few more years, this can be done.

The ISRP had difficulty interpreting the following statement on p. 6 "*the number of points had to be restricted resulting in greater than 10% sampling for several units but less than 5% for others."* In future progress reports, we suggest figures showing what was planned and what was executed could be helpful to understand this change.

Toward the end of the report (page 13), there is a discussion on "Evaluation of Monitoring Results" that provides interesting use of non-parametric tools to track changes in multiple taxa between reference and protection/restored sites. The sponsors state that the discussion would show how the current approach will be used to evaluate change due to restoration management. The ISRP suspects that it may be too early for conclusions or specific recommendations for changes in the monitoring protocols or future analyses of the data, but the ISRP urges the sponsors to communicate these ideas in future progress reports. The ISRP found informative the differences between the grouping of "managed" and "reference" sites in Figure 3.

Editorial

Table 6, first column. Reviewers are not sure why a species diversity of 12.1 and 13.0 are declared as being "different," but 7.5 and 12.1 are declared as being the "same"?