

the reference name is the name in table 1 with lower case

Table 1. Number of trees per province and territory and per species in the data set.

Species*	Provinces and territories†												Total
	AB	BC	MB	NB	NL	NS	NT	ON	PE	QC	SK	YT	
Alpine fir	60												60
Balsam fir	20		20		283	49		70		177	20		639
Balsam poplar	20		20				50	97			20		207
Basswood								80					80
Beech								81		96			177
Black ash								31		42			73
Black cherry								78					78
Black spruce	20		20		300	49	48	73		714	20	290	1534
Eastern hemlock								148		87			235
Eastern redcedar								33					33
Eastern white-cedar								91		93			184
Eastern white pine								144		55			199
Grey birch						43							43
Hickory								35		41			76
Hop-hornbeam								14					14
Jack pine	20		21			41	52	74		136	20		364
Largetooth aspen								100					100
Lodgepole pine	60											141	201
Red ash								27					27
Red maple						46		68		63			177
Red oak								117					117
Red pine						47		272		52			371
Red spruce										55			55
Silver maple								40					40
Sugar maple								113		122			235
Tamarack larch	20		20		232	46	56	84		97	20		575
Trembling aspen	20		19		67	46	54	226		133	20	188	773
White ash								73		36			109
White birch	20		20		270	44		134		98	20		606
White elm								81					81
White oak								61					61
White spruce	20		20		164	44	56	76		78	20	354	832
Yellow birch					53			98		129			280
Total	280		160		1369	455	316	2619		2304	160	973	8636

*Refer to Appendix B.

†AB, Alberta; BC, British Columbia; MB, Manitoba; NB, New Brunswick; NL, Newfoundland and Labrador; NT, Northwest Territories; NS, Nova Scotia; NU, Nunavut (Northwest Territories in the 1980s); ON, Ontario; PE, Prince Edward Island; QC, Quebec; SK, Saskatchewan; YT, Yukon.

Methods

As proposed by Parresol (1999, 2001), a set of nonlinear regression equations was specified in such a way that (i) each compartment regression contains its own independent variables, and the total tree regression is a function of all the specified independent variables; (ii) each regression can use its own weight function; and (iii) additivity is ensured by setting constraints on regression coefficients so that the predicted biomasses of the compartments add up to the prediction of the total biomass. The set of equations was calibrated with the procedure MODEL in SAS/ETS (SAS Institute Inc. 1999a), using joint generalized least squares, more commonly called seemingly unrelated regressions (Gallant 1987). This technique results in lower variance of the regression coefficients by taking into account the contemporaneous correlations among the regression residuals of the equations (Parresol 1999). In fact, it is more realistic to consider that compart-

Table 2. Descriptive statistics for dbh, height, and total biomass by tree species.*

Species	No. of trees	dbh (cm)	Height (m)	Total biomass (kg)
Alpine fir	60	19.6±1.3 (2.1;36.5)	14.8±0.8 (2.2;23.7)	158.4±19.5 (1.7;461.8)
Balsam fir	639	16.4±0.4 (1.5;42.4)	12.2±0.2 (1.6;52.2)	103.4±4.7 (0.5;649.0)
Balsam poplar	207	21.5±0.8 (2.0;53.2)	16.3±0.4 (3.3;27.0)	199.6±16.1 (0.5;1516.3)
Basswood	80	26.5±1.6 (3.7;54.8)	17.5±0.7 (3.8;26.1)	326.5±36.9 (2.1;1118.9)
Beech	177	23.5±0.9 (1.8;46.3)	17.5±0.4 (2.9;26.5)	405.4±27.3 (0.7;1372.5)
Black ash	73	16.2±1.2 (2.0;43.1)	14.4±0.6 (2.6;22.9)	142.0±21.6 (1.0;926.4)
Black cherry	78	22.0±1.3	16.6±0.6	276.1±29.1

the reference name is the name in table 1 with lower case

Table 1. Number of trees per province and territory for each species represented in the new BC data set.

Species	Province/territory										Total
	AB	BC	MB	NL	NS	NT	ON	QC	SK	YK	
Black cottonwood		19									19
Black spruce	20	57	20	300	49	48	73	714	20	290	1591
Douglas-fir (coastal)		14									14
Douglas-fir (interior)		11									11
Engelmann spruce		26									26
Lodgepole pine	60	79								141	280
Pacific silver fir		28									28
Red alder		11									11
Sitka spruce		12									12
Subalpine fir	60	73									133
Trembling aspen	20	26	19	67	46	54	226	133	20	188	799
Western hemlock		48									48
Western redcedar		47									47
White birch	20	23	20	270	44		134	98	20		629
White spruce	20	99	20	164	44	56	76	78	20	354	931
Total	200	573	79	801	183	158	509	1023	80	973	4579

Table 2. Descriptive statistics for DBH, height, and total biomass by tree species.

Species	Trees	DBH (cm)	Height (m)	Total biomass (kg)
Black cottonwood	19	16.7±1.7 (7.4; 30.6)	13.6±1.1 (6.9; 23.5)	102.5±26.2 (13.4; 366.3)
Black spruce	1591	14.0±0.2 (1.6; 38.4)	11.7±0.1 (1.8; 30.1)	74.5±1.9 (0.6; 685.1)
Douglas-fir (coastal)	14	15.6±3.5 (4.5; 50.8)	10.8±2.3 (4.1; 31.2)	166.6±98.9 (4.9; 1394.5)
Douglas-fir (interior)	11	17.6±4.0 (5.6; 39.5)	10.8±2.1 (3.6; 21.7)	193.0±81.9 (5.6; 803.8)
Engelmann spruce	26	24.2±2.6 (5.7; 57.6)	17.5±1.7 (4.4; 40.8)	319.7±82.7 (5.8; 1923.5)
Lodgepole pine	280	16.1±0.5 (2.5; 48.9)	13.5±0.4 (2.3; 39.6)	128.4±10.0 (0.8; 1180.9)
Pacific silver fir	28	14.3±1.1 (4.5; 30.4)	10.3±0.7 (3.1; 18.4)	64.2±11.9 (4.2; 313.3)
Red alder	11	12.2±0.9 (9.3; 19.5)	11.8±0.6 (7.4; 14.5)	36.7±9.3 (12.4; 123.8)
Sitka spruce	12	14.5±2.2 (7.2; 27.3)	10.5±1.4 (4.6; 17.7)	73.6±24.4 (8.7; 233.8)
Subalpine fir	133	17.9±0.9 (2.1; 44.4)	12.5±0.6 (2.2; 27.9)	149.2±16.0 (1.7; 1085.2)
Trembling aspen	799	17.7±0.3 (0.7; 47.2)	15.8±0.2 (1.8; 28.3)	161.1±7.0 (0.1; 1081.5)
Western hemlock	48	16.3±1.2 (3.1; 42.4)	12.3±1.0 (3.5; 28.3)	113.8±22.9 (2.5; 796.8)
Western redcedar	47	19.0±1.6 (5.6; 54.2)	12.4±0.9 (3.8; 32.4)	130.1±29.0 (5.8; 1153.9)
White birch	629	16.4±0.3 (1.5; 43.6)	13.3±0.2 (2.6; 23.9)	149.9±6.9 (0.4; 1020.8)
White spruce	931	16.8±0.3 (1.8; 57.6)	12.9±0.2 (1.1; 37.5)	133.1±6.3 (0.4; 1577.7)

Note: Each mean (±SE) has been calculated from the number of trees. Values in parentheses indicate the range.