

Potential Wildlife Habitat Restoration Sites

Portland Harbor
Restoration Committee

Presented by:


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U.S. Fish and Wildlife Service

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A stylized, teal-colored silhouette of a mountain range is positioned in the bottom right corner of the slide, extending from the right edge towards the center.

Potential Wildlife Habitat Restoration Sites

- ◆ Area and factors under consideration
 - ◆ The approach we're using to identify wildlife habitat restoration opportunities
 - ◆ Focal wildlife species and indicators
 - ◆ Status and next steps
- 
- A stylized silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

Area under consideration


Potentially exposed areas:

- ◆ RM 0 to 11 on the lower Willamette River, including upland areas around industrial facilities up to about 0.5 miles inland
- ◆ Multnomah Channel from initiation point at RM 3 of the Willamette River to mouth on the Columbia River
- ◆ Tidally influenced portion of the Columbia Slough
- ◆ Other areas to be determined

Source: Preassessment Screen for the Portland Harbor Superfund Site, 2007



Geographical Tiers

1. Mainstem Willamette River within the boundaries of the Portland Harbor Superfund site study designation
 2. West Hayden Island, Columbia Slough, Multnomah Channel, Sauvie Island sites outside of the study area
 3. Willamette River sites south of the study area below Willamette Falls, including Tryon, Kellogg and Johnson Creek confluence areas and Ross Island
 4. Mainstem Columbia River sites
- 

Process

Done:

- ◆ Review of potential fish habitat restoration projects
- ◆ Add activities and expand boundaries for some fish projects
- ◆ Score projects using wildlife criteria (ecological)
- ◆ Identify feasibility issues

In process:

- ◆ Identify additional potential wildlife restoration sites
- ◆ Notify landowners about opportunities
- ◆ Develop restoration concepts and site bios
- ◆ Score new projects using wildlife criteria
- ◆ Research landowner interest and feasibility issues

Refine and update as appropriate

Wildlife Criteria: Indicators

1. **Shallow in-water habitat**
2. **Tidal mudflats and beaches**
3. **Instream habitat structure**
4. **Off-channel habitat proximity**
5. **Off-channel habitat quality**
6. **Floodplain connectivity**
7. **Natural streambank**
8. **Streambank slope**
9. **Quantity of riparian vegetation**
10. **Perch sites**
11. **Nest sites**
12. **Presence of native vegetation**
13. **Presence of wetlands with surface water**
14. **Staging areas**
15. **Water/shoreline/upland habitat connectivity**
16. **Cover**
17. **Patch size**

Blue = Also used in fish criteria

Indicators by Species

Indicator	Relevant for			
	Bald Eagle	Osprey	Spotted Sandpiper	Mink
1. Shallow in-water habitat (mainstem sites)	✓	✓		✓
2. Tidal mudflat			✓	✓
3. Instream habitat structure				✓
4. Off-channel habitat proximity				✓
5. Off-channel habitat quality				✓
6. Floodplain connectivity				✓
7. Natural streambank			✓	✓
8. Streambank slope				✓
9. Quantity of riparian vegetation			✓	
10. Perch sites	✓	✓		
11. Nest sites	✓	✓		
12. Presence of native vegetation			✓	✓
13. Presence of wetlands with surface water				✓
14. Staging areas			✓	
15. Water/upland connectivity to high quality upland habitat				✓
16. Percent cover			✓	✓
17. Patch size	✓		✓	✓

Up to 4 points per indicator

Spotted Sandpiper

- ◆ Habitat mosaics near water with a) natural shoreline for foraging, drinking, bathing and displaying, b) semi-open habitat for nesting (i.e., with herbaceous cover) and c) patches of more dense vegetation near water for brood cover.



Spotted Sandpiper (cont.)

- ◆ Shallow wetlands and mudflats for foraging and migration staging areas.
- ◆ Can use relatively small territories, so may benefit from both small and large habitat patches (e.g., highest score = \geq 5 acres).
- ◆ Risk of predation and food availability are key determinants of territory size.



Mink

- ◆ Shallow water areas, mudflats, floodplains, riparian areas, wetlands, backwater areas, shorelines and streambanks with native vegetation, structure and surface water for hunting (fish, small mammals, birds, amphibians, reptiles, invertebrates, etc.)



Neil Phillips



Scott Denham

Mink (cont.)

- ◆ Movement corridors
- ◆ Forested/densely vegetated areas with complex structure within 330' of water for den sites and prey
- ◆ Fairly large territories (highest score = ≥ 50 acres)



Nick Lawes



Terry Spivey, USDA FS 5356354

Bald eagle

- ◆ Shallow in-water habitat for fish production
- ◆ Open water for hunting (fish, water birds; also eat carrion)
- ◆ Perch sites

Terry Spivey, USDA FS



USFWS

Bald eagle (cont.)

- ◆ Habitat patch with mature trees; use dominant trees for nest sites
- ◆ Low human disturbance (line of site distance over 0.25 miles)



USFWS, AK



Pennsylvania Game Commission

Osprey



- ◆ Shallow in-water habitat for fish production and hunting





Osprey (cont.)

- ◆ Perch sites
- ◆ Nest sites

(Patch size is not as critical)



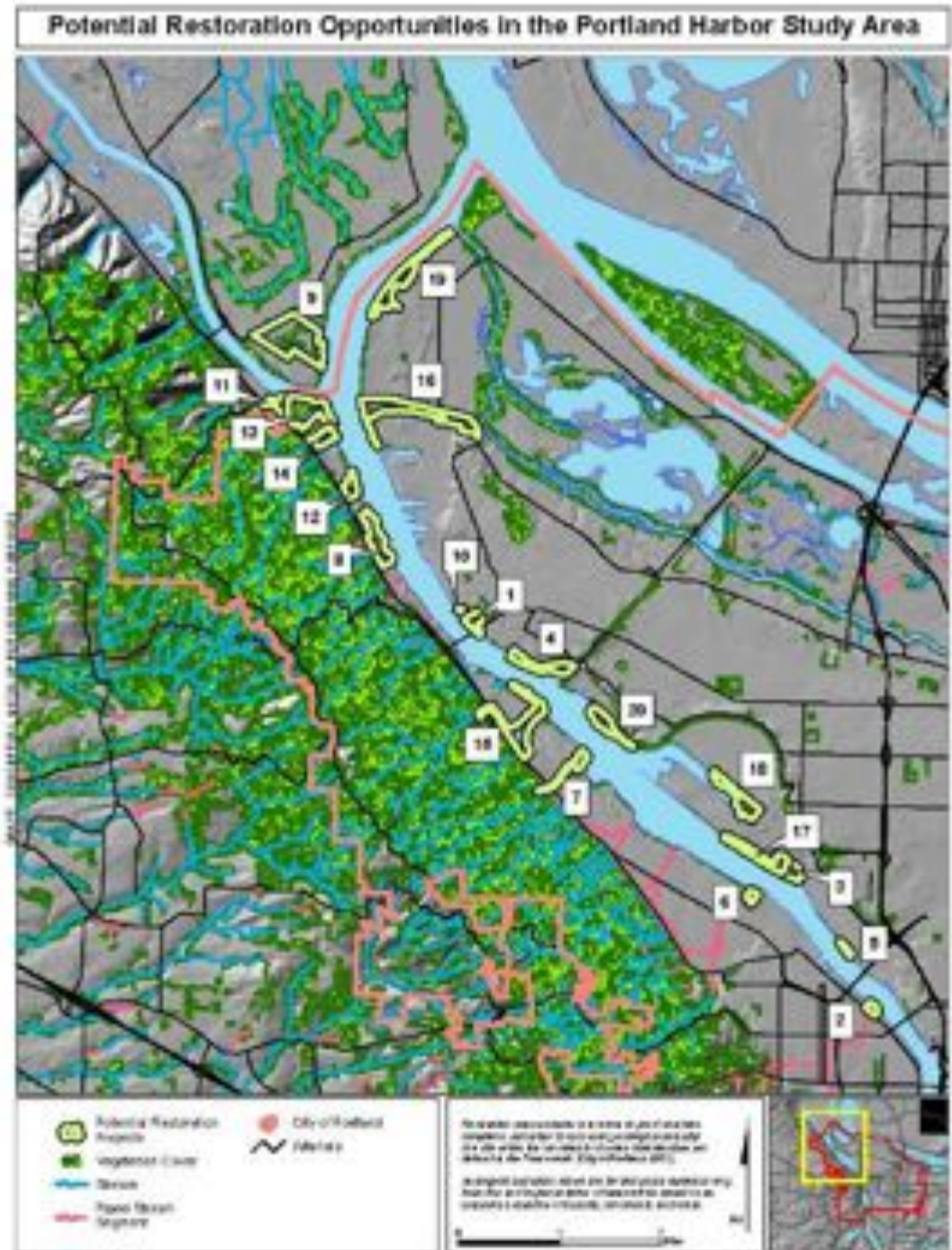
Other species to consider



The approach we used

Fish sites:

- ◆ Review of proposed projects for potential boundary expansions and additional restoration activities



Fish Habitat Restoration Sites

Albina Yard	Portland General Electric
Balch Creek Confluence	Powerline Corridor
Cathedral Park	Saltzman Creek
Centennial Mills	S. Rivergate Corridor
Doane Creek Area	Swan Island Beach N.
Joslin Property	Swan Island Beach S.
Linnton Neighborhood	Swan Island Lagoon
MarCom	Terminal 5
Miller Creek Confluence	Triangle Property
Owens-Corning	Willamette Cove

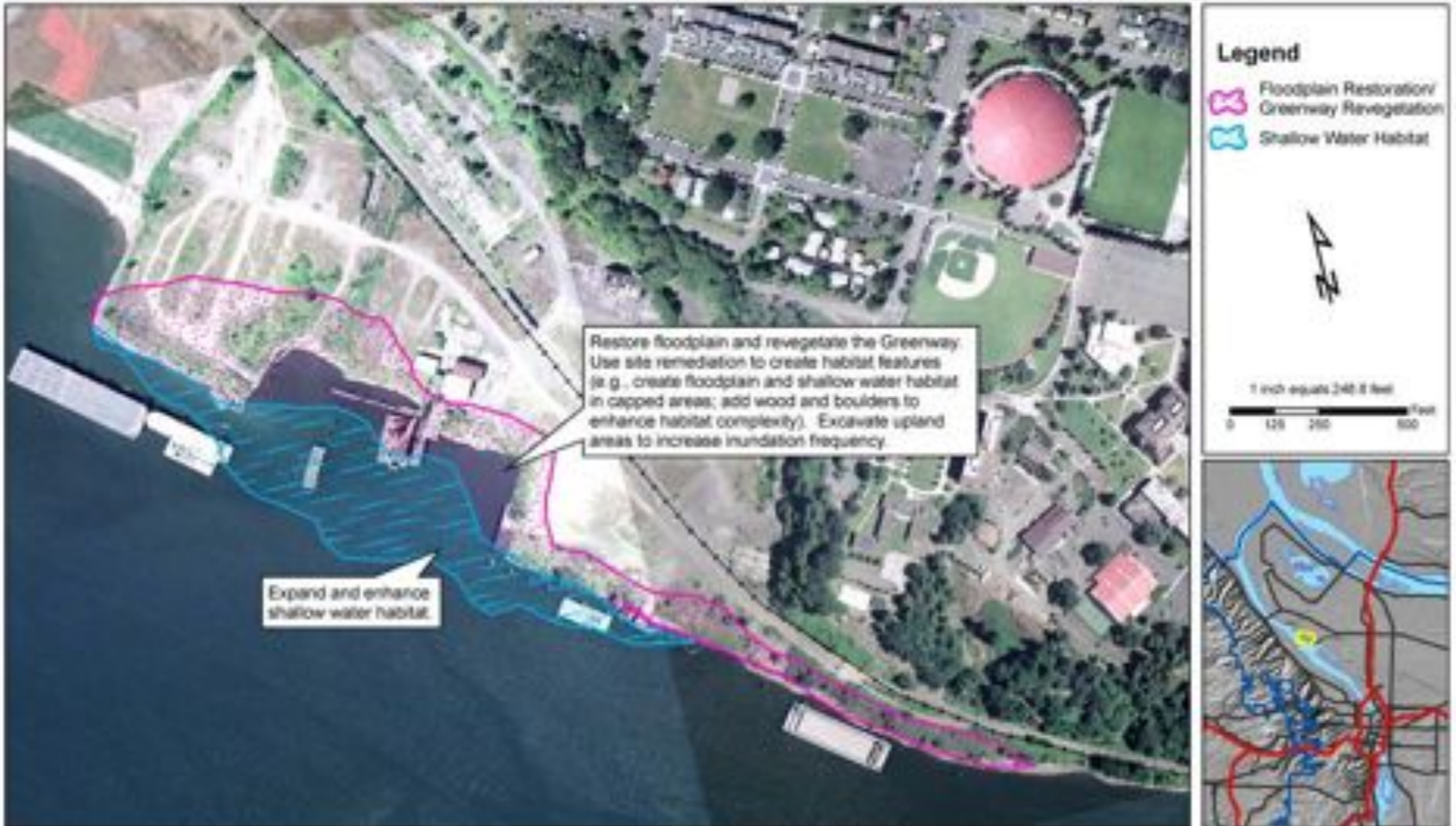
Potential wildlife habitat restoration associated with fish projects

- ◆ Restoring and enhancing aquatic habitats, shorelines and streambanks
- ◆ Project boundary expansions
- ◆ More extensive site revegetation
- ◆ Upland habitat restoration
- ◆ Removal of abandoned structures
- ◆ Wildlife corridors
- ◆ Structural habitat features



Example: Triangle Property

University of Portland/Triangle Property



University of Portland/Triangle Property taxlots



Wildlife addition:

- Expand potential boundary to other contiguous vacant lands.
- Remove invasive species.
- Decommission roads and remove structures if they are no longer in use.
- Restore soils and native vegetation everywhere possible within restoration site boundaries.

Potential MarCom Restoration

Example: MarCom

DRAFT - CONCEPTUAL. MOORE LLP FOR INTERMED HOLDINGS



Restoration Sites	Fencibles
Stormwater Swales	Outfalls
Potential Off-Channel Habitat	Non-City Outfalls
Revegetation	
WDA funded tasks	Other funding sources (e.g., City, EPA)

August 2, 2005

MOORE LLP FOR INTERMED HOLDINGS
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Scale: 1 inch = 100 feet

Miller Creek Confluence

Map prepared for Portland Harbor
Natural Resource Trustees



- Outlet
- Stream
- Piped Stream Segment
- Restoration Site
- Potential Channel Restoration
- Off-Channel Habitat
- Passage Improvement and Channel Restoration
- Riparian Vegetation
- Upland Vegetation

This map represents conceptual fish and wildlife habitat restoration opportunities, which have been prepared against criteria developed by the National Wetland Natural Area Trustees. Further analysis of this site will occur to determine the feasibility, cost, and habitat value of the restoration concepts on a finer scale. This map was prepared as a general reference provided to the City of Portland's Bureau of Environmental Services.

Example: Miller Creek

Potential Miller Creek Restoration



- Potential Restoration Area
- Potential Stream Channel
- Off-Channel Habitat
- Passage Improvement and Channel Restoration
- Stream
- Piped Stream Segment

July 14, 2008

Map prepared for Portland Harbor Natural Resource Trustees. Further analysis of this site will occur to determine the feasibility, cost, and habitat value of the restoration concepts on a finer scale. This map was prepared as a general reference provided to the City of Portland's Bureau of Environmental Services.



Potential PGE Restoration



Example: PGE



Wildlife Addition:

- Expand fish project boundaries.
- Remove invasive vegetation; restore existing native soils and vegetation.
- Regrade or expand on existing wetland where disturbed or degraded to increase water-holding capacity.
- Add wildlife crossing over or under Hwy 30 for connectivity (wildlife corridor) to Forest Park.
- Remove fill and any pavement and structures on other portions of the property if and when they are no longer needed.

This map represents conceptual fish and wildlife habitat restoration opportunities, which have been screened against criteria developed by the Portland Harbor Natural Resource Trustees. Further analysis of this site will occur to determine the feasibility, cost, and habitat value of the restoration concepts on a finer scale. This map was prepared using a geospatial database provided by the City of Portland's Bureau of Environmental Services.

Potential Willamette Cove Restoration



Example: Willamette Cove

Willamette Cove - taxlots to the north, west side



Wildlife Addition:

- Expand to other contiguous areas where possible.
- Remove invasive species.
- Revegetate (reforest) remaining areas within restoration site boundaries.

Additional Potential Sites for Wildlife

ID vacant lands and greenspaces:

- ◆ NRI modeling exercise
- ◆ Review aerial photos, land cover data and other information
- ◆ Apply wildlife criteria and score sites

NRI Models

The approach:

- ◆ review project area scores for sites in current condition
- ◆ alter natural resource data to reflect post-restoration conditions
- ◆ score project area in its restored condition
- ◆ use increase in resource scores to estimate the magnitude of potential benefits

Resource feature inputs:

- ◆ streams & rivers
- ◆ wetlands
- ◆ vegetation
- ◆ floodplain
- ◆ slope

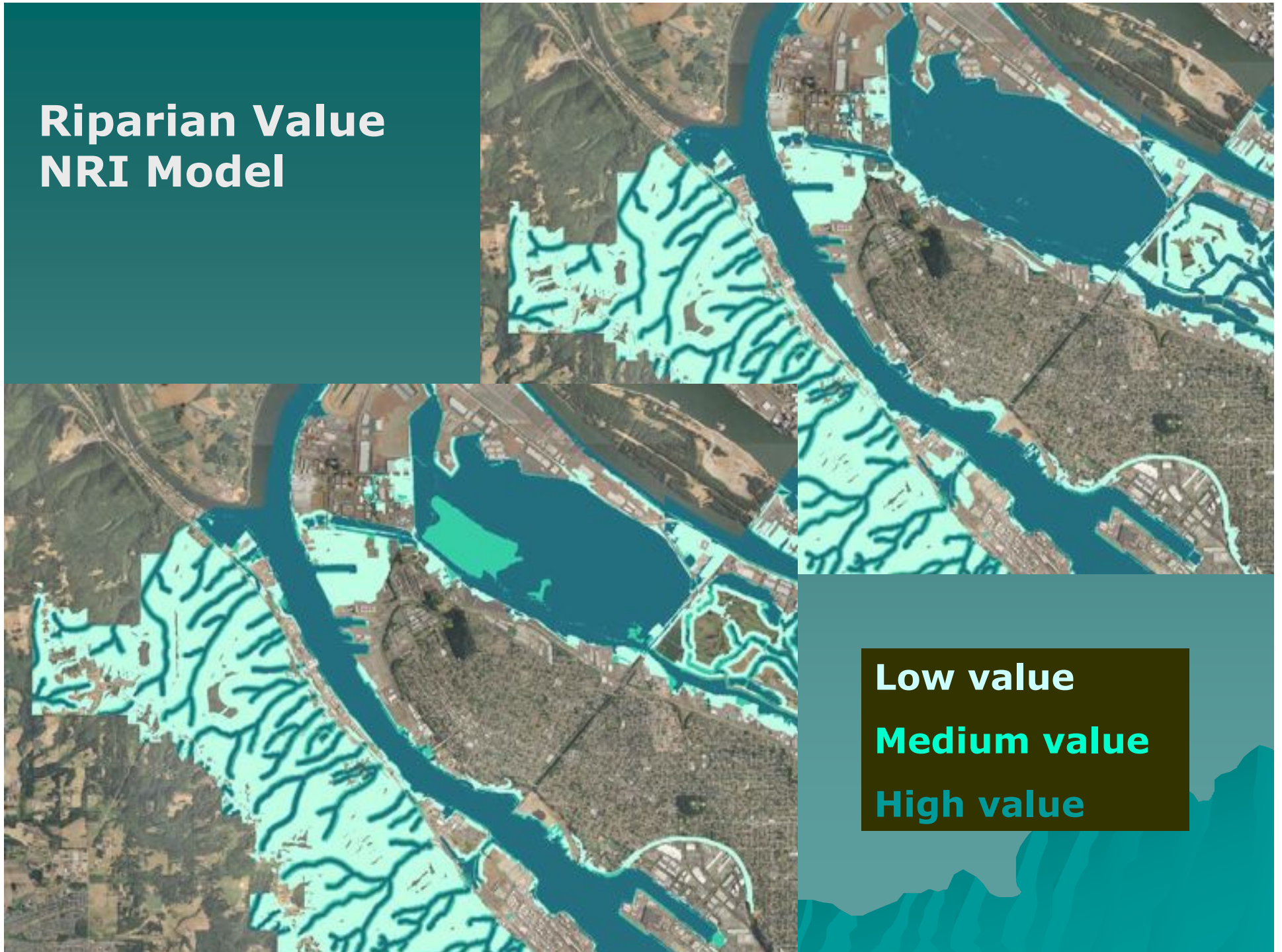
Riparian Criteria	Wildlife Criteria
Microclimate and Shade	Habitat Patch Size
Stream Flow Moderation and Water Storage	Interior Habitat Area
Bank Stability, and Sediment, Pollution and Nutrient Control	Connectivity to Other Patches
Large Wood and Channel Dynamics	Connectivity to Water
Organic Inputs, Food Web and Nutrient Cycling	
Riparian Wildlife Movement Corridor	

Wildlife Value NRI Model



Low value
Medium value
High value

Riparian Value NRI Model



Riparian Value NRI Model



Low value
Medium value
High value

Potential restoration sites identified by the City of Portland for other programs...



...used to develop our list of potential fish projects.

Status and next steps

- ◆ Develop general restoration concepts and score new potential projects
- ◆ Develop GIS layers for new sites
- ◆ Identify and contact land owners
- ◆ Further research feasibility issues
- ◆ Rescore as more detailed restoration plans are available (if needed)
- ◆ Expand scope to include geographical tiers 2-4
- ◆ Continue to consider feedback and look for additional opportunities