Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2015-8) **August 19, 2015**

To: Phil Rockefeller, Chair, Northwest Power and Conservation Council

From: Greg Ruggerone, ISRP Chair

Subject: Review of Desert Wildlife Area O&M (Wetland Enhancement) 14-year Final Monitoring Report (2002-2015), Project #2006-003-00

Background

In response to the Northwest Power and Conservation Council's July 7 request, the ISRP reviewed the *Desert Wildlife Area O&M (Wetland Enhancement) 14-year Final Monitoring Report (2002-2015)* for Washington Department of Fish and Wildlife's Project #2006-003-00, *Desert Wildlife Area O&M*. The monitoring report is intended to address the condition the Council placed on this project, as part of the Wildlife category review in July 2009, that the proponents complete a summary report of results to date for ISRP review.

The ISRP's 2009 review (ISRP 2009-17) stated, "The ISRP requests that proponents complete a report summarizing the results to date. The report should contain a description of the wetland restoration actions undertaken, the results of any monitoring, a summary of how the data are being archived and made available to others, and an explanation of how lessons learned from the project thus far have been used to improve current O&M activities."

The ISRP also commented, "Because the Desert Wildlife Area wetlands are in part caused by human activity (agricultural surface water returns and elevated groundwater), it is likely that these nutrient-rich wetlands will undergo rapid vegetation succession and be vulnerable to exotic weed and fish invasions. This is likely to result in the need for frequent habitat restoration to maintain conditions suitable for target waterfowl species. This project will require considerable O&M to achieve its goals. Therefore, it is important that a reasonable monitoring program be implemented to track the project's success. Currently there appears to be no plan to monitor the effectiveness of many of the restoration actions. We also strongly encourage the proponents to initiate an appropriate water quality testing program."

ISRP Recommendation

Response Requested. Additional information is needed to address the ISRP's qualification from 2009.

The ISRP appreciates the concise 14-year monitoring report and the attempt to address previous comments by the ISRP. Although the monitoring report contains useful data and findings about the restoration effort, the ISRP concludes that additional details are needed to document progress to date. Thus, the ISRP requests, that in a revised progress report, the proponents provide more details on:

1. Goals and objectives (How do the goals and objectives differ between the two project areas [TD1, TD2] and why were the goals selected for each of these?);
2. Methods, including vegetation sampling, wetland boundary delineation, and waterfowl surveys;
3. Wetland restoration and management actions, including water management; and
4. Results, specifically for any statistical analyses completed.

Specific details for these recommendations and other related comments to be addressed in the revised progress report are provided below.

The ISRP requests that a revised progress report be submitted as part of the Fish and Wildlife Program's upcoming Wildlife Category Review (or sooner if the Council requests).

ISRP Comments

Description of Actions

Goals and objectives: More details are needed on how the goals and objectives differ between the two project areas (TD1, TD2) and why individual goals were selected for each of these. The two project areas are nearby, so a more detailed explanation for the different objectives would be valuable. For example, were objectives based on soils, wetland characteristics, or access? Or is the primary objective in TD1 to focus on seed producing annual plants? If so, why? The proponents should better describe their wetland restoration and management actions. These descriptions will be useful to others contemplating similar wetland restoration.

Vegetation sampling and assessment: The proponents should better describe their vegetation sampling design. For instance, a scale is needed in Figure 2 to indicate the dimensions of the National Agriculture Imagery Program (NAIP) image. Vegetation monitoring was conducted using a visual classification system (Table 1) for assessment of emergent vegetation. The classification system appears to be subjective and may suffer from observer bias and may be unreliable. Justification for use of the system should be presented; specifically, efforts should be described that may have been made to reduce subjectivity, observer bias, and lack of reliability.

The use of aerial imagery is a reasonable method for assessment of tall emergent vegetation, but the limited number of random points per pond is unlikely to provide very precise estimates. Assessment of submerged aquatic vegetation involved sampling of 71 points among 8 ponds with vegetation sampling at 32 points. It is unlikely that this is sufficient sampling to detect differences among ponds or strong year-to-year trends among all ponds combined. The progress report indicates that the data were only obtained in 2007, the year immediately following excavation of the ponds. Why was there not temporal sampling of tall emergent vegetation following pond construction?

Wetland delineation: Because wetland boundaries often change annually and there are competing definitions of wetland boundaries, the ISRP requests that the proponents better describe the criteria they used to identify wetland boundaries. That is, some agencies use water as a wetland boundary, but others use vegetation communities. Many readers would also find the density of sampling points per wetland useful as well, so this information should be added to the text.

Wetland sampling, descriptions, and treatments: The ISRP found it difficult to determine if TD1 and TD2 were the areas sampled or if individual wetlands within TD1 and TD2 served as focal sample points; hence the sampling design needs to be better described. If individual wetlands received vegetation treatment, the proponents should identify how many wetlands received treatments and what and when the treatments were applied. The proponents should present descriptions that clearly describe the percentage of basins in the project area that received vegetation and common carp control.

The ISRP also requests that in the background section the proponents provide more detailed information such as the number of wetlands and the size, water depth, and vegetation coverage of individual wetlands. These data could be presented for the two projects using the approach in Table 6 that describes the basins treated. A brief description of the proponents' approach to moist soil management and water depth management would be helpful as background material for each of the project areas. The proponents should more clearly describe their management process, including how and when water is managed. The ISRP's interpretation was that sometimes wetlands are managed by excavating selected areas. If so, what was the target depth for these excavations? Are managers able to actively manage water levels in wetlands, or is water depth management passive? Likewise, the proponents should more clearly describe their use of herbicides and mowing by identifying the season when each was used.

Waterfowl surveys: Winter waterfowl survey methods should be described in more detail and include a discussion of how observer bias is avoided. Avian point counts at each of the 19 wetlands on alternate years are likely to have provided reasonable monitoring of waterfowl use, but more information is needed for readers to judge the data quality.

As a general comment to improve the report's organization, the ISRP suggests adding sections on methods and results for each project area.

Results

The proponents present results from vegetative, hunter use, and waterfowl abundance monitoring. The waterfowl monitoring is only conducted once per month, so the variability in waterfowl use is unknown but would seem to be an important consideration for management decisions. In the discussion of waterfowl counts, the ISRP had difficulty interpreting the value of TD1 being bisected by the Wasteway. Additionally, the proponents should more clearly describe the references as Frenchmen Reserve and Frenchmen Wasteway and identify the importance of these features in the landscape. The proponents state that hunter success will closely track habitat conditions for waterfowl, but justification is needed for this assertion. The ISRP suggests waterfowl harvest per hunter would be more valuable than total harvest. The ISRP believes the proponents have the information from hunter check stations to calculate this value.

Regarding TD1, the proponents presented vegetation monitoring summary statistics (Table 2), but results of statistical analyses also should be presented. It is not clear that the vegetation monitoring data support the recommendation that wetland draining not occur until after May. Winter waterfowl surveys provide comparisons of pre- (2002-2005) and post- (2007-2014) project waterfowl use and indicate substantial year-to-year variations, but more conclusive evidence of enhanced use resulting from project actions should be presented. Table 3 should present standard errors around the estimates of "average" numbers of waterfowl observed during monthly surveys. The proponents concluded that "Rigorous monitoring is no longer deemed necessary to drive management decisions." Is this conclusion based on previous data and analyses that drove management decisions? If so, a description of how those analyses led to the conclusion would be helpful.

The proponents state their efforts to reduce undesirable plants and common carp were necessary because "DWA support(s) small populations of wildlife and lack species richness." At a minimum, the ISRP requests that the proponents support this assertion by presenting species richness values from the annual surveys of vegetation and avian species, pre and post treatment.

In TD2, random sampling of tall emergent vegetation showed that open water objectives were not met in 2013 prompting an increase in treated area. Random sampling of submerged aquatic vegetation demonstrated much year-to-year variation due to differences in water levels. For assessment of avian community response to wetland enhancement the proponents state that species richness and relative abundance are reasonable metrics to use in assessing habitat quality. Some justification of this assertion should be provided. The proponents stated that avian point counts can also provide an opportunity for assessing common carp re-

establishment and to trigger additional common carp control. It is not clear what level of common carp density or effect on wetland habitat needs to be observed to trigger control.

Post-project data on the proportion of open water in each pond (2009, 2011, and 2013) are presented in Table 6, but results of statistical analyses should also be presented to indicate whether differences among years were statistically significant. A summary of submerged aquatic vegetation data is presented for only 2007. Avian point counts, at each of the 19 wetlands on alternate years, are summarized as the proportion of various taxa observed, but information should be presented on the number of waterfowl or waterfowl broods observed. Results of statistical analyses should be reported to support conclusions of increasing or decreasing trends in proportional use. Data should be presented to show the extent of sampling for common carp and other fishes. Electrofishing was used to assess colonization by common carp and other fish species, but more detail about the specific electrofishing techniques and frequency of sampling is needed. If other species are collected during electrofishing, the ISRP suggests that the proponents consider using these data to calculate species richness. The proponents must better describe their efforts to control common carp including whether physical barriers were installed to prevent colonization.

The proponents state that, "Ultimately, the WDFW feels that past monitoring has been effective at guiding management efforts but does not need financial support to continue these efforts." A description is needed as to how the monitoring data have been used, or may be used in the future, to contribute to management decisions.

The ISRP continues to strongly encourage an evaluation of water quality.

Data Availability

The proponents state that the annual report document "will be archived at the Ephrata Regional Office and Columbia Basin Wildlife Area headquarters and is available for distribution digitally or by hardcopy." Are there opportunities to share the data and lessons learned more broadly, for example with other Fish and Wildlife Program wildlife projects?

Adaptive Management

The monitoring results appear to have been used in a trial-and-error management approach. There are several examples of this approach, but in most cases justification for change is lacking. Specific examples include:

1) The recommendation that water in TD1 be held until May during most years but an earlier drawdown be used in some years. This is based on an observed situation in 2014.
2) In TD2 treated acreage was increased by 25% in 2014 due to observed open water availability in 2013.
3) The reasons for limitations in waterfowl productivity are unknown, but an investigation of invertebrate populations is proposed for a future WDFW-funded project.

More evidence is needed that the results of O&M activities are applied in a systematic adaptive management process. WDFW does not appear to be interested in continuing past levels of monitoring at TD1 or in seeking funds from BPA for further monitoring at TD2.