The Southern Interior mule deer project [#SIMdeer]

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Mule Deer in British Columbia

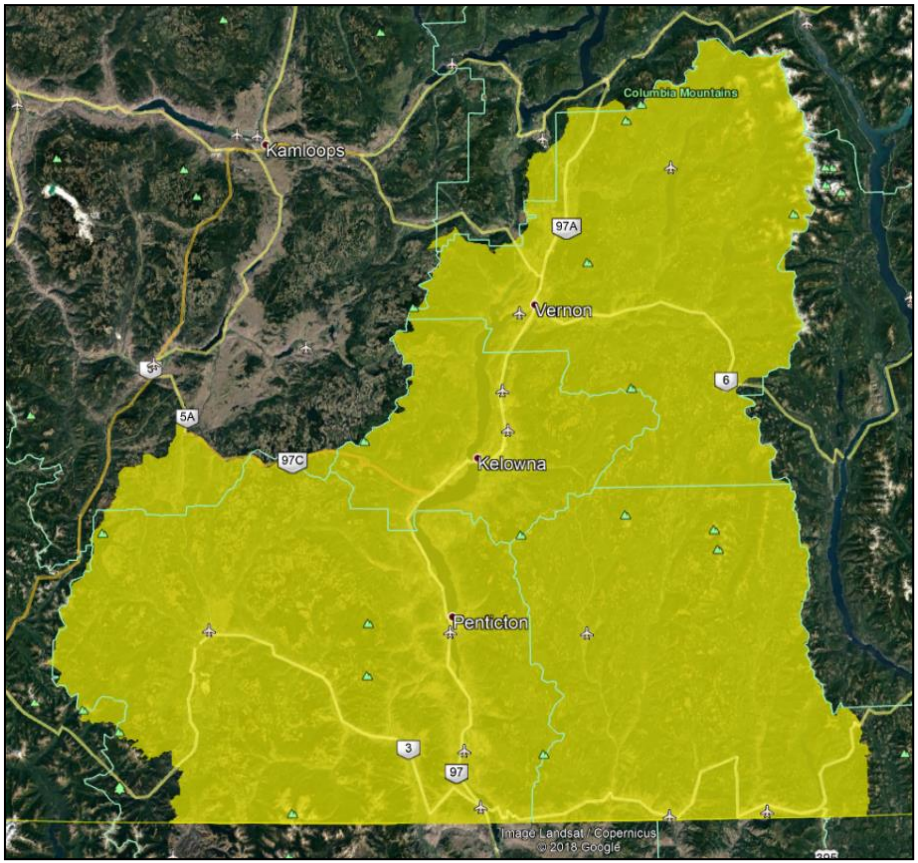
- 75% of resident hunters seek to harvest deer.
- Hunters spend ~ $130 million per year.
- Ecologically important large herbivore.
- Important source of food security and cultural practice for Indigenous communities.

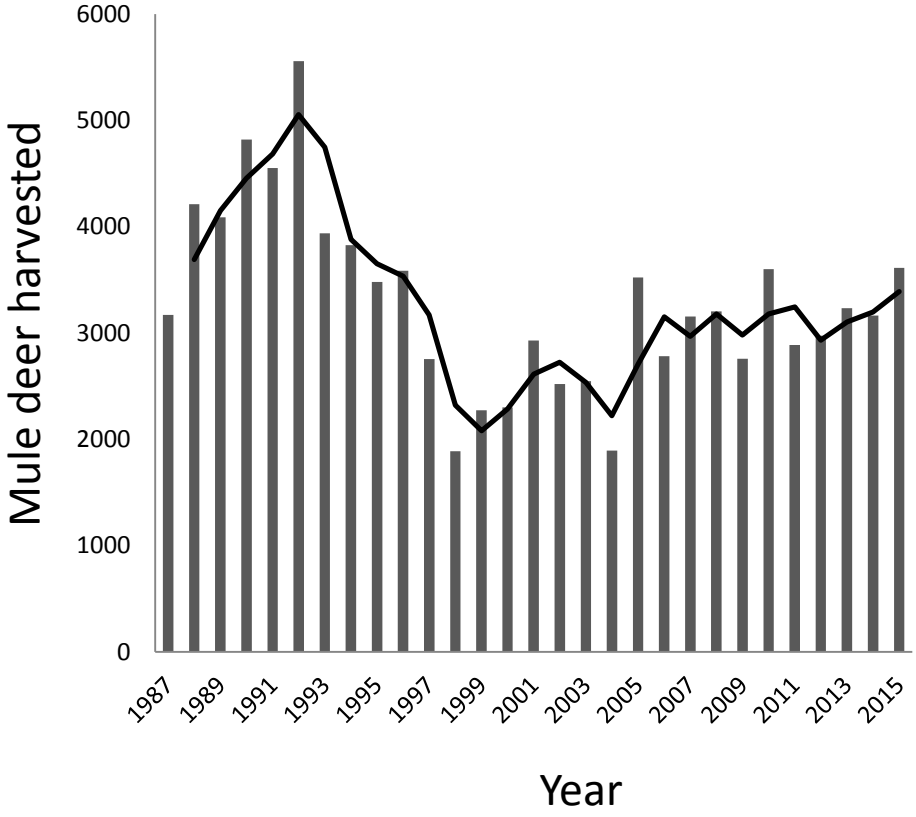
Responsive Management 2013

Mule Deer in British Columbia

- Populations are suspected to be in decline, in some areas as far back as the 1950's

Region 8: mule deer harvest 1987-2015

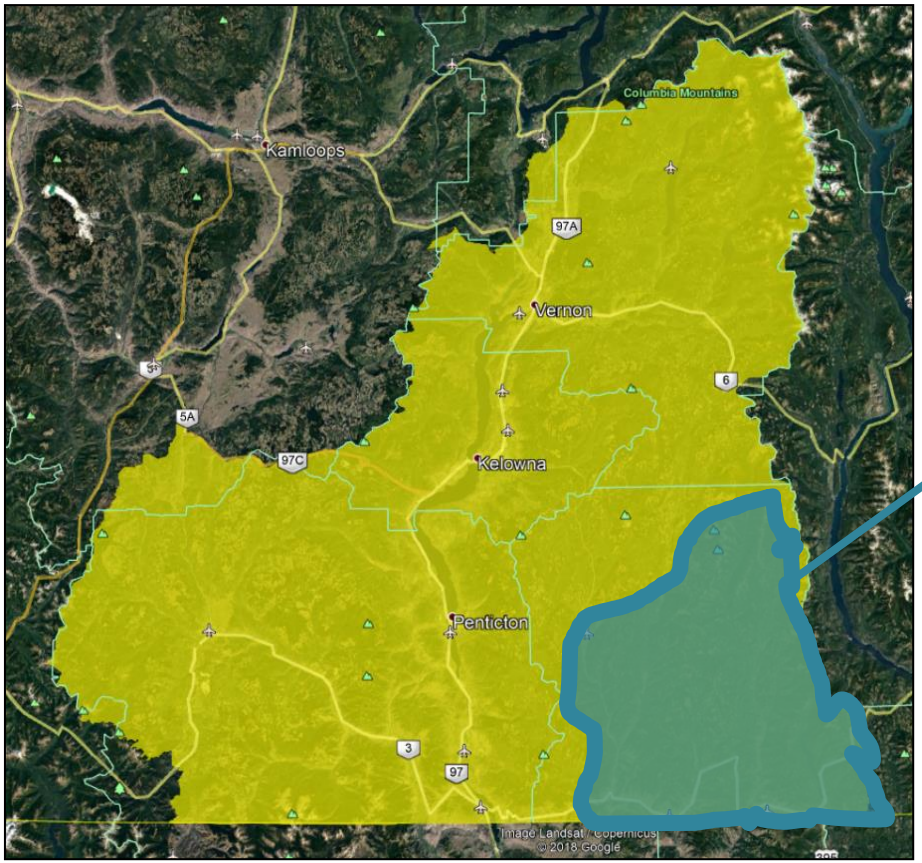


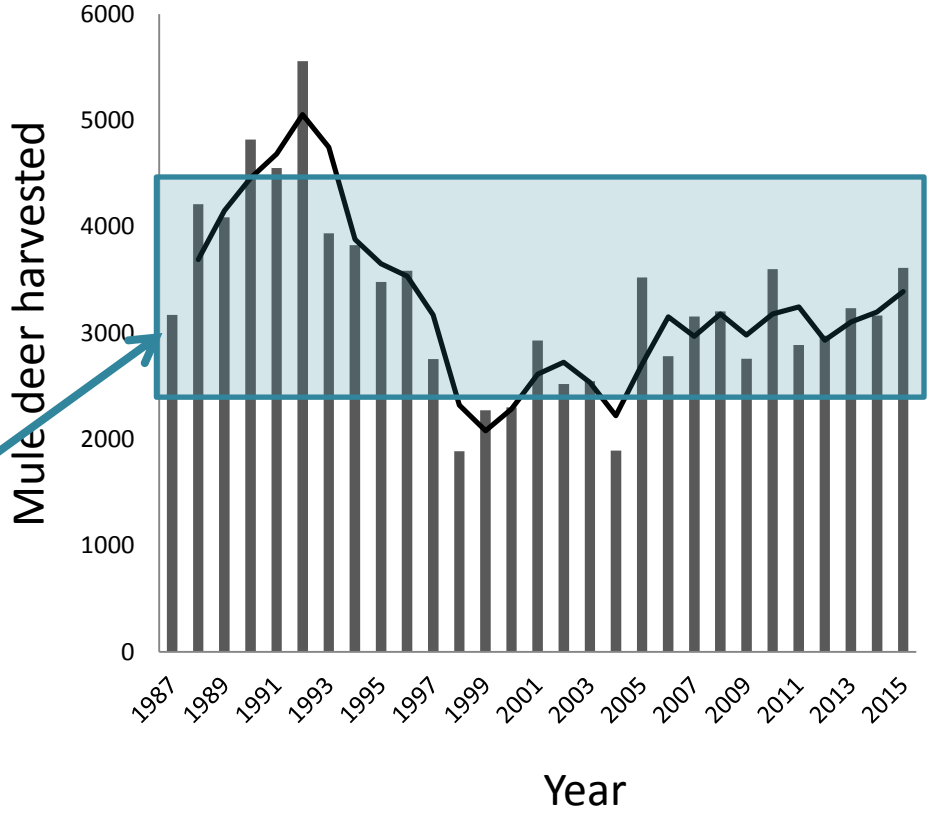


Data from: BC FLRNO

Region 8: mule deer harvest 1987-2015

Boundary region only: mule deer harvest 1959-1967





Data from: BC FLRNO

Possible limiting factors of mule deer populations

Food

Competition

Predators

Landscape change

Food makes deer

Supplemental feeding experiment on mule deer in Colorado

6,000 deer/year

Bishop et al. 2009

Competition: Mixed results

Cattle

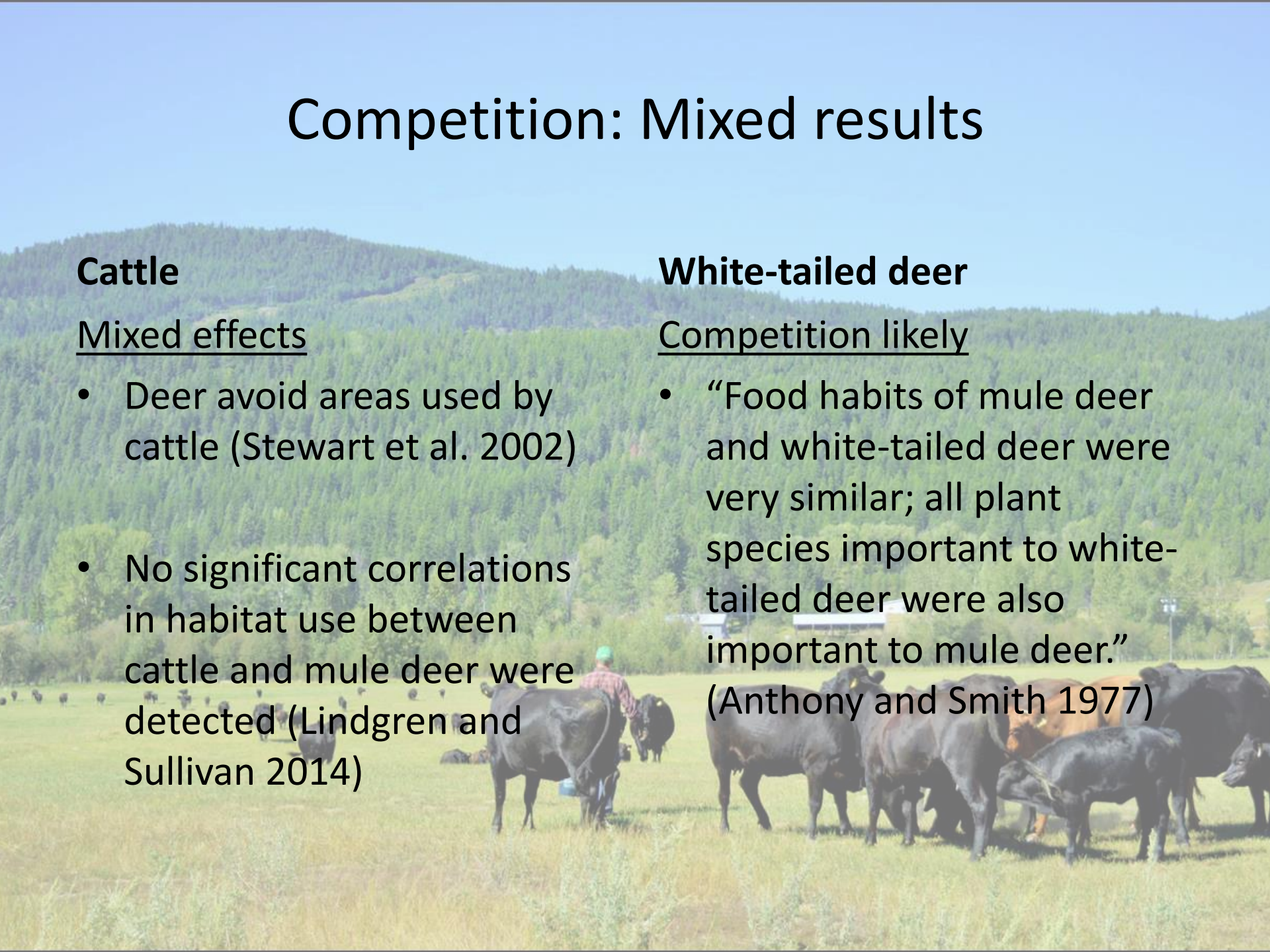
Mixed effects

- Deer avoid areas used by cattle (Stewart et al. 2002)
- No significant correlations in habitat use between cattle and mule deer were detected (Lindgren and Sullivan 2014)

White-tailed deer

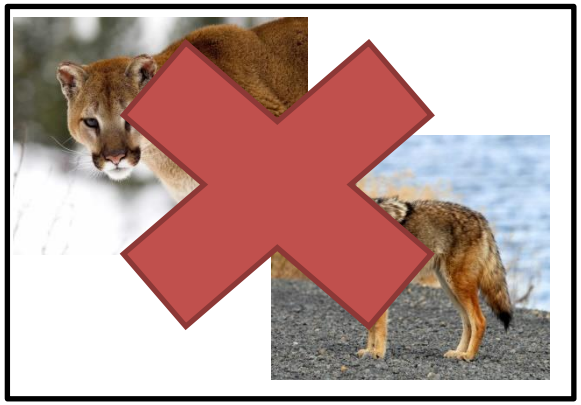
Competition likely

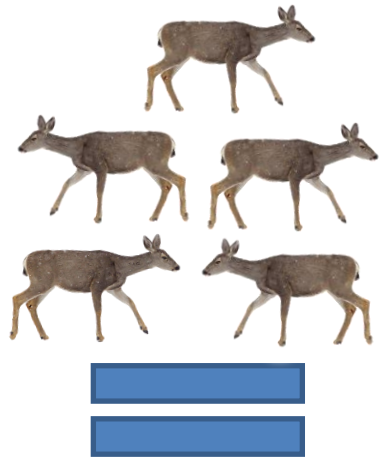
- "Food habits of mule deer and white-tailed deer were very similar; all plant species important to white-tailed deer were also important to mule deer." (Anthony and Smith 1977)



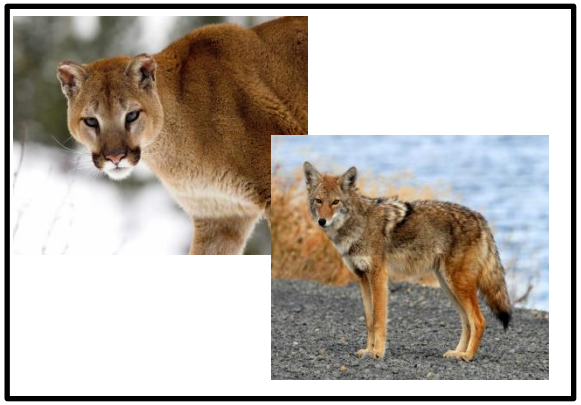
Predation: unlikely to be as important as food

Treatment areas





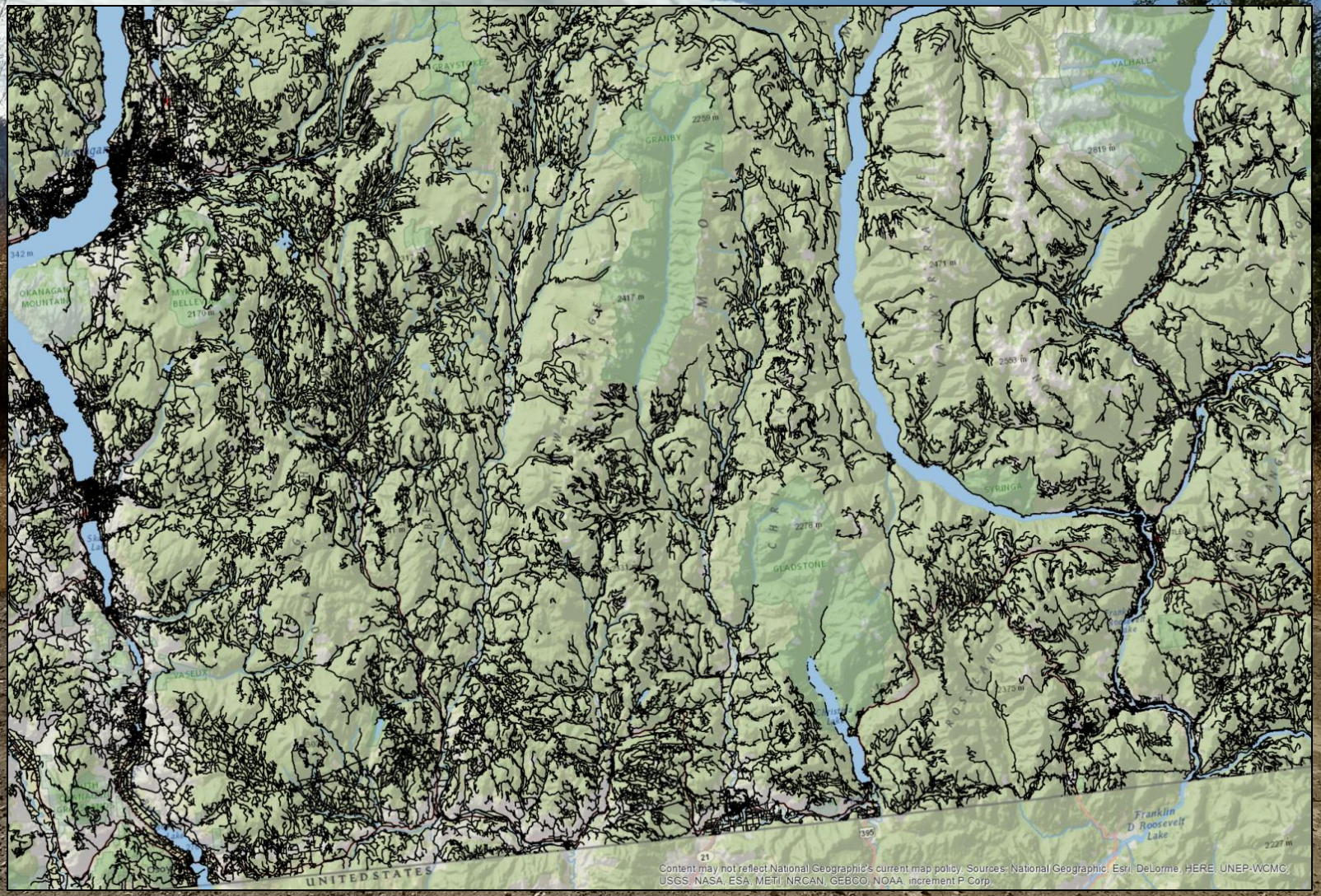
Control areas



Hurley et al. 2011

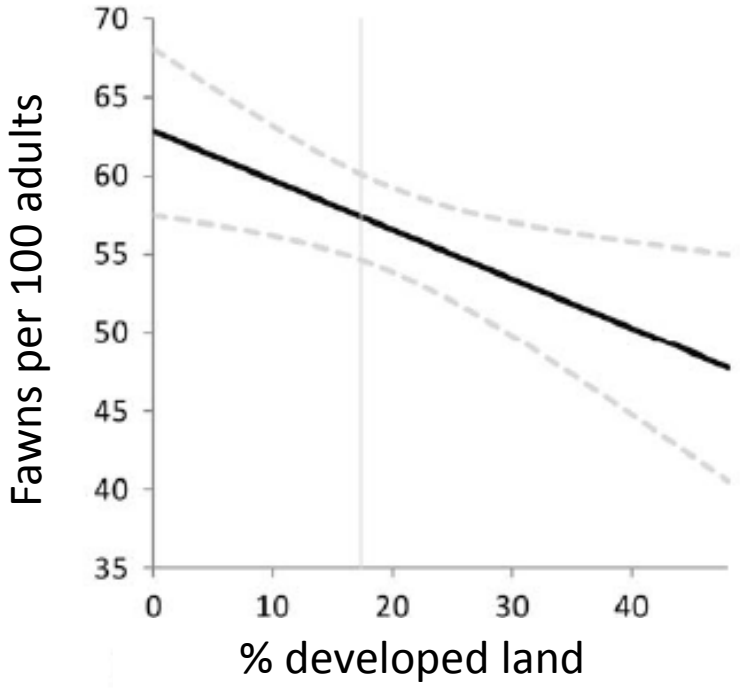
Landscape change

Landscape change: roads

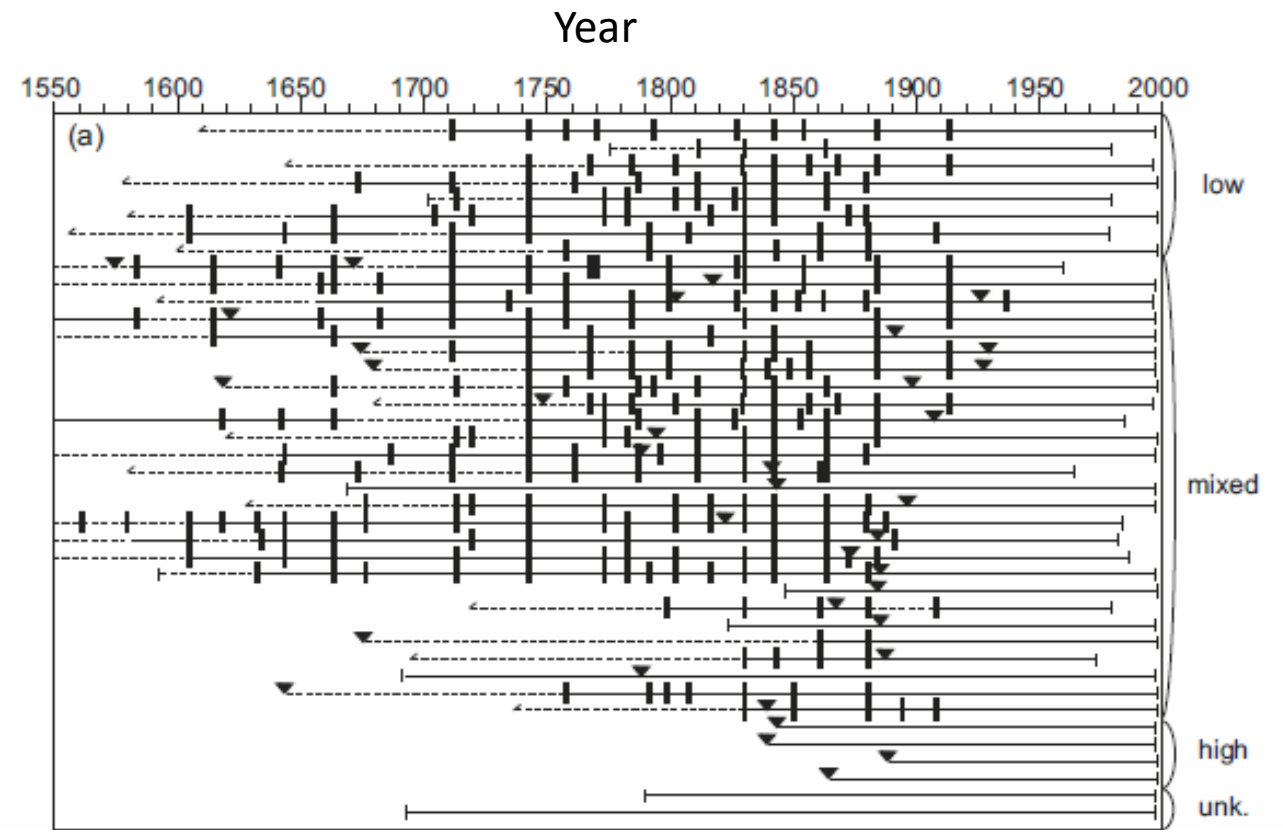


Landscape change: urban development

Fewer fawns per adult as urban development increases (Johnson et al. 2016)



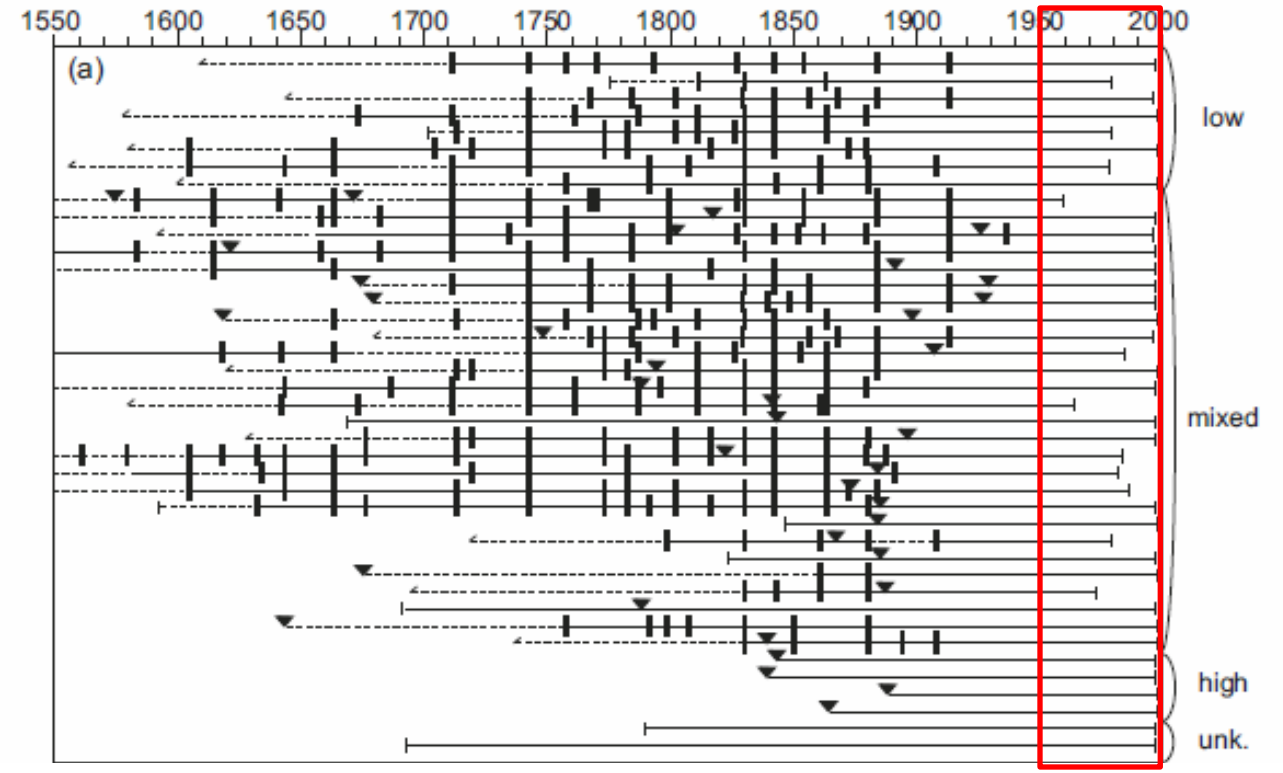
Landscape change: fire pattern



= burn scar on tree ring sequence

Heyerdahl et al . 2012

Landscape change: fire pattern



= burn scar on tree ring sequence

Loss of fire over the last 50 years.

Heyerdahl et al . 2012

Fire creates quality mule deer forage

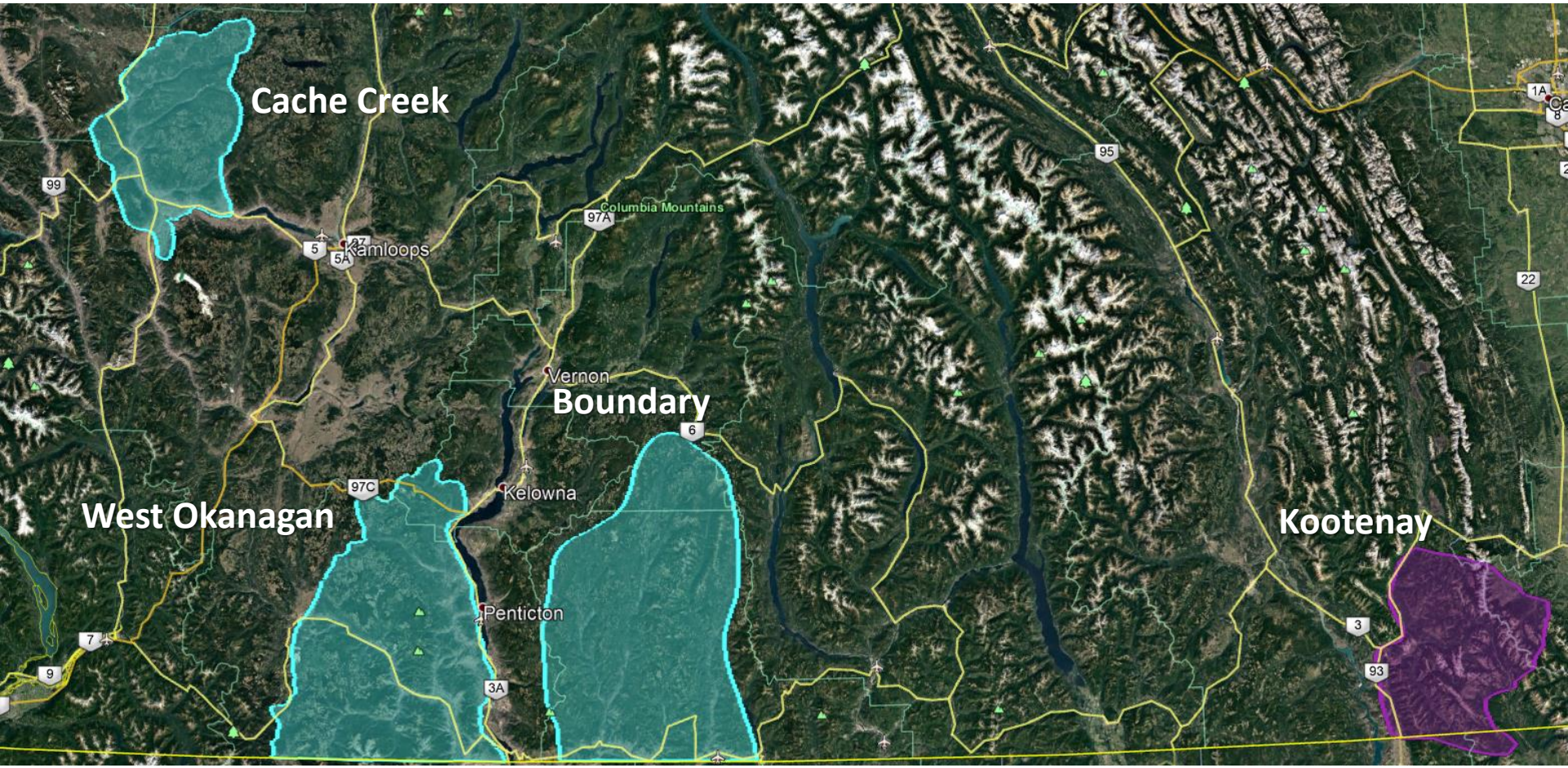
- More plant protein in burned areas
- More digestible plants in burned areas

Hobbs and Spowart 1984

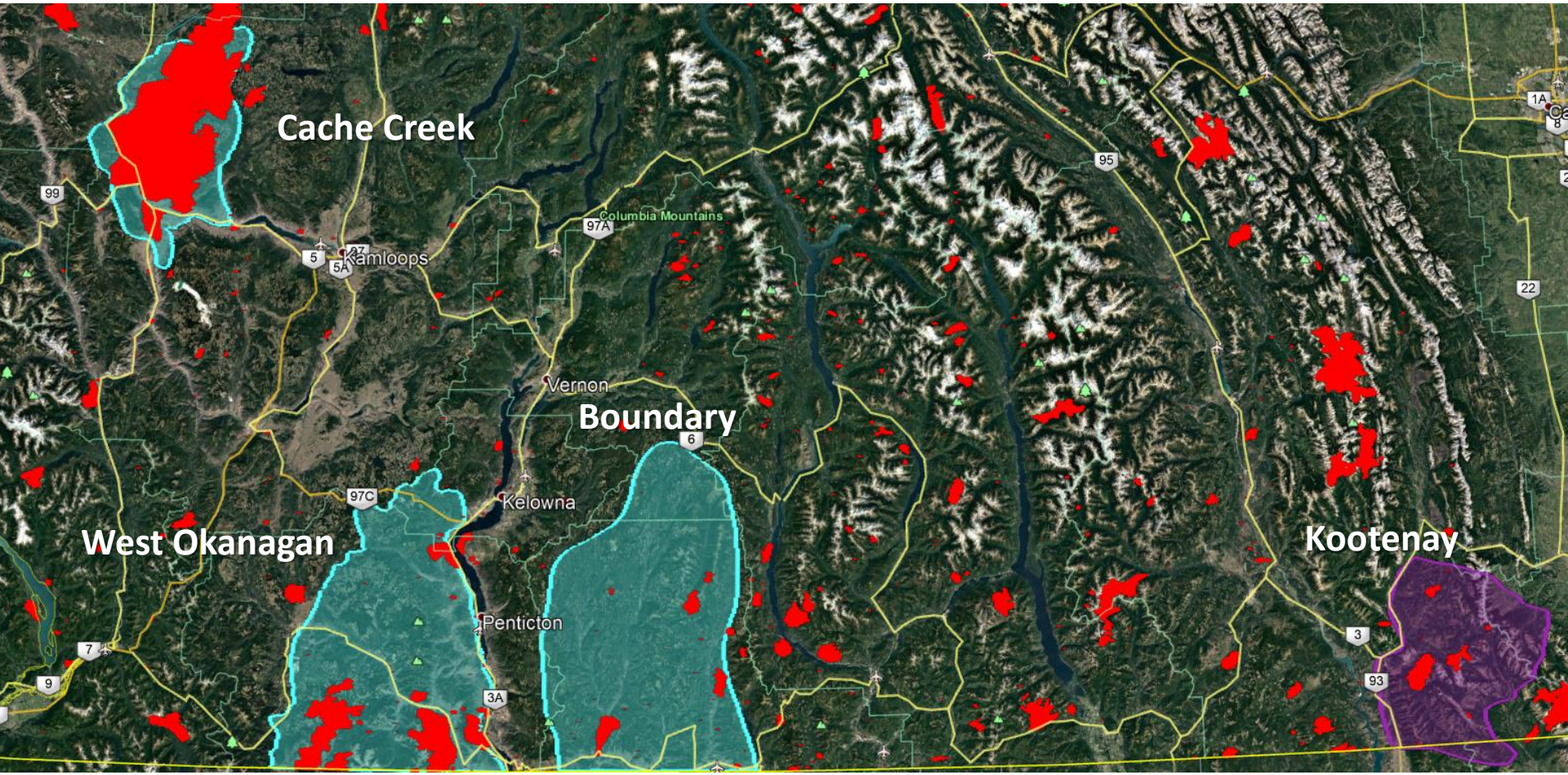
#SIMDeer: The Southern Interior mule deer project

<u>GOAL</u>: To restore mule deer populations in southern interior British Columbia through the use of an evidence-based and cooperative approach to landscape management.

#SIMDeer: The Southern Interior mule deer project



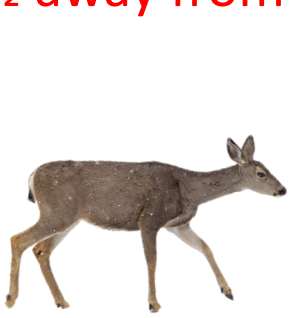
#SIMDeer: The Southern Interior mule deer project



#SIMDeer: The Southern Interior mule deer project

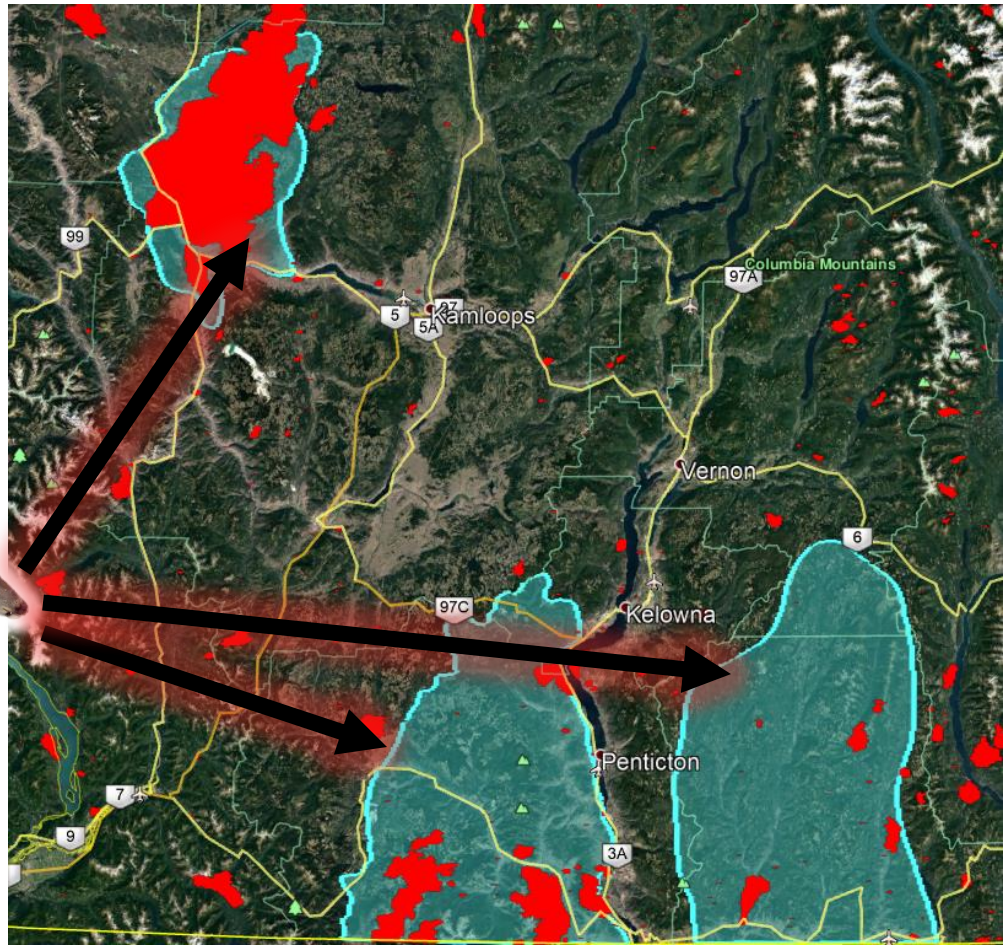
Landscape experiment

- 3 study areas
- GPS tag 30 adult females per area
- GPS tag 20 juveniles per area
- 100 camera traps
- ½ near recent burns
- ½ away from recent burns



20 per study area

30 per study area

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30
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Currently Collared

Boundary

- 27 adult females
- 10 fawns

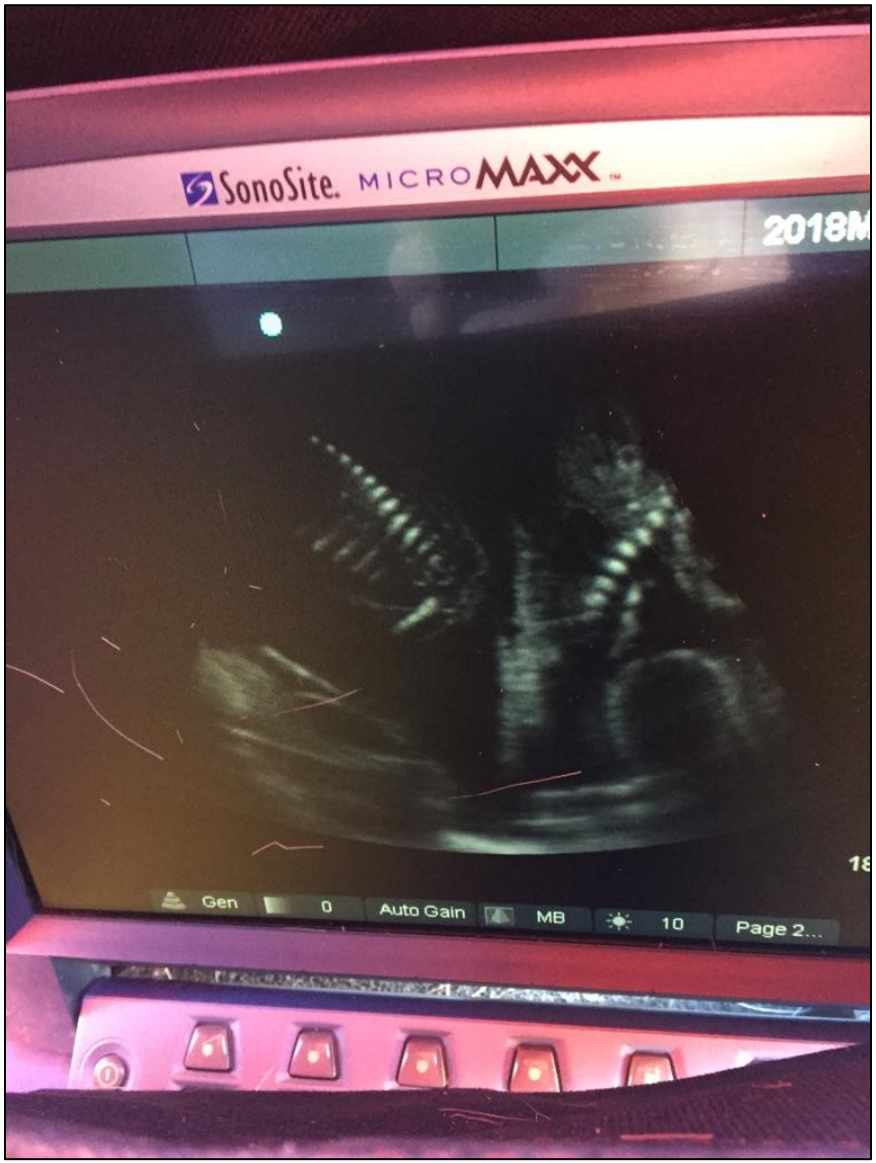
Cache Creek

- 31 adult females
- 4 fawns

West Okanagan

- 29 adult females
- 17 fawns

Pregnancy Results



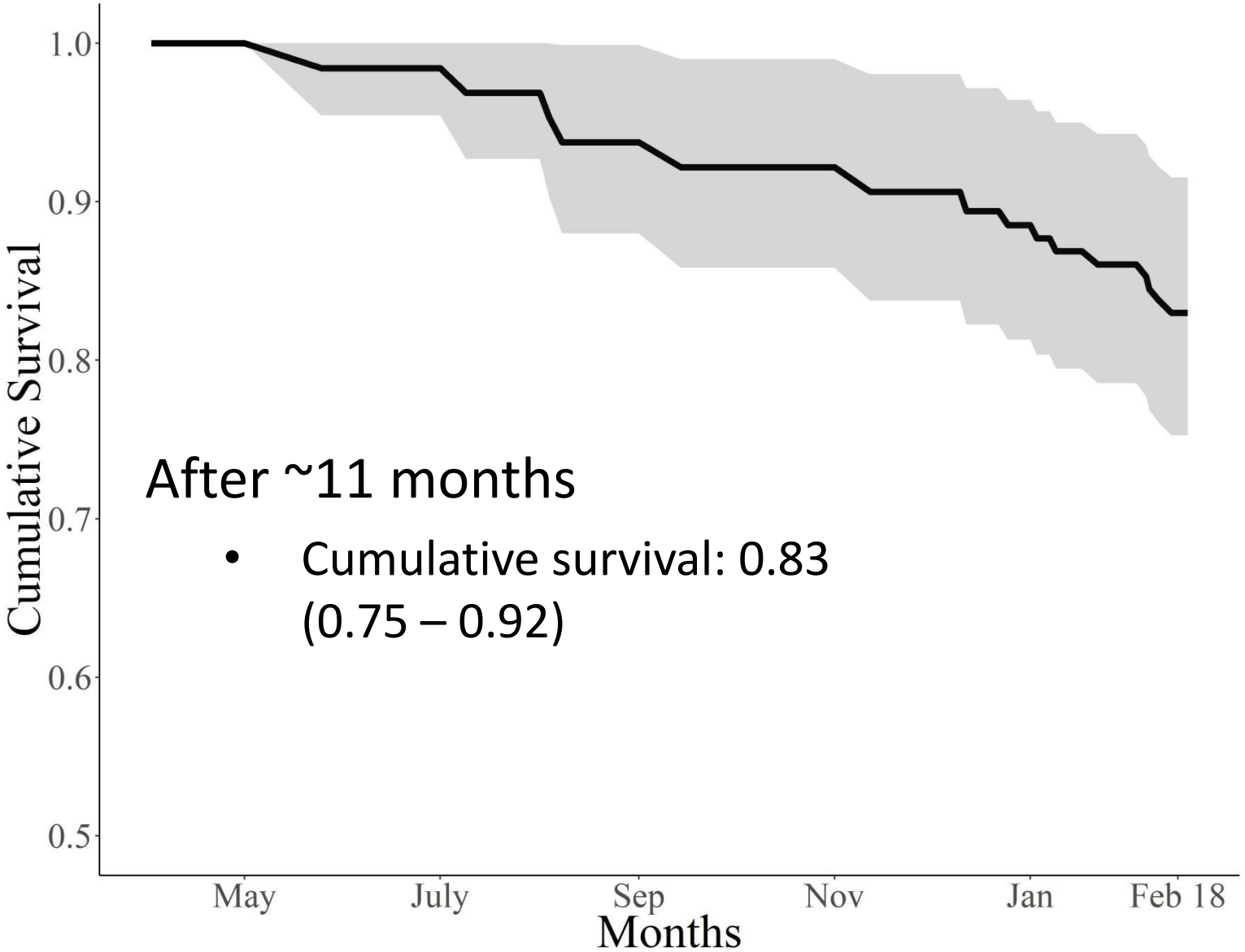
93% were pregnant

- 2 yearlings and 2 adults were not

>69% of does carrying twins.

Twinning rates elsewhere:
25% - 55% Hamlin et al 1989 [MT]
63% Tollefson et al 2010 [WA]
79% Bishop et al 2009 [CO]

Preliminary survival results



After ~11 months

- Cumulative survival: 0.83 (0.75 – 0.92)

Preliminary survival results

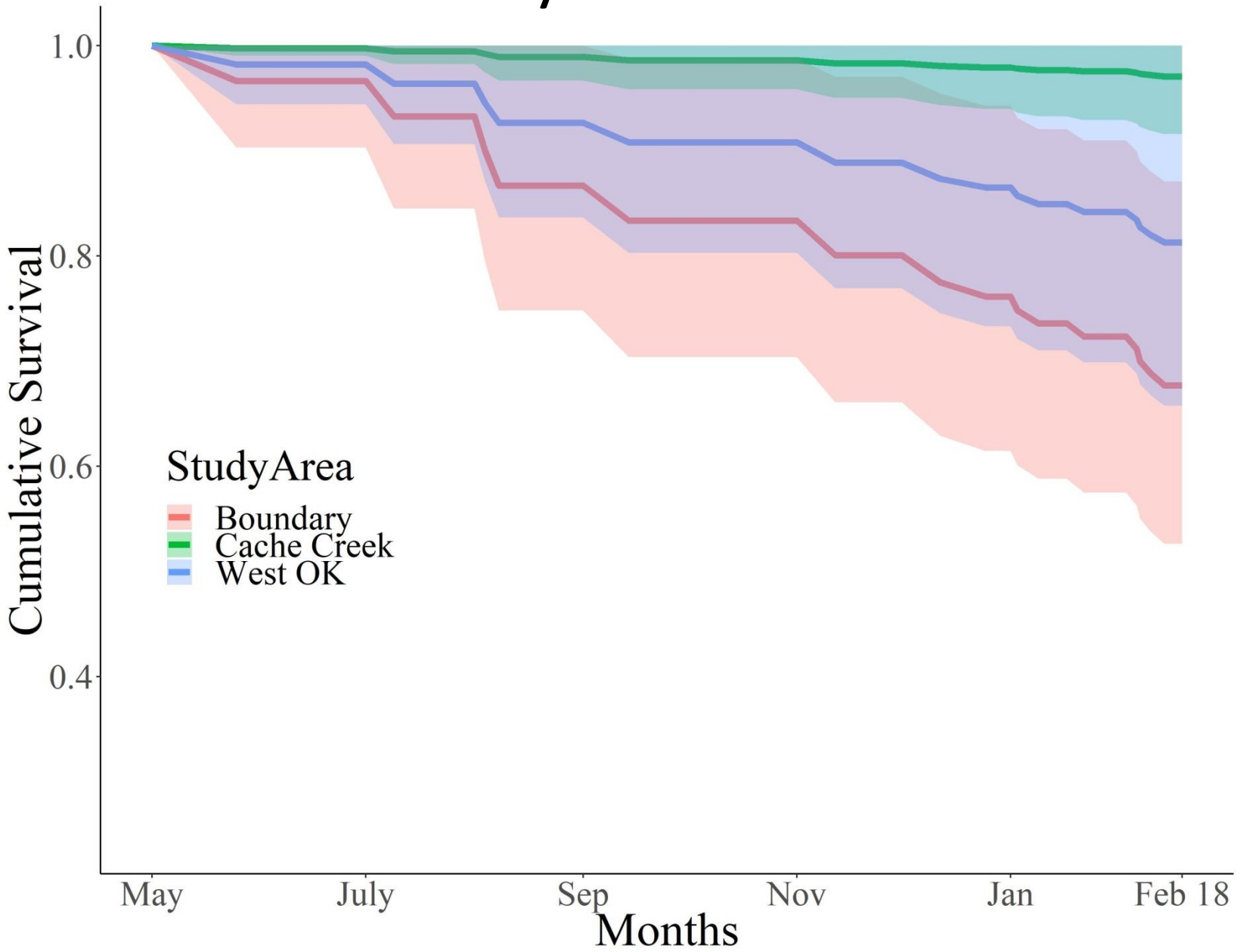
After ~11 months

- Cumulative survival: 0.83 (0.75 – 0.92)

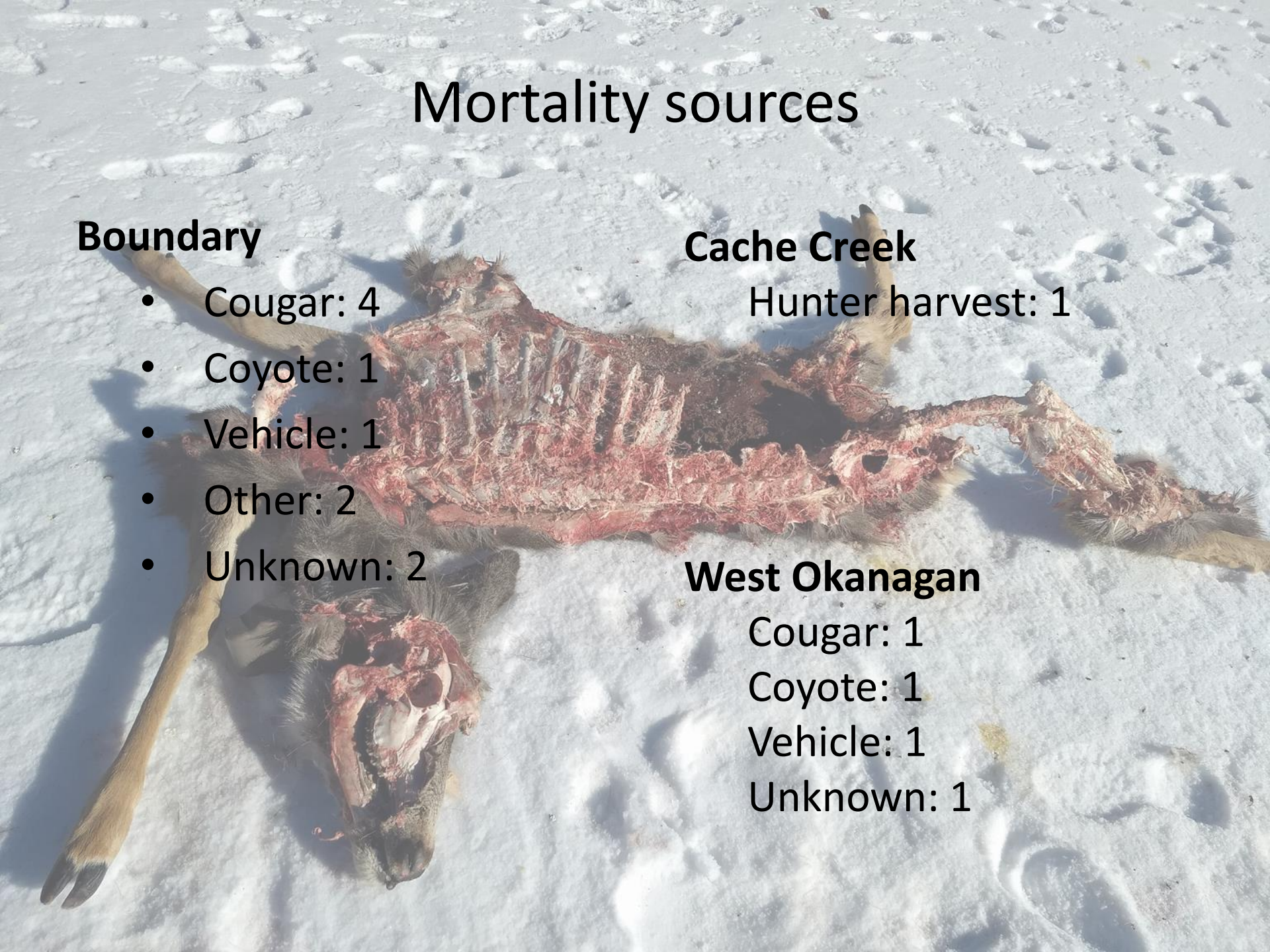
Compared to other regions

- Colorado: 0.83 (Bishop et al. 2008)
- Idaho: 0.93 (Hurley et al. 2011)
- California: 0.87 (Monteith et al. 2013)

Preliminary survival results



Mortality sources



Boundary

- Cougar: 4
- Coyote: 1
- Vehicle: 1
- Other: 2
- Unknown: 2

Cache Creek

Hunter harvest: 1

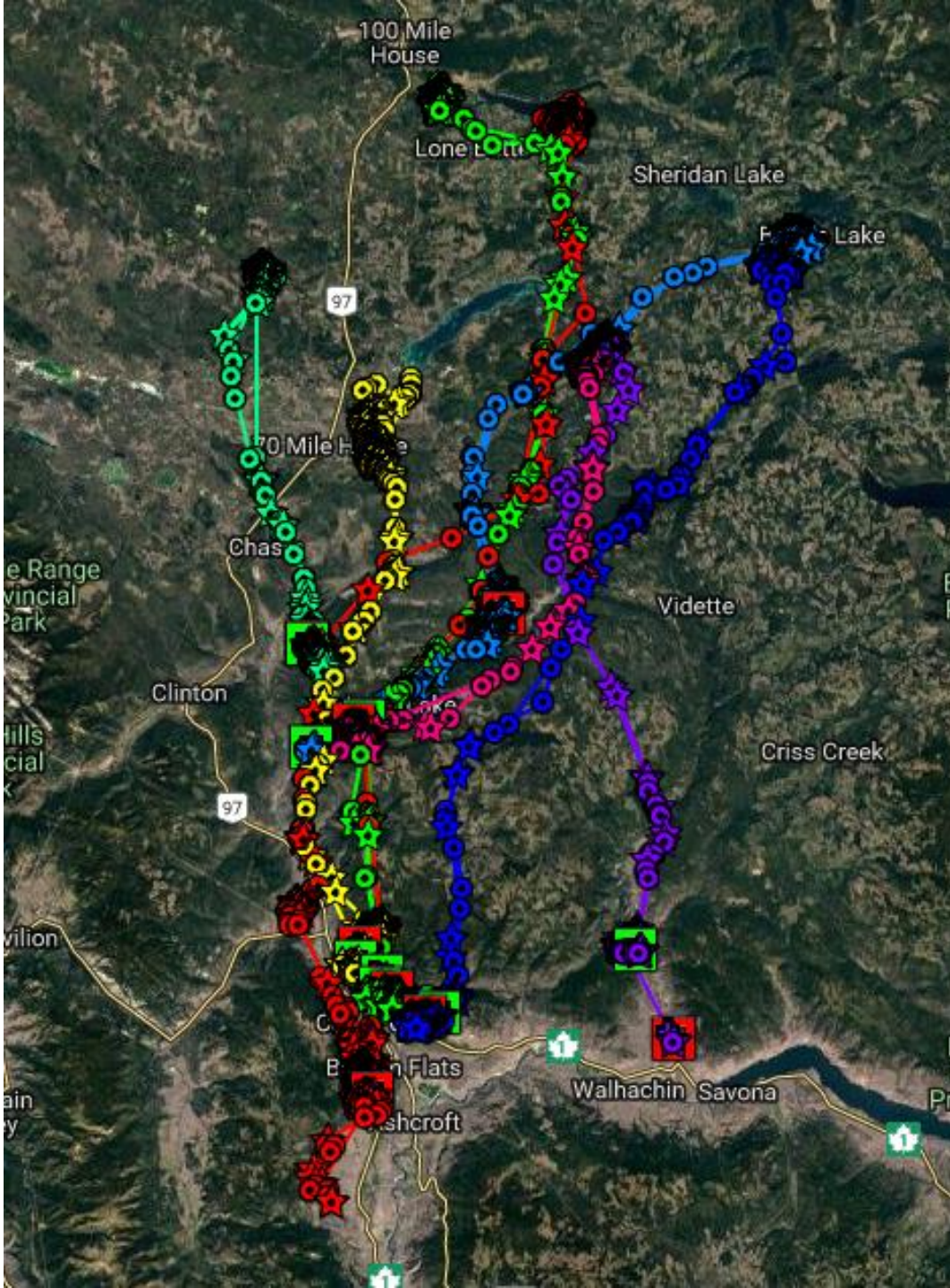
West Okanagan

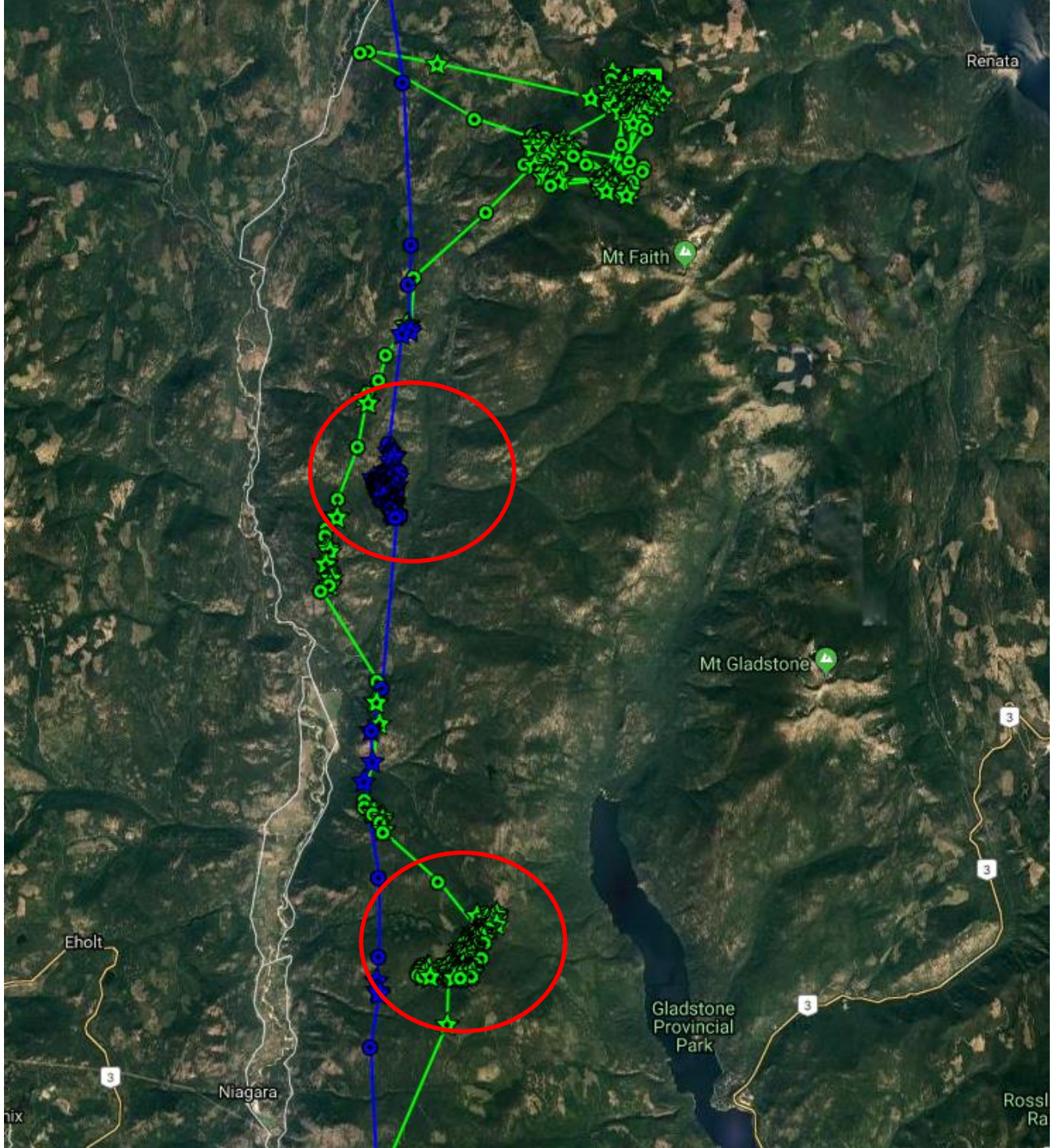
Cougar: 1
Coyote: 1
Vehicle: 1
Unknown: 1

Migration

78% migrated

- To summer: May - June
- To winter: October - Nov
- Average: 49 km
- Longest: ~85 km in Cache Creek




Renata
Mt Faith
Mt Gladstone
Eholt
Niagara
Gladstone
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Park
3
3
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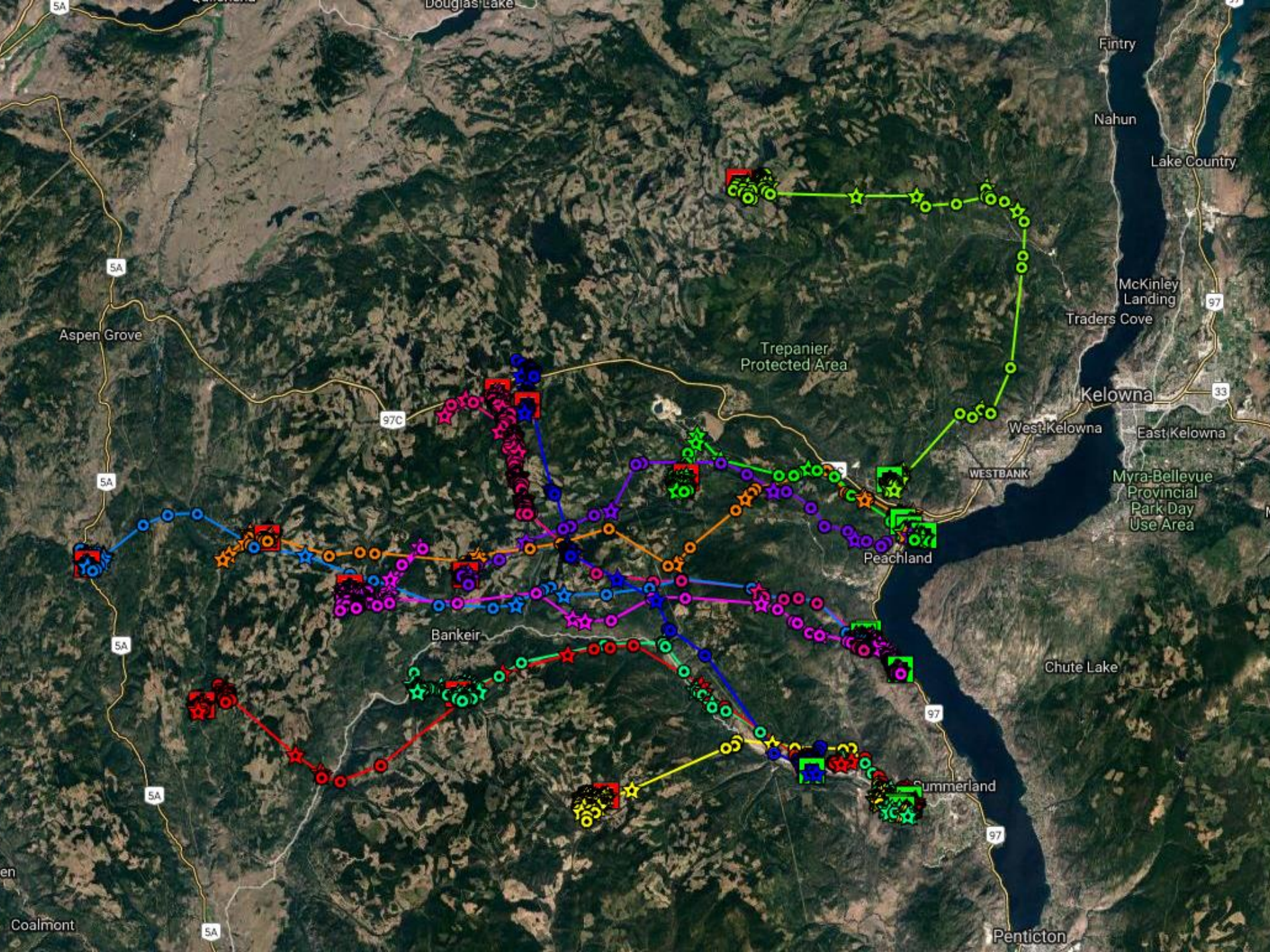
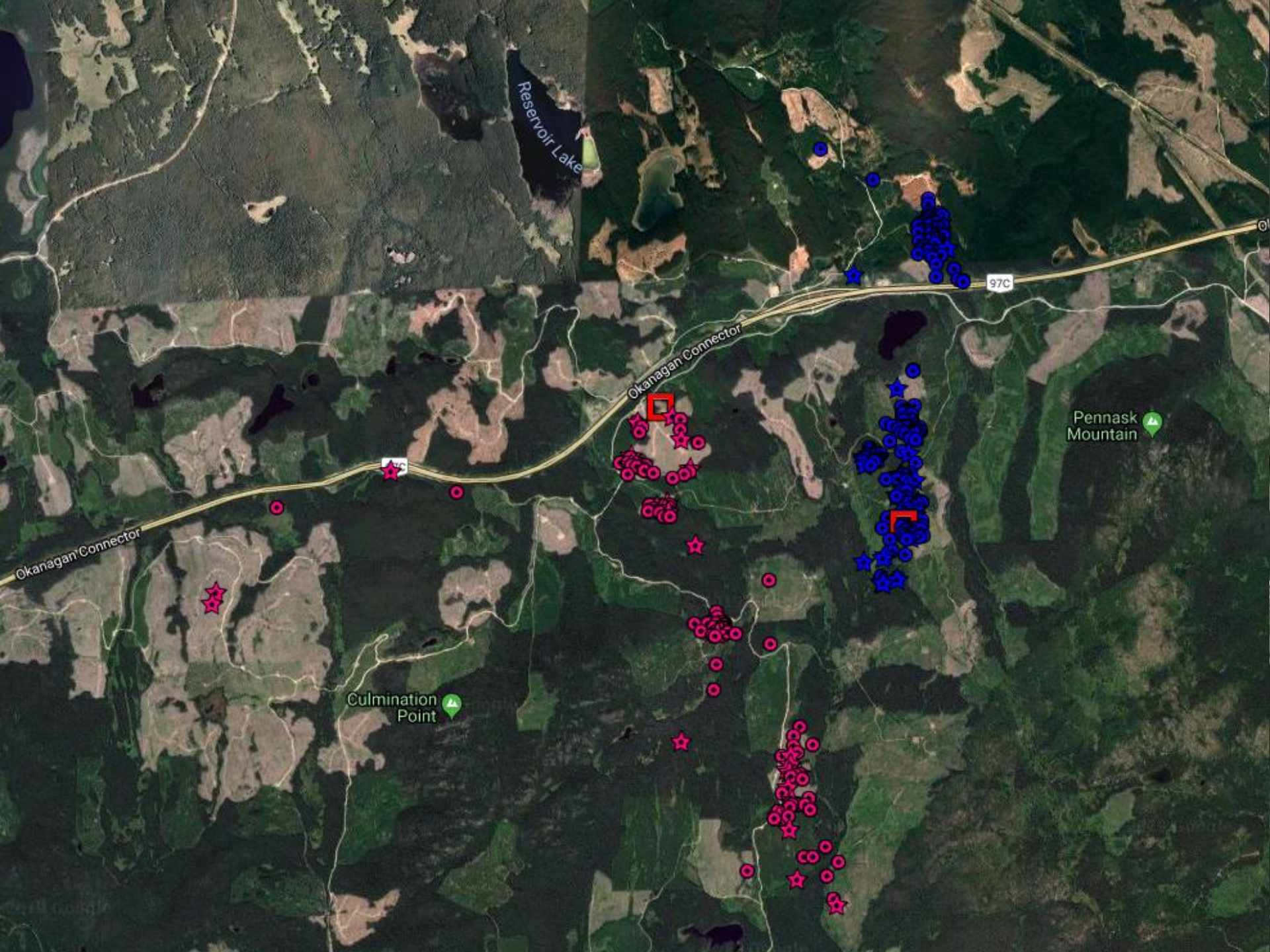
3


Douglas Lake
Fintry
Nahun
Lake Country
McKinley Landing
Traders Cove
Aspen Grove
Trepanier Protected Area
Kelowna
West Kelowna
East Kelowna
WESTBANK
Myra-Bellevue Provincial Park Day Use Area
Peachland
Bankeir
Chute Lake
Summerland
Penticton
Coalmont
5A
97C
97
33


Reservoir Lake
97C
Okanagan Connector
Okanagan Connector
Pennask Mountain
Culmination Point

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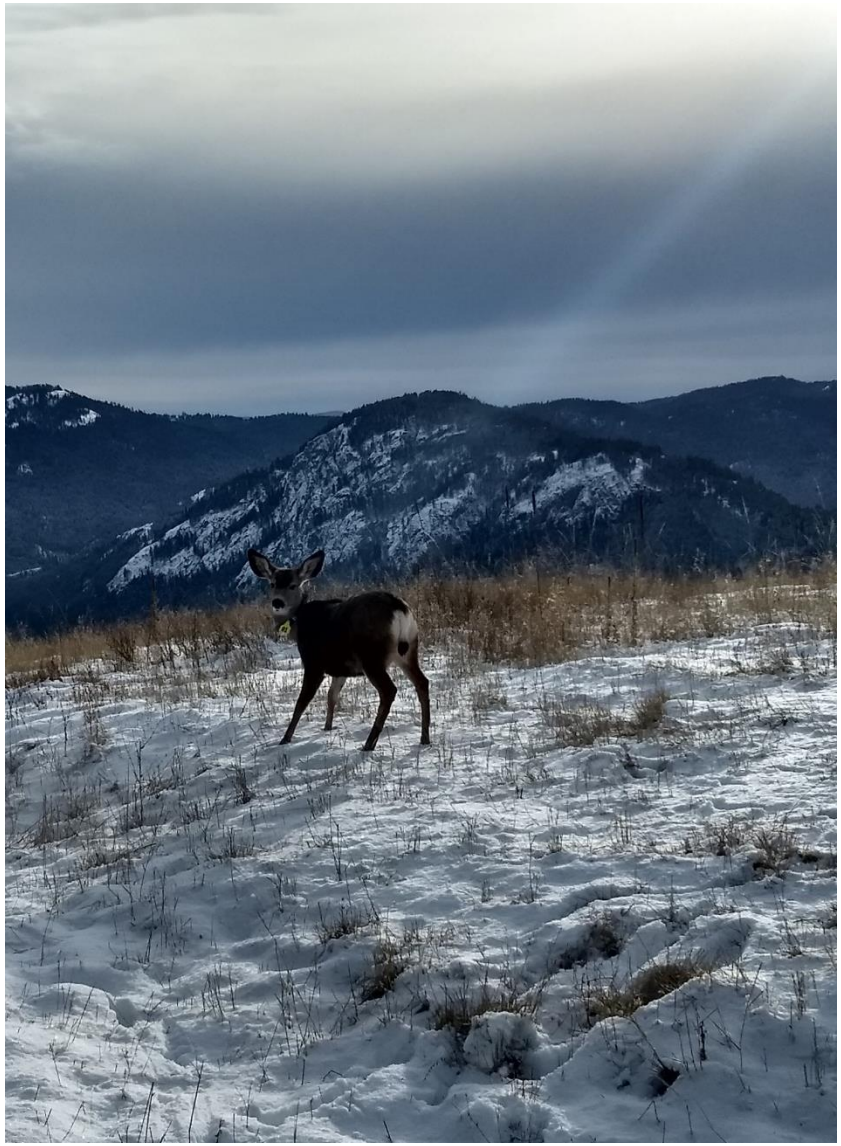

<u>Still to come</u>

- Camera traps
- Vegetation surveys

<u>Continued</u>

- Deer capture – at least 2 more years

Acknowledgments

BCWF BC WILDLIFE FEDERATION

HABITAT CONSERVATION TRUST FOUNDATION

Okanagan Nation Alliance

University of Idaho

BRITISH COLUMBIA Ministry of Forests, Lands and Natural Resource Operations

UBC

BRITISH COLUMBIA Ministry of Transportation and Infrastructure

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Questions?