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Supplement of

Estimating spatial variation in Alberta forest biomass from a combination of forest inventory and remote sensing data

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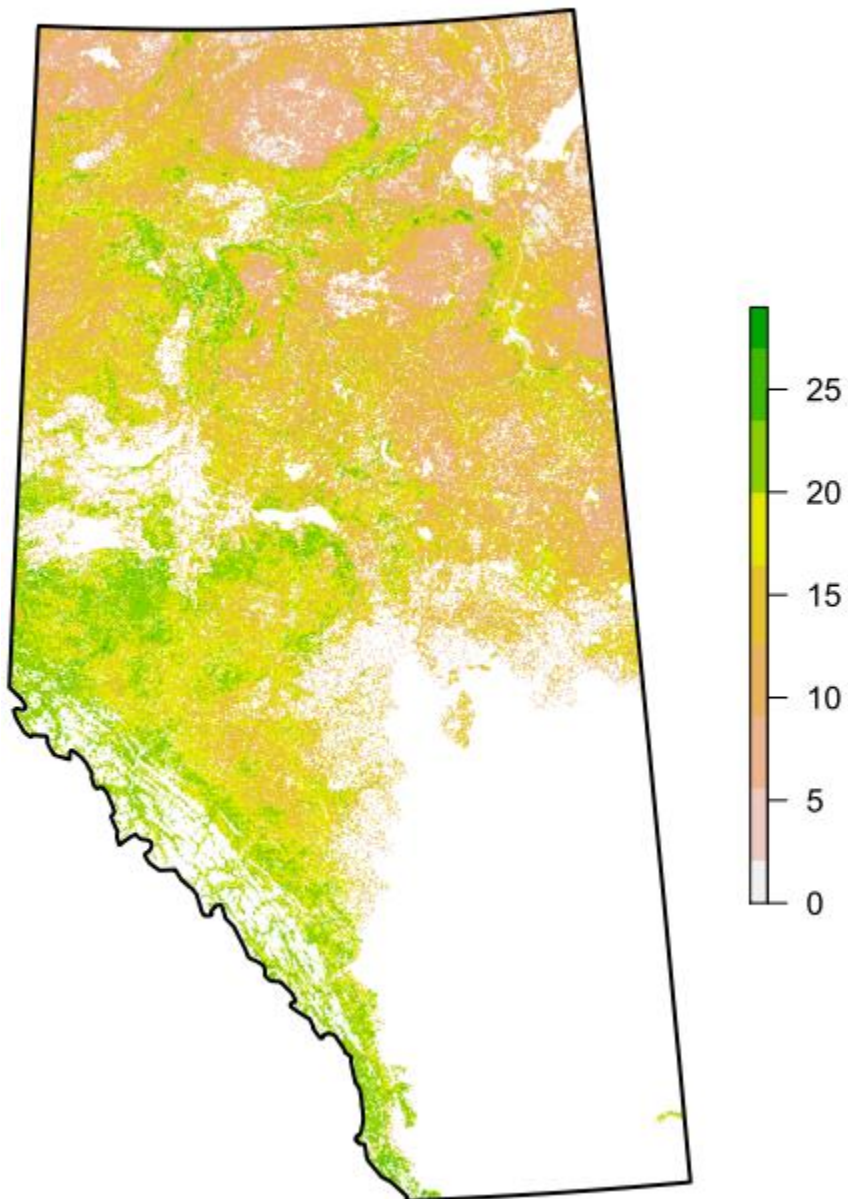
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Supplemental material

Appendix A

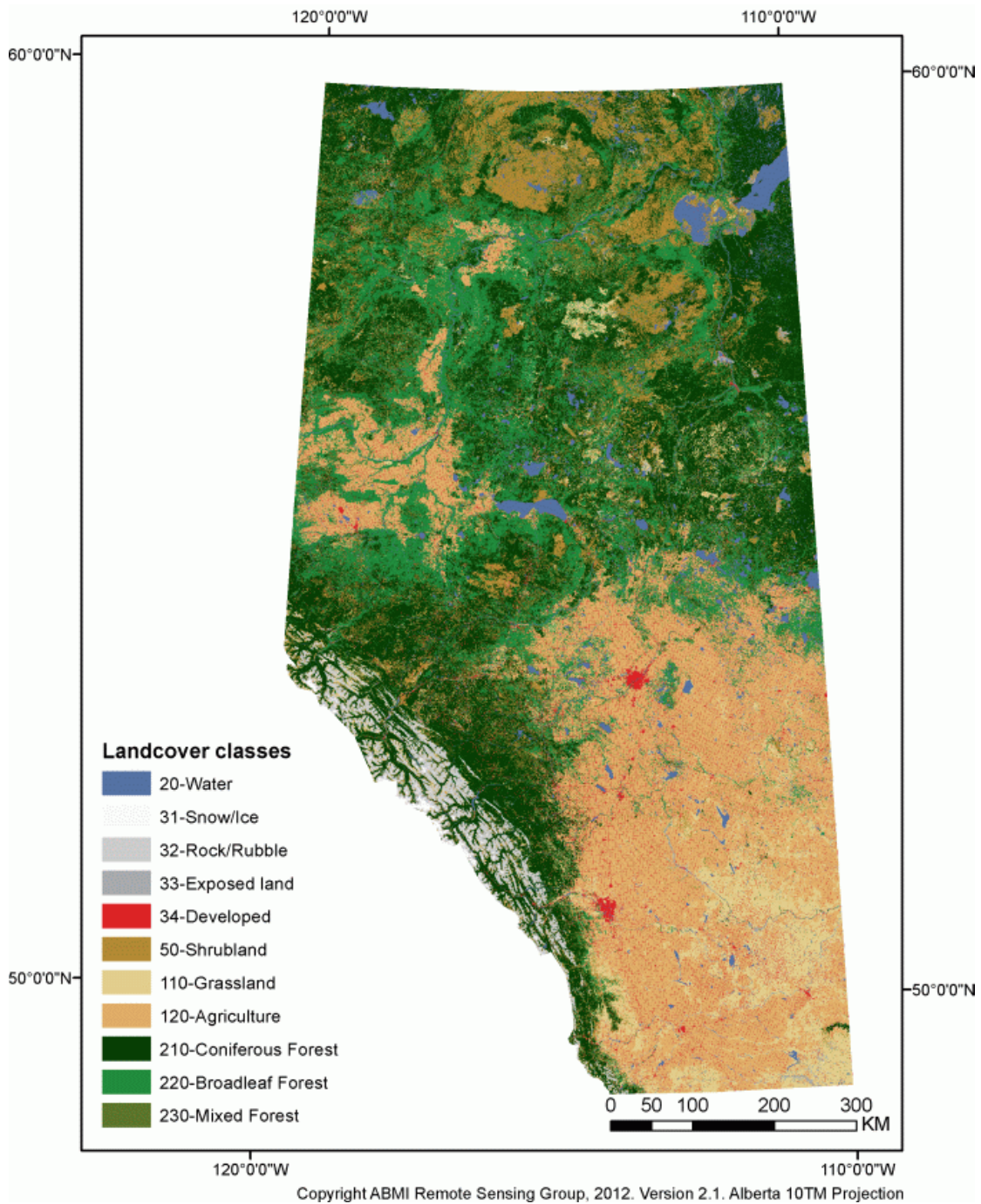
Canopy height map from space-borne LiDAR (Projection: UTM zone=11, spatial resolution: 1-km)

Canopy height (m)



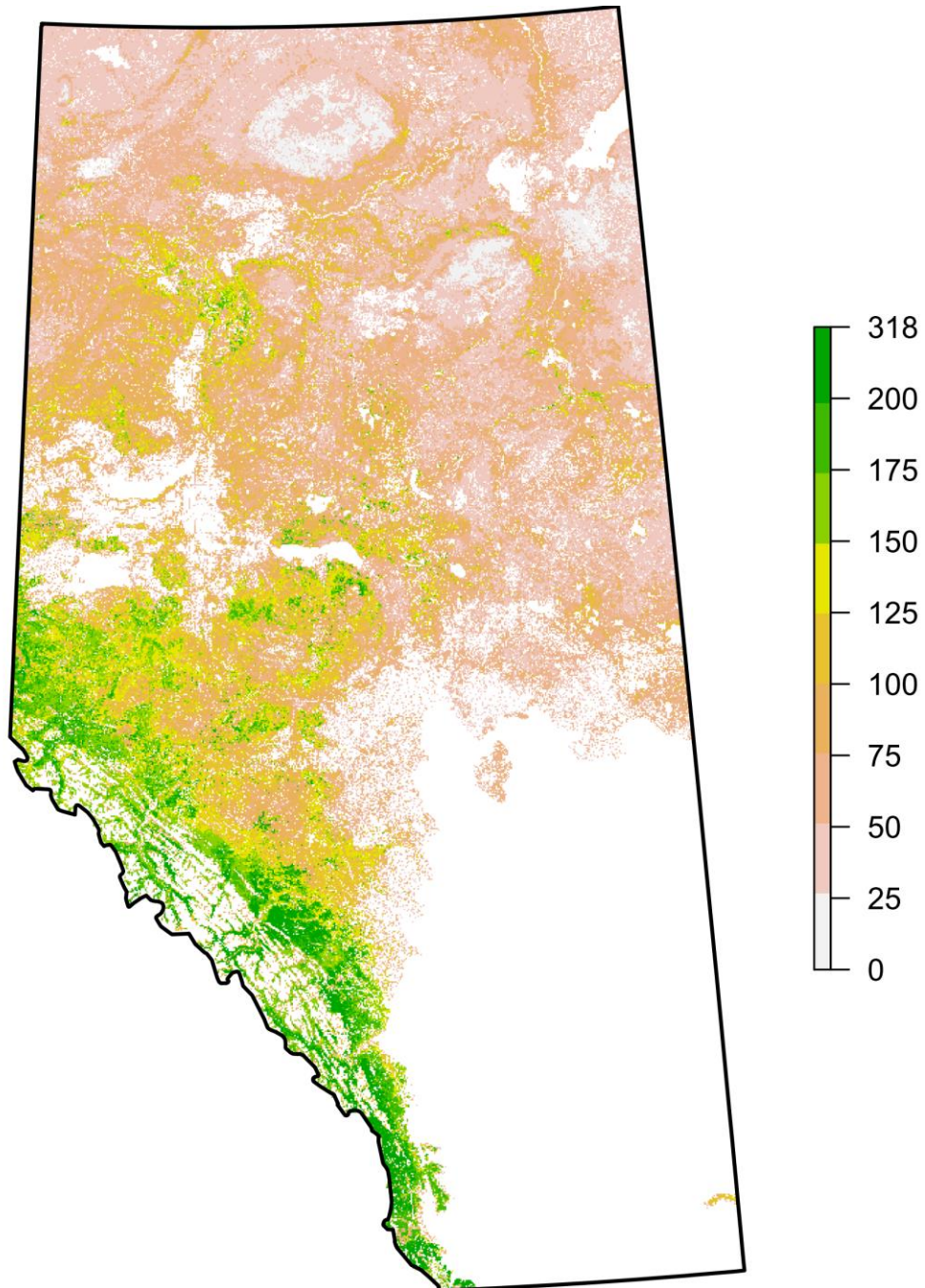
Appendix B

Alberta wall-to-wall land cover map (Source: www.ABMI.ca)



Appendix C

The estimates of total biomass density (aboveground live and dead, and root) (Mg ha^{-1}) using decision-tree based modeling with random forests algorithm (Projection: UTM zone=11; spatial resolution: 1-km)



Appendix D

Total tree biomass (aboveground live and dead, and root) estimated by decision-tree based modelling (Random Forests approach) in different natural regions and subregions in Alberta forests

Forest regions		Area (Mha)	Summary based on 1-km pixels		Summary based on forest inventory plots		
			Total biomass (10 ⁹ Mg)	Percentage (%)	Number of plots	Mean (Mg ha ⁻¹)	Range (Mg ha ⁻¹)
The whole study area		40.3	3.19	100	1968	169.80	0.04-590.51
Natural regions	Boreal	30.2	1.90	59.43	571	127.57	0.04-590.51
	Foothills	6.1	0.75	23.63	1137	188.22	1.34-511.99
	Rocky Mountain	3.1	0.50	15.73	247	188.23	3.81-435.39
	Canadian Shield	0.9	0.04	1.21	13	62.83	7.45-134.77
Natural subregions	Central Mixedwood	14.5	0.95	29.9079	349	134.39	0.04-590.51
	Lower Foothills	4.1	0.47	14.6105	677	191.81	1.6-511.99
	Subalpine	2.1	0.36	11.3261	216	188.9	3.81-435.39
	Lower Boreal Highlands	5.2	0.35	10.9158	80	140.75	1.41-493.27
	Dry Mixedwood	4.3	0.32	10.0993	82	133.59	5.74-320.1
	Upper Foothills	2	0.29	9.024	460	182.95	1.34-446.28
	Northern Mixedwood	2.7	0.12	3.8229	20	98.94	4.27-300.94
	Montane	0.7	0.11	3.4004	30	183.18	49.11-344.52
	Upper Boreal Highlands	1.1	0.06	2.0223	9	50.83	5.29-158.37
	Athabasca Plain	1.1	0.04	1.2609	25	38.26	2.83-103.79
	Boreal Subarctic	1.1	0.03	0.9349	4	22.31	8.38-54.35
	Alpine	0.3	0.03	0.9999	1	-	-
	Kazan Uplands	0.8	0.04	1.2105	13	62.83	7.45-134.77
	Peace-Athabasca Delta	0.3	0.01	0.4645	2	121.73	105.15-138.32