Mapping the potential for indigenous interest on the land


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• Health, livelihood and wellbeing of Indigenous people depend on land and resources

• Subsistence/cultural activities require specific land/resource types

• Conflicts with resource extracting industries
Lack of information on indigenous land use

• Large territories

• Reluctance to share information

(concerns over intellectual property rights and site destruction or profanation)
New tool to map the potential for indigenous interest on the land

- Based on traditional knowledge
- Developed with two Anicinapek communities (Canada)
  - Kitcisakik (pop: ~500 land: ~6 000 km²)
  - Pikogan (pop: ~900 land: ~11 500 km²)
- Implemented as a Toolbox in ArcGIS
- User-friendly
- Applicable to various contexts
Steps

1. Get GPS coordinates of sites of interest (camps, sepulchres, etc.)
   - A large number is preferable (>50) for higher precision

2. Plot site locations on a digitized forest map to get characteristics
<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>POSSIBLE VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to nearest road</td>
<td>Near / Far</td>
</tr>
<tr>
<td>Distance to nearest water</td>
<td>Near / Far</td>
</tr>
<tr>
<td>Forest cover</td>
<td>Deciduous / Mixed / Coniferous</td>
</tr>
<tr>
<td>Cultural keystone species</td>
<td>Presence / Absence</td>
</tr>
<tr>
<td>Drainage</td>
<td>Slow / Moderate / Rapid</td>
</tr>
<tr>
<td>Slope</td>
<td>Null / Gentle / Steep</td>
</tr>
<tr>
<td>Surface deposit</td>
<td>Coarse / Medium / Fine</td>
</tr>
<tr>
<td>Tree height</td>
<td>Low / Medium / High</td>
</tr>
<tr>
<td>Tree density</td>
<td>Low / Medium / High</td>
</tr>
<tr>
<td>Tree age</td>
<td>Young / Mature / Old</td>
</tr>
<tr>
<td>Tree age structure</td>
<td>Even / Uneven or Irregular</td>
</tr>
</tbody>
</table>

Necessary file reorganization
Steps

1. **Get GPS coordinates** of sites of interest (camps, sepulchres, etc.)
   - A large number is preferable (>50) for higher precision

2. **Plot site locations** on a digitized forest map to get **characteristics**

3. Repeat 1 and 2 for an **equal number of random locations**

4. Eliminate characteristics with **problems** (no values, constant values, perfect classification)

5. Use **logistic regression and multimodel inference** (both implemented in **R**) to determine the explanatory power of each characteristic

6. **Apply result** of step 5 to all polygons on the map

7. **Show on a map** with 4 colors (1-25; 26-50; 51-75; 76-100)
Resulting map for Kitcisakik

Potential for aboriginal interest (4 classes)

- Low (65% of landbase)
- Medium (7%)
- High (12%)
- Very high (16%)

Exclusion of regenerating sites and unproductive sites (e.g., wetlands, outcrops)
Different results for the 2 communities

<table>
<thead>
<tr>
<th>KITCISAKIK</th>
<th>PIKOGAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near water (&lt; 60 m)</td>
<td>Near water (&lt; 60 m)</td>
</tr>
<tr>
<td><em>Near a road</em> (&lt; 100 m)</td>
<td></td>
</tr>
<tr>
<td>Tall trees (neg. short trees)</td>
<td>Tall trees (neg. short trees)</td>
</tr>
<tr>
<td></td>
<td>Mature and old stands</td>
</tr>
<tr>
<td>Mixed and <strong>deciduous stands</strong></td>
<td>Mixed and deciduous stands</td>
</tr>
<tr>
<td><strong>Fine/coarse surface deposits</strong> (neg. medium)</td>
<td></td>
</tr>
</tbody>
</table>

- Consistent with how both communities view and use the land
- Clear indication that these singularities were adequately captured by the mapping tool
Impact on forestry?

Emulating boreal forest disturbance dynamics: Can we maintain timber supply, aboriginal land use, and woodland caribou habitat?

by Narayan Dhital1, 2, Frédéric Raulier1, Hugo Asselin3, 4, Louis Imbeau4, Osvaldo Valeria4 and Yves Bergeron4

« Exclusion of forest areas of potential interest to aboriginal people resulted in a 4-10% decrease in planned timber supply »
Advantages of the tool

• Easy to use
• Adaptable to various contexts
• Map can be updated when new information is obtained
• Sensitive information is protected (site locations not shown)
• Useful for indigenous/local communities to generate valuable information to identify opportunities for forest conservation and to suggest optimal distribution of resource extraction activities from their standpoint
• Forest governance will benefit from enhanced dialogue between stakeholders
Thank you for your attention!

« The land (landrights) », Norval Morrisseau, 1976

http://tout.uqat.ca/mon/personnel/asselinha/siteweb