

Intra-annual variations of microhabitat use and movements of a
critically endangered arboreal day gecko endemic to Reunion
Island: implications for conservation

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Supplementary material

Table S1. Results of the best minimal adequate model explaining variation in rock substrate use of *Phelsuma inexpectata* adults in population B on the coastal cliffs of southern Reunion Island (Western Indian Ocean) during monthly surveys between May 2018 and October 2019. Beta coefficient (β), standard error (SE) and Wald statistic (Z-value) obtained from mixed-effects logistic regression model. For the categorical variable “Month”, August is used as reference.

Parameter	β	SE	Z-value	P
Intercept	−3.59	0.60	−6.00	< 0.001*
Month (Jan.)	0.32	0.80	0.40	0.688
Month (Feb.)	−0.58	1.15	−0.50	0.614
Month (Sep.)	1.53	0.60	2.56	0.011*
Month (Oct.)	2.08	0.58	3.60	< 0.001*
Month (Nov.)	1.02	0.68	1.51	0.132
Month (Dec.)	2.19	0.74	2.95	0.003*
Sex (Male)	−0.95	0.42	−2.26	0.024*

*Indicates significance at $\alpha = 0.05$ level.

Table S2. Results of the best minimal adequate model explaining variation in perch height use by *Phelsuma inexpectata* adults in population B on the coastal cliffs of southern Reunion Island (Western Indian Ocean) during monthly surveys between May 2018 and October 2019. Beta coefficient (β), standard error (SE) and t -statistic (t -value) obtained from linear mixed-effects model. For the categorical variable “Month”, June is used as reference.

Parameter	β	SE	t -value	P
Intercept	378.77	18.86	20.09	< 0.001*
Month (Jan.)	-122.10	24.98	-4.89	< 0.001*
Month (Feb.)	-156.75	25.43	-6.16	< 0.001*
Month (Mar.)	-128.14	26.59	-4.82	< 0.001*
Month (Apr.)	-71.64	26.25	-2.73	0.007*
Month (May.)	-24.47	24.47	-1.00	0.318
Month (Jul.)	-5.24	22.93	-0.23	0.820
Month (Aug.)	-114.06	21.58	-5.29	< 0.001*
Month (Sep.)	-170.95	22.67	-7.54	< 0.001*
Month (Oct.)	-199.51	22.38	-8.92	< 0.001*
Month (Nov.)	-175.07	24.31	-7.20	< 0.001*
Month (Dec.)	-163.91	31.65	-5.18	< 0.001*

*Indicates significance at $\alpha = 0.05$ level.

Table S3. Results of the best minimal adequate model explaining variation in sun exposition of *Phelsuma inexpectata* adults in population B on the coastal cliffs of southern Reunion Island (Western Indian Ocean) during monthly surveys between May 2018 and October 2019. Beta coefficient (β), standard error (SE) and Wald statistic (Z-value) obtained from mixed-effects logistic regression model. For the categorical variable “Month”, June is used as reference.

Parameter	β	SE	Z-value	P
Intercept	0.84	0.43	1.98	0.048*
Month (Jan.)	-2.48	0.63	-3.91	< 0.001*
Month (Feb.)	-1.32	0.52	-2.53	0.011*
Month (Mar.)	-2.27	0.61	-3.73	< 0.001*
Month (Apr.)	-0.73	0.53	-1.37	0.171
Month (May.)	-0.52	0.53	-0.98	0.325
Month (Jul.)	2.83	1.10	2.57	0.010*
Month (Aug.)	0.44	0.51	0.87	0.384
Month (Sep.)	0.20	0.52	0.38	0.703
Month (Oct.)	-0.62	0.47	-1.34	0.180
Month (Nov.)	-0.60	0.50	-1.20	0.231
Month (Dec.)	-1.31	0.64	-2.07	0.039*

*Indicates significance at $\alpha = 0.05$ level.

Table S4. Results of the best minimal adequate model explaining variation in movement rate (in motion or not) of *Phelsuma inexpectata* adults in population B on the coastal cliffs of southern Reunion Island (Western Indian Ocean) during monthly surveys between May 2018 and October 2019. Beta coefficient (β), standard error (SE) and Wald statistic (Z-value) obtained from mixed-effects logistic regression model. For the categorical variable “Month”, June is used as reference.

Parameter	β	SE	Z-value	P
Intercept	-1.74	0.31	-5.67	< 0.001*
Month (Jan.)	1.64	0.37	4.38	< 0.001*
Month (Feb.)	1.82	0.38	4.73	< 0.001*
Month (Mar.)	0.39	0.42	0.93	0.350
Month (Apr.)	-1.44	0.66	-2.17	0.030*
Month (May.)	-0.50	0.45	-1.11	0.265
Month (Jul.)	-0.16	0.39	-0.41	0.685
Month (Aug.)	0.72	0.34	2.10	0.036*
Month (Sep.)	0.62	0.36	1.72	0.085
Month (Oct.)	0.96	0.35	2.74	0.006*
Month (Nov.)	1.29	0.37	3.51	< 0.001*
Month (Dec.)	2.56	0.48	5.32	< 0.001*

*Indicates significance at $\alpha = 0.05$ level.

Table S5. Characteristics of egg-laying site cavities of *Phelsuma inexpectata* in population B on the coastal cliffs of southern Reunion Island (Western Indian Ocean) recorded between February 2018 and August 2020. Category: Active = in use with incubating eggs, Inactive = formerly used; Cavity height = height from the ground. All measurements are in centimetre.

ID	Category	Substrate	Cavity height	Entrance width	Entrance height	Cavity depth
1	Active	Rock	197.10	8.60	1.50	6.20
2	Active	Rock	181.60	4.50	3.90	3.70
3	Active	Rock	140.80	1.50	2.10	2.30
4	Active	Rock	97.30	0.70	10.90	2.20
5	Active	Rock	97.00	1.40	8.10	6.00
6	Active	Rock	65.10	1.60	0.70	3.90
7	Active	Rock	24.20	3.20	1.80	4.40
8	Active	<i>P. utilis</i>	74.00	1.10	5.20	2.20
9	Active	Rock	91.20	7.00	0.50	5.10
10	Active	Rock	114.20	9.70	1.50	10.40
11	Active	Rock	116.70	4.50	1.40	10.20

12	Active	Rock	102.40	1.10	1.30	5.70
13	Active	Rock	126.00	0.90	4.00	8.10
14	Active	Rock	105.50	1.00	0.80	1.50
15	Inactive	Rock	115.30	1.10	1.60	3.50
16	Inactive	Rock	194.50	0.90	1.90	2.10
17	Inactive	Rock	134.60	11.00	6.50	3.10
18	Inactive	Rock	18.30	0.60	0.50	18.10
19	Inactive	Rock	4.10	3.40	1.20	4.00
20	Inactive	Rock	152.80	0.60	6.20	6.40
21	Inactive	Rock	126.10	5.10	0.50	5.20
22	Inactive	Rock	126.60	1.20	0.60	6.00
23	Inactive	Rock	210.40	2.50	0.80	9.00
24	Inactive	Rock	131.00	1.30	3.20	4.30



Figure S1. Illustrations of native (a, c, e) and non-native (b, d, f) coastal vegetation and habitat on the coastal cliffs of southern Reunion Island (Western Indian Ocean) in (a, b, c, e) and near (d, f) the studied *Phelsuma inexpectata* populations. (a) Foreground: *Scaevola taccada*, background: *Pandanus utilis*; (b) *Furcraea foetida*; (c) complex branch and leaf network of *P. utilis*; (d) left and middle: *Schinus terebinthifolius*, right: *Flacourtia indica*; (e) the arrow shows *Psiadia retusa*; (f) *Casuarina equisetifolia*. Photos taken by Arthur Choeur.



Figure S2. Sexual dimorphism and unique colour pattern (pattern of red spots on green background) of adult (a) male and (b) female *Phelsuma inexpectata* on a dry leaf of *Pandanus utilis* in population B. Photo taken by Arthur Choeur.