

Pikas as models for connecting
low-mobility mammals across I-90



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- Pikas (*Ochotona princeps*)

- Talus-obligate

- patchy distribution

- Low mobility

- heat
- predation



- Talus

- unique habitat type

- permanent and temporary refugia

Project Objectives

- ***Information to help design and place effective crossing structures***
 1. ***Habitat availability***
 2. ***Habitat characteristics***
- ***Baseline population data before crossing structures are built***
 3. ***Distribution***
 4. ***Abundance***
 5. ***Population genetics***

1. Habitat Availability

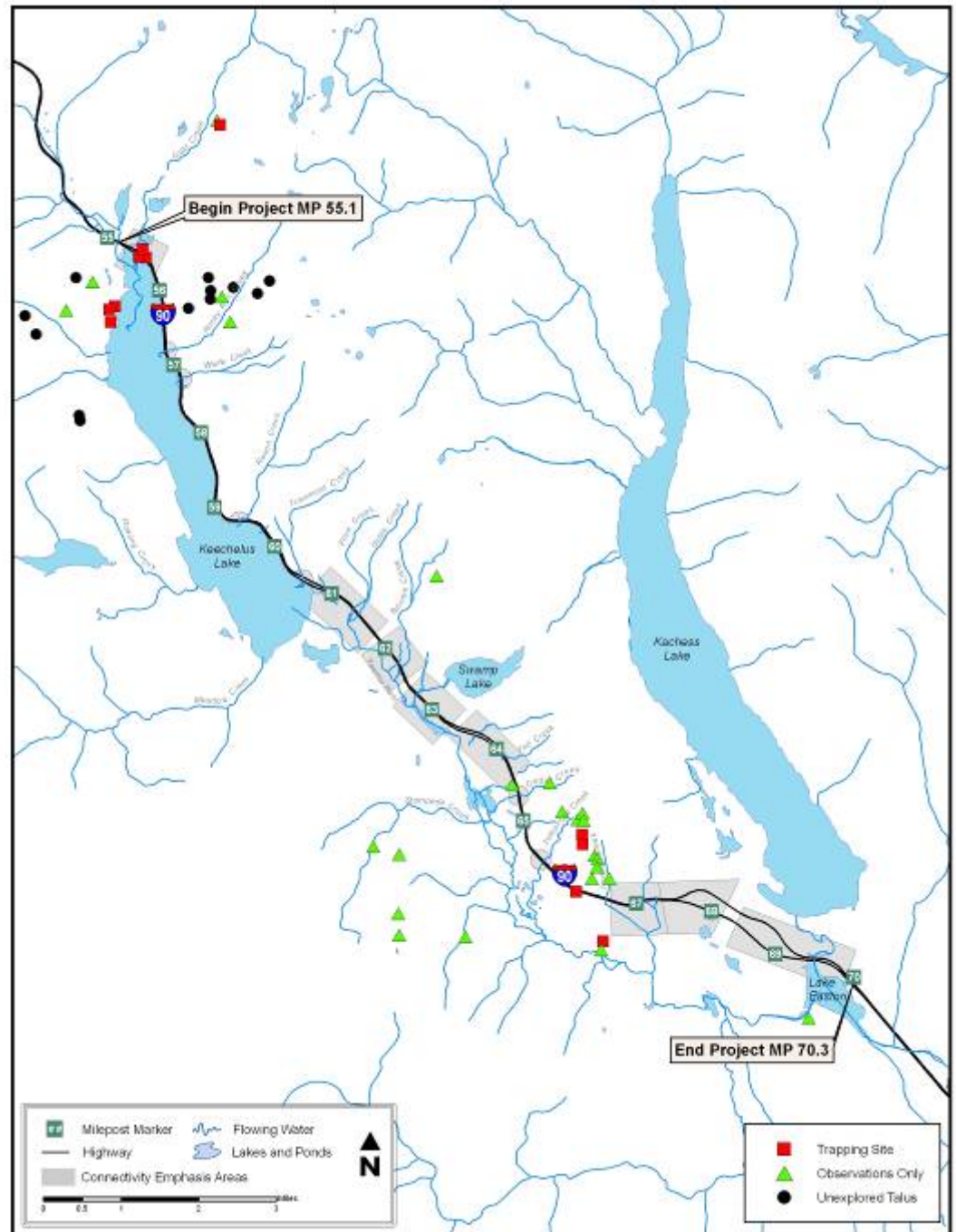
Methods

- previous talus maps
- ground surveys
 - Hyak to Easton
 - within ~ 1 mile of I-90



Results

- 47 sites mapped
 - 25 North/east of I-90
 - 20 South/west of I-90
 - 2 under I-90 bridges



2. Habitat Characteristics

Methods

- talus characteristics at trapping sites
 - talus type
 - slope
 - aspect
 - patch size (area)
 - isolation (distance to nearest talus)
 - rock size



Results

- Variety of talus types



Natural talus, disturbed by quarrying
(Hudson Creek "Quarry Nob")



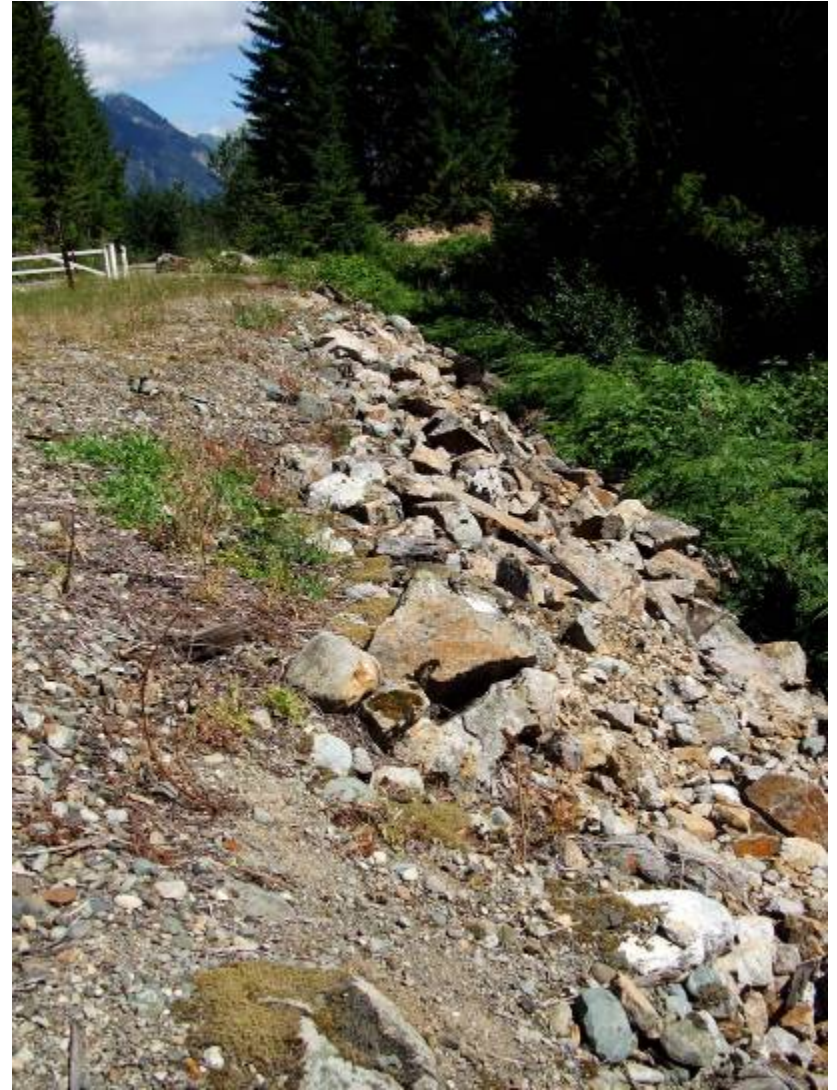
Natural talus slope
(Mt. Amabalis)



Human-made talus adjacent to I-90
(Photo: C. Davidson)



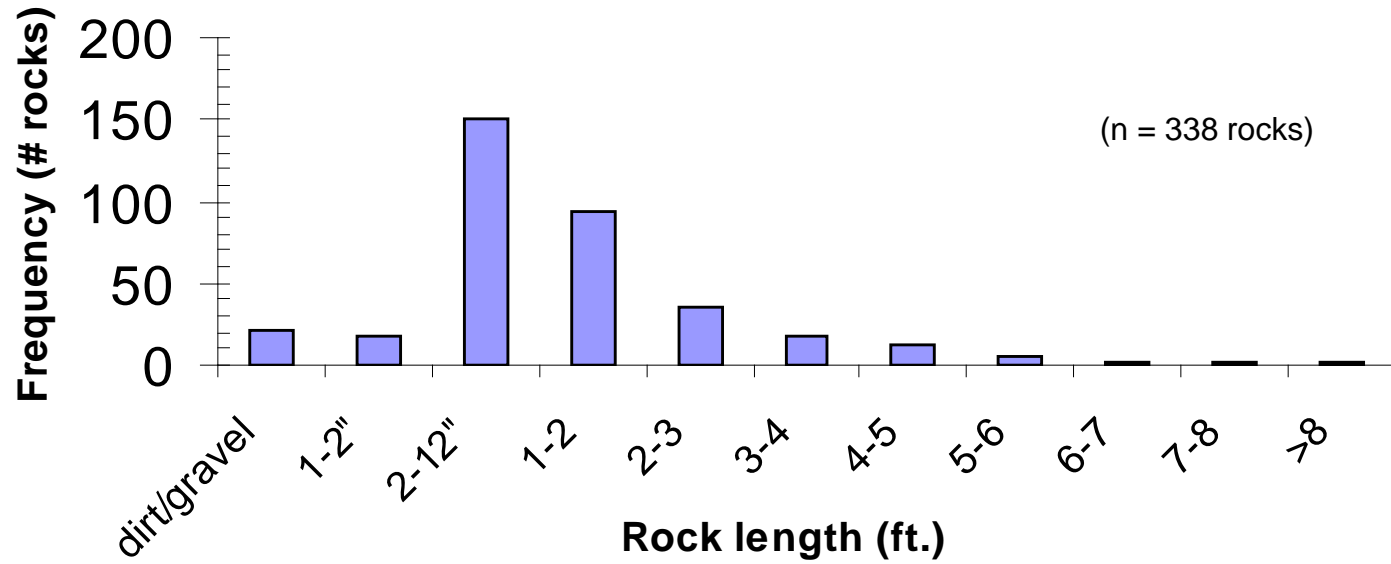
John Wayne Trail
near Keechelus Lake boat ramp



- Talus characteristics

Talus patch	Patch size (acres)	Slope aspect (degrees)	Slope angle (%)	Canopy Cover (%)	Distance to nearest talus (m)
Amabilis West C	1.8	295	57	12	< 100
Amabilis West D	1.5	155	70	33	< 50
Gold Creek Trail	2.7	284	47	2	?
Gold Creek Bridges	0.4	61	69	32	< 100
Hudson Creek Quarry	19.0	14	66	38	< 100
Hyak NF 9070	3.2	142	76	30	< 100
I-90 milepost 66	1.7	181	74	23	15
Keechelus boat ramp	1.1	75	55	69	~ 100
Keechelus boat ramp-JWT	0.5	157	76	73	~ 100

- Rock size



3. Pika distribution/ habitat occupancy

Methods:

- visual observations of pikas



Photo: C. Davidson

Methods:

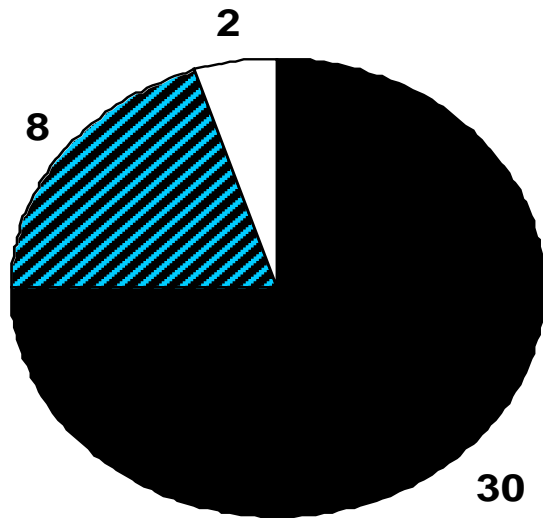
- listen for pika calls
- search for pika haystacks
- search for pika latrines



(Photo: C. Davidson)

Results:

- 40 sites surveyed \Rightarrow 95% occupied



Talus patch occupancy

- Pikas seen or heard
- ▨ Haypiles or latrines
- No evidence of pikas

4. Pika abundance

Methods:

- 9 trapping sites (1 included 3 distinct patches)
 - elevational range 2520 – 3880 ft.
- live-trapped and marked individual pikas





Photo: P. Garvey-Darda



Methods:

- marked locations of tagged and untagged individuals; estimated minimum number of pikas



Gold Creek Trail

Results:

- 29 individuals trapped (at 6 sites)



Gold Creek Trail

Talus site	# pikas marked	# others observed	min. # indiv.	patch size (acres)	min. density (#/acre)
I-90 milepost 66	0	0	0	1.7	0.0
Amabilis West C	0	2	2	1.8	1.1
Keechelus boat ramp	0	11	11	1.1	10.0
Hyak NF 9070	3	4	7	3.2	2.2
Hudson Creek Quarry	4	7	11	19	0.6
Gold Creek Bridges	4	2	6	0.4	15.0
Amabilis West D	6	5	11	1.5	7.3
Gold Creek Trail	6	30	36	2.7	13.3
Keechelus BR – JWT	6	9	15	0.5	30.0

5. Population Genetics

Methods

- ear tissue samples from all trapped individuals
- fecal pellet samples from other individuals
- all tissues stored for future genetic analyses



(Photo: P. Mackay)

Results

- Ear tissues – 27 pikas
- Fecal pellets – 9 pikas



Pika latrine (Photo: C. Davidson)

2009 Plan

- Intensive sampling in Gold Creek CEA
 - Both sides of I-90
 - Trap in new talus patches
 - Resample 2008 areas for additional individuals
- Intensive survey between Gold Creek bridges and Keechelus boat ramp
 - for possible dispersing individuals
- Determination of subspecies in area
 - *Ochotona princeps fenisex* (Ashnola pika)
 - *O. p. brunescens* (Cascade pika)

2009 Plan (cont.)

- Continue to identify and map talus patches
 - entire project area (Gold Creek to Easton)
- Talus habitat measurements
 - Same as 2008 measurements
 - Add talus temperatures - dataloggers

Acknowledgments

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