

Pre-construction baseline monitoring of amphibians
for the I-90 Snoqualmie East Project:
Distribution, Detection, Tracking



Michelle Lester, Susan Brady, April Barreca,
Brenna Hill, Jason Irwin, Steve Wagner
*Department of Biological Sciences
Central Washington University*

Pre-construction Monitoring

Objective: Assess Existing Ecological Connectivity

- Assess permeability of I-90 roadway for amphibians
- Establish baseline use of existing structures and movement across roadway
- Evaluate habitat quality at existing and proposed crossing structure sites



Amphibian Movement and Roads

- Mass Migrations
 - Seasonal
 - Breeding
 - Overwintering
 - Foraging
 - Juvenile dispersal
- Low Mobility
- Easy Targets
 - Defense = camouflage



MONITORING 2008

Preliminary Surveys

Pilot Studies

Identified Focal Species

Genetic Sampling

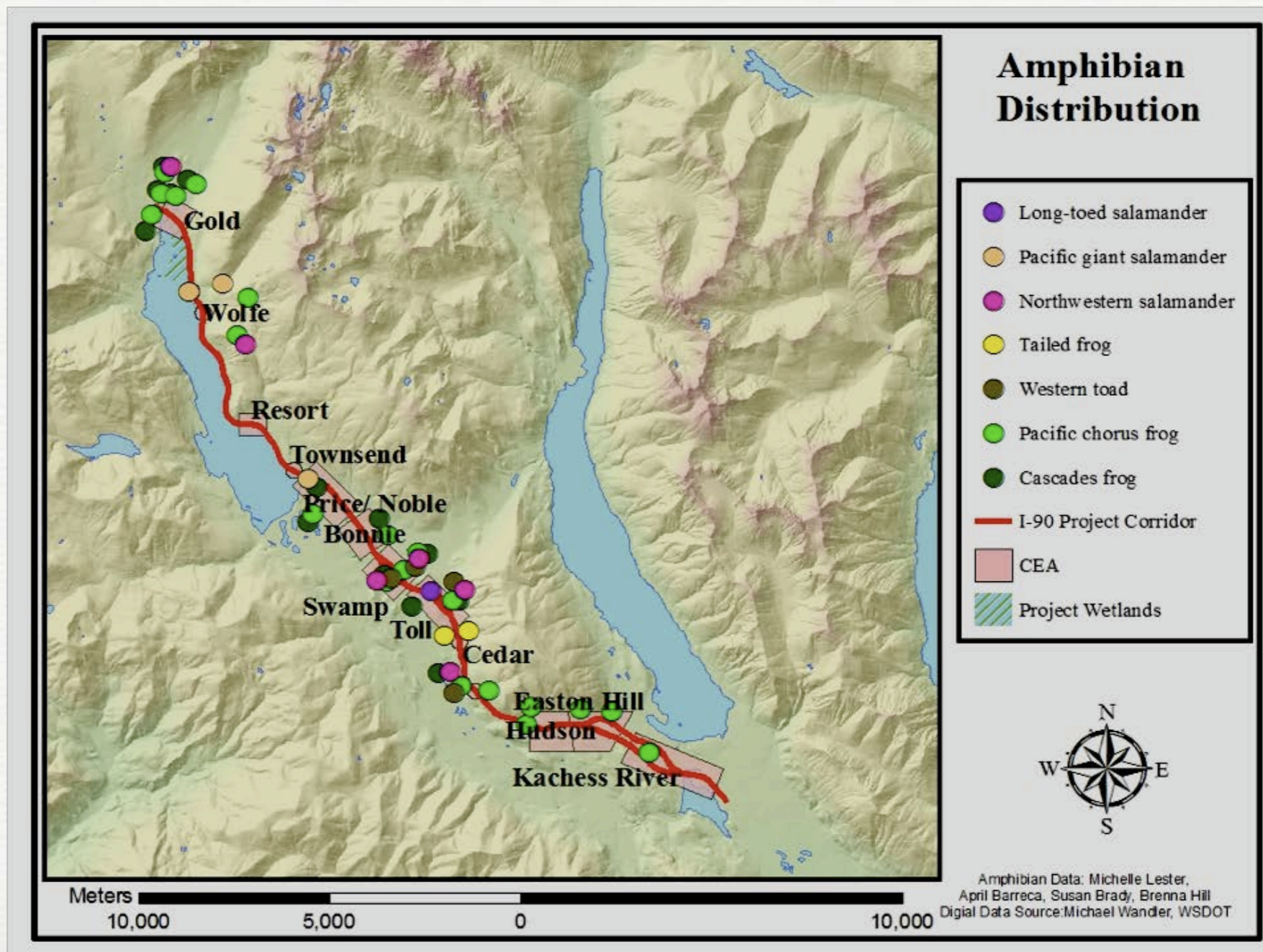
Monitoring Plan



Michelle Lester

SURVEY RESULTS 2008

- 52 surveys conducted within 1 mile corridor north and south
- 7 species encountered/22 locations



Detections 2008

Species	Gold	Wolfe	Price Noble	Bonnie	Swamp	Toll	Cedar	Hudson	Easton
Northwestern salamander					35	43	4		
Pacific giant salamander		3	2						
Long-toed salamander						2			
Cascades frog	12		5	2	154	236	14		
Western toad	1				5	2			
Pacific chorus frog	3			4	43	45	2	1	3
Tailed frog							6		

--

Pilot studies 2008

Survey Methods

- Visual encounter surveys
- Rubble rousing in streams and banks
- Funnel traps
- Minnow traps
- Pit fall traps and drift fence

Results

- 268 funnel traps detections
- 201 dip net detections
- 130 visual encounters
- 27 rubble rousing detection
- 1 pit fall detection



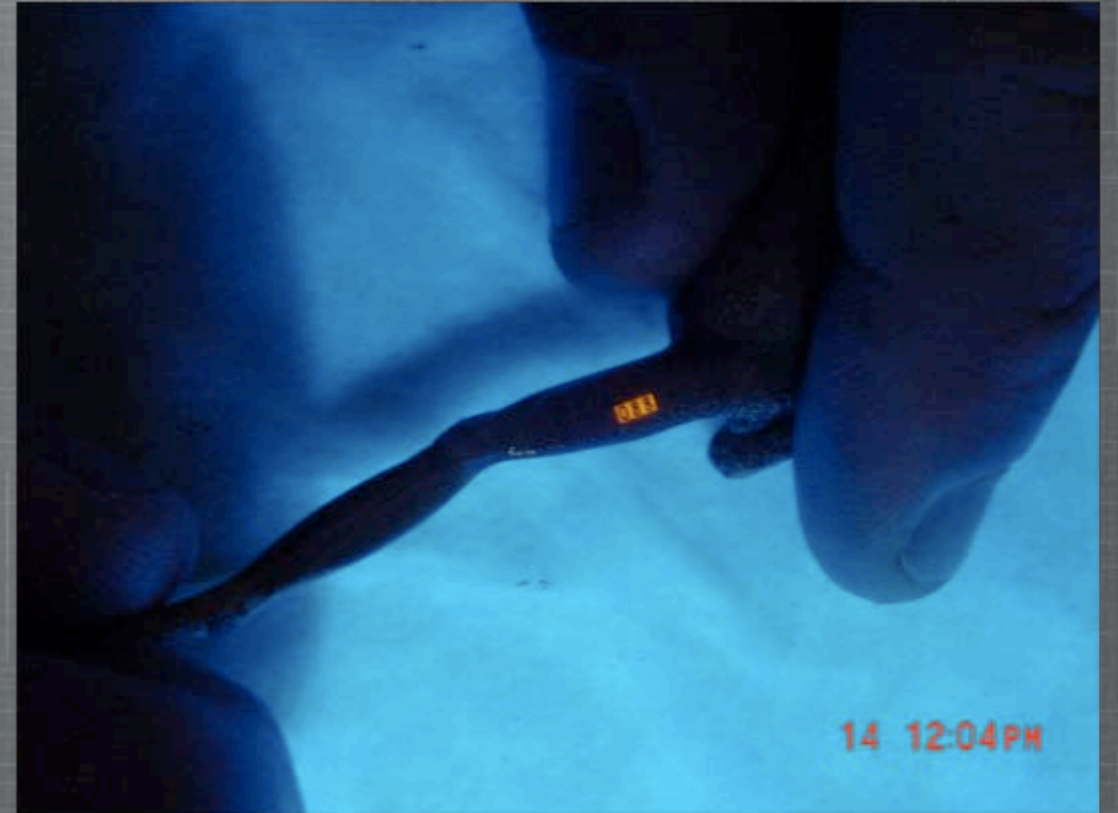
Pilot Studies: 2008

Identification and Tracking Methods

- Elastomer tags
- Toe clipping

Results

- Low number of recaptures
- Increase detection for monitoring



Monitoring Plan Activities: 2009

Surveying Hotspots

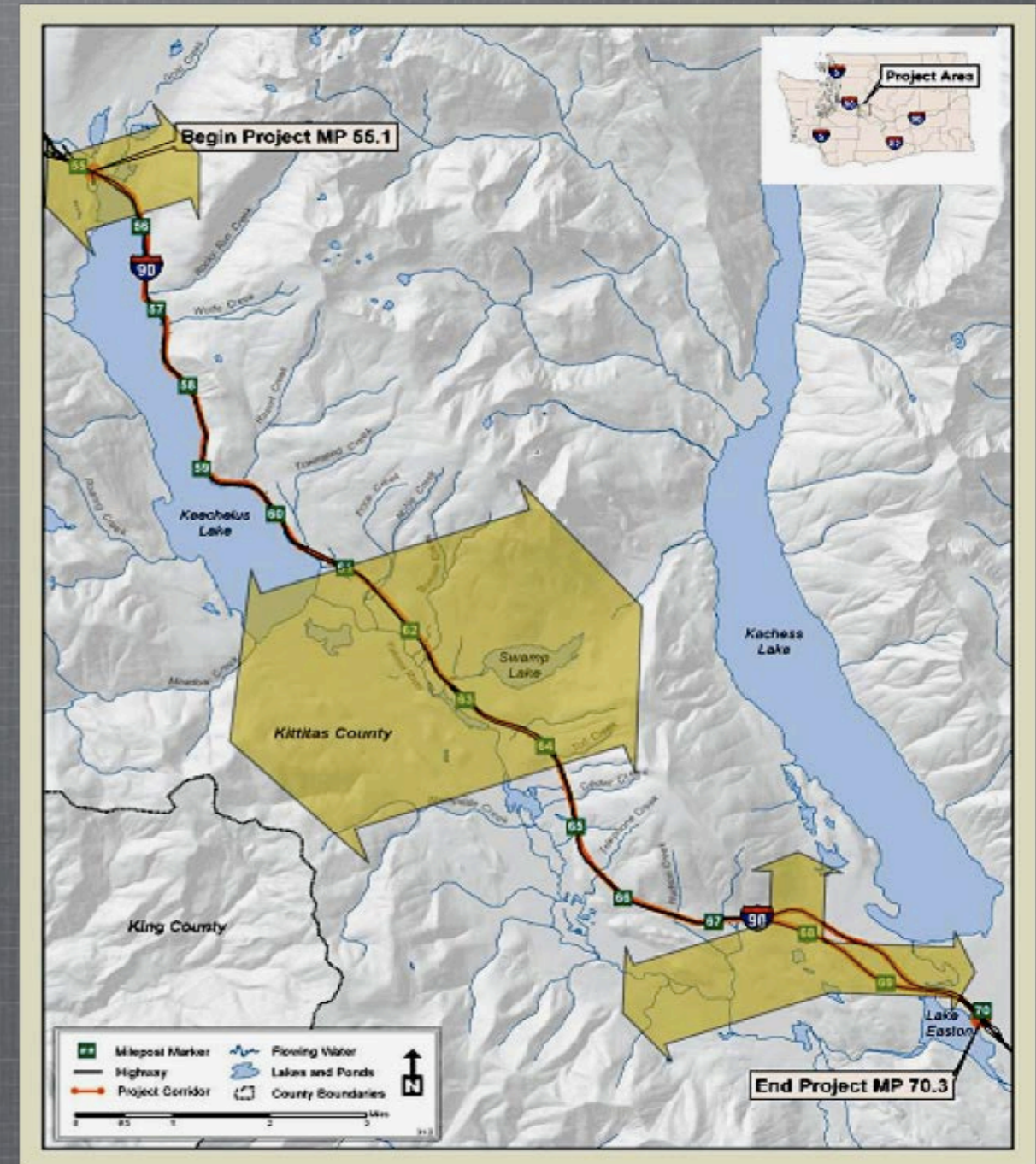
- Distribution and crossing structure surveys
 - marking and detection
- Night surveys: road crossing & calling surveys
 - assess seasonal movement and migration hotspots
- Habitat evaluation at existing and proposed crossings structure sites



Monitoring Plan Activities: 2009

Individual Movement and Probability of Structure Use

- PIT tag array installation at crossing structures
 - CEAs: Gold Creek, Swamp Creek, Toll Creek
- Focal species:
 - Cascades Frog
 - Western Toads
 - Northwestern Salamanders
- Radiotracking:
 - Toll Creek
 - Cascades Frog



Thanks!!

Funding: WSDOT, Jason Smith, Mark Norman

Additional funding and assistance:

- Office of Graduate Studies,
- US Forest Service
- NSF-GK12: CWU Yakima WATERS Project
- NSF-CWU Step Program.



Special thanks: Patricia Garvey-Darda, Dave Darda, Jim Johnson, Paul James, Kris Ernest, Robert Long and Paula MacKay (WTI) for their assistance and input. Thanks to Amber Smith, Paige Scholl and Ken Bartlett for additional field survey and gear assistance

