Response to ISRP Comments

Project #200001600

Protect and Enhance Tualatin River National Wildlife Refuge Additions

1) *The response should describe the additional benefits to fish and wildlife provided by new acquisitions. What is the relative value of these parcels to salmonid habitat in the Tualatin River NWR? What is the justification for their acquisition? The photographs provided suggest that these parcels are situated to provide significant additional habitat benefits, but the proposal should detail the specific benefits expected.*

The two parcels proposed for acquisition are currently intact mature riparian systems adjacent the main stem of the Tualatin River. Now in private ownership, this land is subject to degradation by logging, conversion to agriculture, or development. Both parcels are currently for sale and are within the approved Refuge acquisition boundary. By purchasing these parcels in fee title, the Tualatin River National Wildlife Refuge (TRNWR) will provide protection in perpetuity. These additions would significantly increase the resources the TRNWR provides by adding almost a mile of protected riverside riparian habitat.

The river, particularly during summer, suffers from high temperatures and turbidity. Temperatures in excess of 60° F can be lethal to listed salmonids. Protection of this habitat provides several key elements that benefit salmonids. First of all, riparian vegetation provides shade along the river to help cool water during summer months. Beschta (1997) noted solar radiation had a direct effect on stream temperature. Hence, shaded waters are cooler and will hold more oxygen, critical elements for salmonids. Secondly, shrubs, fallen trees, and roots provide escape cover from predators for juvenile fish, as well as a substrate for invertebrates that serve as a source of food for salmonids. Additionally, riparian habitats provide input of coarse woody debris to the river. Debris adds structure to the system providing escape cover, foraging substrate, and eddies out of the current for resting. Furthermore, riparian vegetation helps to stabilize the riverbank helping to prevent erosion. Riparian vegetation helps to collect and slow floodwater, thus recharging groundwater supplies, reducing deleterious flood effects, and releasing water back to the river slowly.

In addition to benefits for salmonids, these mature riparian habitats are beneficial to countless wildlife species. Neotropical migrant songbirds nest in abundance in the Tualatin River Valley, many have life requisites tied to riparian habitat. Species such as red-legged frogs, western pond turtles, and salamanders benefit from moist areas associated with riparian forests. Mammals such as black-tailed deer, beaver, mink, are associated with riparian habitats within the TRNWR. Microclimates within the forest are such that cooler temperatures may be found in summer and warmer temperatures may be found during winter, hence, providing thermal benefits to many species and enhancing their survival.

Both parcels are within the approved acquisition boundary of TRNWR and if these lands are not acquired by TRNWR the current landowners may be driven by economic need to conduct timber

harvest operations and subsequently convert the properties to agricultural production. This would exacerbate already poor habitat conditions in the Tualatin River system for listed salmonids and other native species.

2) *The response should include more details of the restoration actions taken to date, and the methods in use to collect data to support a monitoring plan. Restoration methods under Objective 2 should be described in more detail. E.g. "…according to plan designs…" (Task 2) is not adequate detail to understand the methods to be used. What are the components of the restoration plans?*

Restoration actions to date include preliminary control of invasive exotic vegetation, removal of unwanted structures, and removal of interior fencing. Conceptual designs have been considered based on historic vegetation structure, soil surveys, and hydrology. Currently we are contracting for a detailed topographic survey on both Additions 1 & 2. Results of this survey and previously collected resource data will determine the type, extent, and scope of restoration activities. Because the survey is not yet complete we have not written the restoration and management plan. It is anticipated that restoration will include riparian forest, forested wetland, seasonal emergent wetland, and oak/pine savanna habitat types.

Methods to be used for monitoring include standard vegetation transects and plots, instantaneous scan sampling for migratory waterbirds, point-count methods for neotropical migrant songbirds, and mark-recapture methods for anadromous and other fish. Permanent vegetation transects have been established to compare pre- and post-restoration vegetation composition, density, and frequency. Regular waterbird surveys will not begin in earnest until restoration is complete. However, occasional observations have been recorded and will provide some comparison of pre-restoration use (minimal because of lost hydrology). Point-count surveys will be initiated prior to restoration and will also provide pre- and post-restoration data. If funding is provided, monitoring for salmonid and other fish species will begin in 2002-2003 on Additions 1 & 2, and elsewhere within TRNWR, providing the river floods the off-channel wetlands. Other wetlands on TRNWR were sampled during early 2002 and will provide some measure of comparison for future work.

Restoration of riparian forest typically requires removal of invasive exotic vegetation by discing or applying herbicide. Removal of tile and surface drains are necessary as a first step in restoring hydrology. Native grass understory will be planted, followed by planting of native shrubs and trees from local sources. These plantings are actively maintained for a number of years until they become established. Maintenance may include mowing, watering, and hand weeding. Forested wetland may require similar treatments with the possible addition of excavation to restore historic hydrologic features. Depending on location and topography, water control structures may need to be used to accomplish restoration goals for forested wetlands. The project area historically contained extensive seasonal emergent wetlands. Because of significant alterations to hydrology (both system-wide and site specific), and because of constraints such as a county road and neighboring landowners in the floodplain it is likely that levees, water control structures, and a fish-screened pump-lift station will be constructed to restore this habitat type. The pump-lift station is necessary because our appropriated water rights are tied to the Tualatin

River. Water control structures used on this project will be "fish friendly" allowing fish to enter and escape, thus benefiting from restored wetlands. Typically, native seed banks will restore vegetation characteristics once hydrology mimics natural patterns. Therefore, it is unlikely that vegetation will need to be planted in emergent wetland areas. Adaptive management will be employed based on regular habitat surveys to maximize desired vegetation response. Upland areas outside the floodplain will be restored to oak/pine savanna habitat type. Restoration activities will include removal of non-native vegetation, planting native grass understory, and planting locally obtained native trees. Maintenance activities will be similar to riparian forest until trees are well established. Additionally, maintenance of prairie grasses may require burning, mowing, grazing, herbicide application, or some combination of these treatments on occasional basis to maintain vigor.

The restoration plan will examine existing topographic data, historic landscapes and vegetation types, soil types, and political constraints (i.e., property boundaries). To the extent possible restoration activities will mimic historic conditions with an emphasis on rare plant communities (e.g., forested wetland, oak/pine savanna) where appropriate.

3) *Should address whether baseline data (pre-restoration) exist, and whether restoration objectives exist in a form that the M&E can assess progress toward their achievement.*

As noted above, baseline data have been or will be collected prior to restoration activities. In addition, habitat evaluation procedures (HEP) surveys have been completed and will serve as a comparison with future habitat conditions. The restoration plan will describe measurable objectives for each habitat type, both in terms of vegetation response and predicted use by target wildlife species or groups (guilds). Objectives may include both species composition and abundance goals for each habitat type. Once major restoration activities have been completed, active monitoring and evaluation will drive adaptive management strategies to achieve plan goals.

Literature Cited:

Beschta, Robert L. 1997. Riparian shade and stream temperature: An alternative perspective. Rangelands 19:25-28