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# Potential for Expansion of the Agricultural Land Base in Canada

**Forestry and Agriculture Greenhouse Gas Modeling Forum**

**Workshop #5:  
Meeting the Challenges of a Rapidly Changing Climate Policy Environment**

**National Conservation Training Center, Shepherdstown, WV,  
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**Canada**

An aerial photograph showing a large, cleared area of land in the foreground, likely a field or a recently logged area. The cleared area is dark brown and has some light-colored patches, possibly from snow or bare soil. In the background, there is a dense forest of trees with varying shades of green and yellow, suggesting a mix of species or a seasonal change. The overall scene is a natural landscape with a significant area of land that has been cleared.

## **Potential for Expansion of the Agricultural Land Base in Canada**

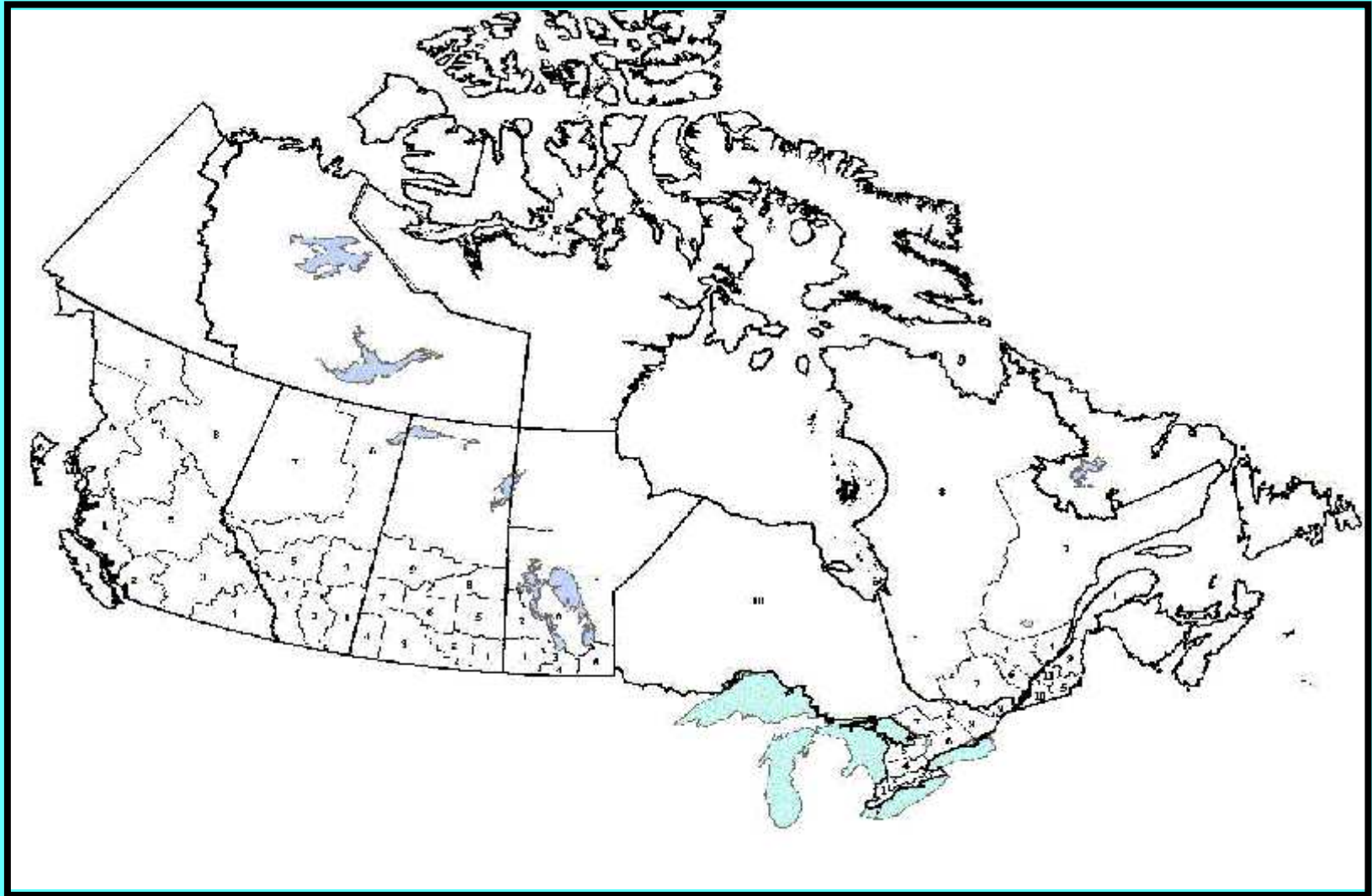
### **Objective:**

- to estimate the area of land with agricultural potential that is not currently in production;
- to provide a breakdown of:
  - 1) forest on Class 1 & 2 soil
  - 2) forest on Class 3 & 4 soil
  - 3) shrubs on Class 1 & 2 soil
  - 4) shrubs on Class 3 & 4 soil
- to estimate areas by CRAM (Canadian Regional Agricultural Model) regions

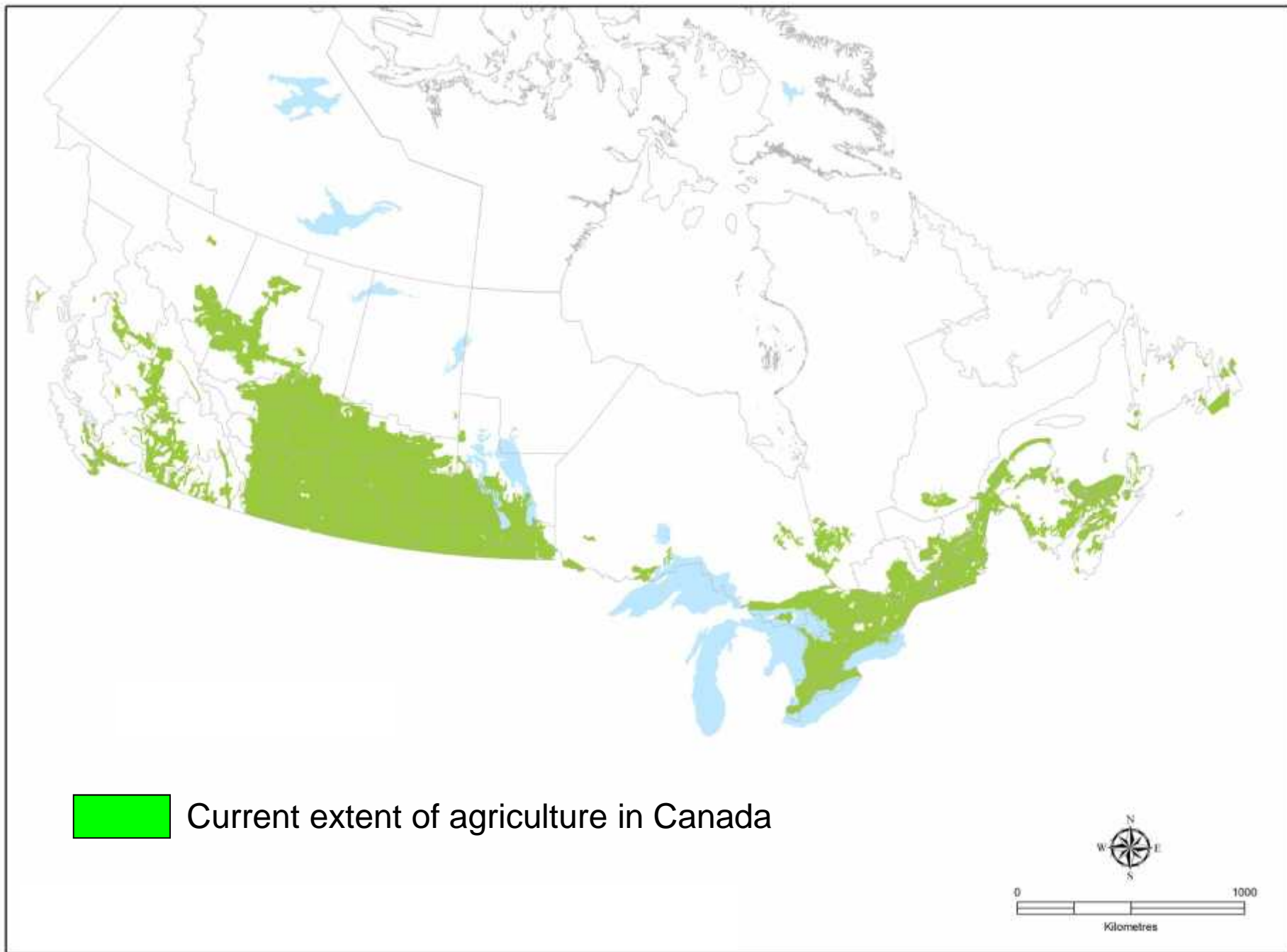
### **Method:**

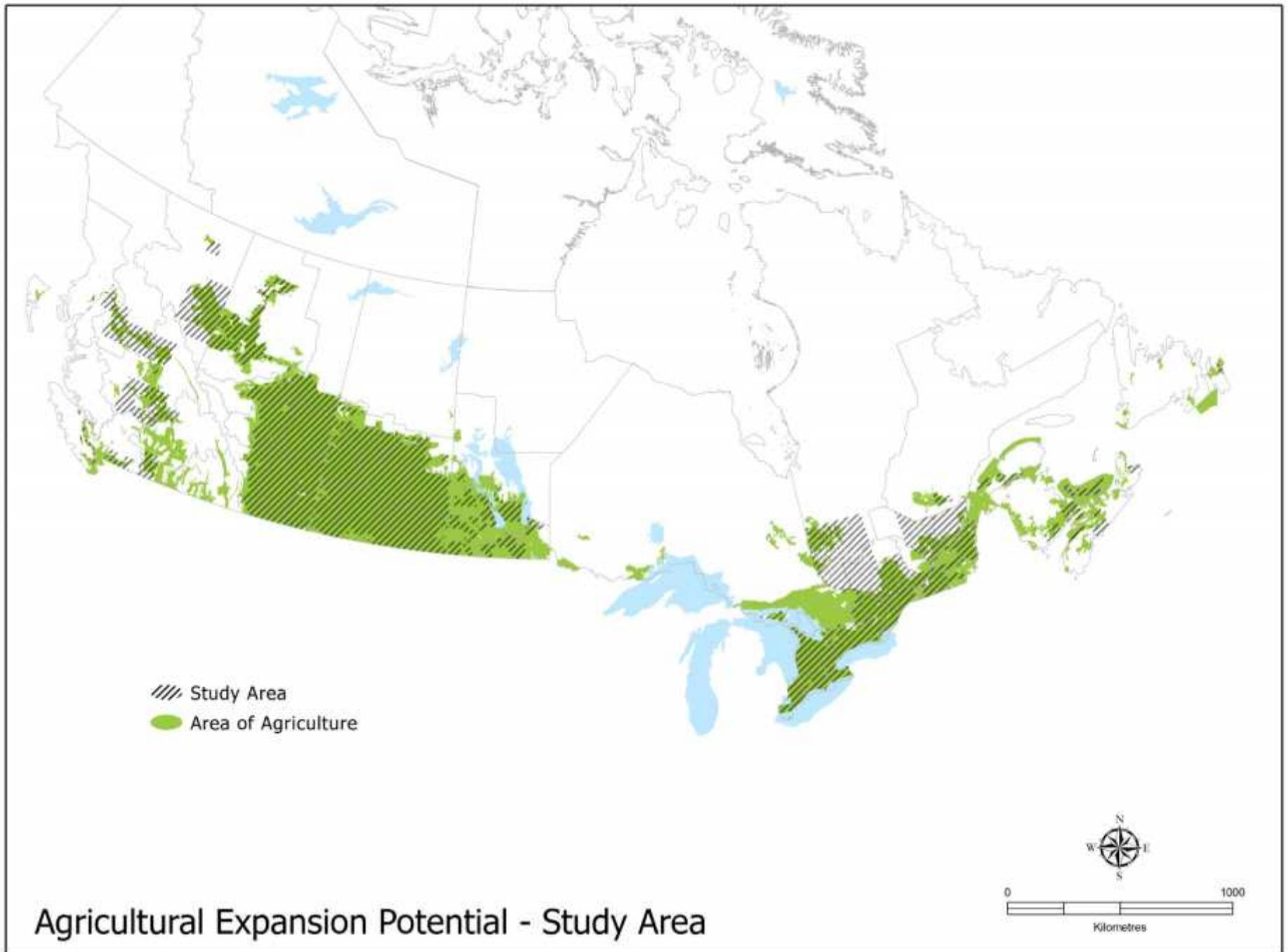
- intersect the most current land cover maps with the most current soil capability maps;
- estimate areas and scale to CRAM regions.



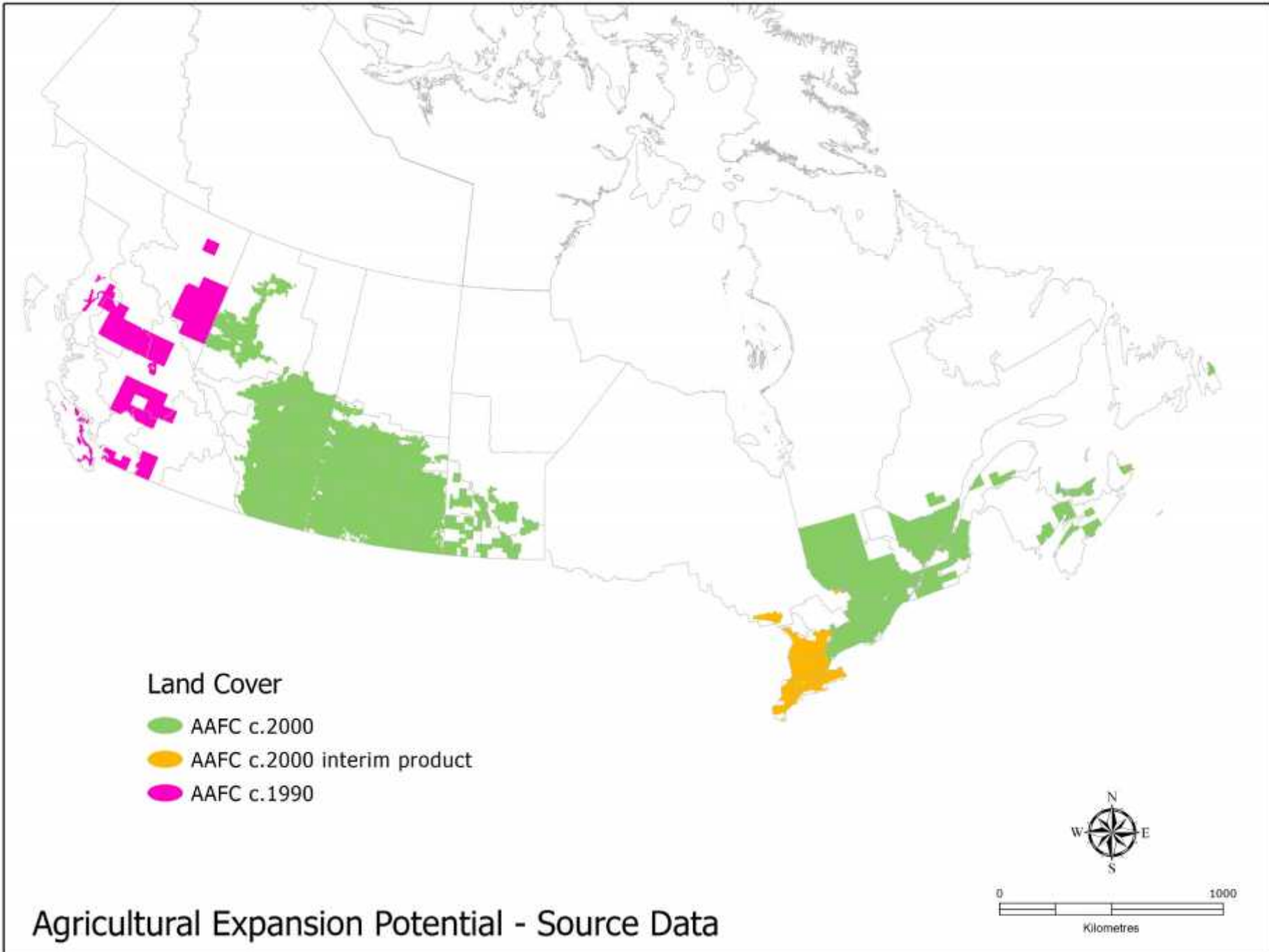


**Canadian Regional Agricultural Model (CRAM) Regions (55 in total)**

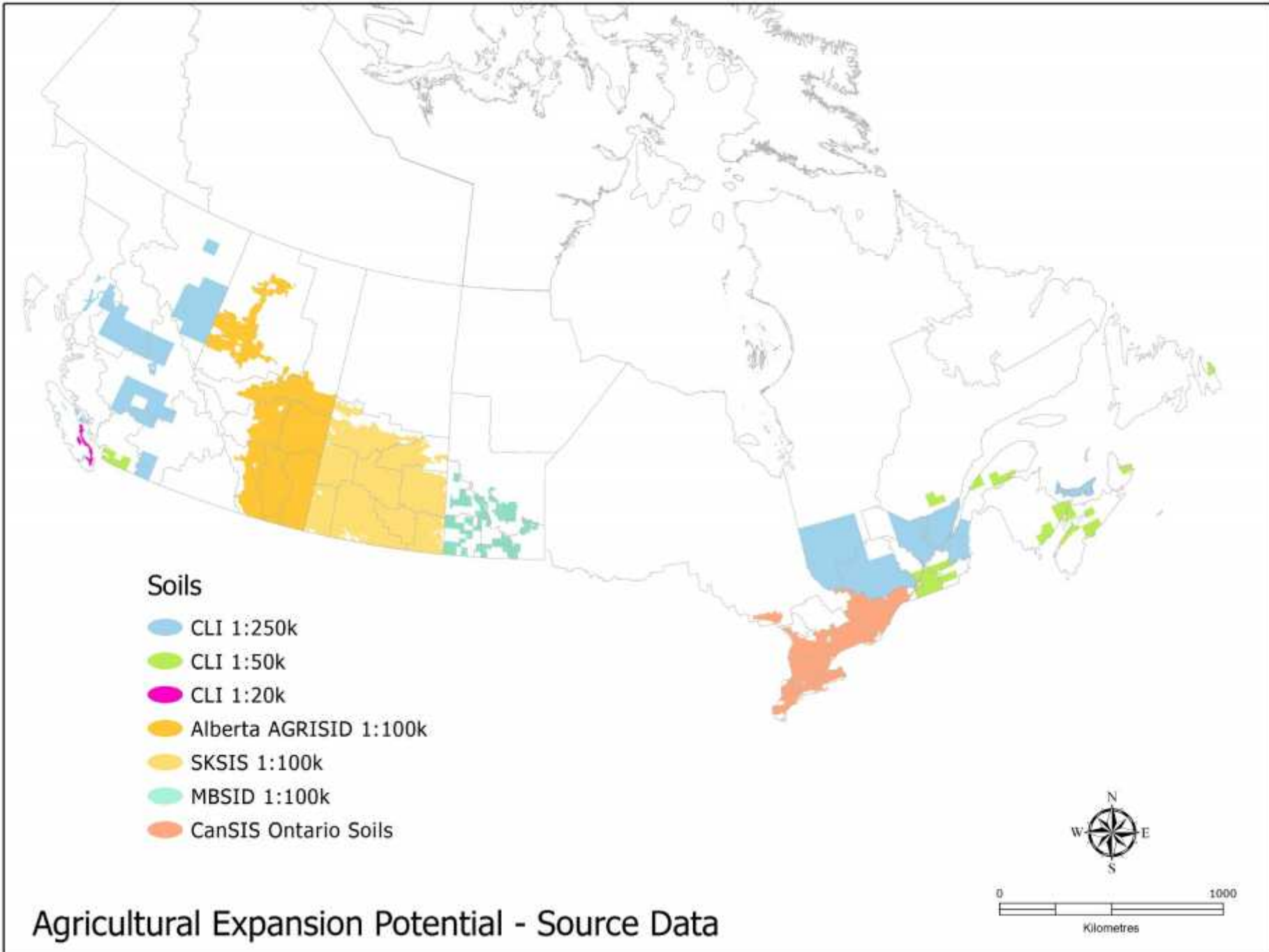




Agricultural Expansion Potential - Study Area

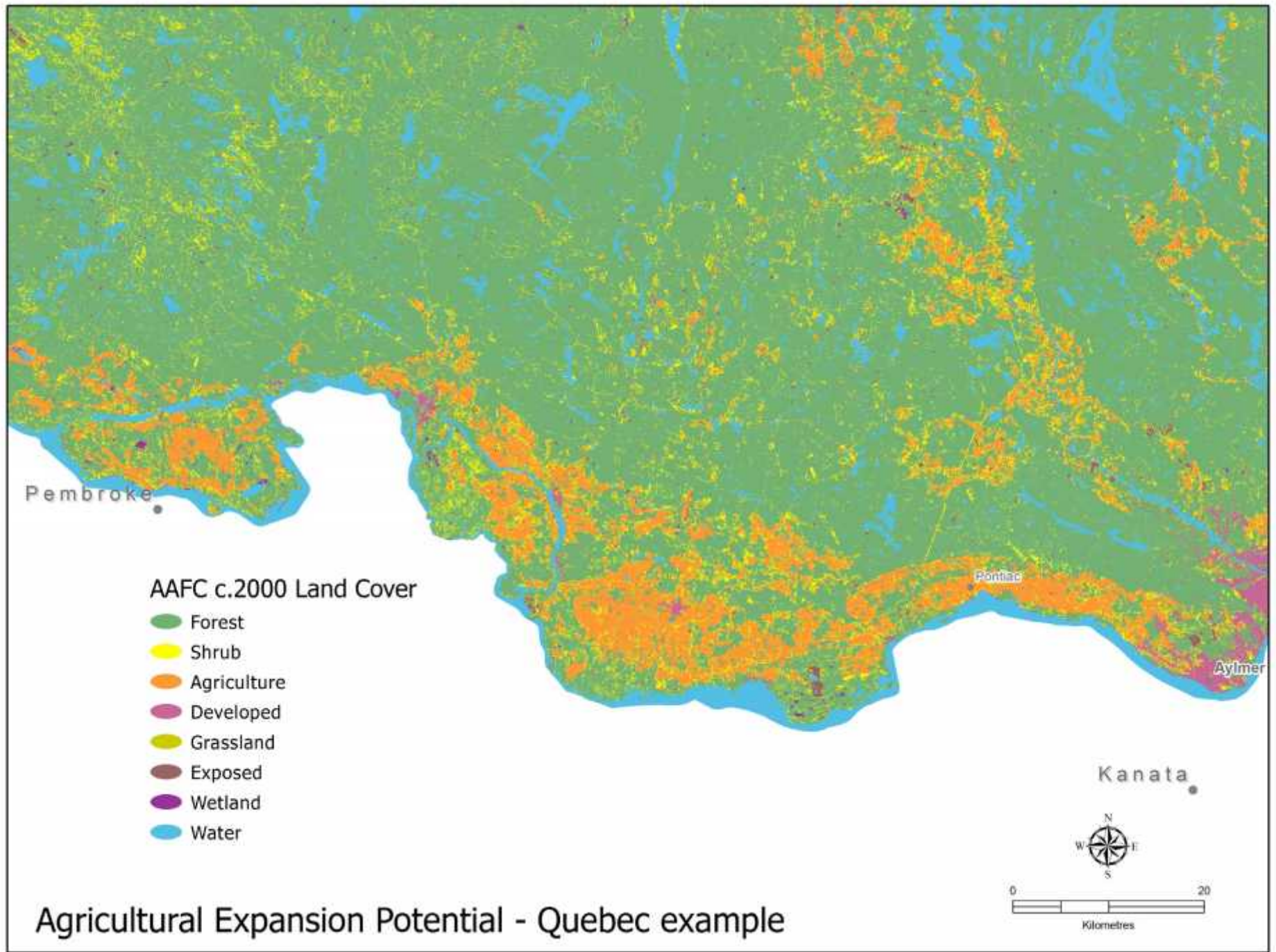


Agricultural Expansion Potential - Source Data



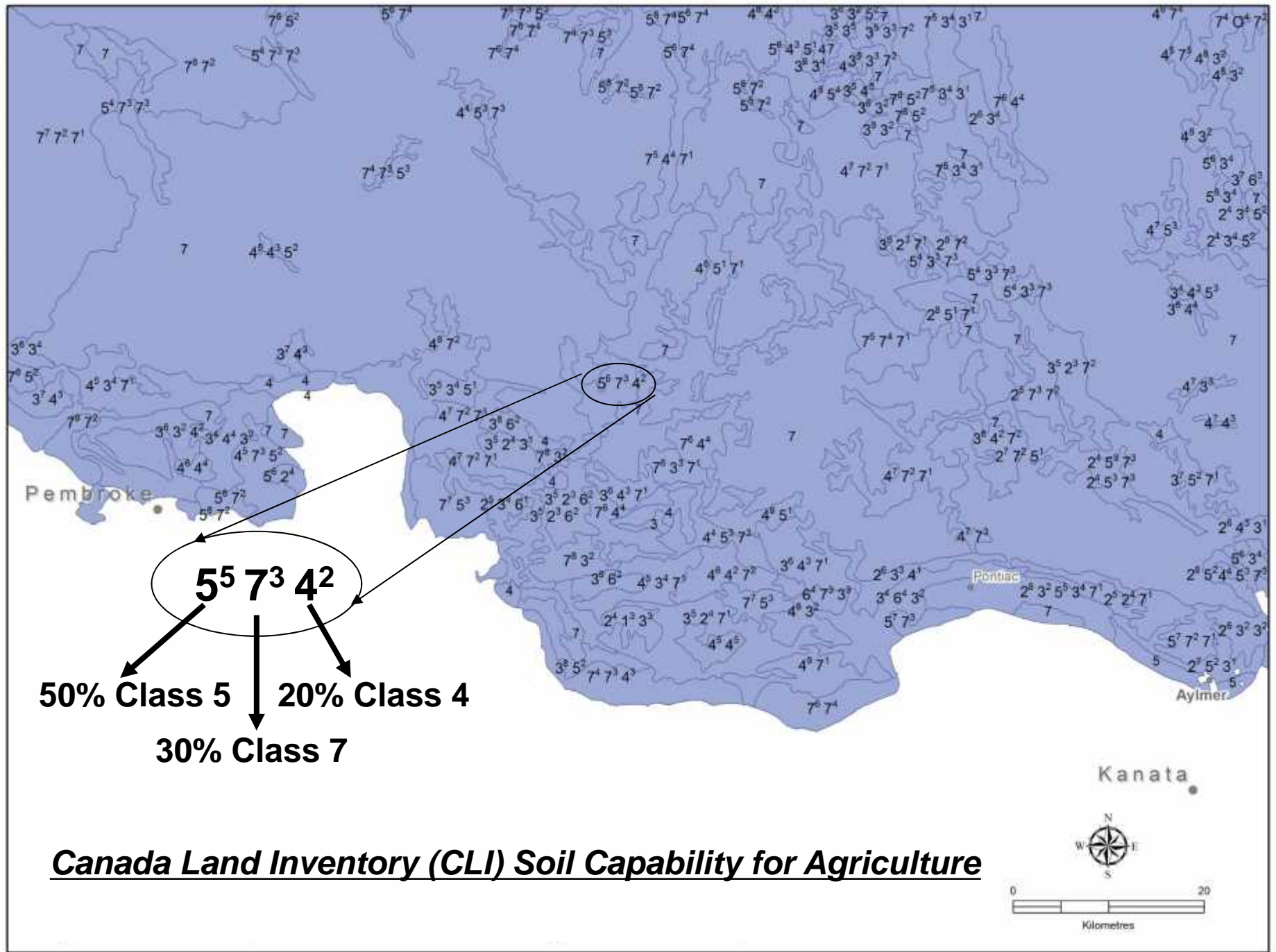
Agricultural Expansion Potential - Source Data



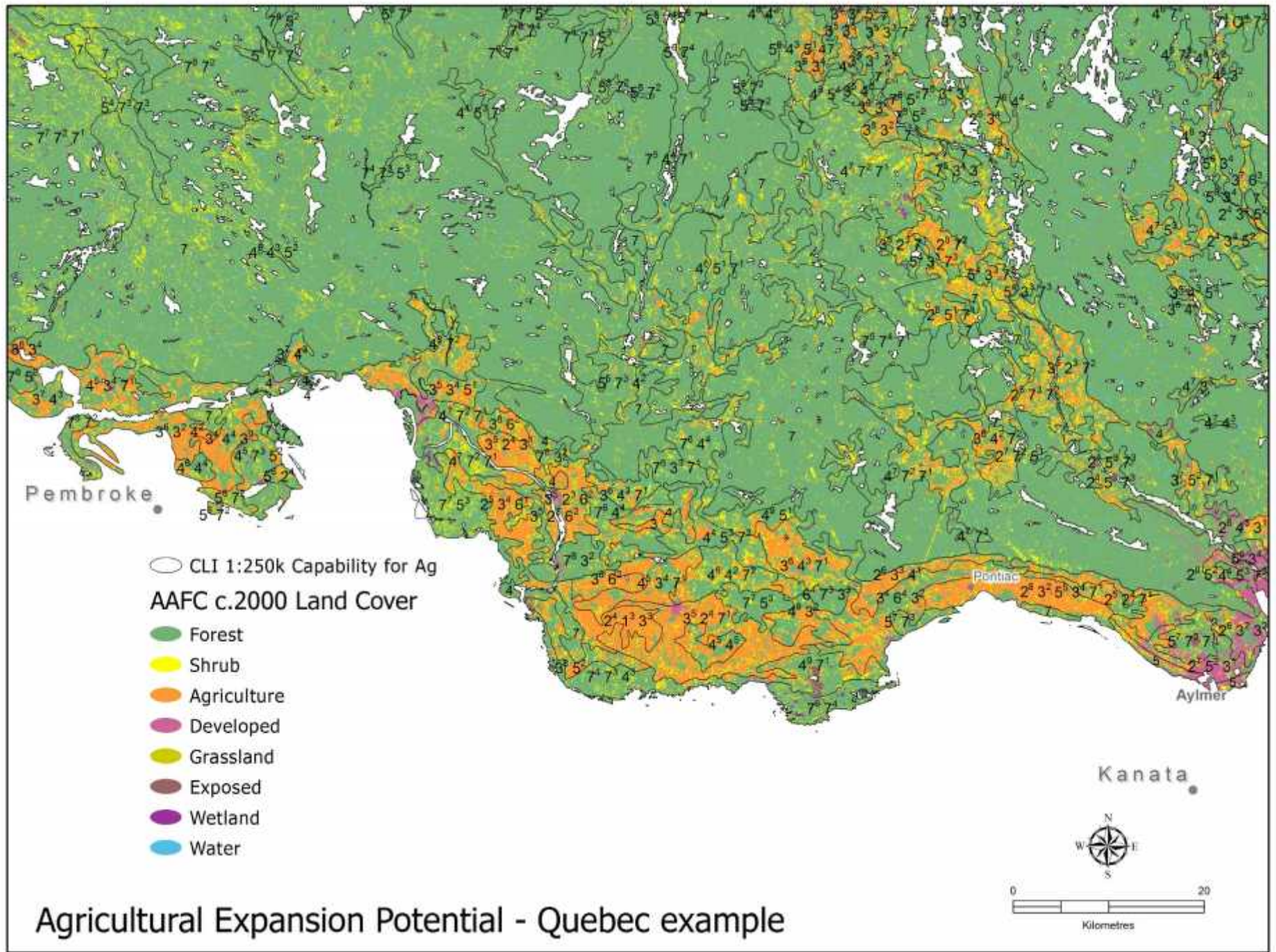


Agricultural Expansion Potential - Quebec example

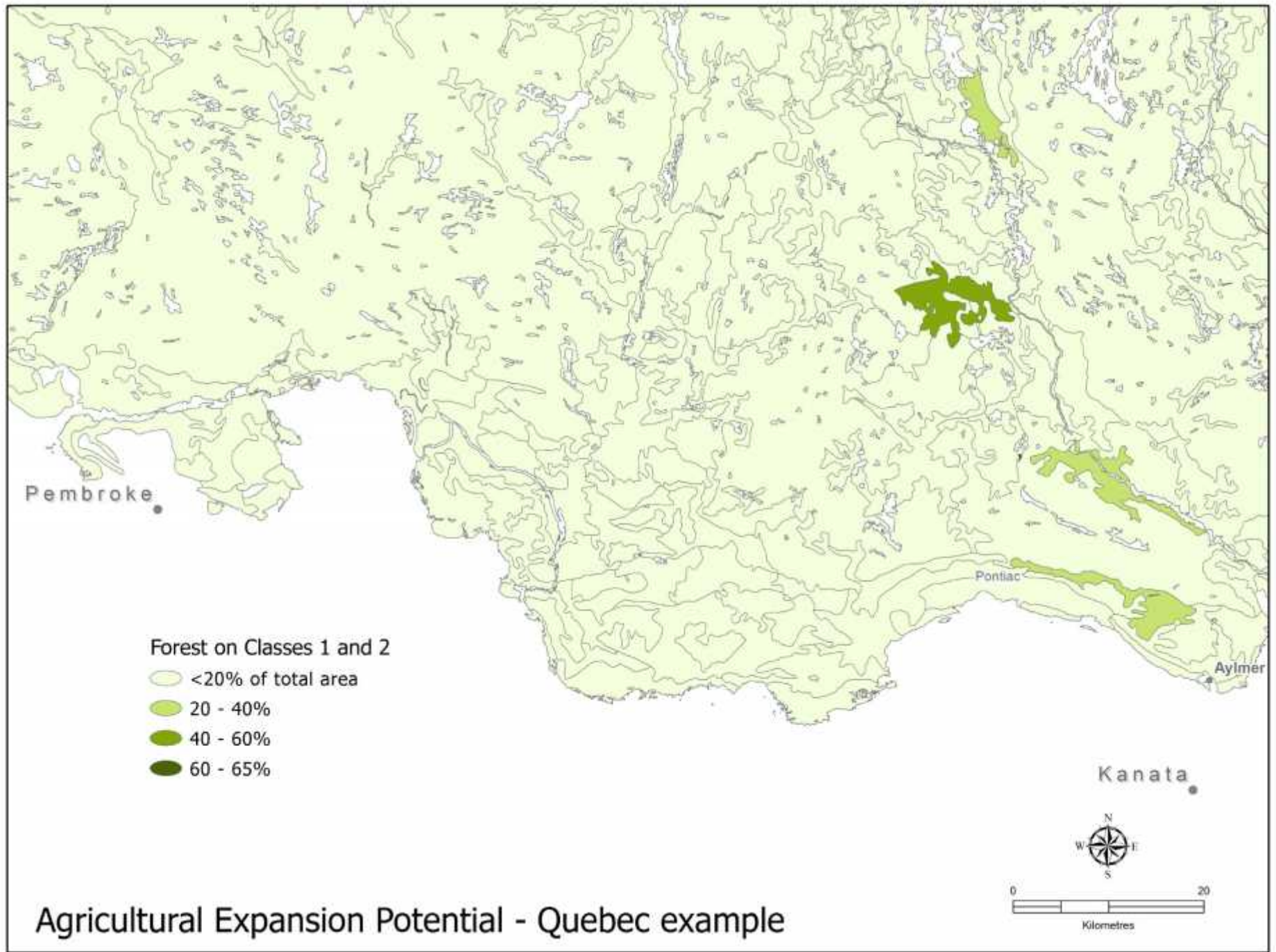






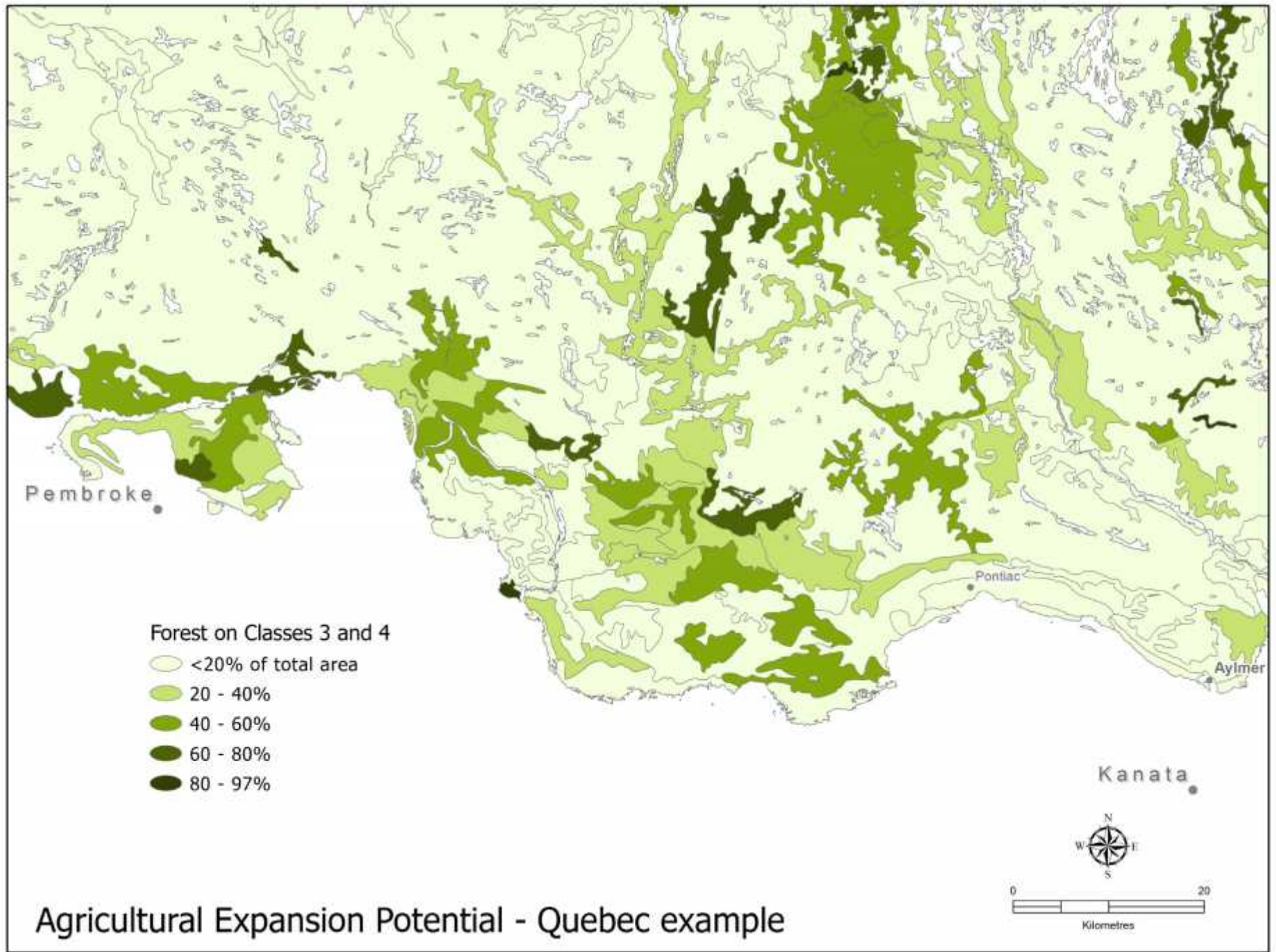






Agricultural Expansion Potential - Quebec example





Agricultural Expansion Potential - Quebec example

An aerial photograph of a rural landscape in Canada, showing a mix of green agricultural fields, brownish-grey forested areas, and winding roads. The terrain is hilly and the overall scene is captured from a high vantage point under a clear sky.

## Potential for Expansion of the Agricultural Land Base in Canada

### Scaling:

- extract areas for each of the 4 categories by CRAM region
- calculate the ratio between each category and the total agricultural area in the CRAM region from the LC map
- scale the results to the total agricultural area as used by the CRAM model.

# Potential for Expansion of the Agricultural Land Base in Canada

## Results:

	<u>Land with potential for agricultural expansion (hectares)</u>										
	<b>BC</b>	<b>AB</b>	<b>SK</b>	<b>MB</b>	<b>ON</b>	<b>QC</b>	<b>NB</b>	<b>NS</b>	<b>PE</b>	<b>NL</b>	<b>CA</b>
Forest on CLI Classes 1 & 2	44,197	24,022	46,011	131,053	369,310	71,426	2,997	18,181	46,658	0	<b>753,856</b>
Forest on CLI Classes 3 & 4	2,053,400	1,698,139	482,767	710,056	583,954	1,062,796	340,242	185,929	57,909	1,751	<b>7,176,943</b>
Shrubs on CLI Classes 1 & 2	9,229	9,594	23,405	44,157	47,648	10,808	361	5,217	6,874	0	<b>157,294</b>
Shrubs on CLI Classes 3 & 4	548,143	386,127	221,122	452,299	81,839	122,340	54,186	40,210	7,465	137	<b>1,913,868</b>

	<u>Land with potential for agricultural expansion (% of current agricultural area)</u>										
	<b>BC</b>	<b>AB</b>	<b>SK</b>	<b>MB</b>	<b>ON</b>	<b>QC</b>	<b>NB</b>	<b>NS</b>	<b>PE</b>	<b>NL</b>	<b>CA</b>
Forest on CLI Classes 1 & 2	5.2	0.2	0.2	2.4	9.6	3.7	1.9	15.3	25.5	0.0	<b>1.6</b>
Forest on CLI Classes 3 & 4	241.6	12.8	2.4	13.0	15.2	54.3	217.7	156.8	31.7	18.0	<b>15.5</b>
Shrubs on CLI Classes 1 & 2	1.1	0.1	0.1	0.8	1.2	0.6	0.2	4.4	3.8	0.0	<b>0.3</b>
Shrubs on CLI Classes 3 & 4	64.5	2.9	1.1	8.3	2.1	6.3	34.7	33.9	4.1	1.4	<b>4.1</b>