Supplementary file for: Little L., Bronken E.P., Müller E., Dickinson K.J.M. & Lord J.M. 2016. Leaf and floral heating in cold climates: do sub-Antarctic megaherbs resemble tropical alpine giants? *Polar Research 35.* Correspondence, Lorna Little, Department of Botany, University of Otago, PO Box 56, Dunedin 9054, New Zealand. E-mail little.lorna5@gmail.com

Supplementary Table S1. Model simplification showing model type, Akaike information criterion (AIC) value and degrees of freedom for each model. F and *P* values indicate significant differences between model simplification steps. The model in boldface is the model used in the final analyses.

General linear model type	AIC value	d.f	F value	*P* value
(formula = temp_f ~ temp * par * species * wind + hum)	176.90	52, 20		
(formula = temp_f ~ temp * par * species * wind)	174.92	52, 21	0.0078	0.9306
(formula = temp_f ~ temp * par * species + wind)	176.62	52, 36	1.1465	0.3784
(formula = temp_f ~ temp * par * species)	175.24	52, 37	0.4222	0.5200
(formula = temp_f ~ temp + par + species + temp:par + temp:species + par:species)	173.05	52, 40	0.9193	0.4410
(formula = temp_f ~ temp + par + species + temp:par + par:species)	171.33	52, 43	1.1206	0.3522
(formula = temp_f ~ temp + par + species + par:species)	**169.80**	**52, 44**	**0.3801**	**0.5408**

Supplementary Table S2. General linear model output showing relationship between air temperature, PAR, and flower temperature of four megaherb species.

Flowers	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	1.0851771	0.2154087	5.038	0.000
PAR	0.0007423	0.0007836	0.947	0.349
Bulbinella rossii	-0.9922212	2.2400627	-0.443	0.660
Pleurophyllum criniferum	1.7787122	1.5047228	1.182	0.244
Pleurophyllum speciosum	-1.9827833	1.4255640	-1.391	0.171
Stilbocarpa polaris	-0.0348936	1.2099711	-0.029	0.977
PAR: *P. criniferum*	0.0001273	0.0027594	0.046	0.963
PAR: *P. speciosum*	0.0059838	0.0013306	4.497	0.000
PAR: *S. polaris*	0.0016651	0.0010060	1.655	0.105

Supplementary Table S3. General linear model output showing relationship between PAR, air temperature and leaf temperature of megaherb species.

Leaves	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	1.0490558	0.1916716	5.473	0.000
PAR	0.0007803	0.0006972	1.119	0.269
Bulbinella rossii	-0.3224215	1.9932172	-0.162	0.872
Pleurophyllum criniferum	0.3488447	1.3389087	0.261	0.796
Pleurophyllum speciosum	-1.2187875	1.2684729	-0.961	0.342
Stilbocarpa polaris	-0.4205841	1.0766374	-0.391	0.698
PAR: *P. criniferum*	-0.0006049	0.0024553	-0.246	0.807
PAR: *P. speciosum*	0.0031420	0.0011840	2.654	0.011
PAR: *S. polaris*	0.0015635	0.0008952	1.747	0.088

Supplementary Table S4. General linear model output of the four different species: (a) *Pleurophyllum speciosum*; (b) *Stilbocarpa Polaris*; (c) *Pleurophyllum criniferum* and (d) *Bulbinella rossii*.
"Air temperature" defines the intercept of the air temperature curve, "PAR" defines the slope of the air temperature curve, "Flower temperature" and "Leaf temperature" define the differences between the intercept of the air temperature curve and the intercept of the flower and leaf temperature curves, "PAR:Flower" and "PAR:Leaf" define the difference between the slope of the air temperature curve and the slopes of the flower and leaf temperature curves.

(a)

Coefficients	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	6.4347516	0.8567563	7.511	1.23e-08
PAR	0.0017871	0.0009045	1.976	0.05660
Flower temperature	-2.8675447	1.2116364	-2.367	0.02397
Leaf temperature	-1.1330180	1.2116364	-0.935	0.35652
PAR:Flower	0.0075321	0.0012792	5.888	1.34e-06
PAR:Leaf	0.0038727	0.0012792	3.027	0.00476

(b)

Coefficients	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	6.4446743	0.6590526	9.779	2.83e-11
PAR	0.0016041	0.0006929	2.315	0.0270
Flower temperature	-0.4781764	0.9320411	-0.513	0.6113
Leaf temperature	-0.4268566	0.9320411	-0.458	0.6500
PAR:Flower	0.0025441	0.0025441	2.596	0.0140
PAR:Leaf	0.0024225	0.0024225	2.472	0.0188

(c)

Coefficients	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	5.046300	0.584238	8.637	3.38e-10
PAR	0.009549	0.001189	8.028	1.90e-09
Flower temperature	1.907692	0.452879	4.212	0.000168
Leaf temperature	0.538462	0.452879	1.189	0.242454

(d)

Coefficients	Estimate	Std. error	t value	Pr(>|t|)
Air temperature	9.1756207	0.4041314	22.705	< 2e-16
PAR	0.0010053	0.0003474	2.894	0.00607
Flower temperature	0.6000000	0.3086239	1.944	0.05877
Leaf temperature	0.9400000	0.3086239	3.046	0.00405

Supplementary Table S5. Linear model data for flower and leaf temperatures in regard to air temperature and PAR.

Species	Plant surface	Environmental variable	R^2	*P* value
P. speciosum	flower	Temperature	0.50	0.004233
		PAR	0.86	3.56e-06
	leaf	Temperature	0.41	0.0115
		PAR	0.82	1.23e-05
S. polaris	flower	Temperature	0.87	2.36e-06
		PAR	0.72	0.00016
	leaf	Temperature	0.88	1.33e-06
		PAR	0.67	0.00037
P. criniferum	flower	Temperature	0.81	1.53e-05
		PAR	0.54	0.0023
	leaf	Temperature	0.86	3.36e-06
		PAR	0.66	0.00048
B. rossi	flower	Temperature	0.24	3.77e-02
		PAR	0.16	0.075
	leaf	Temperature	0.32	0.017
		PAR	0.14	0.092