

# Interactive Habitat and Biodiversity Information System (IBIS) for the Columbia River Basin



**Northwest Habitat Institute**

**2003-2004**

## **Funding**

**Under 15 month  
Contract with NWPCC**

**Specific Task:  
Serve as Regional  
Technical Support for  
Terrestrial Resources  
in Subbasin Planning**



# 2005-2006

## Funding

**Contract with BPA**

**Specific Task:**

- **Maintain and Expand Current Subbasin Planning Information**
- **Develop Performance Tools like modifying HEP – Habitat Evaluation Procedures**



# *Outline*

## Implementation of the IBIS Project

- What are the Specific Work Tasks
- Accomplishments
- What is it?
- How does it work?



# Major Work Elements 2005-2006

## Submit/Acquire Data

- Acquire data used for assessment of focal fish species in Subbasin Plans
- Incorporate IBIS information into the Columbia Basin's subbasin format for easy access and review
- Review subbasin plans and list each focal fish and wildlife species
- Acquire GIS data used for assessment in subbasin plans



# Major Work Elements 2005-2006

## Manage and Maintain Data Sets

- **Sustain Data Integrity, Documentation, and Connectivity**
- **Incorporate Focal Species Information into the IBIS Application**
- **Incorporate GIS Data that was Used for Assessment in Subbasin Plans**



# Major Work Elements 2005-2006

## Disseminate Raw & Summary Data

- Post IBIS Data and Develop Exchange Formats
- Provide Technical Support
- Create the necessary computer programs and scripts to allow easier access



# Major Accomplishments 2005-2006

- Restructured IBIS data sets into an SQL enterprise software and re-developed the web site
- Posted All Work Developed as Regional Terrestrial Support for Subbasin Planning data
- Updated the Information System by making a \$75K Update to Computer Hardware and Software
- Maintain Project/Data Integrity

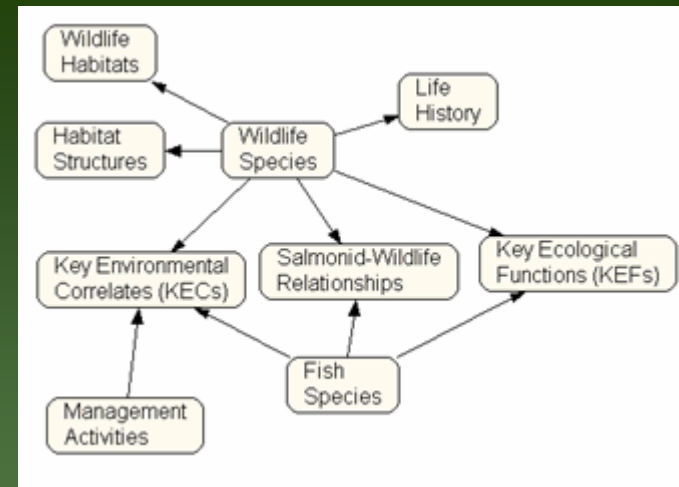
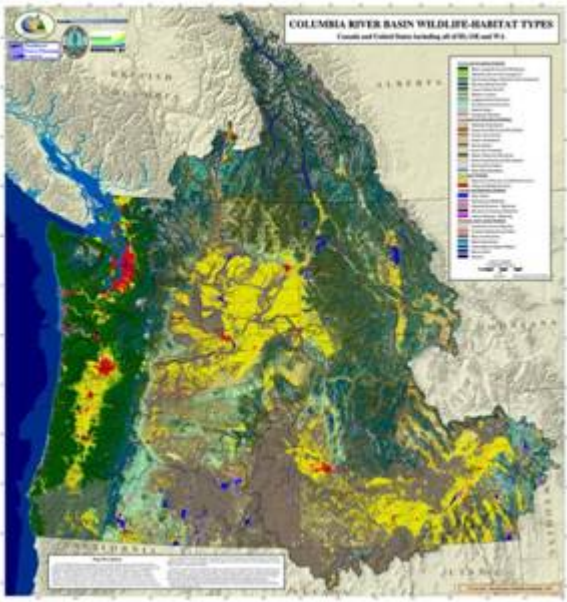




# Major Accomplishments 2005-2006

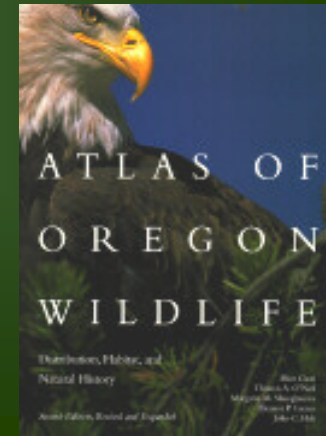
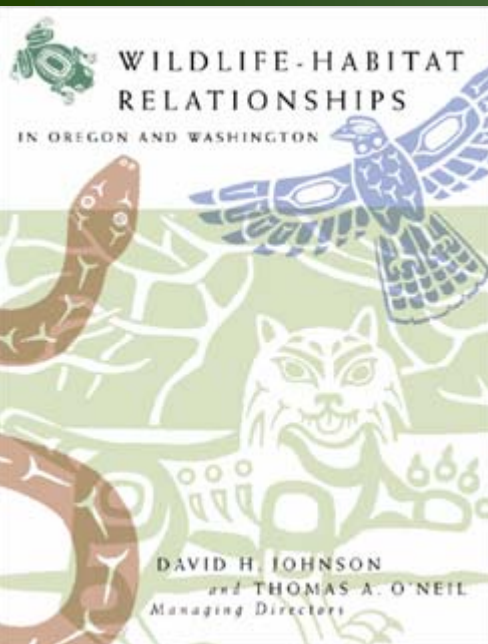
- Captured EDT data into GIS
- Retrieved GIS data from subbasin planners
- Developed a Focal Species List for each Subbasin
- Acquiring Aquatic, Riparian, and Upland Habitat Classifications in Use in the Columbia River Basin [to develop a Crosswalk to IBIS]



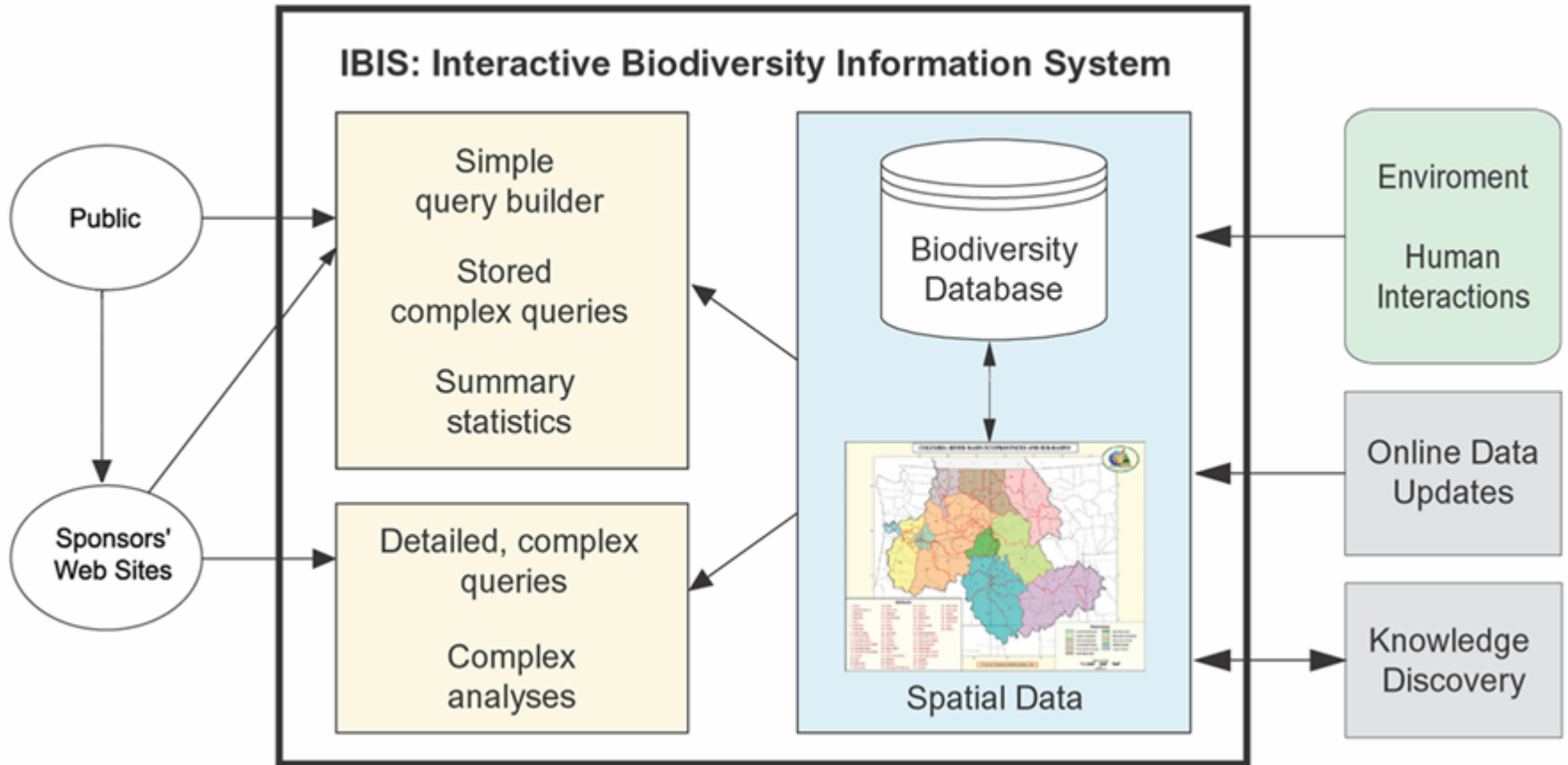


# What is IBIS ?

Developed to Facilitate  
A Common Understanding  
For Management



# How Does It Work?





## Regional subbasin planning tools: EDT and IBIS

The Council supports these regional planning tools to aid subbasin planning.



**Purpose:** The EDT method was designed to provide a practical, science-based approach for developing and implementing watershed plans, providing decision makers with the technical information needed to achieve their goals.

**Products:** model describes how the fish would rate conditions in a stream based on our scientific understanding of their needs

**How to use it:** see the [EDT site](#)

**Related links:** EDT is in the process of moving entirely to Mobrاند Biometrics website. Until then, some information for subbasin planners is also available at [www.edthome.org](http://www.edthome.org).



**Purpose:** interactive map/data query tool to reveal and analyze the relationships among Pacific Northwest fish and wildlife species and their habitats

**Products:**

- current and historic habitat maps (images and GIS data)
- tabular displays of species occurrences and habitat acreages

**2 ways to use it:**

1. go to the [IBIS site](#), or
2. go to [Subbasin Planning](#), choose a subbasin at the left, then click IBIS from the Online Resources area.

[home](#)[about us](#)[fish & wildlife](#)[energy](#)[news](#)[reports & papers](#)[contact us](#)[Fish & wildlife](#) → [Subbasin planning](#) → [Pend Oreille Subbasin](#)

## Pend Oreille Subbasin – Summary

The Pend Oreille subbasin is located in northern Idaho, a northwestern Montana, and northeastern Washington. The Pend Oreille subbasin extends from Cabinet Gorge Dam downstream to the United States (U.S.) - Canadian border. The subbasin is divided into three areas: 1) all of Lake Pend Oreille and its tributaries from Cabinet Gorge Dam, located on the Clark Fork River, to Albeni Falls Dam which is located on the Pend Oreille River; 2) the Pend Oreille River and its tributaries between Albeni Falls Dam and the U.S.-Canadian border; and 3) the Priest River subbasin, including Upper Priest Lake, Priest Lake, and all tributaries up to the U.S.-Canadian border.



- [Read full subbasin summary >](#)

## Contacts

- **Council Subbasin Planning Coordinator:** [Lynn Palensky](#), 503-222-5161
- **USFWS:** Susan Martin, 509-891-6839  
U.S. Fish and Wildlife Service  
Spokane Field Office, Spokane, WA
- **Intermountain Province Coordinator:** [Alison Squier](#), 509-747-5804
- **State coordinating groups:** [Washington, Idaho](#)
- **To contact agencies currently funded by BPA,** see details for [current and past BPA projects](#)

## Subbasin planning status

- What's next? See [planning milestones](#)

## Online resources

It's easy to get online data for the Pend Oreille Subbasin: click any links below, and you'll already be at the Pend Oreille Subbasin level for each data system.

**Public file exchange** - post your planning documents here

## Aquatic data

- **New! BPA interactive mapper** - lots of data layers, GIS exports, more: [low](#), [medium](#), or [high](#) bandwidth
- [EDT](#) - environmental attributes from the Ecosystem Diagnosis and Treatment model
- [Hatcheries, releases, maps, fish runs](#), more from Streamnet
- [Total Maximum Daily Load and EPA interactive mapper](#)
- [Production facilities](#)
- [USFWS Bull Trout recovery plans](#)

## Terrestrial data

- [IBIS](#) - Wildlife-habitat relationships, habitat and terrain maps, GIS data

**BPA-funded projects** - Current and past projects with budgets

## Other

- [Surf Your Watershed](#) - environment, land, water, air, citizen actions

About IBIS

Database

Mapping

Projects

Site Tools

Projects Overview

Lewis & Clark Mapping

Subbasin Planning

Login

Please  
CLICK  
HERE  
to visit the  
recently  
expanded  
IBIS  
Subbasin  
Planning  
section!



## Interactive Biodiversity Information System

**An educational resource promoting the conservation  
of Northwest fish, wildlife and their habitats.**

NHI site best viewed with  
Microsoft® Internet Explorer 5.0 or higher.



or  
Netscape® 7.0 or higher



Northwest Habitat Institute  
Creating Information and Habitat  
for Fish and Wildlife  
Conservation  
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Interactive  
Biodiversity  
Information  
System

## Subbasin Planning

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[Overview](#) | [Deliverables](#) | [Ecoprovince Data](#) | [Subbasin Data](#) | [US-Canada Analysis](#)

The Subbasin Planning section of IBIS is being developed in conjunction with the [Northwest Power Planning Council](#) as part of the [Columbia River Basin Fish and Wildlife Program](#). The fish and wildlife program is implemented primarily at the subbasin level. Sixty-two subbasins have been identified by the program, and for each, a locally developed plan will be adopted into the program. Each plan will have its own vision and biological objectives and will identify specific actions needed for fish and wildlife in that subbasin. This section of IBIS is being developed to assist in the subbasin assessment portion of the fish and wildlife program.

In the Subbasin Data section, one will be able to query each of the 62 subbasins for a wealth of information. Subbasin habitat maps, both current and historic, are already available as both images and geographic information system (GIS) data sets. Tabular displays of species occurrences and habitat acreages by subbasin are also complete. The Ecological Province section is currently in progress as well and will include:

- Wildlife species list with federal and state listed or candidate sensitive species, both aquatic and terrestrial identified;
- Present status (and trends) of wildlife populations;
- Wildlife-habitat relationships;
- Wildlife associated with riparian, wetland, and rivers/stream habitats;
- Salmonids-wildlife relationships;
- Rangemaps for salmonid-related fish and wildlife; and
- Profiles for Key Ecological Functions (KEF) based on salmonid-related species.

To make the most of this section, [Click here](#) for an outline of the IBIS Subbasin Planning Deliverables presented within. Otherwise, use the dark blue Subbasin Planning section submenu above to navigate.

[Continue >>](#)

# Potential Species List

## Based on:

- county occurrence
- habitat association(s)
- range map delineation(s)
- home range size
- breeding bird surveys
- museum records

- Then peer reviewed

**Rough-skinned Newt**

**Northwestern Garter Snake**

**Great Blue Heron**

**Green Heron**

**Wood Duck**

**Big Brown Bat**

**Mink**



## All Species Occurring in the Mountain Columbia Province

	Common Name	Scientific Name	BC Occurrence	BC Breeding Status	ID Occurrence	ID Breeding Status	MT Occurrence	MT Breeding Status
<b>Amphibians</b>	Tiger Salamander	<i>Ambystoma tigrinum</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Long-toed Salamander	<i>Ambystoma macrodactylum</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Coeur d'Alene Salamander	<i>Plethodon idahoensis</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Rocky Mountain Tailed Frog	<i>Ascaphus montanus</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Great Basin Spadefoot	<i>Scaphiopus intermontanus</i>	occurs	breeds	occurs	breeds	does not occur	not applicable
	Western Toad	<i>Bufo boreas</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Pacific Chorus (Tree) Frog	<i>Pseudacris regilla</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Columbia Spotted Frog	<i>Rana luteiventris</i>	occurs	breeds	occurs	breeds	occurs	breeds
	Wood Frog	<i>Rana sylvatica</i>	occurs	breeds	occurs	breeds	does not occur	not applicable
	Northern Leopard Frog	<i>Rana pipiens</i>	occurs	breeds	occurs	breeds	occurs	breeds

Total Amphibians: 10

## Mountain Columbia Province Listed Species: Montana

[Click Here](#) for code key and other important notes.

Common Name	Scientific Name	State Status	Federal Status	Comments
<b>Amphibians</b>				
Coeur d'Alene Salamander	<i>Plethodon idahoensis</i>	MT Species of Concern		
Western Toad	<i>Bufo boreas</i>	MT Species of Concern		
Western Toad (boreas subspecies)	<i>Bufo boreas boreas</i>	MT Species of Concern		
Northern Leopard Frog	<i>Rana pipiens</i>	MT Species of Concern - Rare		

Total Listed Amphibians: 4



### Mountain Columbia Ecological Province

#### Partners in Flight Listed Species

Common Name	Scientific Name	PIF 1998-1999 Continental	PIF Ranking by Super Region Draft 2002	ID PIF Priority & Focal Species	MT PIF Priority & Focal Species
Common Loon	<i>Gavia immer</i>		NO		Yes
Horned Grebe	<i>Podiceps auritus</i>		NO		Yes
Western Grebe	<i>Aechmophorus occidentalis</i>		NO	Yes	
Clark's Grebe	<i>Aechmophorus clarkii</i>		NO		Yes
American White Pelican	<i>Pelecanus erythrorhynchos</i>		NO	Yes	Yes
American Bittern	<i>Botaurus lentiginosus</i>		NO		Yes
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>		NO		Yes
White-faced Ibis	<i>Plegadis chihi</i>		NO	Yes	Yes
Ross's Goose	<i>Chen rossii</i>	Yes	NO		
Trumpeter Swan	<i>Cygnus buccinator</i>	Yes	NO	Yes	Yes
American Black Duck	<i>Anas rubripes</i>	Yes	NO		
Cinnamon Teal	<i>Anas cyanoptera</i>		NO	Yes	
Redhead	<i>Aythya americana</i>		NO	Yes	
Harlequin Duck	<i>Histrionicus histrionicus</i>		NO		Yes
Barrow's Goldeneye	<i>Bucephala islandica</i>		NO	Yes	Yes
Hooded Merganser	<i>Lophodytes cucullatus</i>		NO	Yes	Yes
Bald Eagle	<i>Haliaeetus leucocephalus</i>		NO		Yes
Northern Harrier	<i>Circus cyaneus</i>		NO		Yes
Sharp-shinned Hawk	<i>Accipiter striatus</i>		NO	Yes	Yes
Northern Goshawk	<i>Accipiter gentilis</i>		NO	Yes	Yes

## Mountain Columbia Ecological Province

### Focal Species

[Click Here](#) for options to refine search results.

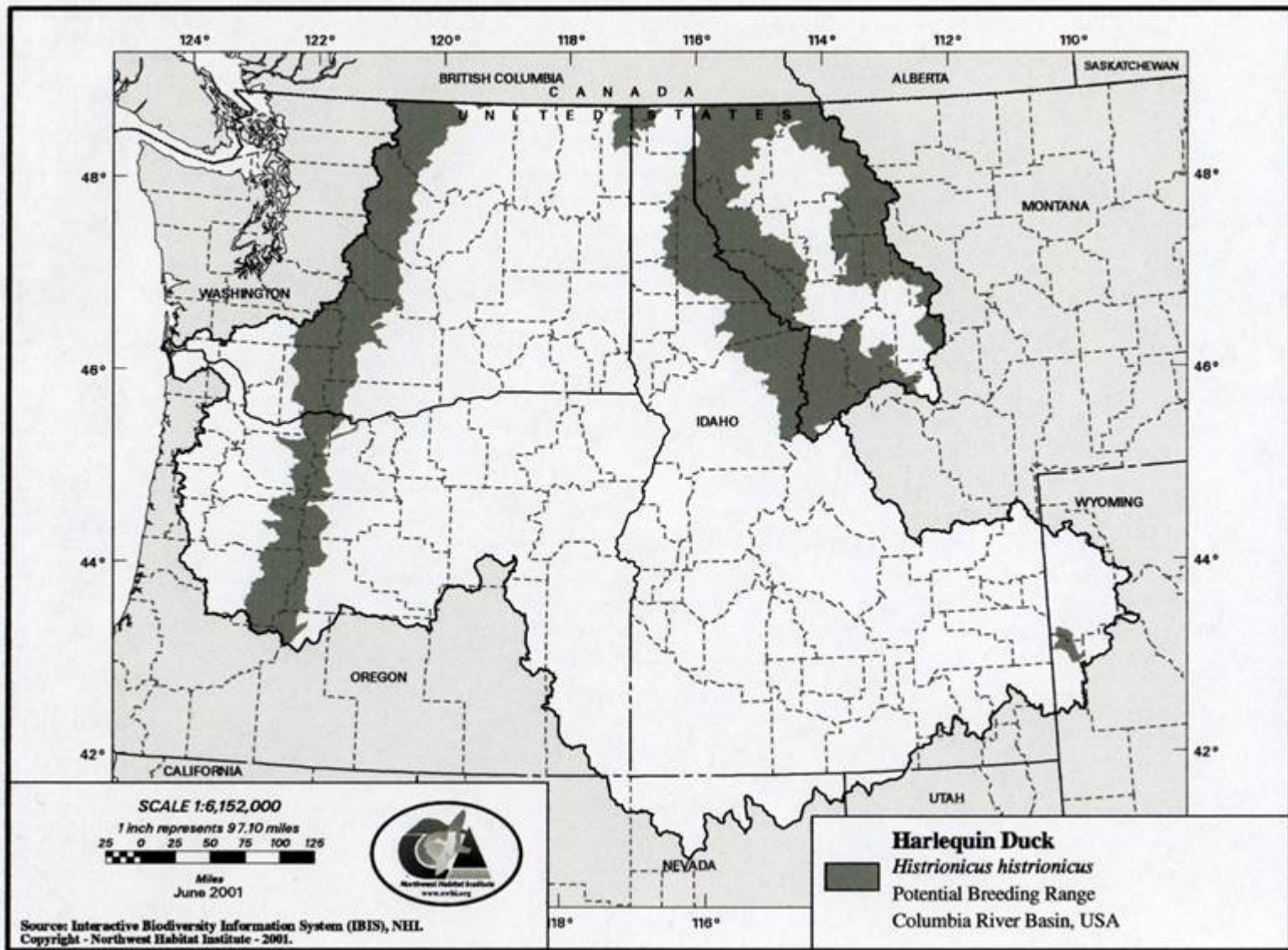
Common Name	Scientific Name	Notes (click icons to link) (icon key)		
<b>Amphibians</b>				
Long-toed Salamander	Ambystoma macrodactylum	R	W	
Idaho Giant Salamander	Dicamptodon aterrimus	S	R	
Coeur d'Alene Salamander	Plethodon idahoensis	R		
Tailed Frog	Ascaphus truei	R		
Western Toad	Bufo boreas	R	W	
Pacific Chorus (Tree) Frog	Pseudacris regilla	R	W	
Oregon Spotted Frog	Rana pretiosa	R	W	
Columbia Spotted Frog	Rana luteiventris	R	W	
Northern Leopard Frog	Rana pipiens	R	W	
Total Focal Amphibians: 9		Total: 1	9	6



Red Fox (*Vulpes vulpes*) association with all habitats occurring in the PEND OREILLE Subbasin:

Wildlife-Habitat Type	Association Type	Activity Type	Confidence Level	Comments
Westside Lowlands Conifer-Hardwood Forest	Present	Feeds and Breeds	Low	Non-native Red fox.
Montane Mixed Conifer Forest	Present	Feeds and Breeds	Low	Cascades Red fox.
Eastside (Interior) Mixed Conifer Forest	Present	Feeds and Breeds	Low	Non-native Red fox and Cascades Red fox.
Lodgepole Pine Forest and Woodlands	Generally Associated	Feeds and Breeds	Low	Cascades Red fox.
Ponderosa Pine Forest and Woodlands	Generally Associated	Feeds and Breeds	Low	Cascades Red fox.
Subalpine Parkland	Closely Associated	Feeds and Breeds	Moderate	Cascades Red fox and Rocky Mountain Red fox.
Alpine Grasslands and Shrublands	Closely Associated	Feeds and Breeds	Moderate	Cascades Red fox and Rocky Mountain Red fox.
Eastside (Interior) Grasslands	Unsure	Unsure	Low	Rocky Mountain Red fox.
Agriculture, Pastures, and Mixed Environs	Generally Associated	Feeds and Breeds	High	Non-native Red fox.
Urban and Mixed Environs	Generally Associated	Feeds and Breeds	High	Non-native Red fox.
Herbaceous Wetlands	Unsure	Unsure	Low	Non-native Red fox.
Eastside (Interior) Riparian-Wetlands	Generally Associated	Feeds and Breeds	Low	Non-native Red fox.

[Return to previous page](#)



Submit

**Determine a Wildlife-Habitat Assessment:**

**1. Wildlife-Habitat Maps (all habitats together)**

- Current (1999) Wildlife-Habitat Types
- Historic (c. 1850) Wildlife-Habitat Types

**2. Wildlife-Habitat Acreages**

- Habitat Acreage Summaries by Subbasin

**3. Wildlife-Habitat Distribution Maps (one habitat type per map)**

*Please see [US-Canada Analysis for Mountain Columbia Ecological Province Wildlife-Habitat Distribution Maps](#).*

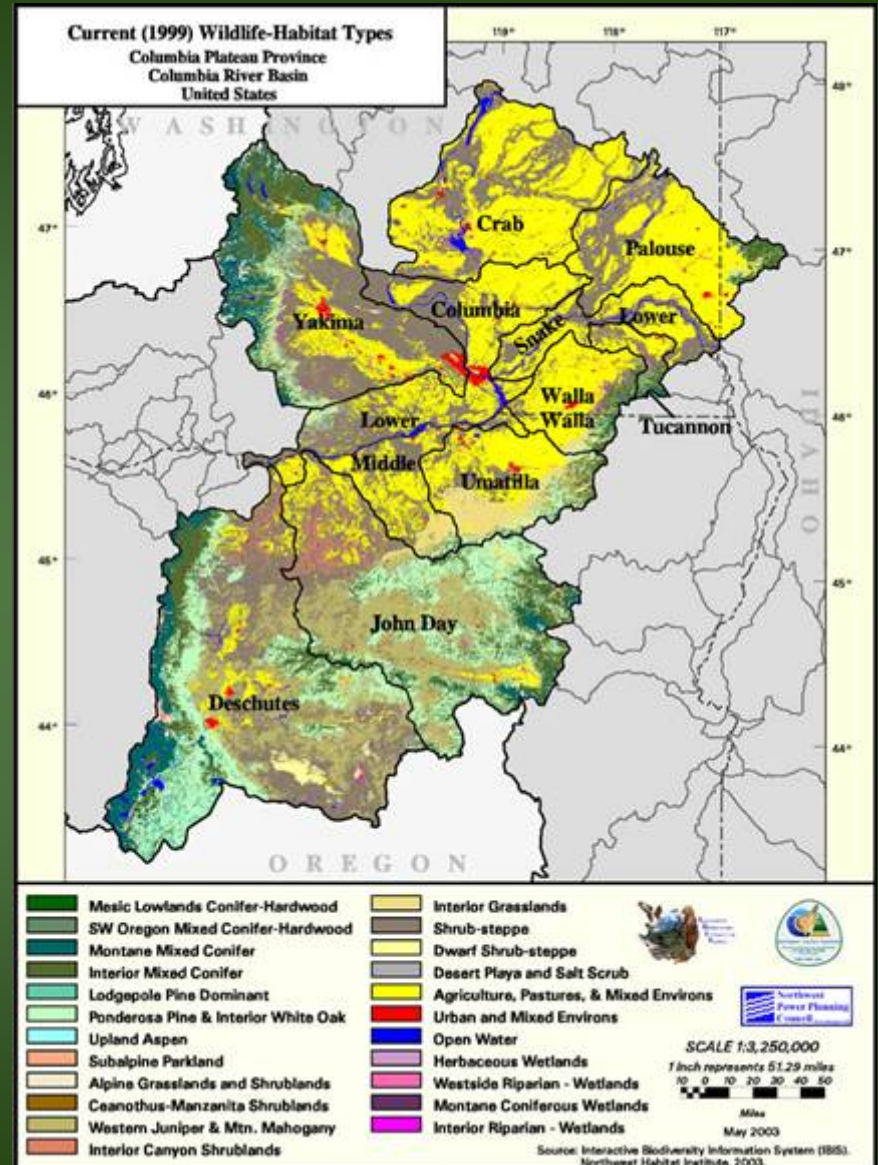
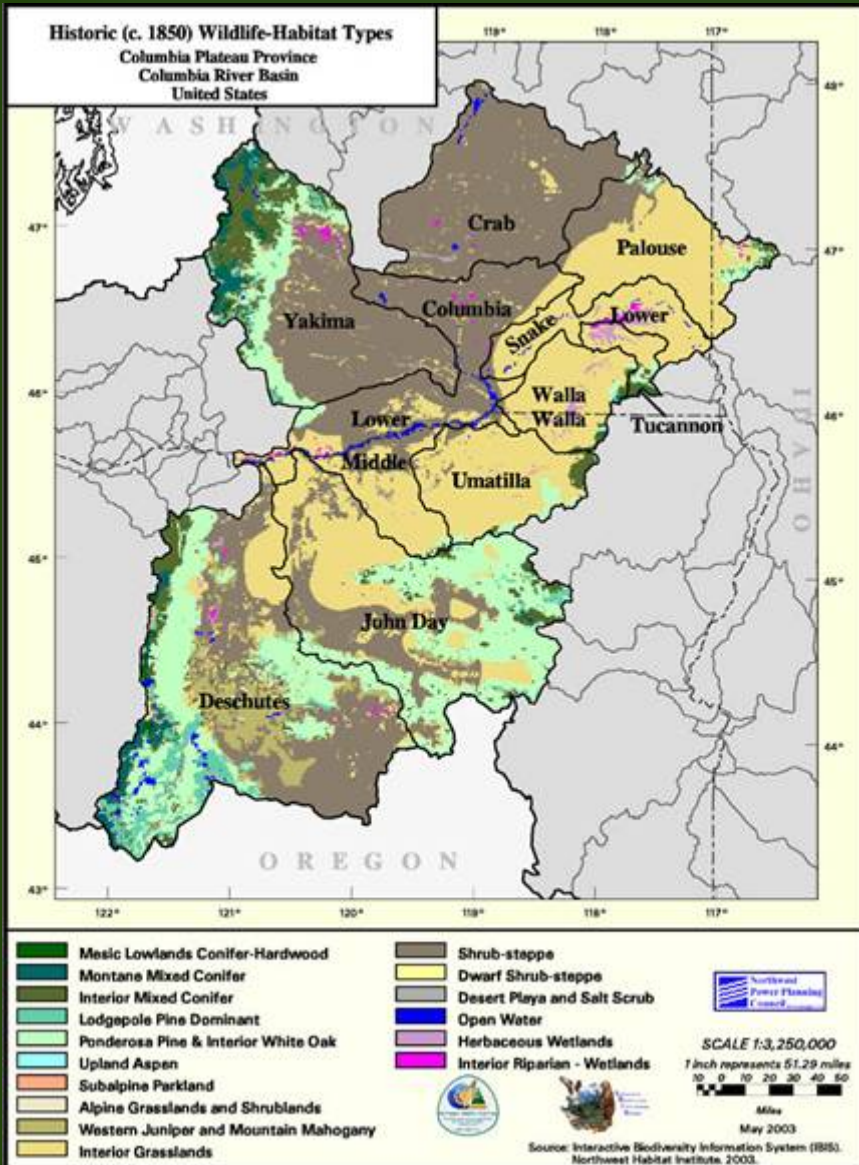
**4. GAP Status and Land Ownership Analyses**

- Wildlife-Habitat Acreages by GAP Protection Status
- GAP Management-Protection Status Map
- Wildlife-Habitat Acreages by Land Ownership
- Land Ownership Map

**5. Percent Change of Habitat Maps:**

- Percent Change in Mesic Lowland Conifer-Hardwood Forest
- Percent Change in Montane Mixed Conifer Forest
- Percent Change in Eastside (Interior) Mixed Conifer Forest
- Percent Change in Lodgepole Pine Forest & Woodlands
- Percent Change in Ponderosa Pine and Eastside White Oak Forest & Woodlands
- Percent Change in Upland Aspen Forest
- Percent Change in Subalpine Parkland
- Percent Change in Alpine Grasslands and Shrublands
- Percent Change in Western Juniper and Mountain Mahogany Woodlands
- Percent Change in Eastside (Interior) Grasslands
- Percent Change in Shrub-steppe
- Percent Change in Agriculture, Pasture, and Mixed Environs
- Percent Change in Urban and Mixed Environs
- Percent Change in Lakes, Rivers, Ponds, and Reservoirs
- Percent Change in Herbaceous Wetlands
- Percent Change in Eastside (Interior) Riparian Wetlands

# EcoProvince

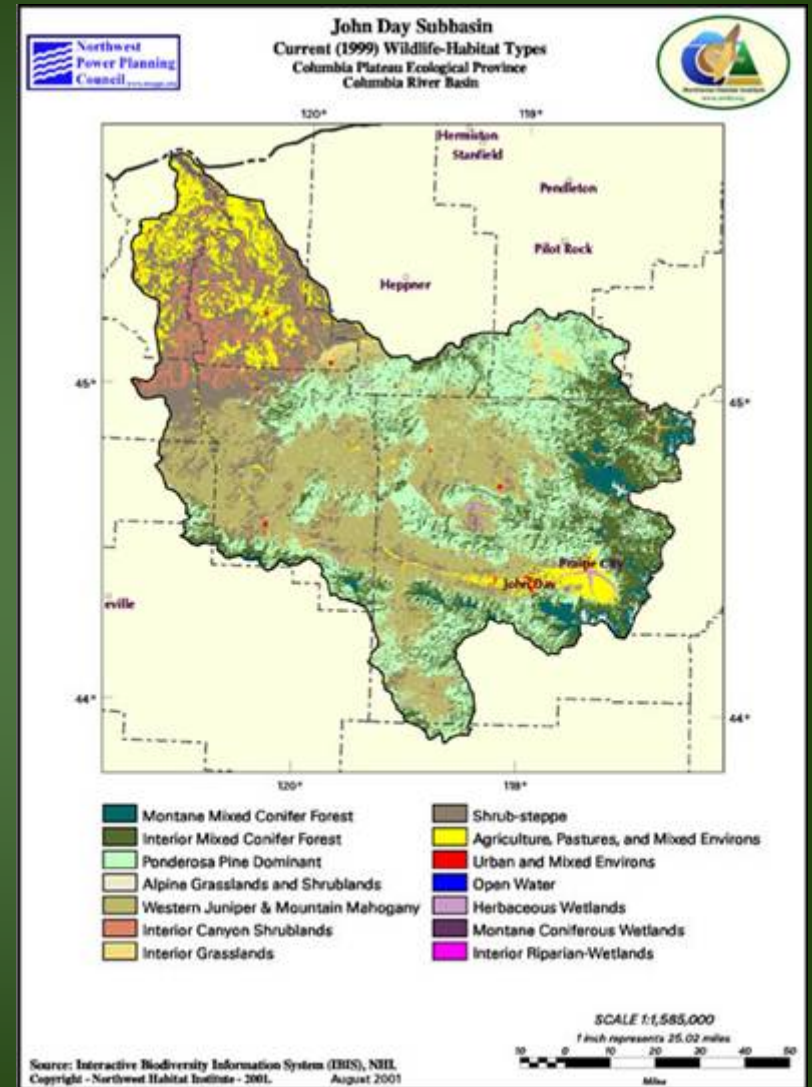
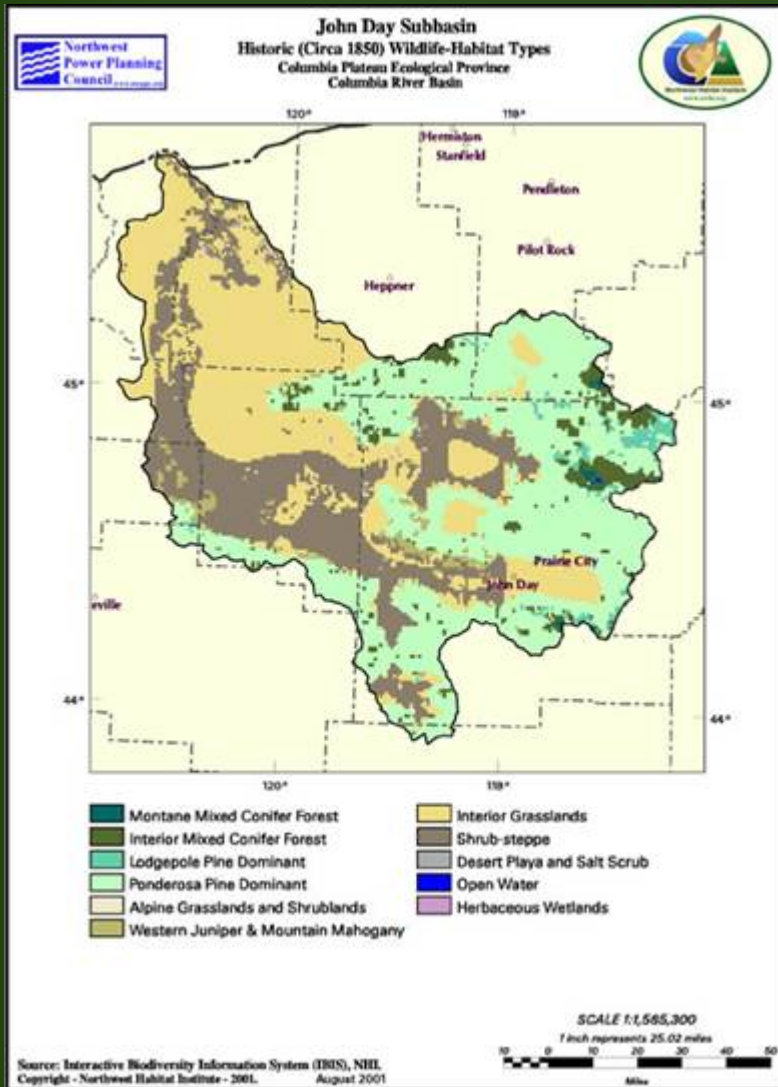


Historic

Current



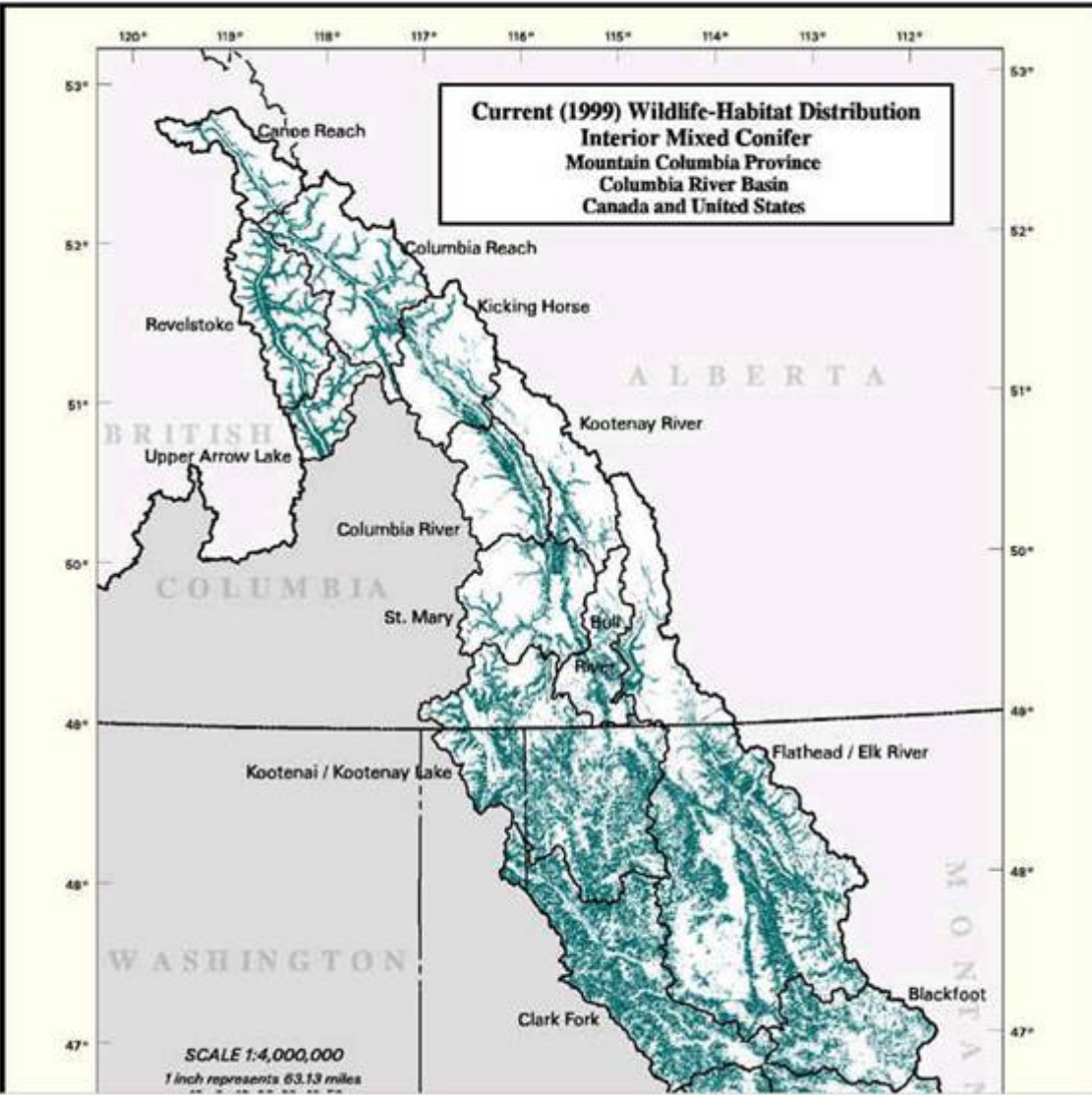
# Subbasin



Historic

Current

7



Current Wildlife-Habitat Type Acreage Summaries for PEND OREILLE Subbasin:

Habitat ID	Habitat Name	Acreage
1	Westside Lowlands Conifer-Hardwood Forest	23,210
4	Montane Mixed Conifer Forest	143,240
5	Eastside (Interior) Mixed Conifer Forest	1,381,574
6	Lodgepole Pine Forest and Woodlands	37,230
7	Ponderosa Pine Forest and Woodlands	112,147
8	Upland Aspen Forest	4,772
9	Subalpine Parkland	204
10	Alpine Grasslands and Shrublands	50,772
15	Eastside (Interior) Grasslands	80,927
16	Shrub-steppe	1,442
19	Agriculture, Pastures, and Mixed Environs	52,327
20	Urban and Mixed Environs	5,860
21	Open Water - Lakes, Rivers, and Streams	139,569
22	Herbaceous Wetlands	2,580
24	Montane Coniferous Wetlands	26,969
25	Eastside (Interior) Riparian-Wetlands	11,566

**Total Acres: 2,074,384**

\*Acreages are estimates only. SubBasin total acreage may vary slightly between Current and Historic due to mapping procedures.

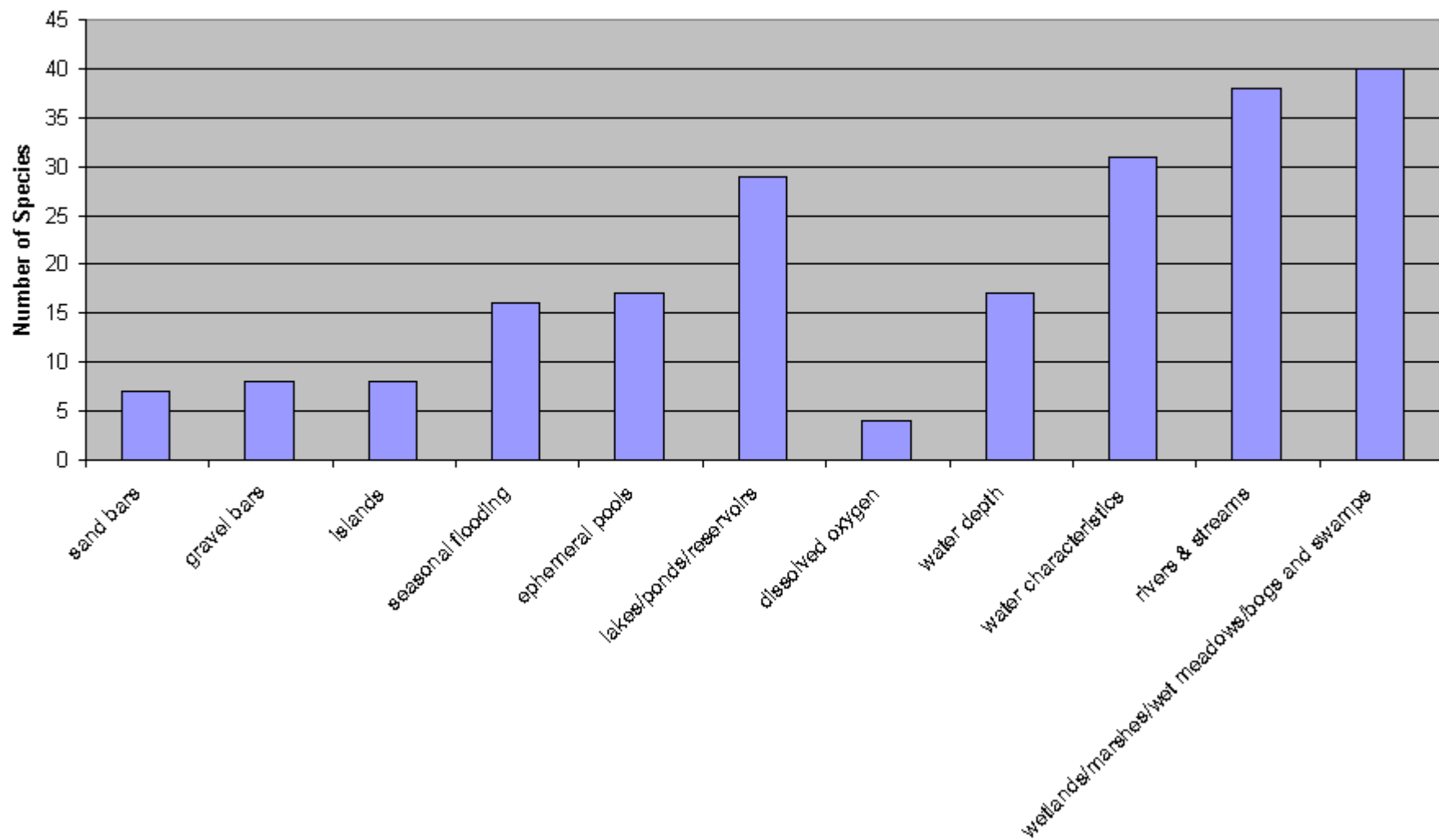
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[\[Top of Page\]](#)

Select different options for this Subbasin

### Mountain Columbia Focal Species with Aquatic Key Environmental Correlates



## Mountain Columbia Ecological Province

### Mountain Columbia Salmon Related Species Counts By Stage and Relationship

<i>Relationship Description</i>	<i>Incubation-egg/alevin</i>	<i>Freshwater Rearing</i>	<i>Saltwater-smolts</i>	<i>Spawning</i>
<i>Strong, consistent relationship</i>	2	4	5	5
<i>Recurent relationship</i>	4	20	11	6
<i>Indirect relationship</i>	1	2	2	0
<i>Rare relationship</i>	6	8	4	1
<b>Total</b>	<b>13</b>	<b>34</b>	<b>22</b>	<b>12</b>



Interactive  
Biodiversity  
Information  
System

## Columbia River Basin Wildlife-Habitat Data by Ecological Province

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[Overview](#) | [Deliverables](#) | [Ecoprovince Data](#) | [Subbasin Data](#) | [US-Canada Analysis](#)

### Mountain Columbia Ecological Province Functional Specialist Species

Common Name	Scientific Name	Count of KEFs
Turkey Vulture	<i>Cathartes aura</i>	3
Gyrfalcon	<i>Falco rusticolus</i>	5
Peregrine Falcon	<i>Falco peregrinus</i>	5
Snowy Owl	<i>Nyctea scandiaca</i>	5
Common Nighthawk	<i>Chordeiles minor</i>	5
Black Swift	<i>Cypseloides niger</i>	5
Wolverine	<i>Gulo gulo</i>	5
Ringneck Snake	<i>Diadophis punctatus</i>	6
Harlequin Duck	<i>Histrionicus histrionicus</i>	6
Red-shouldered Hawk	<i>Buteo lineatus</i>	6
Merlin	<i>Falco columbarius</i>	6
Northern Pygmy-owl	<i>Glaucidium gnoma</i>	6
Boreal Owl	<i>Aegolius funereus</i>	6
Northern Bog Lemming	<i>Synaptomys borealis</i>	6
Lynx	<i>Lynx canadensis</i>	6

**Total Species: 15**

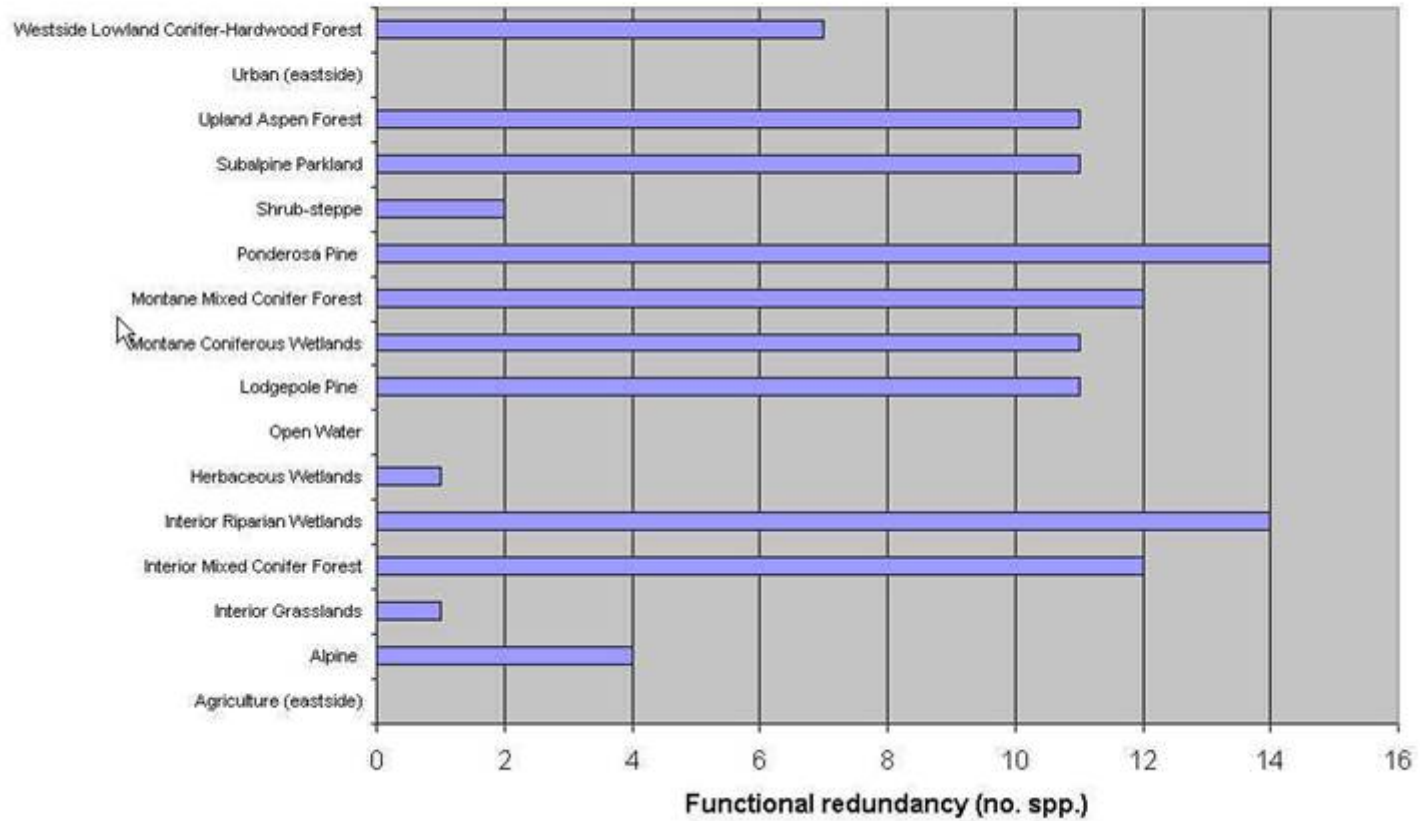
## Mountain Columbia Ecological Province

### Critical Functional Link Species

KEF Code	KEF Description	Species Common Name	Species Scientific Name	H
1_1_1_13	Trophic relationships: Heterotrophic consumer: Primary consumer (herbivore): <b>Bark/cambium/bole feeder</b>	American Beaver	<i>Castor canadensis</i>	Open Water - Lakes, F
		Black Bear	<i>Ursus americanus</i>	Alpine Grasslands and Eastside (Interior) Gra
1_1_1_6	Trophic relationships: Heterotrophic consumer: Primary consumer (herbivore): <b>Sap feeder</b>	House Finch	<i>Carpodacus mexicanus</i>	Agriculture, Pastures, Urban and Mixed Envir
1_1_1_7	Trophic relationships: Heterotrophic consumer: Primary consumer (herbivore): <b>Root feeders</b>	Northern Pocket Gopher	<i>Thomomys talpoides</i>	Western Juniper and M Agriculture, Pastures, .
1_1_1_8	Trophic relationships: Heterotrophic consumer: Primary consumer (herbivore): <b>Nectivore (nectar feeder)</b>	Black-chinned Hummingbird	<i>Archilochus alexandri</i>	Shrub-steppe
1_1_1_9	Trophic relationships: Heterotrophic consumer: Primary consumer (herbivore): <b>Fungivore (fungus feeder)</b>	Deer Mouse	<i>Peromyscus maniculatus</i>	Urban and Mixed Envir
1_1_2_1_3	Trophic relationships: Heterotrophic consumer Secondary consumer Invertebrate eater <b>Freshwater or marine zooplankton</b>	Long-toed Salamander	<i>Ambystoma macrodactylum</i>	Upland Aspen Forest Alpine Grasslands and
1_1_2_2_1	Trophic relationships: Heterotrophic consumer: Secondary consumer: Vertebrate eater: <b>Piscivorous (fish eater)</b>	Raccoon	<i>Procyon lotor</i>	Urban and Mixed Envir

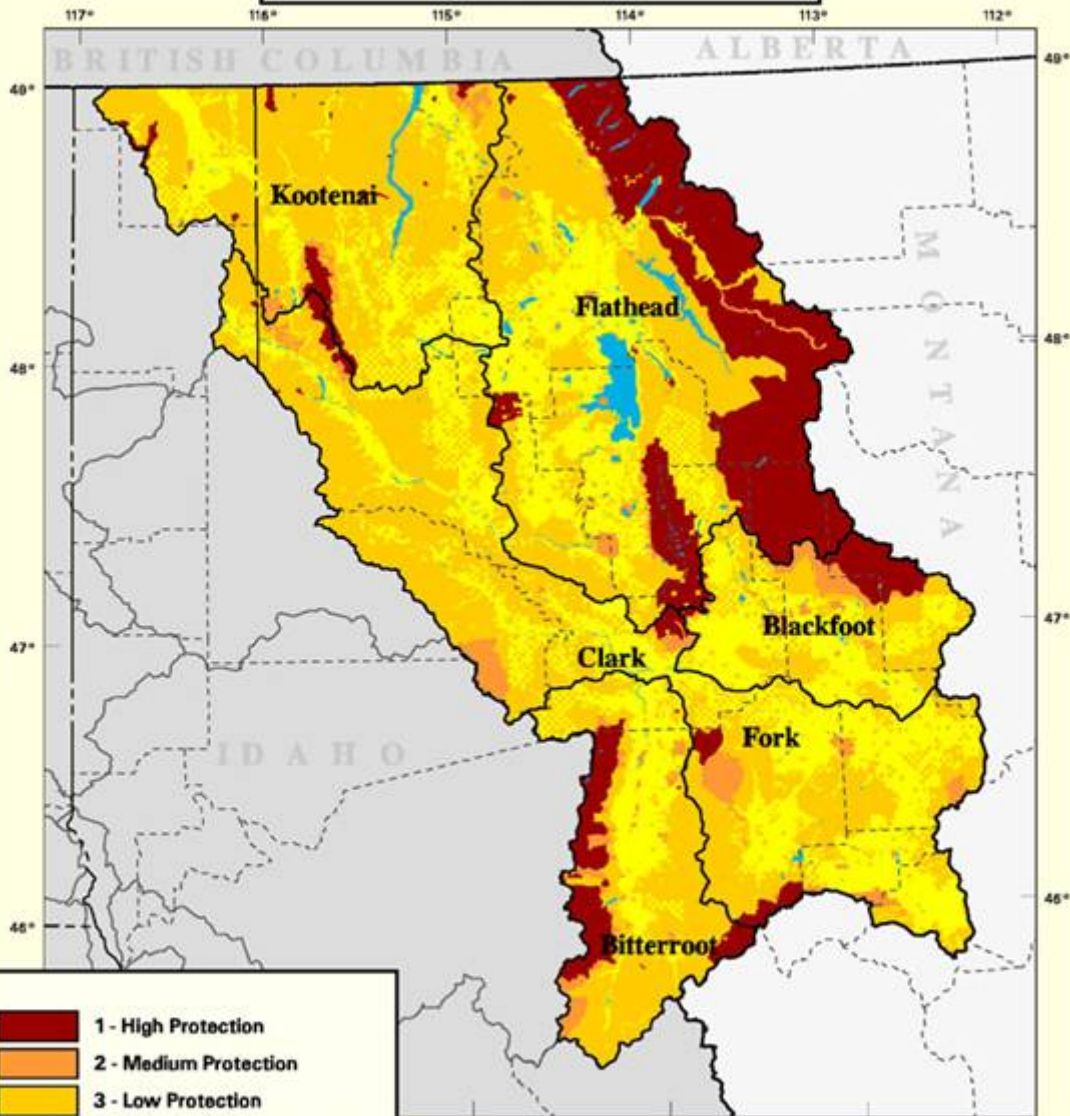


### Functional Profile - KEF 3.9 Primary Cavity excavator in snags or Live Trees





**GAP Management-Protection Status**  
**Mountain Columbia Province**  
**Columbia River Basin**  
**United States**



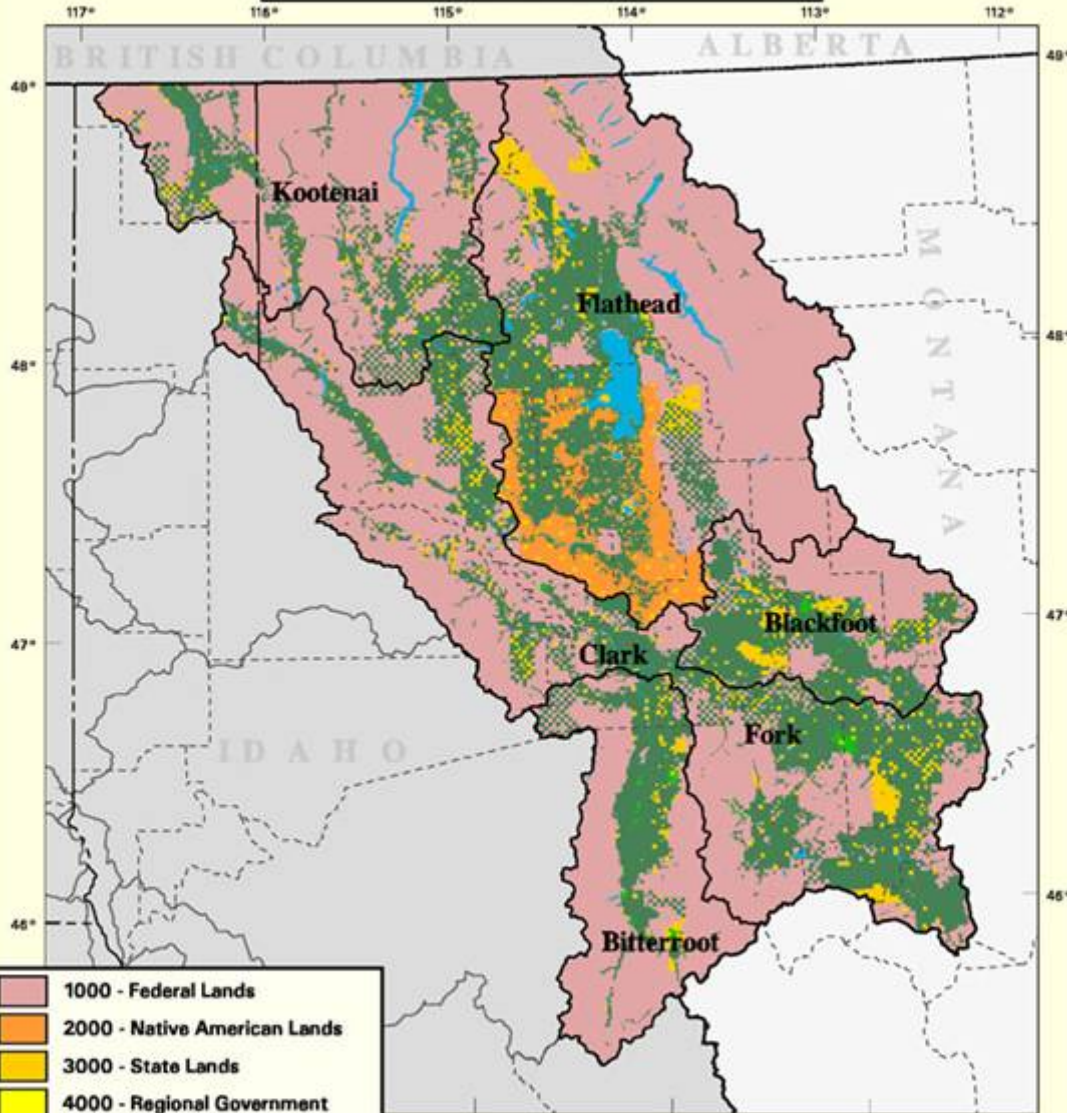
- 1 - High Protection
- 2 - Medium Protection
- 3 - Low Protection
- 4 - No or Unknown Protection
- B - Water

SCALE 1:2,500,000  
 1 inch represents 39.46 miles  
 0 10 20 30 40 50 Miles

\* Please see GAP Stewardship Status handbook for more detailed descriptions ([www.gap.uidaho.edu/handbook/Stewardship](http://www.gap.uidaho.edu/handbook/Stewardship)).

Source: Interactive Biodiversity Information System (IBIS), Northwest Habitat Institute, 2003.

**Land Ownership  
Mountain Columbia Province  
Columbia River Basin  
United States**



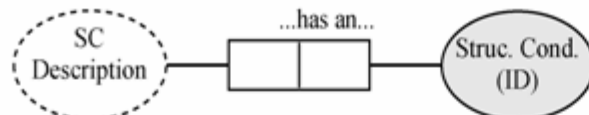
- 1000 - Federal Lands
- 2000 - Native American Lands
- 3000 - State Lands
- 4000 - Regional Government
- 5000 - Local Government Lands
- 6000 - Non-Governmental Org.
- 7000 - Private Lands
- 8000 - Water

**SCALE 1:2,500,000**  
1 inch represents 39.46 miles

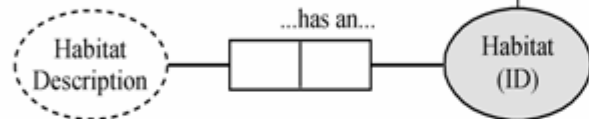
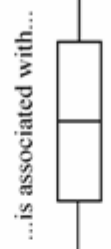
Miles  
April 2003

Source: Interactive Biodiversity Information System (IBIS), Northwest Habitat Institute, 2003.

# **Restructuring IBIS's Data Sets and Web Pages**

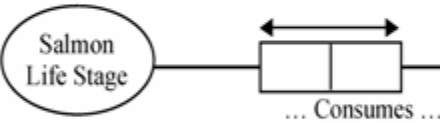


Habitat Type	Structural Condition
Shrub-Steppe	Shrubland/Grassland
Subalpine Parklands	Forest
Agriculture	Agriculture
Oceanic	none
Marine shelf	none
Bays & Estuaries	Shrubland/Grassland

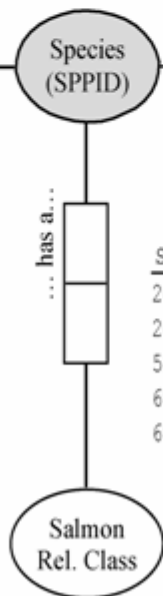


SPPID	Habitat	Activity
20010	20	feeds
20010	20	breeds
20050	20	feeds
20060	15	feeds
20015	25	feeds

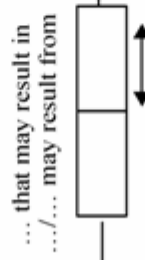
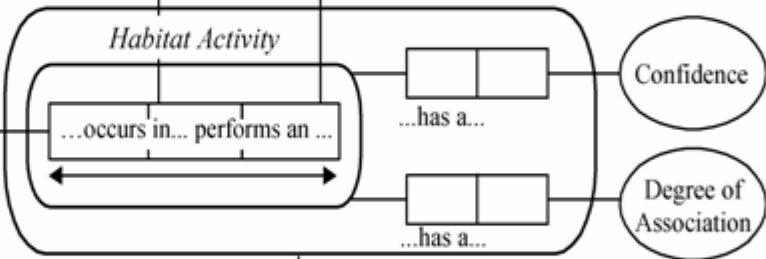
Habitat	Activity	Confidence
(20010 20 feeds)		closely
(20010 20 breeds)		generally
(20050 20 feeds)		closely
(20060 15 feeds)		unsure
(20015 25 feeds)		unsure



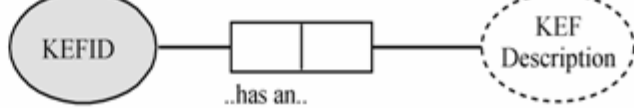
SPPID	Life Stage
20500	Incubation
20500	Freshwater Rearing
51270	Freshwater Rearing
51270	Spawning
51270	Carcass
60230	Saltwater
60230	Saltwater



SPPID	Sal. Rel Class
20100	None
20500	Recurrent
51270	Recurrent
60230	Indirect
60230	Rare



High Habitat Activity	KEFID
(20010 20 feeds closely)	1.1.2.1
(20010 20 breeds generally)	3.1
(20050 20 feeds closely)	1.2.1





[Eco Provinces](#) [Habdscriptions](#) [Members](#)

## Ecoprovince Page

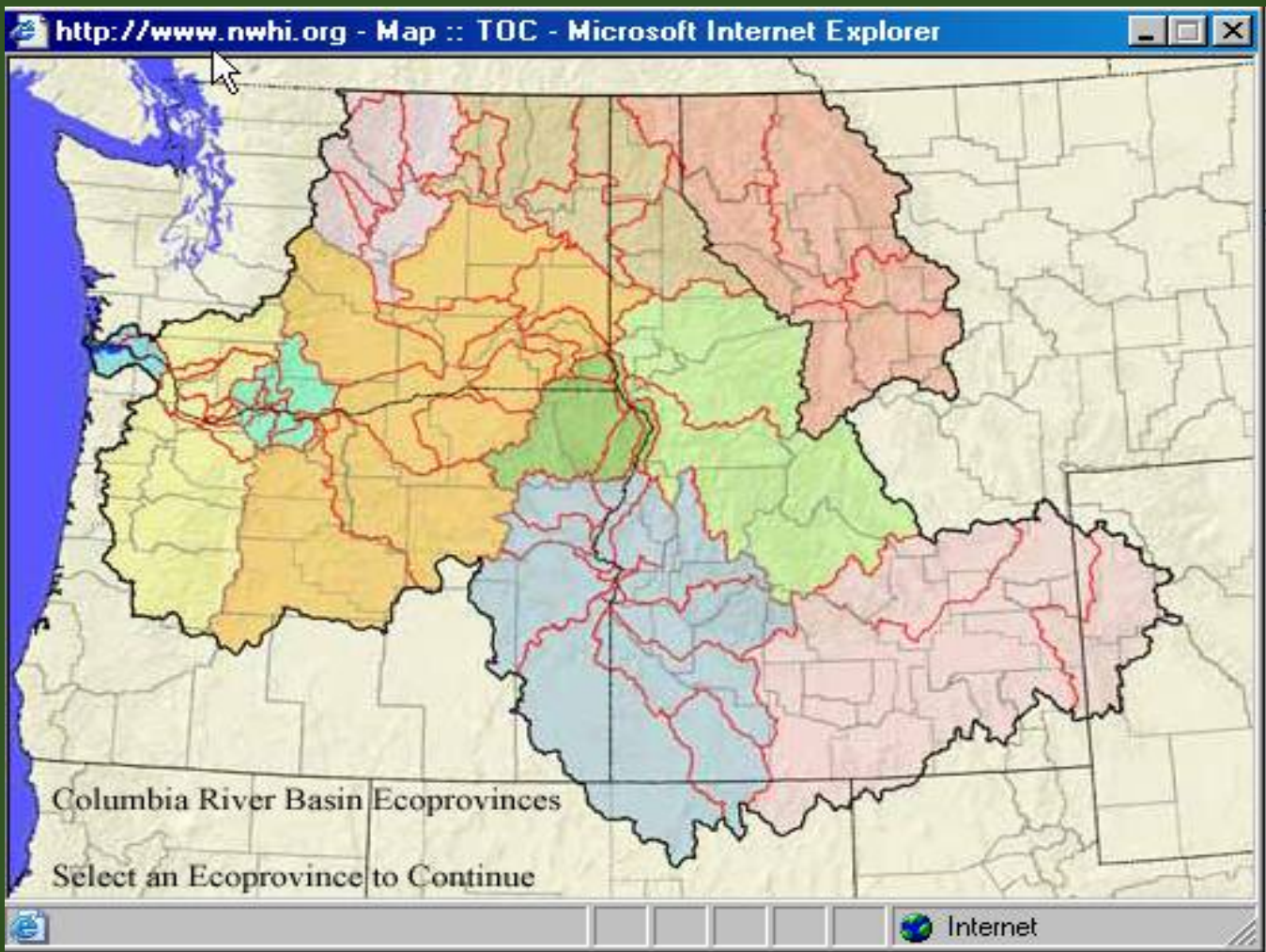
### Welcome to the IBIS Ecoprovince and Subbasin Data Center

To navigate to specific ecoprovince or subbasin datasets on this page, click on the appropriate ecoprovince name in the [Table of Contents](#) to the right. Subbasins are located in their respective Ecoprovince sections.

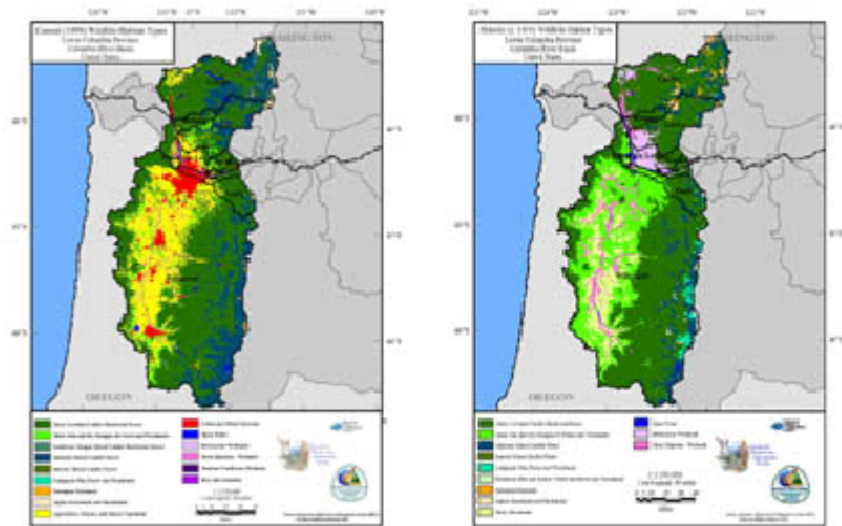
An alternative way to navigate to a specific location is to use the [Map Finder](#) button to the right. This allows for the interactive navigation to Ecoprovinces and Subbasins.

- [Blue Mountains](#)
- [Columbia Cascade](#)
- [Columbia Gorge](#)
- [Columbia Plateau](#)
- [Columbia River Estuary](#)
- [Intermountain](#)
- [Lower Columbia](#)
- [Middle Snake](#)
- [Mountain Columbia](#)
- [Mountain Snake](#)
- [Upper Snake](#)
- [Reworked Ecoprovinces](#)

[Map Finder](#)

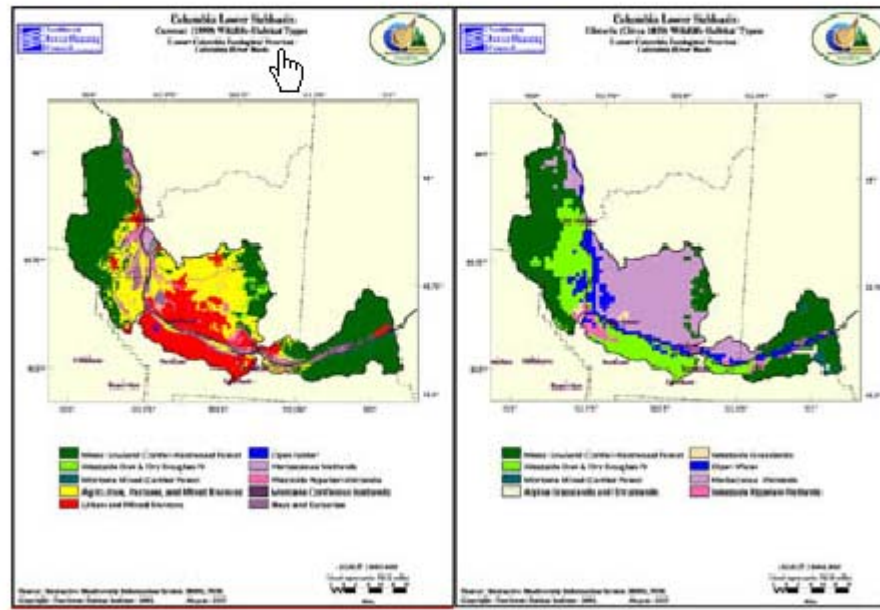


# Lower Columbia



[View Lower Columbia Data »](#)

# Columbia Lower Subbasin

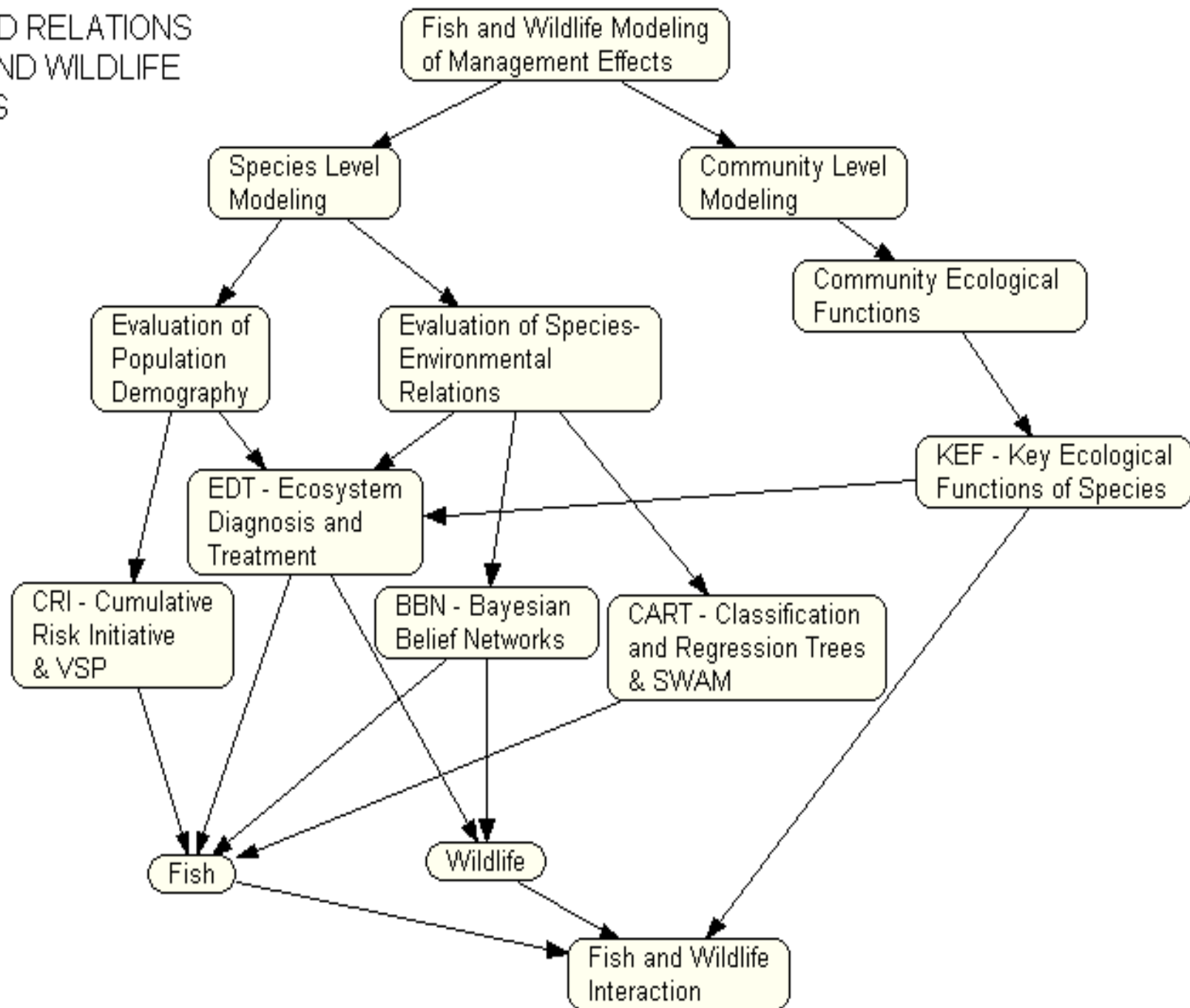




Dataset	Additional Download Formats		
<a href="#">View Current Habitat Type Maps »</a>	<a href="#">EPS »</a>	<a href="#">TIF »</a>	<a href="#">JPG »</a>
<a href="#">View Historic (c.1850) Habitat Type Maps »</a>	<a href="#">EPS »</a>	<a href="#">TIF »</a>	<a href="#">JPG »</a>
<a href="#">View Key Ecological Function Maps »</a>	<a href="#">EPS »</a>	<a href="#">TIF »</a>	<a href="#">JPG »</a>
<a href="#">View GAP Ownership and Status Map »</a>	<a href="#">EPS »</a>	<a href="#">TIF »</a>	<a href="#">JPG »</a>
<a href="#">View Percent Change in Habitat Maps »</a>	<a href="#">EPS »</a>	<a href="#">TIF »</a>	<a href="#">JPG »</a>
<a href="#">Focal Species »</a>			

# Performance Tools

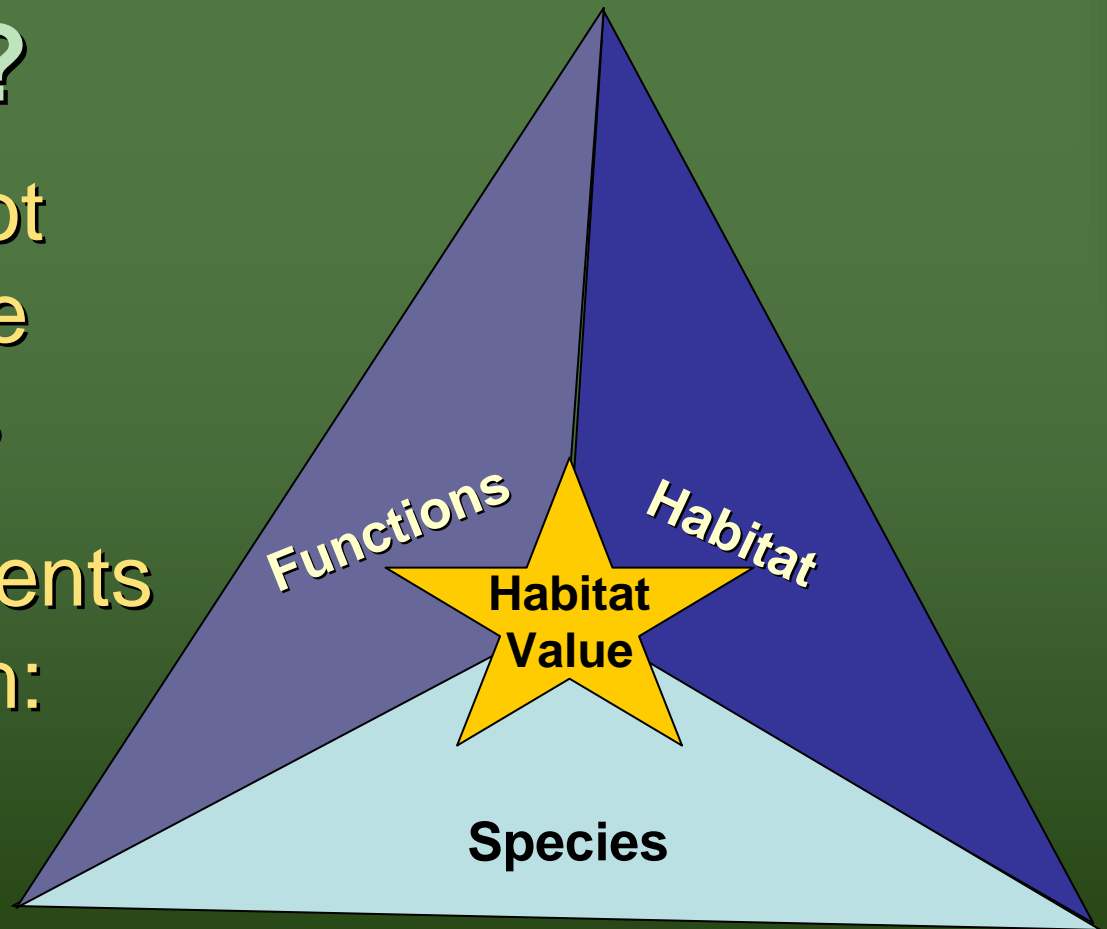
# TYPES AND RELATIONS OF FISH AND WILDLIFE ANALYSES



**HEP**

# How is the HV different from other habitat evaluation approaches?

- The HV does not use acre → acre mitigation ratios
- The HV implements a triad approach:



# Baseline Habitat Value

## Field Work:

- Habitat Types
- Structural Conditions
- Key Environmental Correlates (KECs)
- Invasive Species

Species List

List of Key Ecological Functions (KEFs)

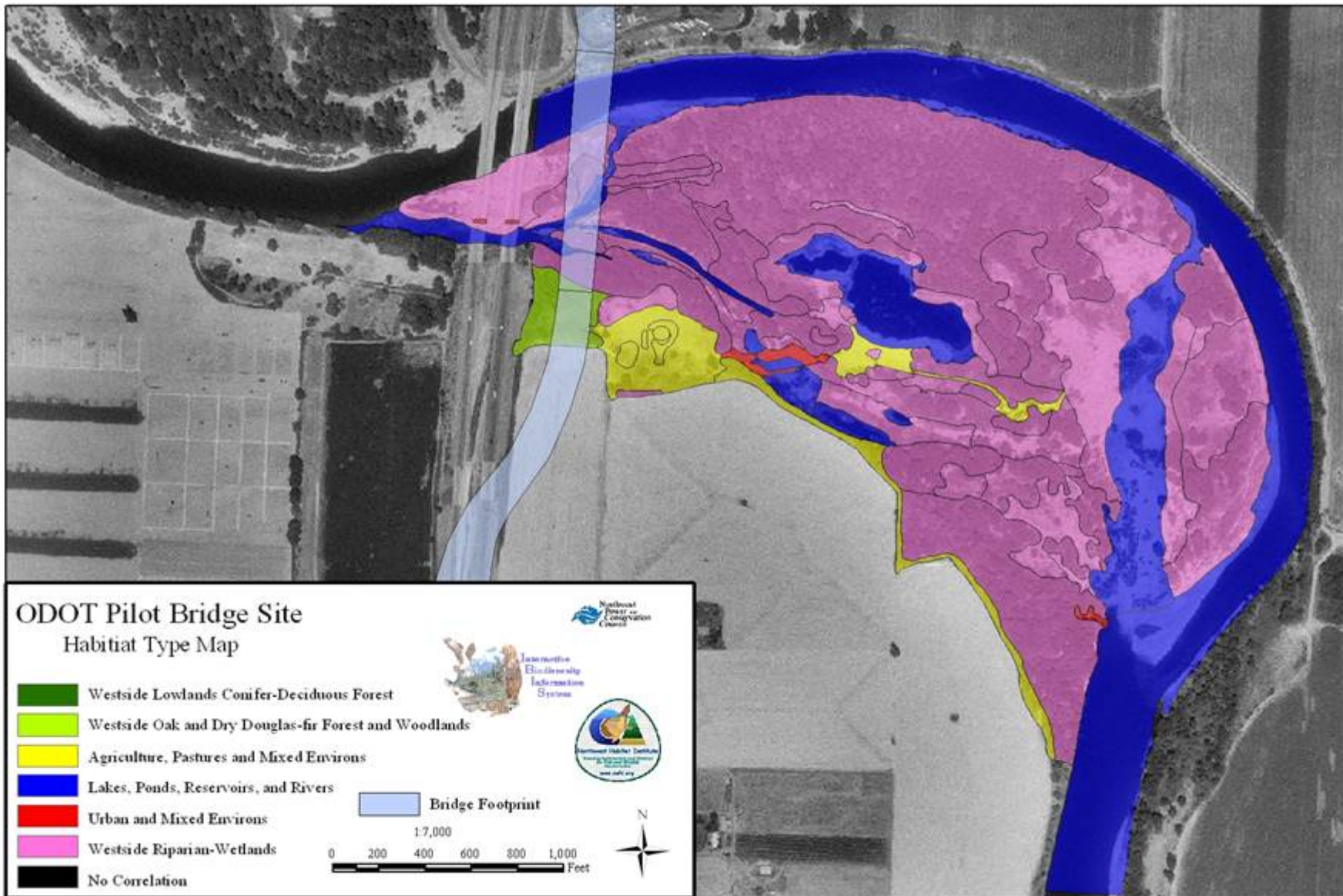
**Weighted Value for Each KEF =**  
(# of species) x (% of total acreage)

**Multivalue for Each Habitat Type =**  
Sum of Weighted Values

**Discrete Weighted Area Average Value (DWAAV) for Each Habitat Type =**  
(Multivalue) ÷ (# of KEFs)

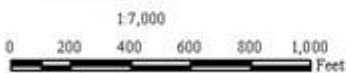
**Potential Baseline Habitat Value for each Map Unit**

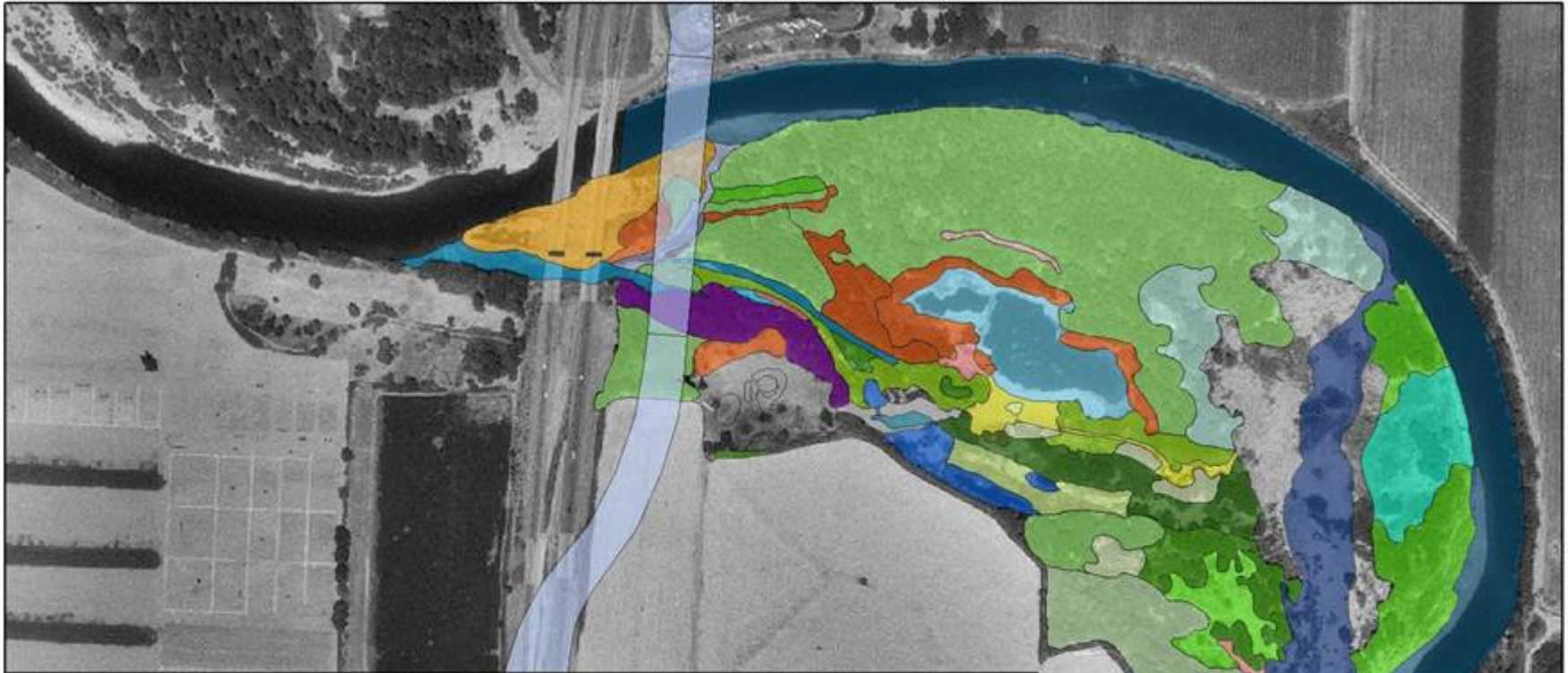
$$V^*_M = DWAAV \times A_M \div (A_H / A_S)$$



**ODOT Pilot Bridge Site**  
Habitat Type Map

- Westside Lowlands Conifer-Deciduous Forest
  - Westside Oak and Dry Douglas-fir Forest and Woodlands
  - Agriculture, Pastures and Mixed Environs
  - Lakes, Ponds, Reservoirs, and Rivers
  - Urban and Mixed Environs
  - Westside Riparian-Wetlands
  - No Correlation
- Bridge Footprint





### ODOT Pilot Bridge Site - Structural Conditions Map

Closed system - Mesotrophic	Medium tree - Multi-story - Moderate	Unconstrained channel - Braided channels
Closed system - Oligotrophic	Medium tree - Multi-story - Open	Unconstrained channel - Single channel
Constrained channel - Alt. terraces & hill slopes	Medium tree - Single story - Closed	
Constrained channel - Land use	Medium tree - Single story - Moderate	
Constrained channel - Terraces	Medium tree - Single story - Open	
Grass/Forb - Closed	Modified grassland	
Grass/Forb - Open	Open system - Oligotrophic	
High density - > 60% Impervious surfaces	Sapling/Pole - Moderate	
Large tree - Multi-story - Moderate	Sapling/Pole - Open	
Low density - 10-29% Impervious surfaces	Shrub/Seedling - Closed	
Medium shrub - Closed shrub overstory - Mature	Shrub/Seedling - Open	
Medium shrub - Open shrub overstory - Mature	Small tree - Multi-story - Moderate	
Medium shrub - Open shrub overstory - Seeding/Young	Small tree - Single story - Closed	
Medium tree - Multi-story - Closed	Small tree - Single story - Open	

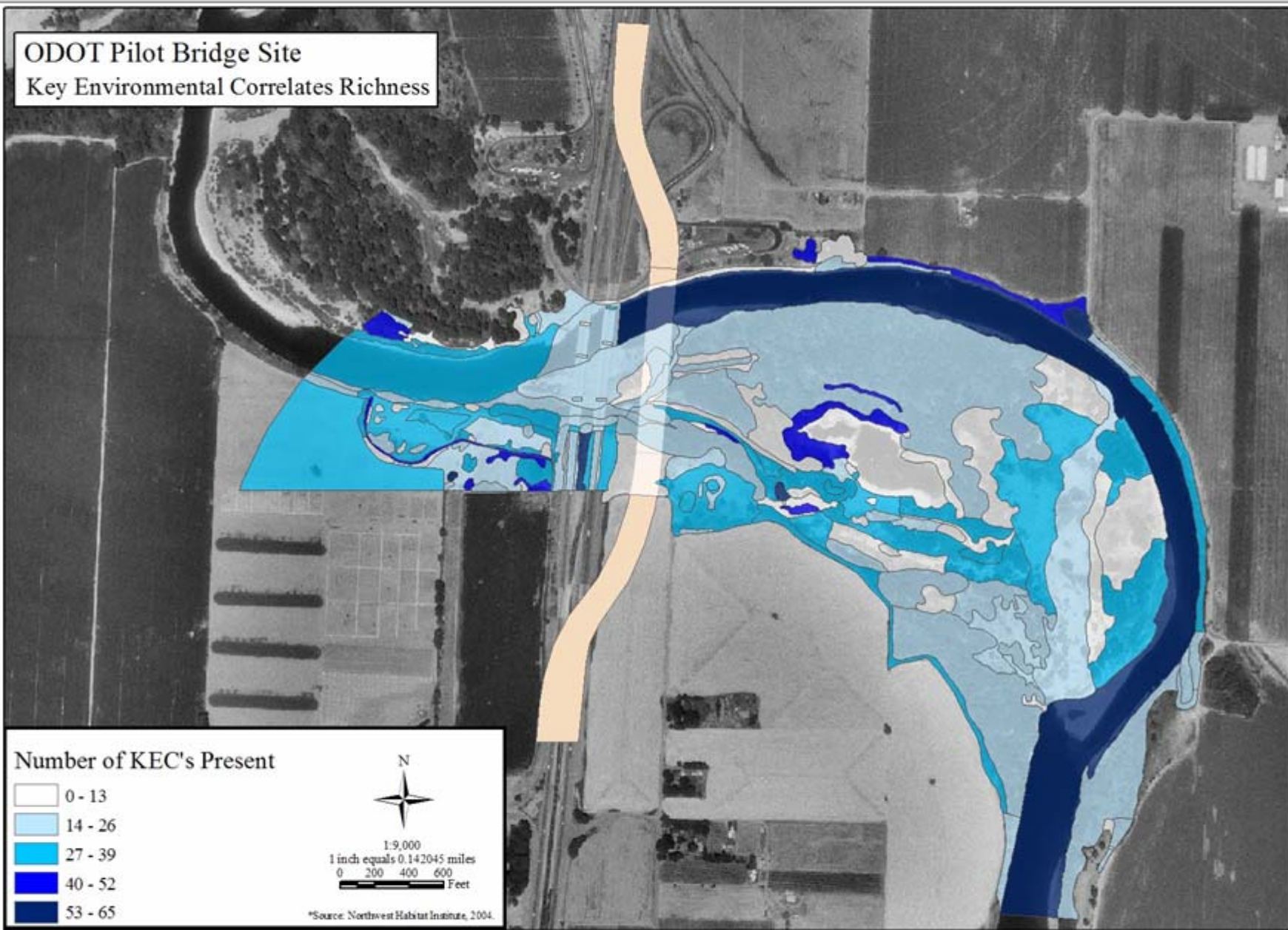

  

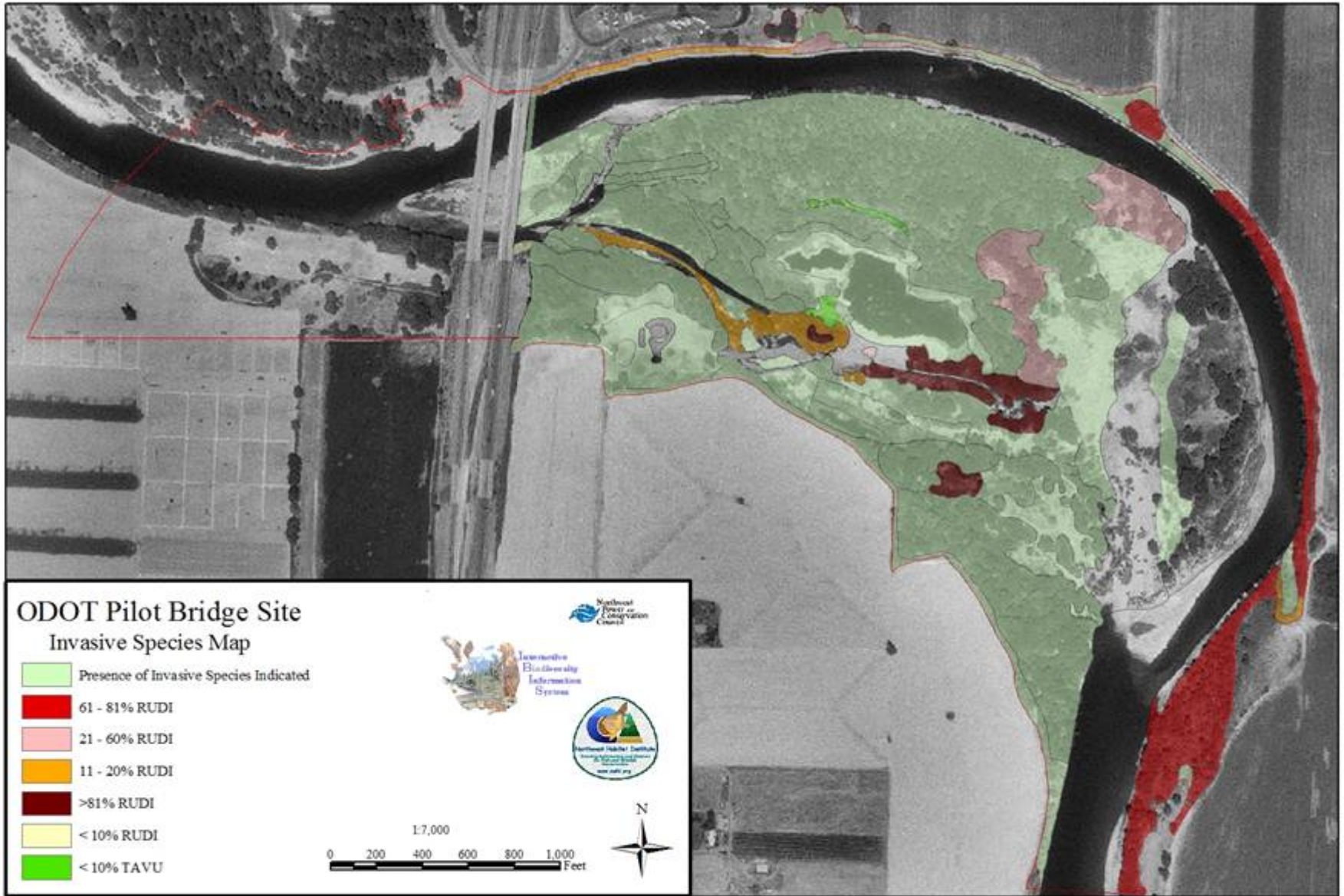
  

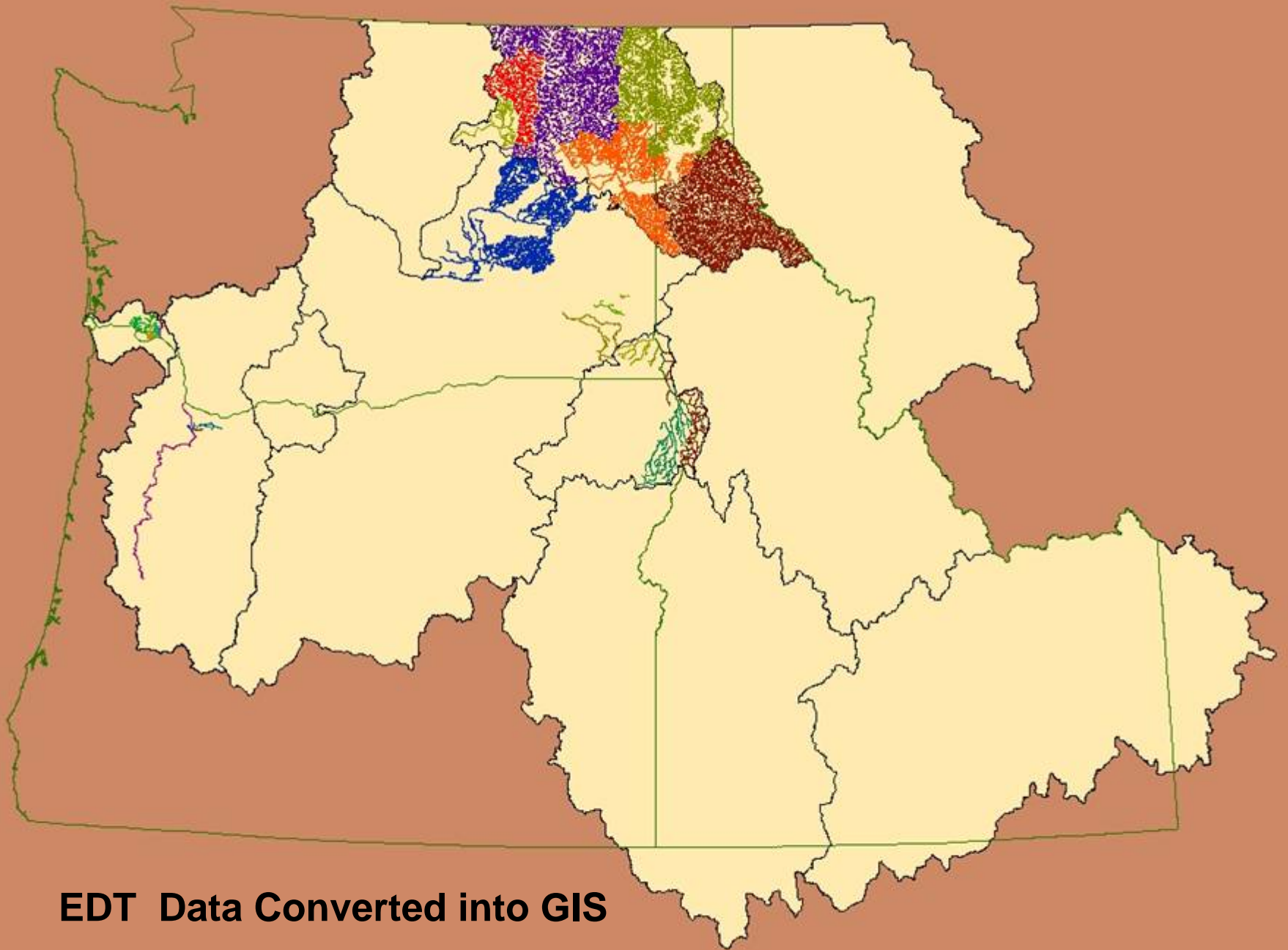
  




**ODOT Pilot Bridge Site**  
Key Environmental Correlates Richness

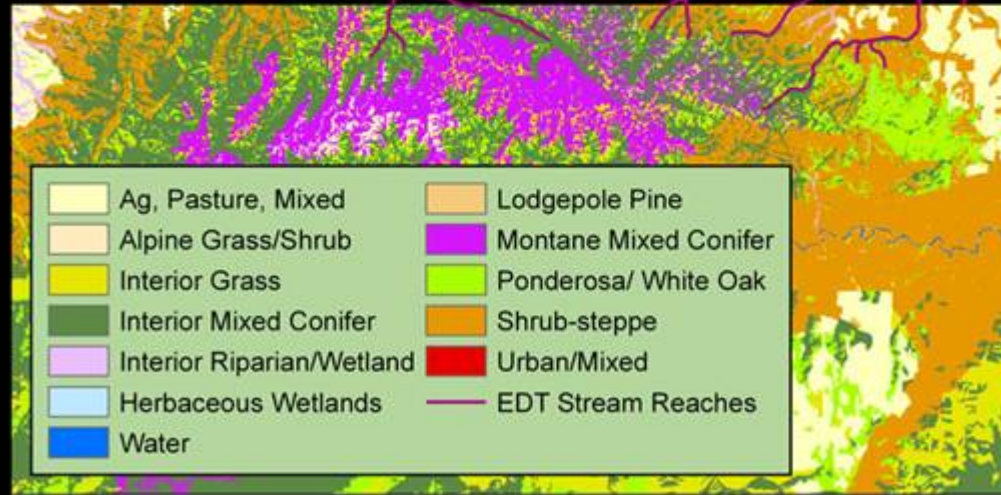




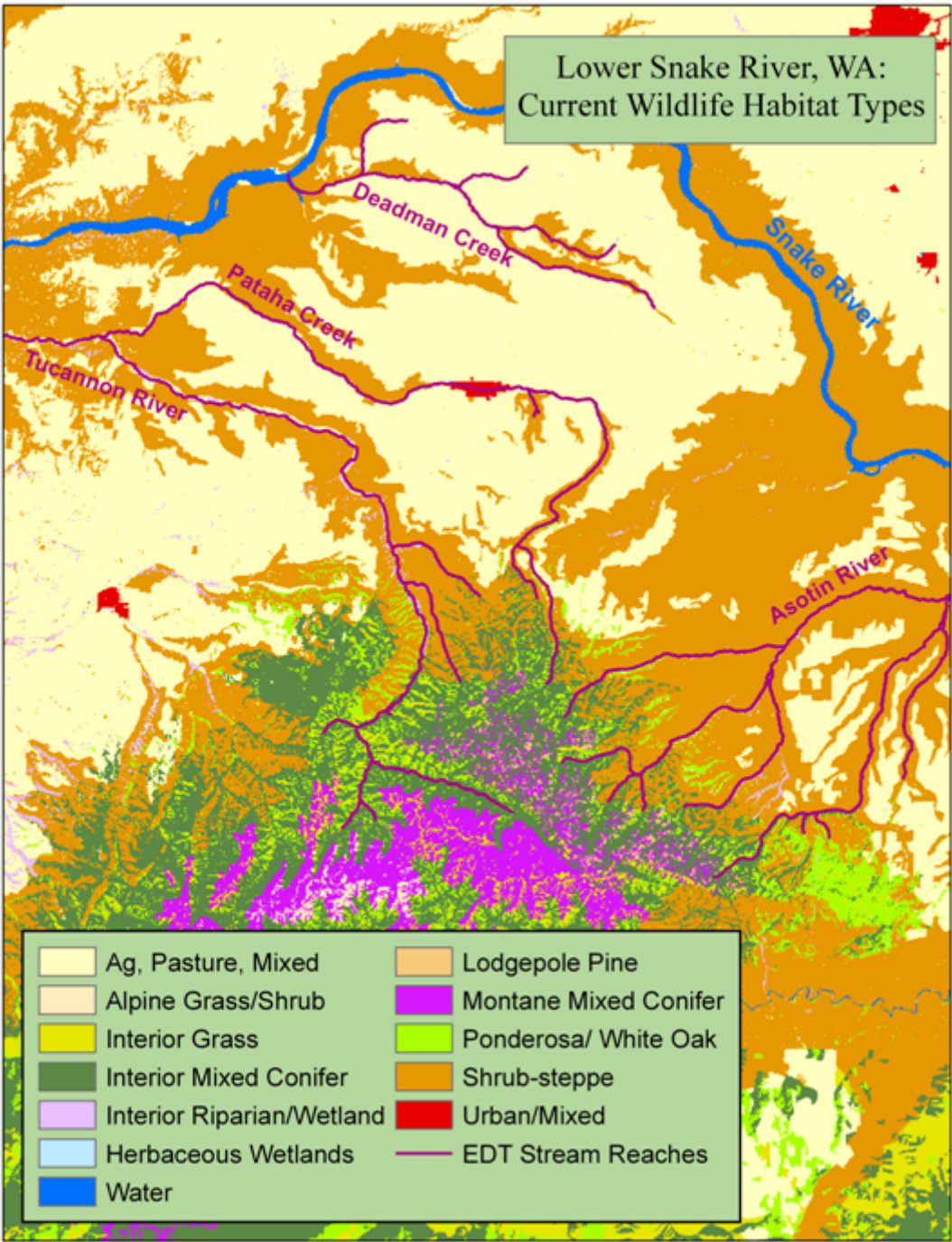


**EDT Data Converted into GIS**

Lower Snake River, WA:  
Current Wildlife Habitat Types



Lower Snake River, WA:  
Current Wildlife Habitat Types



# Future Directions...



- **Continue Developing Performance Tools**
  - Bonneville Power Administration – HEP conversion
  - Aquatic Habitat Accounting Method
  - Ecosystem Locator and Visualization Information System
  - Wildlife-Habitat Mapping – updating the Columbia River Basin and Finer Scale in Focal Areas
- **Continue Developing and Maintaining Subbasin Planning Information**

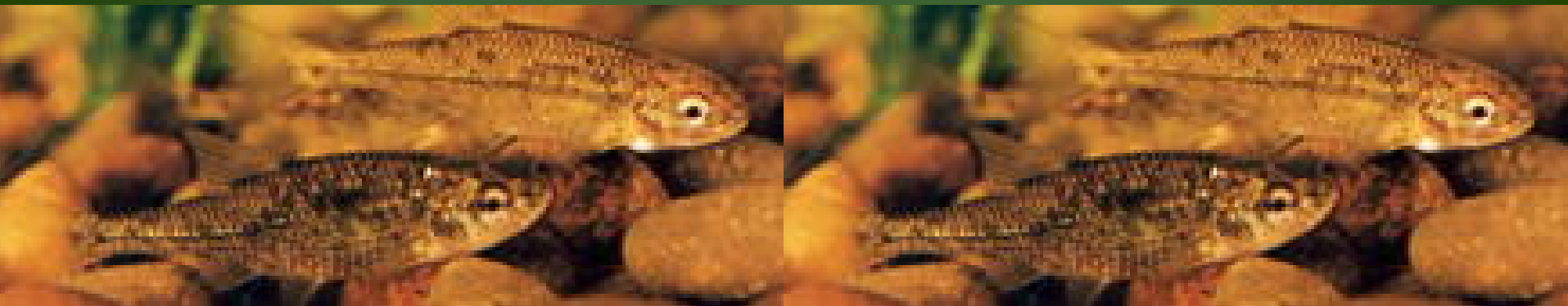




Photo by Donald M. Jones