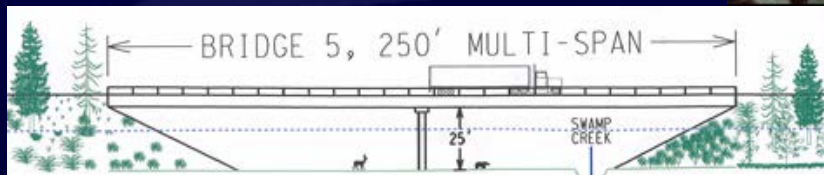
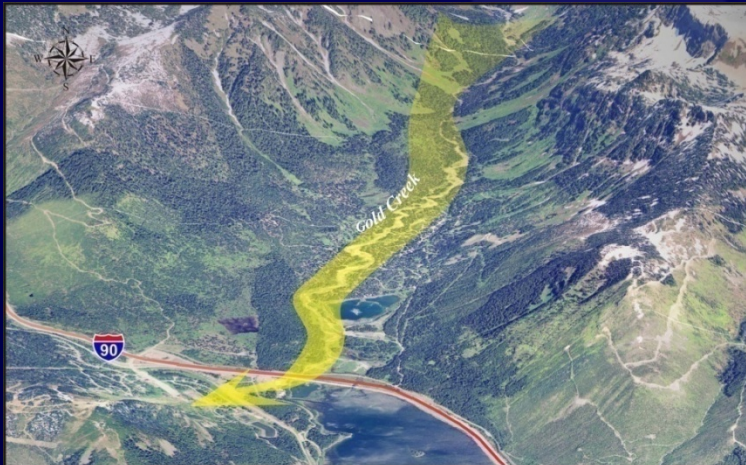


Pre-Construction Wildlife Monitoring for Washington's I-90 Snoqualmie Pass East Project

Robert A. Long
Western Transportation Institute, Montana State University

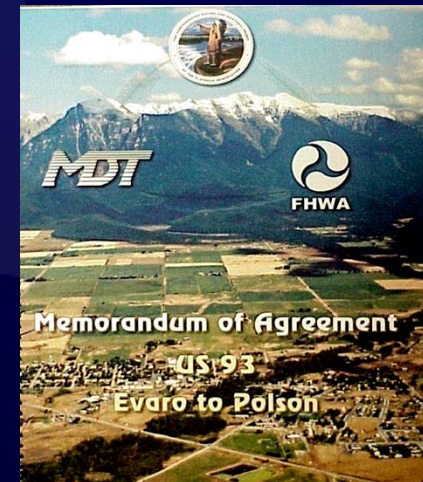


What is Western Transportation Institute (WTI)?

- USDOT University Transportation Center
- Founded at Montana State University in 1994
- 85 multi-disciplinary staff and students
- Projects in 35 states and Canada
- Permanent WA field office
- Road Ecology program

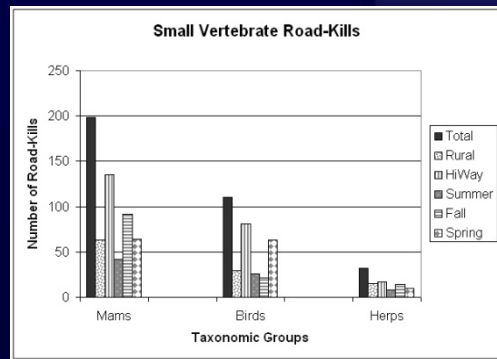
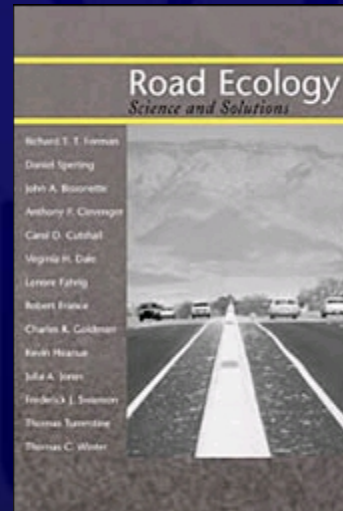


Trans-Canada Highway, Banff National Park, Alberta

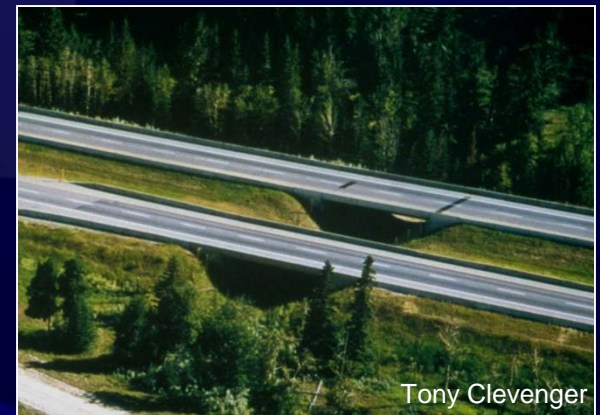


US-93, Montana

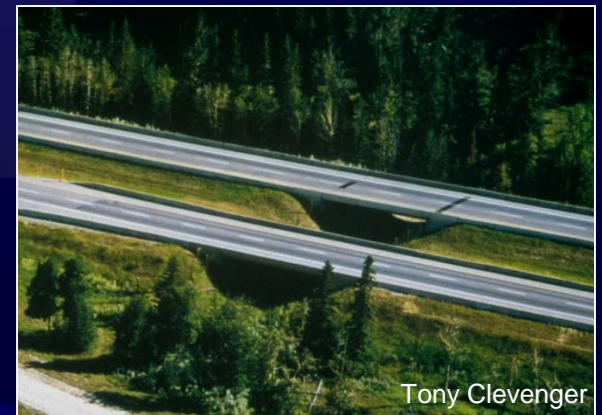
Road Ecology



Mitigating Road Effects and Increasing Road Permeability



Are Connectivity Measures Helping to Increase Permeability for Wildlife?





SNOQUALMIE PASS EAST

A safer, more efficient six-lane freeway from Hyak to Keechelus Dam

**Improve
Safety**



**Increase
Capacity**



**Replace
Pavement**



**Reduce
Avalanche
Closures**



**Stabilize
Slopes**



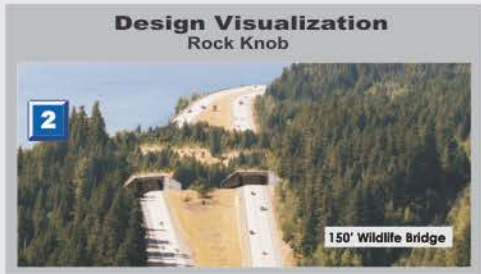
**Enhance
Wildlife
Connectivity**



“Purpose and Need” statement of the project specifically includes “**Ecological Connectivity**”

I-90 Snoqualmie Pass East

Hyak to Easton - 15 Mile Corridor



Legend

	Funded (6-lane Highway)		Extended Chain-On/Off Areas
	Unfunded (6-lane Highway)		Connectivity Emphasis Areas
	Extended Truck-Climbing Lanes		Avalanche Fencing
	Unstable Slopes		Avalanche Zones
	Stabilized Slopes		





Washington State
Department of Transportation



Context Sensitive Solutions - Habitat Connectivity

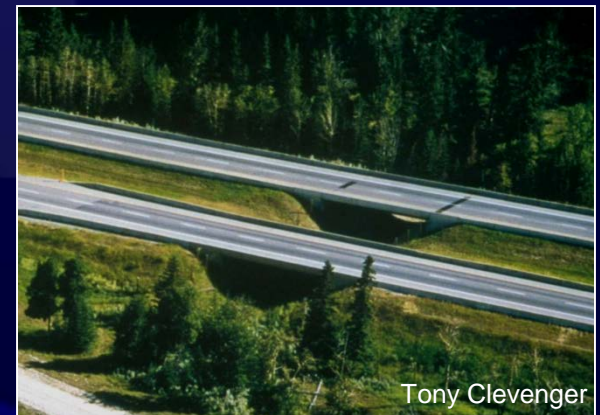


MONTANA
STATE UNIVERSITY

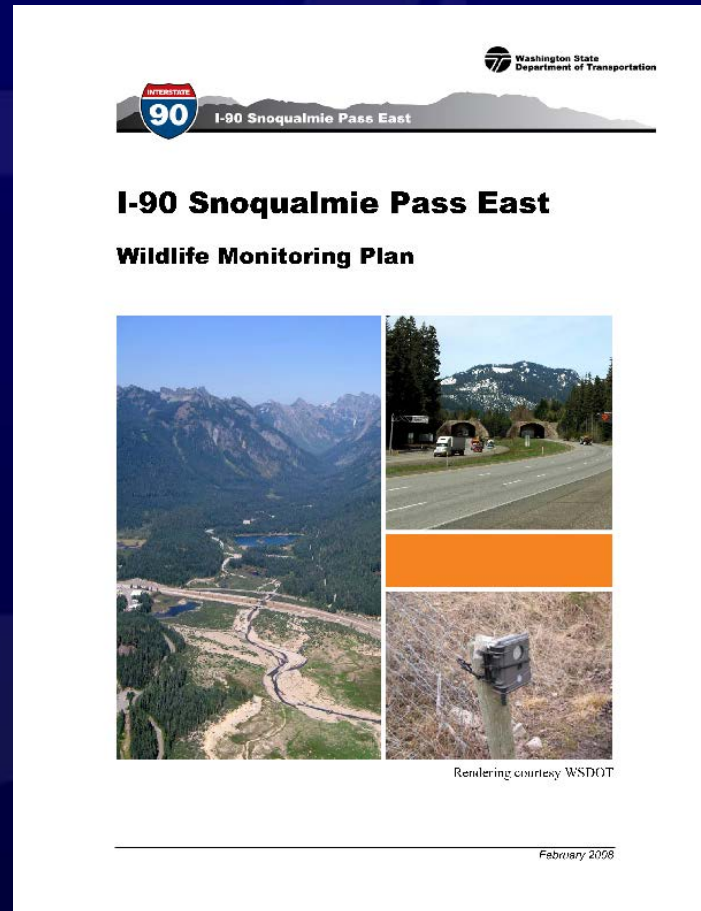
College of
ENGINEERING

Western Transportation Institute

Are Connectivity Measures Helping to Increase Permeability for Wildlife?



I-90 Snoqualmie Pass East Wildlife Monitoring Plan



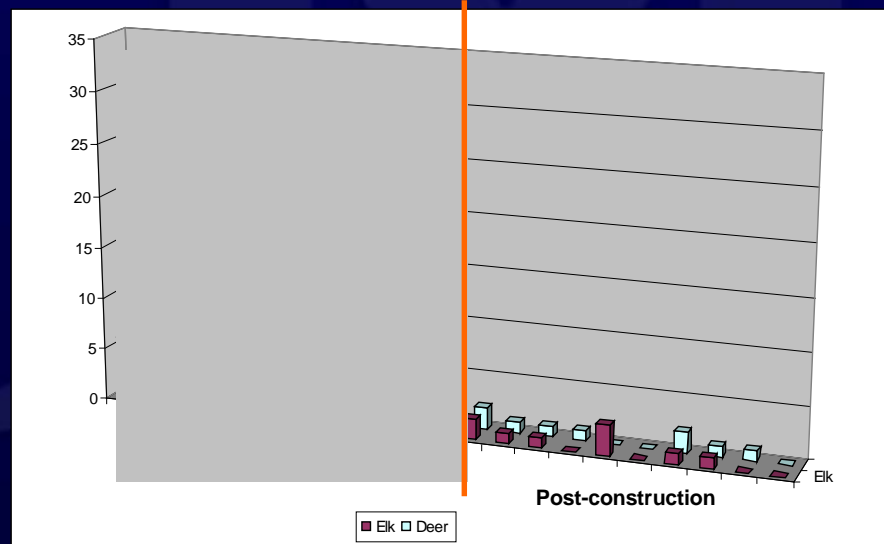
Wildlife Monitoring Plan

- Focused on multiple species groups and community types



Wildlife Monitoring Plan

- Focused on multiple species groups and community types
- Includes both pre- and post-construction components



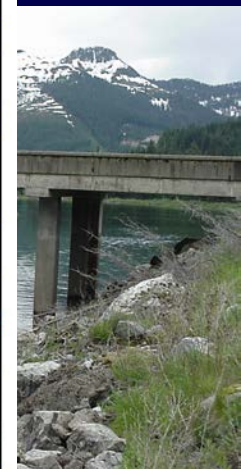
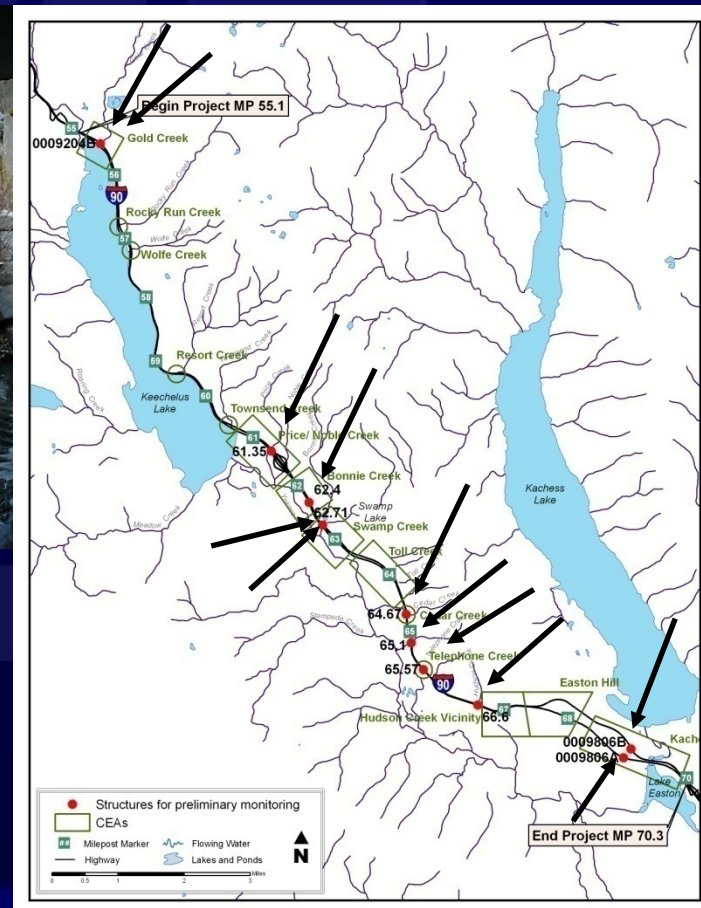
Wildlife Monitoring Plan

- Focused on multiple species groups and community types
- Includes both pre- and post-construction components
- Uses partnerships to leverage research expertise and dollars



Pre-Construction Monitoring

- Monitoring of existing structures



Pre-Construction Monitoring

- Monitoring of existing structures



2009-05-03 03:15:15 M 1/10 39°F



SWAMP EAST

WWW.RECONYX.COM

2009-05-03 03:33:01 M 7/10 39°F



SWAMP EAST

WWW.RECONYX.COM

2009-04-11 20:47:19

M 4/10

37°F



SWAMP EAST

WWW.RECONYX.COM

2009-04-04 10:52:47

M 1/10

31°F



BONNIE CREEK

WWW.RECONYX.COM

2009-04-08 22:38:23

M 8/10

37°F



CEDAR CREEK

WWW.RECONYX.COM



Pre-Construction Monitoring

- Monitoring of existing structures
- Recording of roadkill



Pre-Construction Monitoring

- Monitoring of existing structures
- Recording of roadkill
- Snow tracking



Pre-Construction Monitoring

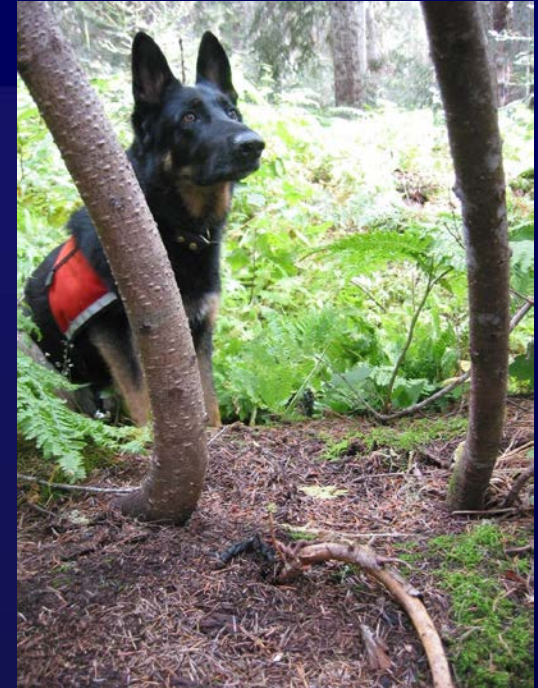
- Monitoring of existing structures
- Recording of roadkill
- Snow tracking
- Species detection





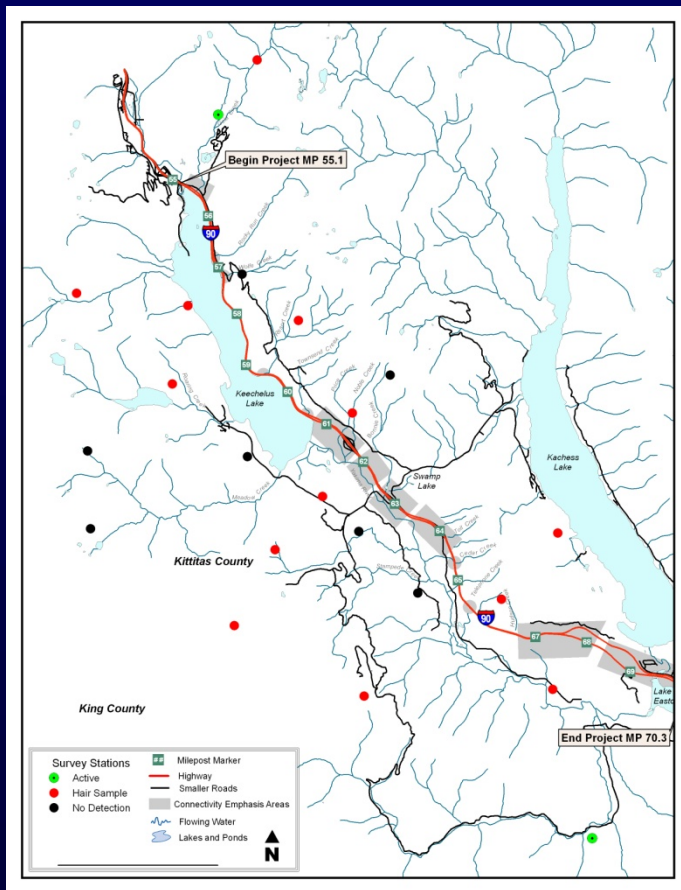
Cascades Carnivore Connectivity Project

Methods: Scat Detection Dogs



Pre-Construction Monitoring Species Detection and Sampling 2008 Results

- Bear hair samples from 36 hair collection corrals



Cascades Carnivore Connectivity Project

Methods: Cameras





TP10



TP10

2008-10-13 6:59:03 AM M 6/10 42°F



TP10

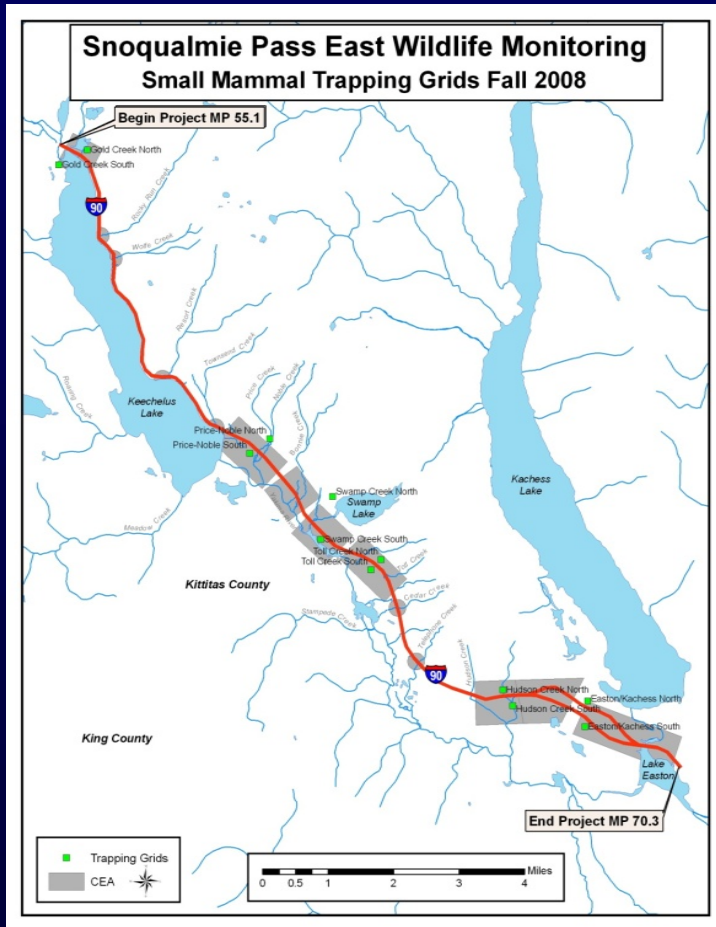
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PRES

RECONYX

Pre-Construction Monitoring Small Mammal Surveys

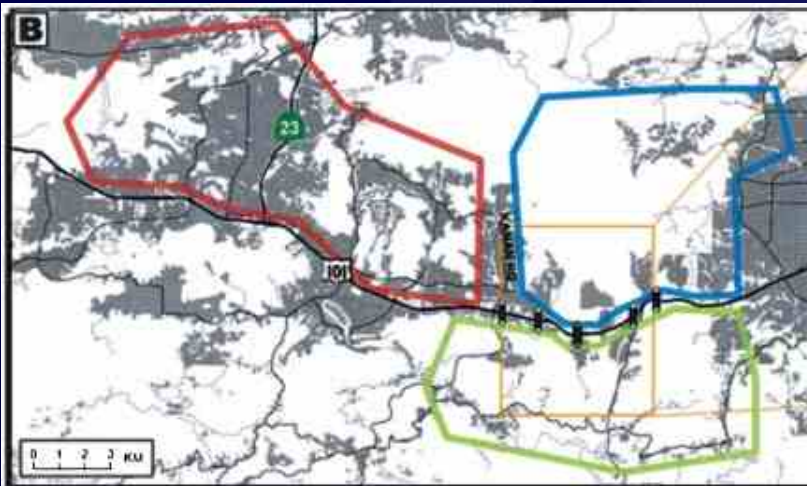


Pre-Construction Monitoring

Flying Squirrel Study and Monitoring



- Telemetry
- Genetics



Pre-Construction Monitoring

Partnerships and Project Coordination

- Collaboration with Central Washington University for baseline monitoring of fish, pikas, and amphibians





Thank you!