

# Ecosystem Enhancement Program

## Lower Columbia Ecological Priorities

The following ecosystem priorities were identified through a review of regional plans and research, and by seeking input from community groups, First Nations representatives, government agencies, and subject matter experts. Priorities are listed in random order; no ranking is intended. Species, habitats, and processes are not limited to those listed below.

<b>Aquatic</b>		
<b>Conservation, restoration, and enhancement of aquatic habitat</b>		
<i>Priority Habitat</i>	<i>Priority Species</i>	<i>Priority Processes</i>
<ul style="list-style-type: none"> <li>• rivers and tributary streams spawning, rearing, overwintering valley bottom to upper basin headwaters</li> <li>• cold water sources, upwellings from small tributaries</li> <li>• ground-surface water interface</li> <li>• alluvial fans and creek mouths</li> <li>• ponds and lakes</li> <li>• fisheries sensitive watersheds</li> </ul>	<ul style="list-style-type: none"> <li>• native fish (Rainbow Trout, Westslope Cutthroat Trout, Bull Trout, White Sturgeon, Columbia Sculpin, Shorthead Sculpin, Kokanee, Umatilla Dace)</li> <li>• native freshwater mussels</li> <li>• waterbirds (Harlequin Duck, American Dipper, Cliff Swallows, Black Swift, Western Grebe, Horned Grebe)</li> <li>• invertebrates</li> <li>• species at risk</li> </ul>	<ul style="list-style-type: none"> <li>• fish passage</li> <li>• connectivity</li> <li>• fish overwintering, spawning and rearing</li> <li>• water temperature, water quality (nutrients, turbidity)</li> <li>• productivity / nutrient dynamics</li> <li>• geomorphic processes (erosion, sedimentation, levees, large woody debris, gravel recruitment)</li> <li>• habitat complexity (large woody debris, gravel, rocks, sediment)</li> <li>• climate change refugia</li> </ul>
<b>Wetland/Riparian</b>		
<b>Conservation, restoration and enhancement of wetlands and riparian areas</b>		
<i>Priority Habitat</i>	<i>Priority Species</i>	<i>Priority Processes</i>
<ul style="list-style-type: none"> <li>• wetlands (vulnerable types at risk due to changes in hydrology)</li> <li>• floodplain ecosystems</li> <li>• mature cottonwood forests</li> <li>• riparian habitats</li> <li>• western redcedar- skunk cabbage</li> <li>• alluvial fans</li> <li>• migratory stopover sites</li> <li>• ecosystems at risk</li> <li>• nesting and perching trees</li> </ul>	<ul style="list-style-type: none"> <li>• western toad</li> <li>• western painted turtle</li> <li>• at risk migratory birds and waterfowl (Great Blue Heron, Western Screech-Owl, Bobolink, Bank Swallow, Barn Swallow, American Bittern, American Avocet, Olive-sided Flycatcher)</li> <li>• bats</li> <li>• Coeur d'Alene Salamander</li> <li>• American beaver</li> <li>• North American river otter</li> <li>• species at risk</li> </ul>	<ul style="list-style-type: none"> <li>• connectivity, linkage areas valley bottom to montane</li> <li>• hydrologic function (filtering, recharge, flooding, storage),</li> <li>• geomorphological function</li> <li>• productivity</li> <li>• carbon storage</li> <li>• beaver wetland creation</li> <li>• wildlife movement and migration</li> <li>• breeding and nesting</li> <li>• biodiversity</li> <li>• resiliency</li> </ul>

	<ul style="list-style-type: none"> <li>plants – species at risk and culturally important</li> <li>macroinvertebrates</li> </ul>	
<b>Terrestrial</b>		
<b>Protection, enhancement and identification of corridors and linkage areas</b> <ul style="list-style-type: none"> <li>Apex Creek – Cottonwood south of Nelson along Hwy 6, Fort Shephard – Hwy 22A across Columbia River, Fruitvale – Park Siding along Hwy 3B</li> <li>Key Biodiversity Areas: Goose Creek Meadows, Lloyd’s Meadows, Fairview Meadow, Beavervale Meadow, Record Ridge</li> </ul>		
<b>Conservation and restoration of upland habitats that support species at risk and species of conservation concern</b>		
<i>Priority Habitat</i>	<i>Priority Species</i>	<i>Priority Processes</i>
<ul style="list-style-type: none"> <li>open forest grassland</li> <li>brushlands and grasslands</li> <li>climax grasslands</li> <li>fire-maintained ecosystems</li> <li>fescue grasslands</li> <li>old growth forests</li> <li>deciduous forests</li> <li>wildlife trees</li> <li>camas meadows</li> <li>milkweed patches</li> <li>huckleberry patches</li> <li>ungulate winter range</li> <li>caribou habitat</li> <li>grizzly bear habitat and connectivity corridors</li> <li>rock outcrops and caves</li> <li>nesting and/or roosting sites</li> <li>burrows or denning areas</li> <li>hibernacula</li> <li>wildlife trees and snags</li> <li>mineral licks</li> <li>calcerous rock / soils</li> <li>ecosystems at risk</li> <li>wildlife habitat areas (WHAs) and habitat features (WHFs)</li> </ul>	<ul style="list-style-type: none"> <li>mountain goat</li> <li>moose</li> <li>grizzly bear</li> <li>bats</li> <li>Northern rubber boa</li> <li>North American racer</li> <li>western skink</li> <li>wolverine</li> <li>Yellow Breasted Chat</li> <li>Common Nighthawk</li> <li>Lewis’s Woodpecker</li> <li>Northern Goshawk</li> <li>Bobolink</li> <li>Short Eared Owl</li> <li>American badger</li> <li>porcupine</li> <li>pollinators and other invertebrates (checkered skipper, dun skipper, immaculate green hairstreak, monarch butterfly, sagebrush tiger beetle, twelve-spotted skimmer dragonfly, vivid dancer damselfly)</li> <li>gastropods (Coeur d’Alene Oregonian snail, magnum mantleslug, pale jumping slug, pygmy slug)</li> <li>plants – species at risk and culturally important</li> <li>fungi</li> <li>species at risk</li> </ul>	<ul style="list-style-type: none"> <li>wildlife movement and migration</li> <li>connectivity</li> <li>food web interactions (predator-prey, seed dispersal, pollination)</li> <li>natural fire regime</li> <li>beaver-wetland creation</li> <li>natural vegetation succession</li> <li>climate change refugia</li> <li>infrequent stand initiating fires</li> <li>frequent stand maintaining fires</li> <li>biodiversity</li> <li>resiliency</li> </ul>
<b>Cultural</b>		
<b>Supporting Indigenous Stewardship through:</b> <ul style="list-style-type: none"> <li>Indigenous-led conservation</li> <li>Incorporating Indigenous knowledge, values and approaches</li> </ul>		

## Lower Columbia Subregion Emerging Issues

- Climate Change
- Invasive Species
- Emergent and persistent diseases/pests
- Biodiversity loss
- Wildfire and Fire suppression
- Cumulative effects (dams, forestry, agriculture and range management, recreation and access management, rural/urban development)
- Loss of snowpack and cold water creeks
- Human wildlife conflicts

## Key References (Priorities and Emerging Issues):

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