Collaborative Research for Safety, Environment, and Mobility

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I-90 Snoqualmie Pass East Project

Many partners!!

Why a university?
Why CWU?
Potential Partnerships meeting at CWU January 2007

1. Brian White and Jason Smith – WSDOT
2. Biologists, Geographers, Geologists, Engineering Tech and Construction Management
3. Business, Political Science, Anthropology

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Washington State Transportation Commission
Ellensburg, WA
September 23, 2014
Ecological Connectivity

1. Hydrology – Water
2. Biology – habitat, fish, wildlife
Considering Connectivity Structures

- Set Site specific Objectives
- Reconnect adjacent habitats
- Plan for future habitat conditions
- Multiple sized crossing structures:
  - Small <5 feet wide
  - Medium up to 12x100 feet
  - Large over 12x100 feet
- Provide habitat within the structure
- Plan for fencing

Photos of structures
Wildlife Connectivity

- Pre-construction monitoring
- Post-construction monitoring
- High mobility – WTI, WSDOT
- Low mobility – CWU
  - Fish
  - Amphibians and Reptiles
  - Small Mammals
High Mobility Species

Environment

Mobility

Safety
Wildlife Connectivity

- Pre-construction monitoring
- Post-construction monitoring
- High mobility – WTI, WSDOT
- Low mobility – CWU
  - Fish
  - Amphibians and Reptiles
  - Small Mammals
Low Mobility Species

Environment

Mobility

Safety
Coal Creek
Gold Creek
Rocky Run Creek
Resort Creek
Price Creek
Noble Creek
Bonnie Creek
Swamp Creek

Monitoring Site
Study Stream

Fish Team
Dr. Paul James

Bull Trout
(Salvelinus confluentus)

Cutthroat Trout
(Oncorhynchus clarki)
Amphibian Team
Dr. Steve Wager

Survey Methods
• Visual encounter surveys
• Rubble rousing in streams and banks
• Funnel trapping
• PIT tag monitoring
• Toe clipping
Radiotracking
Pacific Giant Salamanders and Western Toads
Small Mammals
Dr. Kristina Ernest

- Mice, voles, shrews, chipmunks, flying squirrels, moles, pikas
- Lots of mammals – high trap success; high diversity and numbers very close to I-90 suggest promising connectivity

Photo: R. Villacres
American Pika (*Ochotona princeps*) Monitoring
Pikas have begun to use new riprap/fill at Gold Creek

More early success!

Photos and field observations courtesy Mark Norman and Josh Zylstra
Low Mobility Wildlife Monitoring Sites
2008 - 2010
CWU Mission

The mission of Central Washington University is to prepare students for enlightened, responsible, and productive lives; to produce research, scholarship, and creative expression in the public interest; and to serve as a resource to the region and the state through effective stewardship of university resources.
I-90: Preparing Students
(2008 - present)

• Small Mammal Team – Dr. Kristina Ernest
  – 7 graduate students; 7 undergraduates
  – 3 Masters theses completed or in progress

• Fish Team – Dr. Paul James
  – 3 graduate students; 9 undergraduates
  – 3 Masters theses completed or in progress

• Amphibian Team – Dr. Steven Wagner
  – 4 graduate students; 10 undergraduates
  – 3 Masters theses completed or in progress
Thanks!

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Questions?

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