

## **Supplementary material**

### **An alternative fire regime zonation for Canada**

*Yan Boulanger<sup>A,C</sup>, Sylvie Gauthier<sup>A</sup>, Philip. J. Burton<sup>B</sup> and Marie-Andrée Vaillancourt<sup>A</sup>*

<sup>A</sup>Natural Resources Canada, Canadian Forest Service, Laurentian Forestry Centre, 1055 du PEPS, PO Box 10380, Stn Ste-Foy, Québec, QC, G1V 4C7, Canada.

<sup>B</sup>Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, 3333 University Way, Prince George, BC, V2N 4Z9, Canada.

<sup>C</sup>Corresponding author. Email: yan.boulanger@rncan-nrcan.gc.ca

**Table S1. Mean fire regime characteristics for each zone identified through the spatially constrained clustering of the 40-km grid cells, listed in order from longest to shortest fire-return intervals (as determined from lightning and anthropogenic fire burn rates combined)**

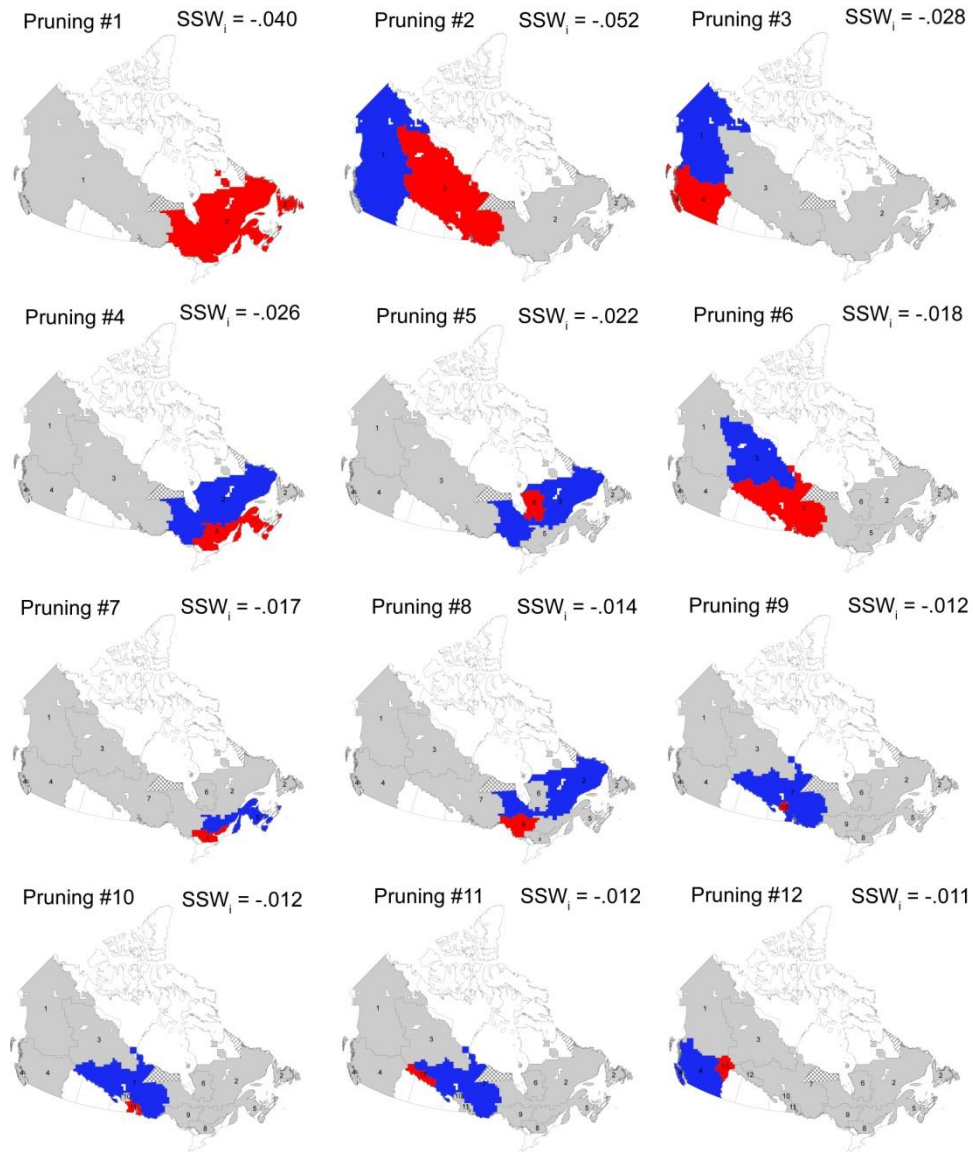
Bold numbers represent either the lowest or the largest value for each attribute. Region IDs correspond to those in Fig. 2a. Fire-return interval and fire size not used in cluster analysis and fire regime regionalisation. Burn rate and fire occurrence based on area of fuel. % large fires is for fires >200 ha

Region ID	Area (km <sup>2</sup> )	Fire-return interval (year)	Burn rate (% year <sup>-1</sup> )				Fire occurrence (100 000 ha <sup>-1</sup> year <sup>-1</sup> )				Mean Julian day			Fire size (ha)	
			Natural	Human	% natural	% large fires	Natural	Human	% natural	% large fires	Natural	Human	Overall	Mean	Median
18	140 815	<b>7285</b>	0.007	0.006	54.2	67.1	0.054	0.303	15.0	2.8	<b>217</b>	<b>206</b>	<b>207</b>	38	3
8	96 218	6736	<b>0.004</b>	0.011	29.2	<b>49.7</b>	0.233	1.119	17.2	<b>0.4</b>	195	<b>144</b>	152	<b>11</b>	<b>2</b>
5	321 367	3707	0.011	0.016	41.4	94.9	0.051	0.133	27.9	6.9	175	154	160	145	3
4	228 482	2317	0.010	0.033	23.6	71.5	0.170	0.978	14.8	2.4	206	171	176	37	3
22	201 278	2144	0.024	0.023	51.6	77.3	0.333	0.420	44.2	4.8	210	190	199	62	4
9	182 401	1440	0.029	0.040	42.3	93.2	0.144	0.390	26.9	3.8	185	147	157	132	3
15	30 764	1226	0.035	0.046	43.1	89.6	0.019	0.269	<b>6.5</b>	3.6	201	151	154	163	5
25 <sup>A</sup>	87 873	1171	0.007	0.079	7.7	<b>100.0</b>	<b>0.001</b>	0.021	<b>6.5</b>	<b>100.0</b>	177	162	163	3875	<b>900</b>
12	82 236	673	0.044	0.104	29.7	88.6	0.089	0.672	11.7	6.7	180	144	148	162	5
17	79 187	666	0.150	<b>0.000</b>	<b>100.0</b>	99.6	0.032	<b>0.001</b>	<b>96.9</b>	53.1	202	190	202	5222	235
2	1 058 836	626	0.130	0.030	81.5	98.8	0.084	0.040	67.8	26.2	184	165	178	1274	11
13	93 257	499	0.146	0.054	72.9	95.3	0.130	0.666	16.3	4.1	180	142	148	268	3
33	104 000	389	0.234	0.024	90.9	97.8	0.196	0.374	34.4	6.0	183	158	167	508	4
21	68 800	363	0.274	0.002	99.3	98.0	0.515	0.052	90.9	9.5	186	174	185	489	4
20	33 232	351	0.057	0.228	20.1	88.8	0.199	1.115	15.2	9.8	<b>164</b>	142	<b>146</b>	197	10
14	74 489	349	0.274	0.013	95.6	99.7	0.041	0.013	75.7	41.4	191	183	189	5188	51
1	<b>1 063 830</b>	327	0.257	0.049	83.9	98.8	0.127	0.093	57.9	24.4	191	179	186	1385	10
19	228 403	214	0.319	0.147	68.4	98.4	0.416	0.192	68.5	17.4	182	154	173	774	4
11	47 369	180	0.287	0.270	51.5	95.0	0.495	<b>1.459</b>	25.3	9.0	181	143	153	296	4
3	122 573	158	0.627	0.007	98.9	99.3	0.251	0.078	76.4	25.0	196	192	195	1853	10
32	49 238	144	0.694	0.002	99.7	98.5	0.484	0.034	93.4	31.0	185	162	183	1283	25
31	264 000	93	1.062	0.013	98.8	99.2	0.531	0.154	77.6	12.6	190	164	184	1522	3
27	91 200	93	1.070	0.005	99.6	99.8	0.120	0.013	90.2	54.1	202	185	201	8202	217
7	437 546	84	1.129	0.063	94.7	99.0	0.646	0.205	75.9	19.7	191	170	186	1407	5

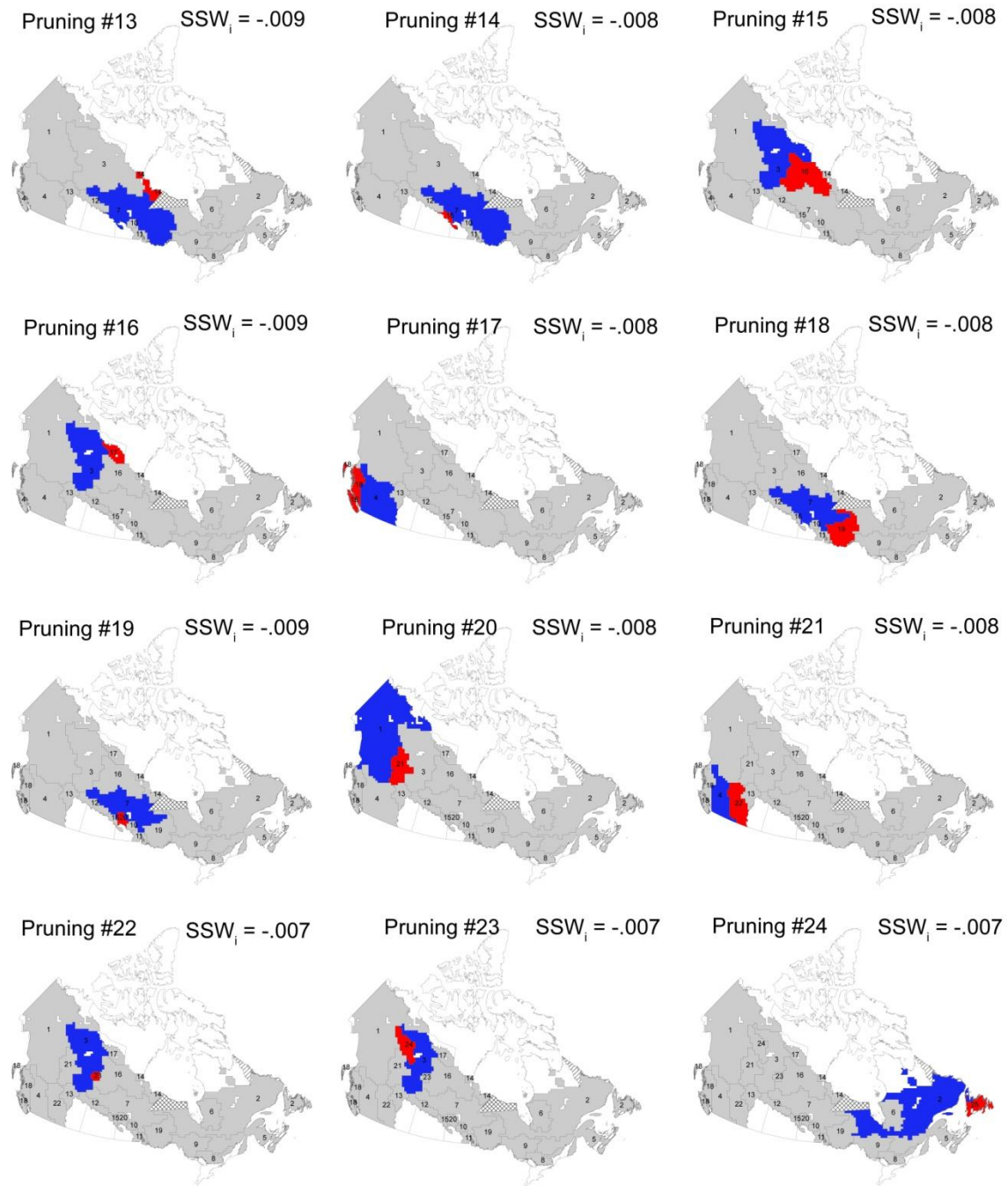
Region ID	Area (km <sup>2</sup> )	Fire-return interval (year)	Burn rate (% year <sup>-1</sup> )				Fire occurrence (100 000 ha <sup>-1</sup> year <sup>-1</sup> )				Mean Julian day			Fire size (ha)	
			Natural	Human	% natural	% large fires	Natural	Human	% natural	% large fires	Natural	Human	Overall	Mean	Median
6	132 799	74	1.326	0.025	98.1	99.7	0.260	0.021	92.6	50.3	180	182	180	4859	210
10	23 698	56	0.078	<b>1.703</b>	<b>4.4</b>	97.5	0.438	1.427	23.5	10.8	166	<b>141</b>	147	949	12
28	54 195	55	1.814	0.001	99.9	99.8	0.208	0.039	84.2	37.1	190	196	191	7356	30
26	38 400	51	1.354	0.610	68.9	99.1	<b>0.718</b>	0.823	46.6	9.1	188	168	177	1298	3
29	52 800	48	1.463	0.610	70.6	99.8	0.239	0.058	80.5	37.8	195	181	192	6974	28
16	230 400	44	2.143	0.148	93.5	99.6	0.519	0.086	85.8	39.1	196	188	195	3773	50
24	123 200	42	2.35	0.015	99.4	99.8	0.276	0.094	74.7	20.4	190	176	186	6568	5
23	<b>22 400</b>	34	1.685	1.267	57.1	99.9	0.270	0.051	84.2	22.8	193	174	191	9080	6
30	47 013	<b>30</b>	<b>3.369</b>	0.012	99.6	99.9	0.197	0.053	78.7	49.7	187	185	186	<b>13 721</b>	192
Mean	179 161	960	0.681	0.171	68.8	93.7	0.257	0.347	54.1	22.3			177	2699	62

<sup>^</sup>Data on fires <200 ha were not available for this zone.

**Fig. S1.** Zone configuration at each pruning step of the minimum spanning tree. The decrease in total within-zone dissimilarity ( $SSW_i$ ) (as a percentage of total dissimilarity) is shown at each step. Zones in blue and red refer respectively to those that are partitioned and those that are newly produced at each pruning step.

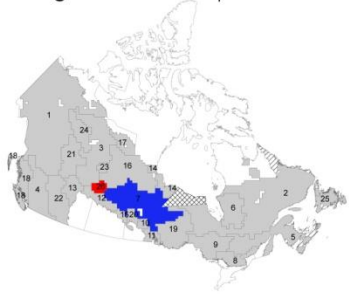


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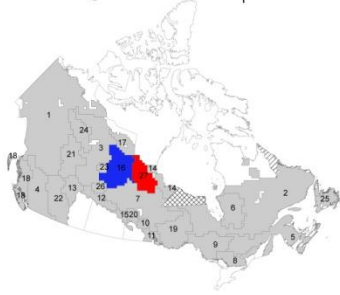


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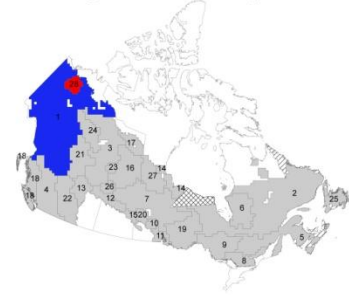
Pruning #25  $SSW_i = -.006$



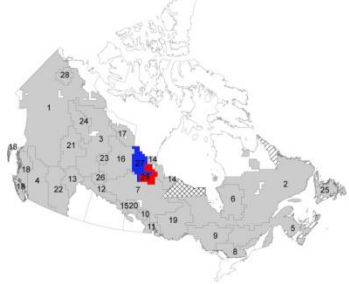
Pruning #26  $SSW_i = -.006$



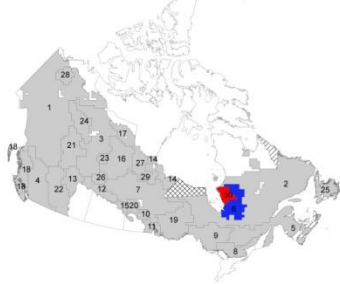
Pruning #27  $SSW_i = -.006$



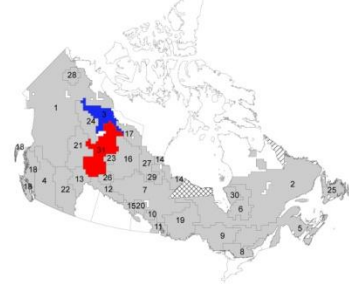
Pruning #28  $SSW_i = -.006$



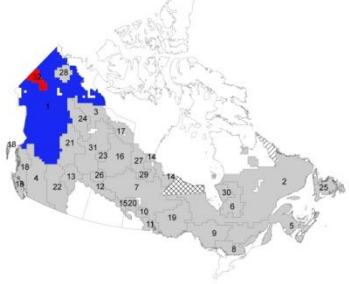
Pruning #29  $SSW_i = -.006$



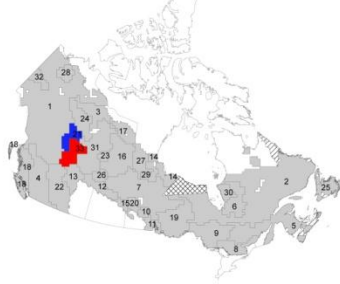
Pruning #30  $SSW_i = -.006$



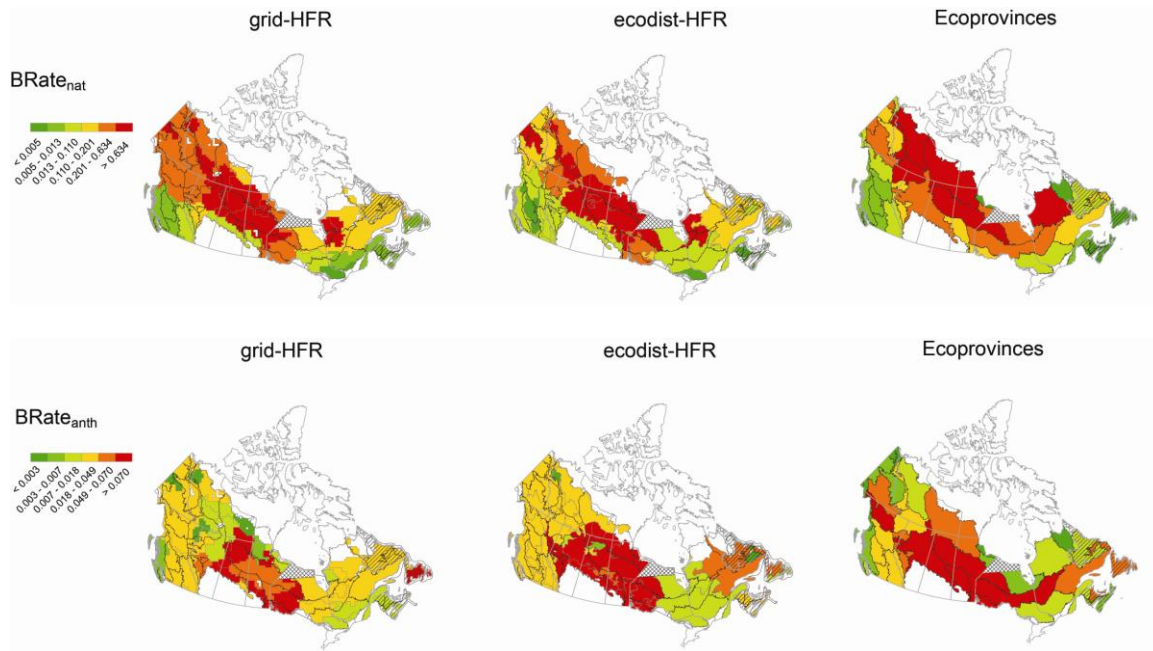
Pruning #31  $SSW_i = -.005$



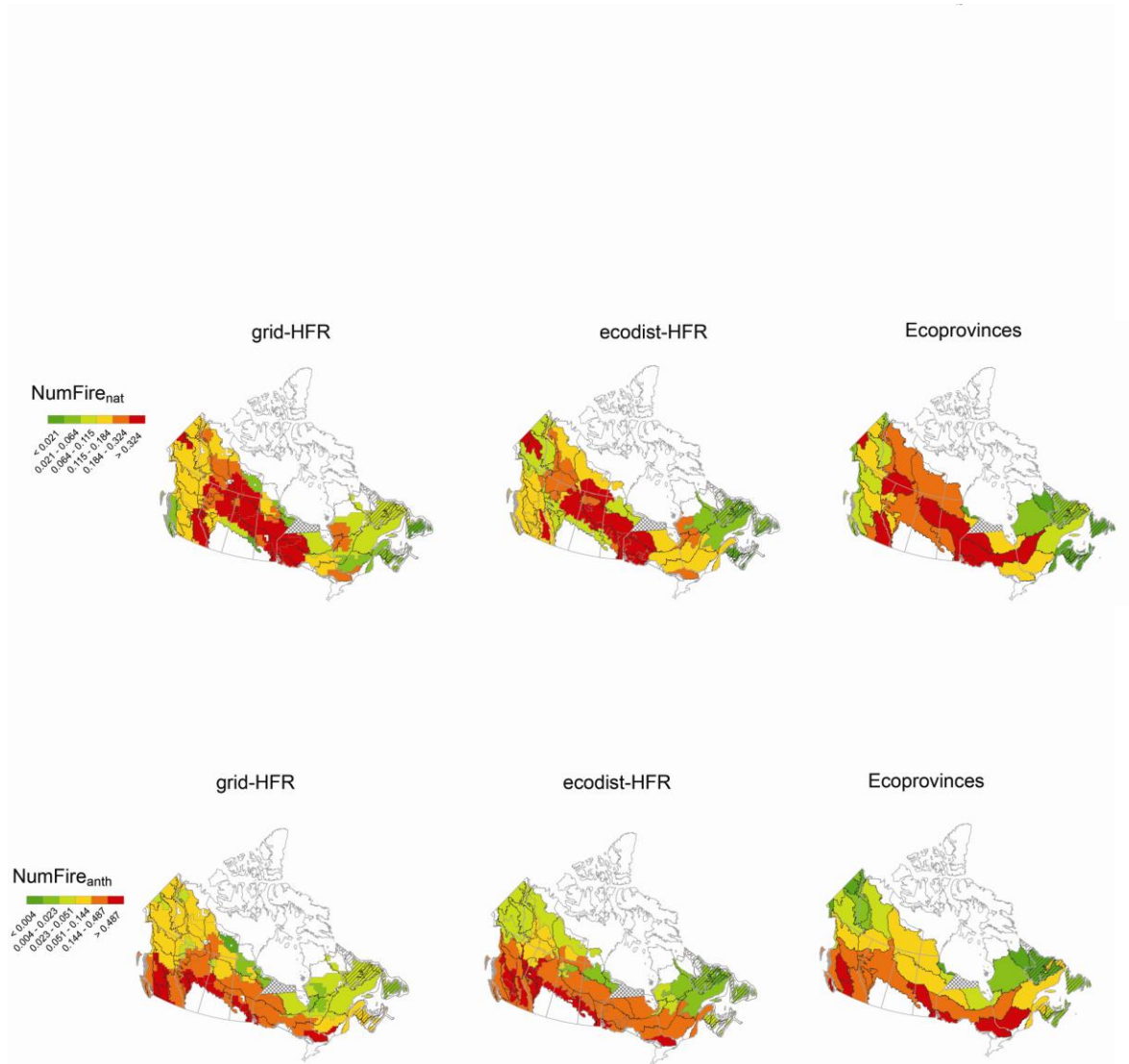
Pruning #32  $SSW_i = -.005$



**Fig. S2.** Estimated values of fire regime attribute in each zone for both HFR (homogeneous fire regime) zonations as well as for ecoprovinces. Colours refer to the classification scheme described in Table 1. The fire-return interval was not used in spatial clustering analyses.



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