



Habitat Connectivity at WDFW

Fish and Wildlife Commission Meeting

10-26-2023

Dr Julia Michalak | Habitat Program, Priority Habitats and Species







Habitat connectivity is the degree to which the landscape facilitates or impedes wildlife movement across the landscape



Providing spatial data and technical assistance to help planners *designate* and *protect* critical fish and wildlife habitat including

Biodiversity Areas and Corridors





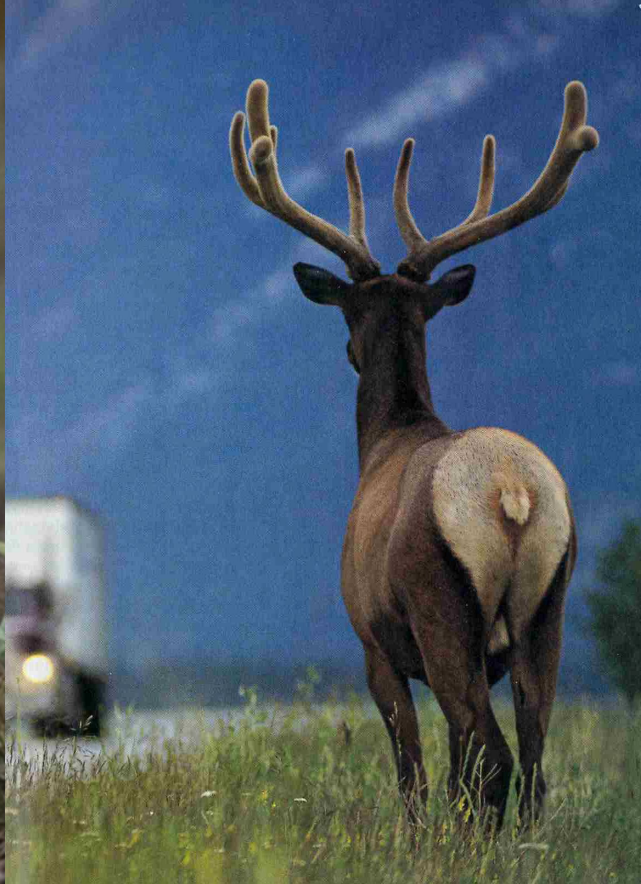
What and why for habitat connectivity

Washington Connectivity Action Plan

Mainstreaming habitat connectivity conservation



Habitat connectivity is the degree to which the landscape facilitates or impedes wildlife movement across the landscape



Why did the ~~chicken~~ cross the road?





Daily travel to access resources



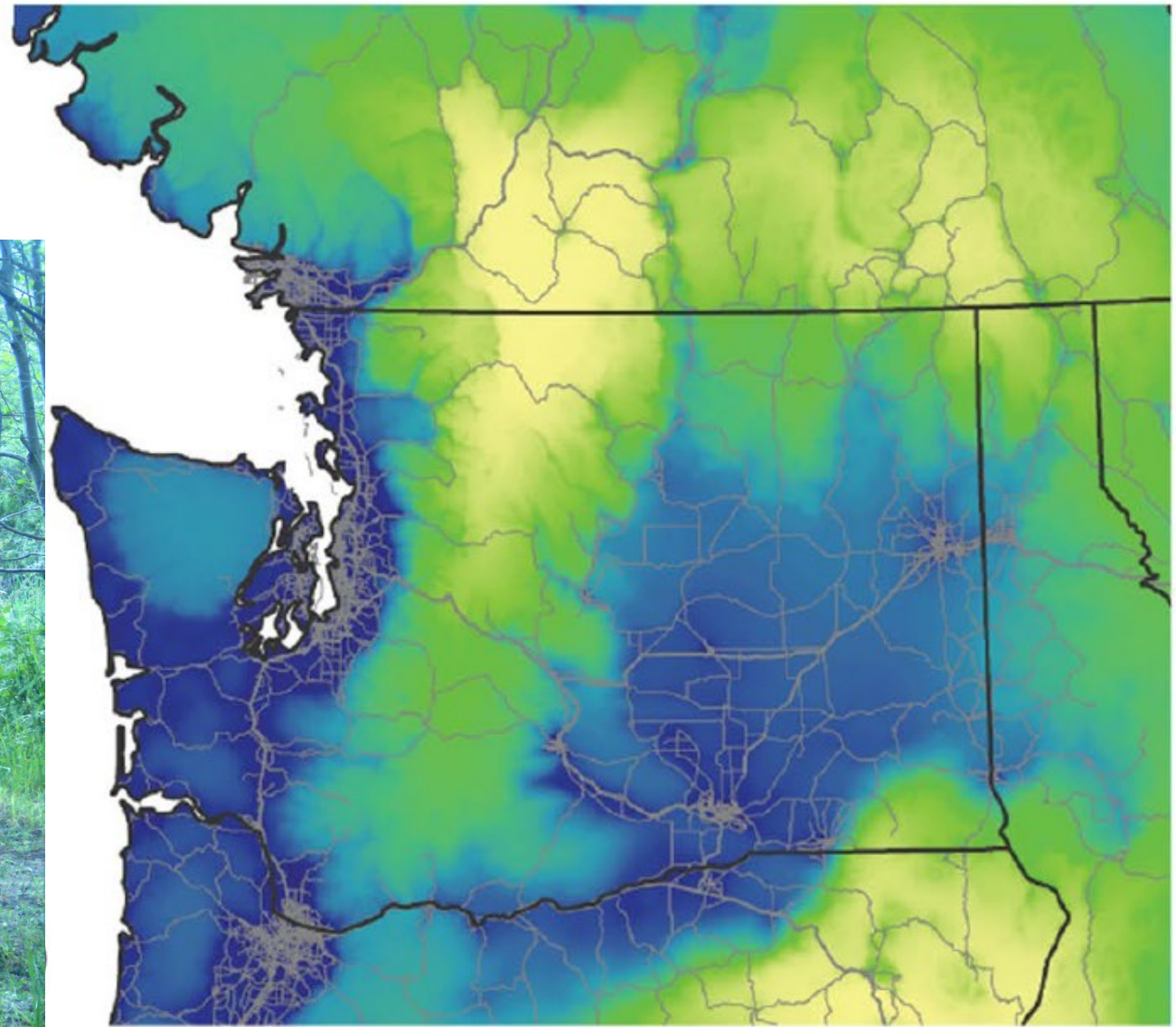


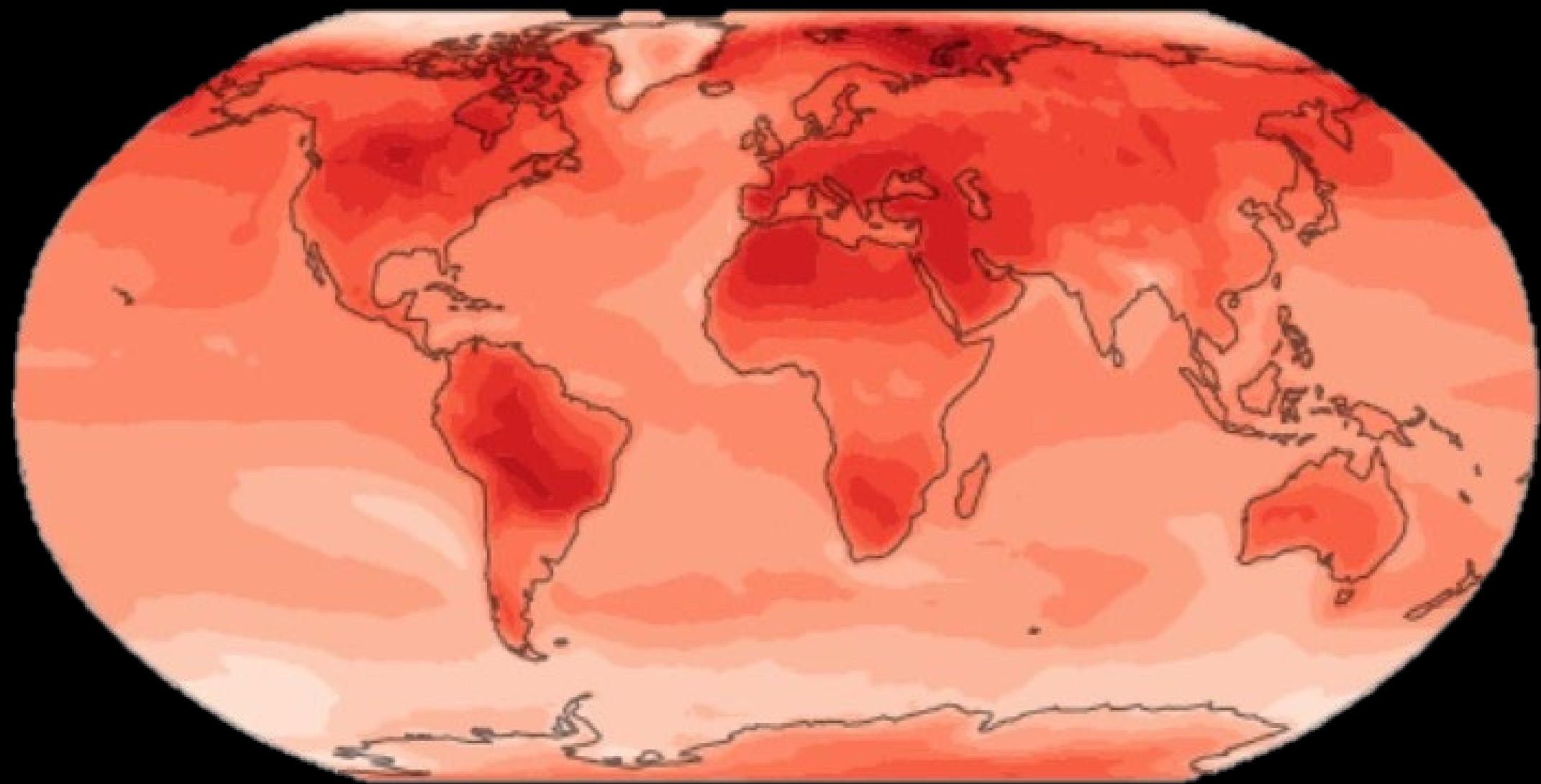
Migration

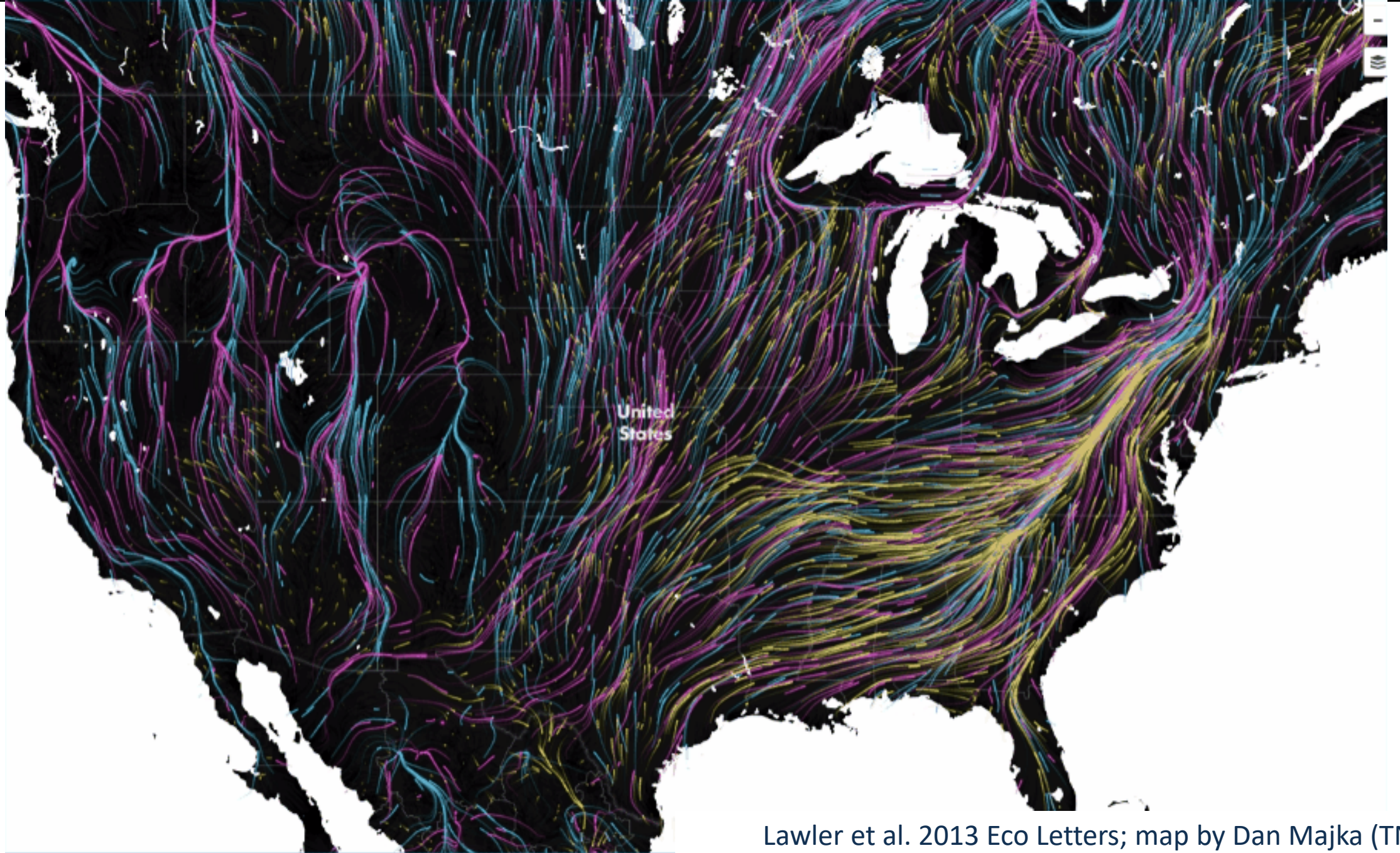


Dispersal

Maintaining gene flow







Lawler et al. 2013 Eco Letters; map by Dan Majka (TNC)



A landscape photograph showing a valley with mountains in the background. In the foreground, there is a fenced-in area with several animals, possibly sheep or goats, and a building with a large arched opening. The text is overlaid on the image.

#1 CLIMATE ADAPTATION STRATEGY = INCREASE CONNECTIVITY

HELLER & ZAVALETA 2009 BIOL. CONS.

Development





Road barriers





Fencing



What and why for habitat connectivity

Washington Connectivity Action Plan

Mainstreaming habitat connectivity conservation



Washington Habitat Connectivity Action Plan





Washington Habitat Connectivity Action Plan

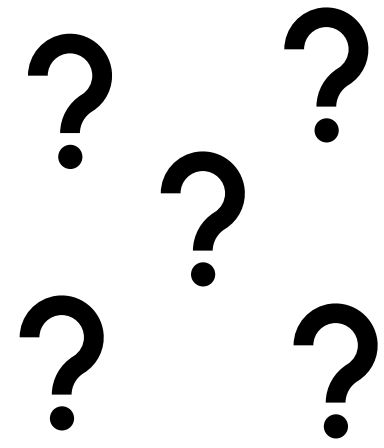
Collaborative partnership to prioritize places and projects to protect and enhance habitat connectivity statewide.



Washington
Department of
**FISH and
WILDLIFE**



**Conservation
Northwest**
Keeping the Northwest Wild



State Connectivity Action Plans

Maps showing *where* connectivity is.

Priorities for taking action.

Strategies for coordinated *implementation*.





Guiding principles

Build from what we have.

Support and amplify existing connectivity work.

Focus on action not analysis.

Both road crossings and landscape connectivity

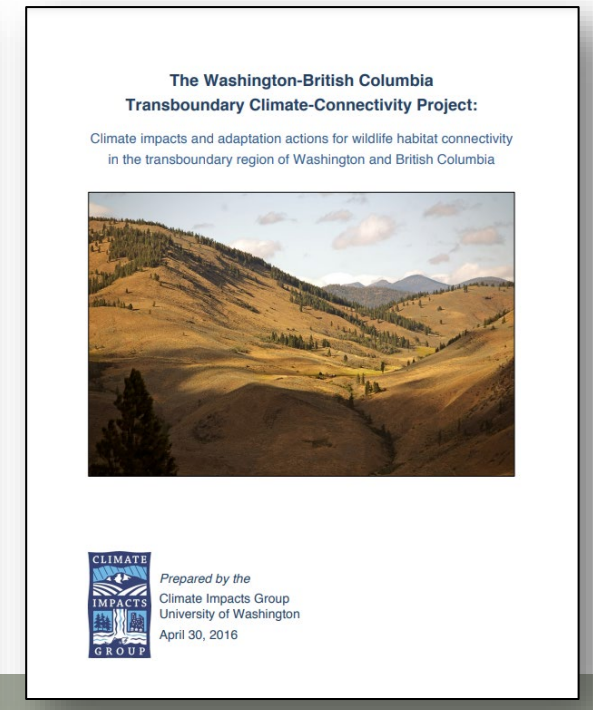
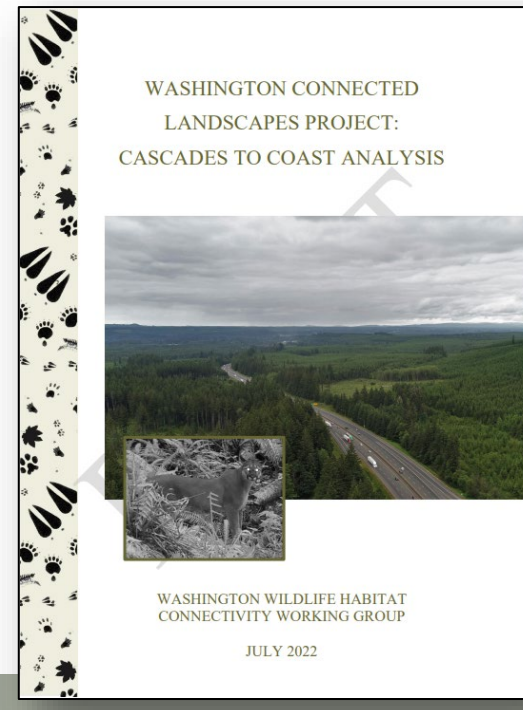
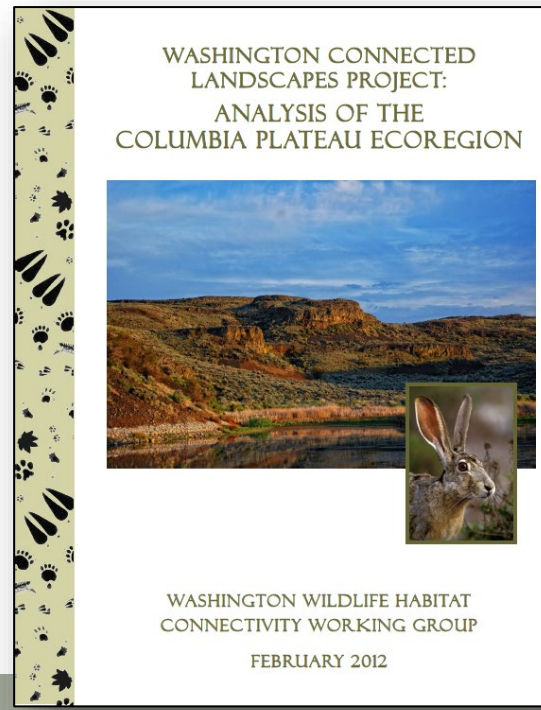
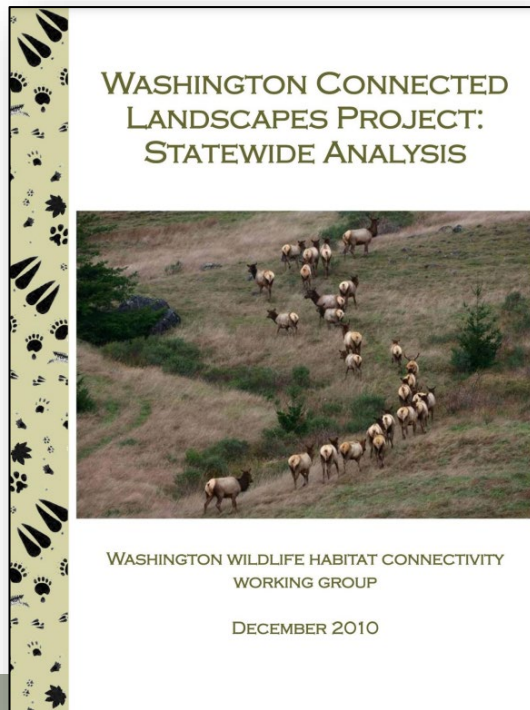
Existing work...

Washington Connected Landscapes Project: Statewide Analysis

Columbia Plateau Ecoregional Analysis

Cascades To Coast Analysis

The Washington-British Columbia Transboundary Climate-connectivity Project

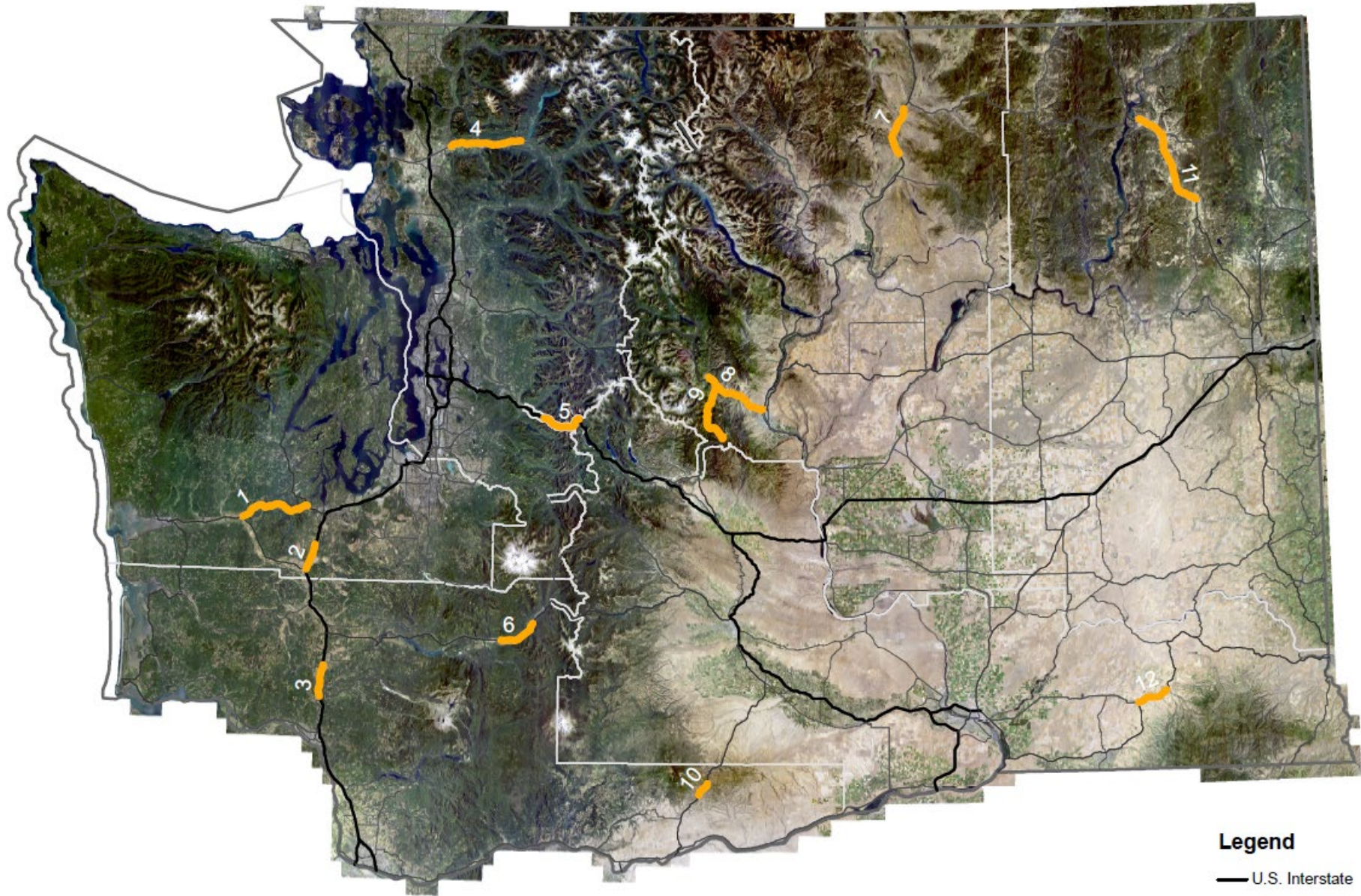


Washington Department of Transportation

DRAFT

Road Crossing Priorities

Note: numbers do NOT
indicate priority rank.

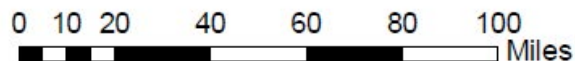


Legend

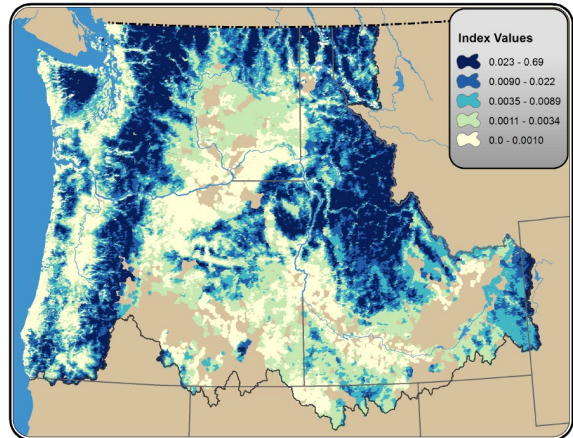
Top Habitat Connectivity
Priority Zone (draft)

Legend

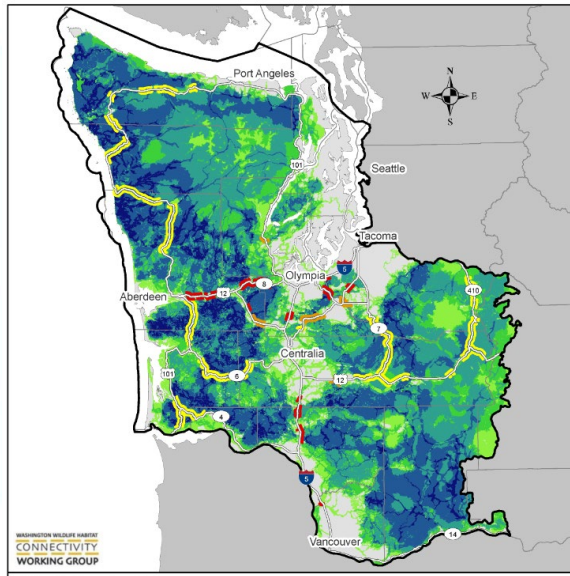
- U.S. Interstate
- U.S. Highway
- State Route
- WSDOT Regions



Many maps...



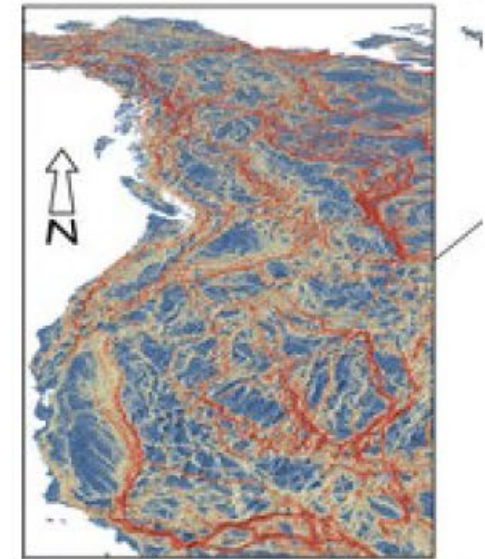
Krosby et al. 18 PLoS ONE



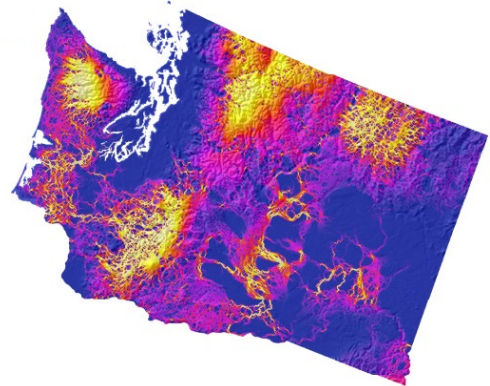
Cascades to Coast



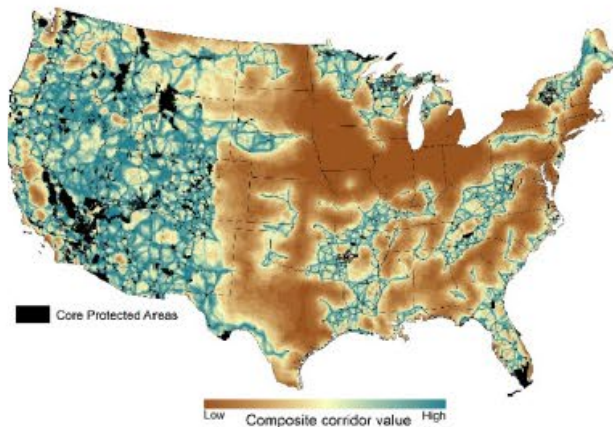
Theobald et al. 2011



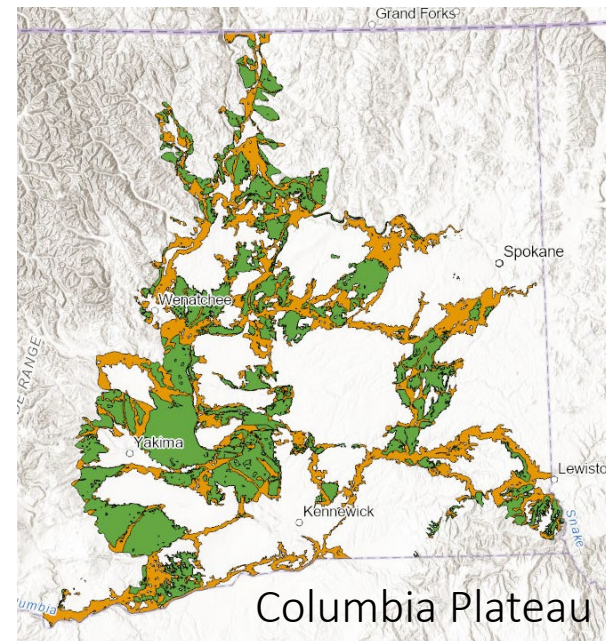
Carroll et al. 2018



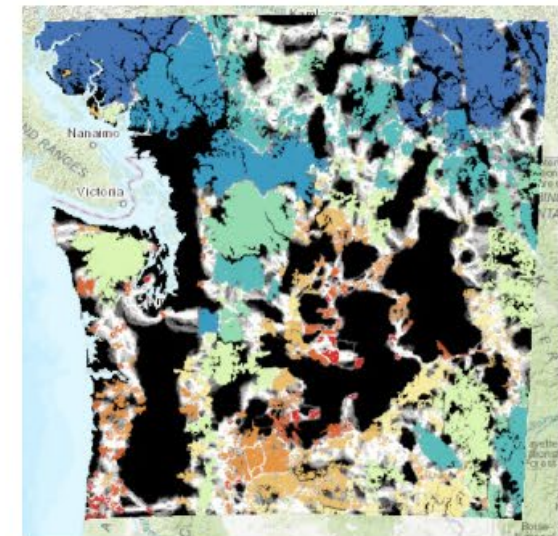
Littlefield et al. 2017 Cons Bio



Belote et al. 2016



Columbia Plateau



Nuñez et al. 2013

Biennium funding



- Washington Connectivity Action Plan development
- Spatial synthesis of existing connectivity data
- TerrAdapt

Spatial synthesis

- Synthesize existing connectivity maps, data, and priorities.
- Identify list of high priority/ ‘no-regrets’ locations.
- Locations will serve as the near-term project priorities for funding proposals.



TerrAdapt

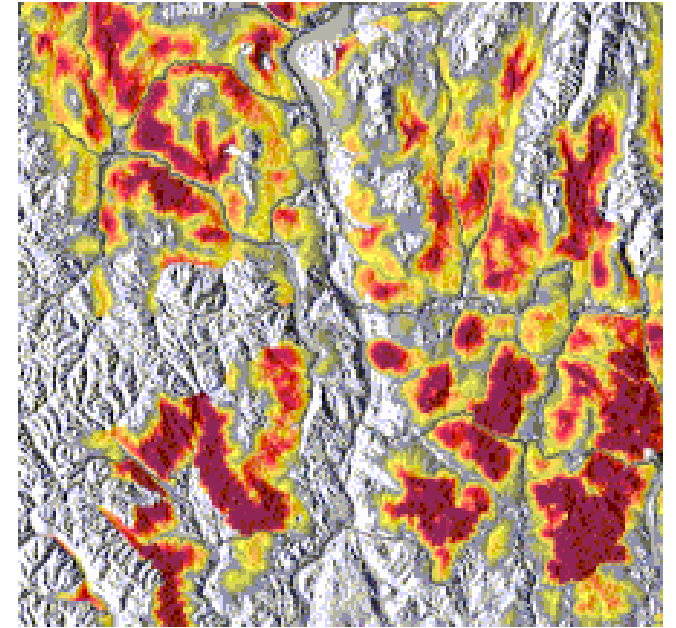
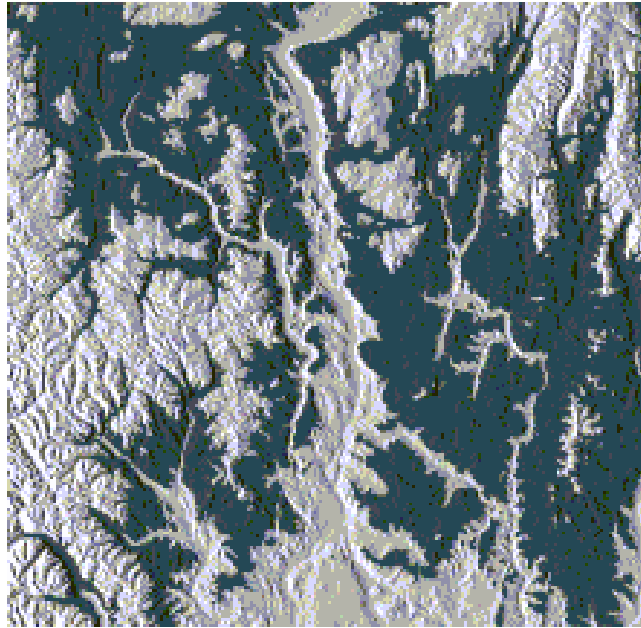
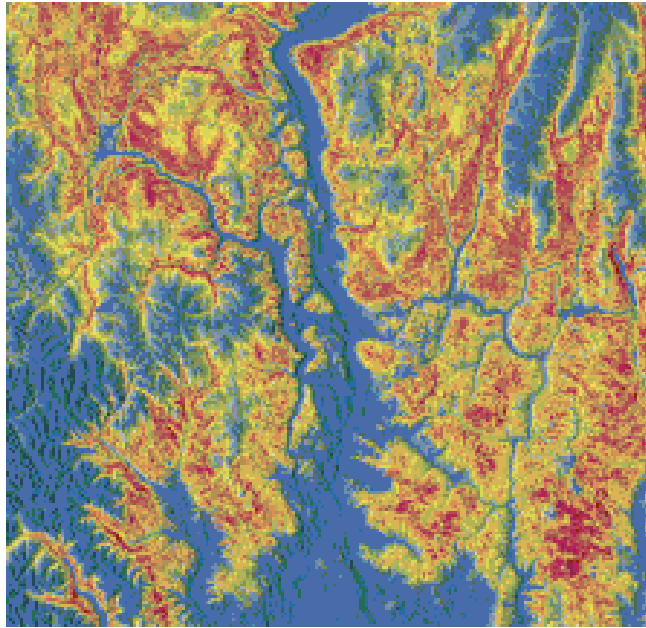
Google earth engine

Dynamic modeling

Monitor change

Ecosystem-based models

- Shrubsteppe
- Temperate forest
- Montane mesic forest
- Montane xeric forest



Washington Connectivity Action Plan

Develop a transparent,
defensible, and repeatable
prioritization process

Identify priority locations

Provide guidance on
implementation actions





What and why for habitat connectivity

Washington Connectivity Action Plan

Mainstreaming habitat connectivity conservation





Land use
planning

Road crossing
structures



Photo by James
Marvin Phelps

Growth Management Act



Growth Management Act



Local Governments must *Designate* and *Protect*
Critical Areas

Priority Habitats and Species

Providing spatial data and technical assistance to help planners *designate* and *protect* critical fish and wildlife habitat including

Biodiversity Areas and Corridors

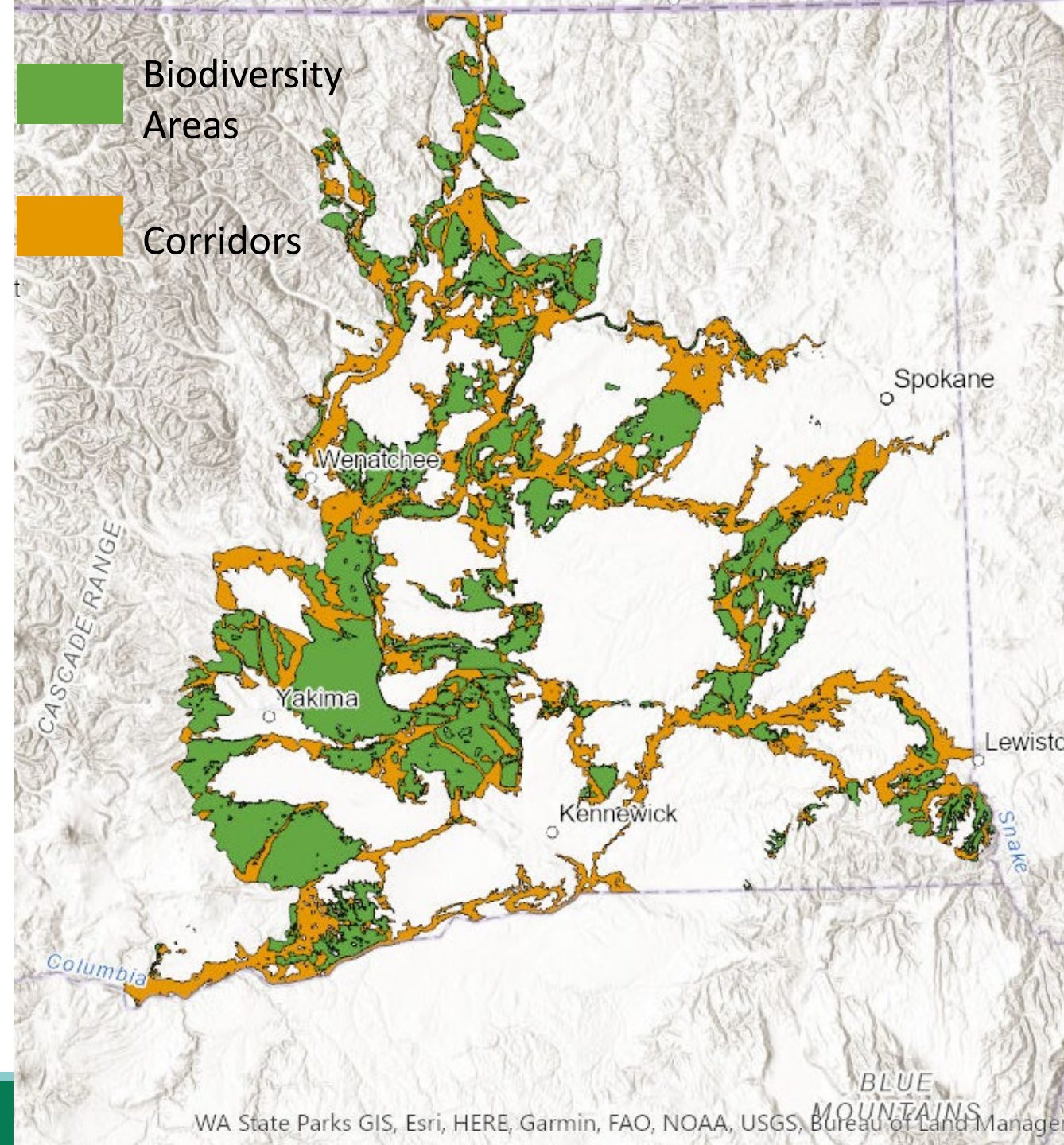


PHS

Columbia Plateau Biodiversity Areas and Corridors

Example intended uses:

- Comprehensive planning
- Inform zoning decisions
- Urban growth boundary changes
- Siting for major projects (e.g., solar and wind)

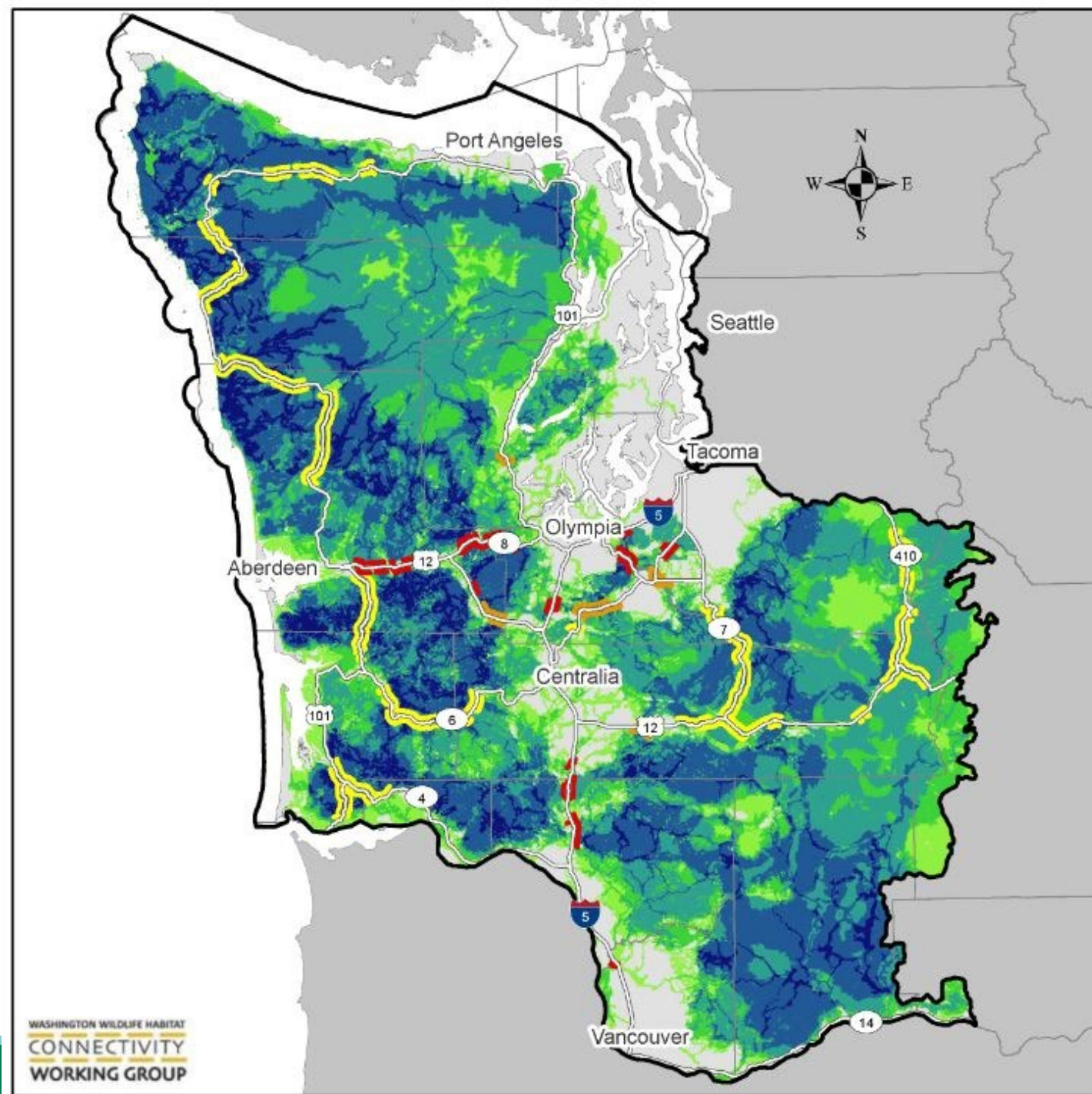


Next...

PHS management
recommendations

and

PHS
Southwest Washington
Biodiversity Areas and
Corridors



Land use and conservation policy

Promotes WDFW's conservation priorities via land use planning under the Growth Management Act and Shoreline Management



Kara Whittaker, PhD





Land use
planning

Road crossing
structures

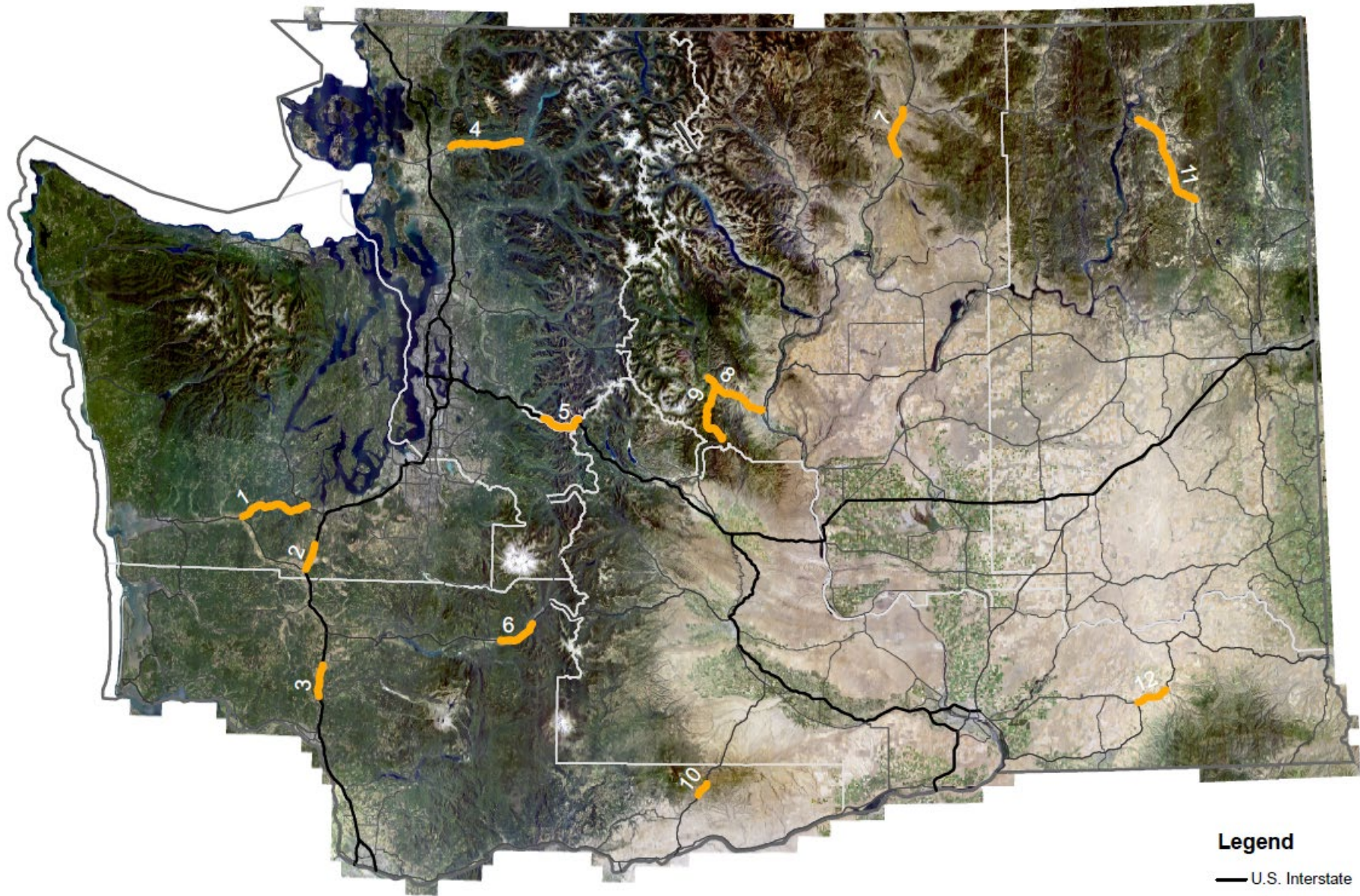


Photo by James
Marvin Phelps

Washington Department of Transportation

DRAFT

Road Crossing Priorities



Legend

Top Habitat Connectivity Priority Zone (draft)

Legend

- U.S. Interstate
- U.S. Highway
- State Route
- WSDOT Regions

0 10 20 40 60 80 100 Miles

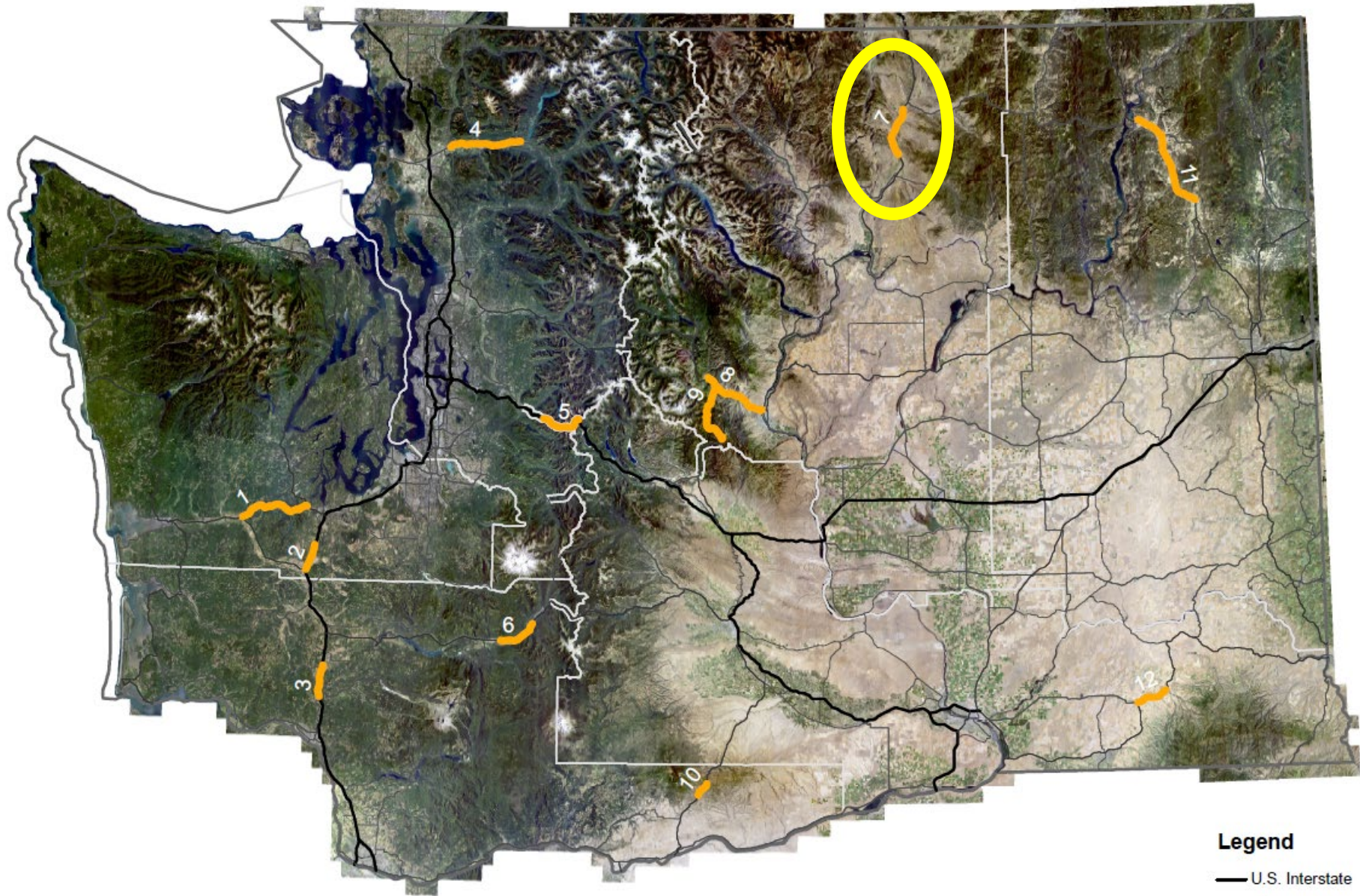


Hwy 97 Riverside to Tonasket

Highest wildlife
vehicle collision
location

Mule deer winter
and summer range

Wildlife Crossing Pilot
Program proposal
2023

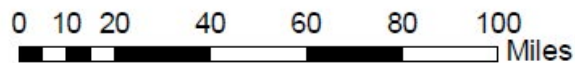


Legend

Top Habitat Connectivity Priority Zone (draft)

Legend

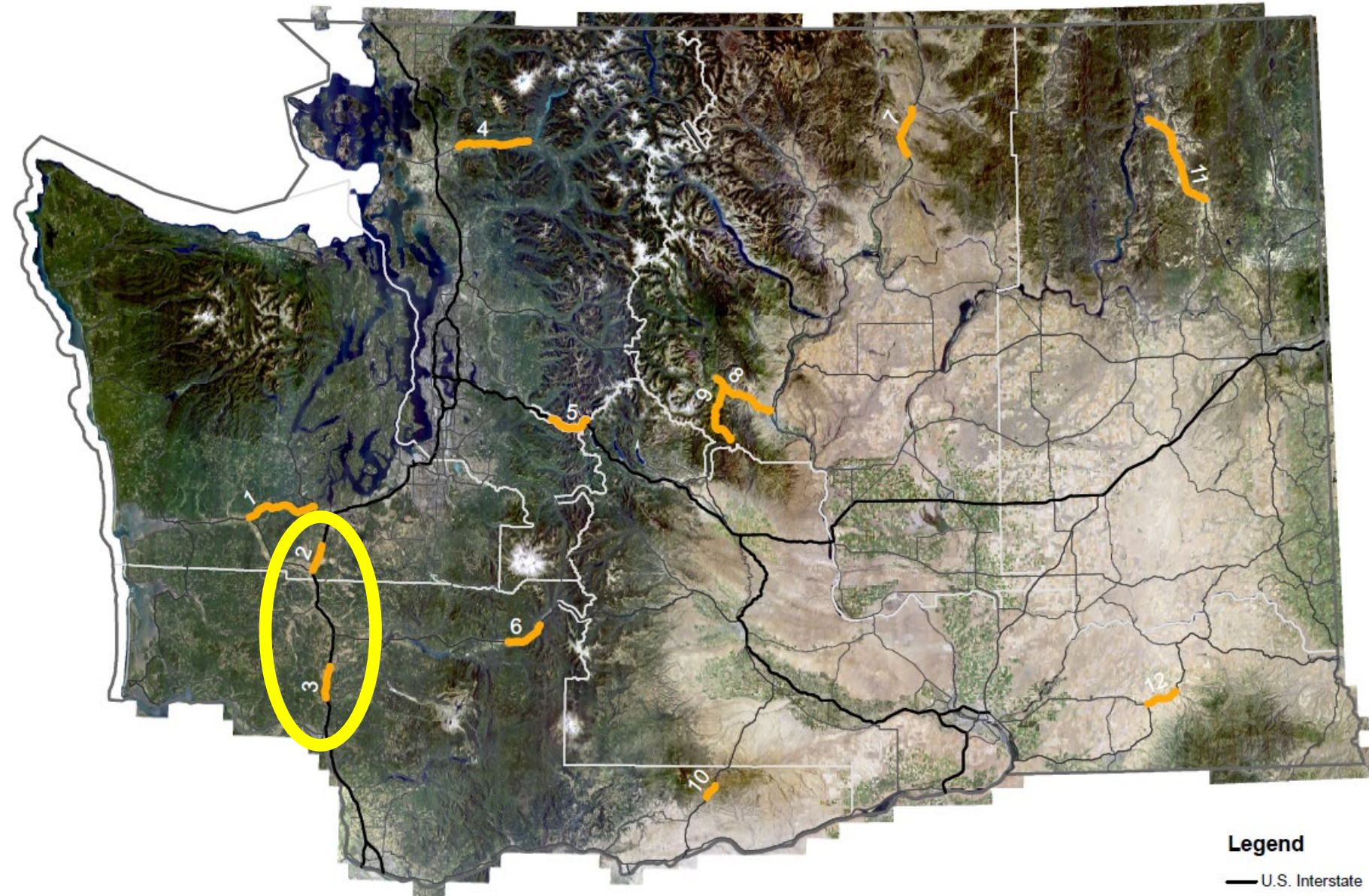
— U.S. Interstate
— U.S. Highway
— State Route
□ WSDOT Regions



I-5 Wildlife Crossing

Northern: Scatter Creek to Beaver Creek.

Southern: Cowlitz to Toutle River near Castle Rock.



Legend

Top Habitat Connectivity Priority Zone (draft)

Legend

— U.S. Interstate
— U.S. Highway
— State Route
□ WSDOT Regions

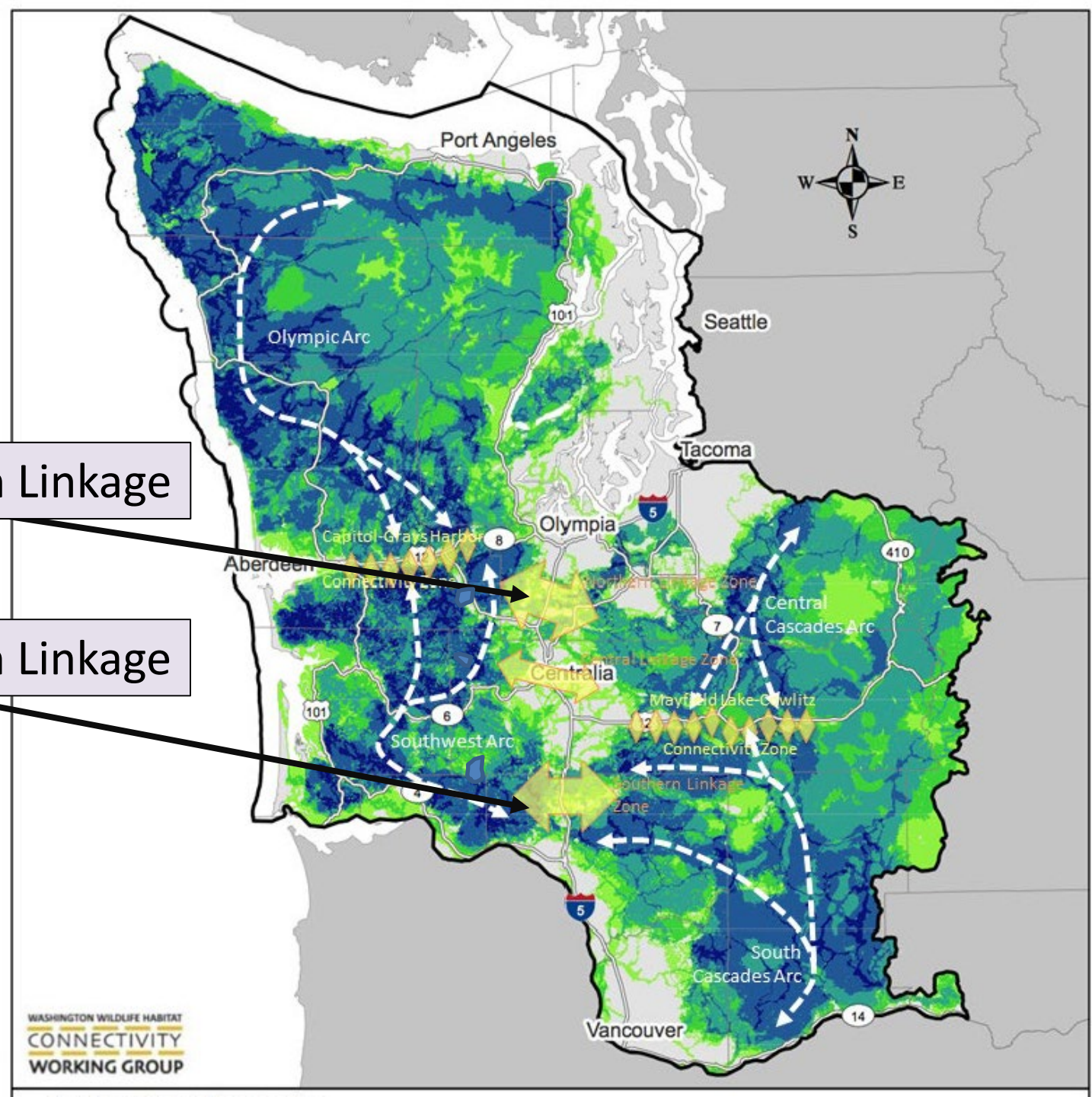


I-5 Crossings

Last remaining opportunities to connect the Cascades to the Willapa Hills and Olympic Peninsula.

Northern Linkage

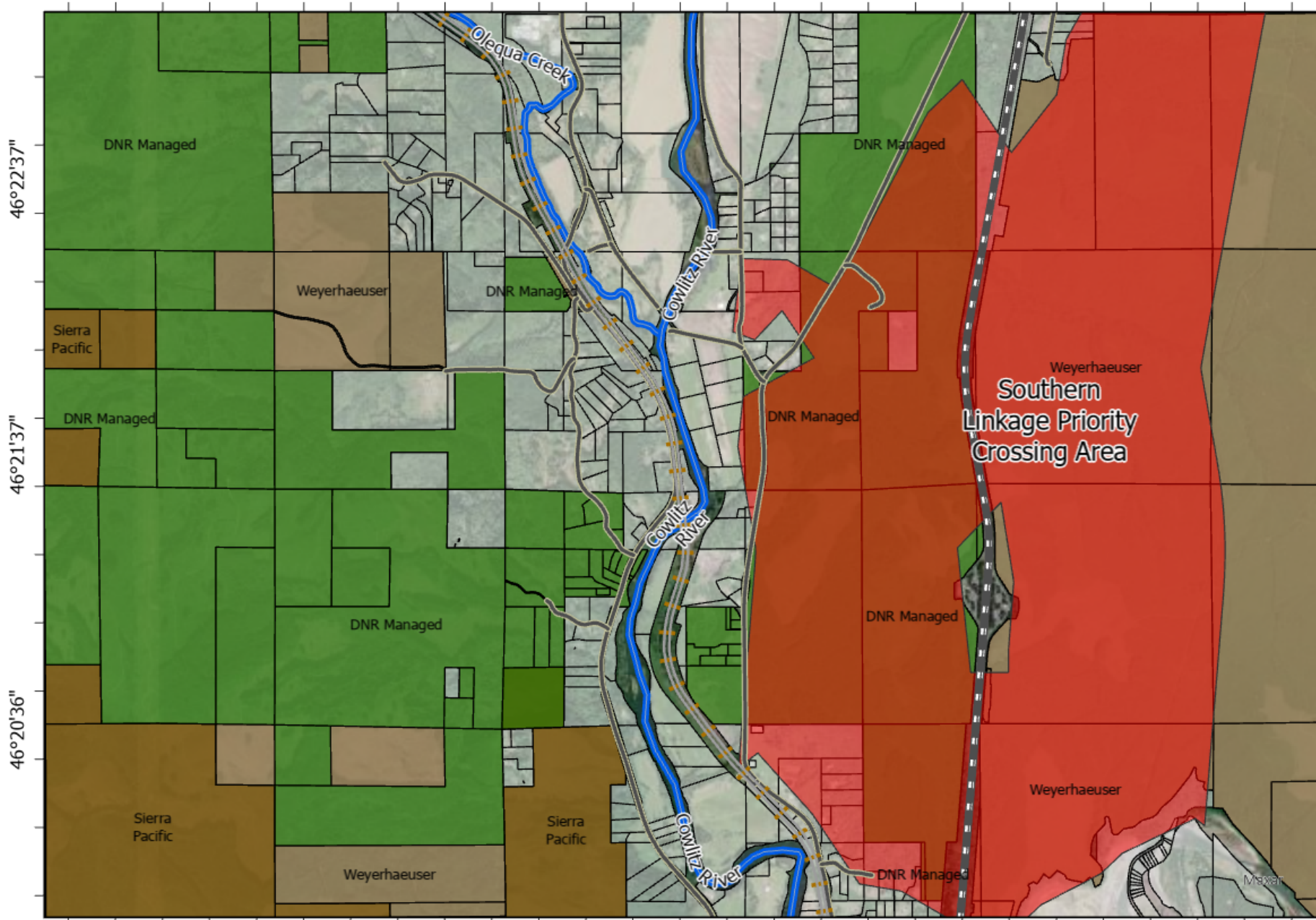
Southern Linkage



Southern Linkage









The Last Best Opportunity for Connectivity Across Interstate 5

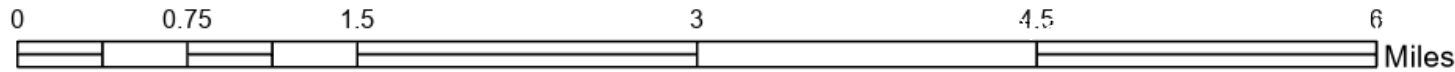
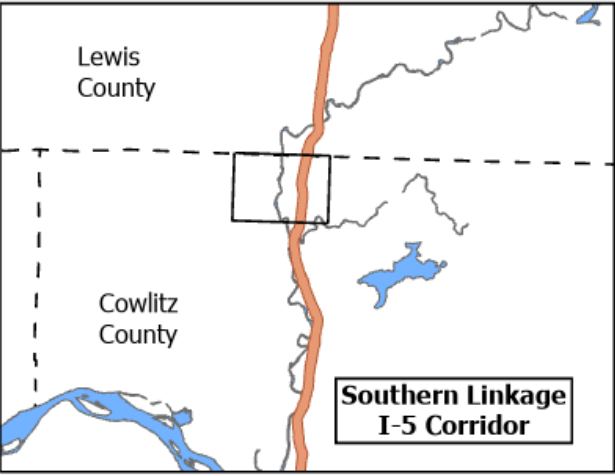




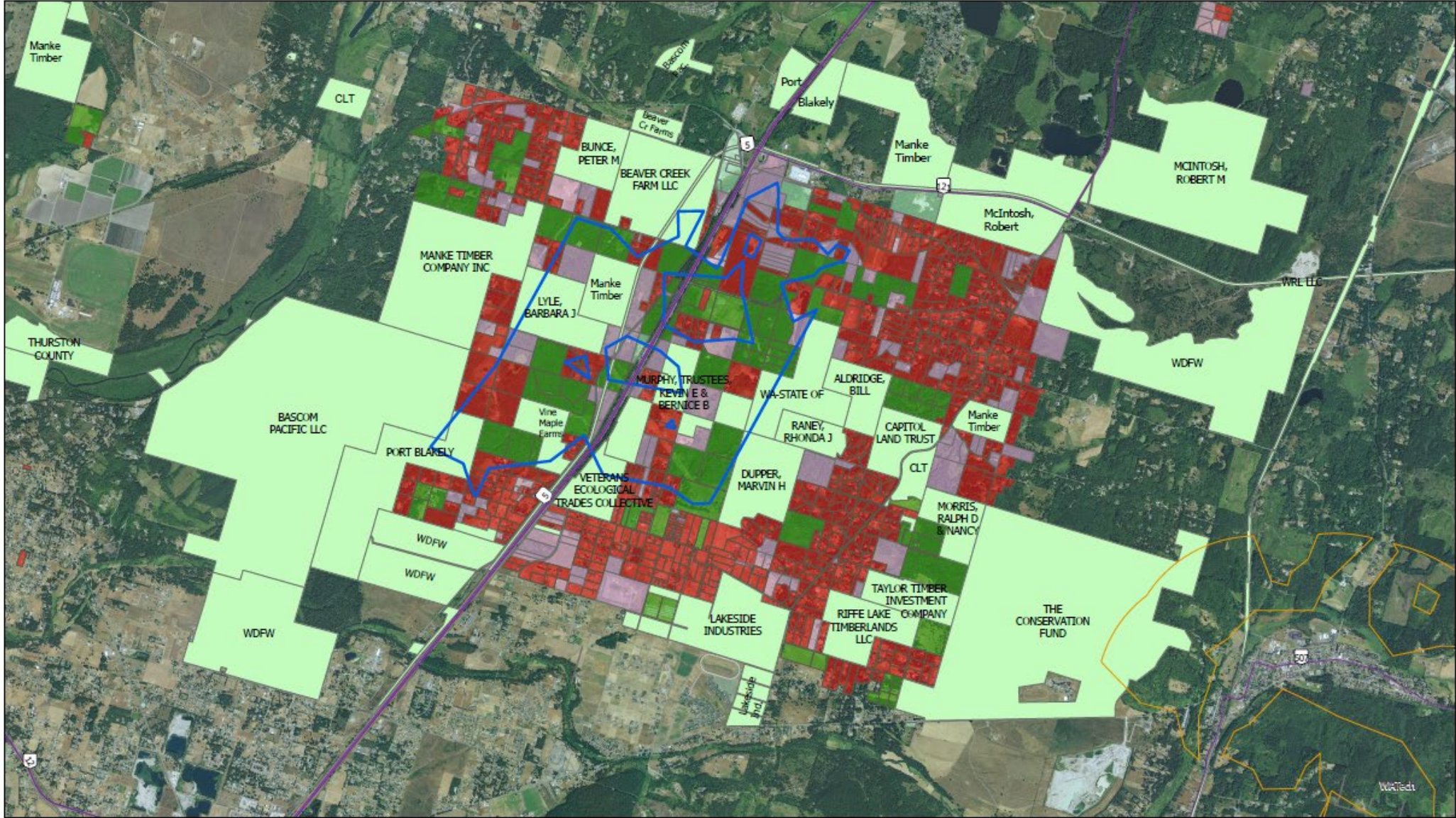
Southern Linkage Interstate 5 Priority Parcels

Legend

-  I-5
-  SMA Jurisdiction Adopted Streams
-  Priority Crossing Area
-  BNSF Railway
-  Roads
-  DNR Managed Land
-  Weyerhaeuser
-  Sierra Pacific

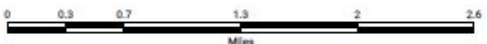


Source: Washington State Department of Ecology. "Shoreline Management Act (SMA) Jurisdiction: Adopted Streams." April 2023.
 Washington Geospatial Open Data Portal. "Current Parcels." May 2022.
 Washington State Department of Transportation Geospatial Open Data Portal. "WSDOT - National Highway System for State Routes." October 2022.
 Washington Wildlife Habitat Connectivity Working Group (WHCWG). 2022. Washington Connected Landscapes Project: Cascades to Coast Analysis. Washington Department of Fish and Wildlife, and Washington State Department of Transportation, Olympia, WA.



- Residential
- Resource Production & Extraction
- Retail
- Trans, Comm, & Utilities
- Undeveloped Lands
- Large Landowners (>100 acres)
- Priority I-5 Crossing Area

Northern Linkage Large Landowners



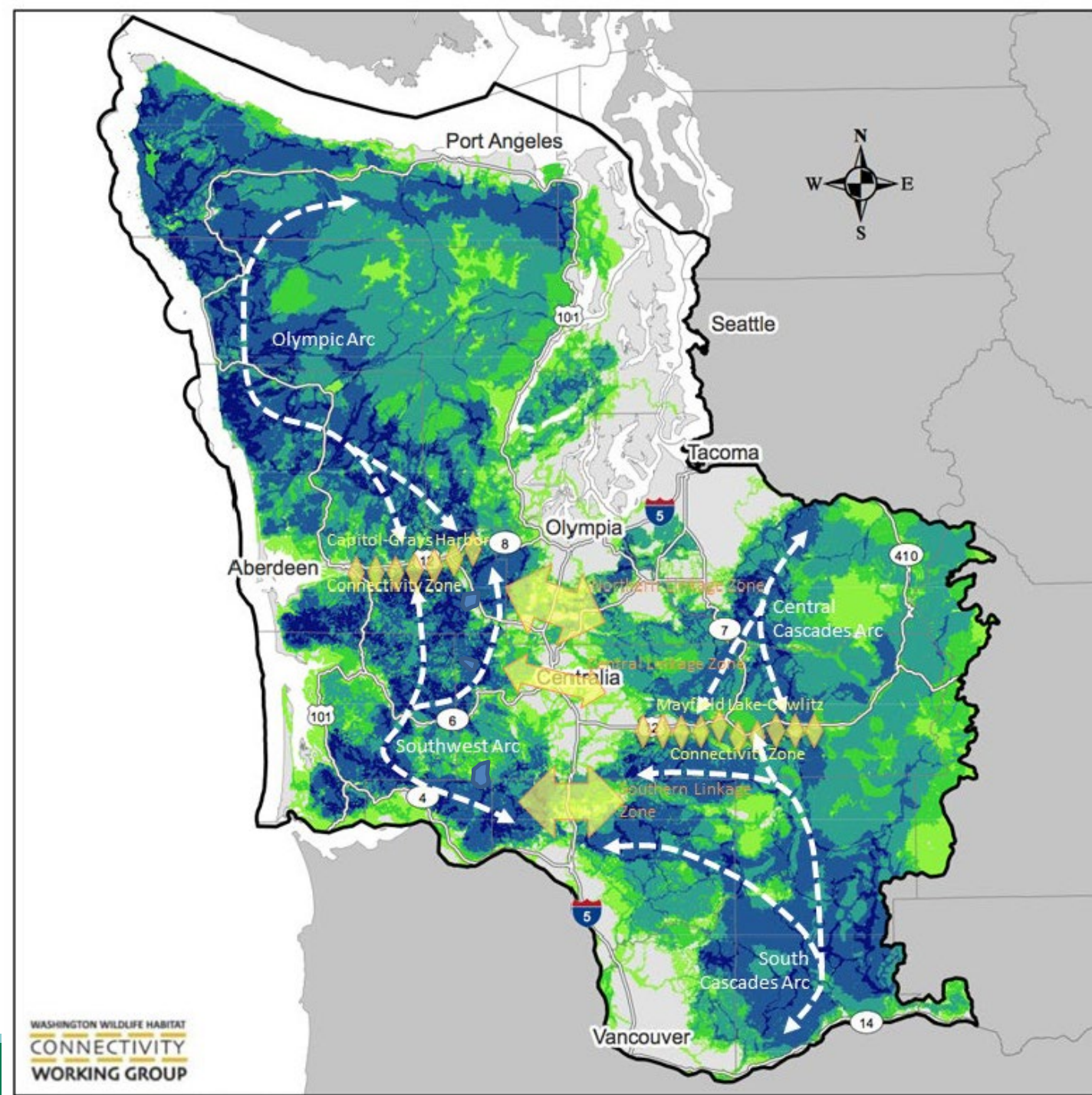
I-5 Crossings Roles

WSDOT lead agency for the crossings.

Conservation Northwest supporting a feasibility study.

Panthera and Olympic Peninsula Tribes seeking America The Beautiful Funding.

WDFW advising on land use and acquisition.

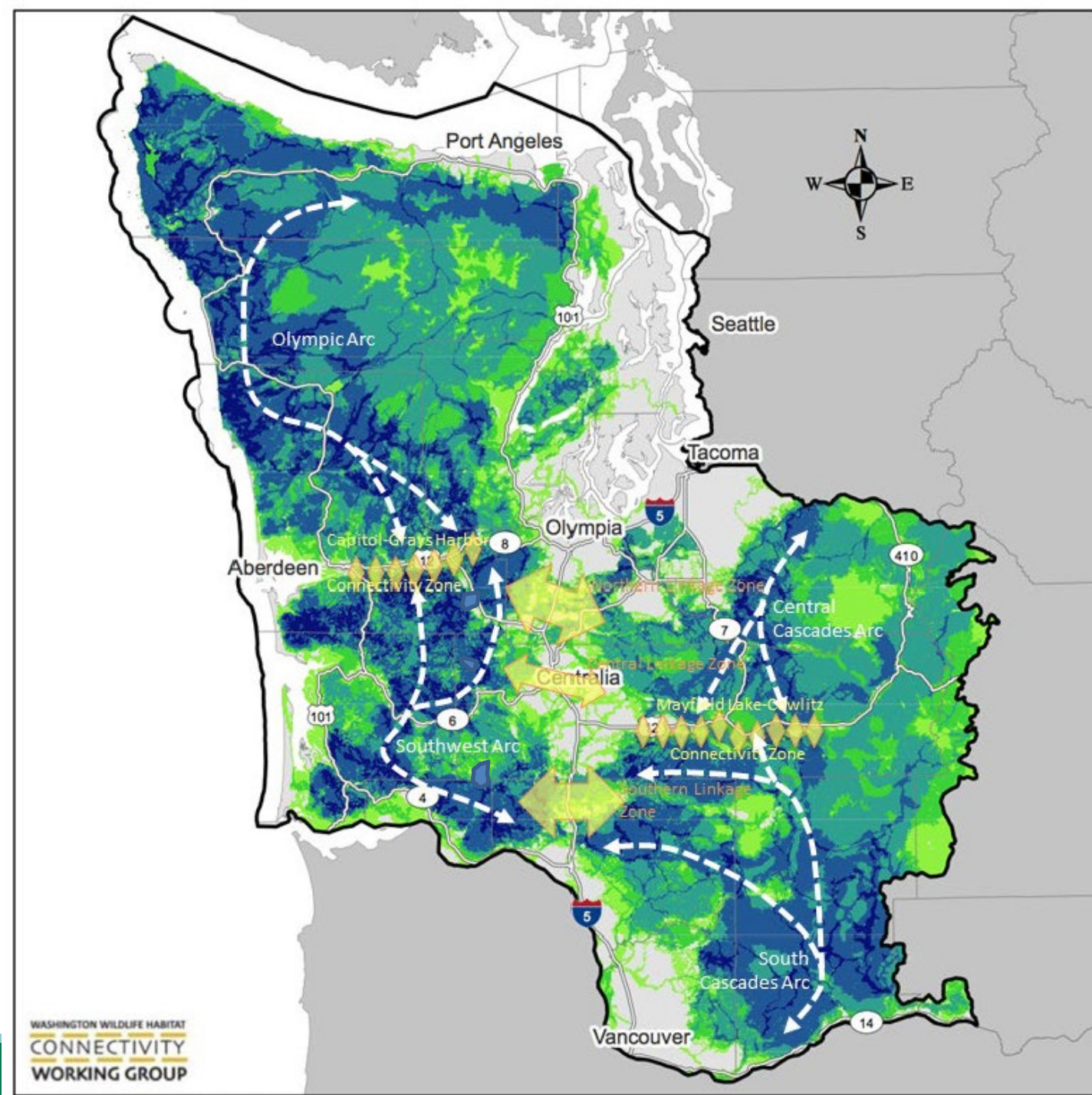


I-5 Crossings WDFW Involvement

Active engagement in Feasibility Study steering committee and technical advisory group.

Participation in communications subcommittee.

Engaged regional staff in developing a land use planning strategy.



Questions?



