Habitat Evaluation Procedures (HEP) Report

Malheur River Wildlife Mitigation

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Habitat Evaluation Procedures for the Malheur River Wildlife Mitigation

Project Number 200002700
Contract Number 0004050

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Program Introduction

The development of hydropower systems within the Columbia and Snake River basins has affected a tremendous amount of fish and wildlife species. The dams have played a major role in the rapid extinction of anadromous runs of salmon and steelhead as well as other native salmonids. Inundation of these dams and the construction of reservoirs for irrigation have also severely impacted wildlife species.

In some cases, fluctuating water levels caused by dam and reservoir operations have created barren vegetation zones that expose wildlife to predation and a reduction in recruitment. In association with hydropower activities, secondary impacts have also challenged and highly impacted a majority of wildlife species. The construction of roads, facilities, urban development, channelization, and diversions of streams and rivers often have negative long-term effects on fish, wildlife, and vegetation.

In response to these concerns, the United States Congress passed the Pacific Electric Power Planning Conservation Act (Act) in 1980. The Act authorized four states (Idaho, Montana, Oregon and Washington) and 13 Indian Tribes (including the Burns Paiute Tribe) to create the Northwest Power Planning Council (Council). The role of the Council is to prepare a program in conjunction with several participants that protects, mitigates and enhances affected species within the Columbia River Basin and its tributaries. The Council's program, known as the Columbia River Basin's Fish and Wildlife Program (Program), has evolved over the years into a basin-wide approach that incorporates management plans for 52 subbasins.

The Program includes a public involvement component that requires Program participants to provide the public with meaningful opportunities to comment on specific management proposals. Participants in this Program include the region's fish and wildlife agencies, Indian tribes, the public and an 11-member panel of scientists referred to as the Independent Scientific Review Panel (ISRP). Program participants are responsible for creating management plans for each of the 52 subbasins. Upon approval by the Council, the management plan is then incorporated into the Program.

In 1998, the Tribe submitted two land acquisition proposals for funding through Bonneville's Wildlife Mitigation Program, the Logan Valley and Malheur River Wildlife Mitigation Projects. After several months of rigorous scrutiny and defense of its project presentations, the Tribe was awarded both acquisitions.

In February of 2000, the Tribe and BPA entered into a Memorandum of Agreement (MOA) to fund the acquisition and management of Logan Valley and the Malheur River Projects. In April and November of 2000, the Tribe acquired the Logan Valley property (Project) and the Malheur River Wildlife Mitigation Project, respectively. The MOA requires the Tribe to dedicate the Project to wildlife habitat protection. Project management must be consistent with the term and conditions of the MOA and a site-specific management plan (Plan) that is to be prepared by the Tribe.

Mitigation Site Description (Project # 200002700)

The Malheur River Wildlife Mitigation Project (Denny Jones Ranch) allows the Tribe to manage 6,385 acres of meadow, wetland, and sagebrush steppe habitats along the Malheur River. The deeded property includes seven miles of the Malheur River, the largest private landholding along this waterway between Riverside and Harper. The property came with approximately 938 acres of senior water rights and 38,377 acres of federal and state grazing allotments. The project will benefit a diverse population of fish, wildlife, and plant species. Objectives include reviving and improving critical habitat for fish and wildlife populations, controlling/eradicating weed populations, improving water quality, maintaining Bureau of Land Management (BLM) allotments, and preserving cultural resources.

Before the Tribe acquired the project site, a combination of high levels of cattle stocking rates, management strategy, and a disruption of natural disturbance regimes compromised the property's ability to provide quality habitat to wildlife species found in the area.

As a result, rangeland condition was depleted, exotic annual grasses and other noxious weeds began to invade native plant communities and many riparian areas were generally degraded. Native meadow communities were also leveled and planted with introduced species shortly after settlement and wildlife use and historic home ranges for migratory species have been severely altered.

Current management is actively seeking to enhance the ability of the site's plant communities to support resident fauna that are known to have thrived in the area prior to settlement. The Tribe is utilizing a baseline approach to its overall land management by recognizing the importance of plant succession in achieving wildlife goals.

Baseline Evaluation Methods

As a result of the mitigation program the Habitat Evaluation Procedures (HEP) was developed by the U.S. Fish and Wildlife Service (USFWS) to rate the quality and quantity of habitat in order to quantify the impacts of changes made through land and water development projects. HEP is used in today's fish and wildlife biological sciences to determine habitat losses and/or benefits to the habitat after construction of a facility, or enhancement or restoration of habitat. HEP is a species-habitat approach to impact assessment; and habitat quality for selected evaluation species is documented with an index, the Habitat Suitability Index (HSI). This value is derived from an evaluation of the ability of key habitat components to supply the life requisites of selected species of fish and wildlife. Evaluation involves using the same/similar habitat components to compare existing habitat conditions (baseline) and optimum habitat conditions for the species affected by the construction and inundation of hydro facilities (loss assessments).

The HSI value obtained from this comparison thus becomes an index to carrying capacity for that species. The index ranges from 0.0 to 1.0 (Table 1), and for operational purposes

in HEP, each increment of change must be identical to any other. For example, a change in HSI from 0.1 to 0.2 must represent the same magnitude of change as a change from 0.2 to 0.3, and so forth. Therefore, HSI must be linearly related to carrying capacity. This is an operational restriction imposed by the use of HSI in HEP. However, it is a restriction easily complied with if the relationship between HSI and carrying capacity is unknown, it is assumed to be linear. If the relationship is nonlinear, it is converted to a linear function (USWS 1981).

Table 1. A comparison of mathematical HSI scores and equivalent verbal expressions.

Habitat Suitability Index	Verbal Equivalent
$0.0 < 0.2$	Poor
$0.2 < 0.4$	Marginal
$0.4 < 0.6$	Fair
$0.6 < 0.9$	Good
$0.9 < 1.0$	Optimum

This report is an analysis of baseline habitat condition on mitigation project lands and provides calculated habitat units for mitigation crediting purposes. Information from this document will be used by Tribal wildlife and habitat managers as reference and baseline information in future land management activities.

The HEP team comprised of individuals from Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife, Bonneville Power Administration, U.S. Fish and Wildlife Service, and the Burns Paiute Tribe. The collaboration with other agencies was to seek experienced individuals, standardize evaluation techniques and results, and minimize duplication efforts. This also gave other project coordinators a chance to visit and assist in the planning efforts of a mitigation site.

HEP models were chosen on the basis of their representation of habitat needs and requirements. All species utilize the project site and the available habitats. The mink (*Mustela vison*) model was used to represent riverine and lacustrine habitat types, the western meadowlark (*Sturnella neglecta*) model represented dry grassland, yellow warbler (*Dendroica petechia*) represented riparian shrub, and mule deer (*Odocoileus hemionus*) represented shrubland. HEP team leaders designed this survey based on the strategy outlined below:

1. Form a “core” HEP team
2. Determine goals and objectives of surveys
3. Delineate boundaries
4. Assemble necessary information i.e. maps, aerial photos land uses, soils data, and wildlife information
5. Determine cover types
6. Select and/modify HEP models according to habitat availability and site characteristics
7. Form field data collection teams
8. Collect field data
9. Analyze field data
10. Report findings

The team’s primary goals were to determine baseline habitat conditions and estimate habitat units on project lands. The team also standardized cover type descriptions, habitat variable measurement techniques, and survey results.

Results and Discussion

The HEP teams were able to delineate three habitat types within the Malheur River Project. Shrubland/grassland comprised approximately 6,304 acres and had an average HIS score of 0.22 for mule deer and 0.32 for the western meadowlark (Figure 1). These scores fall within the marginal category and are believed to reflect the quality of habitat that has been observed during the past field season. A combination of noxious weed invasion, poor cattle management, and a disruption of natural sagebrush steppe succession over the past century have compromised the site’s ability to provide higher quality habitat.

The average HIS scores for the riparian shrub (yellow warbler) and riverine (mink) cover types were 0.28 for 12 acres and 0.1 for 81 acres, respectively. The Tribe anticipates that these scores will increase substantially in the next five years due to the alteration of land management practices and the natural resiliency of wet sites.

There were 3,598.92 total baseline habitat units (HUs) for the site. The western meadowlark achieved the highest rating at 2,111.8, followed by mule deer with 1,456.44, the yellow warbler with 22.8, and mink with 7.88. Smaller acreage, a lack of emergent vegetation within the river system, and past willow control on the site contributed to the low numbers of the last two species.

Figure 1. Jones Ranch perimeter.

Figure 2. Habitat Suitability Index by model and habitat

Table 2. HEP model variables and summary data for the Jones Ranch baseline analysis.

<u>HEP Cover Species</u>	<u>HEP Variable</u>	<u>HSI Score</u>	<u>Acres</u>	<u>HU's</u>
Yellow Warbler	V1: deciduous shrub crown cover V2: average height of deciduous shrub cover V3: deciduous-hydrophitic shrubs	0.28	12	22.8
Mink	V1: % of year with surface water present V2: % canopy cover of trees/shrubs within 100 m V3: canopy cover within 1 m of shoreline	0.1	81	7.88
Mule Deer	V1: % cover of preferred shrubs <1 m V2: # preferred shrub species V3: Mean shrub height V4: % cover of all shrubs < 1.5 m V5: % cover palatable V6: Presence of suitable agricultural crops within 1.6 km of project site V7: Aspect V8: Road density V9: Topographic diversity V10: % evergreen canopy cover > 1.5 m	0.22	6,304	1,456.44
Western Meadowlark	V1: % cover of herbaceous plants V2: % herbaceous grass V3: Avg. height of herbaceous canopy V4: Distance to perch sites V5: % shrub canopy cover	0.32	6,034	2,111.80
		Total baseline HUs:		3,598.92