Amphibians within the Big Creek Drainage of the Frank Church River of No-Return Wilderness Area

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Introduction

- 1990's amphibian research at the Taylor Ranch and within the Big Creek Drainage
- Wildfires of 2000 burned 1.3 million acres, in central Idaho
- Additional monitoring

Objectives

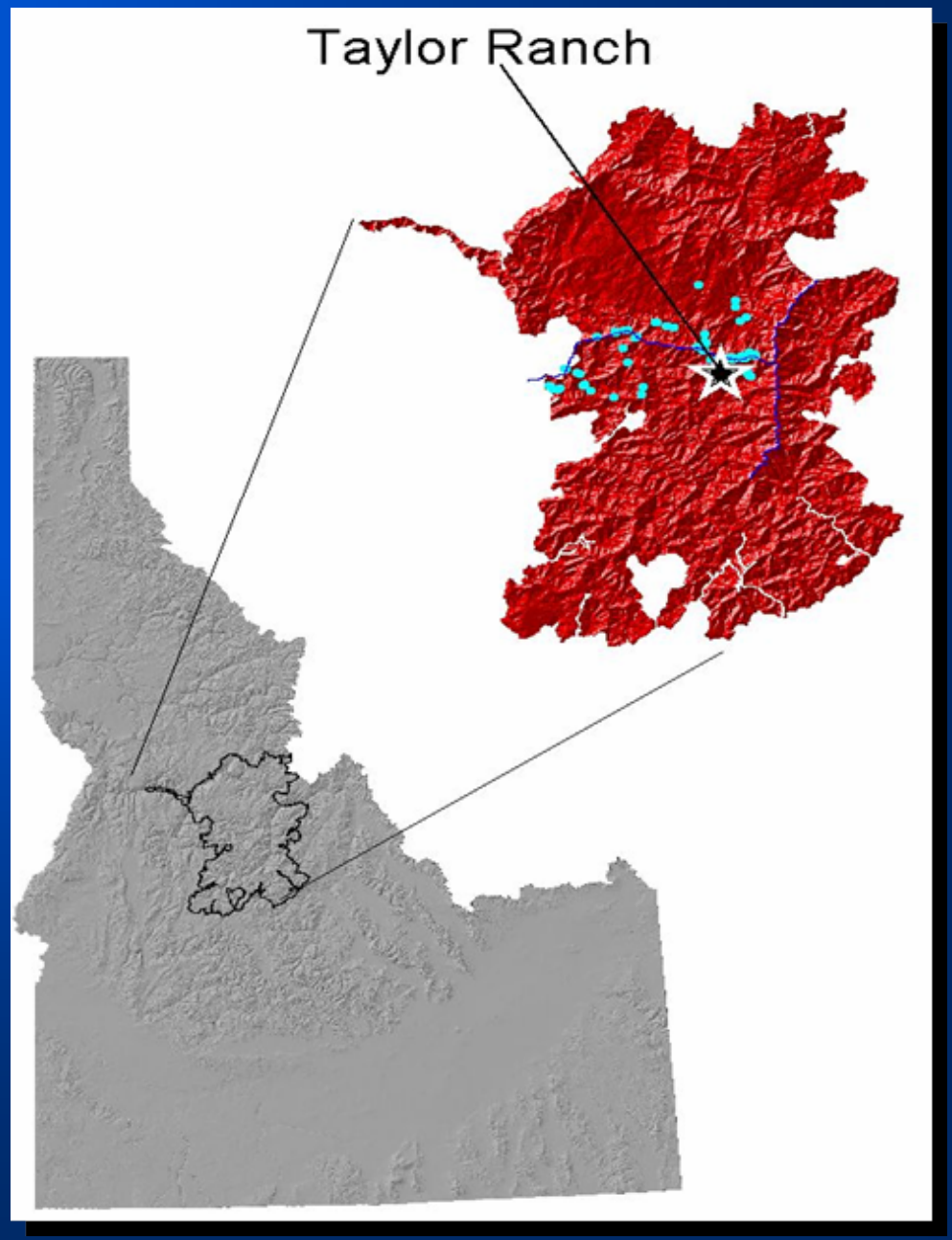
- Determine occurrence of amphibians
- Determine the distribution and relative abundance of amphibians by repeating and expanding on previously sampled sites
- Describe habitat use
- Relate disturbance of fire to amphibian presence
- Compare between current and previous observations of amphibians

Study Area

- Location of the Taylor Ranch and the support given by the managers of the ranch made this project possible

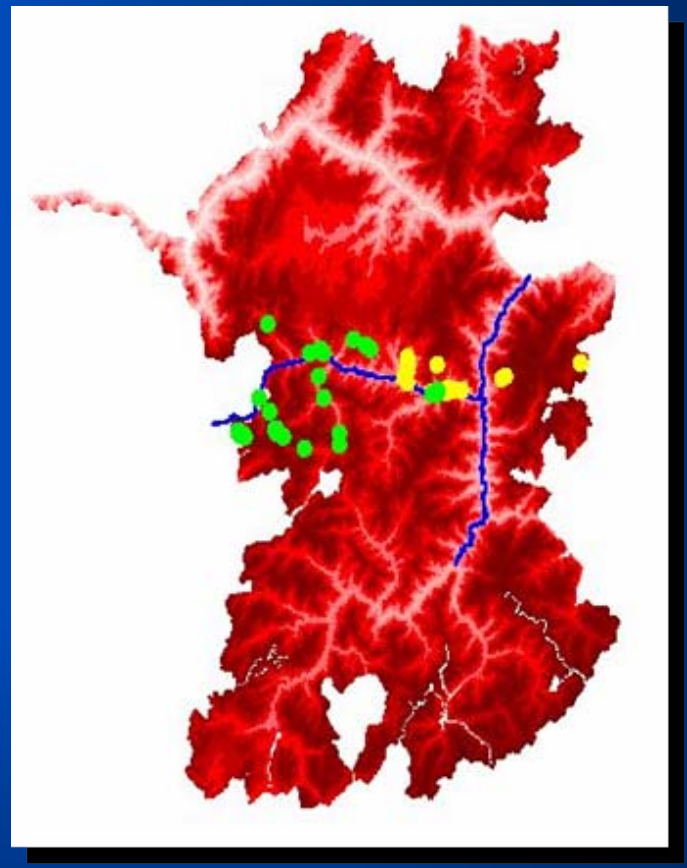
Big Creek Drainage=
High relief rocky cliff outcrops and many deep valleys

Elevation gradients ranged from 640m to 3100m



Methods

(Chuck Peterson, ISU)
Green= 1994 (D. Duncan)
-42 sites sampled
Yellow= 1995 (J. Karl)
-52 sites sampled



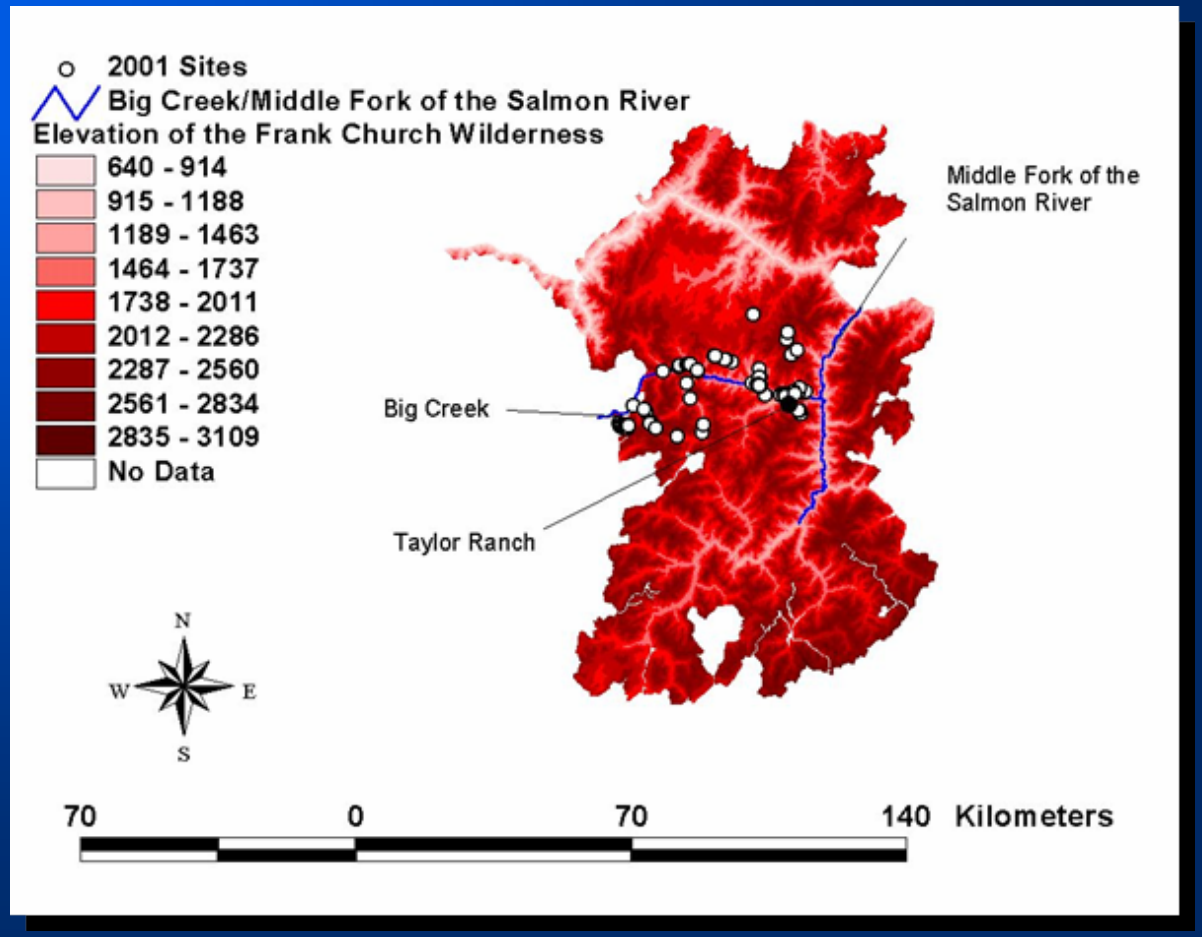
- Sampling Site Selection

-Selection was deliberately biased toward sites that were previously monitored in the 1990's.

-Expand the sites sampled to new locations

Study Area of 2001

- Sites selected based on leads from a variety of sources, accessibility from the ranch, and wetland areas on topo maps



Sampling Techniques

- Visual encounters, cover-turning, dip netting, and listening
- All shorelines, pools, and near-shore waters of each site were searched to minimize detection failures
- U.S. Fish and Wildlife Service sampling form (temp, pH, conductivity)
- Evidence of fire disturbance

Analyses

- Data management with Microsoft Excel
- Points were plotted using GIS
- Calculated descriptive statistics
- S-Plus 2000 statistics package
- Fisher's Exact Tests used for habitat use and comparison between decades sampled

Amphibians of the Big Creek Drainage

Species	Found	Not Found
Columbia Spotted Frog	X	
Long-toed Salamander	X	
Western Toad	X	
Rocky Mountain Tailed Frog	X	
Boreal Chorus Frog		X
Idaho Giant Salamander		X
Pacific Treefrog		X

Distribution

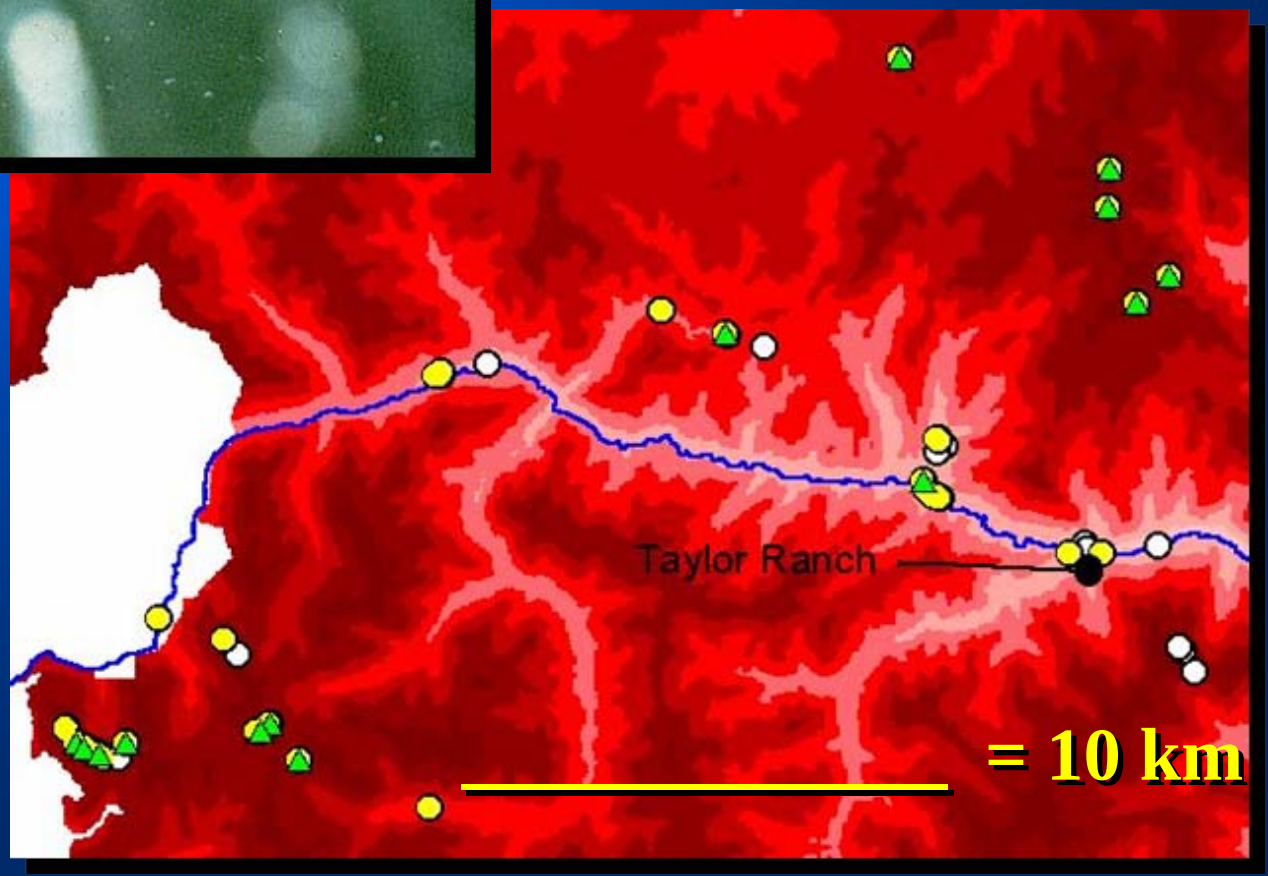
(Widespread)

Columbia Spotted Frogs:

= Total

= Breeding

= Not Found



Distribution

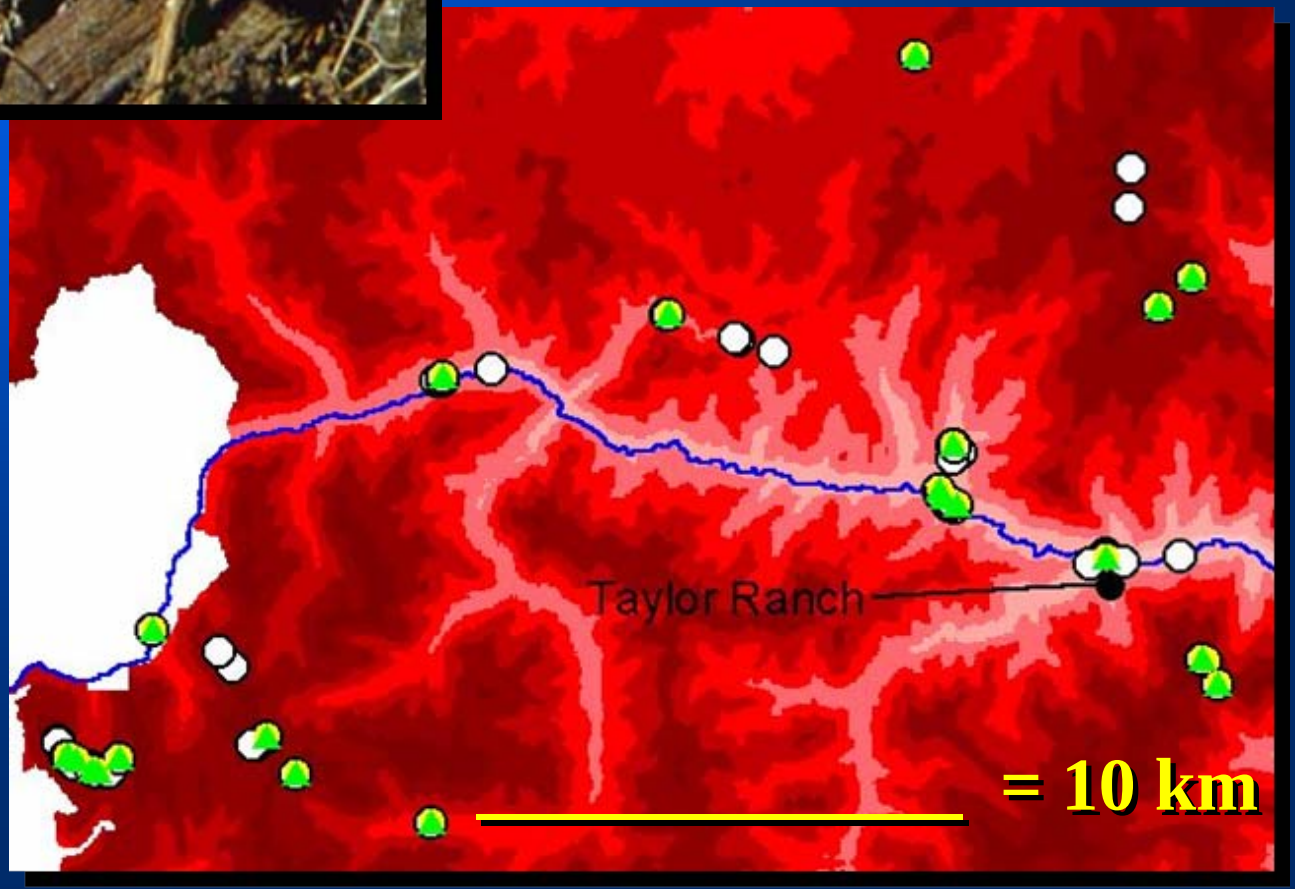
(Widespread)

Long-toed Salamanders:

= Total

= Breeding

= Not Found



Distribution

(Limited)

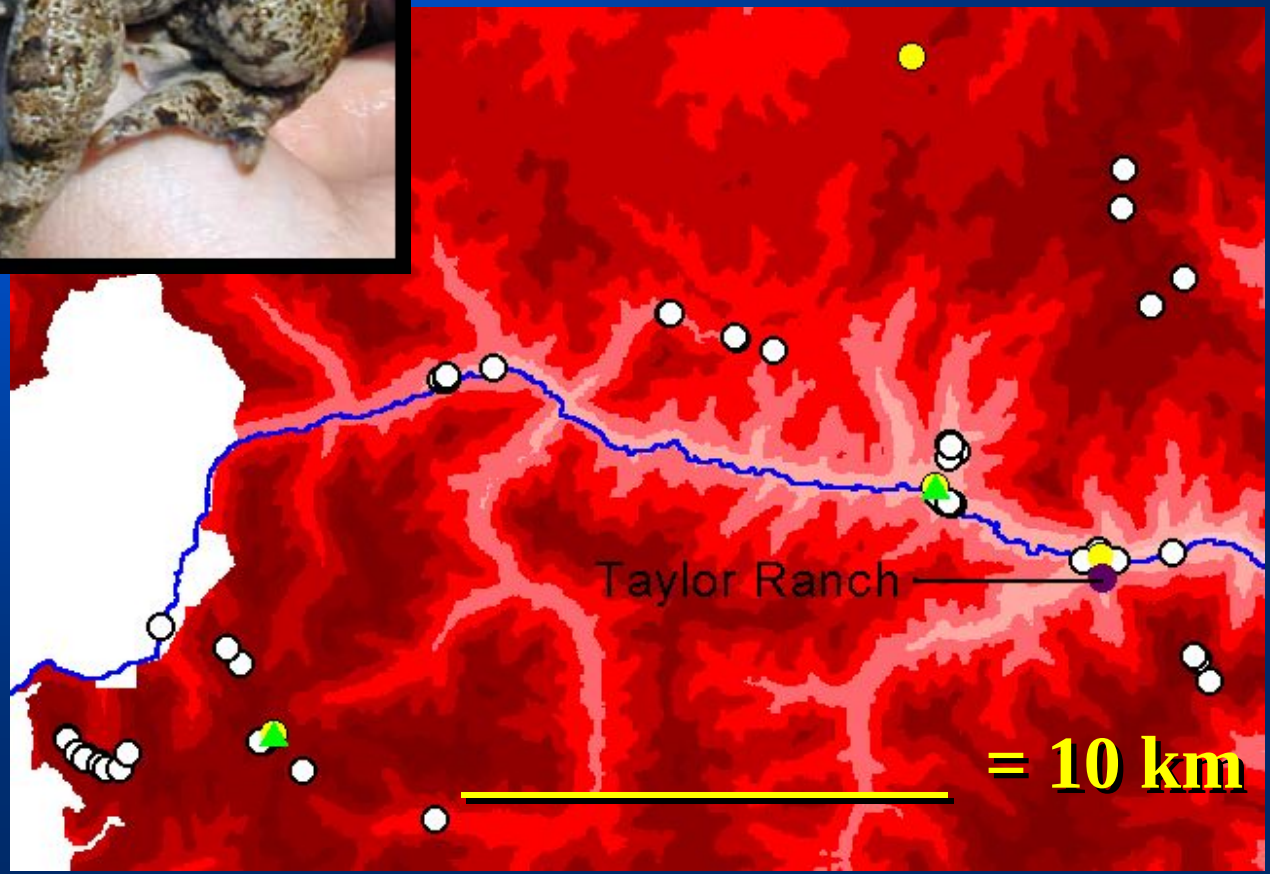
Widespread Decline

Western Toads:

= Total

= Breeding

= Not Found



Distribution

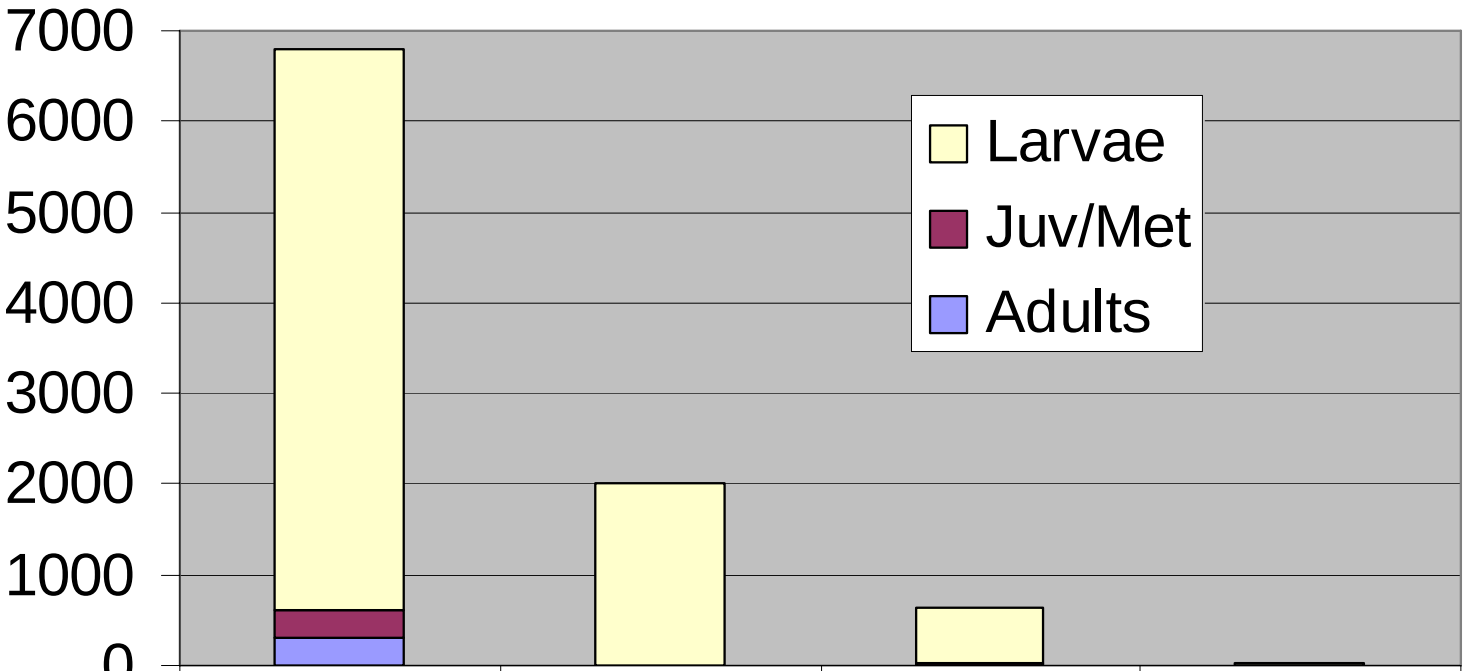
(Disjunct)

Rocky Mountain Tailed Frogs:

= Larvae

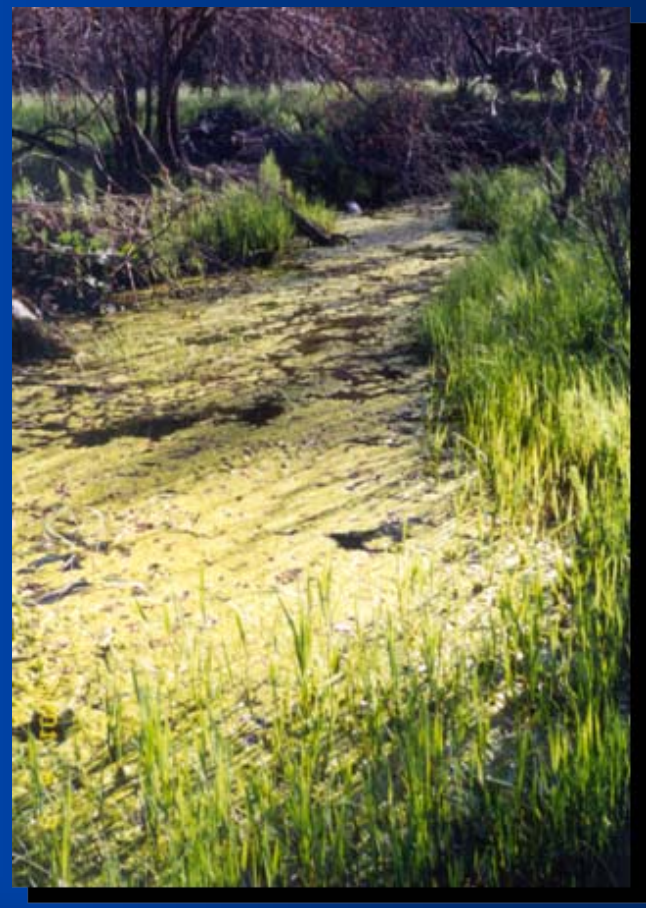
= Not Found

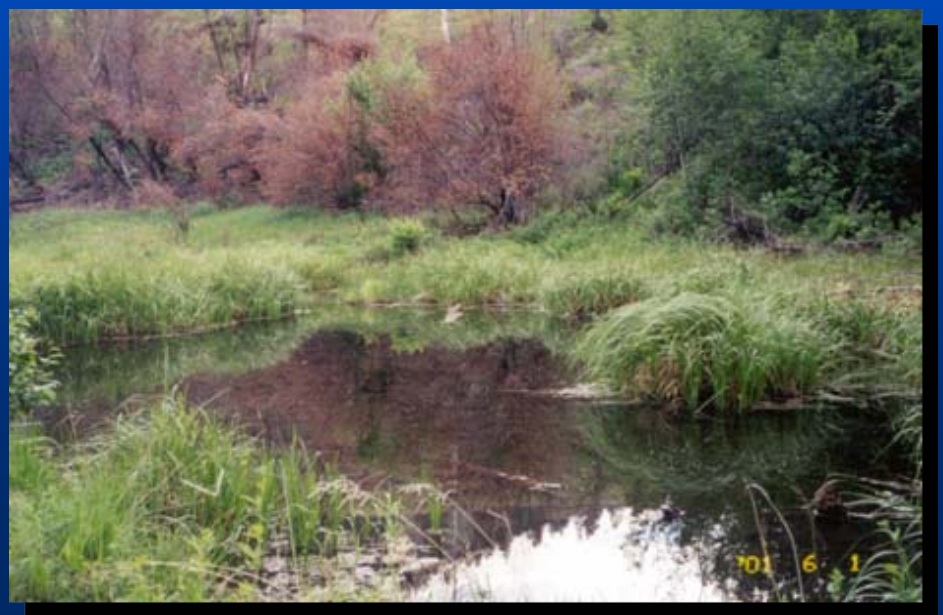
Life Stage Abundance



	S. F.	W. T.	L. S.	T. F.
Larvae	6191	2000	621	28
Juv/Met	299	0	6	0
Adults	306	2	10	0

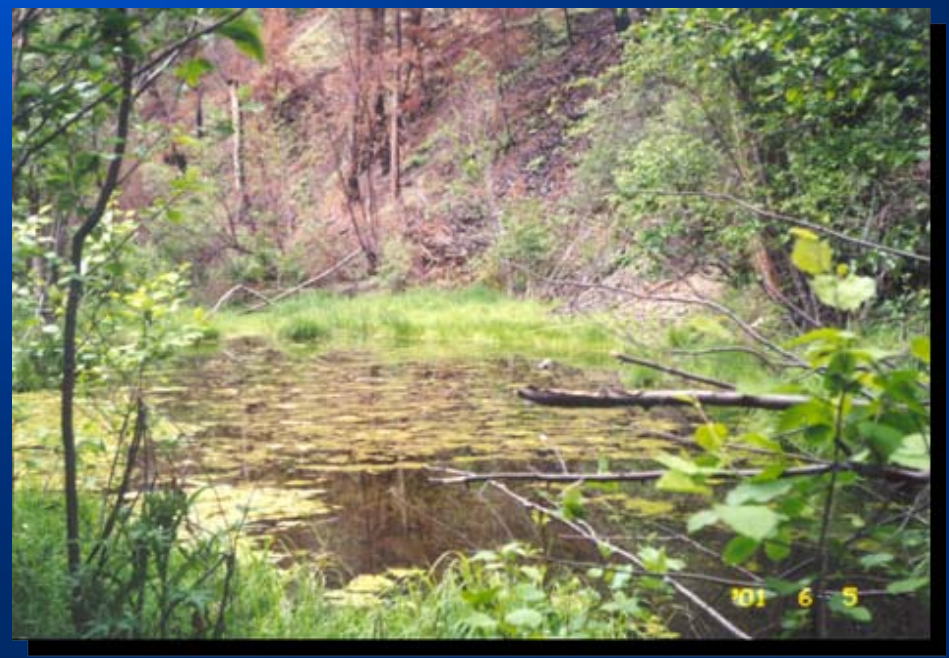
Columbia Spotted Frog Habitat





Shallow standing water
Emergent vegetation
Organic substrate

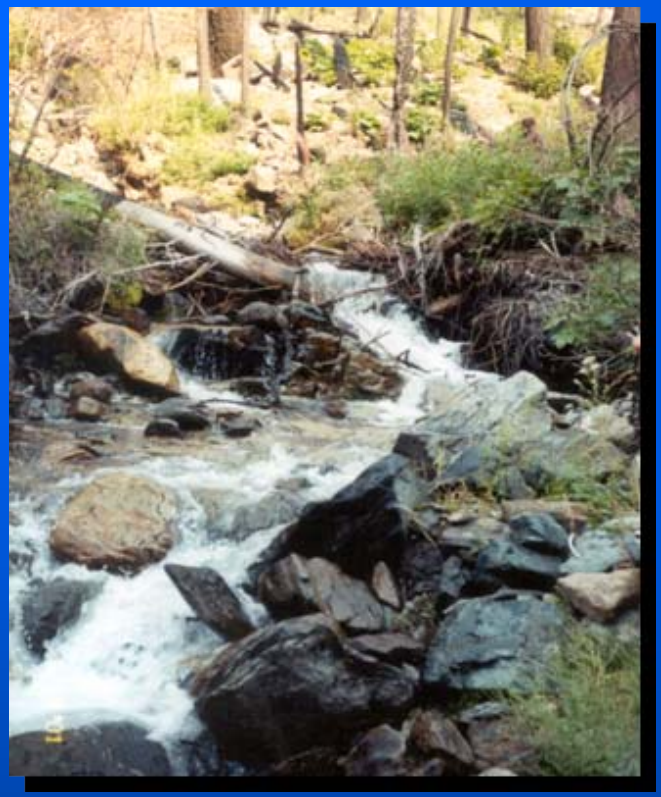
Long-toed Salamander Habitat



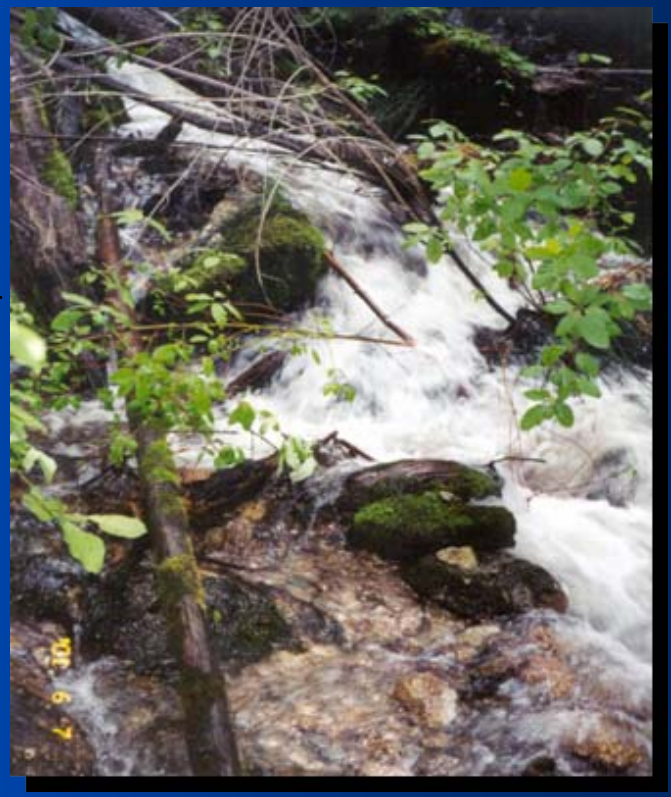
Shallow standing water
Emergent vegetation
Organic substrate

Western Toad Habitat

High conductivity



Rocky Mountain Tailed Frog Habitat



Fast flowing streams

Fire Effects

	Not Burned	Burned
NonBreeding	13	36
Breeding	10	5

$P = 0.012$

- Spotted frogs are more likely to breed in unburned areas rather than burned areas

- The occurrence of all life stages did not show any statistical significance

$P = 0.252$

Fire Effects

Long-toed salamanders

	Not Burned	Burned
NonBreeding	12	30
Breeding	11	11

$P = 0.107$

- A small sample size for the western toad and the Rocky Mountain tailed frog did not permit statistical significant analyses

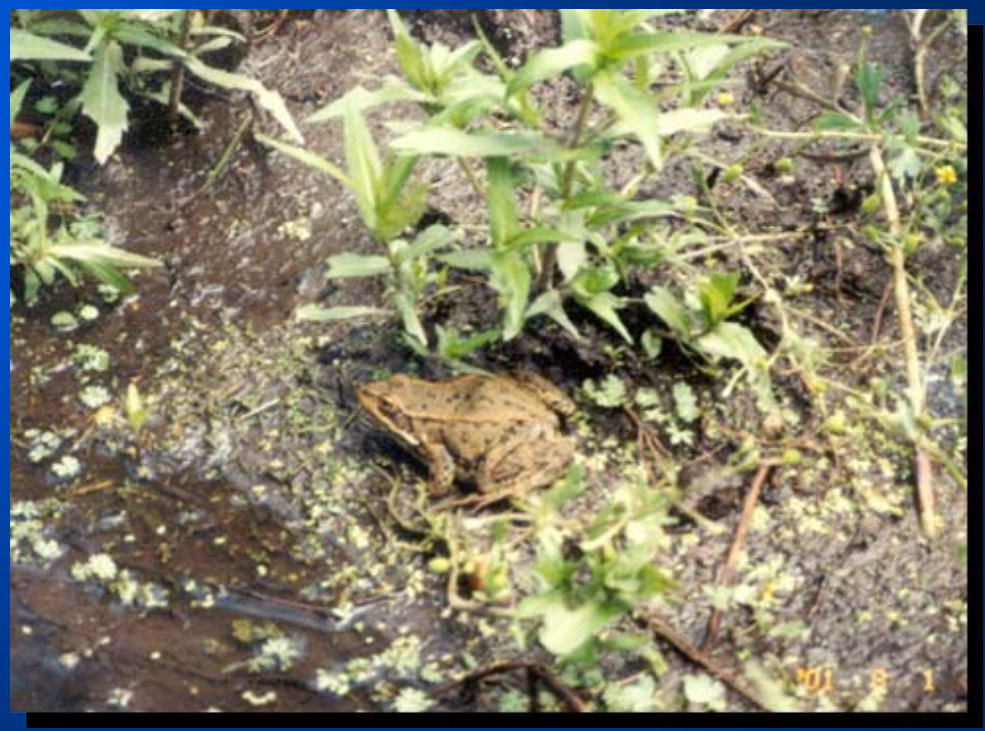
1990's vs. 2001

- No significant difference between decade
- 1990's had 50% more breeding sites observed than in 2001

	1990	2001
Spotted Frog	12	6
Long-toed Salamander	9	8
Western Toad	1	2
Tailed Frog	16	10
TOTAL	38	26

Summary

- Four species have been recorded in the Frank Church Wilderness



- Spotted frogs and long-toed salamanders had a widespread distribution and were relatively common to abundant

Summary

- Western toads and tailed frogs had a limited distribution and were less abundant

- Spotted frogs were most likely to breed in unburned areas rather than burned

Summary

- Other life stages of the spotted frog and other species did not show any significant differences

- No significant difference between decades

- More breeding sites present in 90's vs. 01 (drought or fire)

Acknowledgments

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Questions?