

FOREST MANAGEMENT ON KARST

REFORESTATION TO BROADCAST BURNING

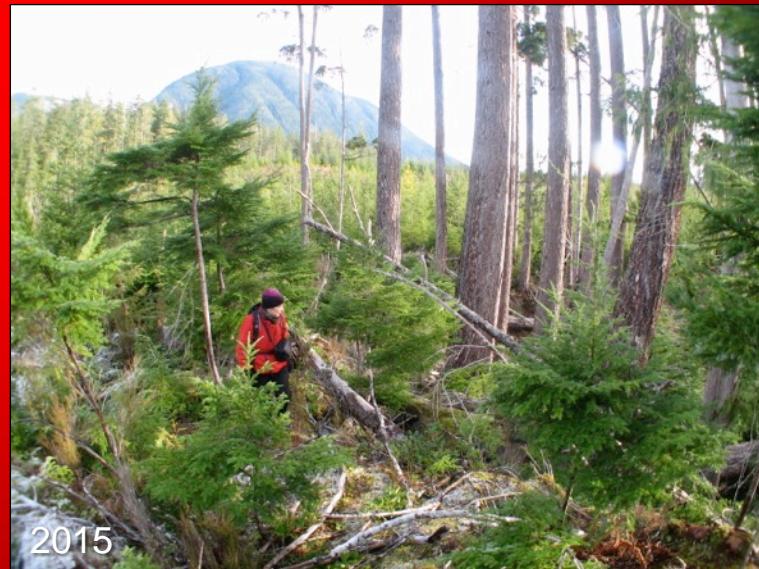
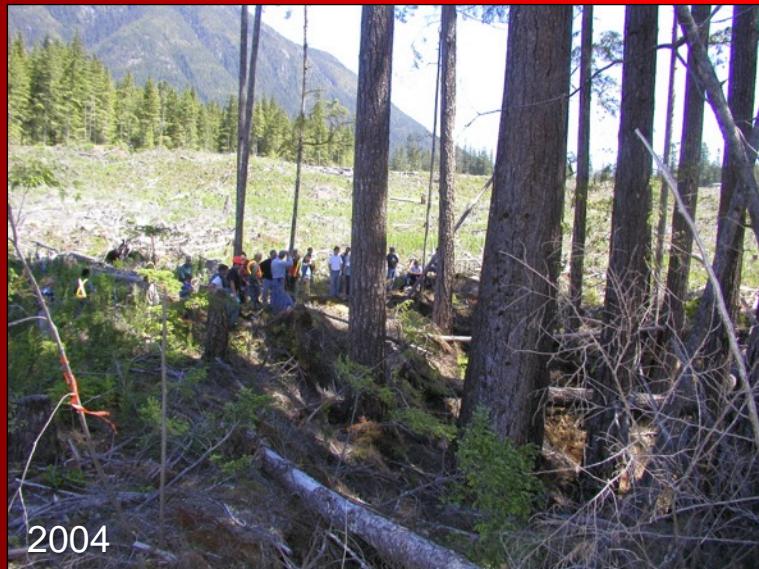
Coastal Silviculture Committee

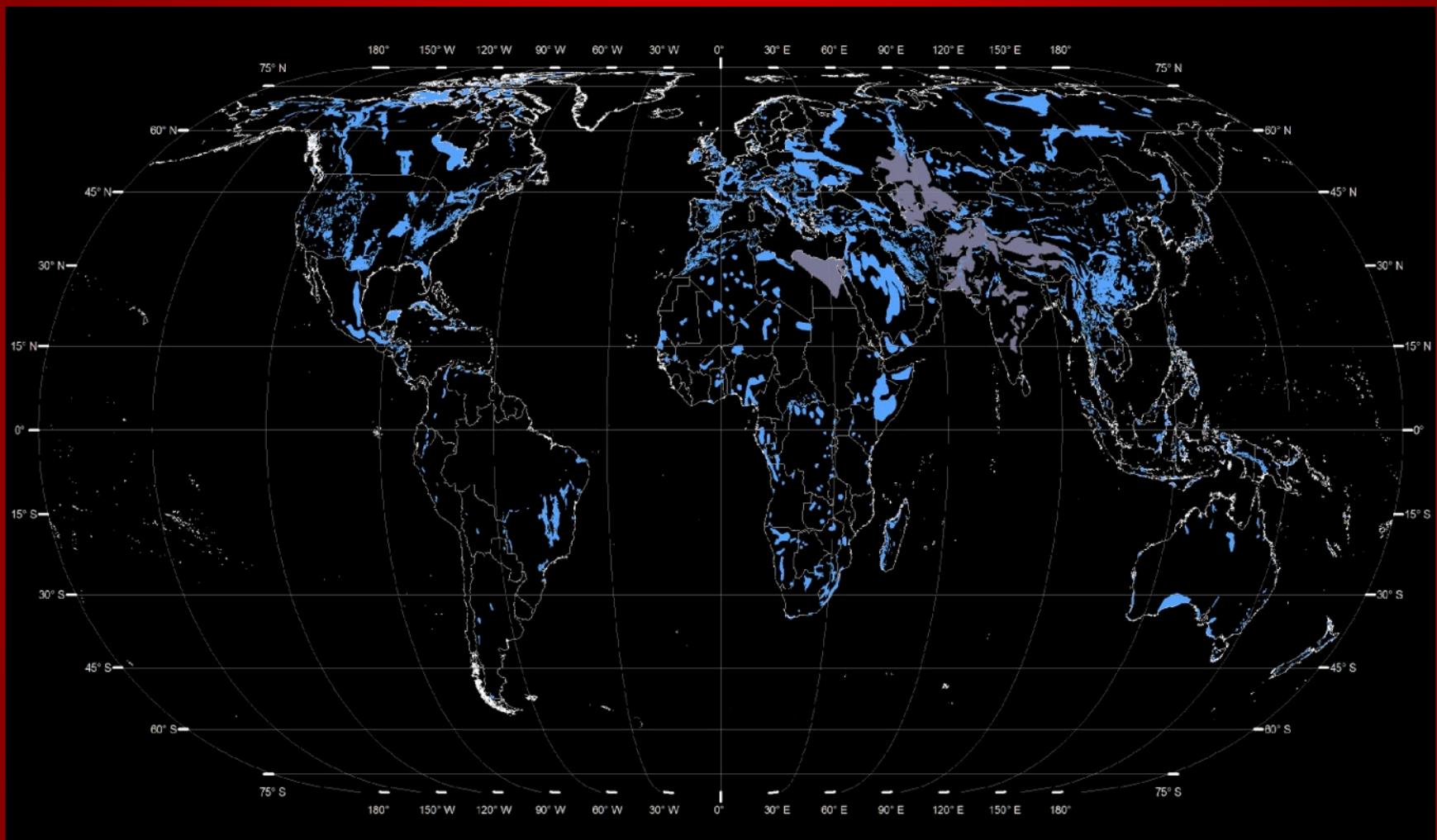
Vancouver Island University, Nanaimo, B.C.

February 26, 2015

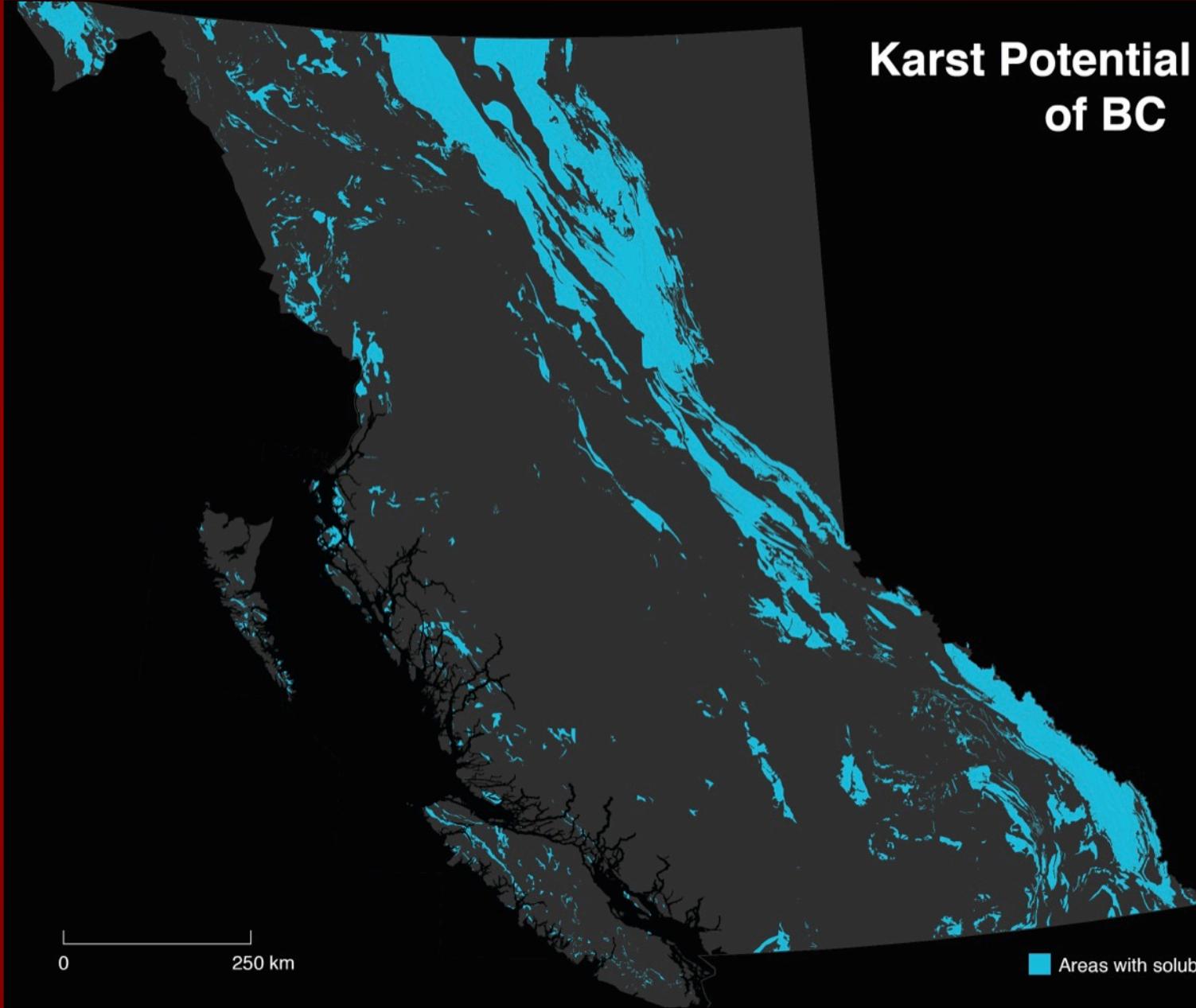


June 14, 2004

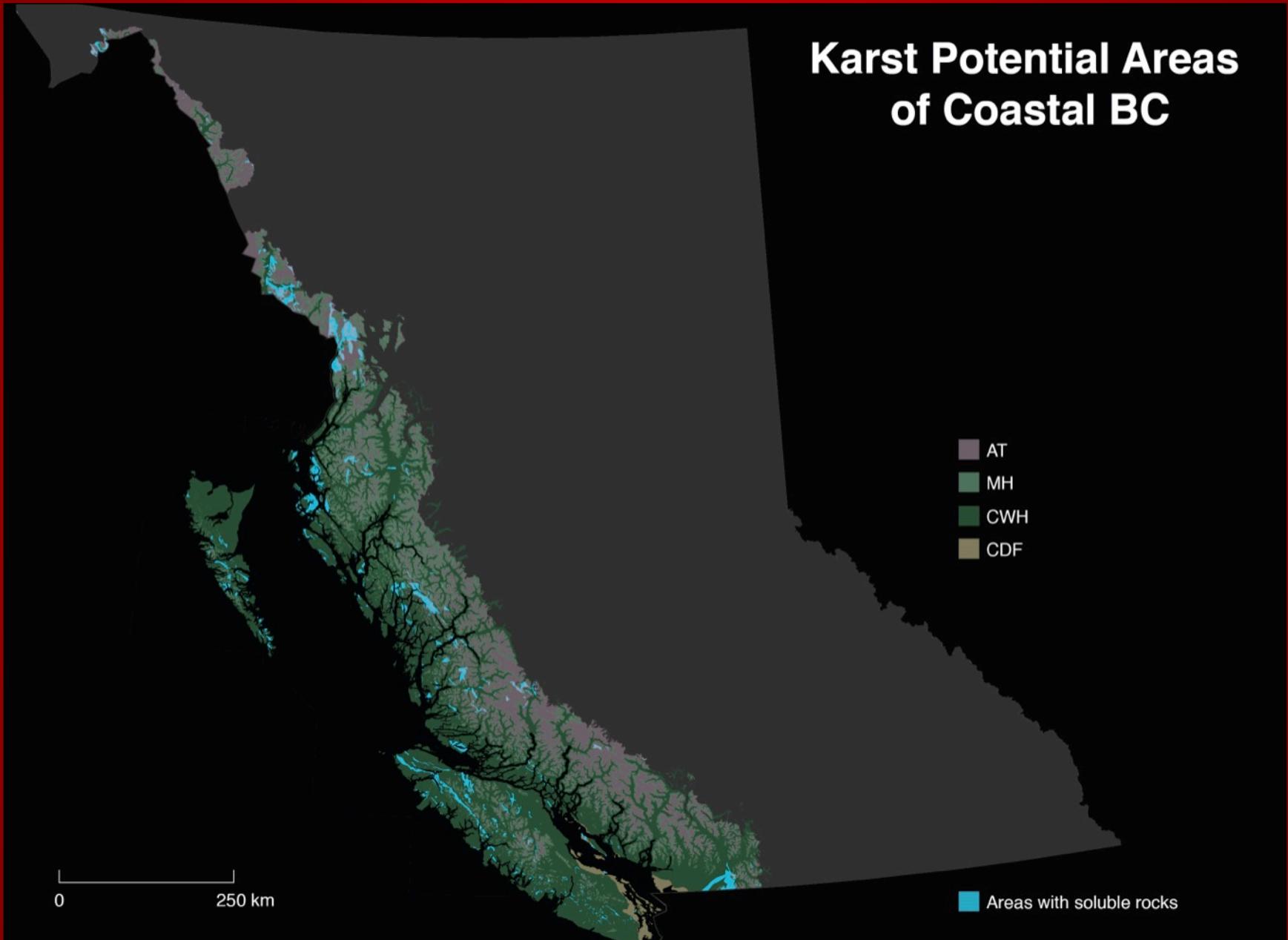




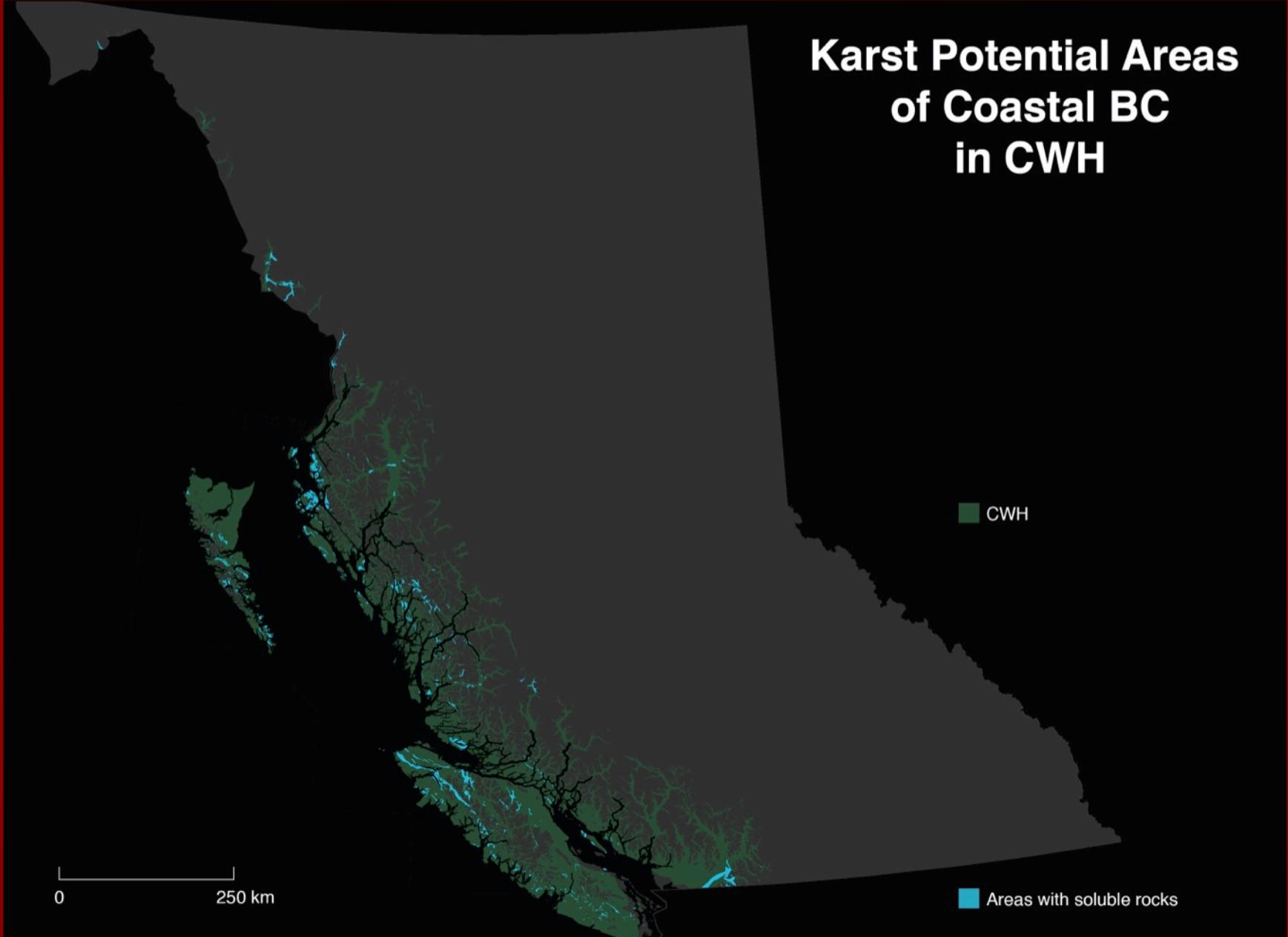
Karst Potential Areas of BC



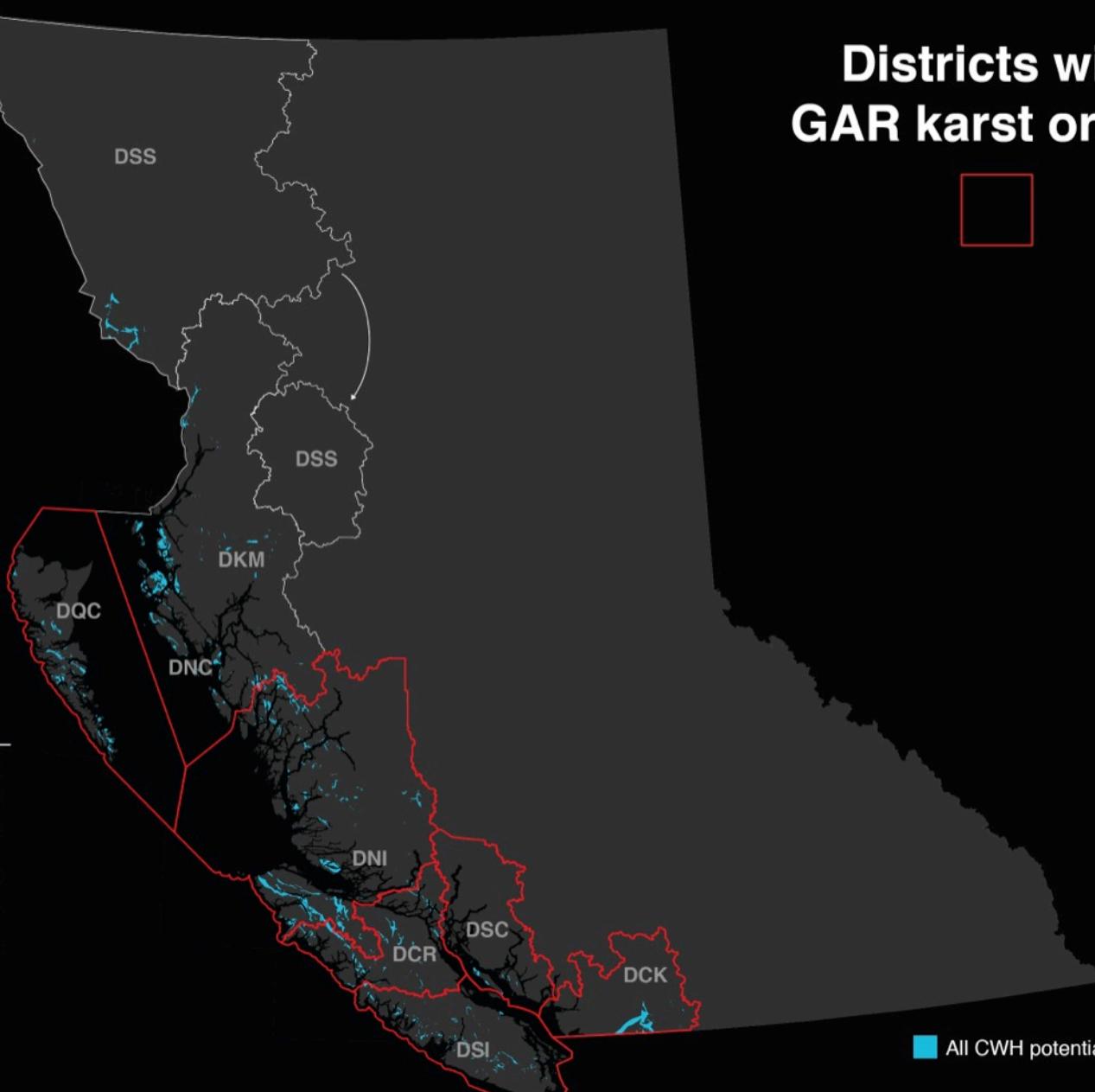
Karst Potential Areas of Coastal BC



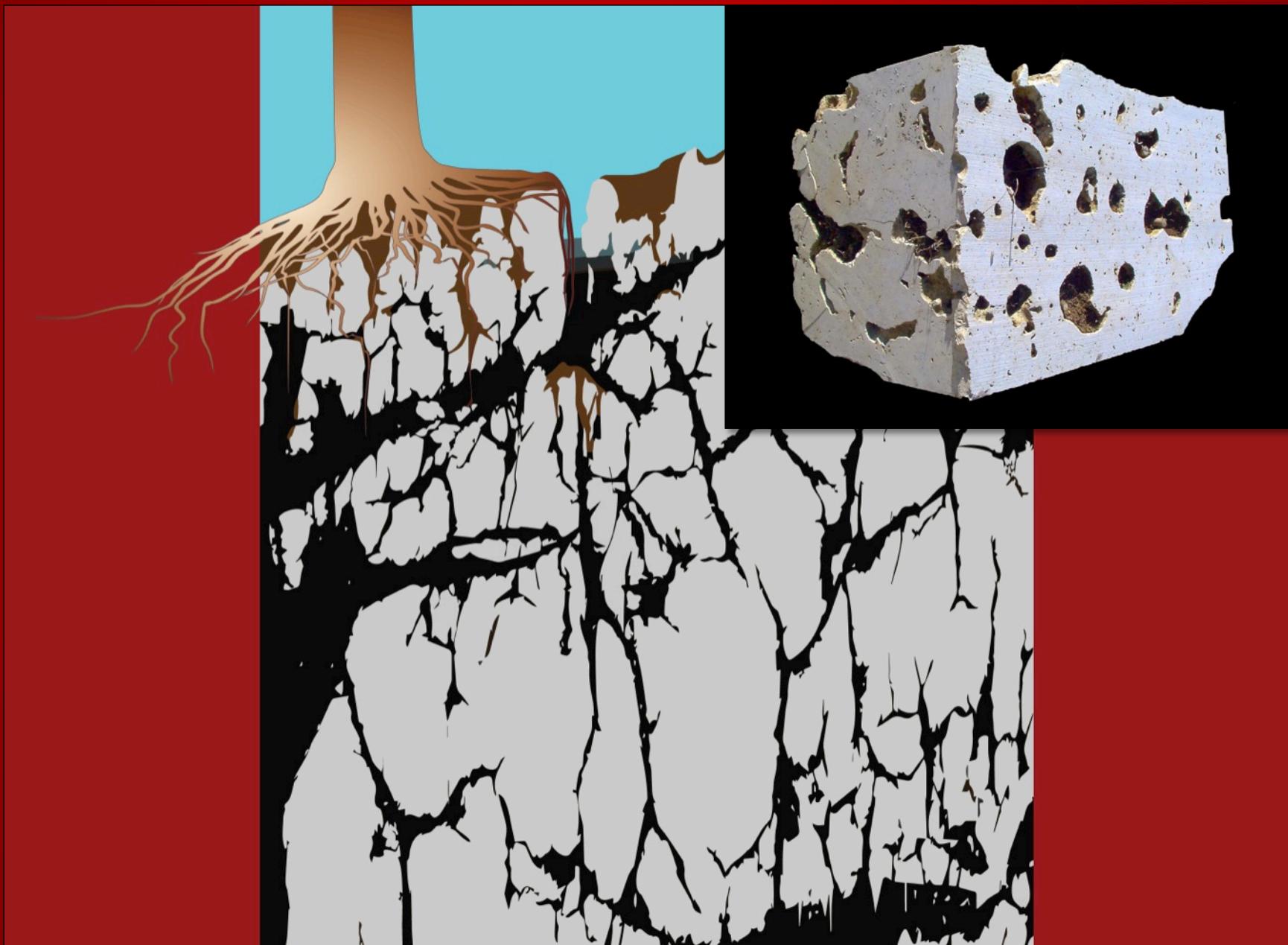
Karst Potential Areas of Coastal BC in CWH



Districts with GAR karst orders



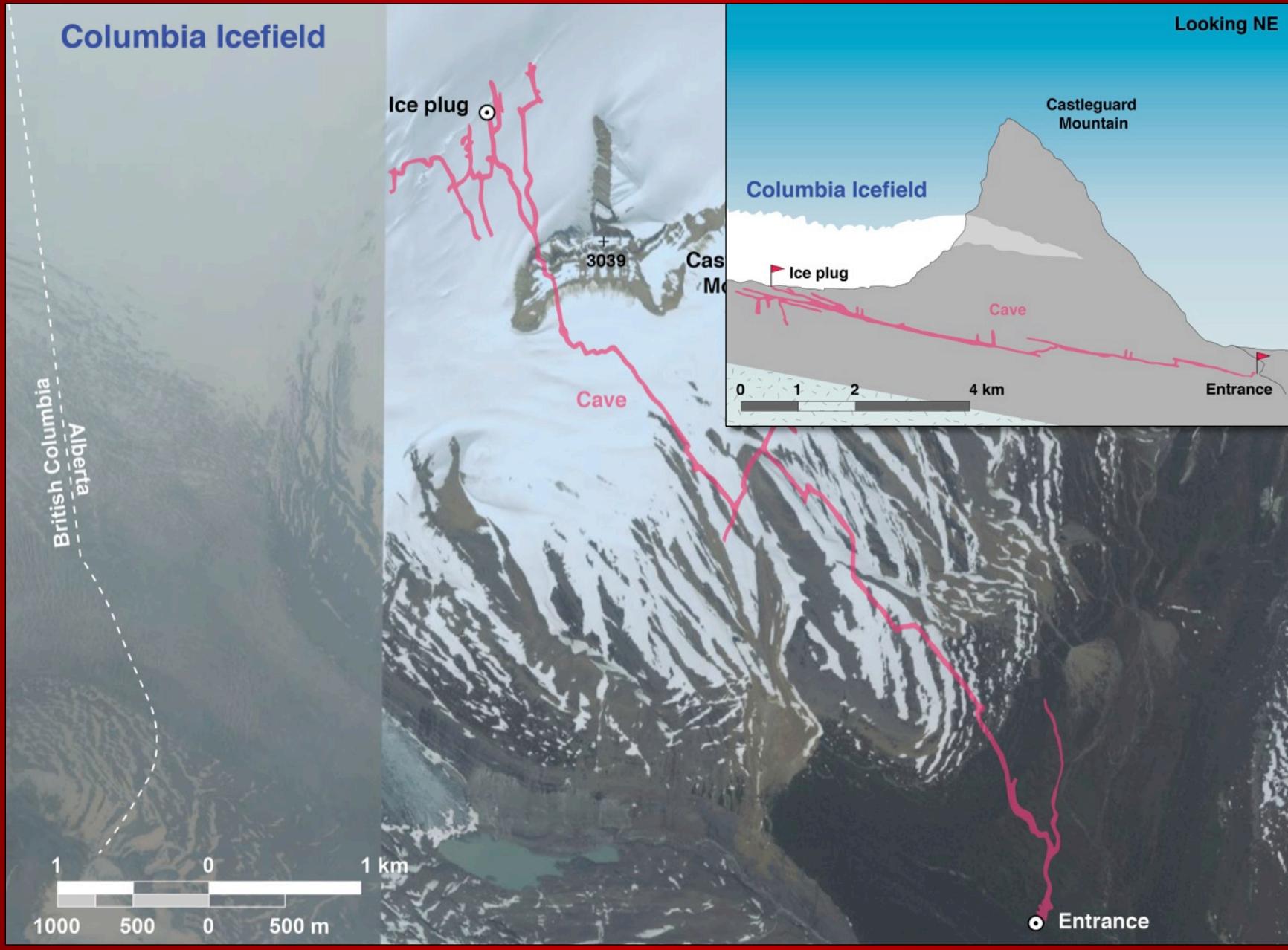
District	Year
DQC	2006
DIC	2007
DCR	2007
DSI	2010
DSC	2010
DCK	2010

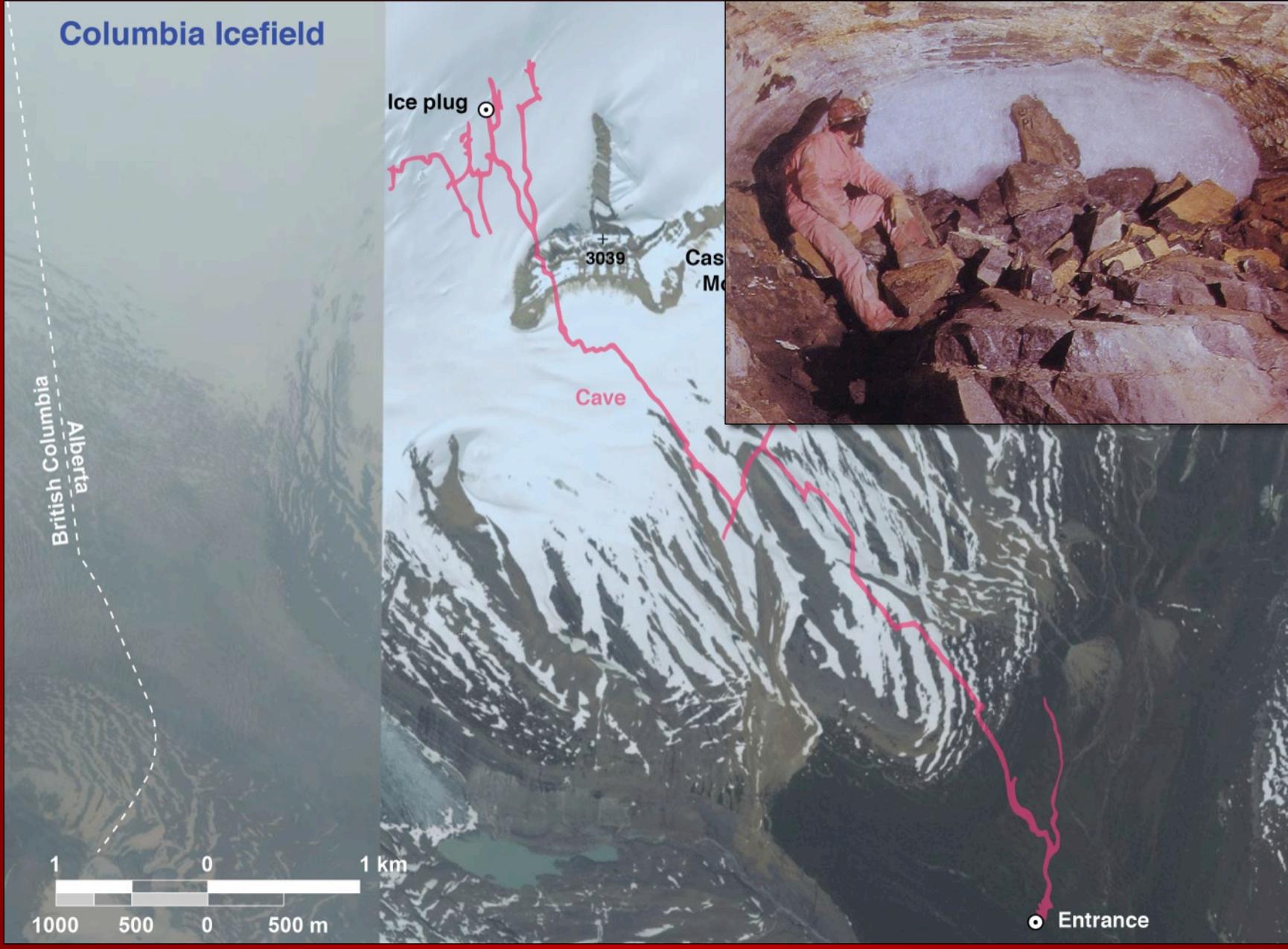


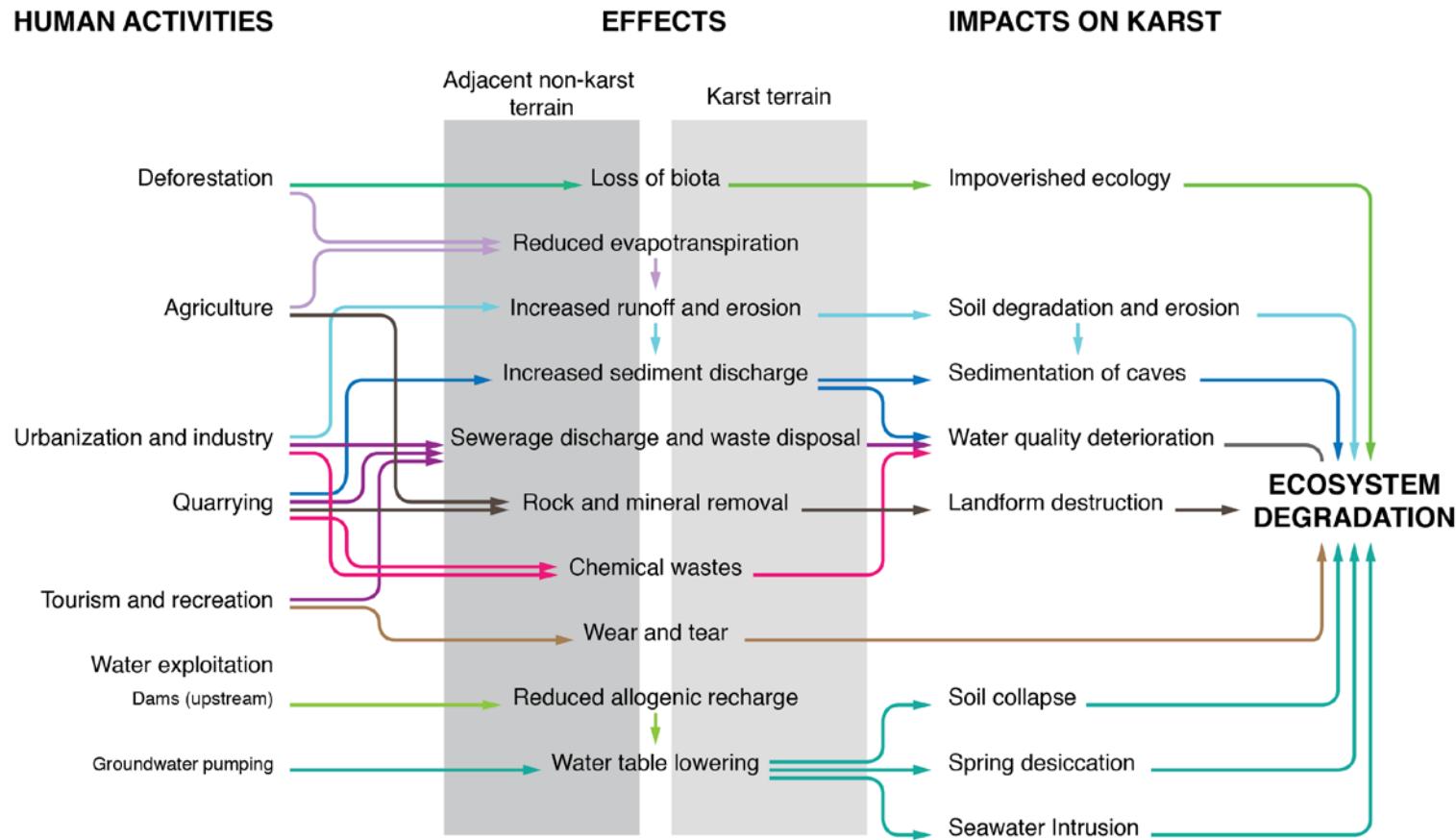










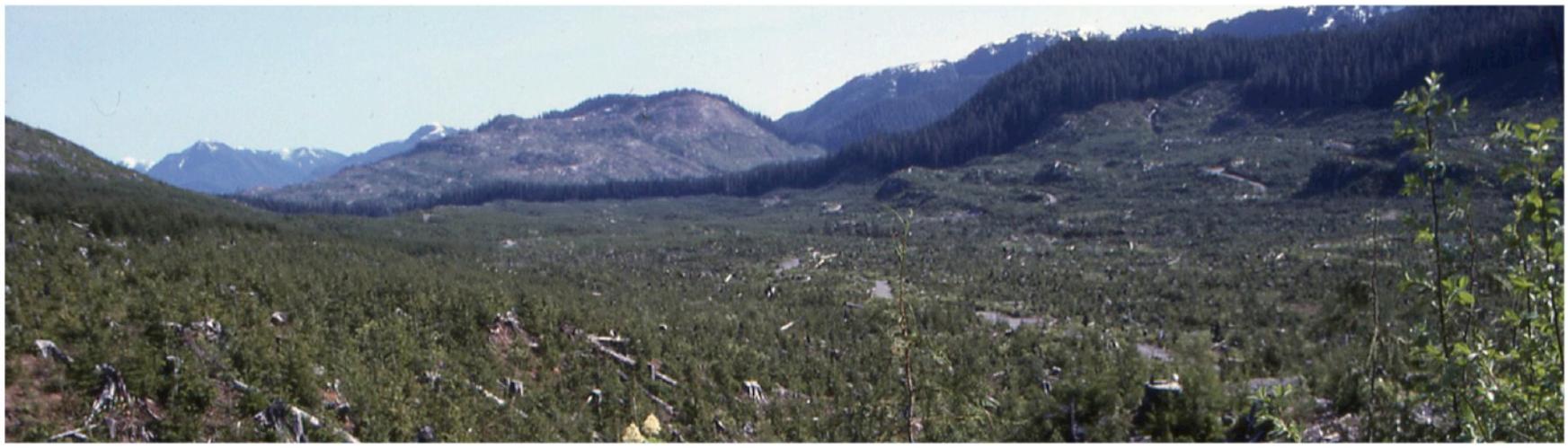


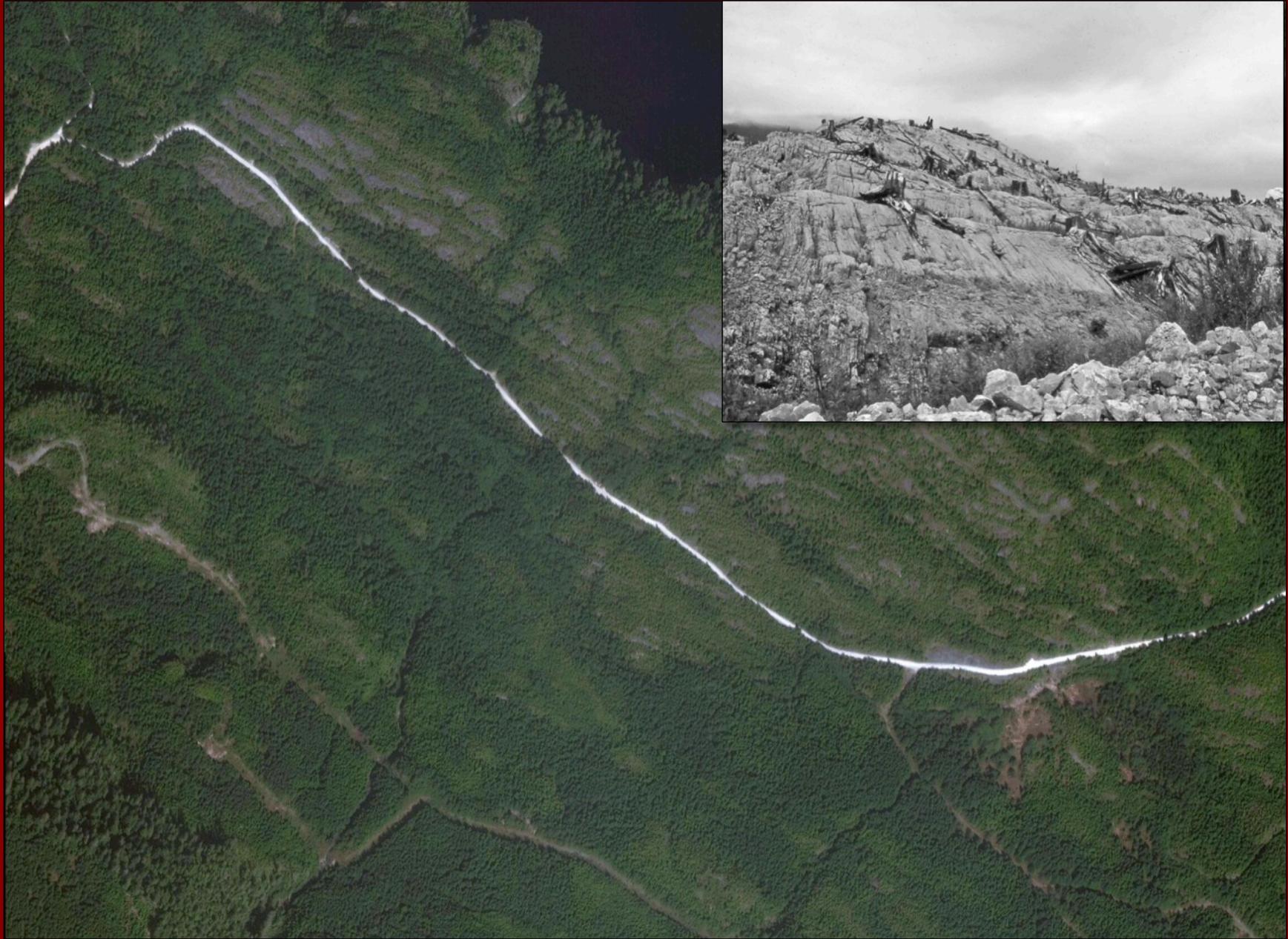
Adapted from Williams (1993)







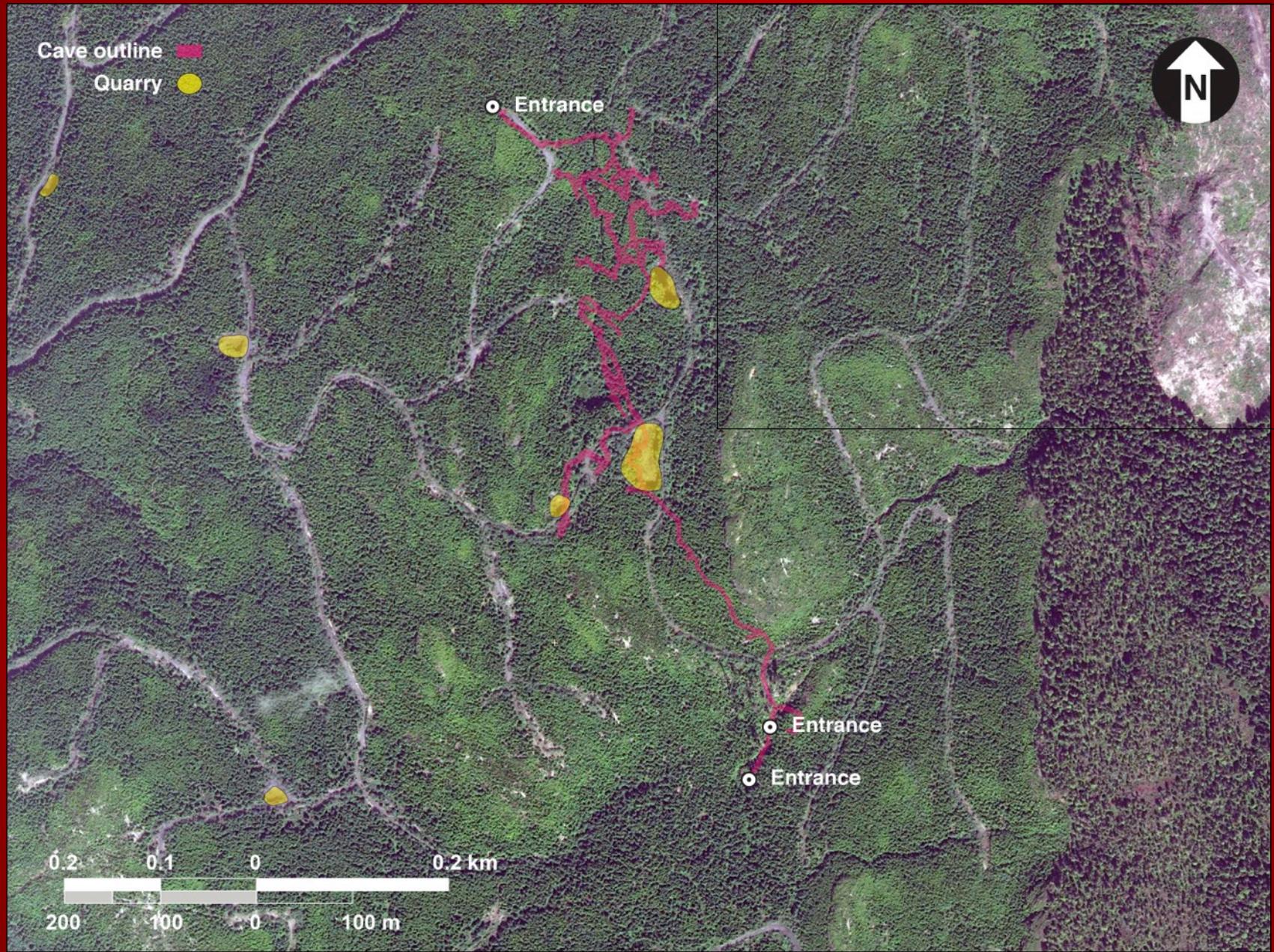




2009











Wildfires on karst in coastal BC since 1980

Fire year	Fire no.	Location	Area of fire (ha)	Area of karst affected (ha)	Carbonate hosting formation	Cause
① 2014	V90295	Kinman Creek	165.8	110	Quatsino	?
② 2010	V90985	Devils Bath	10.6	10.6	Quatsino	Person
③ 2009	V91235	Ida Lake	1.3	1.3	Quatsino	Lightning
④ 2009	V81242	Tahsis River	201.1	201.1	Quatsino	Lightning
⑤ 2009	V80850	Wolf River	846.4	166.6	Mount Mark	Lightning
⑥ 2007	V90171	Lac Truite	15.5	15.5	Quatsino	Person
⑦ 1982	V80054	Auger Point	234.4	40.6	Mount Mark	Person
⑧ 1981	N.A.	Devil's Bath	4.5	4.5	Quatsino	Person
			1,479.6	440.2		

Some Effects of Fire on Recently-logged Surface Karst Landscapes

Elements	Temperature	Associated effects
Vegetation and regolith	40–70°C	Biological disruptions of living tissue (stems and roots)
	50–120°C	Microbes begin to be affected
	> 220°C	Physico-chemical changes occur (aggregation of sand and silt-sized particles)
	200–315°C	Distillation of organic matter
	200–400°C	Nutrient volatilization
Exokarst	742–898°C	Calcination and spalling

Some Possible Effects of Fire Beneath Recently-logged Karst Surfaces

Elements	Associated effects
Epikarst zone	<p>Contamination of subsurface atmosphere (e.g., methyl bromide and methy chloride)</p> <p>Disrupted percolation flow</p> <p>Accelerated OM and sediment influx</p> <p>Increased concentrations of inorganic solutes</p> <p>Altered dissolution process</p>
Endokarst	<p>Contamination of karst aquifer</p> <p>Miscellaneous: Speleothem staining</p>





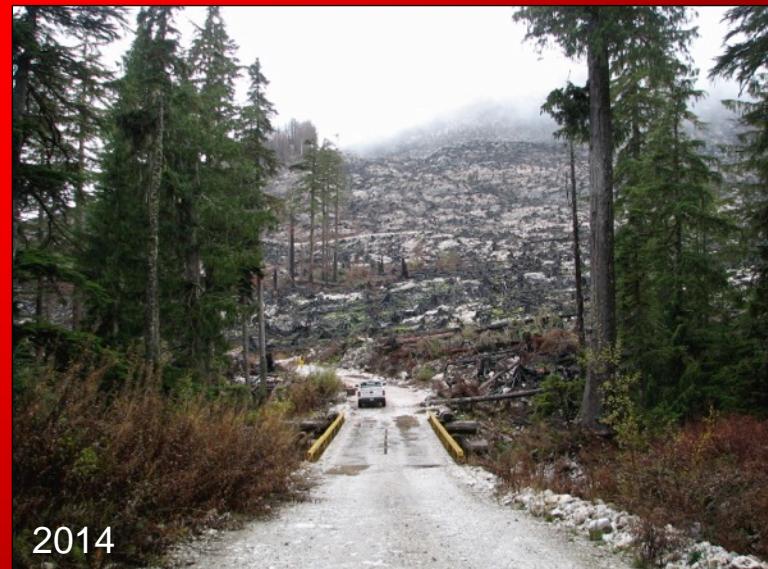
2011



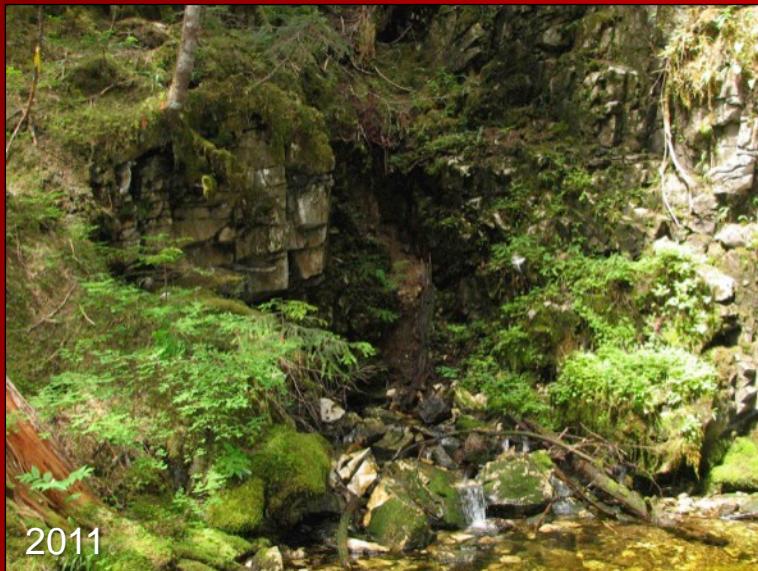
2014



2010?



2014





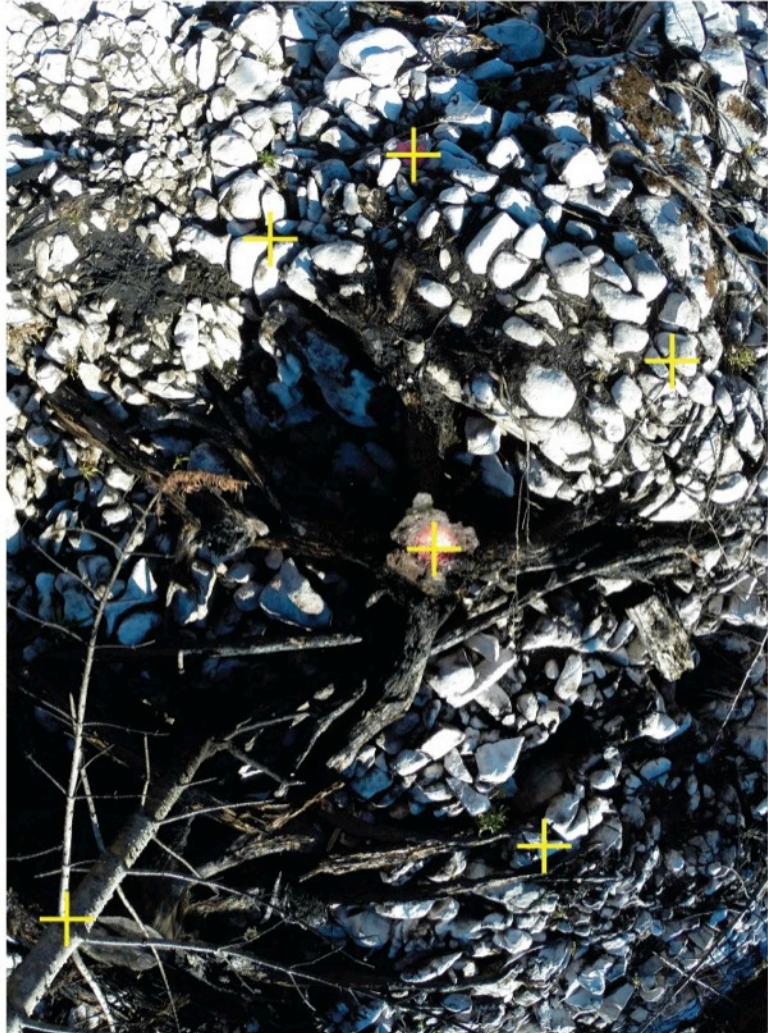
2011



2014



Plot 3 @ N reference point
Date: 07 Sep 2014



Plot 3 @ N reference point
Date: 12 Nov 2014

