

Supplement 8

Table S8.1. Standard ellipse areas (i.e. encompassing 40% of the individuals) for small sample sizes (SEAc) of Antarctic petrels, cape petrels and southern fulmars and overlap among species (calculated as % overlap for each species). % of niche area overlap of both species was calculated as [area of overlapping region] / ([area of ellipse 1] + [area of ellipse 2] - [area of the overlapping region]) and reflects the shared niche space. SEAc were calculated for egg membrane (reflecting the pre-incubation period), whole blood (reflecting the incubation period) and feathers (reflecting the chick rearing period (albeit of previous year(s))).

Species pair	Area sp.1 (% ²)	Area sp. 2 (% ²)	Raw overlap (% ²)	% of niche area overlap sp.1	% of niche area overlap sp.2	% of niche area overlap both species
Egg membrane						
Antarctic petrel & cape petrel	1.46	1.33	0.32	22.20	24.21	13.10
Antarctic petrel & southern fulmar	1.45	2.27	1.03	71.03	45.37	38.29
Cape petrel & southern fulmar	1.33	2.27	0.49	36.88	21.70	15.83
Whole blood						
Antarctic petrel & cape petrel	0.83	0.73	0.18	21.13	24.01	12.66
Antarctic petrel & southern fulmar	0.83	0.40	0.12	14.17	29.72	10.61
Cape petrel & southern fulmar	0.73	0.40	0.33	44.47	82.12	40.55
Feathers						
Antarctic petrel & cape petrel	4.45	4.87	3.41	76.68	70.02	57.73
Antarctic petrel & southern fulmar	4.47	8.68	2.75	61.52	31.68	26.44
Cape petrel & southern fulmar	4.87	8.68	3.63	74.53	41.82	36.59

Table S8.2. 95% ellipse areas (i.e. encompassing 95% of individuals) for small sample sizes of Antarctic petrels, cape petrels and southern fulmars and overlap among species (calculated as % overlap for each species). % of niche area overlap of both species was calculated as [area of overlapping region] / ([area of ellipse 1] + [area of ellipse 2] - [area of the overlapping region]) and reflects the shared niche space. 95% ellipse areas were calculated for egg membrane (reflecting the pre-incubation period), whole blood (reflecting the incubation period) and feathers (reflecting the chick rearing period (albeit of previous year(s))).

Species pair	Area sp.1 (%²)	Area sp. 2 (%²)	Raw overlap (%²)	% of niche area overlap sp.1	% of niche area overlap sp.2	% of niche area overlap both species
Egg membrane						
Antarctic petrel & cape petrel	8.72	7.99	5.23	59.98	65.46	45.56
Antarctic petrel & southern fulmar	8.72	13.58	6.44	73.85	47.42	40.61
Cape petrel & southern fulmar	7.99	13.58	6.76	84.61	49.78	45.64
Whole blood						
Antarctic petrel & cape petrel	4.99	4.39	3.01	60.32	68.56	47.25
Antarctic petrel & southern fulmar	4.99	2.38	1.88	37.68	78.99	34.24
Cape petrel & southern fulmar	4.39	2.38	2.00	45.56	84.03	41.93
Feathers						
Antarctic petrel & cape petrel	26.80	29.20	23.50	87.69	80.48	72.31
Antarctic petrel & southern fulmar	26.80	52.00	23.30	86.94	44.81	41.98
Cape petrel & southern fulmar	29.20	52.00	28.50	97.60	54.81	54.08

Table S8.3. Test statistics and p-values for interspecific differences in bidimensional isospace centroid location. P-values were generated based on a residual permutation procedure as described in Turner et al. (2010). P-values < 0.05 indicate that the Euclidian distance between centroids of a species pair was greater than 0, and thus a statistical difference in isotopic values between these two species.

Species pair	Euclidean distance between centroids	P value
Egg membrane		
Antarctic petrel & cape petrel	0.866	0.045
Antarctic petrel & southern fulmar	0.476	0.322
Cape petrel & southern fulmar	1.272	0.002
Whole blood		
Antarctic petrel & cape petrel	0.866	0.160
Antarctic petrel & southern fulmar	0.476	0.074
Cape petrel & southern fulmar	1.272	0.837
Feathers		
Antarctic petrel & cape petrel	0.831	0.296
Antarctic petrel & southern fulmar	1.944	0.017
Cape petrel & southern fulmar	1.227	0.168

References

Turner, T. F., M. L. Collyer, and T. J. Krabbenhoft. 2010. A general hypothesis-testing framework for stable isotope ratios in ecological studies. **91**:2227-2233.