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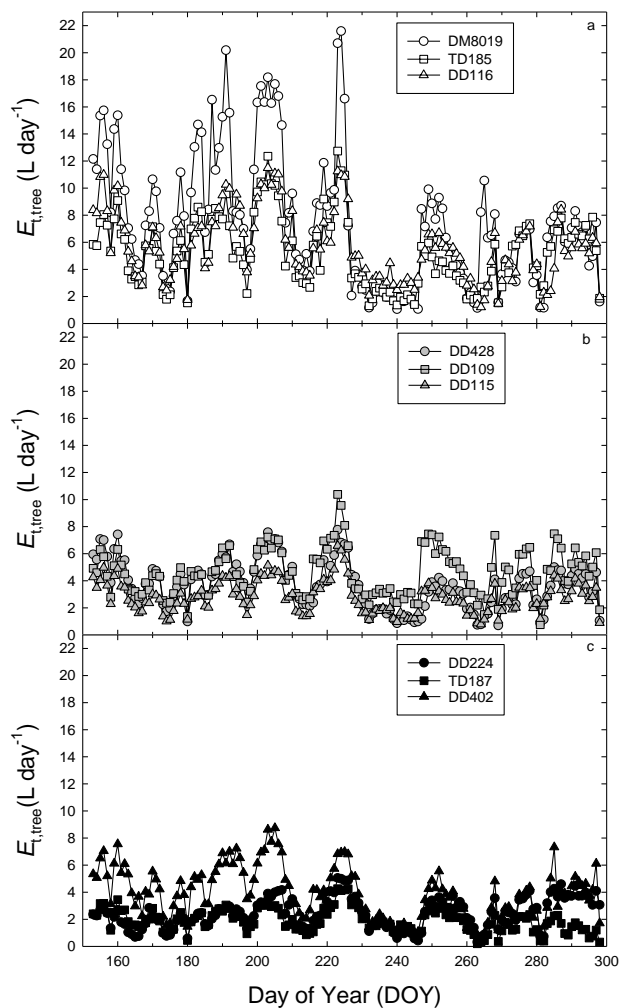


Figure S1. Seasonal patterns of mean daily tree water use ($E_{t,tree}$, L day⁻¹) ($n = 3$ or 4) in *P. deltooides* (DD), *P. trichocarpa x deltooides* (TD), and *P. deltooides x maximowiczii* (DM) clones. Clones are grouped into high (a, Group H), intermediate (b, Group I), and low (c, Group L) productivity genotypes.

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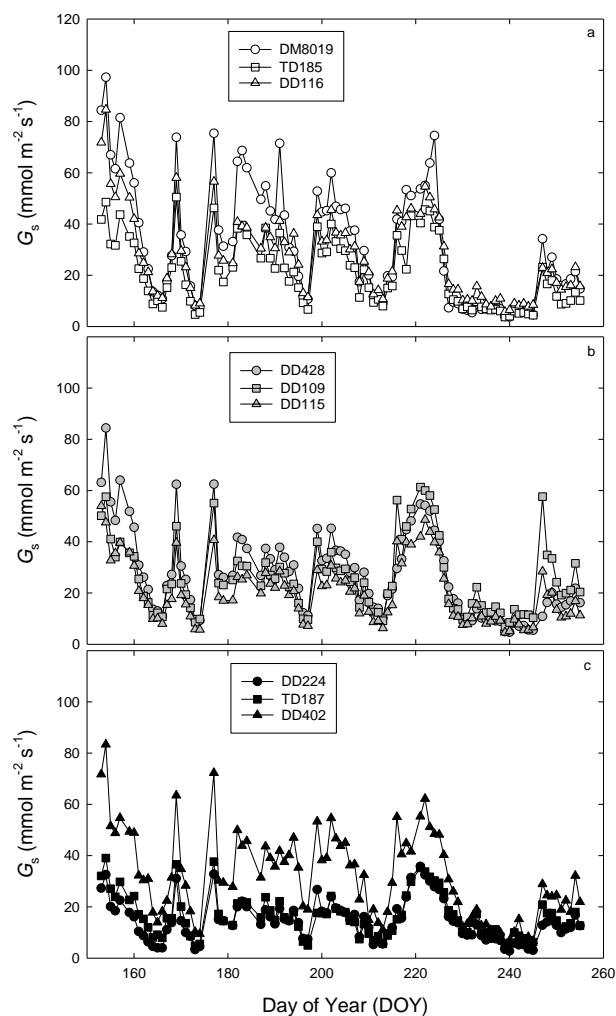


Figure S2. The relationship between tree diameter and tree water use ($E_{t,tree}$, $m^3 H_2O tree^{-1}$) in *P. deltooides* (DD), *P. trichocarpa x deltooides* (TD), and *P. deltooides x maximowiczii* (DM) clones. Open, light shaded, and dark shaded symbols represent high (Group H), intermediate (Group I), and low (Group L) productivity genotypes, respectively.

45 **Table S1.** Parameter estimates for canopy stomatal conductance response to vapor pressure deficit
 46 (D) (Equation 2) when $D > 1.0$ kPa and $PAR > 800 \mu\text{mol m}^{-2} \text{s}^{-1}$. G_{ref} is reference stomatal conductance
 47 and $-dG_s/d\ln D$ is the rate of decrease in G_s per unit of D . Data are lsmeans under wet ($REW > 0.30$) and
 48 dry ($REW < 0.20$) soil moisture. Probability values are given for Clone or Group, REW , and
 49 interaction effects. Cells with no shading, light shading, or dark shading represent genotypes with
 50 high (H), intermediate (I), and low (L) growth potential, respectively.

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Clone	Group	REW	G_{ref}	$-dG_s/d\ln D$
DM8019	H	DRY	26.9	16.9
		WET	65.4	41.3
TD185	H	DRY	21.1	13.5
		WET	40.4	25.5
DD116	H	DRY	30.3	19.1
		WET	53.3	35.1
DD428	I	DRY	31.1	19.7
		WET	54.2	36.4
DD109	I	DRY	32.8	23.0
		WET	49.1	31.1
DD115	I	DRY	24.8	17.0
		WET	40.4	26.9
DD224	L	DRY	18.9	12.4
		WET	27.7	18.2
TD187	L	DRY	21.6	13.5
		WET	29.4	16.0
DD402	L	DRY	37.6	22.6
		WET	59.1	36.5
<i>P > F</i>				
Clone (C)			0.030	0.024
REW (R)			<0.001	<0.001
C x R			0.761	0.607
Group (G)			0.482	0.224
REW (R)			<0.001	<0.001
G x R			0.429	0.339

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