Supplementary Table 1: Sample sizes for the morphological analysis, the habitat type each species belongs to and the museum registration number for the individual used for sequence capture and species tree inference (ABTC: Australian Biological Tissue Collection, QM: Queensland Museum and CCM: Moritz' et al. field collection).

Species	Sample size	Ecotype	Phylo rep
C. plagiocephalus	27	arboreal	ABTC63597
C. tytthos	26	arboreal	ABTC70865
C. ochrus	21	arboreal	ABTC29743
C. pannosus	61	arboreal	ABTC29754
C. exochus	29	arboreal	ABTC67985
C. mertensi	23	arboreal	ABTC30122
C. australis	98	arboreal	ABTC29749
C. fuhni	12	saxicolous	QMJ58845
C. gurrmul	13	littoral	ABTC28475
C. l. horneri	13	littoral	ABTC29264
C. l. litoralis	33	littoral	ABTC30378
C. daedalos	15	saxicolous	ABTC70694
C. juno	36	saxicolous	CCM1765
C. wulbu	11	saxicolous	ABTC72544
C. megastictus	9	saxicolous	CCM1178
C. zoticus	16	saxicolous	ABTC11972
C. ustulatus	28	saxicolous	ABTC29787
C. ruber - A1	22	arboreal	ABTC30319
C. ruber - A2	5	arboreal	ABTC30156
C. ruber - A3	4	arboreal	ABTC28730
C. buchananii	44	arboreal	ABTC63616
C. metallicus	117	arboreal	ABTC30152
C. cygnatus	70	arboreal	ABTC29638
C. p. pulcher	76	arboreal	ABTC30450
C. virgatus	30	arboreal	ABTC30392
C. adamsi	24	arboreal	ABTC30376

Supplementary Table 2: Loadings for the first two components of the phylogenetic principal components analysis (pPCA).

Character	pPC1	pPC2
Fore limb length	**-.89678899**	-.4126609
Hind limb length	**-.85257573**	-.4668857
Head depth	**.92359736**	-.3344562
Head width	.06457198	**-.4855113**
Snout to eye length	.18055190	**-.5765652**
Eye to ear length	-.07400464	**-.4652479**
Ear to arm length	-.51115946	**.6340225**
Variance explained (%)	66.5	18.9

Note: Boldface indicates traits used to interpret the axes

Supplementary Table 3: Disparity indices for each habitat category and between all points combined, based on PC1 species scores.

Data	Average squared Euclidean distance
All species	0.00455420
Arboreals	0.00055221
Rock	0.00130304
Littoral	0.00121110

Supplementary Table 4: Estimates of θ, phenotypic trait optima, and their standard error, as inferred under the OUM model with OUwie.

Habitat category	Theta	S.E.
Arboreals	0.02909755	0.004557275
Rock	-0.07700898	0.007361843
Littoral	0.00755553	0.01057598