



Investigation of Conservation Breeding for the Recovery of Southern Mountain Caribou

June 23, 2021



All but 4 herds have a high probability of extinction over the next 100 years, if not sooner, despite on-going management efforts.

0 100 200 300 Kilometres



POPULATION MODELING

- Urgent need for additional intensive population management to support recovery and prevent any further herd losses.
- Strategical use of wild-to-wild translocations concurrent with conservation breeding
- The establishment of a conservation breeding program is feasible, with little risk and can begin immediately

Source:

Traylor-Holzer, K., Steiner, J., and Chabot, A.A. 2021. Assessment of Population Augmentation and Associated Management Actions for Recovery of Southern Woodland Caribou (*Rangifer tarandus*) Designatable Unit 9 in British Columbia, Canada. Report submitted to the British Columbia Ministry of Forest, Lands, Natural Resource Operations, and Rural Development. 111 pages.



CONSERVATION BREEDING

The process of breeding animals outside of their natural environment under controlled conditions for the production and release of animals to recover, maintain or re-establish wild populations.

- Insurance population
- Source for reintroduction and/or reinforcement efforts
- Conservation-related research
- Assisted reproductive technologies
- Education platform

Not a substitute for *in situ* efforts, but a complement





Maternity Penning

What Temporary predator-exclusion enclosure

Why Increase calf survival

How Decrease calf predation

When From mid-March to late July



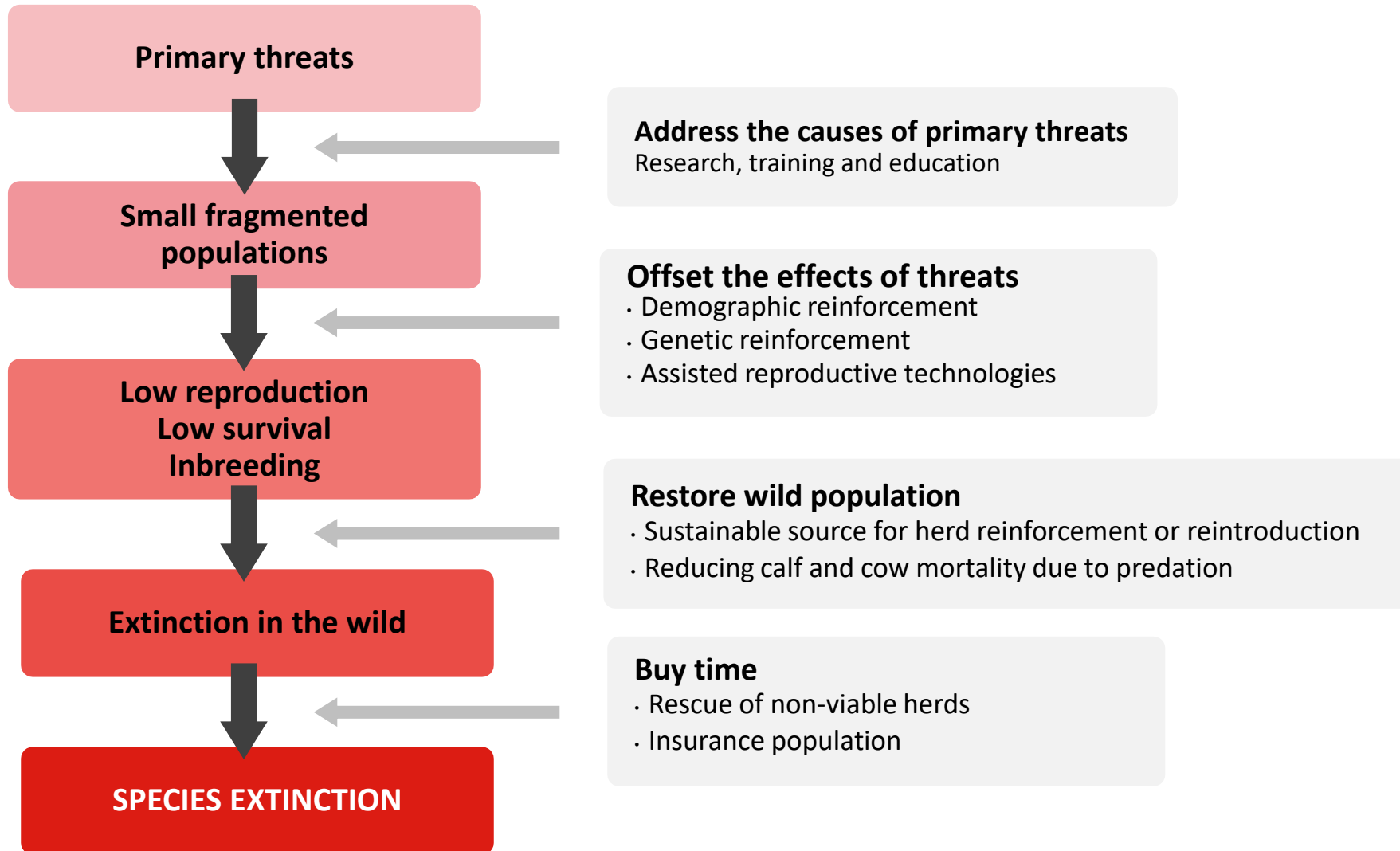
Conservation Breeding

What Permanent conservation centre

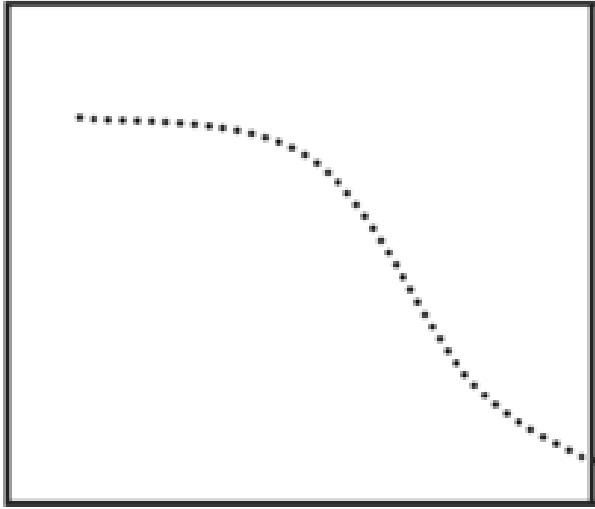
Why Supplement the wild population with additional animals

How Intensive management of health, reproduction, nutrition and pedigree

When Year-round



Wild



Pedigree

Health

Predation

Hazards



Improved conception rate

Decreased neonatal mortality rate

Improved growth rates



PRZEWALSKI'S HORSES



1969



1977



2021

Extinct in
the wild

9-12

297

Wild

~3000

Managed



EXTINCT

1969
EXTINCT
IN THE WILD

CRITICALLY
ENDANGERED

ENDANGERED

VULNERABLE

NEAR
THREATENED

LEAST
CONCERN





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INCREMENTAL BENEFITS

1. Reinforce wild herds
 - Higher production (calf recruitment)
 - Optimal nutrition and health
 - Decreased puberty age
2. Conserve individuals from non-viable herds
3. Insurance population against unforeseen catastrophes or severe decline in the wild
4. Potentially reintroduce caribou to historic range
5. Assisted reproductive technologies
 - Collection of biosamples for research and future population management options
6. Conservation-related research and education

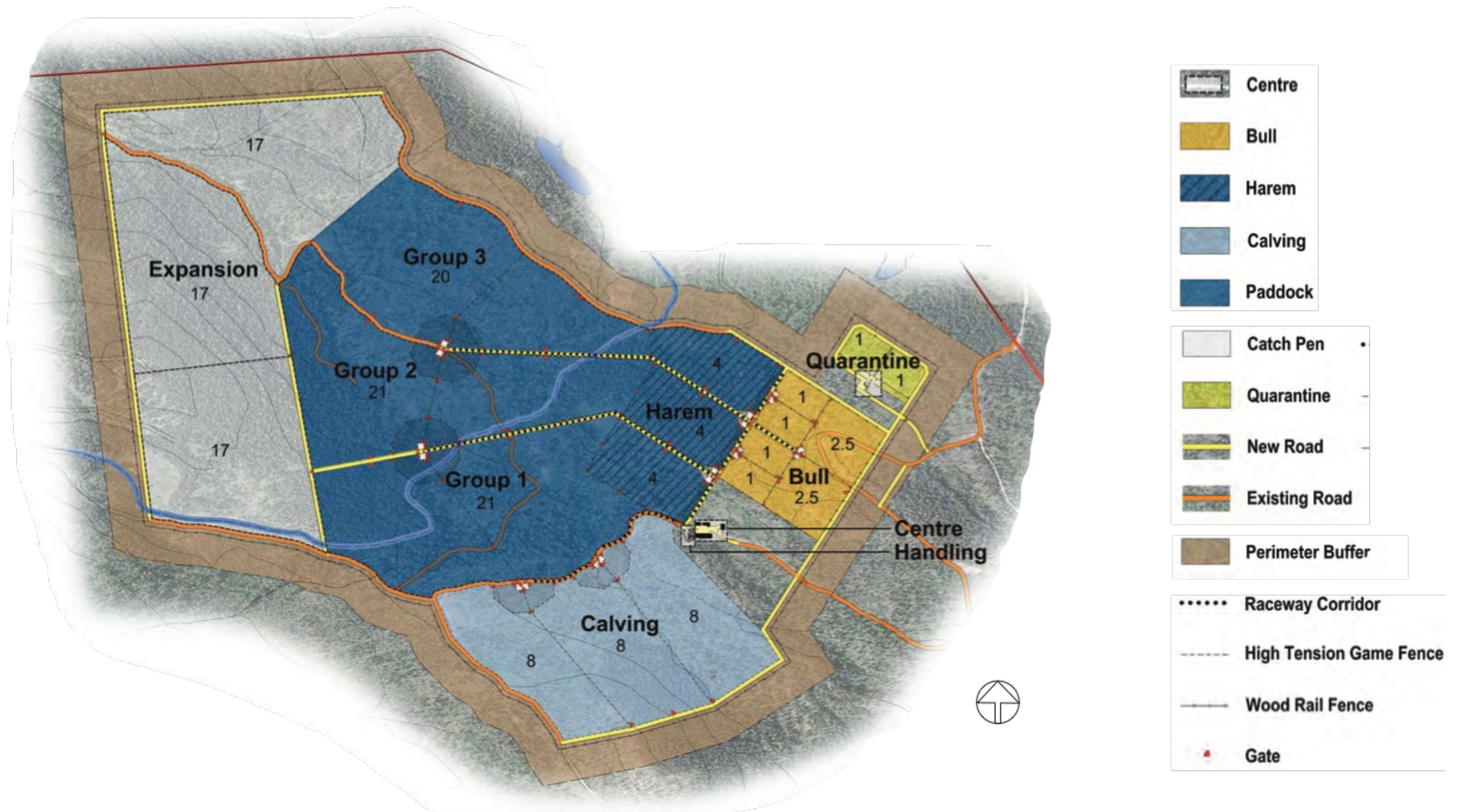


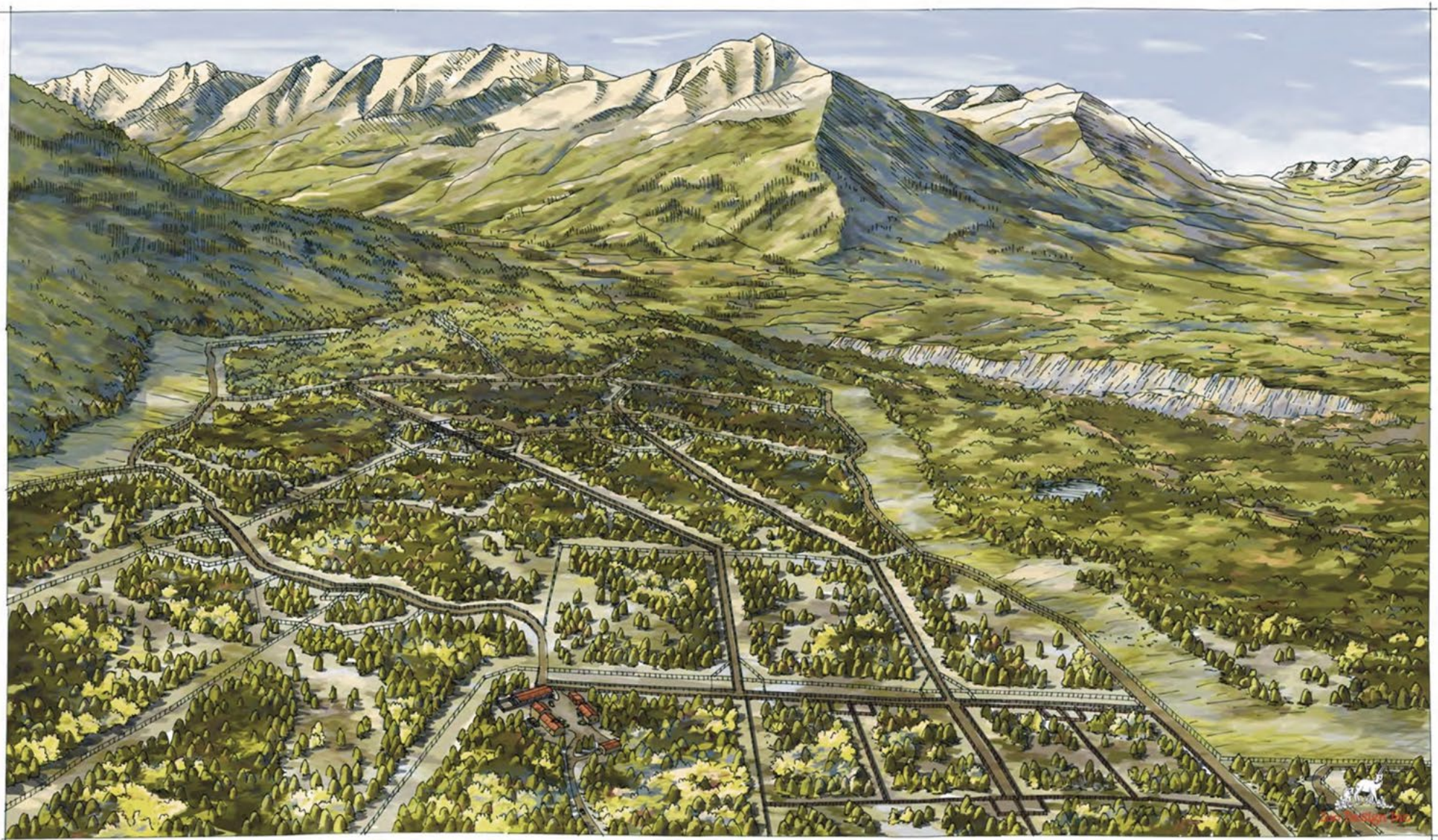
Risk to Donor Herds	LOW
Risk to Rescue/Donor Herds	LOW
Ecological Risk	LOW
Disease Risk	LOW/MODERATE
Associated Invasion Risk	LOW
Gene Escape	LOW
Socio-economic Risk	LOW
Financial Risk	HIGH
Biological Feasibility	HIGH
Biological knowledge	HIGH
Habitat	MODERATE
Climate Requirements	HIGH
Source Animals	MODERATE
Animal Welfare	HIGH
Disease and Parasite Issues	LOW
Social Feasibility	HIGH
Regulatory Compliance	HIGH
Resource Availability	UNKNOWN



Source:

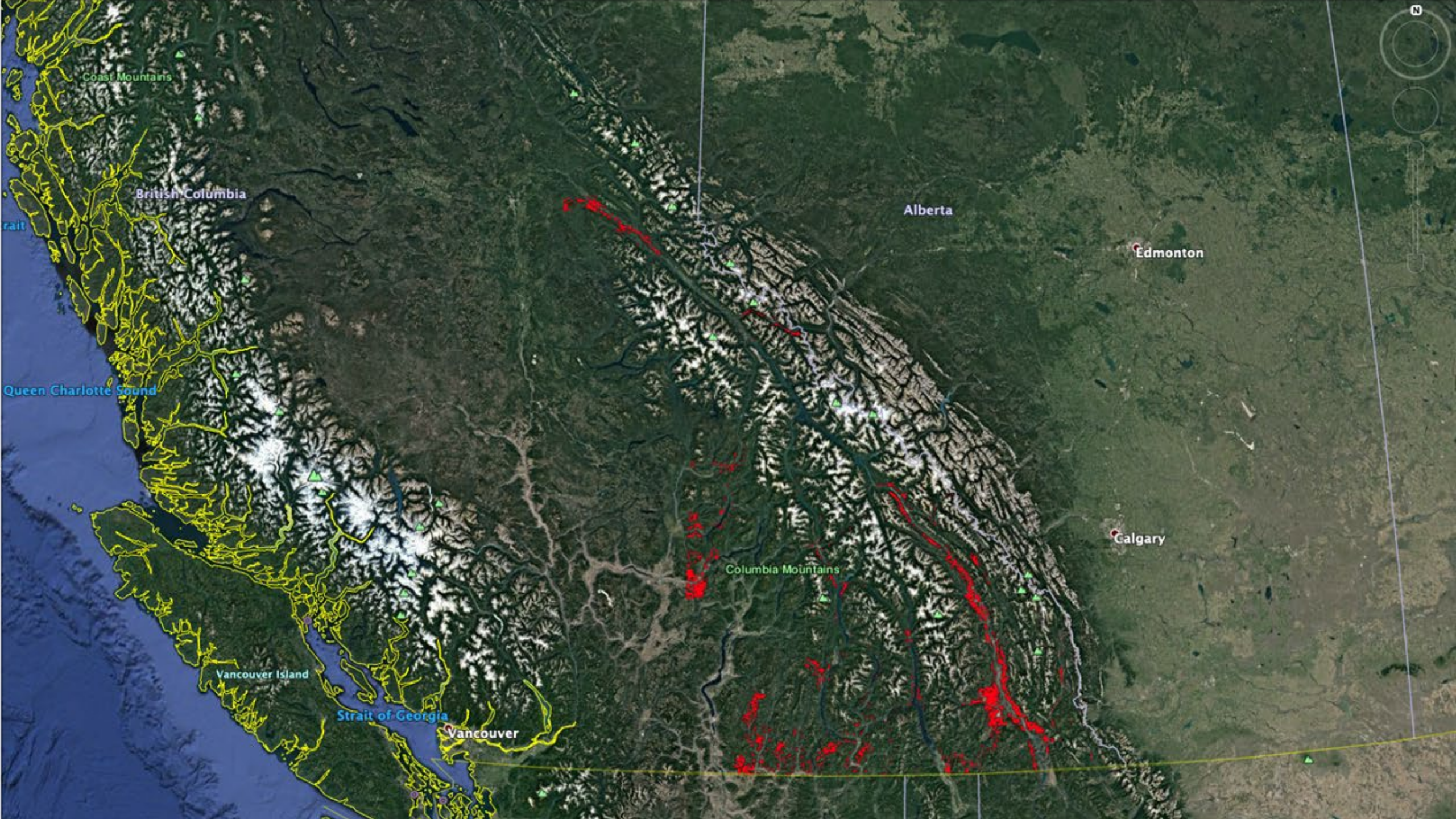
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SITE SELECTION

Primary Criteria	Secondary Criteria
<ul style="list-style-type: none">• Elevation between 1100-1400m• Summer temperature range: < 25°C• Slope between 0-15 degrees• Good soil drainage• Within 5km of a paved road• Crown land > Private land• Forested area• Snow precipitation greater than 75cm and less than 2m• Area >100 ha• Minimum noise/disturbance	<ul style="list-style-type: none">• Within 500m of power lines• Away from free-ranging caribou and large concentrations of other wild ungulates• No domestic livestock contact• Within short distance of town with professional services• Access to fresh water source• Within caribou habitat



Coast Mountains

British Columbia

Alberta

Edmonton

Queen Charlotte Sound

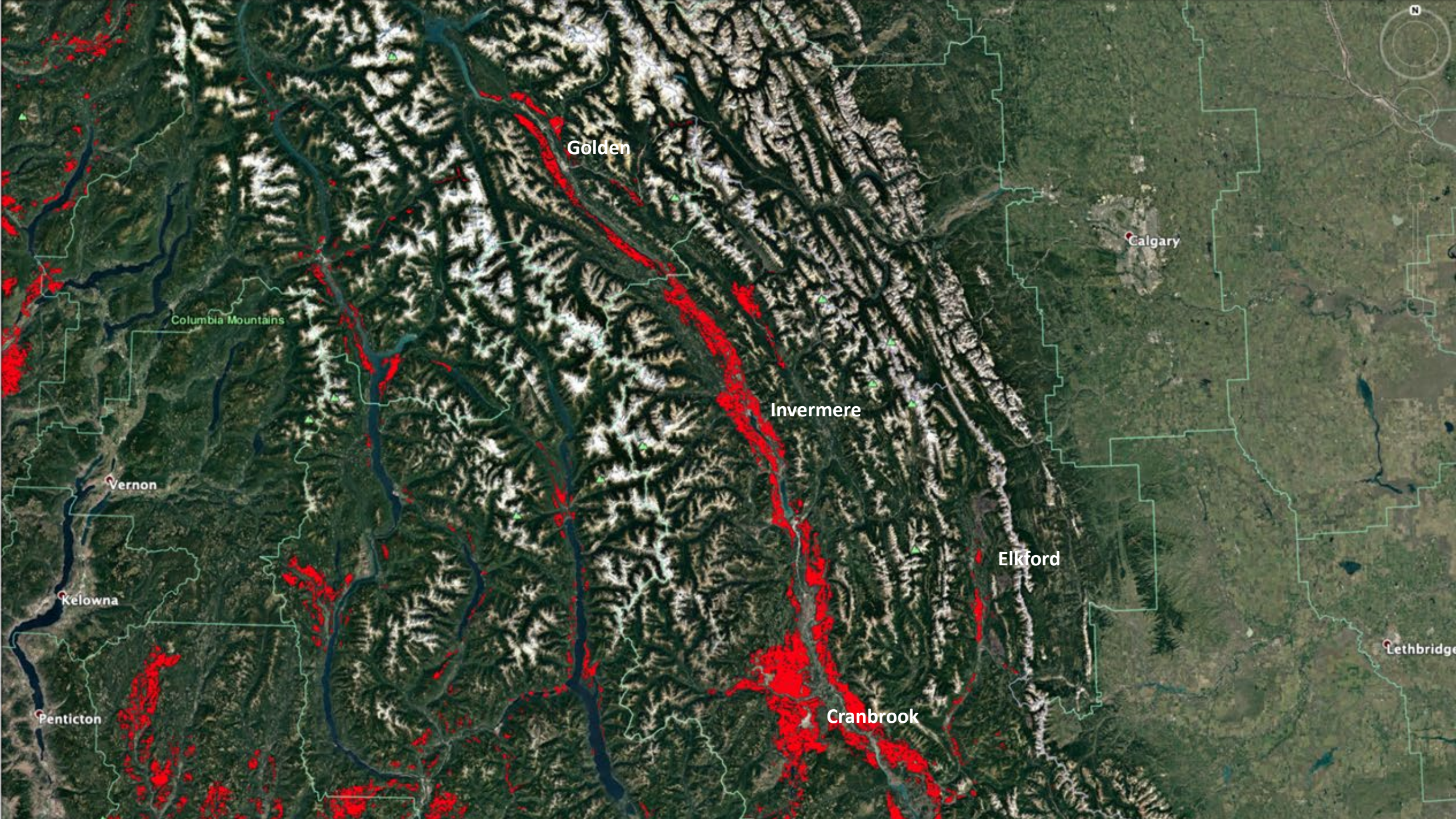
Columbia Mountains

Calgary

Vancouver Island

Strait of Georgia

Vancouver



Golden

Calgary

Columbia Mountains

Invermere

Elkford

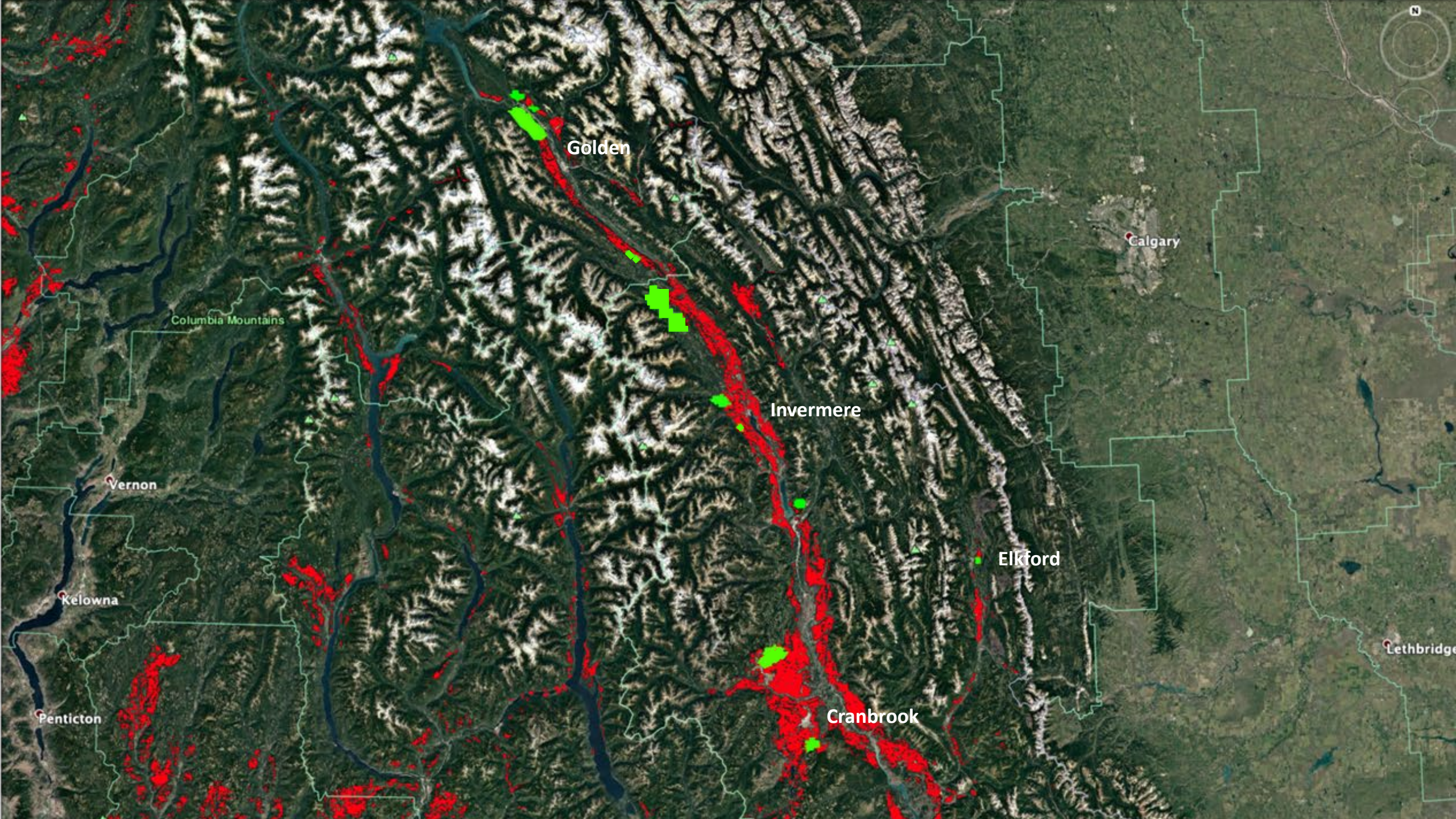
Lethbridge

Cranbrook

Vernon

Kelowna

Penticton



Golden

Calgary

Columbia Mountains

Invermere

Elford

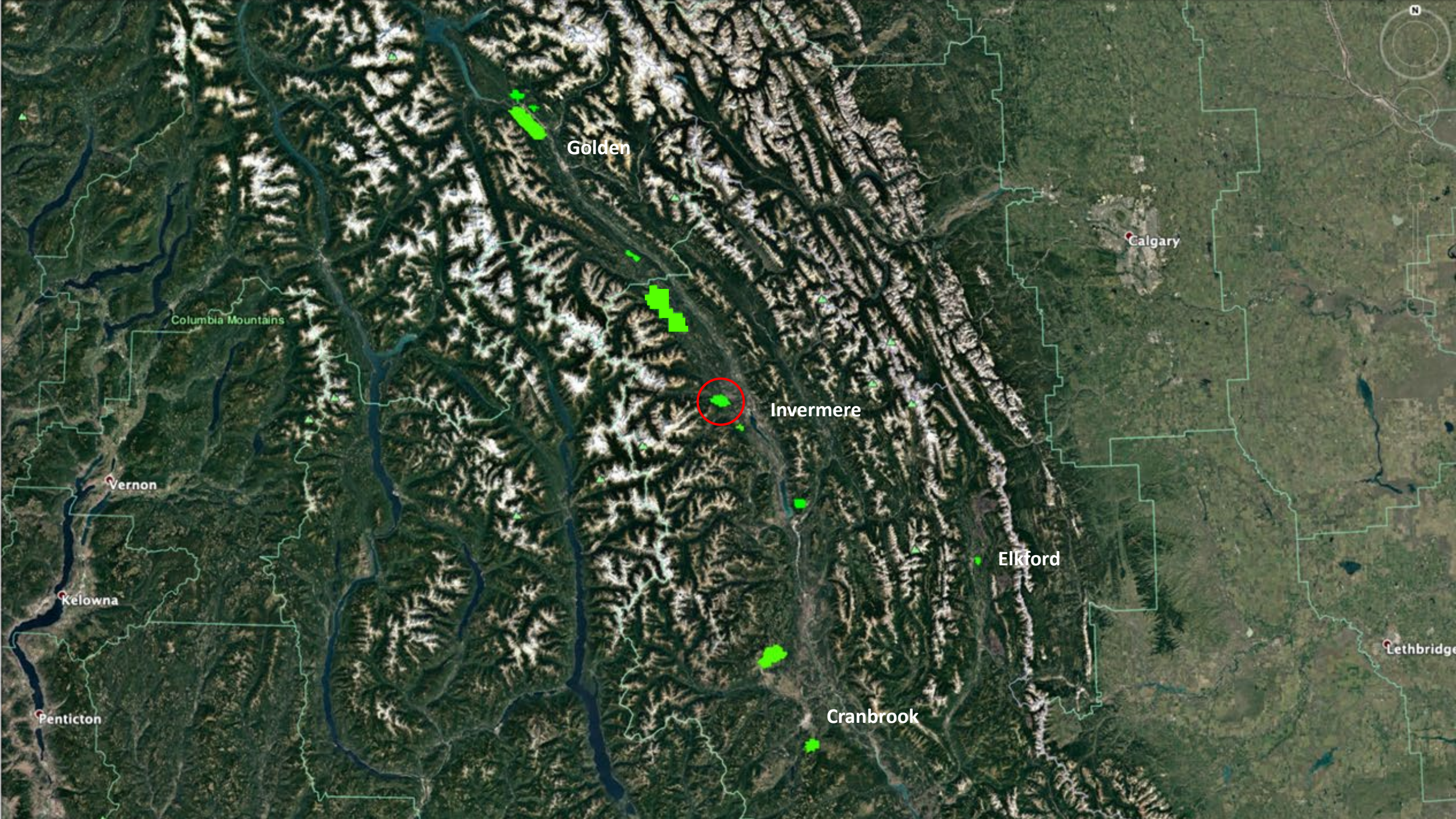
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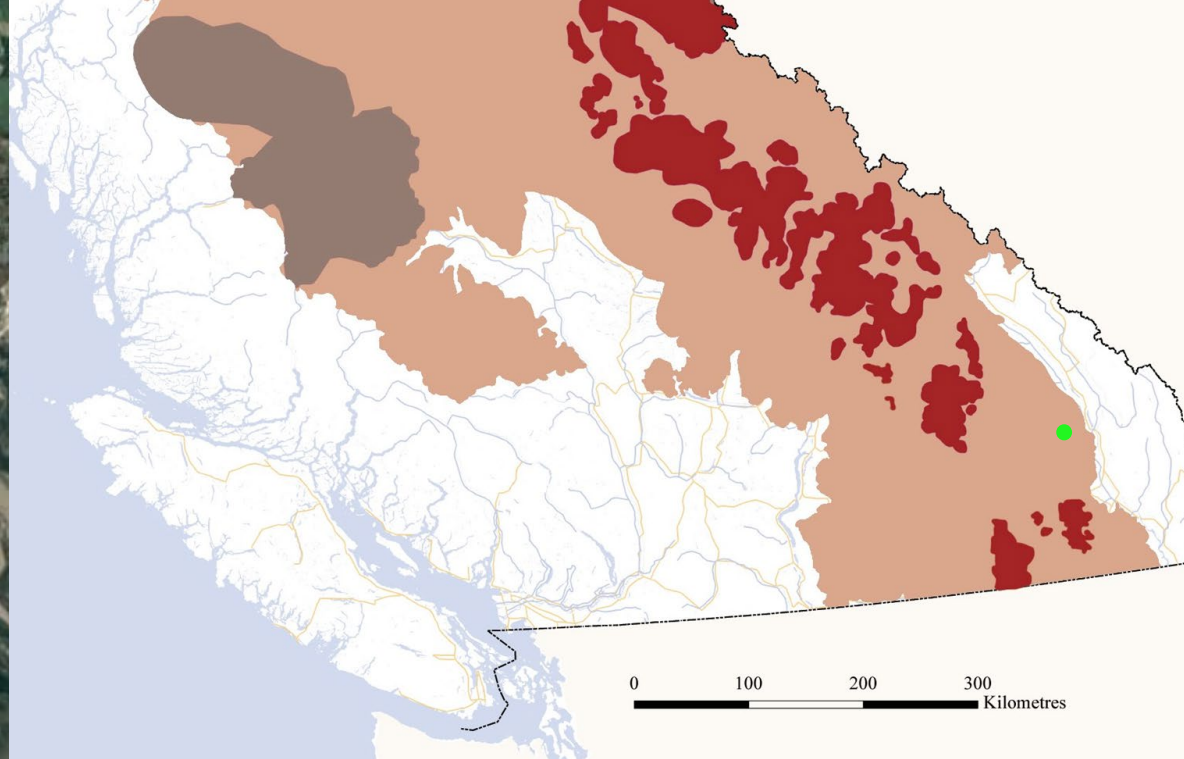
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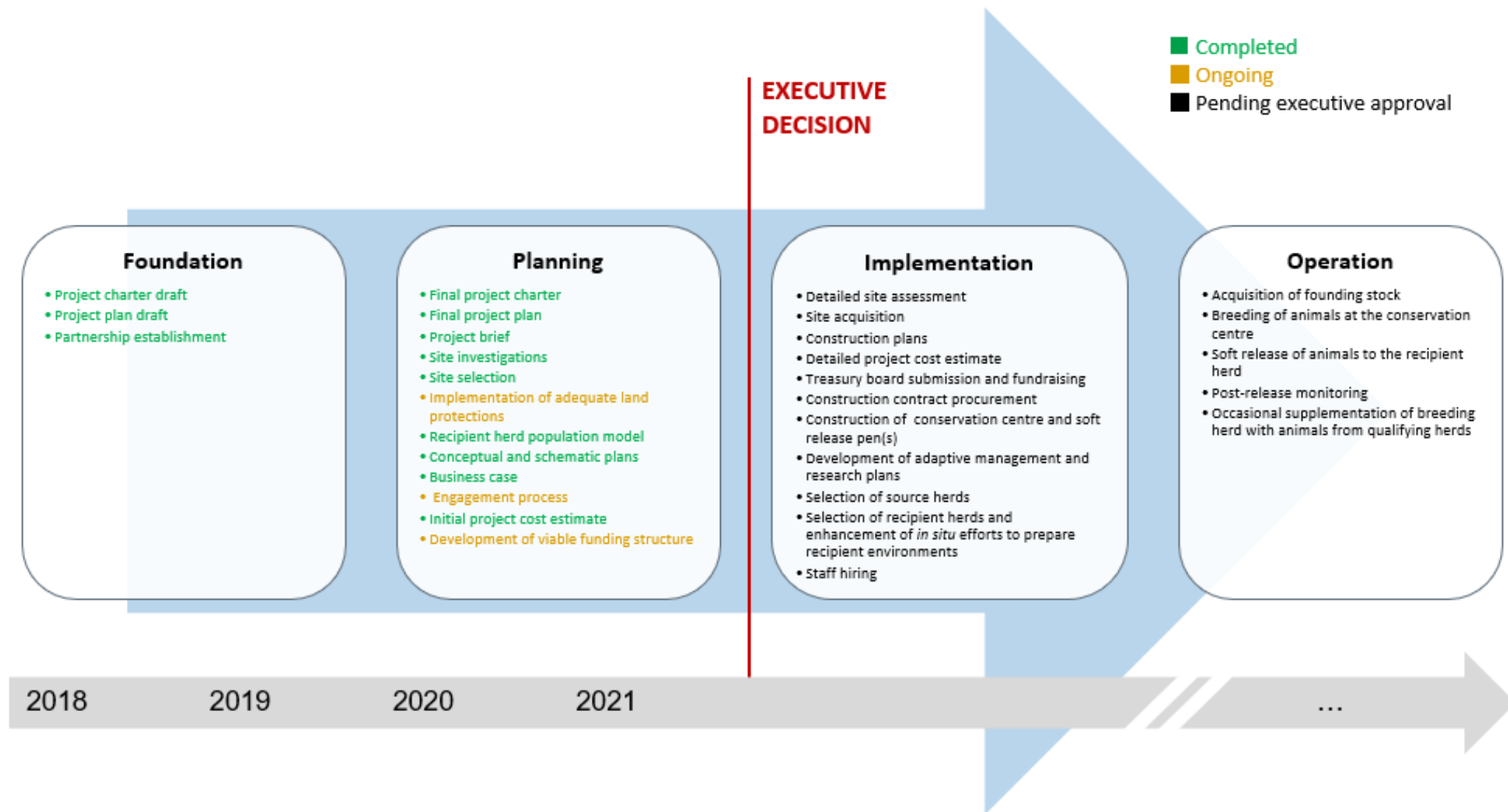


KEY POINTS

- Long-term project (> 20 years)
 - Program decommission once federal recovery objectives are reached
- Multilevel collaboration is essential
 - Provincial government
 - Federal government
 - Indigenous governments
 - Local governments
 - Stakeholder
- A non-profit foundation operating model is recommended
- Separate Treasury Board request
 - Not expected to affect funding for other *in situ* caribou recovery initiatives









THANK YOU!



