

Mapping Threatened Old-Growth Forests of Algonquin Park: The First Step

- A Summary Report -

Forest Landscape Baseline Report No. 27

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Executive Summary

On December 8, 2006 the Ontario Parks Board produced the report *Lightening the Ecological Footprint of Logging In Algonquin Provincial Park*, which was subsequently released in May 2007 to the public. This report makes a series of recommendations, the most notable of which is to expand the protection zones to include 54% of the Park. This presents an historic opportunity to protect some of the remaining pristine and old-growth forests that are currently available for logging within the Recreation/Utilization Zone of the Park. To this end, we conducted a mapping analysis of old-growth forest in Algonquin Park, which shows that less than half of the old-growth forest in the Park is currently protected from logging. The Ontario Parks Board recommendations would increase this level of protection for old-growth forests to just over two thirds of the old growth remaining in the Park. In addition to leaving one third of the Park's old-growth forest available for logging (roughly 34,000 ha, an area half the size of the city of Toronto), a number of large clusters of old-growth stands would be excluded from the recommended new protected zones.

Methods

Old growth areas were identified and mapped using forest resource inventory data for Algonquin Park in combination with the old-growth forest definitions for Ontario (OMNR 2003). Stands were queried by ecosite type and age (2005), and for each ecosite type, stands above the old growth initiation age (OMNR old growth definitions) were defined as old growth. Further, all stands above 140 years old and those above 200 years old were also identified, since such superlatively old forests are more highly represented in Algonquin Park than on the surrounding central Ontario landscape (Henry and Quinby 2006). These older forests can be considered a subset of the old growth identified using the OMNR definitions, since very few old growth initiation ages exceed 140 years. Known and probable logged areas were identified using a the map *Harvesting Areas 1975-2003: Algonquin Park Forest Management Unit* (AFA 2005) and all available road maps. Roads were assumed to indicate historical logging, and networks of roads were digitised as polygons and included in the probable logging layer.

We identified large clusters of old-growth forest in the Recreation/Utilization Zone subjectively through visual map inspection using the following criteria: cluster size, low probability of historical logging, near to protected or proposed protected areas, and exceptional in age. In some cases areas were considered contiguous when separated by a water body less than 100 metres wide, or in at least one case where the old growth cluster spanned a small protected area. We then examined how successful the Parks Board recommendations would be for protection of these old-growth areas. Although this analysis is not based on statistical rigor, the areas chosen include a number of Algonquin Park's largest contiguous old-growth areas, which can be viewed on the maps we have produced.

Results

Our mapping analysis shows that about 107,000 hectares of Algonquin Park qualifies as old growth with no obvious record of logging. There is no doubt that many parts of this area have had white pine selectively removed, and it is likely that some areas with no record of logging have undergone more substantial logging. But in the absence of field work or other compelling evidence, it must be concluded that much of this 107,000 ha of forest is old growth in relatively intact condition. Of this, less than half (45.9%) is found in zones of Algonquin Park that are currently protected from logging. Under the Ontario Parks Board recommendations, the percentage of old growth protected from logging would increase to 68.5% (see Table 1). Of the 13 areas of contiguous old-growth forest that were examined, only four of the 13 had a majority of their old growth protected in the newly proposed protected areas (see Table 2). A total of 31.5%, or roughly 34,000 ha, of Algonquin's old-growth forests would remain available to logging under the current proposed protected areas expansion.

Table 1. Summary of old growth in Algonquin Park by ecosite (using MNR old growth definitions) calculated from FRI stand data

Eco site	Min old growth age	Average age	Max age	unlogged (Ha)	Abundance (% of all old growth)	Protected currently (Ha)	Protected currently (%)	Proposed protection (Ha)	Total potential protected (%)
11	130	142.88	209	468.8	0.44	77.5	16.5	119.8	42.1
13	120	130.92	139	53.6	0.05	38.61	72.0	0.0	72.0
14	120	134.44	247	2050	1.91	411	20.0	175.3	28.6
15	100	111.06	128	360.1	0.34	112.8	31.3	28.3	39.2
16	110	131.48	209	1963	1.83	682	34.7	273.5	48.7
17	90	108.34	209	20050	18.71	6590	32.9	2301.0	44.3
18	100	116.21	249	11700	10.92	3372	28.8	1771.0	44.0
19	90	105.64	119	144.4	0.13	2.9	2.0	10.6	9.3
20	140	157	189	79.4	0.07	44.23	55.7	11.4	70.1
21	120	151.39	229	1087	1.01	501.2	46.1	311.4	74.8
22	110	131.03	209	633.3	0.59	256.7	40.5	65.8	50.9
23	110	126.69	168	522.3	0.49	87.8	16.8	69.2	30.1
24	120	141	169	206.7	0.19	21.7	10.5	0.0	10.5
25	130	153.82	234	4598.49	4.29	2572.49	55.9	354.8	63.7
26	130	158.33	190	361.7	0.34	128.8	35.6	179.1	85.1
27	120	146.37	244	3671	3.43	1204	32.8	357.4	42.5
28	150	180.84	299	24570	22.93	15350	62.5	3452.0	76.5
29	140	165.08	249	27620	25.77	13900	50.3	4557.0	66.8
30	160	213.39	279	4916	4.59	2857	58.1	1081.0	80.1
31	110	132.26	169	725	0.68	312.5	43.1	67.7	52.4
32	120	142.44	235	284	0.26	140.9	49.6	20.3	56.7
33	130	175.41	227	796.9	0.74	317.8	39.9	158.7	59.8

34	120	151.43	209	169.5	0.16	102.16	60.3	6.6	64.2
35	120	148.28	199	141.6	0.13	65.07	46.0	10.4	53.3
Total				107173		49149	45.9	15382	68.5

Min old growth age = old growth definitions initiation age for this ecosite type

Average age = average age of unlogged old growth stands of this ecosite type in Algonquin

Max age = Maximum age of unlogged old growth stands of this ecosite type in Algonquin

Unlogged (ha) = Hectares of old growth with no record of historical logging or logging roads

Abundance (% of all old growth) = proportion this ecosite relative to total

Protected currently (ha) = hectares of old growth of this ecosite type outside the recreation / utilization zone

Protected currently (%) = % of old growth of this ecosite type found outside the recreation / utilization zone

Proposed Protection (ha) = hectares of old growth of this ecosite type that would be protected under the Ontario Parks Board recommendations

Total potential protected = currently protected plus proposed protected (Parks Board recommendations)

Table 2. Summary of large clusters of old-growth stands in the Recreation/Utilization Zone of Algonquin Provincial Park

Area	Average Stand Age	Max stand age	Ha contiguous old growth	Proposed Ha Protected	Proposed % Protected	Significant features
1) Byers Lake	138	214	617	465	75.4	One of very few areas in lower Algonquin Park with no record of logging
2) Whatnot Lakes	167	209	574	552	96.2	Natural connectivity between Dividing Lake and Wilderness Zone.
3) Sawyer Lake	171	240	955	309	32.4	Proximity to 2 access points. Surrounded by logging. How did this area escape? Lake name is suspicious.
4) Ralph Bice Lake	164	241	415	94	22.7	Proximity to access point, high educational value. Vasiliauskas (1995) found a >387 year old yellow birch near Ralph Bice Lake, but not in these stands.
5) Burntroot Lake	168	271	623	534	85.7	Confirmed old growth with ages over 300 years (Henry and Quinby 2006).
6) Nipissing River	133	169	474	232	48.9	Contiguous to Nadine Lake Nature Reserve.
7) Erables Lake	164	239	618	242	39.2	Known from field work to have some intact, unlogged old-growth forest, but extent is unknown (Henry and Quinby 2006).
8) Stretch Lake	181	229	439	91	20.7	Proximity to Nature Reserve N29, an area of known old-growth black ash, and access point 28. Dominated by sugar maple and hemlock. Very high average stand age.
9) North River Lake	153	189	977	778	79.6	Proximity to access road may cast some doubt on integrity?
10) Gerald Lake	130	216	1434	104	7.3	One of the largest contiguous old-growth blocks in the Recreation/Utilization Zone., but very little is included in the proposed protection. A very diverse area with old growth of tolerant and intolerant hardwoods, hemlock, cedar, beech, and black spruce.
11) William Creek	129	159	479	31	6.5	Contiguous to N88, connects three areas of proposed protection.
12) Clover Lake	112	129	883	101	11.4	A large area dominated by old growth poplar and birch, with a young average stand age.
13) Robitaille Lake	151	259	840	36	4.3	old growth is in two narrowly separated blocks. Sugar maple and hemlock are common. Beech is found mixed in stands, and two old-growth beech dominated stands occur here.

Figure 1

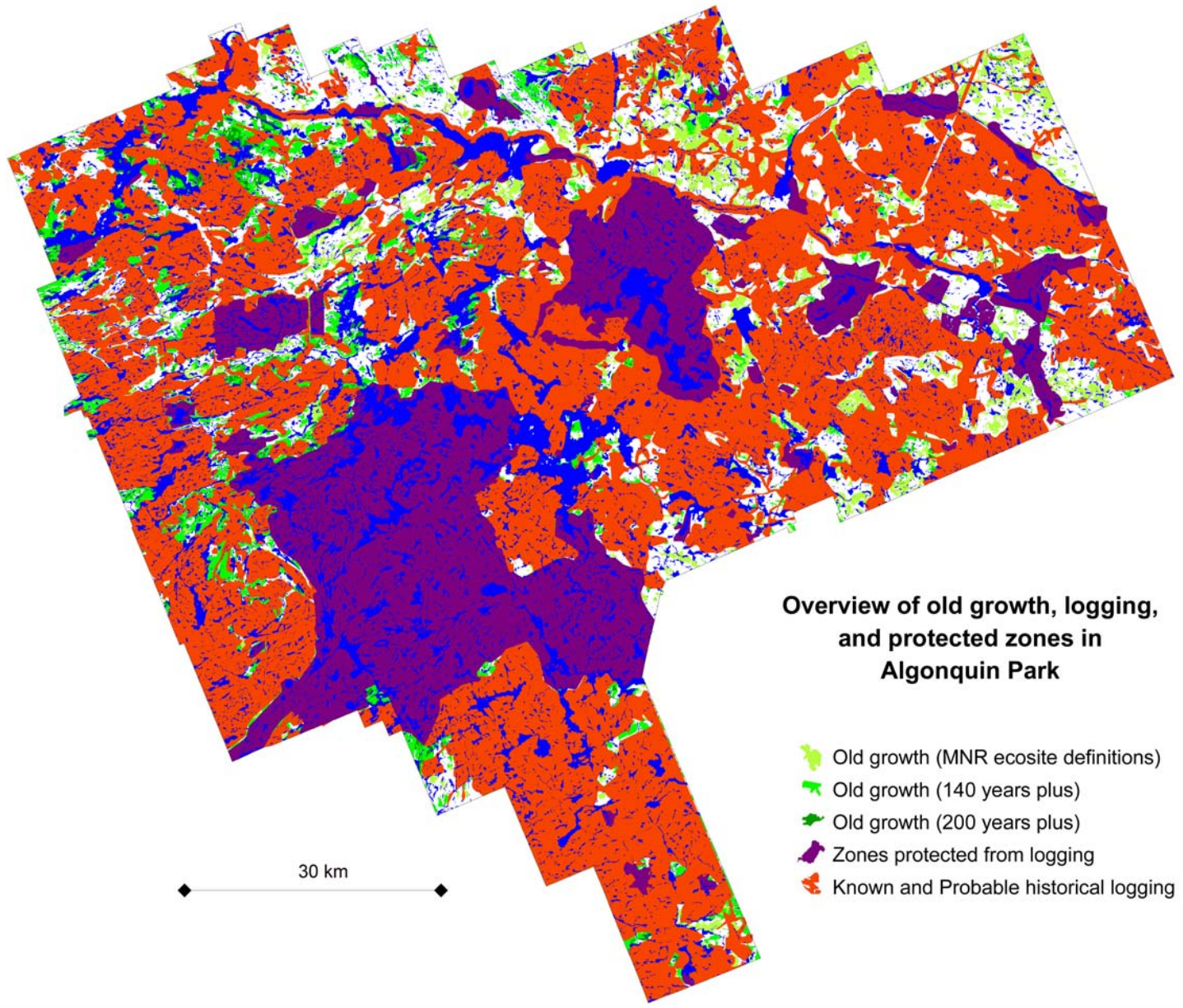


Figure 2

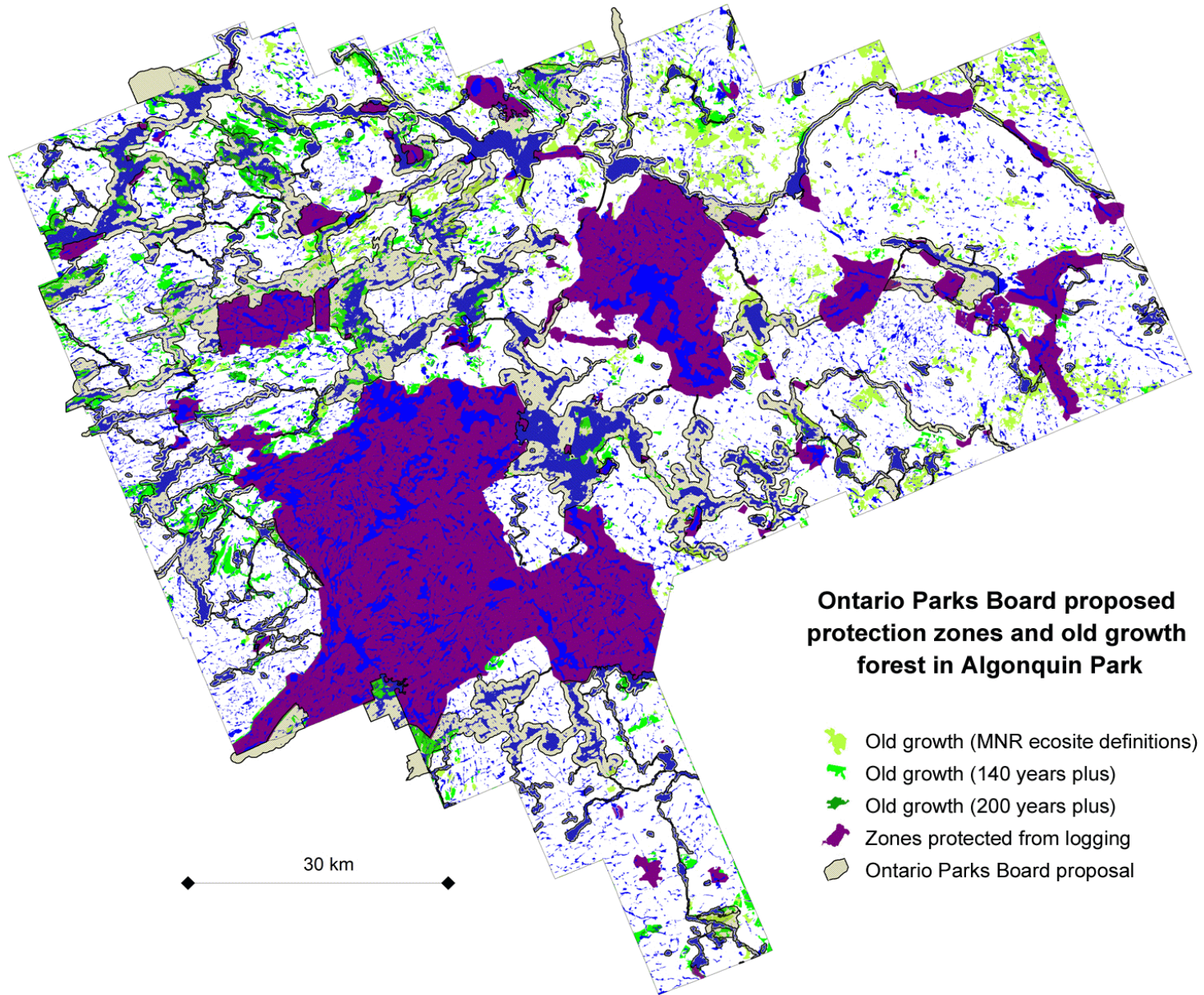


Figure 3

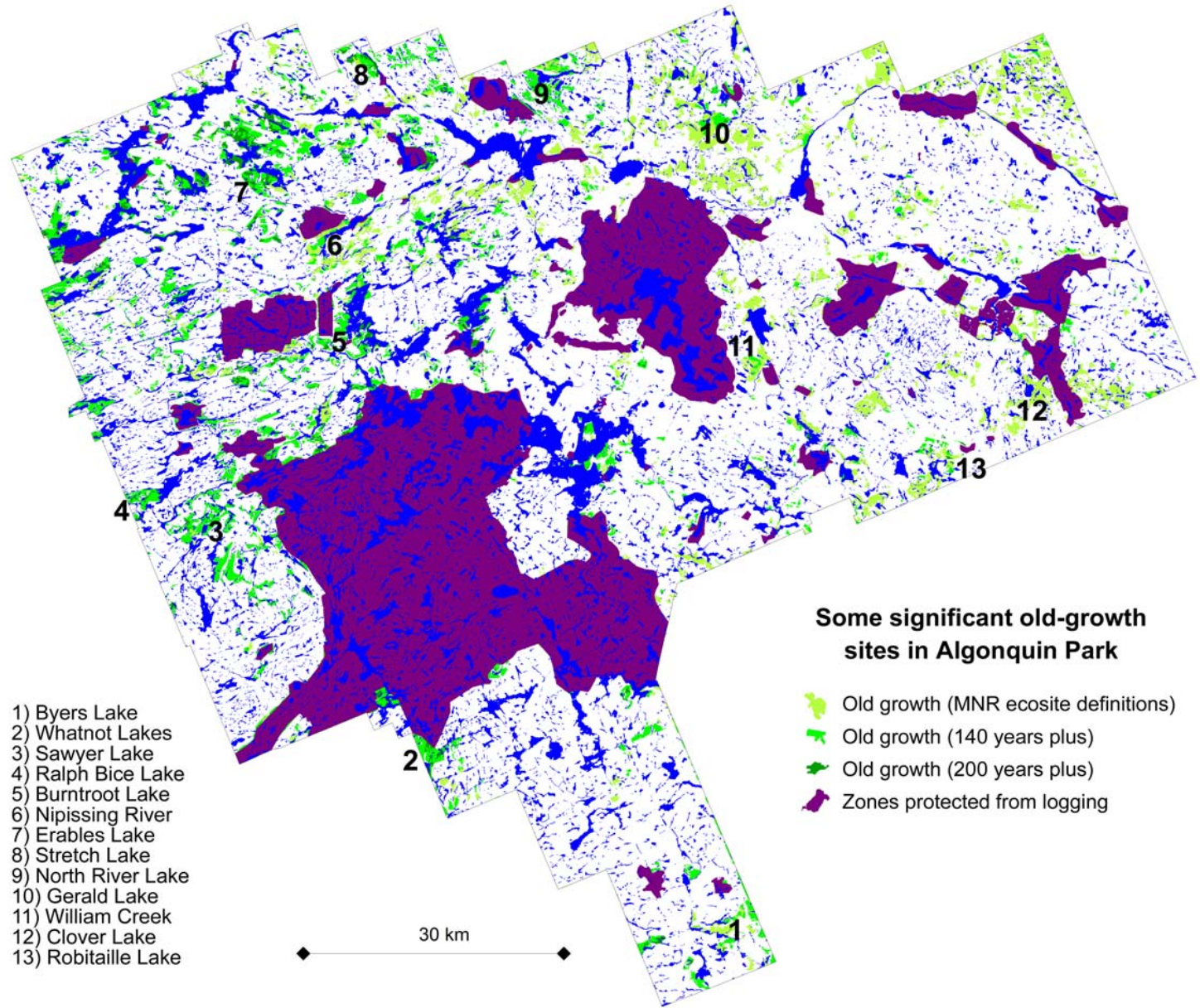
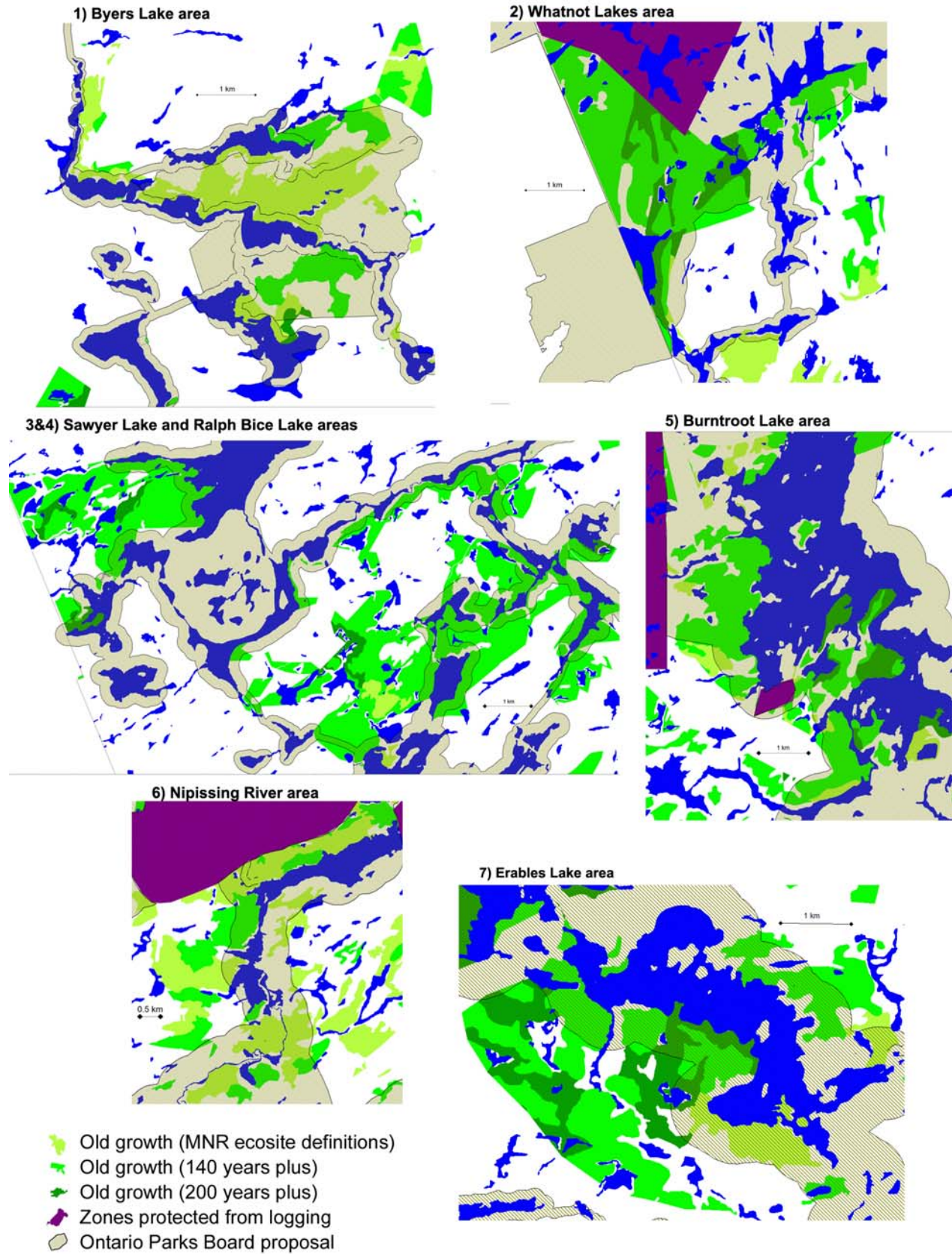
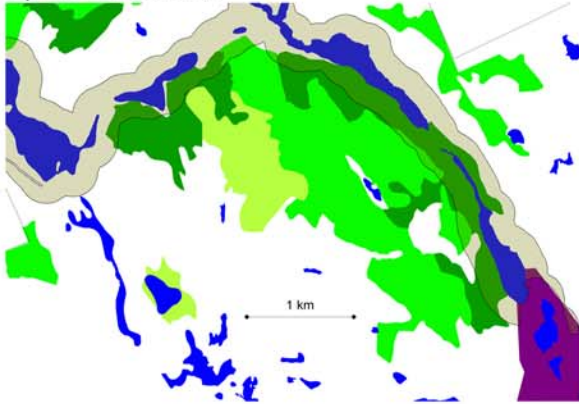


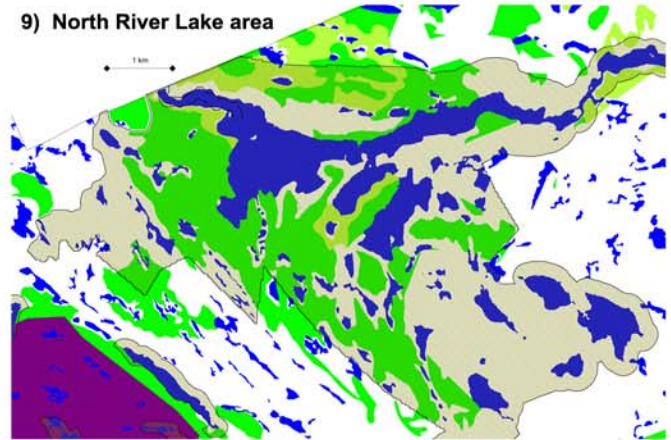
Figure 4



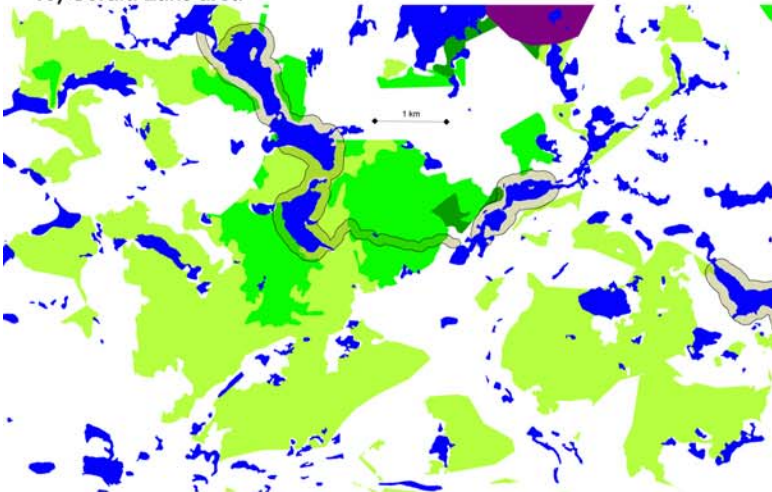
8) Stretch Lake area



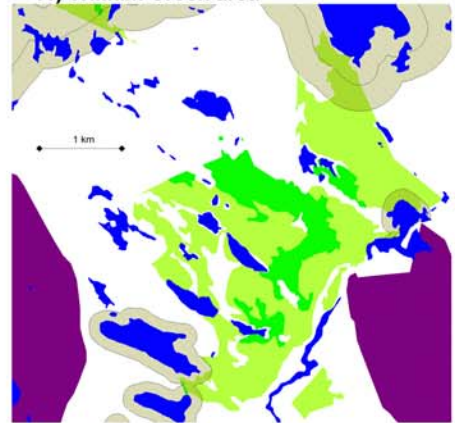
9) North River Lake area



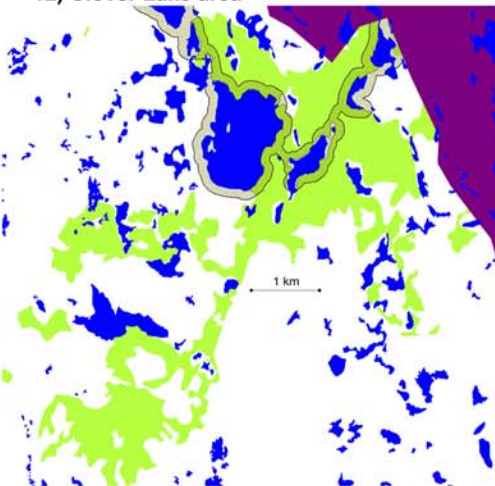
10) Gerald Lake area



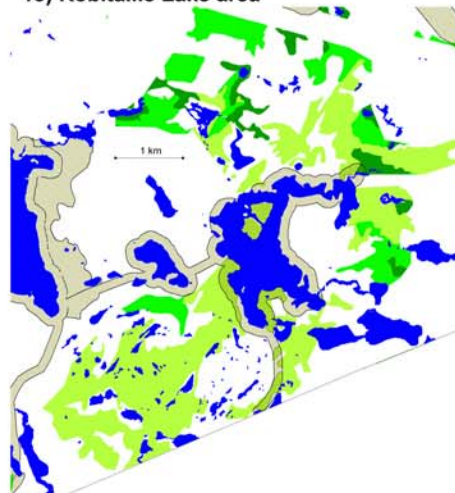
11) William Creek area








12) Clover Lake area



13) Robitaille Lake area



-  Old growth (MNR ecosite definitions)
-  Old growth (140 years plus)
-  Old growth (200 years plus)
-  Zones protected from logging
-  Ontario Parks Board proposal

Recommendations

1) The old-growth landscapes included in this report should be included in the proposed protection zones immediately (the area would amount to less than 1% of the total area of Algonquin Park). In the near-term they should be ground-truthed and areas with evidence of extensive historical logging may subsequently be removed.

2) Ontario should determine the provincial rarity of old growth of ecosites found in Algonquin Park, and protect all examples of rare old-growth ecosites found within the Park. Beech and hemlock are species facing broad-scale decline which should be considered for special identification and protection.

3) The Ontario Parks Board report recommends that “Forest management should continue according to the existing Algonquin Forest Management Plan until its normal date of 2010,” however old-growth areas should be excluded from harvest since logging cannot be managed to mitigate impacts on pristine old-growth forests (Wilson 1992 and Ehrlich 1996).

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