



**Fig. S1.** Cumulative daily flight distance (m, log-transformed) against daily ODBA.

**Table S1:** Sampling schemes of the different sensors.

sensor	interval between fixes/recording	Length of recording/burst	Frequency of bursts
GPS	5 minutes	1 fix	-
ECG	20 minutes	4.5sec bursts	177.83Hz
ACC	2 minutes	2014: 3.8sec	2014: 10.54Hz
		2015: 1.2sec	2015: 33.33Hz

**Table S2** Individual and environmental factors influencing daily mean heart rates. Final model included only variables that were retained in all four best performing GLMMS.

	estimate	s.e.	t-value	p-value
(intercept)	-1019.25	98.24	-10.37	<0.001
days until fledging	-1.31	0.16	-8.01	<0.001
mean daily ODBA	16.96	3.37	5.04	<0.001
mean body temp.	27.98	2.46	11.35	<0.001
log daily distance	2.10	0.88	2.39	0.017

**Table S3** Relationships between daily mean heart rate and daily minimum  $f_H$ . r-squared means conditional  $r^2$  estimated for general linear mixed models.

	slope	Lower	upper	r-squared
pre-fledging	0.64	0.50	0.78	0.39
post-fledging (incl. mig)	0.67	0.54	0.80	0.54