



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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### **Technical Assistance, Research and Education needs**

The Northern Pacific Region of the U.S. Fish and Wildlife Service (USFWS), ranging from the Hawaiian Islands to the Great Basin desert, represents a diversity of natural and cultural resources. Therefore, the following summary of research, technical assistance, and education needs is not comprehensive but provides key categories of potential collaboration between USFWS and other Pacific Northwest CESU members. Please note that this summary does not reflect the needs of the California/Nevada Operations Office.

#### **Imperiled and Trust Species**

Genetic delineation of species and populations at risk; population thresholds for extinction and recovery; ecological and economic risk assessment methodology; effectiveness of recovery activities; evaluation of critical habitat; design of effective inventory and monitoring methods; migratory bird management; wild/hatchery fish interactions. Species of concern include greater sage-grouse, bull trout, Laysan duck, Cascades frog, Columbia Basin pygmy rabbit, Fender's blue butterfly, and golden paintbrush.

#### **Habitat Restoration**

Development and application of appropriate upland and wetland restoration strategies (e.g., fire, planting), fish passage technology and evaluation; instream flow management; effectiveness of buffers and other riparian enhancement projects/programs; visitor interpretation of restoration projects; impacts of dam removal.

#### **Landscape Dynamics**

Impacts of forest, agriculture, and urban land use changes; economic relationships of landscape change and resulting ecosystem service impacts; climate change.

#### **Invasive Species**

General baseline data on presence/abundance of aquatic and terrestrial invasive species; impacts of invasive species on imperiled species; synergistic effects of multiple invasive species in particular habitats; control and eradication method effectiveness; education and outreach regarding early detection and prevention of introduction pathways.

#### **Contaminants**

Assessment of many registered pesticides that lack sufficient regionally-relevant evaluation of ecological impacts (particularly to imperiled species); synergistic effects of overlapping contaminant exposure; sublethal effects of endocrine disruptors; damage assessment methodologies.

### **Human Dimensions**

Enhancing fish and wildlife recreational experiences; interpretation of cultural and ecological resources on USFWS lands; effectiveness of outreach programs.