

Eco-Logical – Oregon Transportation Information Integration – PART II

Providing Data and Conservation Assessments
To Transportation Planners

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Key Eco-Logical Project Goals

- Integrate concepts of the the ODFW Conservation Strategy statewide (OCS) into the ODOT Comprehensive Mitigation Strategy (CMCS) and ODOT's planning "systems" to improve mitigation decisions and transportation planning in Oregon
- Pilot detailed information in the Willamette Basin
- Develop a strategy for completing the remainder of the State

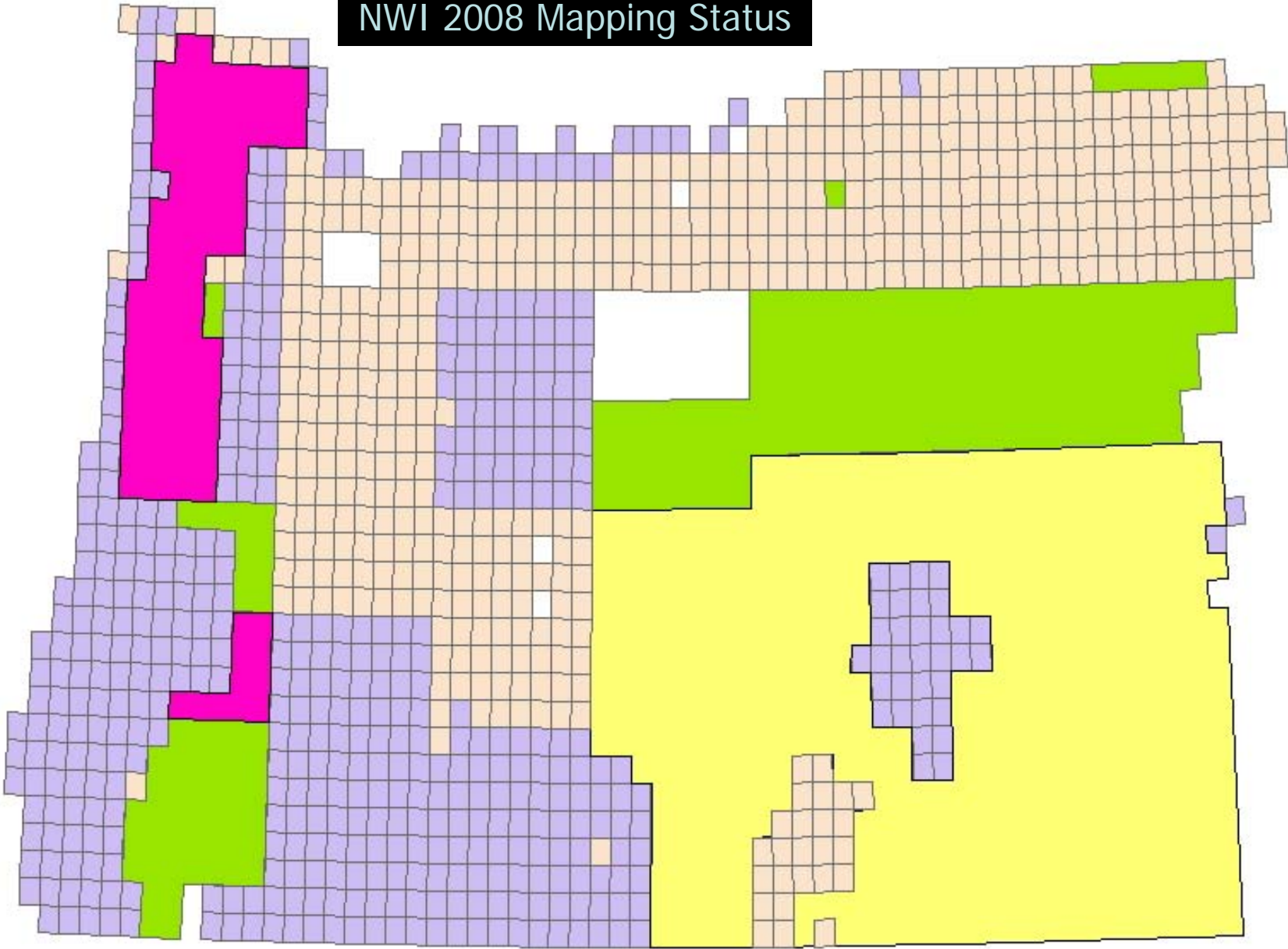
Eco-Logical Tasks

- Integrate the best quality information showing the known and potential distribution of regulated elements (T&E Species and wetlands)
- Integrate the best quality information showing the distribution of Strategy Species and Habitats
- Create tools to assure this quality data is useable for transportation planning decisions
- Create tools to assure this information is constantly updated

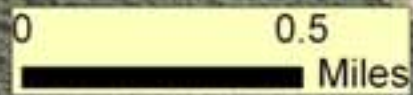
Updating CMCS & ODOT Planning Tools

- Improve the quality and availability of key information
 - Tie planning tools into updated databases
 - ORNHIC At-Risk and T&E Species
 - New Hydrography and Soils datasets
 - Create digital data needed to improve planning
 - Culvert and Stream Barriers
 - Wetlands and Priority Wetlands
 - Natural Vegetation and Priority Habitats

NWI 2008 Mapping Status



Detailed wetland data also integrated from various assessments.



Layers

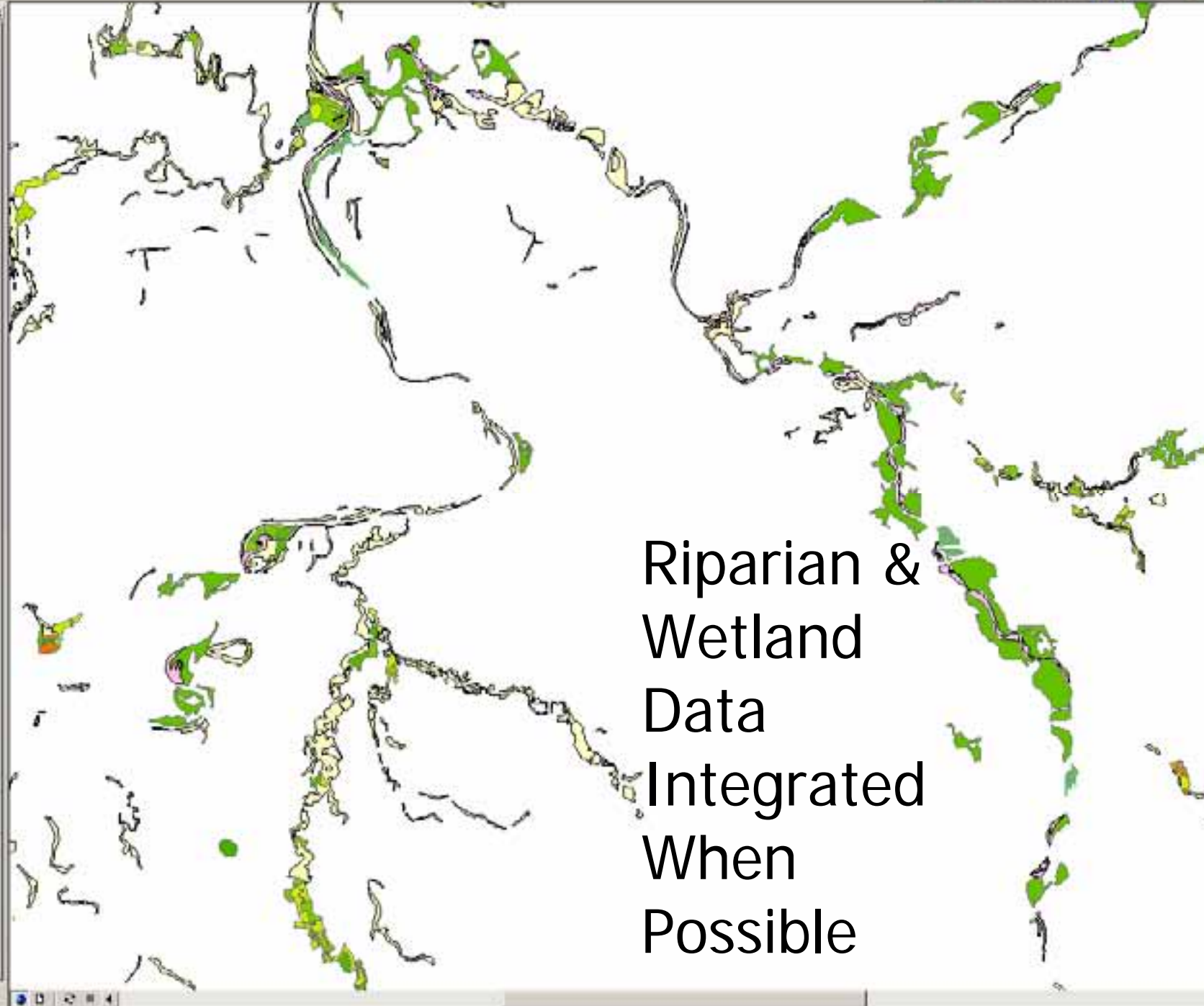
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VEGTYPE

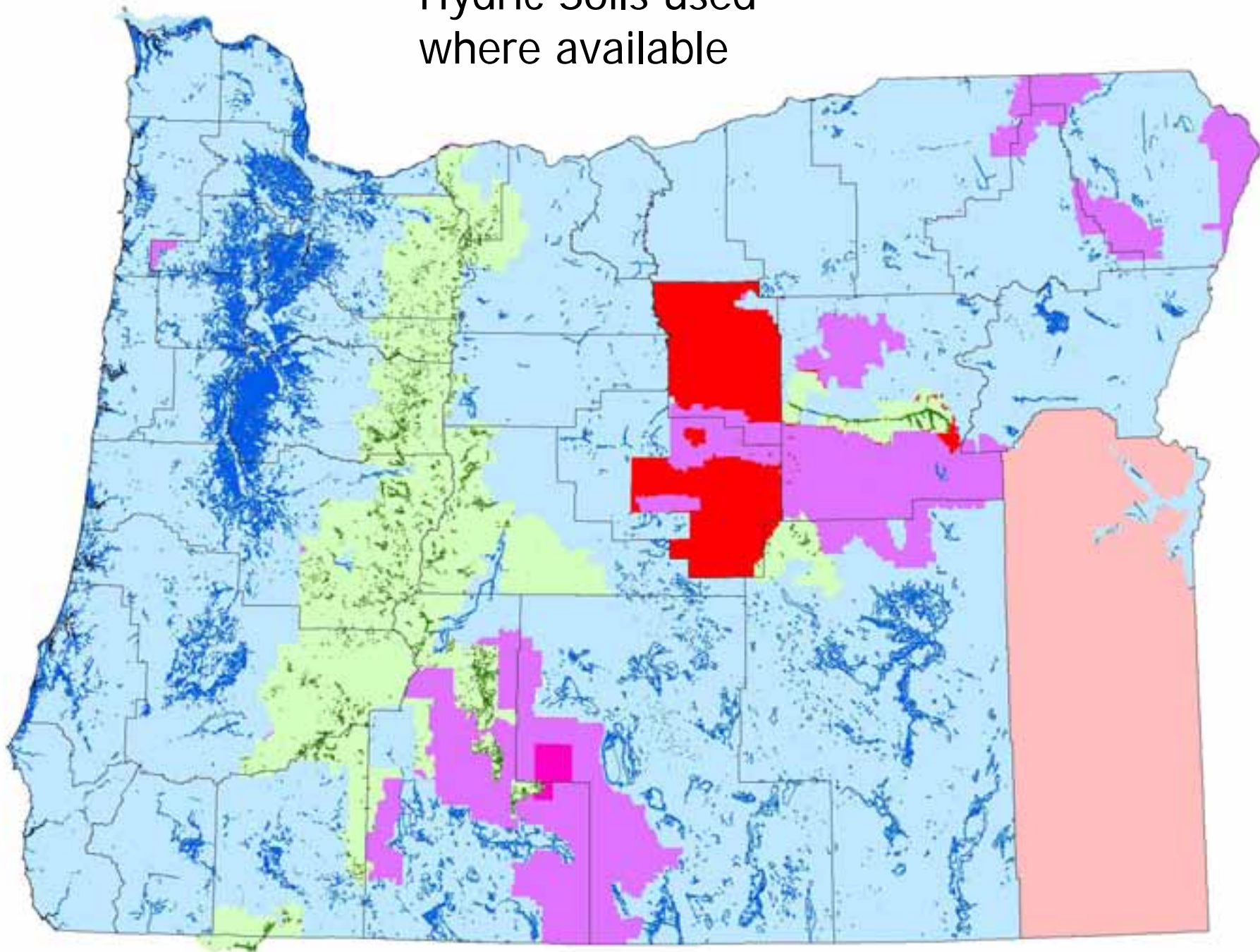
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- ALPONA
- ALPSEX
- ALPSNA
- ALTHEX
- ALTHNA
- BIDCER
- BIDFRO
- CORSER
- CRATEX
- ELEOVA
- ELLPAL
- EMEMAR
- ERAHYP
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- FRQUEX

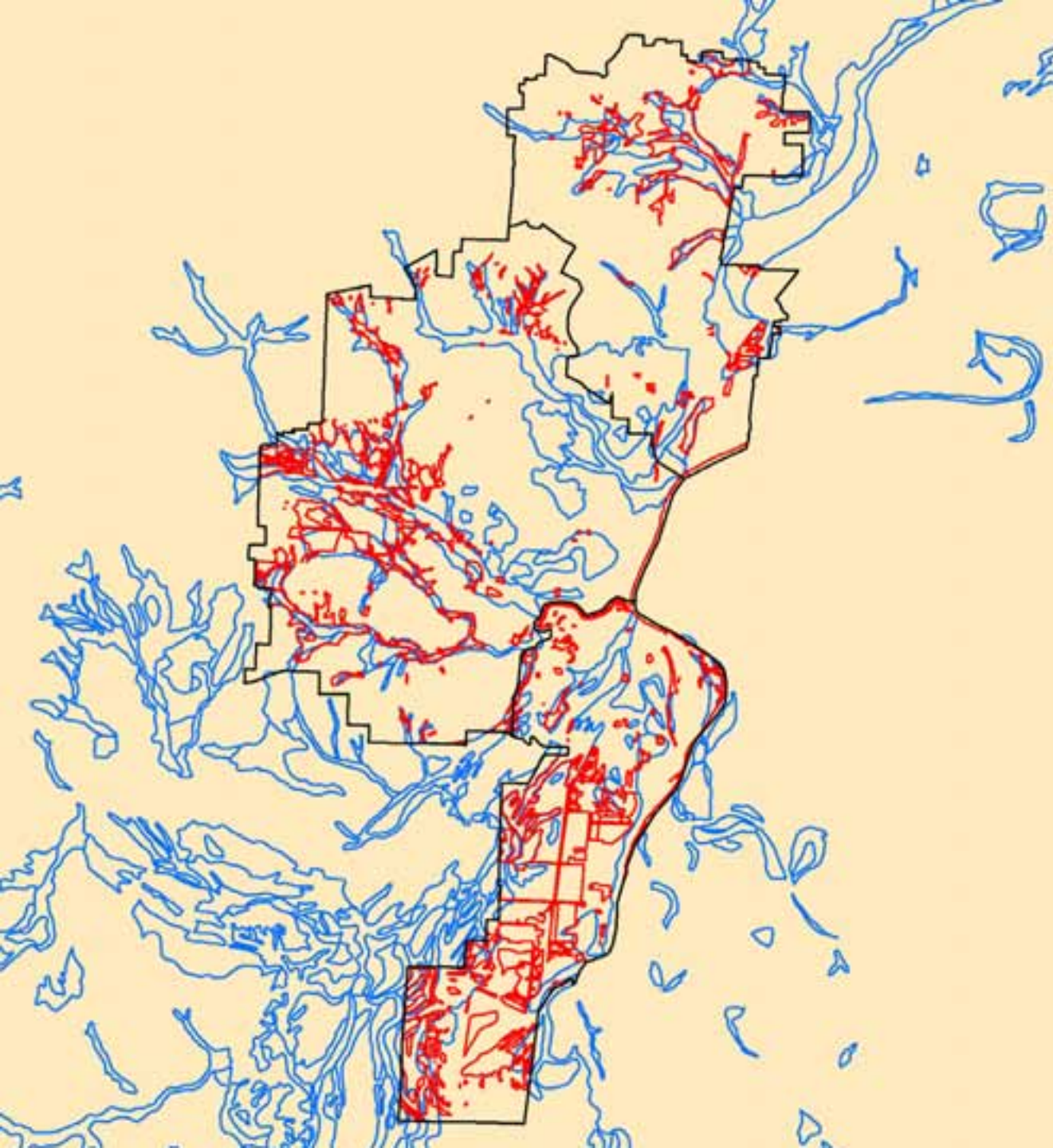
Source Selection



Riparian &
Wetland
Data
Integrated
When
Possible

Hydric Soils used
where available





Corvallis

NWI (blue)
and LWI (red).

Maps are now
almost
completely
integrated –
using 2005
NAIP
background

Creating Wetland Priorities for the Willamette Valley



Layers

- Wetland Priority Areas
- WV Synthesis
- ODFW COAs
- NWI + LWI wetlands
- Hydric Soils (> 75%)
- NAIP Imagery
 - Web Map Service USFWS
 - Addition
 - NAIP: Web Stream
 - NAIP ECW (Streamed)

Boundary includes Tussitt's Wetland Protection District

Updating CMCS & ODOT Planning Tools

- Update Objectives with ODFW Conservation Strategy and Other Assessments
 - Replace Ecoprovince Species & Habitats with Strategy Species and Habitats by Ecoregion
 - Define Mitigation & Restoration Priorities using the Synthesis Map in the Willamette Valley
 - Create Processes to Integrate Conservation Strategy Opportunity Areas with specific resource objectives (wetlands, T&E Species, water quality) elsewhere in Oregon.

Strategy Species & Habitats

Species	Ecoregion(s)	Special needs	Limiting factors	Data gaps	Conservation actions
Northern red-legged frog (<i>Rana aurora</i>)	KM WV	Ponds and wetlands with shallow areas and emergent plants. Access to forested habitats (forested wetland, upland)	Loss of egg-laying habitat. Predation and competition by invasive fish and bullfrogs	Identify overwintering habitat. Clarify impacts of pollutants, ultraviolet radiation and parasites on populations.	Maintain wetland habitat with emergent plants. Maintain adjacent forested habitats. Control bullfrogs and invasive fish at key sites
Oregon slender salamander (<i>Batrachoseps weightmanii</i>)	WC	Late successional and second-growth forest where there are abundant mid to advanced decay stage, large diameter Douglas fir logs and bark debris mounds at the base of snags. Talus and lava fields that retain moisture. Can dump together in groups to remain damp.	Endemic to Cascade Mountains of Oregon. Restricted distribution; vulnerable to random events. Columbia River limits dispersal. Require habitat complexity characteristic of old-growth and unmanaged younger forests. High site fidelity for reproduction.	Maternal care, and life history. Habitat requirements. Effects of habitat fragmentation on genetics. Improved survey methods	Maintain habitat with late successional attributes suitable for this species.
Oregon spotted frog (<i>Rana pretiosa</i>)	EC WC	Permanent ponds, marshes and meandering streams through meadows for breeding and foraging, especially with shallow water and a bottom layer of dead and decaying vegetation. Springs and other sites with low, continuous water flow for overwintering	Slow to reach reproductive maturity. High fidelity to egg-laying sites. Predation and competition by invasive fish and bullfrogs. Siltation. Some populations are isolated and vulnerable to inbreeding and extinction. Livestock grazing removes cover along stream edges and allows sediment and excessive aquatic vegetation to decrease habitat value	Impacts of invasive fish and bullfrogs. Documentation of historic sites, and current range status. Feasibility studies on reintroduction at historic sites	Maintain vegetation buffers around known populations; control bullfrogs and invasive fish at priority sites. Carefully manage livestock grazing at occupied montane wet meadows. Install small predator enclosures over parts of isolated breeding sites. Use results of feasibility studies to guide specific conservation actions and management decisions for reintroductions

Headwater Amphibians



Often secluded high in Oregon's mountains, headwater streams provide naturally outstanding water and habitat quality. In these often cool stream ecosystems, amphibians are cornerstone as both predators and prey. Several of Oregon's amphibians are specially adapted to life in the headwaters. Pacific giant salamanders, southern torrent salamanders, Columbia torrent salamanders,

and the unique tailed frog. All prefer large amounts of large, rocky substrate in the streams, with a substantial forest buffer nearby

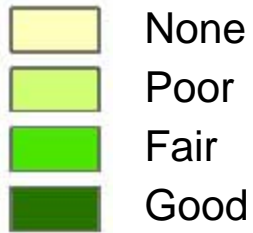
Tailed frogs, recently separated into two separate species (the coastal tailed frog in the mountains of western Oregon and the inland tailed frog in northeastern Oregon), are a true evolutionary relic. Unlike any other living frog, males have a protruding "tail" that is used for reproduction. Tadpoles have oral discs designed for sucking diatoms (microscopic algae) from rocks and boulders. Females usually produce about 50 eggs per breeding season, and larvae spend at least a year in

the water before they metamorphose. At higher elevations, larvae can spend up to four years in the water and may require five to six additional years before they are sexually mature. These unique traits slow the reproductive rate and can make tailed frogs vulnerable to habitat changes.



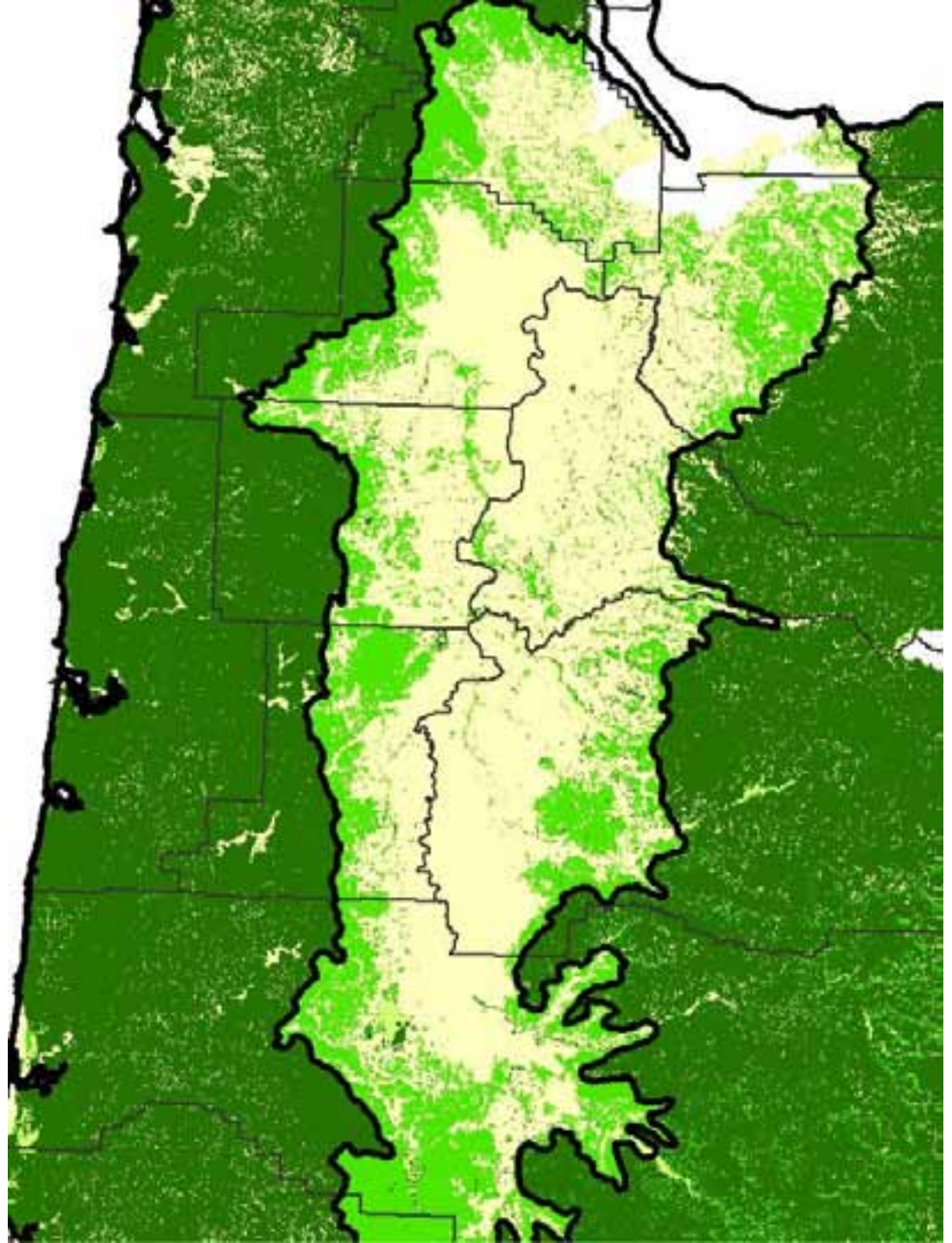
Red legged Frog

Predicted Habitat Quality



Data from Oregon Conservation Strategy

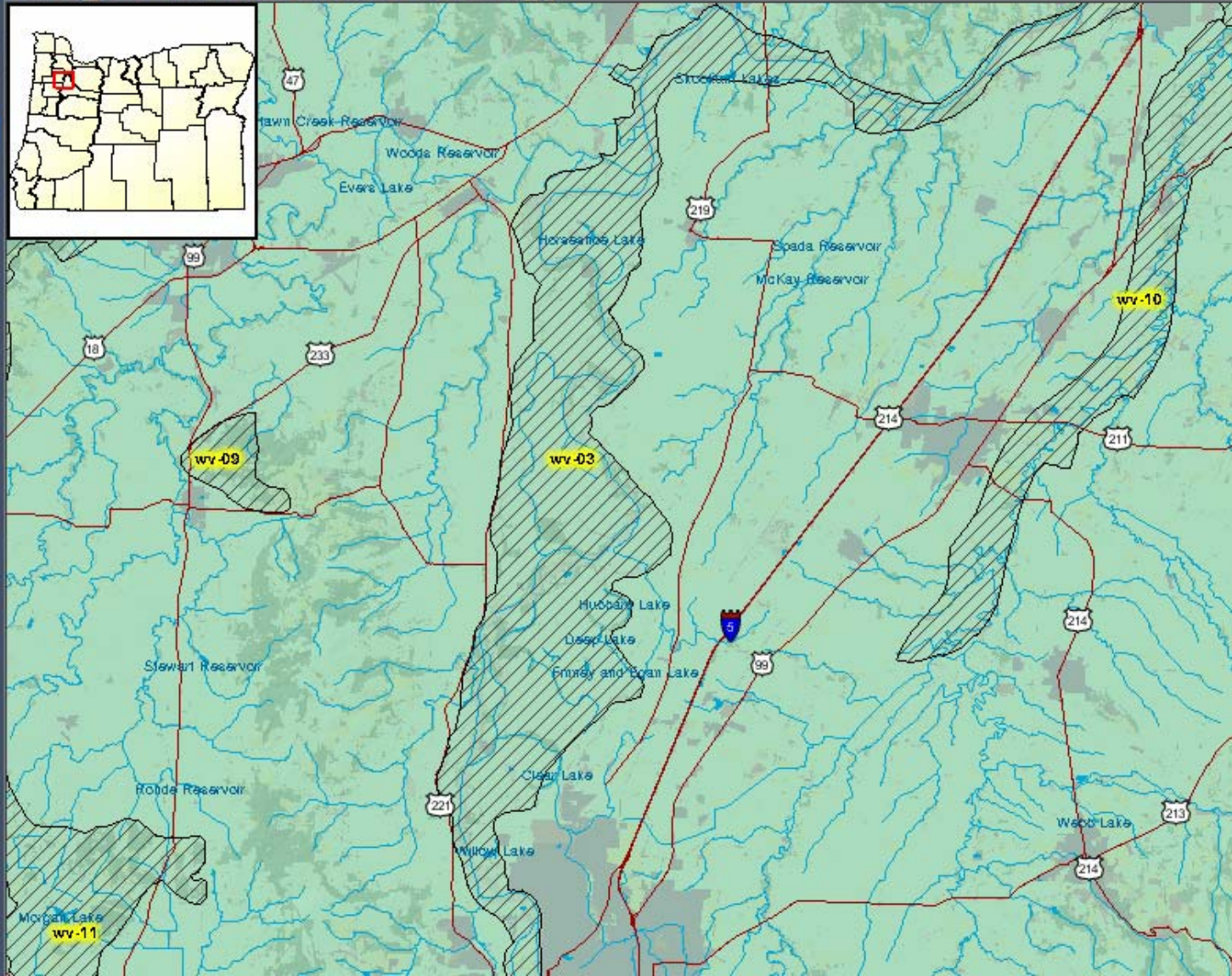
Vegetation Data, Habitat
Data and Distribution Data
being updated in 2008



Willamette Valley Priority Habitats

Oregon Conservation Strategy

Help



- ### Legend
- Conservation Opportunity Areas
 - Highways
 - Streams
 - Lakes
 - Ecoregions
 - Northern Basin & Range
 - Blue Mountains
 - Coast Range
 - Columbia Plateau
 - East Cascades
 - Klamath Mountains
 - West Cascades
 - Willamette Valley
 - Land Cover Type
 - Agriculture
 - Forest and Woodland
 - Other (lakes, wetlands, cliffs, dunes, etc.)
 - Range, Pasture, and Grassland
 - Towns and Rural Residential
 - Urban and Suburban
 - Out of range
 - Shaded Relief



Photo © Stephen Anderson, The Nature Conservancy

Strategy Habitat: Oak Woodlands

Ecoregions:

Oak woodlands are a Strategy Habitat in the Coast Range, East Cascades, Klamath Mountains, West Cascades, and Willamette Valley ecoregions. Oak habitats also occur to a lesser extent in the West Cascades and western portion of the Columbia Plateau ecoregion.

Characteristics:

Oak woodlands are characterized by an open canopy dominated by Oregon white oak. Depending on the ecoregion and site characteristics, oak woodlands may also have ponderosa pine, California black oak, and/or Douglas-fir, or, on steep slopes, canyon live oak. In general, the understory is relatively open with shrubs, grasses and wildflowers. The tree canopy of an oak woodlands obscures between 30 percent - 70 percent of the sky as you look up at it. Oak habitats are maintained through fire, which removes small conifers and maintains a low to

in the East Cascades are different in structure and composition than those in western Oregon, but are just as important to a variety of wildlife as well as rare plants.

Oak woodlands grade into oak savannas. Oak savannas are characterized by primarily upland prairie with widely-spaced large Oregon white oak and conifers. Oak savannas are discussed in the grasslands section. Oak woodlands also grade into pine-oak habitats in the Klamath Mountains, which are discussed in the ponderosa pine section.

Conservation Overview:

Oak woodlands once covered almost one million acres in the Coast Range and 400,000 acres in the Willamette Valley. However, the Coast Range now has less than four percent of its estimated historic oak woodlands and the Willamette Valley less than seven percent. Habitat

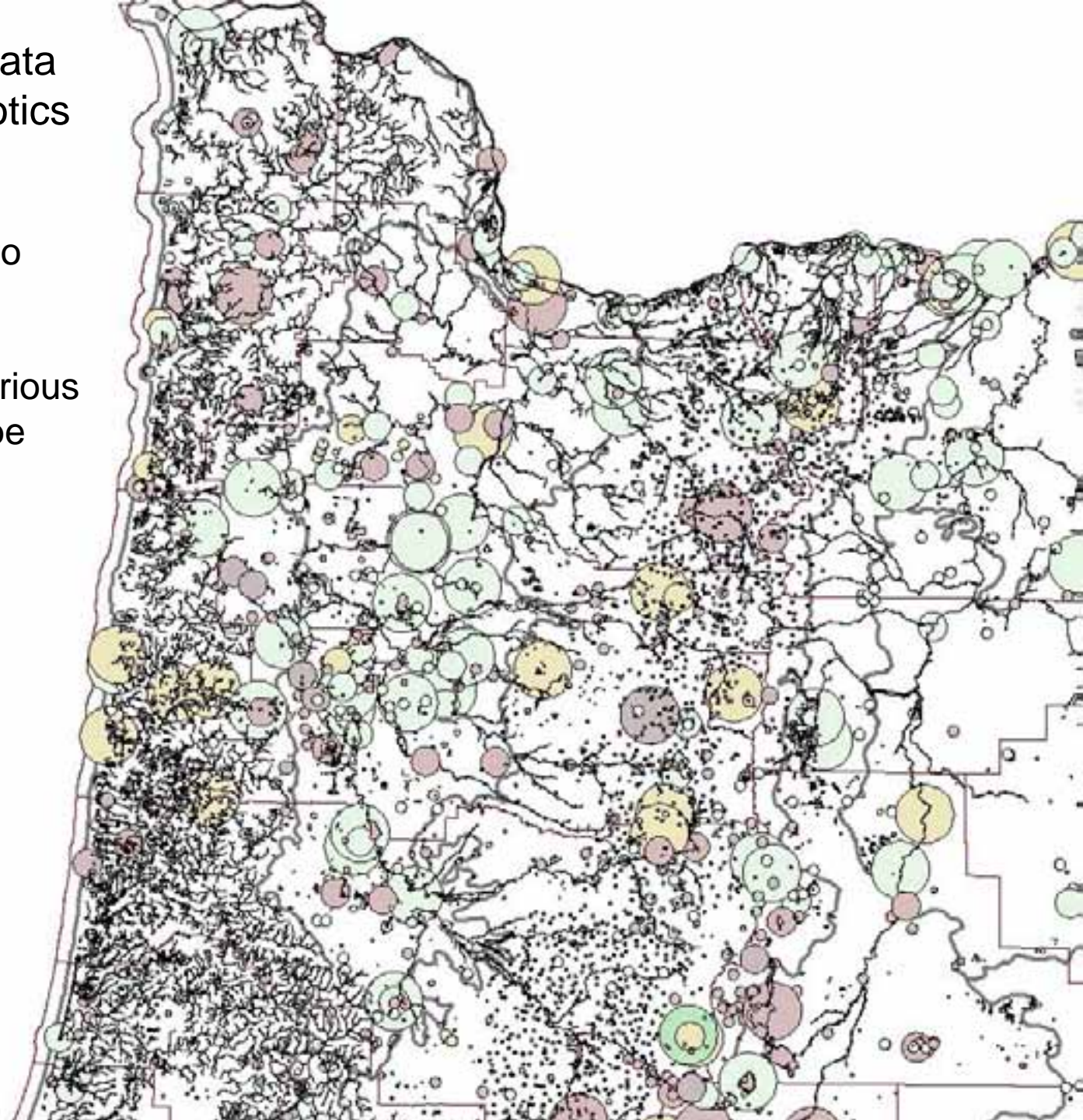
Improve T&E Species Information

- Improve access to Heritage data, if possible using constant updates via Exchange Network
- Provide real-time access to the most up-to-date at-risk species data
- Translate heritage data so that project specific information can be easily differentiated from general search needs

At-Risk Species Data From ORNHIC Biotics

Spatial Data needs to
be exported

Relevant data for various
decisions needs to be
extracted



Expand Available Species Data

- Bring in modeled data and recovery plan information for listed species to decrease the likelihood of potential conflicts in transportation planning
 - Provide access to “potentially occupied habitat” models, developed by USFWS for listed species
- Integrate available recovery data to create meaningful restoration and mitigation priorities

Recovery Plans

Identify Known Sites and Recovery Areas

USFWS Worked with ORNHIC to develop “potentially occupied habitat” maps for each of the listed species when designing transportation projects

Draft Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington



Willamette Daisy

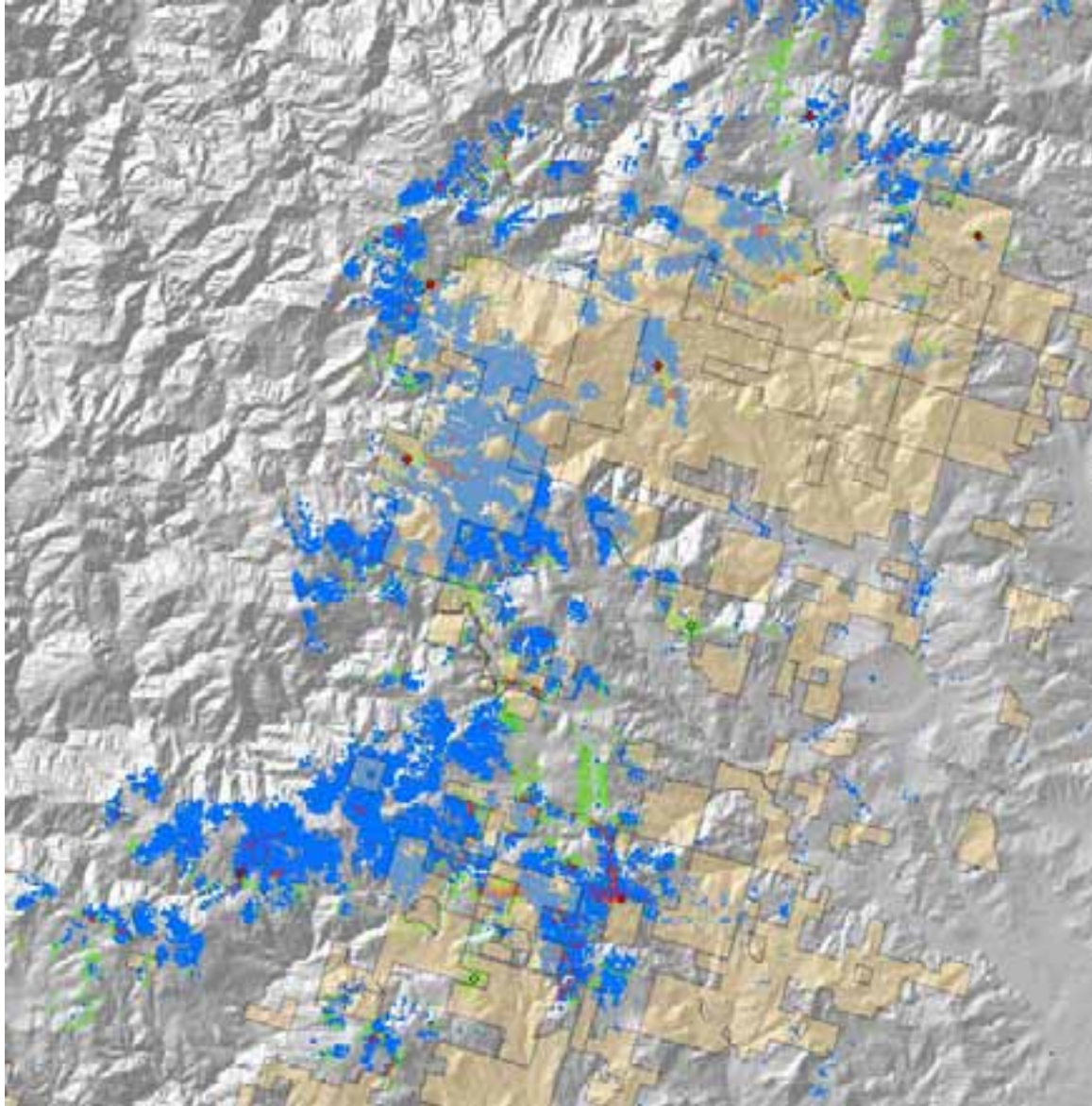


*Left: Fender's Blue Butterfly
Right: Rudolfski's Lomatium*



*Above: Nelson's Checker-mallow
Left: Kinsella's Lupine*

Sidalcea nelsoniana (Nelson's checkermallow)



Random Forest
CART model based
on USFWS rules and
updated data





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