

Appendix S3. Results of allometric models of biomass. N = number of plants used in the allometric modelling.

Appendix S3A: Aboveground biomass (AB).

Growth forms	Model	N	ln(a)	b	PRSE	PRSE	RSE	r ² adj	AIC _c	AIC _c weight
					intercept	slope				
Basal rosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	14	-3.59	0.76	9	24	1.10	0.55	49	0.64
Basal rosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	14	-3.00	0.49	10	27	1.16	0.49	50	0.28
Basal rosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	14	-4.20	0.94	13	34	1.29	0.38	53	0.07
Basal rosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	14	-2.46	0.94	18	44	1.42	0.24	56	0.02
Caulirosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	0.23	0.38	215	30	0.81	0.14	157	0.40
Caulirosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	63	0.76	0.23	46	30	0.81	0.14	157	0.37
Caulirosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	63	1.42	0.49	12	32	0.82	0.12	158	0.20
Caulirosettes	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	63	-0.32	0.65	295	43	0.85	0.07	162	0.03
Cushions	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	40	-1.38	1.38	9	13	0.74	0.58	94	0.83
Cushions	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	40	-2.18	0.72	9	14	0.77	0.55	97	0.16
Cushions	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	40	-3.22	1.38	12	17	0.84	0.46	104	0.00
Cushions	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	40	1.11	-1.68	81	40	1.07	0.12	123	0.00
Herbs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	57	-4.25	0.95	14	22	0.95	0.26	160	0.47

Herbs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	57	-2.21	0.54	8	22	0.95	0.26	160	0.46
Herbs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	57	-1.34	0.33	12	25	0.98	0.21	164	0.07
Herbs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	57	-0.73	0.55	56	39	1.05	0.09	172	0.00
Sedges/Grasses	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	63	-0.31	1.29	35	15	0.81	0.40	157	1.00
Sedges/Grasses	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	63	-1.77	0.50	15	20	0.90	0.27	169	0.00
Sedges/Grasses	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	-2.18	0.57	24	31	0.98	0.13	181	0.00
Sedges/Grasses	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	63	0.26	-0.26	305	98	1.05	0.00	189	0.00
Shrubs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	95	0.94	0.21	11	28	1.02	0.11	277	0.45
Shrubs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	95	1.48	0.45	14	29	1.02	0.10	278	0.34
Shrubs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	95	0.46	0.32	35	31	1.03	0.09	279	0.21
Shrubs	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	95	0.35	0.20	135	89	1.08	0.00	288	0.00
Tussocks	$\ln(AB) = \ln(a) + b \cdot \ln(\text{rectangle})$	144	-3.62	1.15	6	6	0.71	0.63	315	0.99
Tussocks	$\ln(AB) = \ln(a) + b \cdot \ln(\text{volume})$	144	-1.62	0.67	7	7	0.74	0.60	325	0.01
Tussocks	$\ln(AB) = \ln(a) + b \cdot \ln(\text{diameter})$	144	0.65	1.41	16	8	0.83	0.49	359	0.00
Tussocks	$\ln(AB) = \ln(a) + b \cdot \ln(\text{height})$	144	-6.36	1.72	12	12	0.96	0.33	400	0.00

Appendix S3B: Belowground biomass (BB).

Growth forms	Model	N	ln(a)	b	PRSE	PRSE	RSE	r ² adj	AIC _c	AIC _c weight
					intercept	slope				
Basal rosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	14	-1.88	1.04	14	14	0.89	0.78	43	0.92
Basal rosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	14	-1.07	0.66	27	18	1.06	0.69	48	0.07
Basal rosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	14	-2.76	1.32	19	23	1.24	0.58	52	0.01
Basal rosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	14	-0.36	1.24	131	37	1.57	0.33	59	0.00
Caulirosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	0.24	0.54	280	29	1.10	0.15	195	0.43
Caulirosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	63	1.00	0.32	48	29	1.11	0.14	196	0.36
Caulirosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	63	1.92	0.69	12	32	1.12	0.12	197	0.18
Caulirosettes	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	63	-0.63	0.95	202	40	1.15	0.08	200	0.03
Cushions	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	40	-1.39	1.25	11	18	0.90	0.43	109	0.59
Cushions	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	40	-2.13	0.66	11	19	0.91	0.42	110	0.35
Cushions	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	40	-3.11	1.29	14	21	0.95	0.36	114	0.06
Cushions	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	40	0.64	-1.35	153	53	1.15	0.06	130	0.00
Herbs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	57	-4.35	0.95	16	27	1.17	0.19	184	0.58
Herbs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	57	-1.41	0.35	14	29	1.18	0.17	185	0.30

Herbs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	57	-2.25	0.47	9	32	1.20	0.14	187	0.11
Herbs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	57	-0.73	0.61	66	42	1.24	0.08	191	0.02
Sedges/Grasses	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	-1.87	0.31	24	49	0.85	0.05	163	0.43
Sedges/Grasses	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	63	-1.39	0.17	19	56	0.86	0.03	164	0.27
Sedges/Grasses	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	63	-2.01	0.34	33	62	0.86	0.02	164	0.20
Sedges/Grasses	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	63	-0.93	0.24	13	90	0.87	0.00	166	0.10
Shrubs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	95	-2.23	0.50	10	27	1.41	0.12	339	0.70
Shrubs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	95	-1.50	0.28	10	30	1.42	0.10	341	0.22
Shrubs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	95	-3.41	0.68	18	34	1.44	0.07	344	0.06
Shrubs	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	95	-0.97	0.47	31	40	1.46	0.05	346	0.02
Tussocks	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	144	-2.16	1.01	14	10	0.98	0.40	406	1.00
Tussocks	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{volume})$	144	-0.37	0.56	42	11	1.02	0.35	418	0.00
Tussocks	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{height})$	144	-5.71	1.83	14	12	1.05	0.31	426	0.00
Tussocks	$\ln(\text{BB}) = \ln(a) + b \cdot \ln(\text{diameter})$	144	1.47	1.08	9	15	1.10	0.24	440	0.00

Appendix S3C: Total biomass (TB).

Growth forms	Model	N	ln(a)	b	PRSE	PRSE	RSE	r ² adj	AIC _c	AIC _c weight
					intercept	slope				
Basal rosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	14	-1.52	0.93	17	15	0.83	0.77	41	0.88
Basal rosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	14	-0.80	0.60	33	18	0.97	0.69	45	0.11
Basal rosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	14	-2.28	1.16	22	25	1.16	0.54	50	0.01
Basal rosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	14	-0.15	1.14	284	36	1.40	0.34	55	0.00
Caulirosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	63	1.55	0.32	19	18	0.70	0.32	138	0.46
Caulirosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	0.82	0.55	52	18	0.70	0.32	138	0.40
Caulirosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	63	2.49	0.72	6	19	0.71	0.29	141	0.14
Caulirosettes	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	63	0.24	0.87	367	30	0.79	0.14	153	0.00
Cushions	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	40	-0.58	1.33	21	14	0.73	0.57	93	0.72
Cushions	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	40	-1.36	0.70	14	14	0.75	0.55	95	0.27
Cushions	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	40	-2.40	1.36	15	17	0.81	0.47	101	0.01
Cushions	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	40	1.60	-1.46	56	45	1.06	0.09	123	0.00
Herbs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	57	-1.31	0.53	10	18	0.75	0.35	134	0.47
Herbs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	57	-3.26	0.91	14	18	0.76	0.34	135	0.26

Herbs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	57	-0.42	0.35	30	18	0.76	0.34	135	0.26
Herbs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	57	0.30	0.63	109	28	0.85	0.18	148	0.00
Sedges/Grasses	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	63	0.25	0.85	35	19	0.66	0.31	130	0.93
Sedges/Grasses	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	63	-0.78	0.36	27	22	0.68	0.25	135	0.06
Sedges/Grasses	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	63	-1.17	0.44	33	30	0.73	0.14	144	0.00
Sedges/Grasses	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	63	0.25	-0.05	239	390	0.79	-0.02	154	0.00
Shrubs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	95	1.12	0.22	9	25	0.96	0.14	266	0.52
Shrubs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	95	0.59	0.36	26	26	0.97	0.13	268	0.28
Shrubs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	95	1.68	0.47	12	27	0.97	0.12	268	0.20
Shrubs	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	95	0.32	0.27	140	62	1.03	0.02	279	0.00
Tussocks	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{rectangle})$	144	-1.85	1.04	13	7	0.74	0.56	325	1.00
Tussocks	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{volume})$	144	-0.03	0.59	434	8	0.78	0.51	340	0.00
Tussocks	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{diameter})$	144	1.93	1.18	6	11	0.87	0.38	373	0.00
Tussocks	$\ln(\text{TB}) = \ln(a) + b \cdot \ln(\text{height})$	144	-4.98	1.74	14	11	0.88	0.37	376	0.00
