

## **Wildlife Monitoring and Evaluation**

### **Wildlife Advisory Committee-CBFWA**

#### **Background and Justification**

The history of Monitoring and Evaluation (M&E) for BPA wildlife mitigation in the Columbia Basin is linked to the implementation of the Habitat Evaluation Procedure (HEP) and BPA's accounting ledger for Habitat Units (HUs). In contrast to fish, impacts from the construction and inundation of the hydro-facilities in the Columbia Basin for wildlife were assessed with HEP. The result of these assessments was a crediting ledger composed of HUs for each facility. BPA has used HEP to evaluate and credit properties acquired with mitigation funding. HEP is also used to evaluate and credit enhancements on these properties.

The original loss assessments with HEP had a number of problems that directly impacted the use of these data to determine BPA's wildlife mitigation responsibilities, selection of mitigation sites, and trajectories of restoration for these sites.

- There was little record of the condition or nature of the vegetation communities that existed in the areas near the hydro-facilities prior to construction of the dams.
- The loss assessments (because of the simplistic structure of the single species HEP models and availability of models) only provided a partial or general record of these communities.
- Protocols for the loss assessments were not coordinated across the Basin so the methods employed by each HEP team are inconsistent from one facility to another.
- The single species focus of the loss assessments often translated into prioritizing the wrong species (including some non-natives) for management and restoration of future mitigation properties.
- The species models for HEP were often developed in ecosystems outside of the Pacific Northwest (PNW) so many of the modeling attributes were not consistent with the historic conditions of native PNW habitats
- Some out-of-place and out-of-kind mitigation contained habitats that were not considered in the loss assessments

HEP was not intended to replace comprehensive monitoring and evaluation programs but, because of the need to constantly address the loss assessments through the crediting ledger it has directed management plans, funding decisions, and habitat restoration activities. During the early phases of wildlife mitigation (1990-2000) in the Columbia Basin, there was little consideration given to the development or implementation of monitoring and evaluation programs for wildlife. Wildlife managers were not provided adequate funding or direction to implement RM&E. The focus was on acquiring properties and accumulating HUs based on HEP.

When the Independent Scientific Review Panel (ISRP) became engaged in project reviews, wildlife managers were often in disagreement with ISRP because they were locked into management actions and histories based on HEP species and bound (by BPA and MOAs) to the need to maintain a minimum level of HUs on their properties. With the development of Subbasin Plans (starting in 2000), expectations from the Plans did not often align with previous management actions. Additionally, there was little direction or funding to develop monitoring and evaluation protocols that linked to other regional plans. There was no requirement or facility to share or store data collected from individual projects across the Basin, and wildlife managers were constrained by limits imposed by BPA on what could or could not be monitored.

### **Current Status of M&E**

Wildlife managers continue to receive little support or incentive from BPA to develop or implement monitoring for wildlife on mitigation properties. For example, in contrast to fish projects in 2007, BPA refused to fund most M&E work elements associated with wildlife projects in the Columbia Basin. There is also little direction or support from NWPC or BPA for the wildlife managers to participate in regional monitoring programs (e.g. State Conservation Strategies). The NWPC has not established protocols for monitoring or a functional region-wide database for entering wildlife data collected from monitoring programs. Neither the NWPC or BPA have provided directions on what to monitor or why. HEP remains the only region-wide assessment process for wildlife projects and the primary focus of BPA in lieu of more relevant monitoring or assessment programs.

What are the implications (for wildlife projects) if effective monitoring and evaluation programs are not implemented? The consequences may be:

- an inefficient use of resources (funding and staff time) because of the lack of data to direct and inform management decisions,
- increased risk of implementing inappropriate management actions because of the lack of biological information,
- no indicators that quantify success or failure of management actions or approaches,
- little feedback for adaptive management of wildlife projects, and
- few data that link to regional or basin-wide monitoring efforts.

What is gained if monitoring and evaluation programs are implemented and maintained for the long-term? Benefits from effective M&E programs include:

- the development of benchmarks or measures of success and failure of management decisions and actions,
- an effective adaptive management system for wildlife projects,
- an ability to assess status of ecological functions (e.g., are they intact or dysfunctional),

- linkages to region-wide planning efforts (Conservation Strategies) and monitoring programs (e.g., use regional monitoring to support project level decision making and implementation),
- a more effective and efficient management program for mitigation sites because monitoring data will be used in the planning and implementation of specific habitat restoration and enhancement activities that directly benefit wildlife and fish populations, and
- better data to inform policy decisions.

### **A framework for M&E**

M&E protocols should be compatible and consistent from project to project and data summaries from each project should link to region-wide databases. Similar protocols (across the Basin) should be used to determine baseline wildlife and habitat conditions. If the NWPCC develops M&E standards, the outcomes of these standards should be explicit. In other words, who and what needs to be monitored and why.

Examples of what to monitor for wildlife projects include:

- biomass,
- biodiversity,
- distribution and frequency (species),
- successional change and associated ecological functions of habitats,
- scale, and
- structure and function.

Wildlife managers should use management goals and objectives to develop site specific M&E objectives (e.g. monitor species, habitats, or populations).

### **Summary of M&E for wildlife**

The Northwest Power Act directed the Council to develop a program to protect, mitigate and enhance fish and wildlife of the Columbia River and its tributaries. The 2000 Fish and Wildlife Program vision statement included "...a Columbia River Basin that sustains an abundant, productive and diverse community of fish and wildlife, mitigating across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydrosystem..." (page 13). The Program included the following Scientific Principles (page 15) that pertain to the monitoring and evaluation discussion:

#1. The abundance, productivity and diversity of organisms are integrally linked to the characteristics of their ecosystems. ...The combination of suitable habitats and necessary ecological functions forms the ecosystem structure and conditions needed to provide the desired abundance and productivity of specific species.

#5. Species play a key role in developing and maintaining ecological conditions. Each species has one or more ecological functions that may be key to the development and maintenance of ecological conditions. Species, in effect, have a distinct job or occupation that is essential to the structure, sustainability and productivity of the ecosystem over time. The existence, productivity and abundance of specific species depend on these functions

#6. Biological diversity allows ecosystems to persist in the face of environmental variation. The diversity of species, traits and life histories within biological communities contributes to ecological stability in the face of disturbance and environmental change. Loss of species and their ecological functions can decrease ecological stability and resilience. ...Maintaining the ability of the ecosystem to express its own species composition and diversity allows the system to remain productive in the face of environmental variation.

Currently, funding for wildlife M&E and what types of wildlife monitoring can be used is applied inconsistently across the basin. For many projects the only accepted (by BPA) and fully funded monitoring process is the Habitat Evaluation Procedure (HEP) methodology and monitoring species response is discouraged. The use of HEP as a monitoring tool is insufficient to fully inform managers of the effectiveness of their actions. Biological Objectives that include maintaining or restoring ecological functions, and monitoring species and habitat responses, should guide management decisions. The wildlife managers are the most appropriate body to develop and define adequate monitoring and evaluation programs.

The current program has used HEP to define wildlife habitat losses due to construction and inundation, but HEP does not inform the managers if desired habitat and ecological conditions are being attained or if focal species are responding.

**New Amendment Language:**

Bonneville Power shall fund monitoring and evaluation of wildlife mitigation projects adequately to assure tracking of crediting based on HEP, to track trends in ecological functions of the managed ecosystems, and to permit managers to assess the effectiveness of their treatment strategies. Initial levels of effort for M&E shall be determined by needs identified within the project area management plan. Where appropriate, project level M&E shall complement larger scale efforts through use of compatible protocols and data sharing. Managers may adjust M&E efforts over the short term as needed to meet longer term visions and needs in balance with other management actions. Stable M&E funding is required to adequately determine if Program objectives are being met.

The wildlife monitoring and evaluation program amendment should include:

- 1) a focus on effectiveness monitoring and/or status and trend,

- 2) collective effort to identify measures of ecological functions with the goal of developing monitoring and evaluation standards that allow:
  - a) for comparisons of data across the Basin,
  - b) for linkages to Subbasin and State Conservation Strategies,
  - c) for different scales and project specific biological objectives, and
  - d) for collection of meaningful data at the project level to assist management decisions,
- 3) the use of reference sites to define restoration and monitoring trajectories,
- 4) an assurance of consistent and sufficient funding to establish monitoring and evaluation programs to inform wildlife managers of the effectiveness of their actions and programs,
- 5) identification of costs to develop M&E,
- 6) identification of a consistent (Basin-wide) review process for project M&E,
- 7) the flexibility to fund M&E at different levels (conditions may vary from year to year),
- 8) an M&E process that is dynamic and adaptive.
- 9) a transition away from HEP to new paradigm (IBI, CHAP etc),
- 10) the development of workshops to compare and contrast data and explore options,
- 11) consistent long term funding specifically for M&E, and
- 12) linkage of M&E information to larger efforts (part of regional conservation assessments and planning).

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