

Table 0.1: Hydrological parameters used as metrics of variability in high flow magnitude and frequency and predictability and consistency of water availability in the riparian environment. * - normalised by mean daily flow (ML/day)

<i>Variable</i>	<i>Abbreviation</i>	<i>Units</i>	<i>Description</i>
Flood frequency and magnitude			
Mean magnitude of high spells *	HSPeak	dimensionless	High spells are periods of flow above the 95th percentile on the flow duration curve. We were interested in how frequently these conditions occurred over the time series as well as the mean magnitude of peak flows during these periods. 20 year average return interval (ARI) floods are extreme flow events that have the potential to re-work the fluvial landscape. Together, these metrics indicate the intensity and frequency of mechanical stress experienced by plants in the riparian zone.
CV of all years mean high spell magnitude	CVAnnHSPeak	dimensionless	
20 year ARI flood magnitude *	AS20YrARI	dimensionless	
Mean of all years number of high spells	MDFAnnHSNum	year-1	
CV of all years number of high spells	CVAnnHSNum	dimensionless	
Rise and fall rates			
Mean rate of rise *	MRateRise	day-1	Rise and fall rates represent flow flashiness. Fast rise rates are associated with flood waves and intense mechanical stress to plant stems. Slow fall rates keep exposed substrate moist for longer periods, which may produce favourable conditions for germination. Historical discharge records are unfortunately limited to daily resolution, so are unable to fully capture flood discharge shapes. High variability between years indicates the occurrence of extreme events which may not have been captured by the mean value.
Mean rate of fall *	MRateFall	day-1	
CV of all years mean rate of rise	CVAnnMRateRise	dimensionless	
CV of all years mean rate of fall	CVAnnMRateFall	dimensionless	

<i>Variable</i>	<i>Abbreviation</i>	<i>Units</i>	<i>Description</i>
Baseflow index			
Baseflow index	BFI	dimensionless	Baseflow index is calculated using the ratio of flow during average conditions to total flow. It is a useful metric of consistency of water availability, in that it is maximised when average flow conditions dominate, and minimised when total flow is dominated by above average flow events. Intra-annual variability in baseflow index measures how predictable baseflow index is between years.
CV of all years Baseflow Index	CVAnnBFI	dimensionless	
Low flow magnitude, frequency and duration			
CV of all years mean low spell magnitude	LSPeak	dimensionless	Low spells are periods of flow below the 5th percentile on the flow duration curve. We were interested in how frequently these conditions occurred over the time series as well as the mean and interannual variability in magnitude and duration of low flows.
Mean magnitude of low spells	CVAnnLSPeak	dimensionless	
Mean of all years number of low spells	MDFAnnLSNum	year-1	
CV of all years number of low spells	CVAnnLSNum	dimensionless	
Mean duration of low spells	LSMeanDur	days	
CV of all years low spell mean duration	CVAnnLSMeanDur	dimensionless	
Mean flow during driest week of the year *	MA.7daysMinMean	dimensionless	
Mean days per year under 0.1ML/day flow	MDFAnnUnder0.1	days/year	
CV of all years days per year under 0.1ML/day flow	CVAnnMDFAnnUnder0.1	dimensionless	

<i>Variable</i>	<i>Abbreviation</i>	<i>Units</i>	<i>Description</i>
Colwells indices			
Constancy of monthly mean daily flow	C_MDFM	dimensionless	Colwells indices provide a measure of the seasonal predictability of flow events and therefore water availability within the riparian zone. Constancy (C) measures uniformity of flow across seasons, and is maximised when flow conditions do not differ between seasons. Contingency (M) is a measure of interannual uniformity in seasonal flow patterns, and is maximized when seasonal patterns of flow are consistent between years. We generated Colwells indices for both average flow conditions and minimum flows conditions.
Contingency of monthly mean daily flow	M_MDFM	dimensionless	
Constancy based on monthly minimum daily flow	C_MinM	dimensionless	
Contingency based on monthly minimum daily flow	M_MinM	dimensionless	

Table 0.2: Statistics for regression models comparing hydrological metrics with site mean wood density.

<i>Variable</i>	<i>P</i>	<i>P.adj</i>	<i>R2</i>
CVAnnBFI	0.008	0.031	0.549
CVAnnMRateRise	0.008	0.031	0.549
C_MinM	0.009	0.031	0.542
C_MDFM	0.012	0.031	0.522
HSPeak	0.004	0.031	0.485
AS20YrARI	0.005	0.031	0.467
LSPeak	0.006	0.031	0.447
CVAnnMRateFall	0.007	0.031	0.435
BFI	0.012	0.031	0.397
M_MDFM	0.013	0.031	0.388
MA.7daysMinMean	0.017	0.036	0.368
MRateRise	0.018	0.036	0.360
MDFAnnLSNum	0.030	0.055	0.314
MRateFall	0.053	0.091	0.258
M_MinM	0.062	0.100	0.242
CVAnnHSPeak	0.117	0.175	0.178
LSMeanDur	0.230	0.325	0.109
CVAnnLSPeak	0.390	0.493	0.057
CVAnnHSNum	0.390	0.493	0.057
CVAnnLSNum	0.454	0.545	0.044
MDFAnnUnder0.1	0.487	0.556	0.038
MDFAnnZer	0.553	0.603	0.028
CVAnnLSMeanDur	0.732	0.747	0.009
MDFAnnHSNum	0.747	0.747	0.008