

Supplementary file S2

Validation of the estimation results.

Table B1. Field-validated stem count and basal area per hectare before thinning.

Measurement area ID	Estimated stem, count N ha ⁻¹	Reference stem, count N ha ⁻¹	Estimated basal area, m ² ha ⁻¹	Reference basal area, m ² ha ⁻¹
A	1578	1641	20.7	24.4
B	1372	1203	17.8	16.2
C	1624	1671	22.4	24.9
D	1577	1602	20.6	24.4
E	1433	1376	21.9	24.1
F	1385	1363	20.7	22.0
G	1866	1771	24.7	26.6
Mean	1548	518	21.3	23.2

Table B2. Field-validated stem count and basal area per hectare after thinning.

Measurement area ID	Estimated stem count, N ha ⁻¹	Reference stem count, N ha ⁻¹	Estimated basal area, m ² ha ⁻¹	Reference basal area, m ² ha ⁻¹
A	749	1016	11.5	17.8
B	739	552	10.9	9.1
C	748	797	11.8	14.4
D	735	809	11.5	16.0
E	787	841	12.9	16.7
F	764	733	13.3	14.4
G	976	1023	14.6	19.4
Mean	785	824	12.4	15.4

Table B3. Description of measurement areas before first thinning. The table contains measurement areas, the numerically estimated stem counts and basal areas based on our method. In addition, reference values are shown, as well as the estimated uncertainty values ΔN and Δg , calculated by propagation of uncertainty (Eq. 2.4).

Measurement area ID	Estimated stem count, N ha ⁻¹	ΔN	Reference stem count, N ha ⁻¹	ΔN	Estimated basal area, m ² ha ⁻¹	Δg	Reference basal area, m ² ha ⁻¹	Δg
A	1596	±99	1641	±10 ₂	22.0	±1.9	24.4	±2.0
B	1369	±55	1203	±49	17.4	±1.2	16.2	±1.1
C	1749	±75	1671	±72	24.1	±1.7	24.9	±1.8
D	1586	±75	1602	±75	22.0	±1.6	24.4	±1.8
E	1399	±68	1376	±67	22.4	±1.6	24.1	±1.7
F	1500	±61	1363	±55	22.2	±1.5	22.0	±1.5
G	2016	±10 ₄	1771	±91	27.1	±2.1	26.6	±2.0
Mean	1602		1518		22.5		23.2	

Table B4 Description of numerical results of measurement areas after first thinning. The table contains estimated stem counts and basal areas based on our method. In addition, reference values, and the uncertainty values ΔN and Δg , calculated by propagation of uncertainty (Eq. 2.4), are shown.

Measurement area ID	Estimated stem count, N ha ⁻¹	ΔN	Reference stem count, N ha ⁻¹	ΔN	Estimated basal area, m ² ha ⁻¹	Δg	Reference basal area, m ² ha ⁻¹	Δg
A	770	±48	1016	±63	12.6	±1.1	17.8	±1.4
B	720	±29	552	±22	10.3	±0.7	9.1	±0.6
C	860	±37	797	±34	13.4	±0.9	14.4	±1.0
D	729	±34	809	±38	12.8	±0.9	16.0	±1.1
E	758	±37	841	±41	13.4	±1.0	16.7	±1.2
F	859	±35	733	±30	14.5	±1.0	14.4	±1.0
G	1103	±57	1023	±53	16.5	±1.3	19.4	±1.4
Mean	828		824		13.3		15.4	