

Electronic supplementary material: Supplementary Table 2

Title: Genetic dissection of growth, wood basic density and gene expression in interspecific backcrosses of *Eucalyptus grandis* and *E. urophylla*

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Supplementary Table 2a. Summary of the framework linkage maps constructed for QTL analysis in the *E. urophylla* backcross family.

| <i>E. urophylla</i> backcross parent map | | | | F ₁ hybrid parent map (<i>E. urophylla</i> backcross family) | | |
|------------------------------------------|-------------------|---------------------------|------------------------------------|--------------------------------------------------------------------------|---------------------------|------------------------------------|
| Linkage group | Number of markers | Linkage group length (cM) | Mean distance between markers (cM) | Number of markers | Linkage group length (cM) | Mean distance between markers (cM) |
| 1 | 8 | 82.4 | 10.3 | 11 | 91.3 | 8.3 |
| 2 | 8 | 38.6 | 4.8 | 12 | 101.0 | 8.4 |
| 3 | 13 | 100.4 | 7.7 | 12 | 107.7 | 8.9 |
| 4 | 8 | 72.0 | 9.0 | 12 | 60.1 | 5.0 |
| 5 | 10 | 88.9 | 8.8 | 13 | 95.2 | 7.3 |
| 6 | 14 | 100.6 | 7.1 | 14 | 124.3 | 8.8 |
| 7 | 10 | 79.5 | 7.9 | 9 | 74.0 | 8.2 |
| 8 | 13 | 112.4 | 8.6 | 13 | 108.4 | 8.3 |
| 9 | 8 | 95.4 | 11.9 | 12 | 74.0 | 6.1 |
| 10 | 10 | 97.1 | 9.7 | 12 | 91.9 | 7.6 |
| 11 | 10 | 87.6 | 8.7 | 10 | 90.7 | 9.0 |
| Total | 112 | 954.9 | 8.5 | 130 | 1018.0 | 7.8 |

BC, backcross; QTL, Quantitative trait locus.

Supplementary Table 2b. Markers used for QTL analysis, their positions and additive effects in the *E. urophylla* backcross family.

| <i>E. urophylla</i> backcross parent | | | | | F1 hybrid of <i>E. urophylla</i> BC family | | | | |
|--------------------------------------|--------------------|-------------------|---------------------------|-------------------------------|--------------------------------------------|--------------------|-------------------|----------------------------------------|--------------------------------------------|
| Marker Name | Linkage group (LG) | Map Position (cM) | Additive effect (SD, DBH) | Additive effect (SD, Density) | Marker Name | Linkage group (LG) | Map Position (cM) | Additive effect (SD, DBH) ^a | Additive effect (SD, Density) ^a |
| ePt_638907 | LG1 | 0.00 | 0.05 | 0.06 | ePt_503701 | LG1 | 0.00 | 0.02 | 0.01 |
| ePt_640386 | LG1 | 2.73 | 0.06 | 0.04 | ePt_503224 | LG1 | 10.54 | 0.01 | 0.00 |
| ePt_571510 | LG1 | 16.49 | 0.08 | 0.06 | ePt_573788 | LG1 | 17.87 | 0.06 | 0.05 |
| ePt_636534 | LG1 | 46.12 | 0.13 | 0.03 | ePt_572856 | LG1 | 30.50 | -0.04 | -0.10 |
| ePt_571936 | LG1 | 50.44 | 0.17 | 0.00 | ePt_600232 | LG1 | 36.17 | 0.05 | -0.07 |
| ePt_568625 | LG1 | 70.49 | 0.12 | 0.07 | ePt_642824 | LG1 | 46.92 | 0.22 | -0.03 |
| ePt_641800 | LG1 | 78.78 | 0.15 | 0.05 | ePt_599740 | LG1 | 56.39 | 0.16 | -0.11 |
| ePt_636825 | LG1 | 82.36 | 0.14 | 0.03 | ePt_565915 | LG1 | 65.47 | 0.30 | -0.06 |
| ePt_637636 | LG2 | 0.00 | 0.05 | 0.06 | ePt_600664 | LG1 | 81.49 | -0.10 | -0.06 |
| ePt_563419 | LG2 | 4.62 | 0.07 | 0.08 | ePt_639849 | LG1 | 87.91 | 0.02 | -0.06 |
| ePt_565691 | LG2 | 14.27 | 0.14 | 0.12 | ePt_563014 | LG1 | 91.34 | 0.01 | -0.06 |
| ePt_574308 | LG2 | 22.37 | 0.12 | 0.06 | ePt_505021 | LG2 | 0.00 | 0.19 | -0.15 |
| ePt_637223 | LG2 | 26.94 | 0.23 | 0.11 | ePt_574374 | LG2 | 7.92 | 0.13 | -0.04 |
| ePt_575592 | LG2 | 29.16 | 0.27 | 0.09 | ePt_567712 | LG2 | 16.07 | 0.09 | -0.04 |
| ePt_575031 | LG2 | 36.01 | 0.21 | 0.14 | ePt_569091 | LG2 | 17.86 | 0.09 | -0.05 |
| ePt_566116 | LG2 | 38.56 | 0.20 | 0.12 | ePt_639347 | LG2 | 36.63 | -0.14 | -0.02 |
| ePt_564331 | LG3 | 0.00 | 0.08 | 0.05 | ePt_504902 | LG2 | 42.22 | -0.09 | -0.02 |
| ePt_503896 | LG3 | 4.05 | 0.03 | 0.06 | ePt_573048 | LG2 | 53.26 | -0.10 | -0.12 |
| ePt_599238 | LG3 | 9.08 | 0.10 | 0.07 | ePt_568036 | LG2 | 68.07 | -0.14 | -0.07 |
| ePt_566346 | LG3 | 15.38 | 0.11 | 0.03 | ePt_567298 | LG2 | 76.97 | -0.03 | -0.22 |
| ePt_643823 | LG3 | 20.67 | 0.12 | 0.03 | ePt_503852 | LG2 | 92.48 | 0.09 | -0.33 |
| ePt_641822 | LG3 | 26.72 | 0.22 | 0.02 | ePt_565848 | LG2 | 95.27 | 0.07 | -0.30 |
| ePt_504319 | LG3 | 38.47 | 0.23 | 0.07 | ePt_641866 | LG2 | 101.00 | 0.02 | -0.39 |
| ePt_637193 | LG3 | 45.45 | 0.11 | 0.11 | ePt_644293 | LG3 | 0.00 | 0.12 | -0.13 |

| | | | | | | | | | |
|------------|-----|--------|------|------|------------|-----|--------|-------|-------|
| ePt_572258 | LG3 | 59.13 | 0.03 | 0.06 | ePt_568037 | LG3 | 5.44 | 0.04 | -0.07 |
| ePt_644491 | LG3 | 70.44 | 0.08 | 0.20 | ePt_572721 | LG3 | 13.68 | 0.07 | -0.12 |
| ePt_642546 | LG3 | 79.28 | 0.08 | 0.19 | ePt_568116 | LG3 | 33.73 | -0.04 | 0.07 |
| ePt_600566 | LG3 | 92.96 | 0.01 | 0.20 | ePt_644403 | LG3 | 45.94 | -0.03 | 0.03 |
| ePt_566961 | LG3 | 100.42 | 0.03 | 0.17 | ePt_640977 | LG3 | 53.33 | -0.02 | -0.08 |
| ePt_567857 | LG4 | 0.00 | 0.35 | 0.10 | ePt_640786 | LG3 | 59.57 | 0.02 | -0.13 |
| ePt_567945 | LG4 | 3.07 | 0.29 | 0.16 | ePt_567607 | LG3 | 67.42 | 0.13 | -0.31 |
| ePt_569322 | LG4 | 7.23 | 0.25 | 0.19 | ePt_571789 | LG3 | 76.02 | 0.17 | -0.35 |
| ePt_642860 | LG4 | 30.64 | 0.07 | 0.12 | ePt_566415 | LG3 | 87.80 | 0.23 | -0.36 |
| ePt_637285 | LG4 | 37.23 | 0.11 | 0.02 | ePt_636665 | LG3 | 93.39 | 0.17 | -0.33 |
| ePt_599283 | LG4 | 58.90 | 0.05 | 0.21 | ePt_570151 | LG3 | 107.70 | 0.15 | -0.38 |
| ePt_570780 | LG4 | 65.23 | 0.06 | 0.24 | ePt_570493 | LG4 | 0.00 | 0.07 | 0.04 |
| ePt_636880 | LG4 | 72.03 | 0.07 | 0.19 | ePt_600655 | LG4 | 3.79 | 0.10 | 0.04 |
| ePt_643707 | LG5 | 0.00 | 0.08 | 0.12 | ePt_503766 | LG4 | 4.62 | 0.11 | 0.01 |
| ePt_639138 | LG5 | 6.23 | 0.15 | 0.14 | ePt_643984 | LG4 | 6.27 | 0.12 | 0.10 |
| ePt_571353 | LG5 | 18.81 | 0.01 | 0.04 | ePt_636515 | LG4 | 14.28 | 0.18 | 0.06 |
| ePt_572057 | LG5 | 35.54 | 0.05 | 0.02 | ePt_571769 | LG4 | 22.42 | 0.19 | -0.01 |
| ePt_636498 | LG5 | 48.88 | 0.08 | 0.05 | ePt_573193 | LG4 | 25.58 | 0.19 | -0.06 |
| ePt_573321 | LG5 | 55.79 | 0.01 | 0.06 | ePt_599702 | LG4 | 29.14 | 0.18 | 0.51 |
| ePt_636480 | LG5 | 66.81 | 0.01 | 0.15 | ePt_573837 | LG4 | 34.75 | 0.15 | 0.56 |
| ePt_643842 | LG5 | 78.12 | 0.03 | 0.12 | ePt_638305 | LG4 | 39.77 | 0.19 | 0.62 |
| ePt_600653 | LG5 | 85.68 | 0.08 | 0.18 | ePt_503674 | LG4 | 57.27 | 0.16 | -0.17 |
| ePt_503808 | LG5 | 88.87 | 0.07 | 0.20 | ePt_570682 | LG4 | 60.09 | 0.19 | -0.13 |
| ePt_568290 | LG6 | 0.00 | 0.03 | 0.17 | ePt_570054 | LG5 | 0.00 | -0.03 | 0.04 |
| ePt_575429 | LG6 | 1.12 | 0.04 | 0.16 | ePt_643259 | LG5 | 9.46 | 0.09 | 0.01 |
| ePt_636902 | LG6 | 5.86 | 0.07 | 0.11 | ePt_567769 | LG5 | 17.14 | 0.08 | -0.05 |
| ePt_505086 | LG6 | 14.44 | 0.02 | 0.01 | ePt_644484 | LG5 | 19.99 | 0.07 | -0.06 |
| ePt_636956 | LG6 | 17.66 | 0.02 | 0.05 | ePt_570274 | LG5 | 31.29 | 0.08 | -0.12 |
| ePt_644163 | LG6 | 31.49 | 0.27 | 0.04 | ePt_575685 | LG5 | 36.70 | 0.07 | -0.11 |
| ePt_638183 | LG6 | 43.44 | 0.24 | 0.06 | ePt_639908 | LG5 | 45.52 | 0.15 | -0.04 |

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|------------|-----|--------|------|------|------------|-----|--------|-------|-------|
| ePt_637303 | LG6 | 50.76 | 0.28 | 0.10 | ePt_569419 | LG5 | 50.88 | 0.21 | -0.05 |
| ePt_569463 | LG6 | 63.45 | 0.08 | 0.02 | ePt_568347 | LG5 | 57.71 | 0.15 | -0.01 |
| ePt_641907 | LG6 | 67.82 | 0.16 | 0.02 | ePt_575678 | LG5 | 64.98 | 0.11 | 0.02 |
| ePt_639634 | LG6 | 82.84 | 0.14 | 0.16 | ePt_574584 | LG5 | 78.05 | 0.09 | 0.04 |
| ePt_640477 | LG6 | 89.20 | 0.21 | 0.16 | ePt_573934 | LG5 | 80.80 | 0.11 | 0.00 |
| ePt_565994 | LG6 | 103.14 | 0.23 | 0.10 | ePt_643170 | LG5 | 95.23 | 0.04 | 0.01 |
| ePt_566534 | LG6 | 110.56 | 0.28 | 0.10 | ePt_565718 | LG6 | 0.00 | -0.17 | -0.37 |
| ePt_566646 | LG7 | 0.00 | 0.06 | 0.05 | ePt_641950 | LG6 | 23.00 | -0.19 | -0.47 |
| ePt_571137 | LG7 | 2.67 | 0.07 | 0.20 | ePt_563588 | LG6 | 27.73 | 0.18 | -0.44 |
| ePt_573687 | LG7 | 10.17 | 0.12 | 0.29 | ePt_599939 | LG6 | 37.06 | 0.36 | -0.03 |
| ePt_637829 | LG7 | 10.61 | 0.11 | 0.31 | ePt_504039 | LG6 | 45.05 | 0.47 | -0.15 |
| ePt_563468 | LG7 | 19.98 | 0.11 | 0.37 | ePt_566935 | LG6 | 59.85 | 0.25 | -0.20 |
| ePt_637575 | LG7 | 35.70 | 0.16 | 0.04 | ePt_641192 | LG6 | 73.55 | 0.09 | -0.18 |
| ePt_566192 | LG7 | 62.52 | 0.05 | 0.15 | ePt_643704 | LG6 | 76.43 | 0.10 | -0.19 |
| ePt_571262 | LG7 | 70.61 | 0.06 | 0.18 | ePt_504218 | LG6 | 85.57 | -0.17 | -0.32 |
| ePt_644456 | LG7 | 72.78 | 0.09 | 0.19 | ePt_643314 | LG6 | 101.90 | -0.10 | -0.21 |
| ePt_566482 | LG7 | 79.47 | 0.03 | 0.27 | ePt_575722 | LG6 | 107.12 | -0.22 | -0.18 |
| ePt_639224 | LG8 | 0.00 | 0.09 | 0.07 | ePt_638034 | LG6 | 114.40 | 0.12 | -0.07 |
| ePt_504097 | LG8 | 8.17 | 0.04 | 0.01 | ePt_568058 | LG6 | 118.37 | -0.28 | -0.02 |
| ePt_565436 | LG8 | 11.79 | 0.04 | 0.03 | ePt_574570 | LG6 | 124.32 | -0.18 | -0.01 |
| ePt_575292 | LG8 | 12.50 | 0.05 | 0.19 | ePt_642265 | LG7 | 0.00 | -0.23 | -0.14 |
| ePt_574247 | LG8 | 36.24 | 0.04 | 0.37 | ePt_568515 | LG7 | 5.52 | -0.23 | -0.06 |
| ePt_639354 | LG8 | 44.53 | 0.02 | 0.35 | ePt_571000 | LG7 | 23.29 | -0.14 | 0.12 |
| ePt_637292 | LG8 | 53.21 | 0.07 | 0.00 | ePt_575149 | LG7 | 34.99 | -0.07 | 0.01 |
| ePt_564161 | LG8 | 67.69 | 0.01 | 0.01 | ePt_643010 | LG7 | 43.49 | -0.10 | -0.04 |
| ePt_503998 | LG8 | 73.25 | 0.01 | 0.02 | ePt_574160 | LG7 | 46.16 | -0.07 | -0.02 |
| ePt_637028 | LG8 | 90.80 | 0.12 | 0.07 | ePt_639371 | LG7 | 56.16 | -0.09 | -0.05 |
| ePt_574691 | LG8 | 93.35 | 0.13 | 0.07 | ePt_568436 | LG7 | 64.60 | -0.11 | -0.08 |
| ePt_570192 | LG8 | 107.51 | 0.11 | 0.00 | ePt_564451 | LG7 | 73.97 | -0.08 | -0.03 |
| ePt_644171 | LG8 | 112.35 | 0.17 | 0.06 | ePt_504398 | LG8 | 0.00 | 0.05 | 0.26 |

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|------------|------|-------|------|------|------------|------|--------|-------|-------|
| ePt_572414 | LG9 | 0.00 | 0.17 | 0.05 | ePt_571985 | LG8 | 11.03 | 0.09 | 0.21 |
| ePt_571185 | LG9 | 13.53 | 0.13 | 0.13 | ePt_565753 | LG8 | 16.28 | 0.16 | 0.14 |
| ePt_571912 | LG9 | 25.42 | 0.26 | 0.16 | ePt_599669 | LG8 | 20.98 | 0.17 | 0.05 |
| ePt_566194 | LG9 | 30.85 | 0.40 | 0.20 | ePt_572210 | LG8 | 29.04 | 0.15 | 0.03 |
| ePt_563442 | LG9 | 46.07 | 0.16 | 0.21 | ePt_643850 | LG8 | 48.00 | 0.04 | -0.27 |
| ePt_642787 | LG9 | 72.00 | 0.04 | 0.04 | ePt_503845 | LG8 | 53.61 | -0.01 | -0.33 |
| ePt_573318 | LG9 | 74.05 | 0.04 | 0.08 | ePt_640365 | LG8 | 59.81 | 0.03 | -0.38 |
| ePt_599981 | LG9 | 95.36 | 0.13 | 0.13 | ePt_640629 | LG8 | 67.70 | 0.06 | -0.33 |
| ePt_641100 | LG10 | 0.00 | 0.40 | 0.16 | ePt_575022 | LG8 | 79.29 | 0.16 | -0.37 |
| ePt_570364 | LG10 | 3.51 | 0.43 | 0.21 | ePt_640149 | LG8 | 88.85 | 0.20 | -0.27 |
| ePt_640576 | LG10 | 20.93 | 0.06 | 0.12 | ePt_572120 | LG8 | 97.61 | 0.22 | -0.22 |
| ePt_575378 | LG10 | 32.04 | 0.03 | 0.12 | ePt_573365 | LG8 | 108.47 | 0.10 | -0.22 |
| ePt_568620 | LG10 | 46.40 | 0.03 | 0.09 | ePt_575684 | LG9 | 0.00 | -0.04 | -0.27 |
| ePt_644096 | LG10 | 61.93 | 0.04 | 0.05 | ePt_641785 | LG9 | 7.11 | 0.05 | -0.21 |
| ePt_563364 | LG10 | 73.27 | 0.03 | 0.14 | ePt_567963 | LG9 | 9.11 | 0.07 | -0.18 |
| ePt_642097 | LG10 | 83.94 | 0.22 | 0.19 | ePt_572213 | LG9 | 12.91 | 0.13 | -0.18 |
| ePt_643528 | LG10 | 88.39 | 0.18 | 0.22 | ePt_567473 | LG9 | 26.26 | 0.23 | 0.15 |
| ePt_638623 | LG10 | 97.06 | 0.18 | 0.23 | ePt_644133 | LG9 | 35.99 | 0.19 | 0.34 |
| ePt_599825 | LG11 | 0.00 | 0.04 | 0.02 | ePt_639625 | LG9 | 40.55 | 0.11 | 0.42 |
| ePt_599720 | LG11 | 3.36 | 0.06 | 0.10 | ePt_640713 | LG9 | 42.30 | 0.12 | 0.45 |
| ePt_566717 | LG11 | 13.92 | 0.04 | 0.11 | ePt_599692 | LG9 | 52.17 | 0.09 | 0.59 |
| ePt_564887 | LG11 | 17.94 | 0.01 | 0.14 | ePt_600528 | LG9 | 61.79 | 0.04 | 0.68 |
| ePt_641324 | LG11 | 22.85 | 0.02 | 0.13 | ePt_639912 | LG9 | 70.95 | 0.12 | 0.64 |
| ePt_640702 | LG11 | 25.43 | 0.07 | 0.09 | ePt_504705 | LG9 | 73.95 | 0.09 | 0.65 |
| ePt_643222 | LG11 | 37.19 | 0.07 | 0.21 | ePt_565743 | LG10 | 0.00 | 0.12 | 0.42 |
| ePt_00411 | LG11 | 50.32 | 0.10 | 0.25 | ePt_637643 | LG10 | 6.53 | 0.04 | 0.40 |
| ePt_571164 | LG11 | 72.78 | 0.07 | 0.09 | ePt_504458 | LG10 | 28.94 | 0.07 | 0.20 |
| ePt_503841 | LG11 | 87.60 | 0.24 | 0.05 | ePt_643963 | LG10 | 36.64 | 0.09 | 0.24 |
| | | | | | ePt_568851 | LG10 | 42.77 | 0.11 | 0.23 |
| | | | | | ePt_644176 | LG10 | 45.86 | 0.05 | 0.17 |

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|------------|------|-------|-------|------|
| ePt_600200 | LG10 | 50.88 | -0.03 | 0.57 |
| ePt_566772 | LG10 | 62.32 | -0.11 | 0.64 |
| ePt_638929 | LG10 | 66.87 | -0.11 | 0.62 |
| ePt_574725 | LG10 | 77.32 | -0.04 | 0.16 |
| ePt_575312 | LG10 | 87.79 | -0.13 | 0.23 |
| ePt_640871 | LG10 | 91.92 | -0.18 | 0.28 |
| ePt_571374 | LG11 | 0.00 | 0.11 | 0.07 |
| ePt_638531 | LG11 | 2.23 | 0.08 | 0.11 |
| ePt_567666 | LG11 | 11.06 | 0.13 | 0.14 |
| ePt_575643 | LG11 | 25.68 | 0.01 | 0.27 |
| ePt_504138 | LG11 | 29.34 | -0.02 | 0.26 |
| ePt_504803 | LG11 | 46.11 | -0.07 | 0.15 |
| ePt_570513 | LG11 | 52.30 | -0.09 | 0.14 |
| ePt_600156 | LG11 | 60.11 | -0.11 | 0.10 |
| ePt_573069 | LG11 | 69.61 | -0.10 | 0.07 |
| ePt_503383 | LG11 | 90.66 | 0.07 | 0.11 |

SD, Standard deviation. QTL effects at marker positions based on composite interval mapping (Model 6, QTL Cartographer v2.5).

^a Marker data in the F1 hybrid maps were recoded so that positive and negative additive effect values on all linkage groups are associated with the effect of replacement of the *E. grandis* allele with the *E. urophylla* allele in backcross progeny. Linkage phases were arbitrary from one linkage group to the next for the backcross parents and the directions of the effect are therefore not indicated for these parents.