

Taylor *et al.* supporting information

S4) Tabulated values for physiological traits determined in the field, by species, month of measurement and treatment

The mean values on the following four pages were calculated from raw data, using R version 3.0.1 (R Core Team, 2013). Mean values based on ≤ 2 replicates were eliminated from the dataset, as were species means that were not paired across treatments in any given month.

Species codes:

Hc = *Heteropogon contortus* (C₄, Andropogoneae)

Hh = *Hyparrhenia hirta* (C₄, Andropogoneae)

Tt = *Themeda triandra* (C₄, Andropogoneae)

As = *Alloteropsis semialata* *ss. eckloniana* (C₃, Paniceae)

Pa = *Panicum aequinerve* (C₃, Paniceae)

Pe = *Panicum ecklonii* (C₃, Paniceae)

Ac = *Aristida congesta* *ss. barbicollis* (C₄, Aristidoideae)

Ad = *Aristida diffusa* *ss. diffusa* (C₄, Aristidoideae)

Aj = *Aristida junciformis* *ss. junciformis* (C₄, Aristidoideae)

Kc = *Karoochloa curva* (C₃, Danthonioideae)

Md = *Merxmuellera disticha* (C₃, Danthonioideae)

Pc = *Pentaschistis curvifolia* (C₃, Danthonioideae)

Treatment codes:

n = natural rainfall

w = supplemental watering

N = sample sizes

Missing values are indicated by hyphens

References

R Core Team (2013) R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.

Andropogoneae (C₄)

Species ¹	Month	Treatment ²	Net CO ₂ assimilation rate		Stomatal conductance		Midday leaf water potential		Pre-dawn leaf water potential	
			($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)	N	($\text{mol m}^{-2} \text{ s}^{-1}$)	N	(MPa)	N	(MPa)	N
Hc	Nov-08	n	7.95	7	0.108	7	-1.70	7	-0.38	6
Hc	Dec-08	n	11.23	5	0.142	5	-1.60	4	-0.30	4
Hc	Jan-09	n	6.79	5	0.099	5	-2.44	5	-0.69	4
Hc	Feb-09	n	15.80	6	0.131	6	-1.57	6	-0.21	5
Hc	Mar-09	n	8.56	6	0.078	6	-1.88	6	-0.42	6
Hc	Apr-09	n	8.65	7	0.088	7	-2.06	7	-1.00	7
Hc	Nov-08	w	7.05	8	0.100	8	-1.89	8	-0.36	7
Hc	Dec-08	w	10.98	5	0.137	5	-1.68	4	-0.28	4
Hc	Jan-09	w	12.29	6	0.127	6	-1.58	6	-0.51	5
Hc	Feb-09	w	15.92	7	0.138	7	-1.39	7	-0.17	6
Hc	Mar-09	w	16.09	7	0.120	7	-1.57	7	-0.30	7
Hc	Apr-09	w	11.17	8	0.112	8	-1.73	8	-0.88	8
Hh	Nov-08	n	20.17	8	0.151	8	-1.19	6	-0.29	6
Hh	Dec-08	n	18.32	5	0.135	5	-1.23	4	-0.19	4
Hh	Jan-09	n	11.36	6	0.081	6	-1.98	6	-1.16	5
Hh	Feb-09	n	18.24	7	0.154	7	-1.24	7	-0.22	6
Hh	Mar-09	n	14.84	7	0.096	7	-1.67	7	-0.34	7
Hh	Apr-09	n	10.47	8	0.091	8	-2.48	8	-1.35	8
Hh	Nov-08	w	19.01	8	0.137	8	-1.26	6	-0.35	6
Hh	Dec-08	w	20.32	6	0.153	6	-1.21	4	-0.17	3
Hh	Jan-09	w	14.53	6	0.112	6	-1.48	6	-0.58	5
Hh	Feb-09	w	13.96	7	0.105	7	-1.20	7	-0.18	6
Hh	Mar-09	w	16.49	7	0.116	7	-1.43	7	-0.36	7
Hh	Apr-09	w	14.75	8	0.119	8	-1.76	8	-0.91	8
Tt	Nov-08	n	-	-	-	-	-	-	-	-
Tt	Dec-08	n	-	-	-	-	-	-	-	-
Tt	Jan-09	n	10.21	5	0.093	5	-1.85	4	-0.49	4
Tt	Feb-09	n	5.07	7	0.072	7	-2.90	7	-1.88	6
Tt	Mar-09	n	12.06	7	0.095	7	-1.67	7	-0.32	6
Tt	Apr-09	n	9.78	7	0.088	7	-2.21	7	-0.54	7
Tt	Nov-08	w	5.55	8	0.076	8	-2.42	8	-1.33	8
Tt	Dec-08	w	12.59	6	0.105	6	-1.92	3	-0.20	3
Tt	Jan-09	w	14.17	6	0.106	6	-2.05	6	-0.49	5
Tt	Feb-09	w	12.57	7	0.110	7	-1.67	7	-0.24	6
Tt	Mar-09	w	13.15	6	0.100	6	-2.05	6	-0.43	6
Tt	Apr-09	w	10.47	7	0.098	7	-1.96	7	-1.08	7

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Paniceae (C₃)

Species ¹	Month	Treatment ²	Net CO ₂ assimilation rate		Stomatal conductance		Midday leaf water potential		Pre-dawn leaf water potential	
			($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)	N	($\text{mol m}^{-2} \text{ s}^{-1}$)	N	(MPa)	N	(MPa)	N
As	Nov-08	n	9.10	8	0.114	8	-1.58	8	-0.39	7
As	Dec-08	n	6.48	5	0.054	5	-1.53	4	-0.38	4
As	Jan-09	n	1.76	6	0.027	6	-2.35	6	-1.19	5
As	Feb-09	n	11.55	7	0.156	7	-1.54	7	-0.23	6
As	Mar-09	n	5.42	7	0.050	7	-1.71	7	-0.56	7
As	Apr-09	n	4.47	7	0.038	7	-2.07	7	-1.25	7
As	Nov-08	w	10.41	7	0.116	7	-1.49	7	-0.53	6
As	Dec-08	w	10.26	6	0.094	6	-1.33	4	-0.24	4
As	Jan-09	w	6.36	6	0.082	6	-1.70	6	-0.58	5
As	Feb-09	w	10.77	7	0.147	7	-1.37	7	-0.21	6
As	Mar-09	w	11.11	6	0.116	6	-1.55	6	-0.37	6
As	Apr-09	w	8.94	7	0.105	7	-1.66	7	-1.09	7
Pa	Nov-08	n	12.92	8	0.131	8	-1.40	3	-0.43	3
Pa	Dec-08	n	3.80	5	0.032	5	-1.43	4	-0.41	4
Pa	Jan-09	n	-0.03	6	0.032	6	-3.20	5	-3.00	4
Pa	Feb-09	n	14.91	7	0.215	7	-1.61	7	-0.22	6
Pa	Mar-09	n	9.51	7	0.071	7	-2.09	7	-0.77	7
Pa	Apr-09	n	7.55	8	0.066	8	-2.55	8	-1.71	7
Pa	Nov-08	w	15.08	8	0.171	8	-1.35	2	-0.30	2
Pa	Dec-08	w	11.46	5	0.120	5	-1.64	4	-0.23	4
Pa	Jan-09	w	7.25	6	0.067	6	-1.95	6	-0.62	5
Pa	Feb-09	w	18.56	7	0.284	7	-1.47	7	-0.19	6
Pa	Mar-09	w	14.35	7	0.160	7	-1.77	7	-0.41	7
Pa	Apr-09	w	17.46	8	0.223	8	-2.20	8	-0.99	8
Pe	Nov-08	n	7.20	6	0.099	6	-1.85	3	-0.98	2
Pe	Dec-08	n	-	-	-	-	-	-	-	-
Pe	Jan-09	n	-	-	-	-	-	-	-	-
Pe	Feb-09	n	11.51	4	0.147	4	-1.78	4	-0.43	3
Pe	Mar-09	n	8.68	3	0.094	3	-1.60	2	-0.85	2
Pe	Apr-09	n	4.39	3	0.067	3	-2.28	2	-1.05	2
Pe	Nov-08	w	10.34	7	0.123	7	-1.78	3	-0.43	2
Pe	Dec-08	w	-	-	-	-	-	-	-	-
Pe	Jan-09	w	-	-	-	-	-	-	-	-
Pe	Feb-09	w	12.00	4	0.182	4	-1.63	3	-0.23	3
Pe	Mar-09	w	8.89	4	0.093	4	-1.73	3	-0.30	3
Pe	Apr-09	w	15.50	4	0.177	4	-2.43	3	-1.15	3

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***Aristida* spp. (C₄)**

Species ¹	Month	Treatment ²	Net CO ₂ assimilation rate		Stomatal conductance		Midday leaf water potential		Pre-dawn leaf water potential	
			($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)	N	($\text{mol m}^{-2} \text{ s}^{-1}$)	N	(MPa)	N	(MPa)	N
Ac	Nov-08	n	-	-	-	-	-	-	-	-
Ac	Dec-08	n	-	-	-	-	-	-	-	-
Ac	Jan-09	n	-	-	-	-	-	-	-	-
Ac	Feb-09	n	13.11	3	0.135	3	-1.37	3	-0.33	3
Ac	Mar-09	n	13.88	4	0.114	4	-1.90	4	-0.34	4
Ac	Apr-09	n	-	-	-	-	-	-	-	-
Ac	Nov-08	w	-	-	-	-	-	-	-	-
Ac	Dec-08	w	-	-	-	-	-	-	-	-
Ac	Jan-09	w	-	-	-	-	-	-	-	-
Ac	Feb-09	w	16.66	6	0.145	6	-1.52	6	-0.30	5
Ac	Mar-09	w	16.97	6	0.169	6	-1.73	6	-0.49	6
Ac	Apr-09	w	-	-	-	-	-	-	-	-
Ad	Nov-08	n	14.87	5	0.172	5	-1.67	5	-0.45	5
Ad	Dec-08	n	19.58	3	0.148	3	-1.52	3	-0.28	3
Ad	Jan-09	n	4.91	6	0.196	6	-2.60	6	-1.70	5
Ad	Feb-09	n	21.93	6	0.207	6	-1.42	6	-0.30	5
Ad	Mar-09	n	21.33	6	0.150	6	-1.88	6	-0.43	6
Ad	Apr-09	n	8.82	7	0.158	7	-2.04	7	-0.93	7
Ad	Nov-08	w	13.53	6	0.194	6	-1.75	6	-0.80	5
Ad	Dec-08	w	15.25	6	0.187	6	-1.58	4	-0.31	4
Ad	Jan-09	w	13.50	6	0.170	6	-1.77	6	-0.68	5
Ad	Feb-09	w	13.69	7	0.214	7	-1.44	7	-0.28	6
Ad	Mar-09	w	17.45	7	0.165	7	-1.69	7	-0.42	7
Ad	Apr-09	w	14.58	8	0.194	8	-1.91	8	-0.80	8
Aj	Nov-08	n	3.99	8	0.136	8	-1.60	8	-0.31	7
Aj	Dec-08	n	10.56	5	0.075	5	-1.70	4	-0.16	4
Aj	Jan-09	n	1.91	6	0.072	6	-2.80	6	-1.52	5
Aj	Feb-09	n	5.14	6	0.167	6	-1.50	6	-0.24	5
Aj	Mar-09	n	9.20	7	0.233	7	-1.91	7	-0.33	7
Aj	Apr-09	n	5.46	8	0.245	8	-2.20	8	-1.15	8
Aj	Nov-08	w	7.82	8	0.131	8	-1.73	8	-0.29	7
Aj	Dec-08	w	11.24	6	0.097	6	-1.73	4	-0.18	4
Aj	Jan-09	w	4.17	6	0.136	6	-1.70	6	-0.45	5
Aj	Feb-09	w	7.63	6	0.153	6	-1.47	6	-0.17	5
Aj	Mar-09	w	10.08	7	0.141	7	-1.83	7	-0.39	7
Aj	Apr-09	w	11.63	8	0.178	8	-1.65	8	-0.76	8

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Danthonioideae (C₃)

Species ¹	Month	Treatment ²	Net CO ₂ assimilation rate ($\mu\text{mol CO}_2 \text{ m}^{-2} \text{ s}^{-1}$)	N	Stomatal conductance ($\text{mol m}^{-2} \text{ s}^{-1}$)	N	Midday leaf water potential (MPa)	N	Pre-dawn leaf water potential (MPa)	N
Kc	Nov-08	n	5.89	8	0.107	8	-1.89	4	-0.73	4
Kc	Dec-08	n	4.46	3	0.116	3	-1.75	2	-0.75	2
Kc	Jan-09	n	0.07	4	0.140	4	-3.00	4	-1.50	4
Kc	Feb-09	n	10.63	6	0.196	6	-1.62	6	-0.40	5
Kc	Mar-09	n	1.65	5	0.085	5	-2.24	5	-0.59	5
Kc	Apr-09	n	2.64	6	0.108	6	-2.73	6	-1.53	5
Kc	Nov-08	w	3.85	5	0.089	5	-2.03	5	-0.76	4
Kc	Dec-08	w	3.51	3	0.129	3	-2.70	3	-0.47	3
Kc	Jan-09	w	3.33	4	0.150	4	-2.23	4	-0.88	3
Kc	Feb-09	w	7.88	4	0.193	4	-1.75	4	-0.36	4
Kc	Mar-09	w	5.83	3	0.130	3	-2.33	3	-0.50	3
Kc	Apr-09	w	11.60	3	0.161	3	-2.37	3	-1.08	3
Md	Nov-08	n	6.94	7	0.138	7	-2.75	6	-0.48	6
Md	Dec-08	n	9.19	5	0.138	5	-3.00	4	-0.54	4
Md	Jan-09	n	1.78	6	0.055	6	-2.95	6	-1.73	4
Md	Feb-09	n	10.76	4	0.185	4	-2.08	4	-0.35	4
Md	Mar-09	n	3.71	7	0.087	7	-2.54	7	-0.57	7
Md	Apr-09	n	6.11	8	0.102	8	-2.70	8	-1.26	8
Md	Nov-08	w	10.08	8	0.136	8	-2.42	7	-0.70	7
Md	Dec-08	w	9.23	5	0.132	5	-2.28	4	-0.30	4
Md	Jan-09	w	5.73	6	0.137	6	-2.45	6	-0.77	5
Md	Feb-09	w	5.73	5	0.170	5	-1.90	5	-0.39	5
Md	Mar-09	w	7.15	7	0.117	7	-2.31	7	-0.66	7
Md	Apr-09	w	7.56	8	0.127	8	-2.51	8	-1.16	8
Pc	Nov-08	n	5.46	7	0.073	7	-2.13	6	-0.47	5
Pc	Dec-08	n	7.86	3	0.095	3	-1.75	3	-0.33	3
Pc	Jan-09	n	-	-	-	-	-	-	-	-
Pc	Feb-09	n	9.80	4	0.121	4	-2.05	4	-0.35	3
Pc	Mar-09	n	0.91	4	0.086	4	-2.58	4	-1.26	4
Pc	Apr-09	n	3.23	6	0.059	6	-2.38	6	-1.27	6
Pc	Nov-08	w	10.48	6	0.137	6	-2.23	6	-0.53	6
Pc	Dec-08	w	10.41	5	0.133	5	-2.04	4	-0.23	4
Pc	Jan-09	w	-	-	-	-	-	-	-	-
Pc	Feb-09	w	7.44	7	0.129	7	-1.96	7	-0.26	6
Pc	Mar-09	w	6.26	6	0.092	6	-2.27	6	-0.53	6
Pc	Apr-09	w	6.52	6	0.100	6	-2.14	5	-0.94	5