

Ecography

ECOG-01243

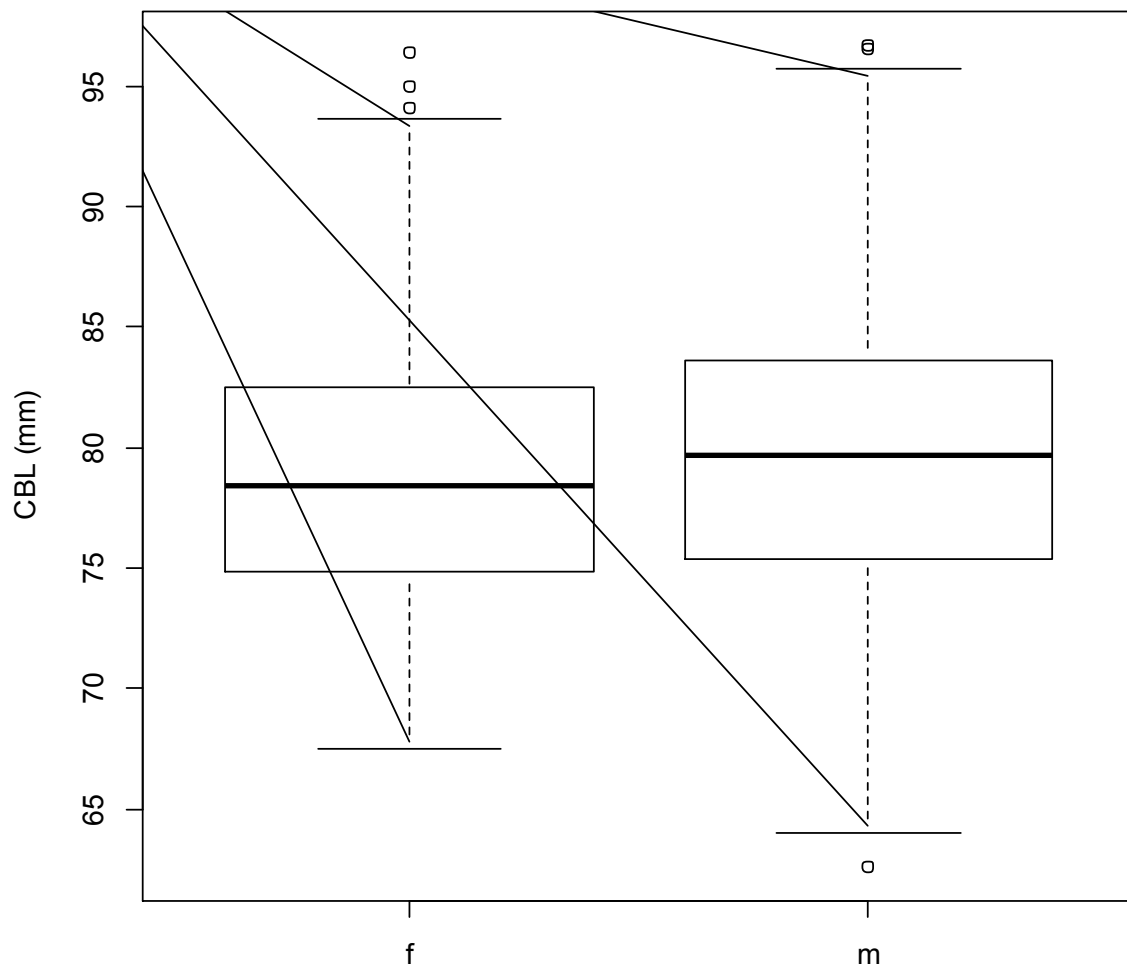
Correll, R. A., Prowse, T. A. A. and Prideaux, G. J.
2015. Lean-season primary productivity and heat
dissipation as key drivers of geographic body-size
variation in a widespread marsupial. – Ecography doi:
10.1111/ecog.01243

Supplementary material

Appendix 1. Pearson's correlation coefficient (r) for different cranial parameters (condylobasal length [CBL], total jaw length [TJL] and greatest zygomatic breadth [ZB]) against body mass, for n specimens for which data were available. From a principal component analysis (PCA) of these three cranial parameters, the correlation between the first component (PC1) and body mass is also presented. We selected CBL as our body-size representative because PC1 could only be calculated for a subset of specimens for which all cranial measurements were available.

Cranial parameters	r	n
CBL	0.842	200
TJL	0.842	203
ZB	0.772	185
PC1	0.876	184

Appendix 2. Boxplot of female (f) and male (m) condylobasal length (CBL) (mm), showing the median (lines within boxes), the interquartile range (boxes), 1.5 times the interquartile range from the box ends (whiskers), and outliers beyond the whiskers (points). Mean CBL for females (mean = 78.91, n = 237) and males (mean = 79.84, n = 261) was not significantly different ($t = -1.72$, $df = 488$, $p = 0.086$). Given this, and since separating the sexes would have reduced the sample size by 28%, sexes were pooled for all further analyses.



Appendix 3. Spearman's rank correlation coefficient are presented for variables selected to represent each hypothesis; mean annual minimum temperature (AnnualMinTemp), mean summer maximum temperature (SummerMaxTemp), Australian Continental NPP estimate based on fluxes of carbon / nutrients and CO₂ / water (CenW), growing season Normalised Difference Vegetation Index (GrowSeasNDVI), minimum seasonal precipitation minus potential evapotranspiration (MinSeasP-PET).

	AnnualMinTemp	SummerMaxTemp	CenW	GrowSeasNDVI	MinSeasP-PET
AnnualMinTemp	1	0.692	-0.255	-0.188	-0.482
SummerMaxTemp	0.692	1	-0.631	-0.433	-0.726
CenW	-0.255	-0.631	1	0.673	0.757
GrowSeasNDVI	-0.188	-0.433	0.673	1	0.656
MinSeasP-PET	-0.482	-0.726	0.757	0.656	1

Appendix 4. Model selection for aspatial and spatial SAR models of *Trichosurus vulpecula* condylobasal length that used soil variables as covariates. The following is shown for each candidate soil model: (1) the coefficient of determination (R^2), (2) Akaike's information criterion corrected for small sample sizes (AICc), and (3) the change in AICc (δ AICc) relative to the top-ranked model within each model type.

Soil Variable	Aspatial Models			Spatial SAR Models			
	R^2	AICc	δ AICc	R^2	AICc	δ AICc	λ
Bulk density (0–30 cm)	0.196	1954.0	182.2	0.562	1786.9	43.0	0.855
Soil nutrient availability	0.004	2021.8	250.0	0.556	1792.8	48.9	0.868
Clay content percentage (0–30 cm)	0.001	2022.9	251.1	0.560	1789.8	45.9	0.871