Jääskeläinen J., Korhonen L., Kukkonen M., Packalen P., Maltamo M. (2024). Individual tree inventory based on uncrewed aerial vehicle data: how to utilise stand-wise field measurements of diameter for calibration? Silva Fennica vol. 58 no. 3 article id 23042.

Supplementary file 8

A comparison of a transferred general diameter/height model and locally constructed models that are calibrated with local field measurements and used for the prediction of diameter at breast height. The accuracy of the predictions is estimated based on the basal area median tree diameter, tree-level volume and plot level total volume.

S8 Prediction of diameter at breast height (DBH) with newly constructed diameter/height models, calibration, calculation of tree volume and comparison of the results with field measurements: absolute (RMSE) and relative root-mean-square error (%RMSE) and absolute and relative bias (%BIAS) values with no false trees are shown for the entire dataset and by development class. The fixed part of the model describes the results without calibration.

The number of trees Class RMSE RMSE BIAS %BIAS   Fixed part All 165.5 35.57 33.61 5.95   2 Young 69.15 40.38 8.26 3.57   Advanced 103.68 34.28 19.28 7.38   Mature 275.94 33.62 61.09 6.28   4 All 164.84 35.55 33.2 6.24   Young 69.24 40.41 9.83 4.5   Advanced 103.77 34.36 20.41 7.87   Mature 274.21 33.49 58.19 5.99   6 All 164.34 35.62 31.53 6.38   Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84		With no false trees					
All 165.5 35.57 33.61 5.95   2 Young 69.15 40.38 8.26 3.57   Advanced 103.68 34.28 19.28 7.38   Mature 275.94 33.62 61.09 6.28   4 All 164.84 35.55 33.2 6.24   Young 69.24 40.41 9.83 4.5   Advanced 103.77 34.36 20.41 7.88   Mature 274.21 33.49 58.19 5.99   6 All 164.34 35.62 31.53 6.38   Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature </td <td>he number of trees</td> <td>Class</td> <td>RMSE</td> <td>RMSE%</td> <td>BIAS</td> <td>%BIAS</td> <td></td>	he number of trees	Class	RMSE	RMSE%	BIAS	%BIAS	
2 Young 69.15 40.38 8.26 3.57   Advanced 103.68 34.28 19.28 7.38   Mature 275.94 33.62 61.09 6.28   4 All 164.84 35.55 33.2 6.24   Young 69.24 40.41 9.83 4.5   Advanced 103.77 34.36 20.41 7.87   Mature 274.21 33.49 58.19 5.99   6 All 164.34 35.62 31.53 6.38   Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.24 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 4	ixed part						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		All	165.5	35.57	33.61	5.95	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2	Young	69.15	40.38	8.26	3.57	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		Advanced	103.68	34.28	19.28	7.38	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		Mature	275.94	33.62	61.09	6.28	
Advanced 103.77 34.36 20.41 7.87   Mature 274.21 33.49 58.19 5.99   6 All 164.34 35.62 31.53 6.38   Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77	4	All	164.84	35.55	33.2	6.24	
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		Young	69.24	40.41	9.83	4.5	
6 All 164.34 35.62 31.53 6.38   Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Advanced	103.77	34.36	20.41	7.87	
Young 69.56 40.59 11.44 5.46   Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Mature	274.21	33.49	58.19	5.99	
Advanced 104.06 34.52 21.21 8.31   Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated   2 All 154.24 33.14 34.04 6.77	6	All	164.34	35.62	31.53	6.38	
Mature 272.55 33.39 52.48 5.39   8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Young	69.56	40.59	11.44	5.46	
8 All 164.16 35.68 31.02 6.62   Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Advanced	104.06	34.52	21.21	8.31	
Young 69.83 40.73 12.84 6.3   Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Mature	272.55	33.39	52.48	5.39	
Advanced 104.36 34.67 22.22 8.75   Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated   2 All 154.24 33.14 34.04 6.77	8	All	164.16	35.68	31.02	6.62	
Mature 271.7 33.35 49.52 5.1   10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Young	69.83	40.73	12.84	6.3	
10 All 164.25 35.72 31.78 6.84   Young 69.94 40.79 13.43 6.64   Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Advanced	104.36	34.67	22.22	8.75	
Young Advanced 69.94 104.54 40.79 34.73 13.43 22.97 6.64 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Mature	271.7	33.35	49.52	5.1	
Advanced 104.54 34.73 22.97 9.01   Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77	10	All	164.25	35.72	31.78	6.84	
Mature 271.71 33.36 50.4 5.21   Calibrated 2 All 154.24 33.14 34.04 6.77		Young	69.94	40.79	13.43	6.64	
Calibrated   2 All 154.24 33.14 34.04 6.77		Advanced	104.54	34.73	22.97	9.01	
2 All 154.24 33.14 34.04 6.77		Mature	271.71	33.36	50.4	5.21	
	alibrated						
	2	All	154.24	33.14	34.04	6.77	
Young 65.78 37.83 13.05 6.5		Young	65.78	37.83	13.05	6.5	
Advanced 97.77 32.22 21 7.58		Advanced	97.77	32.22	21	7.58	
Mature 255.42 30.95 57.74 6.28		Mature	255.42	30.95	57.74	6.28	
4 All 147.17 31.77 33.55 7.13	4	All	147.17	31.77	33.55	7.13	
Young 63.88 36.54 15.5 8.06		Young	63.88	36.54	15.5	8.06	
Advanced 94 31 20.93 7.62		Advanced	94	31	20.93	7.62	
Mature 242.43 29.42 55.08 6.15		Mature	242.43	29.42	55.08	6.15	
6 All 143.26 31.02 33.14 7.35	6	All	143.26	31.02	33.14	7.35	
Young 62.86 35.82 17.11 9		Young	62.86	35.82	17.11	9	
Advanced 91.91 30.33 21.68 7.79		Advanced	91.91	30.33	21.68	7.79	
Mature 235.23 28.57 52.48 5.96		Mature	235.23	28.57	52.48	5.96	
8 All 141.5 30.66 33.1 7.44	8	All	141.5	30.66	33.1	7.44	
Young 62.26 35.43 17.65 9.37		Young	62.26	35.43	17.65	9.37	
Advanced 90.87 30.02 21.6 7.78		Advanced	90.87	30.02	21.6	7.78	
Mature 232.17 28.2 52.1 5.96		Mature	232.17	28.2	52.1	5.96	
10 All 139.67 30.33 32.7 7.5	10	All	139.67	30.33	32.7	7.5	
Young 61.93 35.2 18.24 9.68		Young	61.93	35.2	18.24	9.68	
Advanced 89.93 29.71 21.84 7.83		Advanced	89.93	29.71	21.84	7.83	
Mature 228.68 27.81 50.57 5.88		Mature	228.68	27.81	50.57	5.88	