



Interstate 5 and Wildlife Habitat Connectivity

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Washington State Department of Transportation

8/8/2024



29°F



11/29/2023

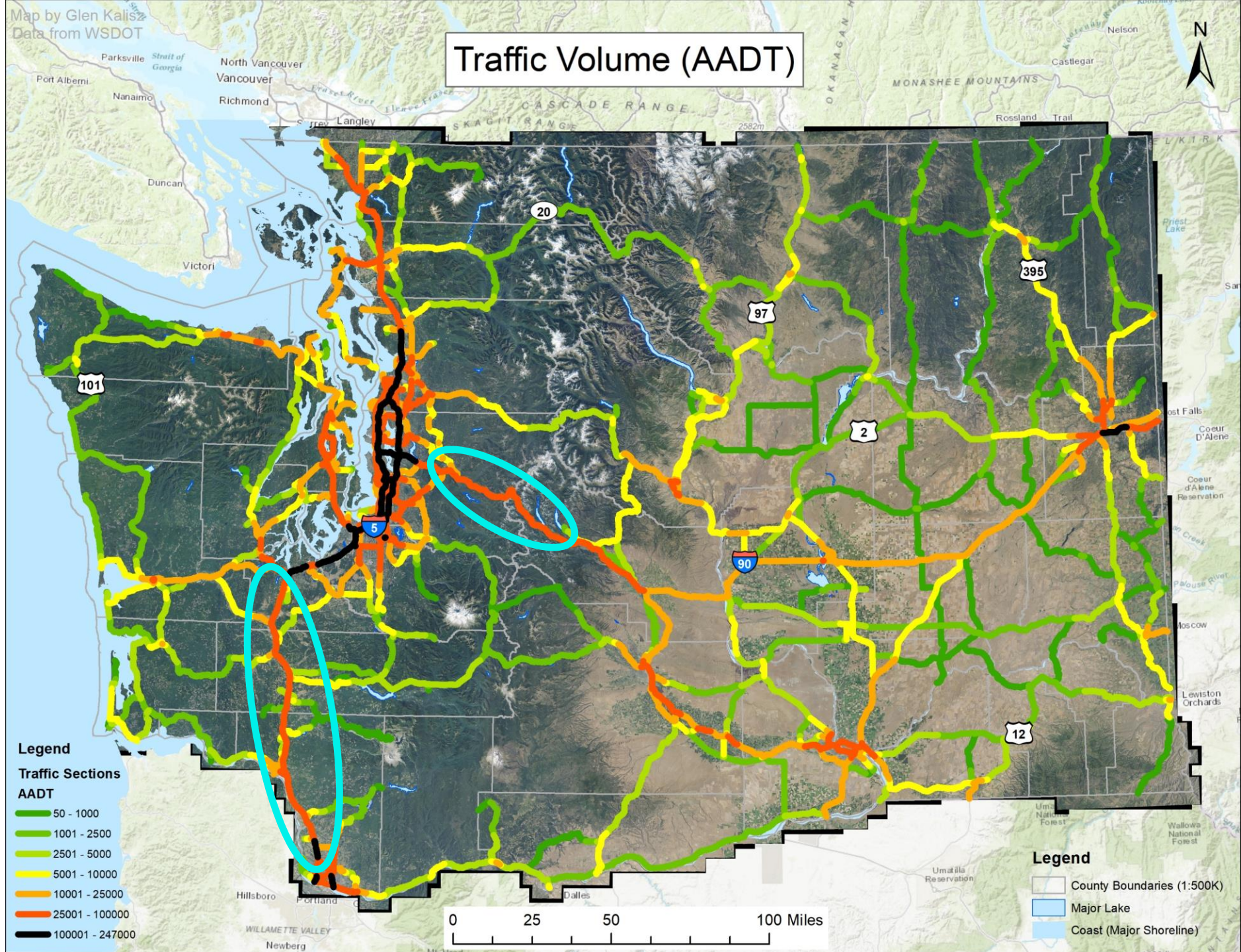
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NLZ9 E



- Habitat connectivity priorities at WSDOT fall into one of two categories:
 - Wildlife-vehicle collision hotspots
 - Barrier highways
- Interstate 5 is a barrier highway

- Traffic volume an indicator of barrier effect strength
 - Not the only factor, but a major contributor
 - Higher traffic volume = more noise and light disturbance
- $\geq 10,000$ vehicles per day considered complete or near complete barrier for most/all species
- All of I-5, and I-90 through the Cascades, exceed 25,000 vehicles per day
- Wildlife crossings associated with Snoqualmie Pass East (SPE) and previously constructed wildlife crossings west of SPE will serve I-90 well
- Limited safe crossing opportunities on I-5
 - Most potential “habitat gain” in the state



I-5 Vancouver, WA to Olympia, WA

- Rapid development around I-5 has eliminated many opportunities to provide connectivity
- Must have connected wildlife habitat on both sides of I-5 to maximize crossing structure benefits
- Modeling efforts have identified where wildlife corridors and I-5 intersect
 - Targets for action



Cougars are an indicator and umbrella species for landscape connectivity planning

- Cougars west of I-5 are genetically isolated from populations east of I-5
- *Accounting for sex-specific differences in gene flow and functional connectivity for cougars and implications for management*
 - Zeller et al. 2022
- *Genetic diversity, gene flow, and source-sink dynamics of cougars in the Pacific Northwest*
 - Wultsch et al. 2023



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09/07/2023

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74NW

Photo: Cougar in the Northern Linkage Zone, ~100 ft from and west of I-5

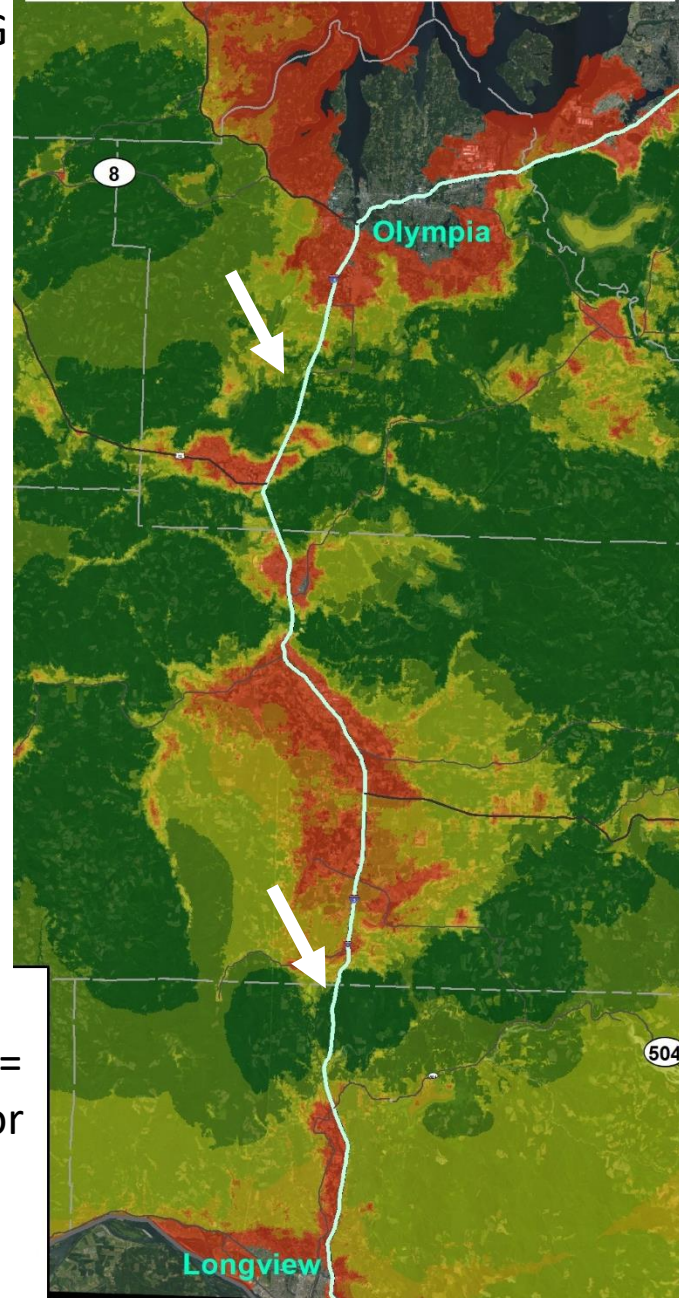
I-5 Habitat Connectivity/Wildlife Corridor Modeling

• Wildlife corridor modeling

- Strong agreement between expert-based model (left) and those made using GPS collar data and a network of 100s of wildlife cameras (empirical data)
- Multiple models utilizing a variety of methods and species identify these same two locations as critically important to habitat connectivity
 - Northern Linkage Zone
 - Southern Linkage Zone

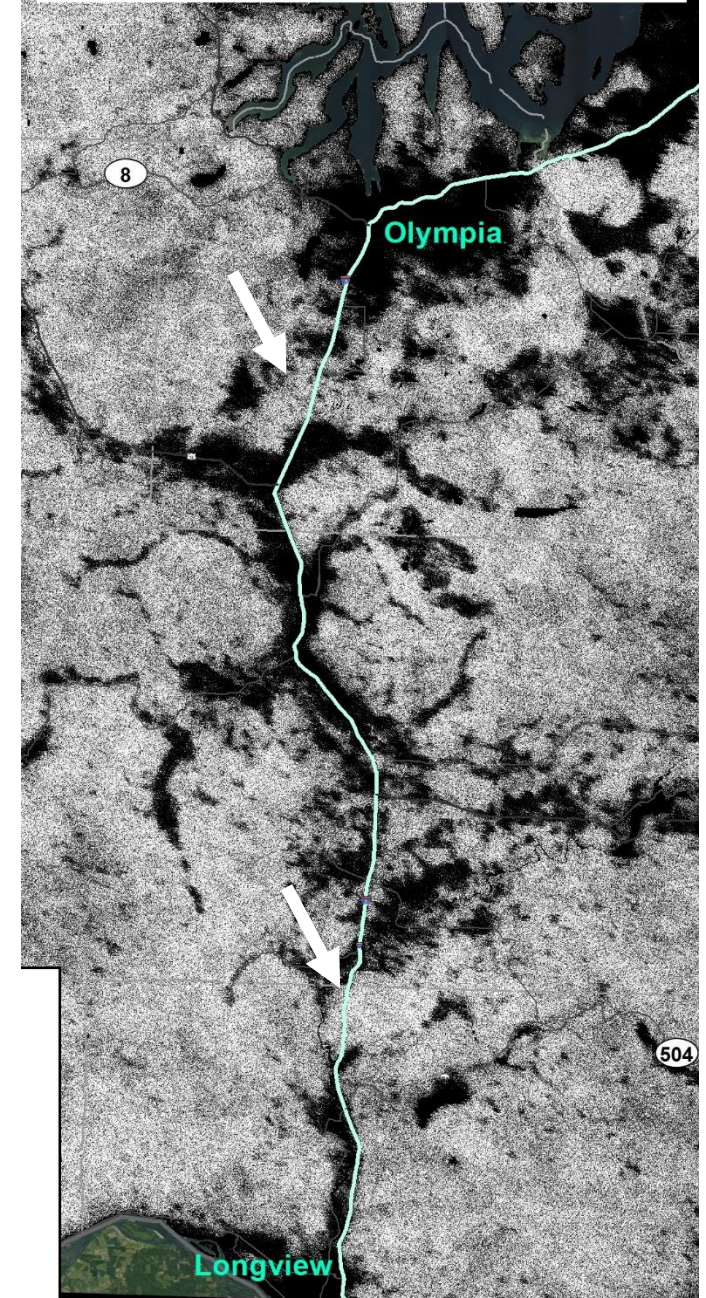
Credit:
WHCWG

Cougar Habitat Connectivity Model
Expert Based



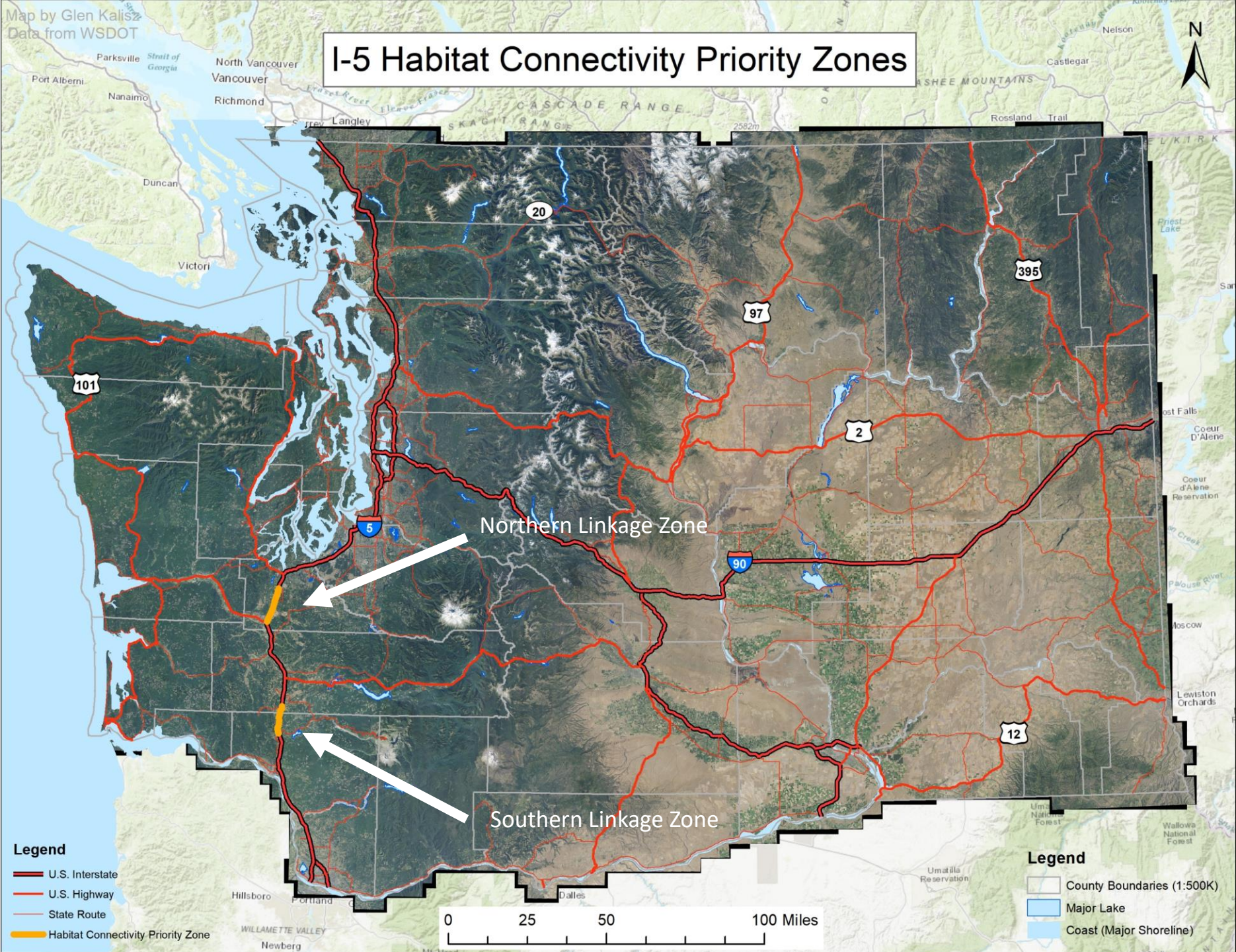
Green =
corridor

Cougar Habitat Connectivity Model
Empirically Based



Credit:
Olympic
Cougar
Project –
Read
Barbee

White =
corridor



- The Washington Wildlife Habitat Connectivity Working Group and other researchers identified two wildlife corridors crossing I-5, the Northern and Southern Linkage Zones
- These represent the last best opportunities to connect the Cascades to the Olympic Peninsula and Willapa Hills
 - Without safe crossings, I-5 is a barrier to wildlife movement within these corridors



54°F 09/15/2022 10:25PM 31WN



72°F 07/11/2022 10:06PM 31SE



79°F 07/11/2022 07:31PM 31NE



72°F 07/11/2022 10:52PM 31SE



36°F ◐ 04/03/2024 11:32PM NLZ 7E



Rough-skinned newt at
milepost 92.8 proposed
wildlife overpass location.
I-5 in background.



I-5 Wildlife Crossing Structure Feasibility Study Overview:

The study will...

Identify optimal locations for wildlife crossings based on:

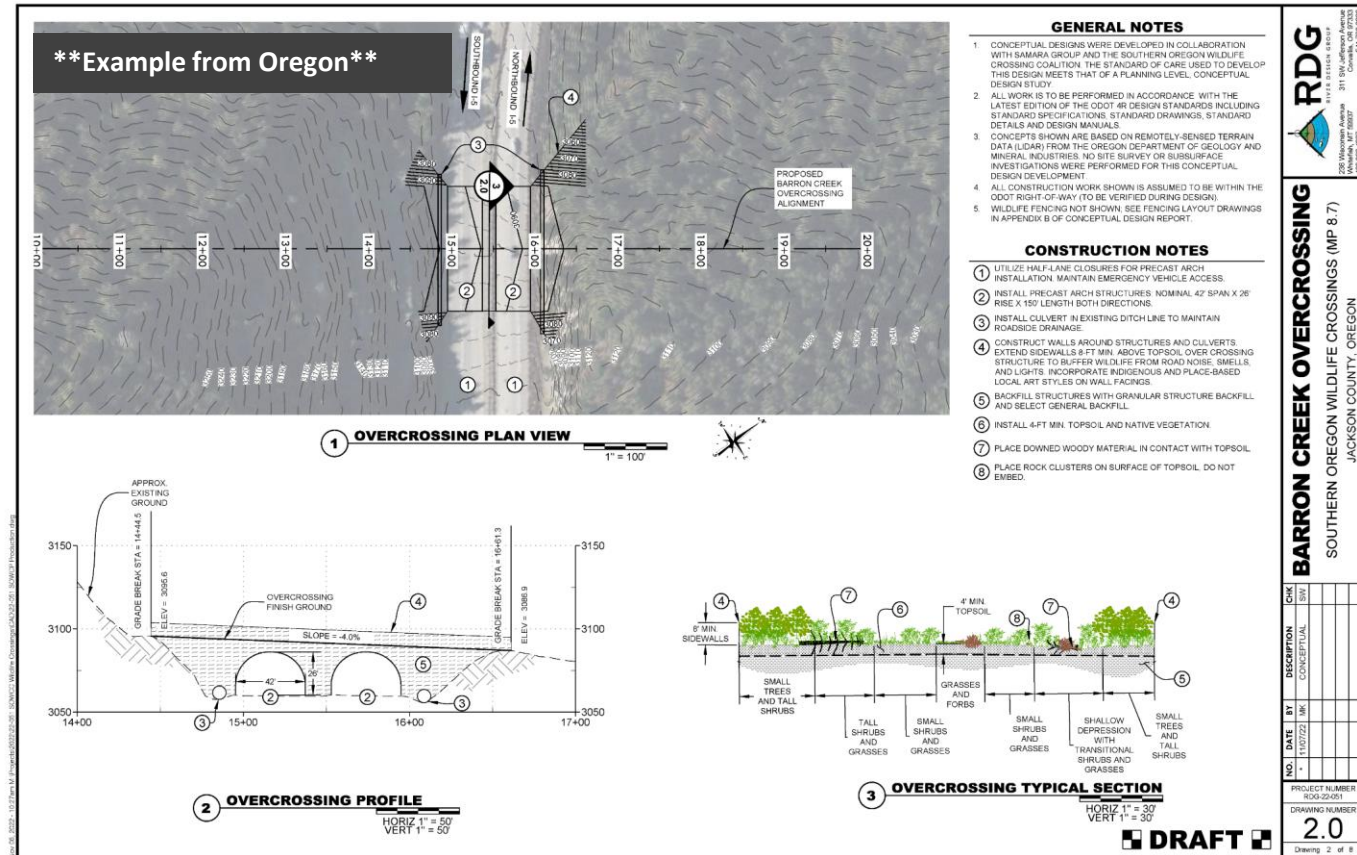
- Biological and ecological data
- Engineering opportunities or limitations

Include:

- Conceptual designs for wildlife crossings at identified locations
- High-level cost estimates for each structure

Be used to:

- Identify and secure **state funding** for further design work and cost sharing requirements of federal grant proposals
- Identify and secure **federal funding** to construct wildlife crossings



Example plan sheet from the I-5 wildlife crossing feasibility study conducted in Oregon

I-5 Wildlife Crossing Structure Feasibility Study Overview:

The study is...

Led by two independent contractors:

- Leslie Bliss Ketchum (Samara Group LLC)
- Melanie Klym (River Design Group)
- Same team that worked on Oregon's I-5 WCS feasibility study

Collaborative:

- Core team, Steering Committee, Technical Advisory Group, and Communications sub team includes members from local, state, and federal agencies, Tribes, and conservation groups.

Funded by:

- Conservation NW (contractors)
- WSDOT (camera and reptile/amphibian monitoring)
- All collaborators dedicating time

Focused on:

- Two corridors, AKA “linkages”, identified by previous modeling (each roughly 10 miles in length)
 - Northern Linkage Zone and Southern Linkage Zone



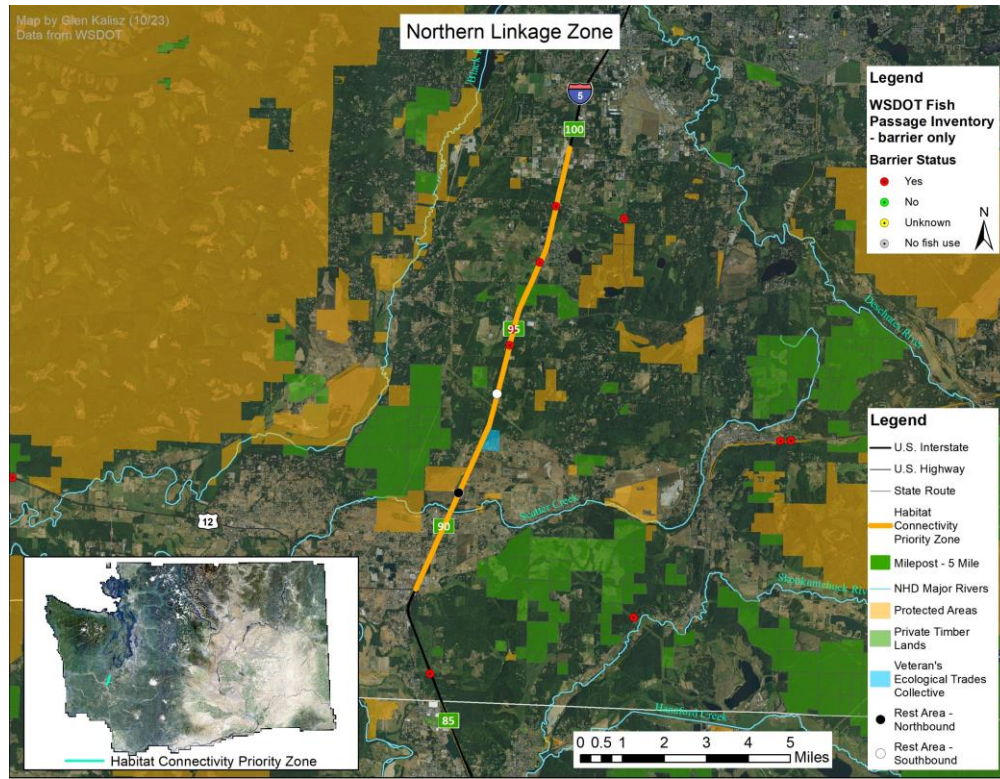
Collaborators on the I-5 wildlife crossing feasibility study discuss initial locations of interest at the kick-off site visits in fall 2023.

Photo by Marisa Pushee (Panthera)

I-5 Linkage Zones – Key Differences

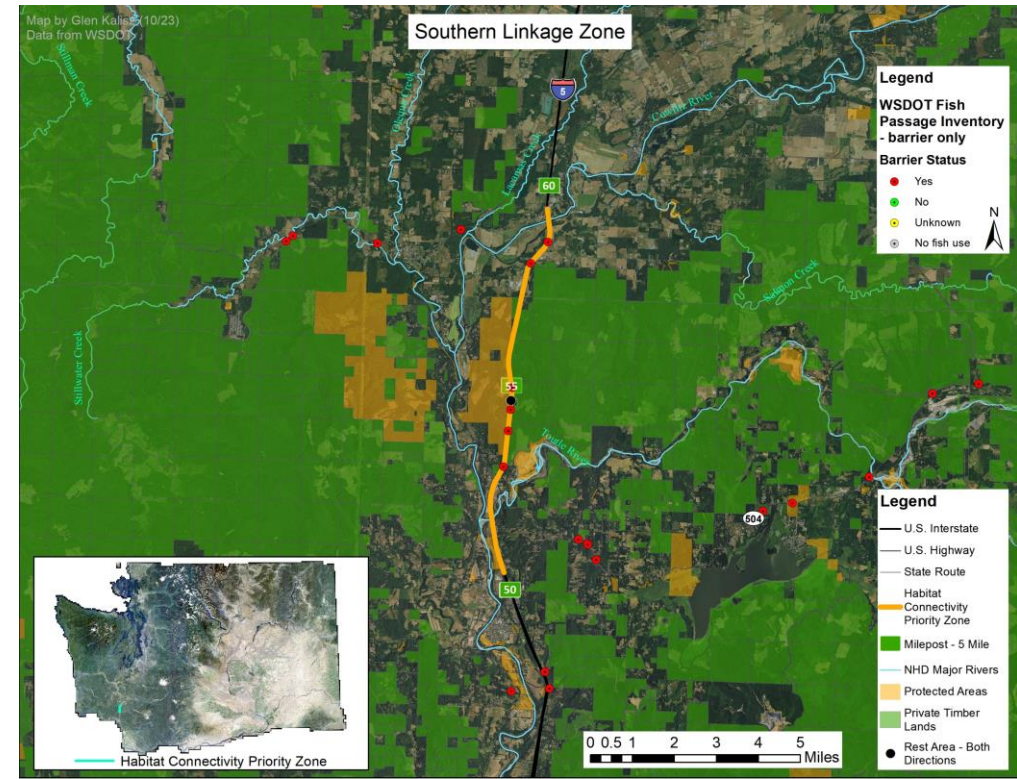
Northern Linkage Zone

- Checkerboard of private lands, including some private timber
- More development
- Forests and prairies



Southern Linkage Zone

- Two primary land managers/owners: DNR and private timber company
- Less development
- Primarily forests

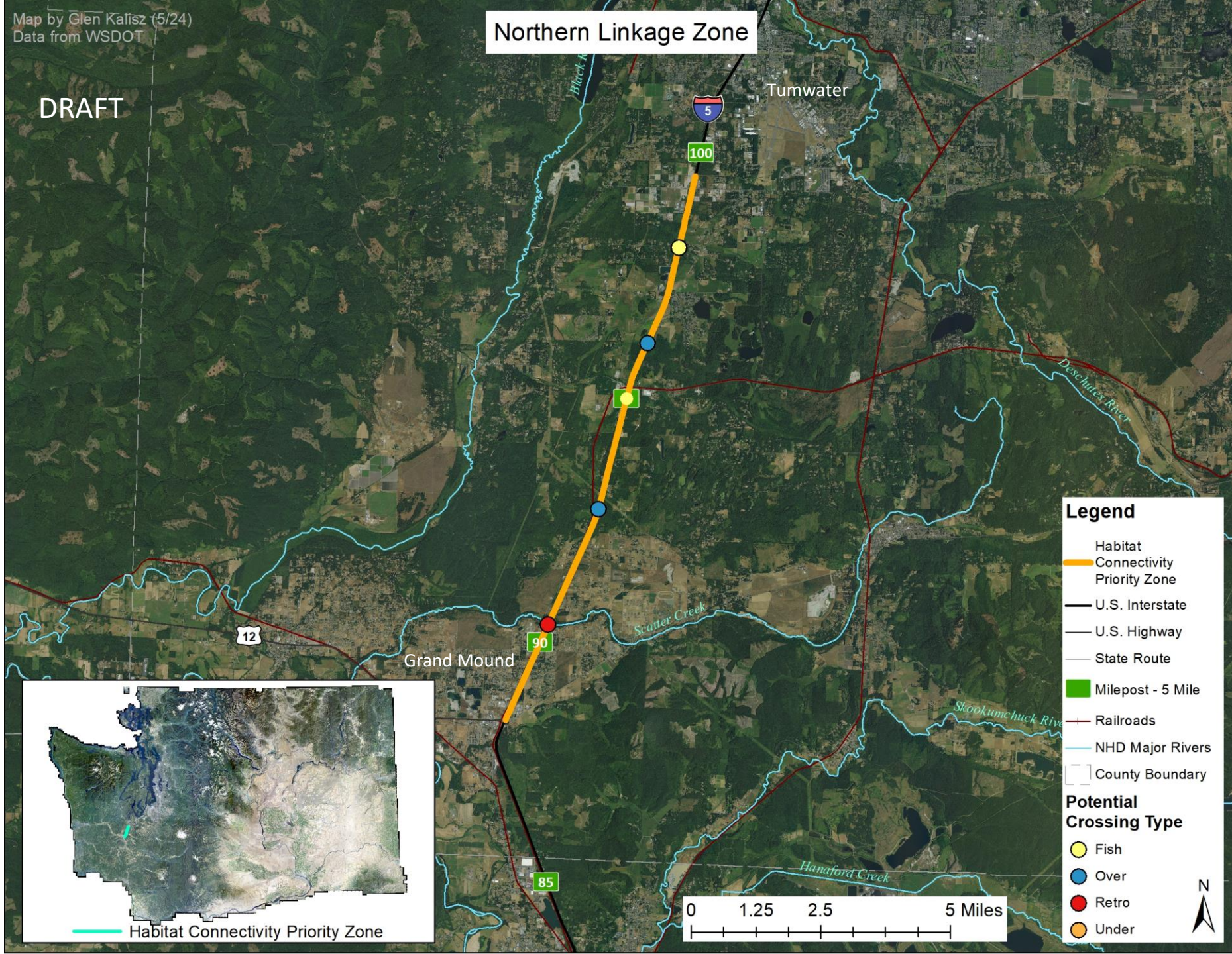


Proposed wildlife crossing locations in the Northern Linkage Zone (NLZ)

- Preliminary locations identified, but design and cost estimates not complete
- Currently no funding
- 5 primary locations of interest in NLZ

From North to South (points on map)

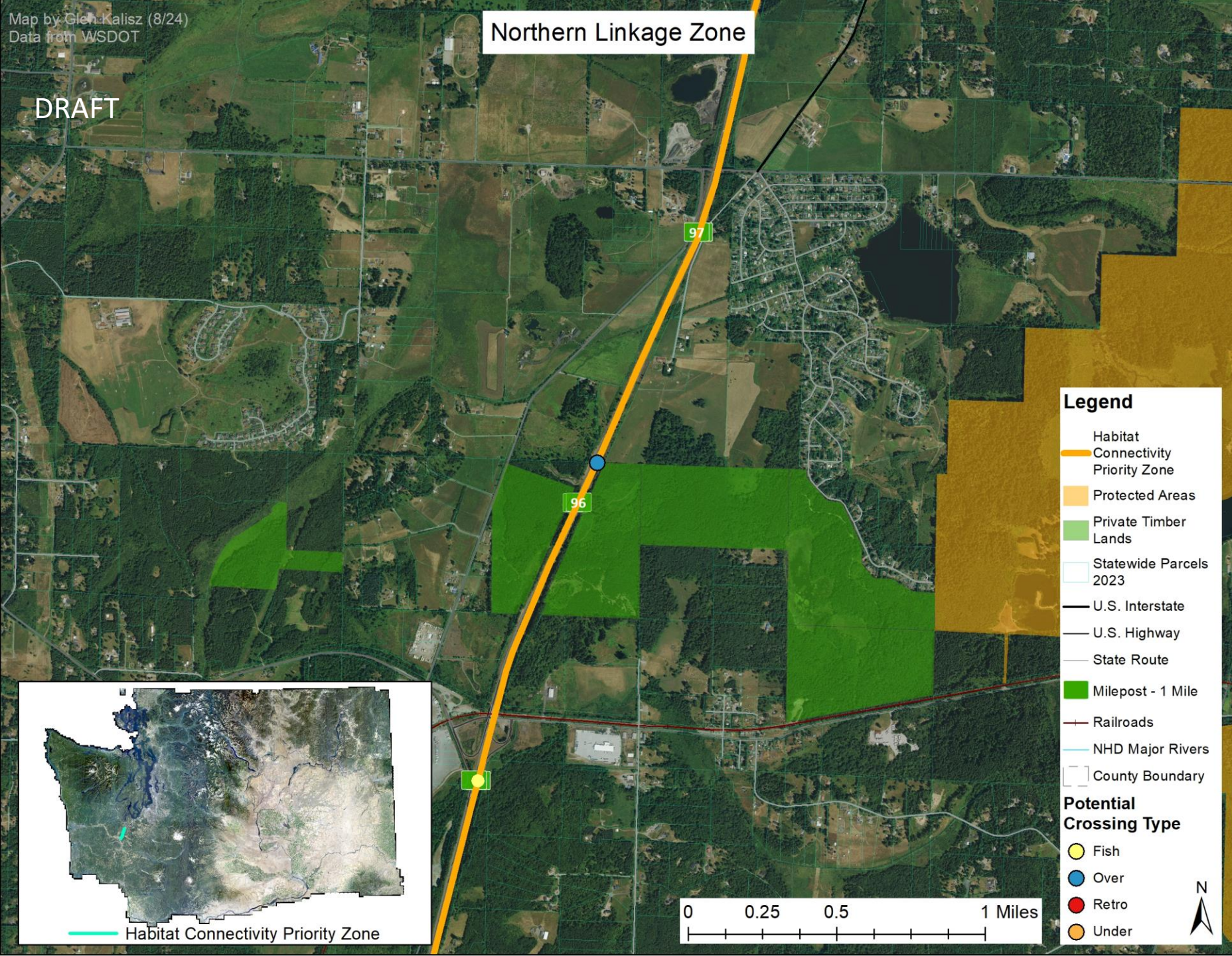
1. Salmon Creek fish barrier removal
2. Proposed new wildlife overpass (MP 96.1)
3. Beaver Creek fish barrier removal
4. Proposed new wildlife overpass (MP 92.8)
5. Scatter Creek bridge retrofit



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Northern Linkage Zone

Northern Linkage Zone MP 96.1



Legend

- Habitat Connectivity Priority Zone
- Protected Areas
- Private Timber Lands
- Statewide Parcels 2023
- U.S. Interstate
- U.S. Highway
- State Route
- Milepost - 1 Mile
- Railroads
- NHD Major Rivers
- County Boundary

Potential Crossing Type

- Fish
- Over
- Retro
- Under

- Amendable topography
 - Road cut
- Adjacent land is mix of private timber, WSDOT-managed, and private residential
- Millersylvania State Park to east
- Many species documented adjacent to I-5 within half mile of proposed overpass
 - Cougar
 - Elk
 - Black-tailed Deer
 - Black Bear
 - Coyote
 - Breeding Long-toed Salamanders
 - Breeding Pacific Chorus Frogs
 - And more



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32°F 04/20/2024 06:25AM NLZ 13E



43°F 11/11/2023 03:32AM NLZ2E

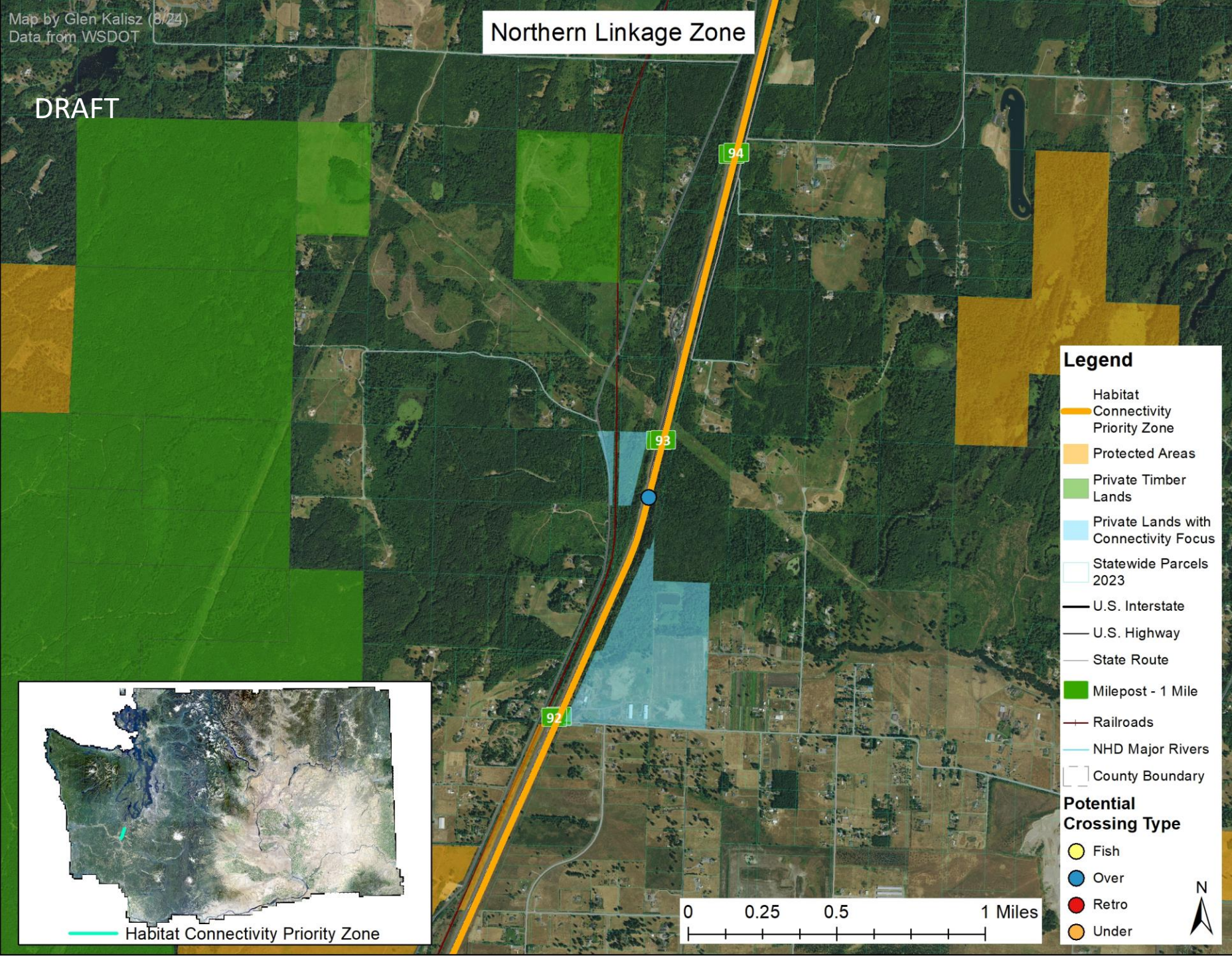


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Northern Linkage Zone

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Northern Linkage Zone MP 92.8



Legend

- Habitat
 - Connectivity Priority Zone
 - Protected Areas
 - Private Timber Lands
 - Private Lands with Connectivity Focus
- Statewide Parcels 2023
- U.S. Interstate
- U.S. Highway
- State Route
- Milepost - 1 Mile
- Railroads
- NHD Major Rivers
- County Boundary

Potential Crossing Type

- Fish
- Over
- Retro
- Under

- Adjacent land is less protected than at MP96.1, but progress is being made
 - Private lands with connectivity focus in blue
- Mostly forested, but prairies to the south
- Many species documented adjacent to I-5 within half mile of proposed overpass
 - Cougar
 - Elk
 - Black-tailed Deer
 - Black Bear
 - Coyote
 - Bobcat
 - Rough-skinned Newt
 - And more



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Next Steps

- Continuation of camera and reptile/amphibian monitoring
 - Monitoring report
- Feasibility Study publication (November)
 - Cost estimates
 - Preliminary designs
- Panthera and Olympic Cougar Project developing models for black bear, elk, and black-tailed deer; possibly coyotes and bobcats
 - Contributes to justification, bolsters proposals
- Corridor protection/land use planning
 - WDFW and CNW forming working group to address land use/protection issues
 - Land protection must preface wildlife crossings
- Identify and secure funding
 - Federal funding – wildlife crossing grants
 - State/private - cost sharing requirements 10-20% of total project cost



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11/29/2023

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Highway Safety

- Always wear a high visibility safety vest
- Keep your head on a swivel and assume drivers do NOT see you – stay alert
- Walk on the outside of the guard rail, as far away from the road as possible
- Be mindful of tripping hazards as you navigate the roadside and off highway locations
- Enter and exit vehicles on the passenger side away from traffic
- After exiting the vehicle, move away from the road
- If you are driving a vehicle without rooftop flashing lights, wait for the lead car with rooftop lights to stop, then park in front of them