

Figure 1

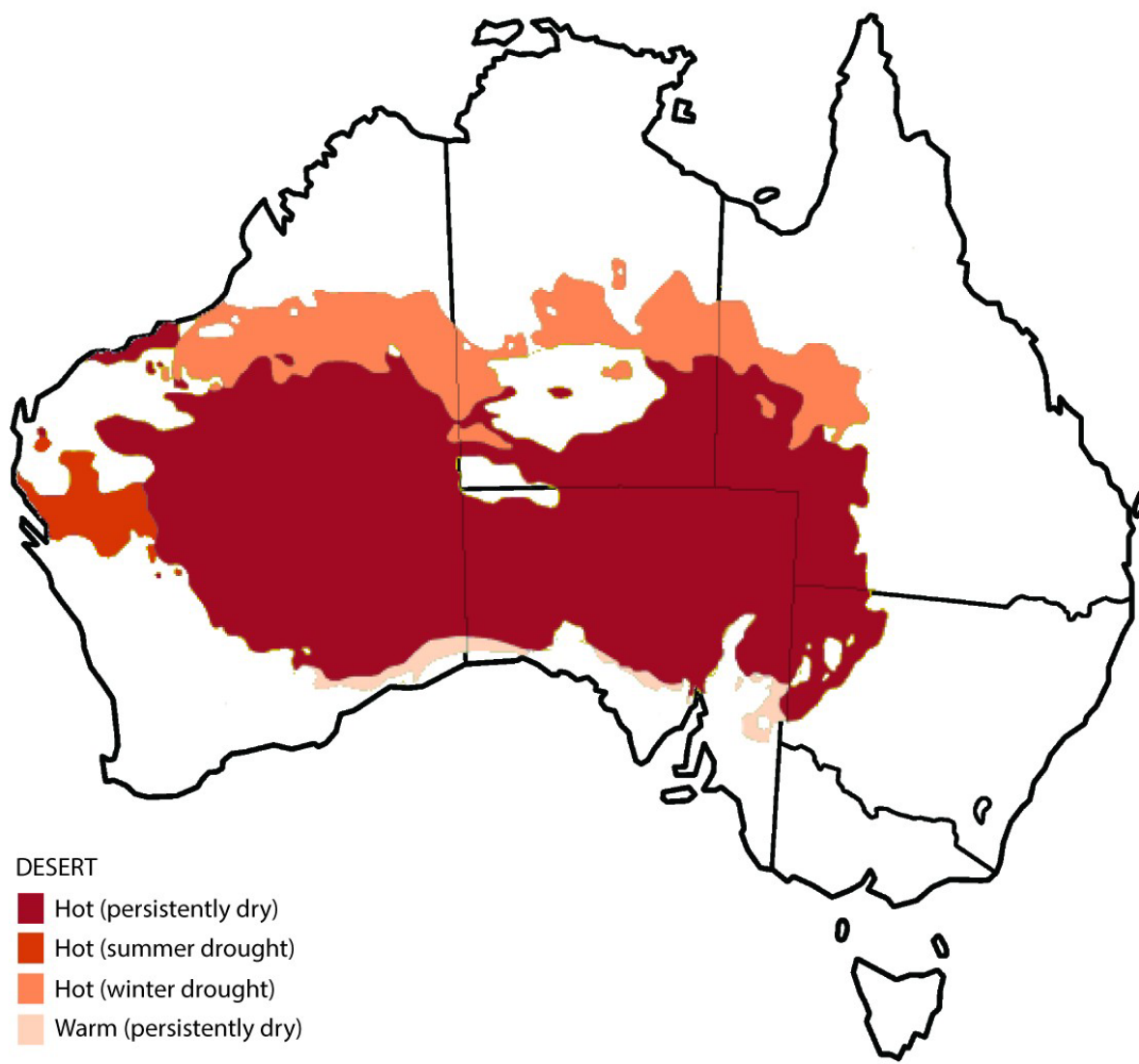


Table 1. List of alarm call categories (dependent variables) and predictor variables used in the present analysis of alarm communication in Australian arid-zone birds.

Dependent Variable Alarm Call Category	Description	
No vocal alarm signal	No evidence of a vocal signal used in alarm communication	
Vocal alarm signal	Vocal signal used in alarm communication	
<i>Context used</i>		
Unknown	Context in which alarm signal used is not known	
Multifunctional	Given in alarm contexts and in contexts other than alarm	
Distinct	Only given in alarm contexts	
Both	Both multi-functional and distinct alarm signals reported	
Predictor Variables (Traits)	Type	Description
Morphology		
Body length	Continuous	Average length from tip of bill to tip of tail
Body mass	Continuous	Average mass
Brain mass residual	Continuous	Brain mass relative to body mass
Habitats		
Number of feeding habitats	Continuous	Total number of habitat types used for foraging
Number of breeding habitats	Continuous	Total number of habitat types used for nesting
Food		
Number of food types	Continuous	Total number of different food types eaten
Behaviour		
Flight initiation distance	Continuous	Mean distance at which birds initiate escape when approached by a single human intruder
Feeding gregariousness	Categorical	Examines feeding aggregations commonly encountered, combining details from the feeding aggregation columns in Garnett et al. (2015): 1 = Solitary 2 = Will forage in pairs or groups
Breeding		
Breeding system	Categorical	Birds other than the parents contribute to offspring care: 0 = Not a co-operative breeder 1 = A co-operative breeder
Clutch size	Continuous	Average number of eggs in a clutch
Mobility		
Mobility	Categorical	A measure of movement based on the five national movement columns from Garnett et al. (2015): 1 = Local dispersal only 2 = Local and partial migrant 3 = All others

Figure 2

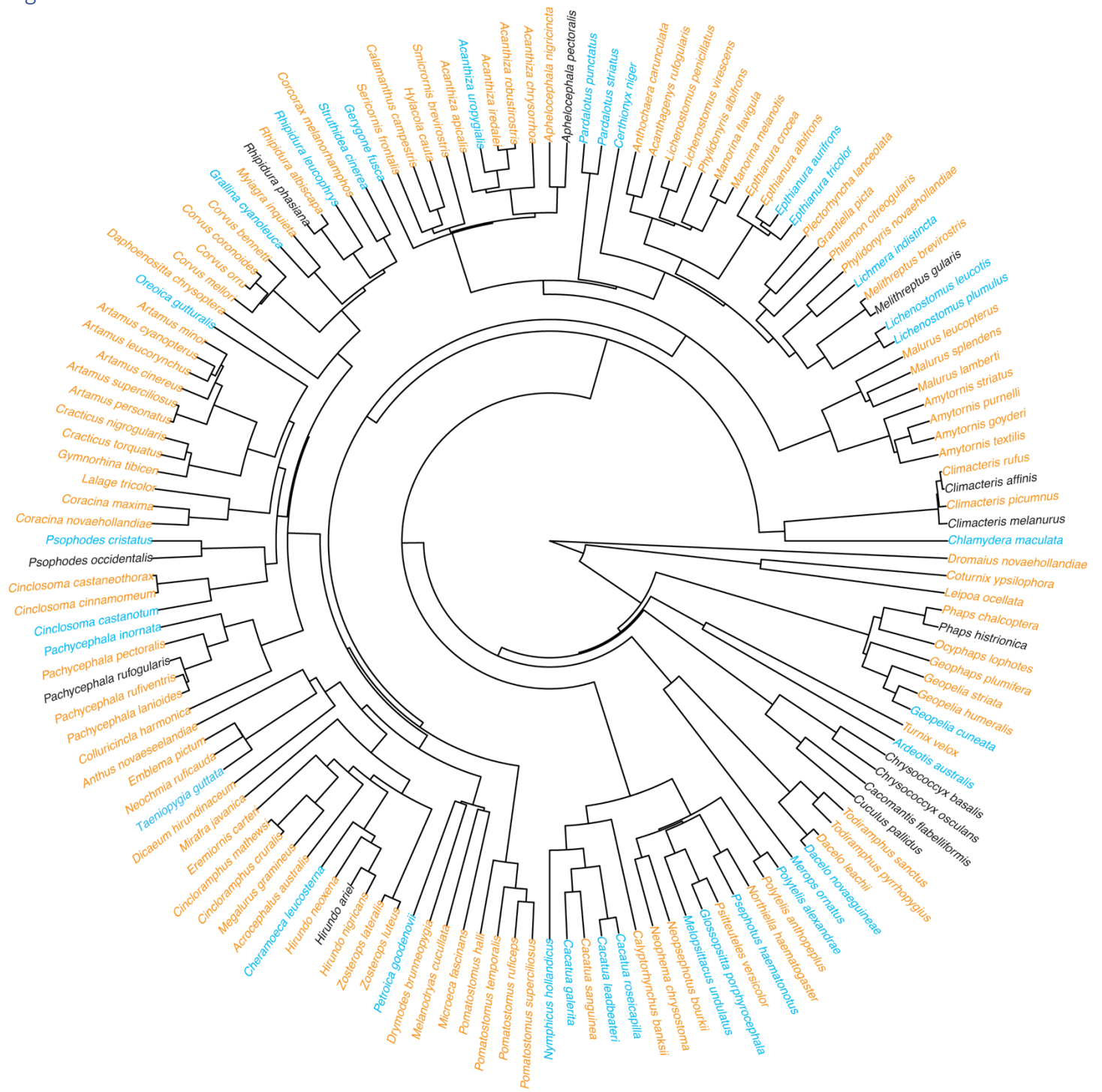


Figure 3

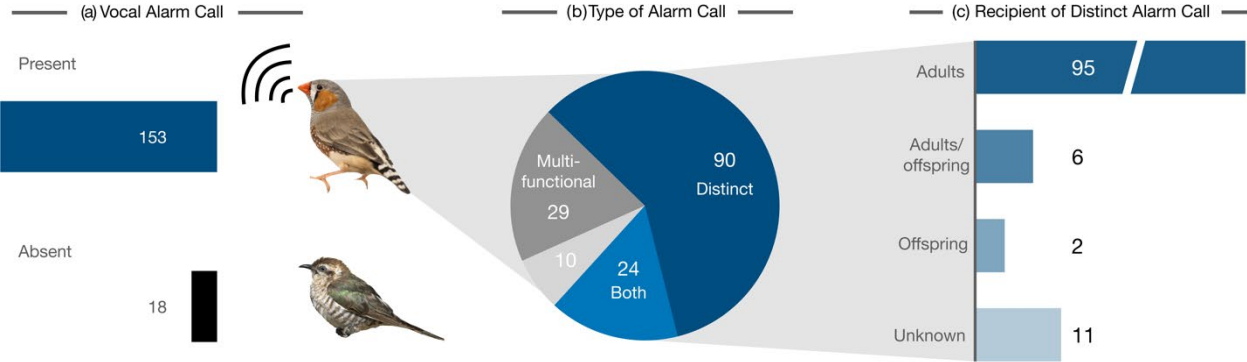
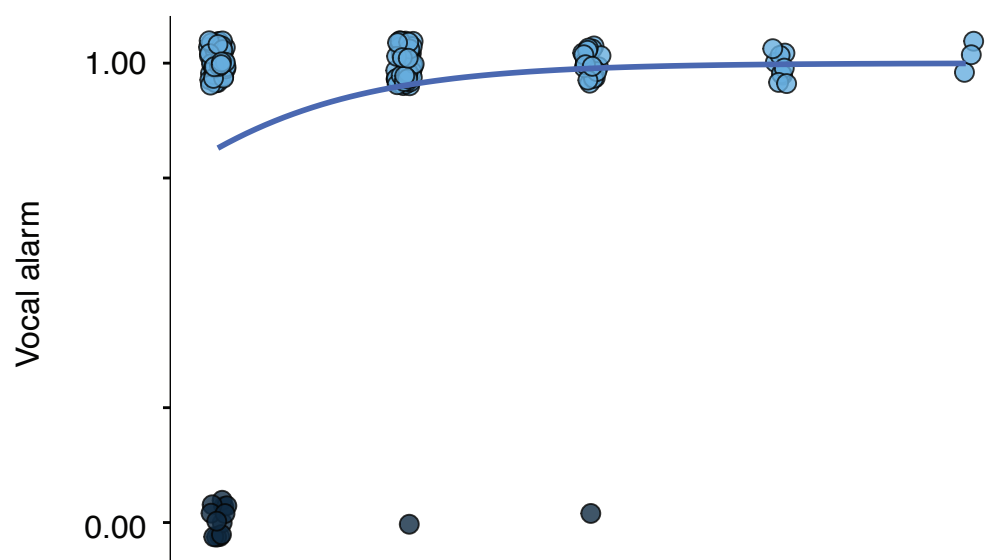


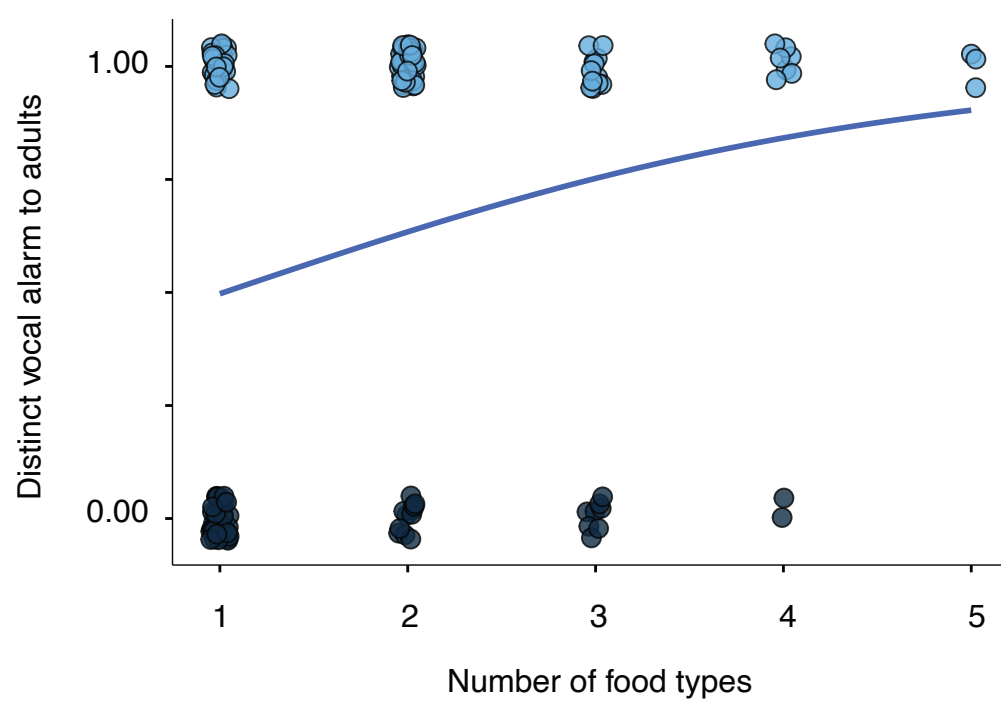
Table 2. Results of phylogenetic mixed models to predict the presence of a vocal alarm.

	Value	Std.Error	z-score	p-value
Phylogenetic signal (α)	0.002			
Coefficients				
(Intercept)	-35.450	6970.844	-0.005	0.996
<i>Continuous variables</i>				
Body mass	-0.098	0.242	-0.406	0.684
Brain mass	0.311	0.214	1.451	0.147
Feeding habitats	0.164	0.275	0.594	0.553
Breeding habitats	0.080	0.221	0.361	0.718
Food types	0.485	0.212	2.280	0.023
Clutch size	0.187	0.179	1.048	0.295
<i>Categorical Variables</i>				
Breeding system	0.254	0.339	0.747	0.455
Feeding gregariousness	17.757	3485.422	0.005	0.996
Mobility				
Local v partial migrant	-0.119	0.351	-0.339	0.735
Local v other	0.803	0.393	2.040	0.041
Partial migrant v other	1.740	0.706	2.467	0.013

(a)



(b)



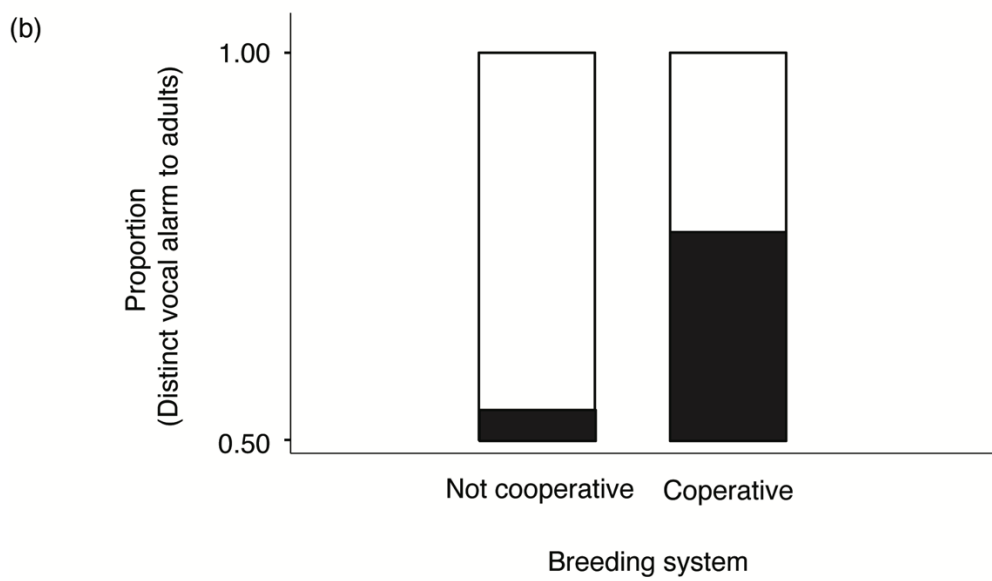
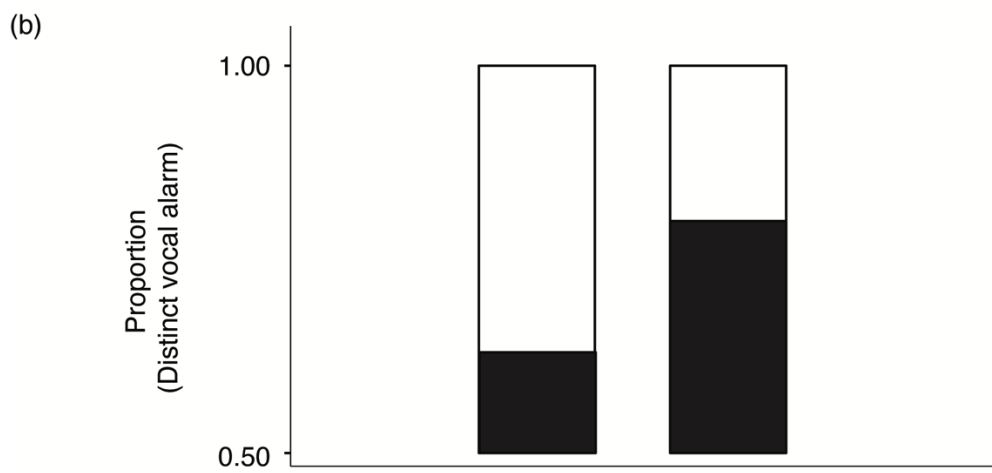
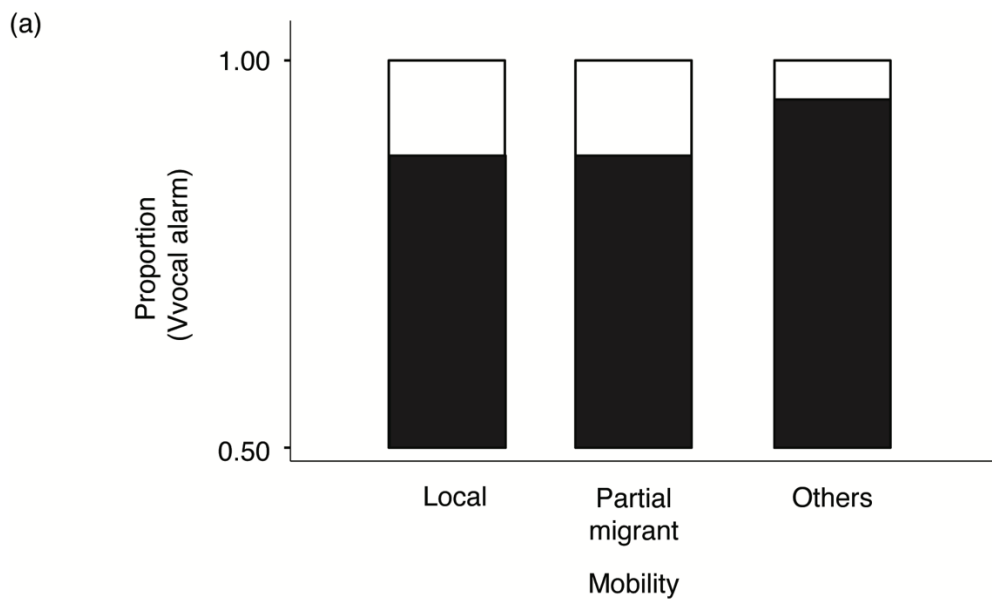


Table 3. Results of phylogenetic mixed models to predict the presence of a functionally distinct vocal alarm.

	Value	Std.Error	z-score	p-value
Phylogenetic signal (α)	0.139			
Coefficients				
(Intercept)	-33.073	3567.095	-0.009	0.993
<i>Continuous variables</i>				
Body mass	-0.069	0.221	-0.314	0.754
Brain mass	-0.064	0.196	-0.329	0.742
Feeding habitats	0.224	0.397	0.566	0.572
Breeding habitats	-0.112	0.370	-0.303	0.762
Food types	0.341	0.228	1.497	0.134
Clutch size	-0.049	0.209	-0.233	0.816
<i>Categorical Variables</i>				
Breeding system	1.067	0.505	2.113	0.035
Feeding gregariousness	16.464	1783.548	0.009	0.993
Mobility				
Local v partial migrant	-0.031	0.545	-0.056	0.955
Local v other	-0.083	0.481	-0.172	0.864
Partial migrant v other	-0.053	0.550	-0.097	0.923

Table 4. Results of phylogenetic mixed models to predict the presence of a functionally distinct vocal alarm directed to adults.

	Value	Std.Error	z-score	p-value
Phylogenetic signal (α)	0.114			
Coefficients				
(Intercept)	-32.407	3630.348	-0.009	0.993
<i>Continuous variables</i>				
Body mass	-0.390	0.224	-1.743	0.081
Brain mass	0.145	0.197	0.734	0.463
Feeding habitats	0.301	0.390	0.772	0.441
Breeding habitats	-0.201	0.366	-0.549	0.583
Food types	0.676	0.240	2.815	0.005
Clutch size	-0.074	0.209	-0.351	0.725
<i>Categorical Variables</i>				
Breeding system	1.249	0.502	2.486	0.013
Feeding gregariousness	15.696	1815.174	0.009	0.993
Mobility				
Local v partial migrant	-0.244	0.544	-0.450	0.653
Local v other	-0.046	0.490	-0.093	0.920
Partial migrant v other	0.271	0.547	0.495	0.621