Agreement on the Conservation of Albatrosses and Petrels

Joint Twelfth Meeting of the Seabird Bycatch Working Group and Eighth Meeting of the Population and Conservation Status Working Group

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Habitat preferences of *Phoebetria* albatrosses in sympatry and allopatry

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Attachment: Bentley, L.K., Phillips, R.A., Carpenter-Kling, T., Crawford, R.J.M., Cuthbert, R.J., Delord, K., Dilley, B.J., Makhado, A.B., Miller, P.I., Oppel, S., Pistorius, P., Ryan, P.G., Schoombie, S., Weimerskirch, H. and Manica, A. in press. Habitat preferences of *Phoebetria* albatrosses in sympatry and allopatry. *Journal of Biogeography*. https://doi.org/10.1111/jbi.14966

SUMMARY

Aim: Competition is often proposed to drive niche segregation along multiple axes in speciose communities. Understanding spatial partitioning of foraging areas is particularly important in species that are constrained to a central place. We present a natural experiment examining variation in habitat preferences of congeneric Southern Ocean predators in sympatry and allopatry. Our aim was to ascertain consistency of habitat preferences within species, and to test whether preferences changed in the presence of the congener. Location: Southern Hemisphere. Taxon: Multiple colonies of both species within the genus *Phoebetria* (sooty albatrosses). Methods: The two *Phoebetria* albatrosses breed on islands located from ~37–55°S –sooty albatrosses (*P. fusca*) in the north and light-mantled albatrosses (*P. palpebrata*) in the south – with sympatric overlap at locations ~46–49°S. We analysed GPS and PTT tracks from 87 individuals and multiple remotely sensed environmental variables using GAMs, to determine and compare the key factors influencing habitat preference for each species at each breeding colony. Results: While foraging habitat preferences are consistent in light-mantled albatrosses, there is divergence of preferences in sooty albatrosses depending on whether they are in sympatry with their congener or in allopatry. Main Conclusions: This study represents the most comprehensive work on this genus to date and highlights how habitat preferences and behavioural plasticity may influence species distributions under different competitive conditions.

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RESEARCH ARTICLE

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Habitat preferences of Phoebetria albatrosses in sympatry and allopatry

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[1] [illegible]

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Funding information
[illegible]

Abstract

Aim: [illegible]

Location: [illegible]

Taxon: [illegible] *Phoebetria* [illegible]

Methods: [illegible] *Phoebetria* [illegible] *P. fusca* [illegible] *P. palpebrata* [illegible]

Results: [illegible]

Main Conclusions: [illegible]

KEYWORDS
[illegible]

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Table 1.

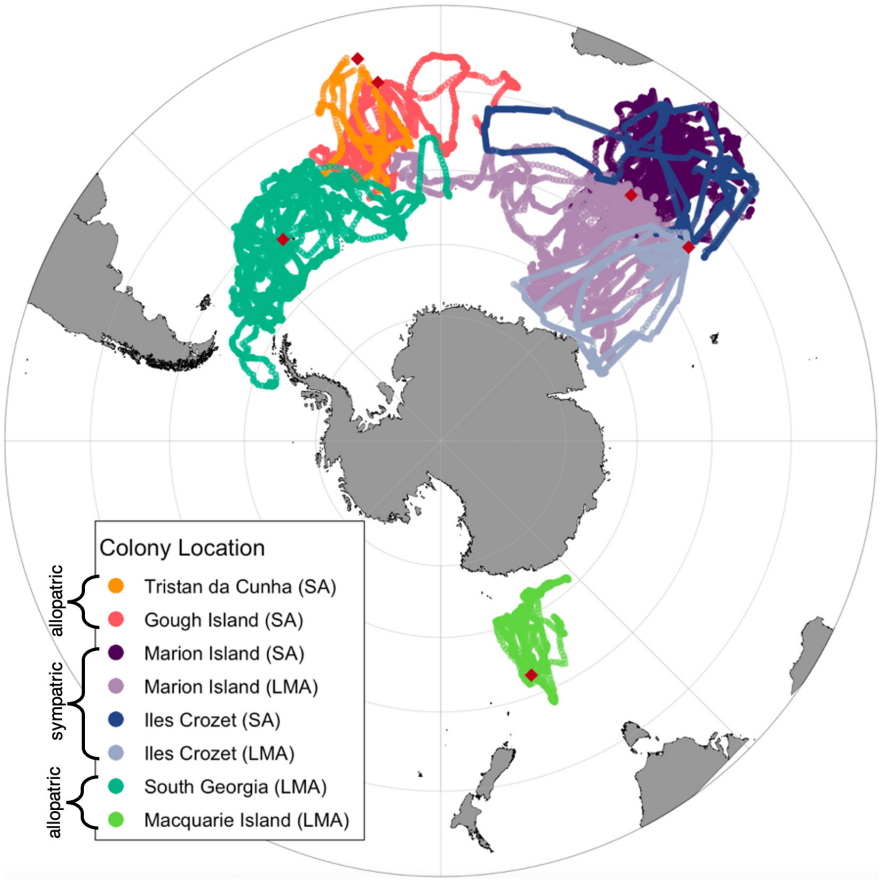

TABLE 1 [illegible] 2010a, 2010b [illegible] 2016 [illegible] 2018 [illegible]

Site name	Latitude, longitude	Species	Est. population (breeding pairs)	% of global population	Sympatric/allopatric	Year(s)	Device	Further information
[illegible]	[illegible]	"	2000–3000	~18.7%	[illegible]	2015	[illegible]	[illegible] 2017
[illegible]	[illegible]	"	<5000	<37.5%	[illegible]	2013	[illegible]	[illegible] 2017
[illegible]	[illegible]		5000	~24.5%	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		507	~2.4%	[illegible]	2015–17	[illegible]	[illegible] 2020
[illegible]	[illegible]	"	1838	~9.6%	[illegible]	2015–17	[illegible]	[illegible] 2020
[illegible]	[illegible]		2300	~11.2%	[illegible]	2008	[illegible]	[illegible] 2014
[illegible]	[illegible]	"	2040	~15.8%	[illegible]	2008	[illegible]	[illegible] 2014
[illegible]	[illegible]		1281	~6.3%	[illegible]	2002	[illegible]	[illegible] 2019

TABLE 2 [illegible]

Variable (units)	Data source	Temporal scale	Spatial scale	Relevance
[illegible]	[illegible] 2021)	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] 2021 [illegible] 2020)	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] 2020 [illegible]	[illegible]	[illegible] 2022 [illegible]	[illegible]
[illegible]	[illegible] 2021 [illegible]	[illegible]	[illegible]	[illegible]

TABLE 3 [illegible]

Season	Breeding site	Species	n	Mean trip length (days)	Mean distance travelled (km)	Mean max displacement (km)
2015	[illegible]	"	3	[illegible]	[illegible]	[illegible]
2013	[illegible]	"	11	[illegible]	[illegible]	[illegible]
2009	[illegible]		6	[illegible]	[illegible]	[illegible]
2014	[illegible]		12	[illegible]	[illegible]	[illegible]
2015	[illegible]		4	[illegible]	[illegible]	[illegible]
2015	[illegible]	"	3	[illegible]	[illegible]	[illegible]
2016	[illegible]		6	[illegible]	[illegible]	[illegible]
2016	[illegible]	"	10	[illegible]	[illegible]	[illegible]
2017	[illegible]		11	[illegible]	[illegible]	[illegible]
2017	[illegible]	"	8	[illegible]	[illegible]	[illegible]
2008	[illegible]		4	[illegible]	[illegible]	[illegible]
2008	[illegible]	"	3	[illegible]	[illegible]	[illegible]
2002	[illegible]		6	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible] Table 3 [illegible]

[illegible]