

*The following supplement accompanies the article*

## **Year-round distribution and habitat preferences of the Bugio petrel**

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**Supplement.** Descriptive tracking data and habitat modelling procedure

Table S1. Detailed phenology of the 17 Bugio petrels *Pterodroma deserta* tracked from Bugio, Madeira, from 2007 to 2010. Dates are formatted as dd/mm/yyyy. Empty cells: the device stopped collecting data earlier than its retrieval in the following breeding season

Bird ID	Year	Logger fitting date	Recovery date	Deployment duration (d)	Winter migration start	Arrival at the wintering area <sup>a</sup>	Breeding migration start	Arrival at the breeding area <sup>a</sup>	Wintering ground
I009988	2007	15/07/2007	20/09/2007	65					
I009989	2007	16/07/2007	01/10/2007	75					
I009990	2007	17/07/2007	29/08/2007	42					
PF0300	2008	07/07/2008	09/12/2008	152	22/11/2008	25/11/2008			Cape Verde
PF0144	2008	07/07/2008	05/06/2009	328	06/12/2008	18/12/2008	12/05/2009	31/05/2009	South Brazil
J009104	2008	07/07/2008	16/06/2009	339	09/12/2008	13/12/2008	31/05/2009	16/06/2009	Cape Verde
PF0426	2008	07/07/2008	22/06/2009	345	12/12/2008	23/12/2008	06/05/2009	28/05/2009	West Brazil
J009102	2008	07/07/2008	08/02/2009	211	04/11/2008	14/11/2008			South Brazil
J009107	2008	08/07/2008	07/10/2008	89					
J009106	2008	08/07/2008	21/06/2009	343	25/11/2008	03/12/2008	21/05/2009	13/06/2009	West Brazil
J009105	2008	07/07/2008	21/06/2009	344	16/11/2008	29/11/2008	09/05/2009	19/06/2009	West Brazil
PF0136	2009	23/06/2009	14/07/2010	381	19/11/2008	02/12/2008	08/05/2009	27/05/2009	USA
PF0093	2009	23/06/2009	17/07/2010	384	02/12/2009	03/12/2009	21/05/2010	04/06/2010	Cape Verde
J009113	2009	23/06/2009	23/09/2009	90					
J009114	2009	23/06/2009	26/07/2010	393	12/11/2009	01/12/2009	08/05/2010	28/05/2010	South Brazil
J009115	2009	24/06/2009	30/07/2010	396	29/11/2009	15/12/2009	10/05/2010	07/06/2010	South Brazil
PF0024	2009	24/06/2009	04/07/2010	370	24/01/2010	12/02/2010	21/05/2010	12/06/2010	South Brazil, pelagic

<sup>a</sup>A bird was considered to have arrived at either its wintering or breeding ground when it reached the 50% kernel density contour of those periods

Table S2. Analysis of collinearity between the environmental variables used on the different habitat models. For each combination, the matrices show the sign and magnitude of the Spearman correlation coefficient (below diagonal) and the significance level (p; above diagonal). Highly correlated ( $|r_s| > 0.5$ ) predictors marked in **bold**. DEPT: sea depth, SST: sea surface temperature, CHLA: chlorophyll *a* concentration, WIND: wind speed, GDEP: gradient in depth, SSTG: gradient in sea surface temperature, CHLG: gradient in chlorophyll *a* concentration, DCOL: distance to colony, DLAN: distance to land

**(A) Habitat use models for the winter phase**

Parameter	CHLA	CHLG	SST	SSTG	WIND	DEPT	SLOP	DLAN
CHLA	—	<0.001	<0.001	<0.01	<0.01	<0.01	<0.05	>0.05
CHLG	<b>0.73</b>	—	<0.01	<0.01	<0.05	<0.05	<0.01	<0.05
SST	<b>0.57</b>	0.23	—	<0.001	>0.05	<0.05	<0.01	<0.01
SSTG	0.16	0.14	<b>-0.87</b>	—	<0.01	>0.05	<0.01	>0.05
WIND	0.09	0.22	0.14	0.09	—	<0.05	<0.05	>0.05
DEPT	-0.19	0.42	-0.11	-0.35	0.05	—	<0.001	<0.05
SLOP	-0.06	0.32	0.25	0.40	0.11	<b>-0.81</b>	—	<0.01
DLAN	0.02	0.09	0.18	0.27	0.22	0.29	0.33	—

**(B) Habitat use models for the breeding phases**

*Pre-laying and incubation*

Parameter	CHLA	CHLG	SST	SSTG	WIND	DEPT	SLOP	DCOL
CHLA	—	<0.001	<0.01	<0.01	<0.01	<0.001	<0.001	<0.05
CHLG	0.43	—	<0.05	<0.01	<0.05	<0.01	<0.01	<0.05
SST	-0.23	0.34	—	<0.01	<0.01	<0.05	<0.001	<0.05
SSTG	0.25	0.05	<b>-0.79</b>	—	<0.01	>0.05	<0.01	<0.05
WIND	-0.05	0.07	0.19	0.14	—	<0.05	<0.01	<0.05
DEPT	0.42	-0.13	0.08	0.04	0.2	—	<0.001	<0.05
SLOP	0.24	0.29	0.42	-0.25	0.26	<b>-0.55</b>	—	<0.001
DCOL	0.34	-0.14	0.34	0.09	0.1	0.45	0.23	—

*Chick-rearing*

Parameter	CHLA	CHLG	SST	SSTG	WIND	DEPT	SLOP	DCOL
CHLA	—	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	>0.05
CHLG	<b>-0.74</b>	—	<0.01	<0.01	>0.05	<0.001	<0.05	>0.05
SST	0.06	0.34	—	>0.05	<0.01	>0.05	<0.05	>0.05
SSTG	0.13	0.13	<b>-0.62</b>	—	<0.01	<0.05	<0.05	>0.05
WIND	-0.23	0.52	0.35	0.12	—	<0.01	<0.01	<0.05
DEPT	0.45	0.09	0.46	0.21	0.46	—	<0.001	>0.05
SLOP	-0.35	-0.11	0.34	0.18	0.44	<b>-0.82</b>	—	>0.05
DCOL	0.08	0.35	0.62	0.09	0.47	0.34	0.12	—

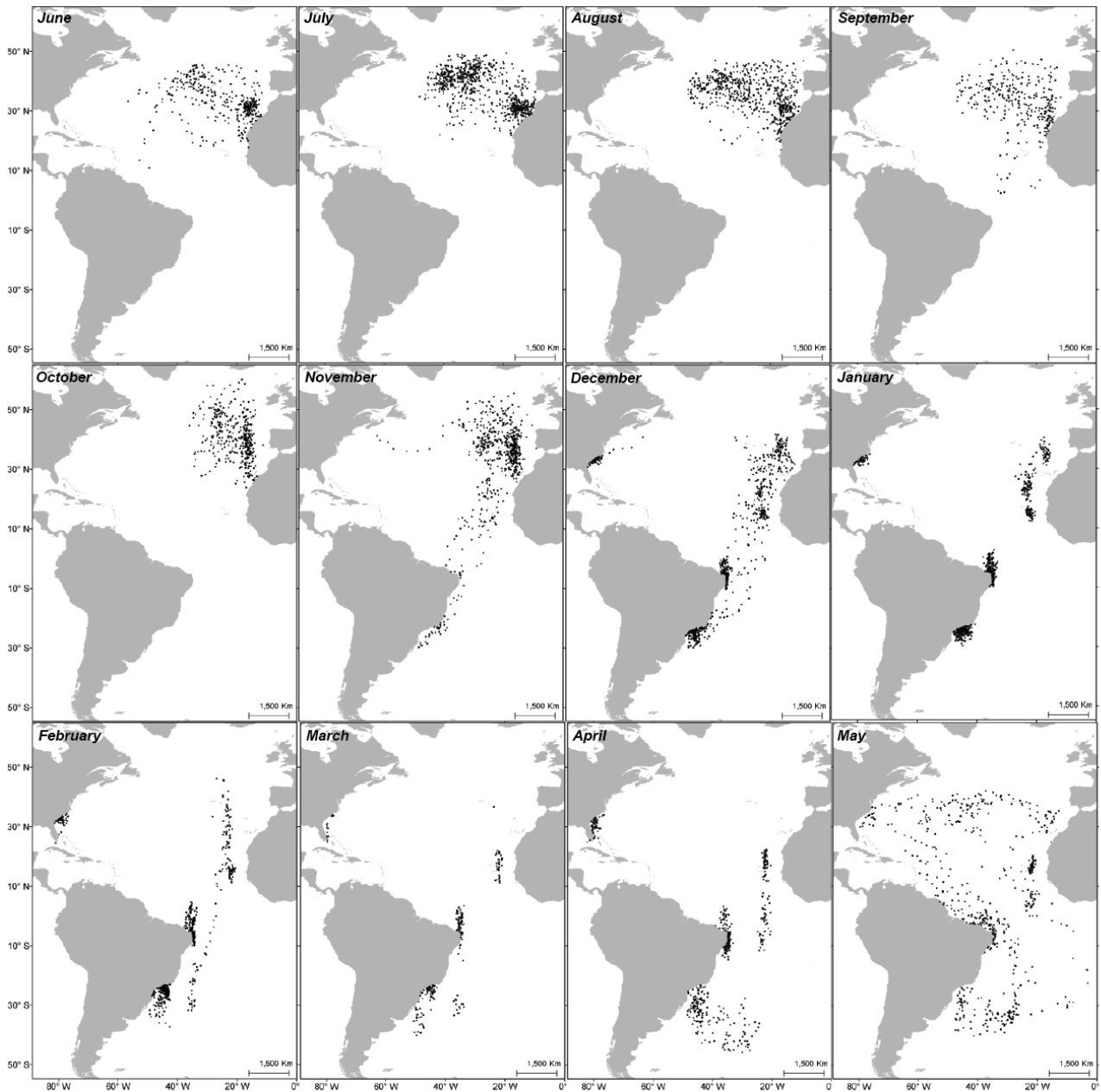


Fig. S1. At-sea distribution of Bugio petrels each month of the year from the start of breeding (June) until breeding migration (May) from the wintering grounds