


June 2<sup>nd</sup>, 2022

 : Arshad Khan

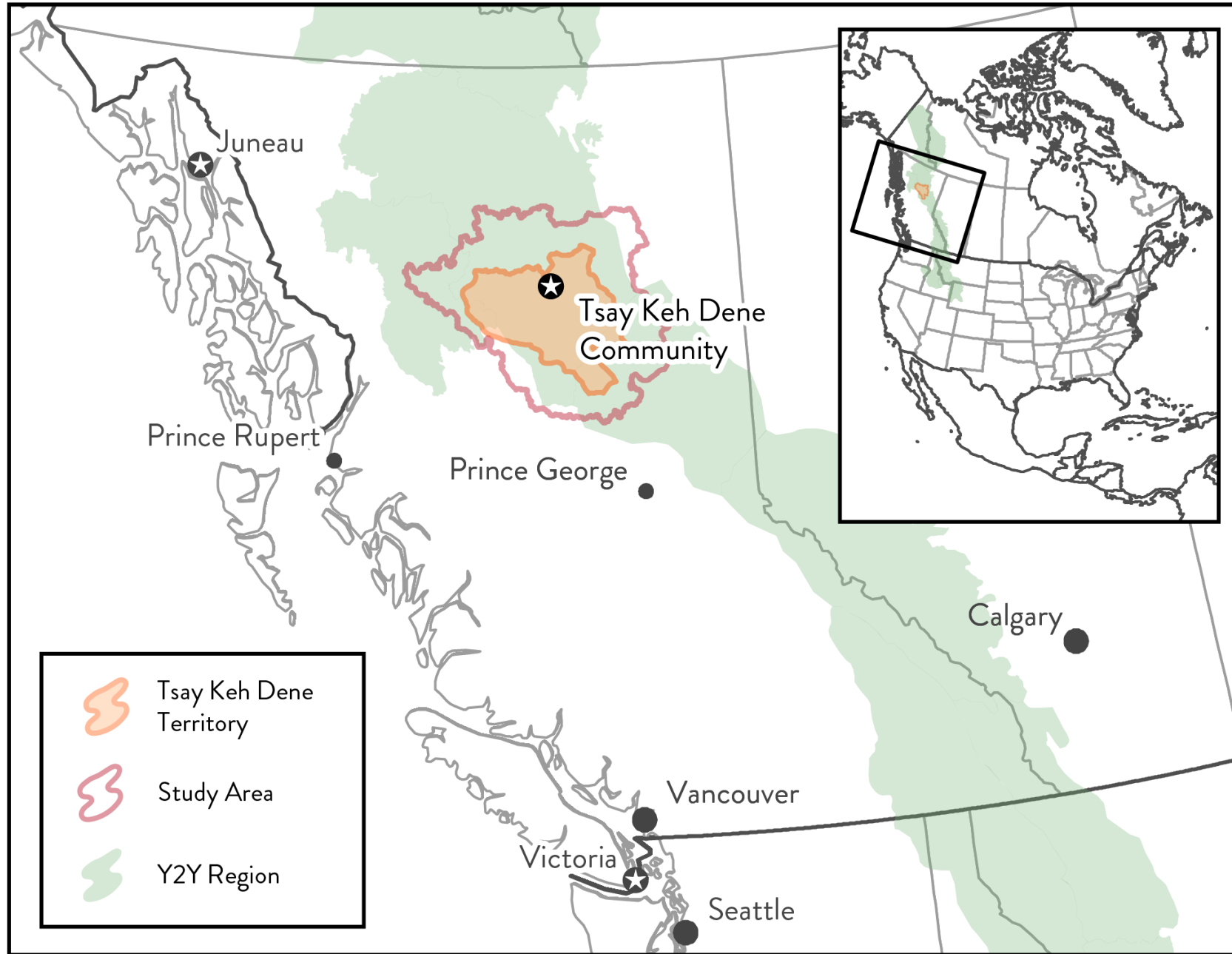
**Systematic Conservation Planning  
in Tsay Keh Dene Territory:  
Incorporating Climate Change and  
Interweaving Traditional Ecological  
Knowledge**

Christopher Morgan

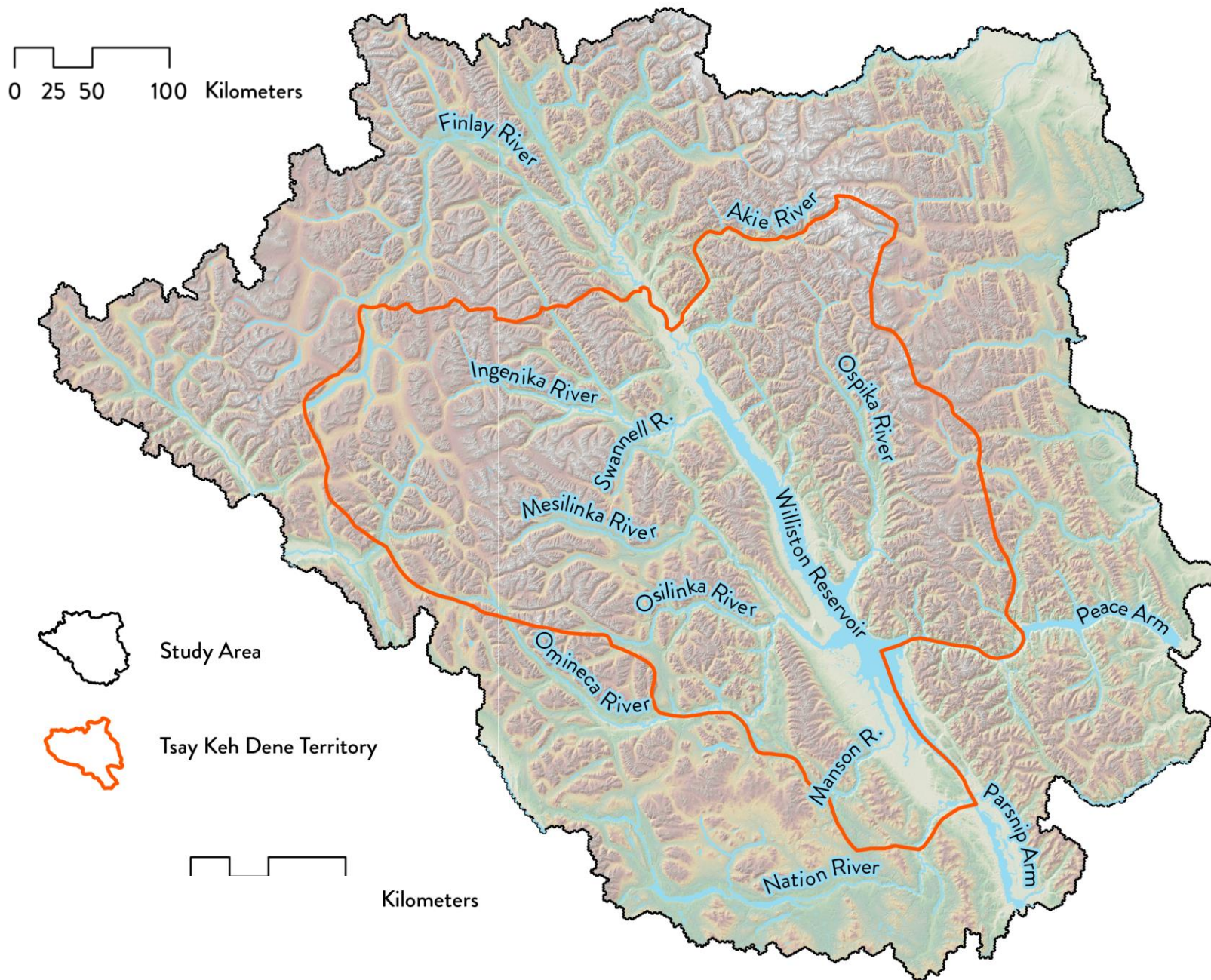
University of Northern British Columbia



# Tsay Keh Dene Territory within BC







## A brief history



# Research purpose and questions

→ Explore which areas in Tsay Keh Dene Territory have high conservation value (both ecologically and culturally), exhibit landscape connectivity, and are resilient to climate change

1. Which areas have the highest conservation value today?
2. Which areas retain conservation value when climate change is considered?
3. How can landscape connectivity be explicitly included in the SCP process?
4. Which stages of the SCP process provide an opportunity for the interweaving of Traditional Ecological Knowledge to produce a more inclusive conservation plan?





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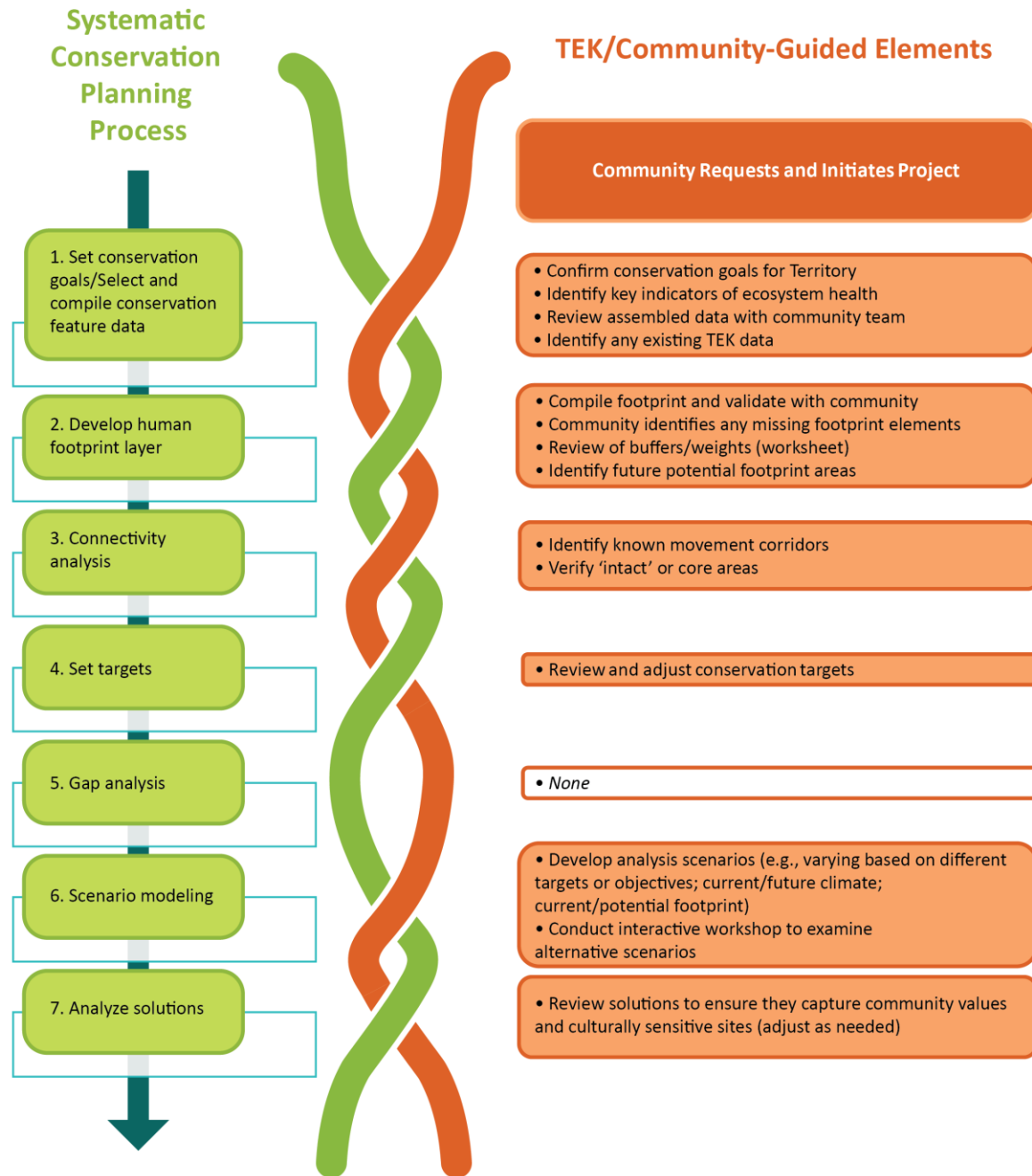
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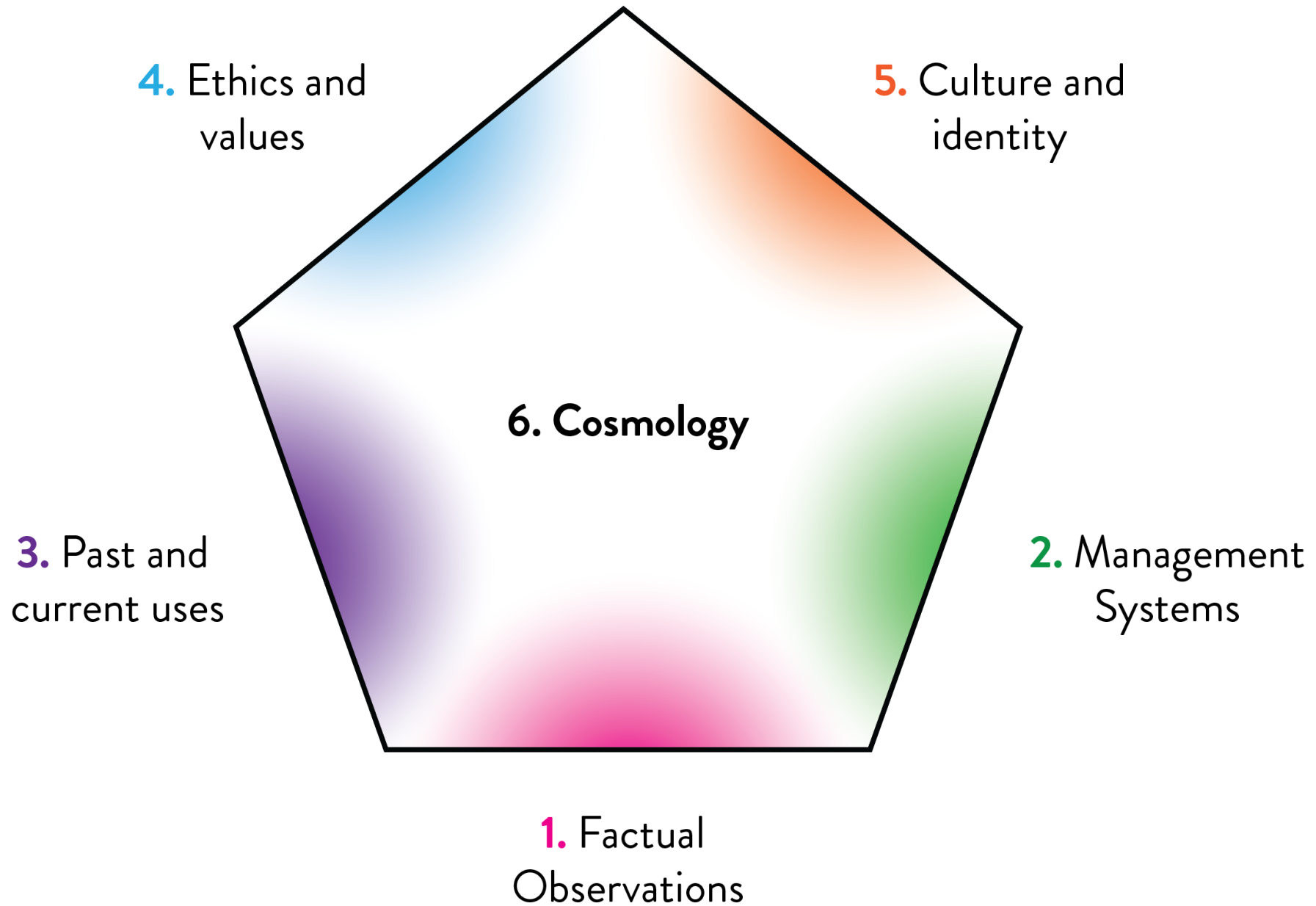






# SCP methods and the interweaving of Traditional Ecological Knowledge







# Interweaving of Traditional Ecological Knowledge



📷: Evan MacKinnon

📷: Tsay Keh Dene Nation





# Full list of focal conservation features

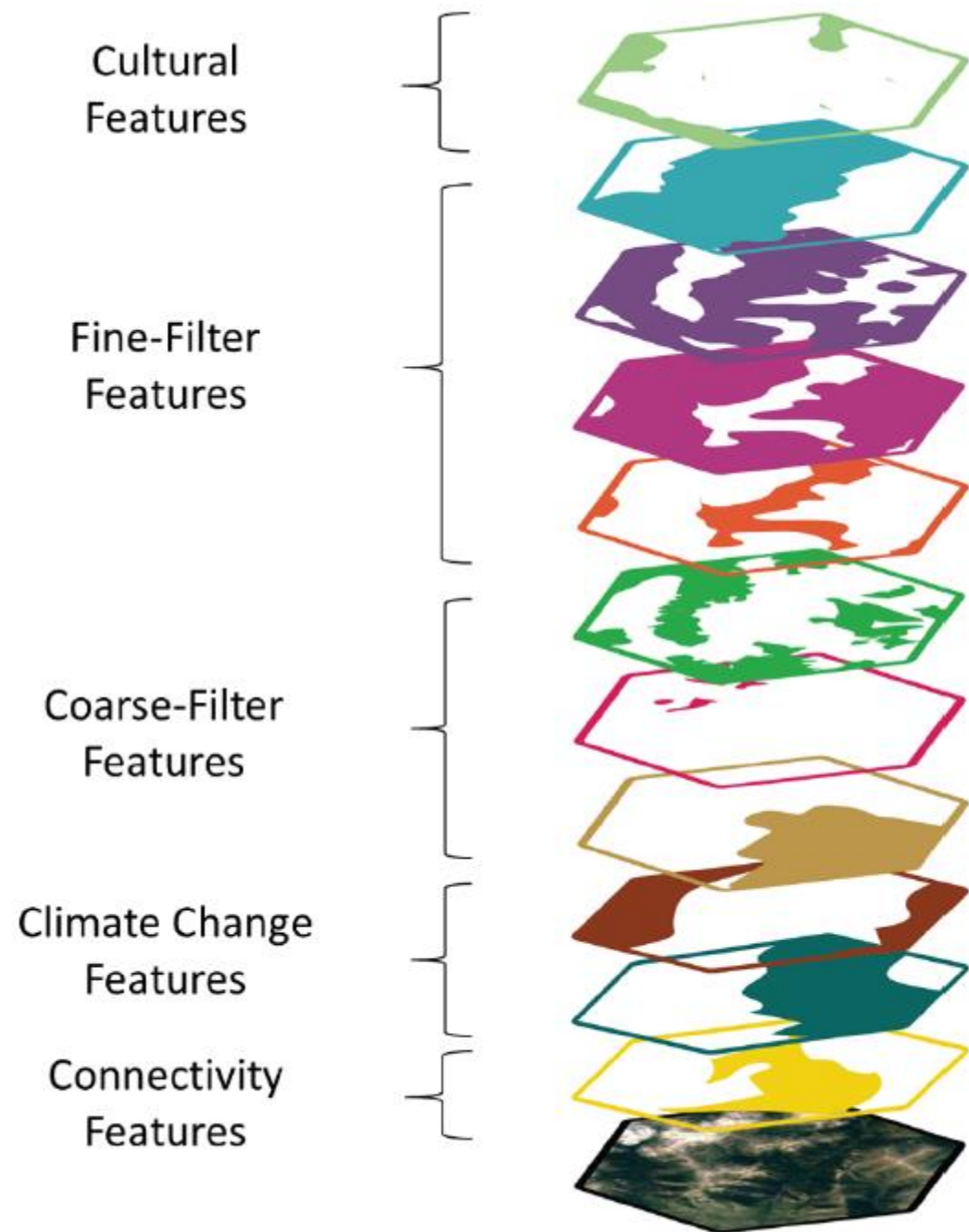
Coarse-Filter Features	
Abiotic	Land Facet Diversity
	Land Facet Rarity
Environmental	Elevational Diversity
	Ecotypic Diversity
	Heat Load Index Diversity
Biotic	(Disturbance)-(BEC Zone)-(Age/Burned)
	Ex 1: NDT1-ESSF-Burned
	Ex 2: NDT2-SBS-Mature/Old
	Rare BEC Zones

Fine-Filter Features	
Species	Grizzly Bear
	Bull Trout/Fish
	Fisher
	Caribou (by herd)
	Moose
	Stone Sheep
	Mountain Goat
	Wolverine
	Bank Swallow
	Barn Swallow
	Western Toad
	Horned Grebe
	Little Brown Myotis
	Northern Myotis
	Olive-Sided Flycatcher
	Rusty Blackbird
Special Features	Wetlands
	Lakes
	Karst Deposits

Climate Change Features	
Migration	Backward Velocity 2055
	Backward Velocity 2085
	Forward Velocity 2055
	Forward Velocity 2085
	Climate Corridors
Refugia	Cool Headwater Refugia
	Climatic Refugia
	Biotic Refugia
Misc.	Bird Richness
	Carbon Storage (above and below ground)
Cultural Features	
	Sites of Cultural Importance
	Cultural/Spiritual Areas
	Subsistence Areas
Connectivity Features	
	Linkage Mapper
	Omniscape



# Conservation features





# Human footprint



Oil and gas



Mining



Forest harvesting



Wind power



Recreation



Agriculture



Urbanization



Industrial Sites



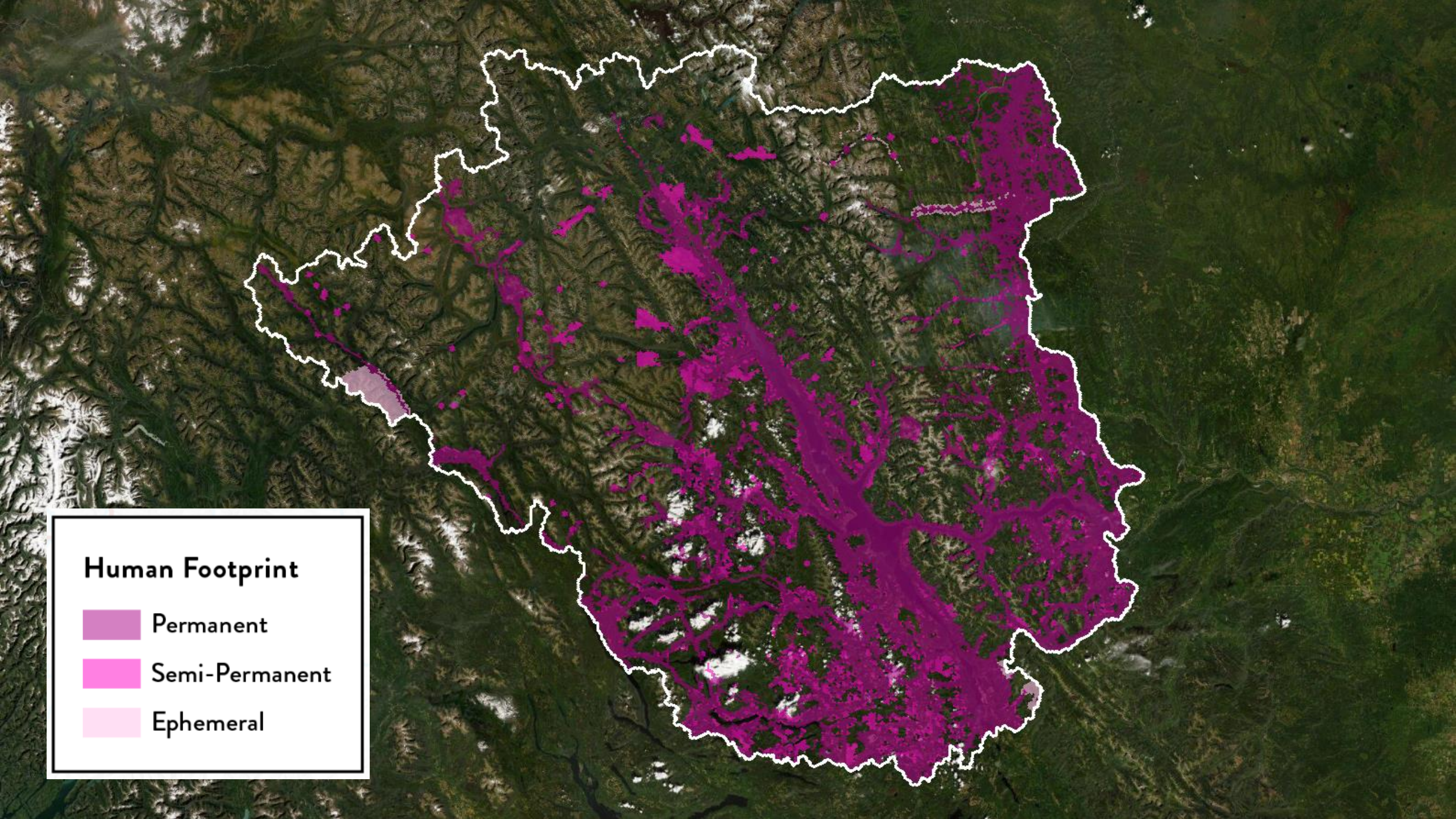
Roads





## Human Footprint

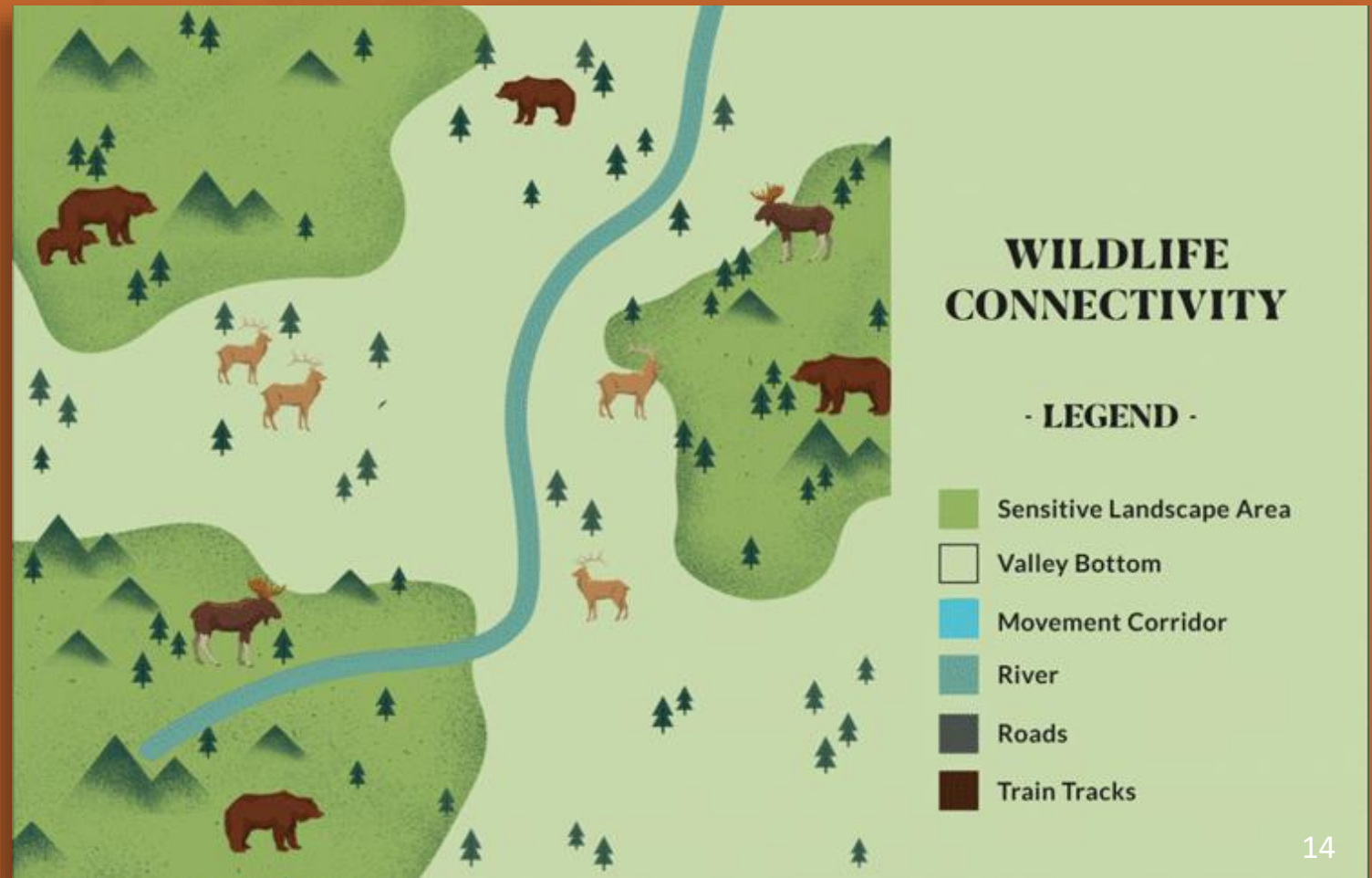
- Permanent
- Semi-Permanent
- Ephemeral



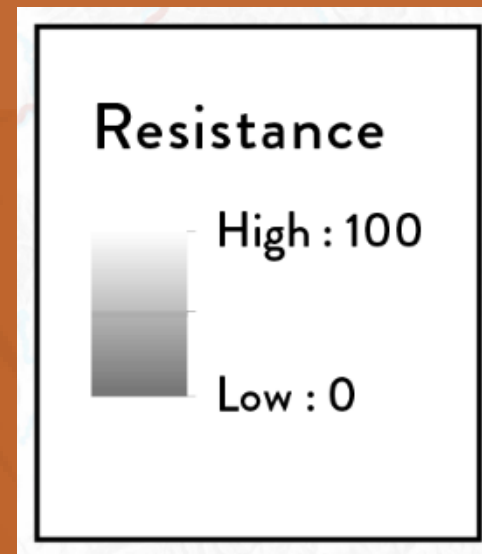
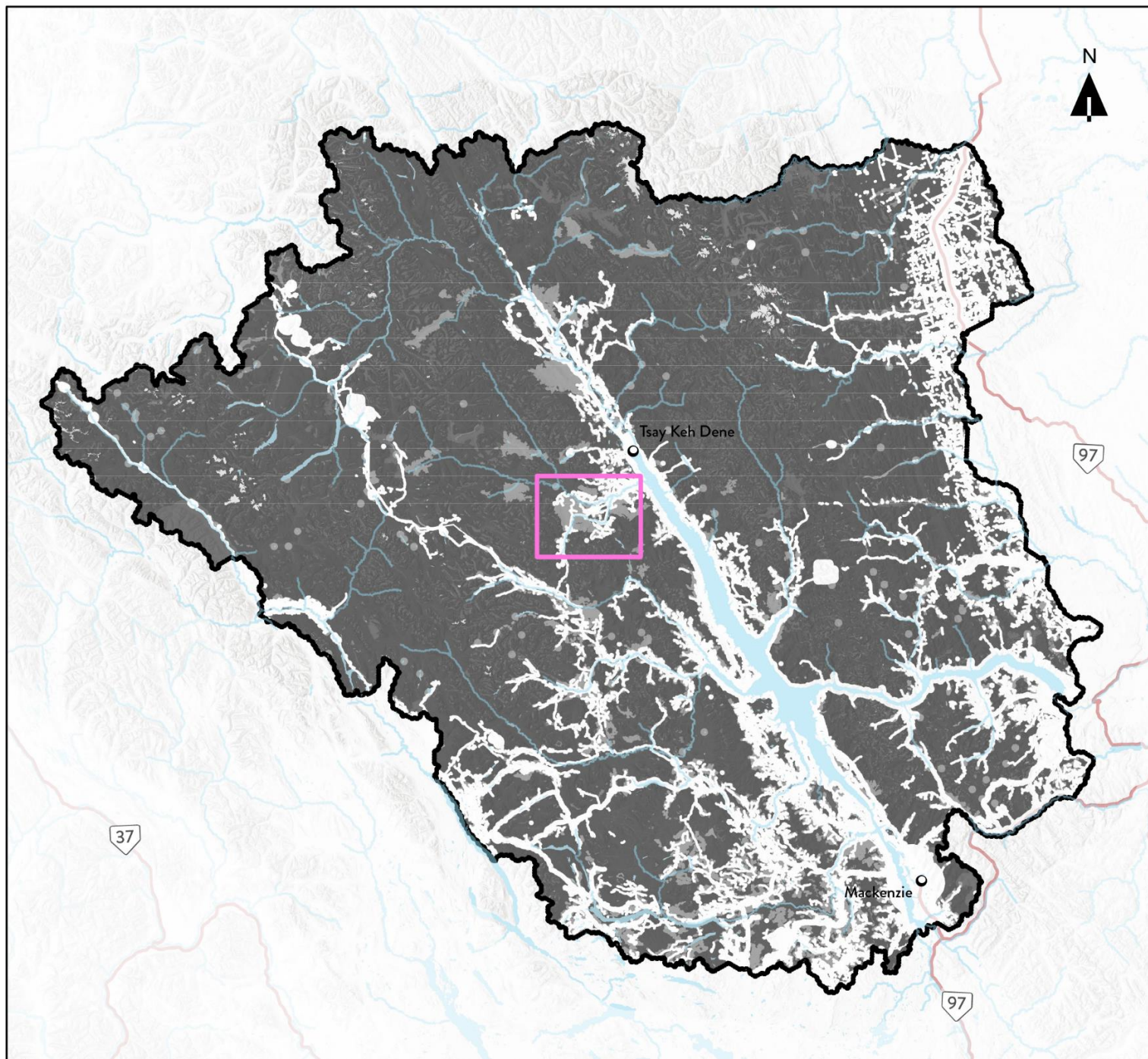


# Connectivity-focused conservation

- Use of connectivity tools
- Solution characteristics





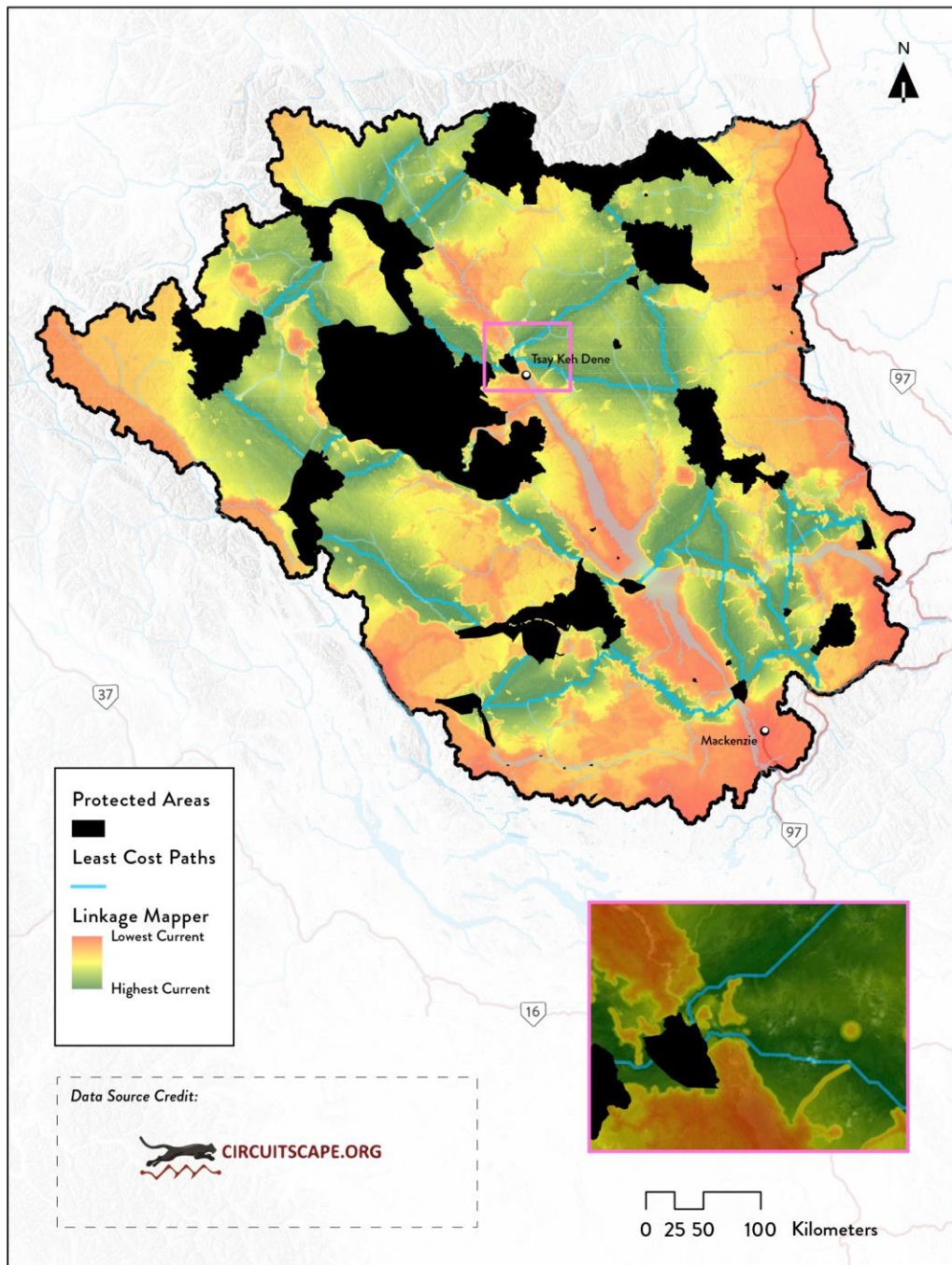


Data Source Credit:

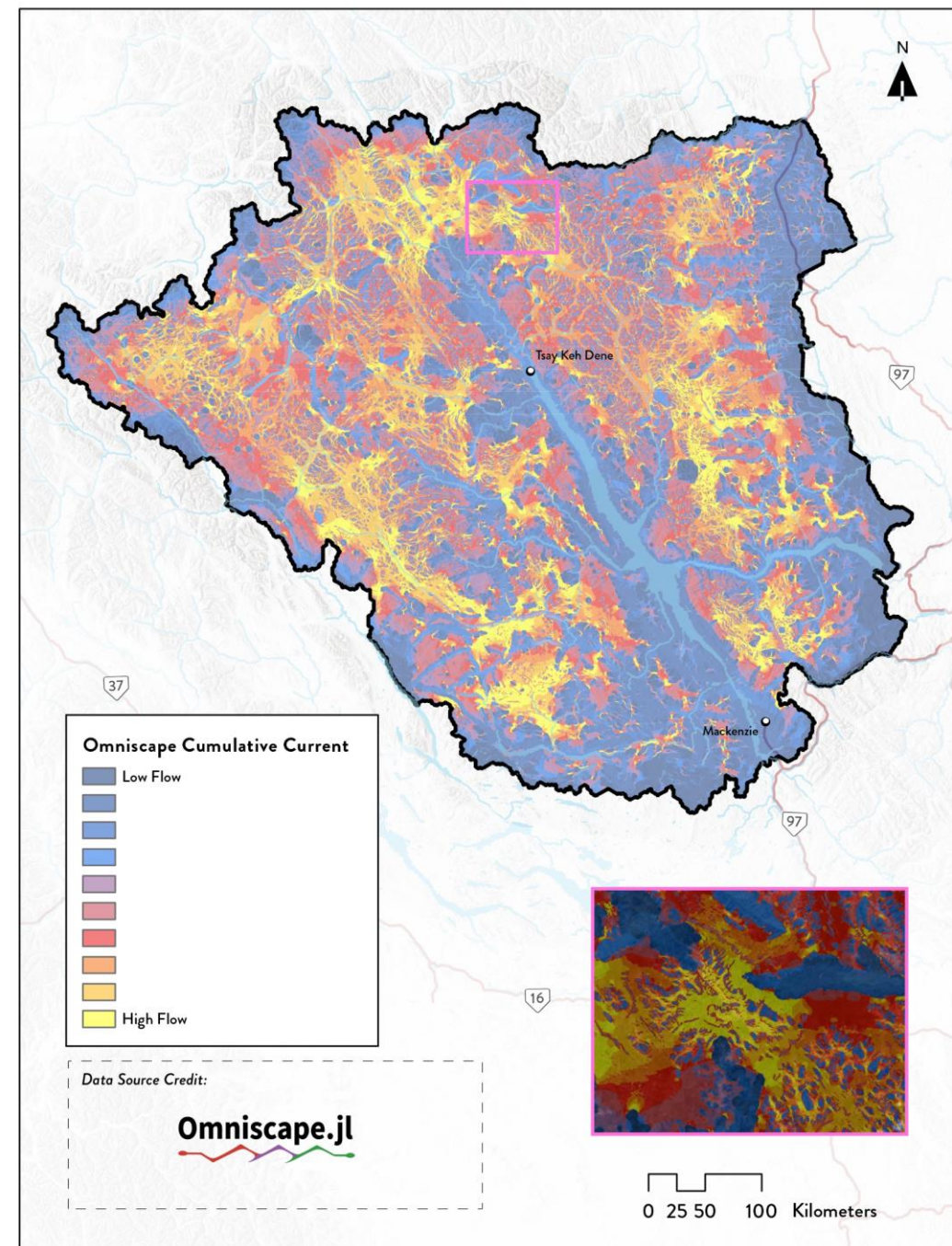


**CIRCUITSCAPE.ORG**

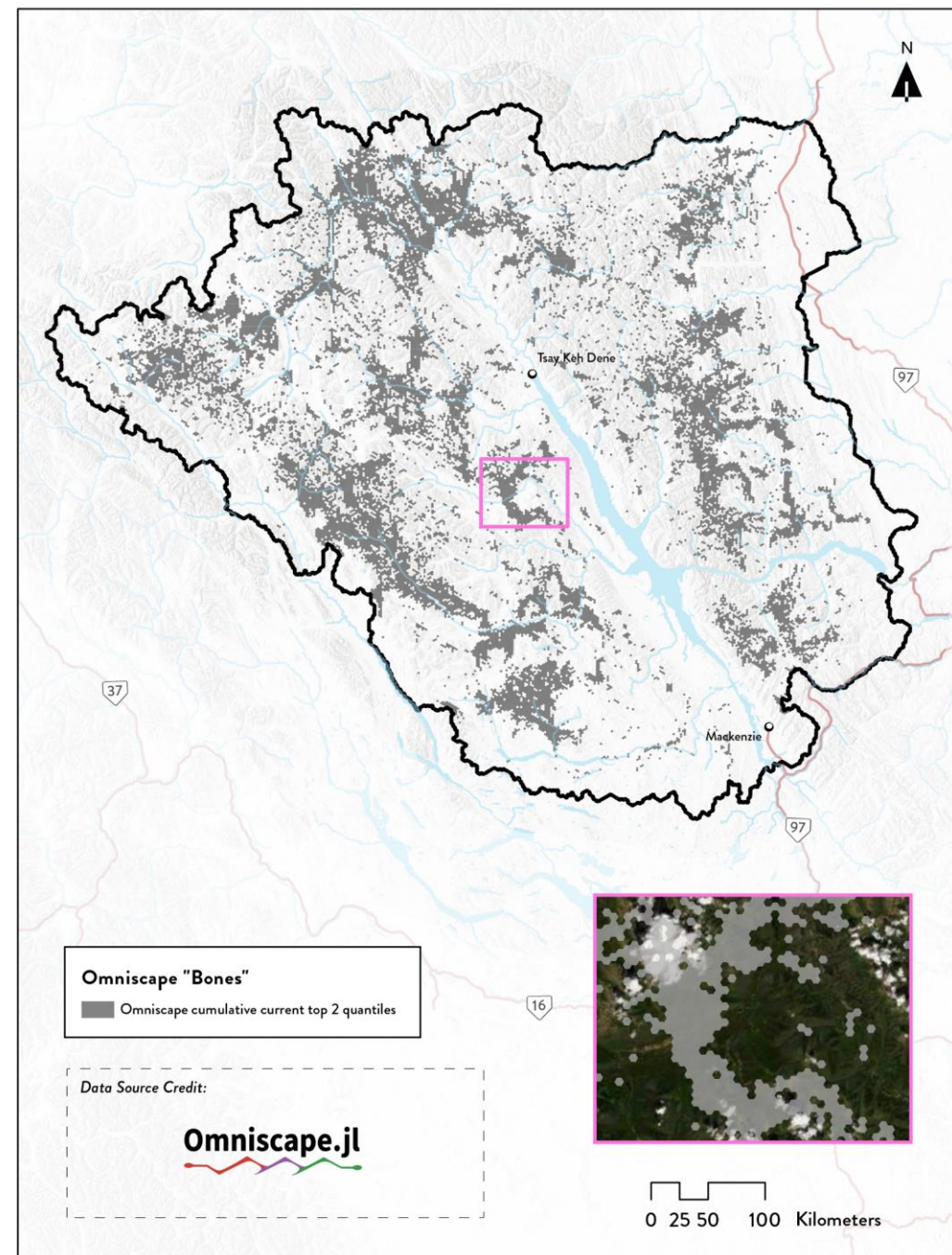
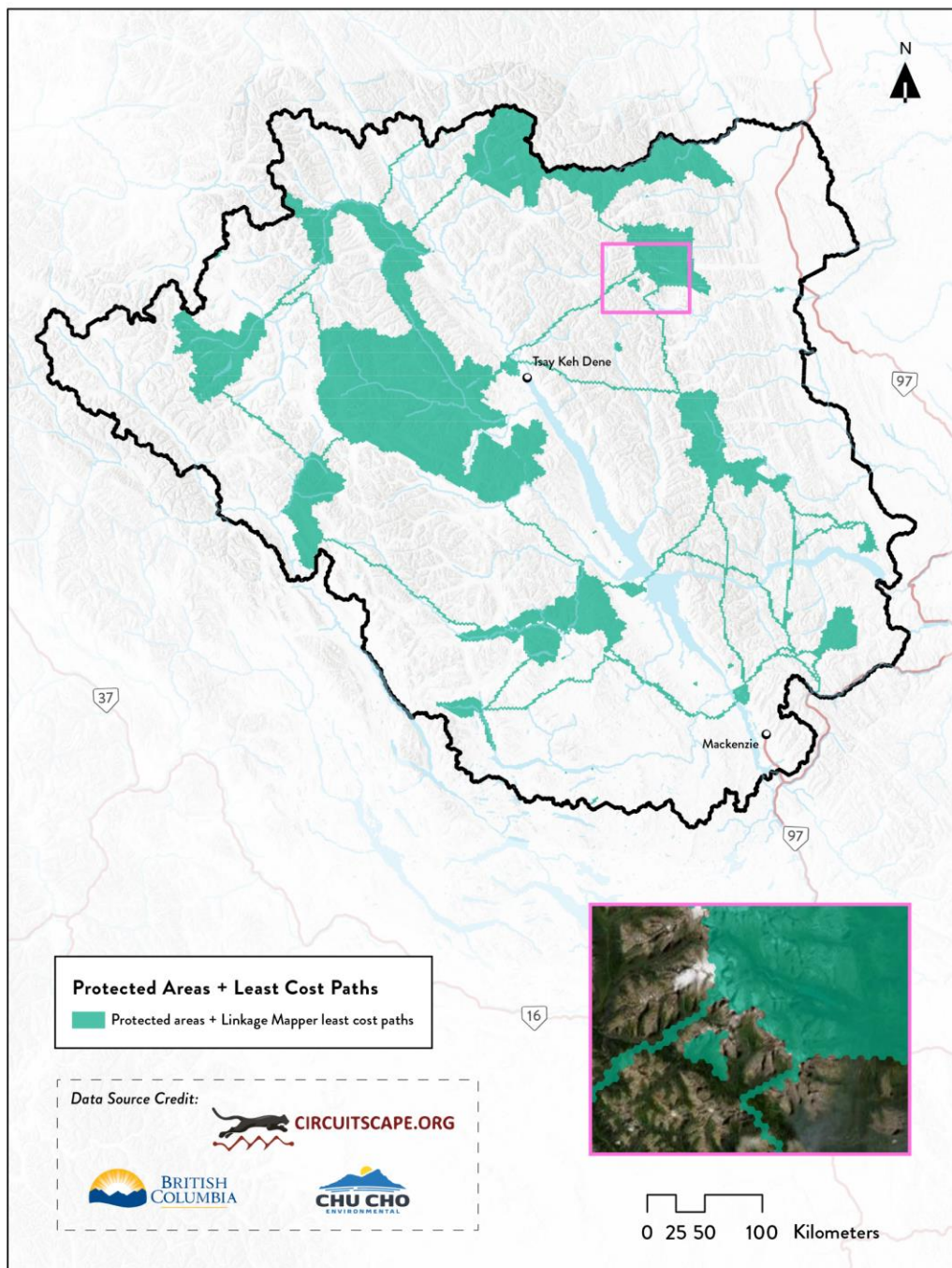




## Connectivity









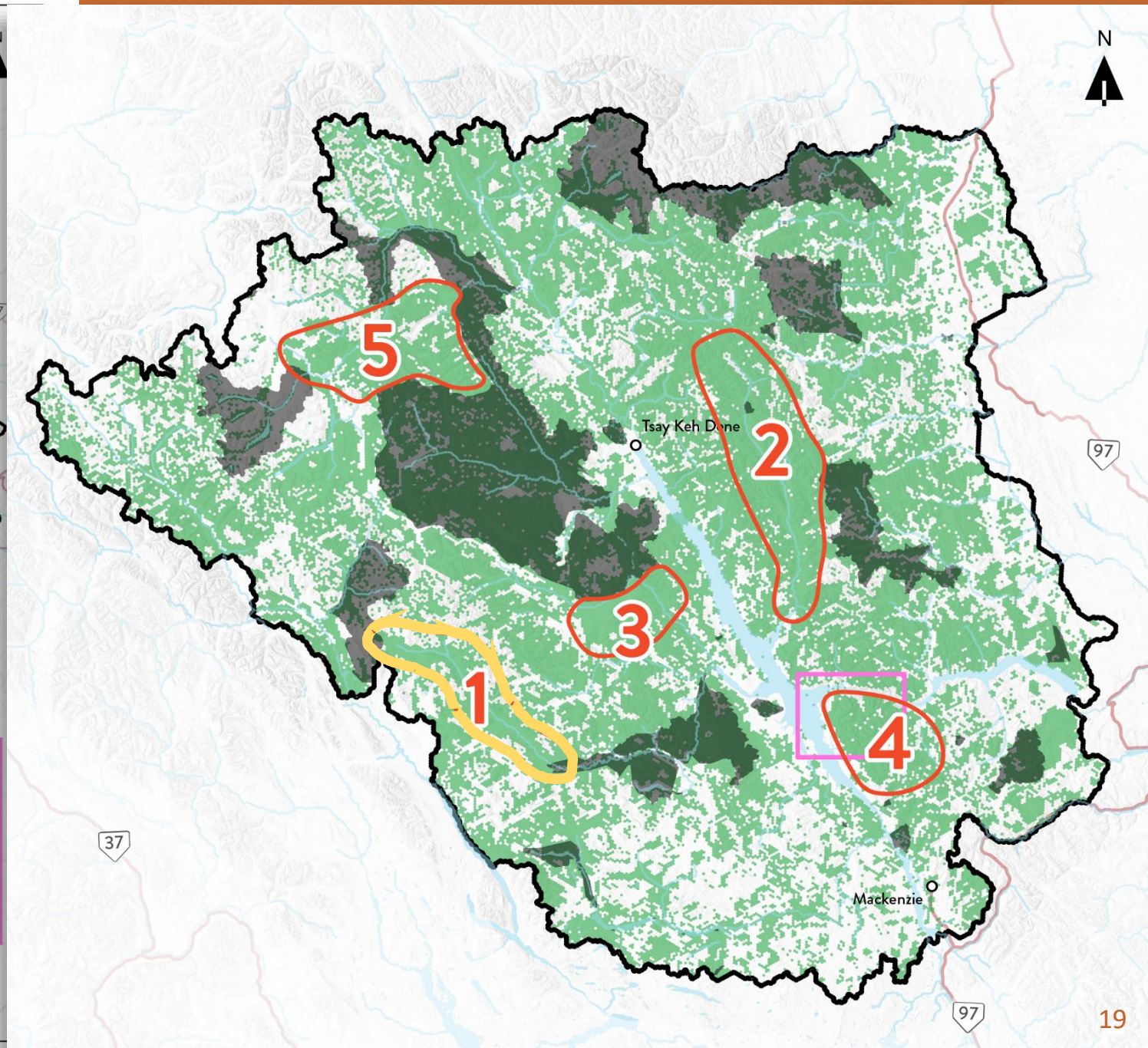
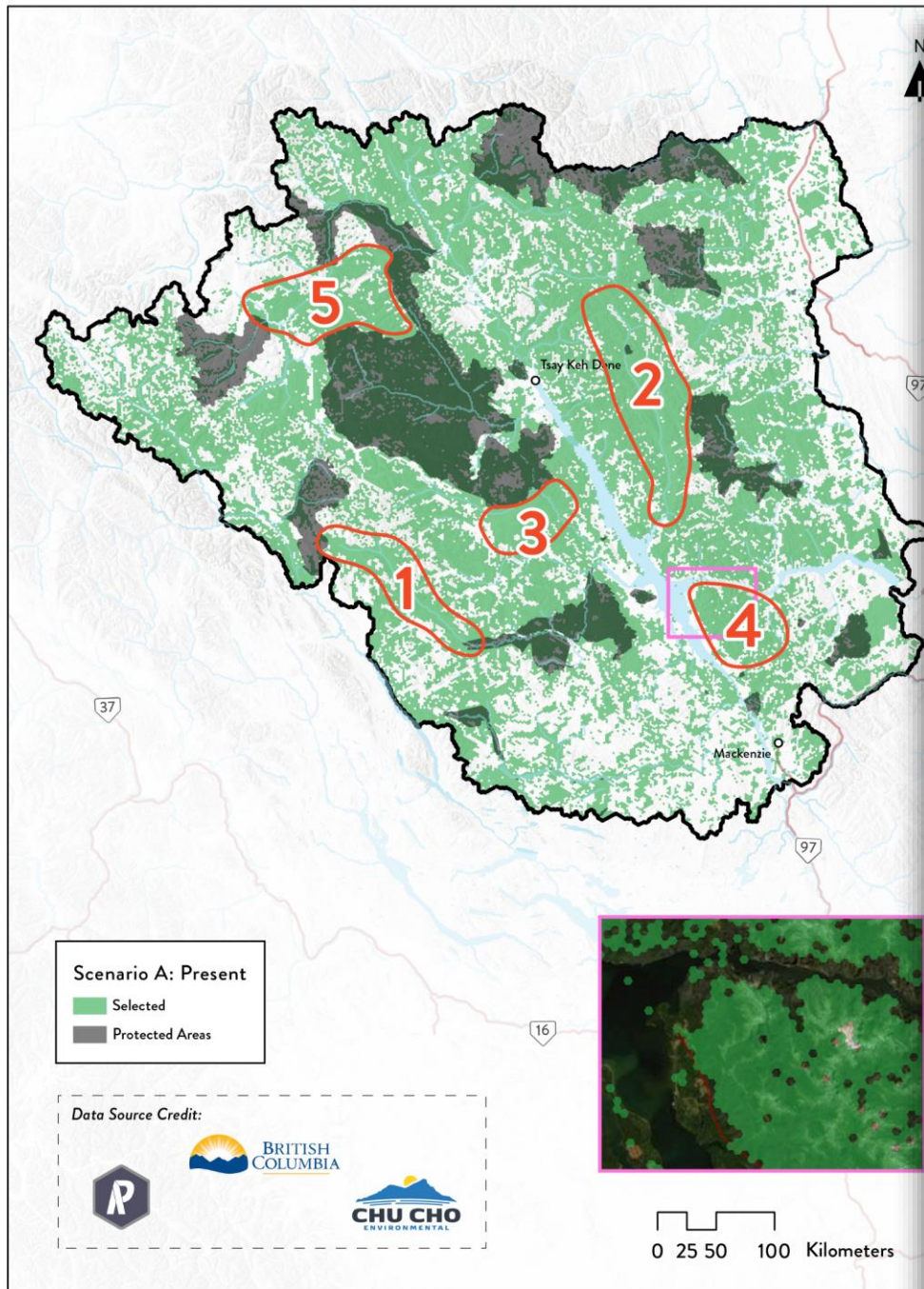
# Scenarios

- Present
- Futures (2050 & 2080)
- Both
- Connectivity
  - Between protected areas
  - Entire landscape

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
<b>Targets Set for:</b>	Present	Future (2050s)	Future (2080s)	Present + Future (both)	Present	Futures (both)
<b>Footprint:</b>	Permanent + Semi-Permanent	Permanent	Permanent	Permanent + Semi-Permanent	Permanent + Semi-Permanent	Permanent
<b>Locked-in Areas:</b>	None	None	None	None	Protected Areas + Least-Cost Paths	Omniscape "Bones"



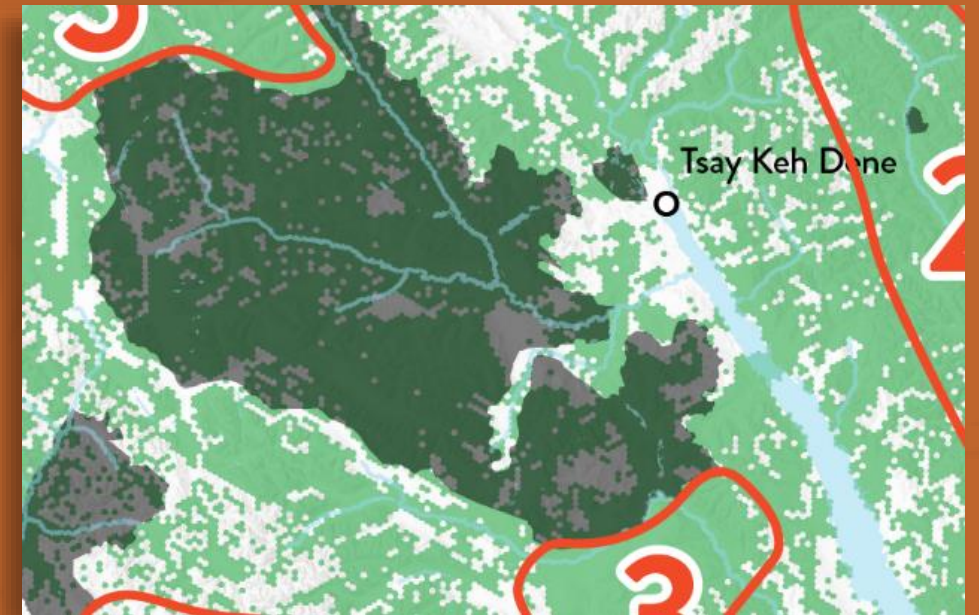






# Example applications

- Informing grizzly camera trap study
- Refining of Ingenika Conservation & Management Area









# Practical implications

## → Day-to-day

- An actionable strategy and plan for effective conservation as resource extraction referrals are processed

## → Long-term

- A suite of potential conservation areas for consideration





# Conclusions

- Effort of inclusion and reciprocity
- Aid holistic decision-making
- Convey an updateable tool accepted by all
- Leverage multiple ways of knowing to sustain both people *and* the land



SCP Tool Application Icon



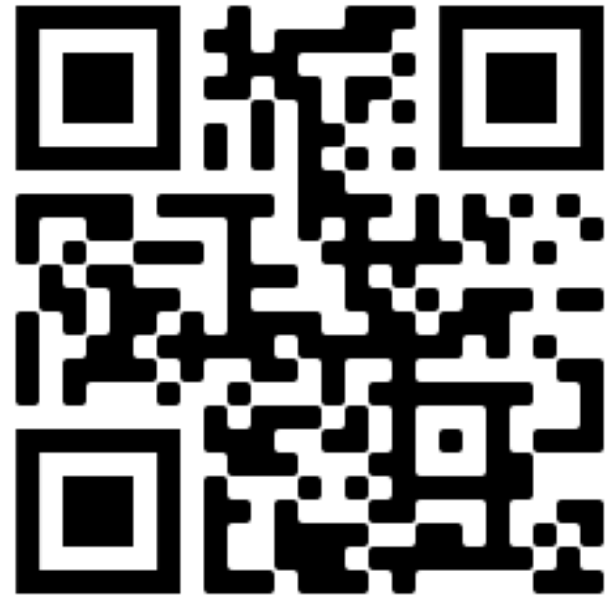


# Acknowledgements





▽ ▽ ▽  
Thank you



[linktr.ee/tkdn.scp](https://linktr.ee/tkdn.scp)

▽ ▽ ▽  
'Anku

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# Limitations

- Connectivity and TEK both considered in identifying high-value conservation areas, but TEK did not explicitly inform connectivity analyses
- Beyond scope of project to collect data from community discussions to produce TEK-sourced movement data

