

Fig. S1. The process of correcting resting metabolic rate (W) for body mass among the three species. 1) First we regressed RMR (W) against initial body mass (g), capturing the RMR residuals for each data point [left]; 2) then we regressed the RMR residuals against body mass to show that they successfully removed the effects of body mass on RMR [middle]; and 3) finally we regressed the RMR residuals against air temperature [right]. The graph on the right shows the segmented regressions of RMR residuals against air temperature for each species, along with the T_{uc} found from these regressions (41.1, 45.9, and 46.5°C for Gambel's Quail, Mourning Doves, and White-winged Doves respectively). See Table S1 for parameter estimates.

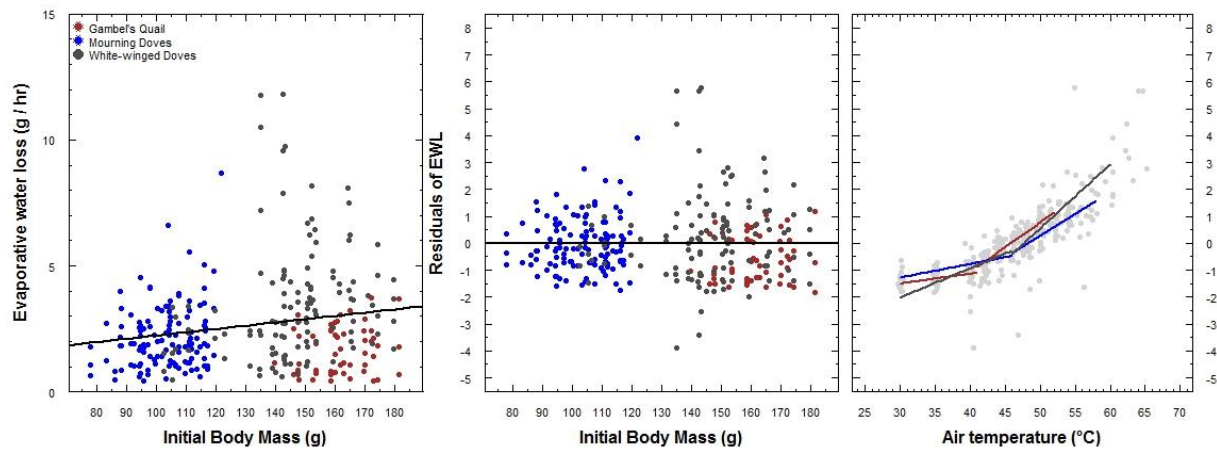


Fig. S2. The process of correcting evaporative water loss (g hr^{-1}) for body mass among the three species. 1) First we regressed EWL (g hr^{-1}) against body mass (g), capturing the EWL residuals for each data point [left]; 2) then we regressed the EWL residuals against body mass to show that they successfully removed the effects of body mass on EWL [middle]; and 3) finally we regressed the EWL residuals against air temperature above and below the T_{uc} [right]. See text for determination of T_{uc} using RMR residuals and Table S1 for parameter estimates.

Table S1. Slope (m) and intercept (b) for the relationship of mass independent residuals of resting metabolic rate (RMRr) and evaporative water loss rate (EWLr) in response to air temperature below and above the upper critical temperature (T_{uc}) in Gambel's Quail, Mourning Doves, and White-winged Doves.

Species	T_{uc}	regression	m	b	regression	m	b
Gambel's Quail	41.09	RMRr ($\leq T_{uc}$)	-0.022 (-0.031 -0.012)	0.72 (0.37 1.07)	RMRr ($> T_{uc}$)	0.020 (0.012 0.028)	-0.99 (-1.35 -0.63)
Mourning Dove	45.87	RMRr ($\leq T_{uc}$)	-0.018 (-0.027 -0.008)	0.71 (0.33 1.09)	RMRr ($> T_{uc}$)	0.015 (0.009 0.021)	-0.78 (-1.10 -0.45)
White-winged Dove	46.47	RMRr ($\leq T_{uc}$)	-0.013 (-0.021 -0.005)	0.55 (0.22 0.88)	RMRr ($> T_{uc}$)	0.011 (0.002 0.020)	-0.58 (-1.05 -0.11)
Gambel's Quail	41.09	EWLr ($\leq T_{uc}$)	0.036 (0.020 0.051)	-2.61 (-3.16 -2.06)	EWLr ($> T_{uc}$)	0.195 (0.168 0.222)	-8.93 (-10.22 -7.65)
Mourning Dove	45.87	EWLr ($\leq T_{uc}$)	0.061 (0.043 0.080)	-3.32 (-4.09 -2.56)	EWLr ($> T_{uc}$)	0.177 (0.155 0.199)	-8.52 (-9.69 -7.35)
White-winged Dove	46.47	EWLr ($\leq T_{uc}$)	0.137 (0.108 0.166)	-6.52 (-7.72 -5.32)	EWLr ($> T_{uc}$)	0.295 (0.237 0.353)	-14.19 (-17.22 -11.16)

Note: Values are means, with 95% confidence intervals in parentheses.

Table S2. Mean values and \pm SD for resting metabolic rate (RMR), rate of evaporative water loss (EWL), evaporative cooling capacity (EHL/MHP), and body temperature (T_b) in Gambel's Quail, Mourning Doves, and White-winged Doves at all air temperatures ($T_{air} \pm 1^\circ\text{C}$).

											Gambel's Quail					
T_{air} ($^\circ\text{C}$)	30 $^\circ\text{C}$ (n=8)	35 $^\circ\text{C}$ (n=8)	40 $^\circ\text{C}$ (n=7)	42 $^\circ\text{C}$ (n=6)	44 $^\circ\text{C}$ (n=4)	46 $^\circ\text{C}$ (n=6)	48 $^\circ\text{C}$ (n=7)	50 $^\circ\text{C}$ (n=6)	52 $^\circ\text{C}$ (n=1)							
RMR (W)	1.01 \pm 0.18	0.78 \pm 0.08	0.75 \pm 0.08	0.75 \pm 0.10	0.78 \pm 0.02	0.79 \pm 0.11	0.79 \pm 0.09	0.94 \pm 0.11	1.06 \pm NA							
RMR (mW g ⁻¹)	6.33 \pm 1.22	4.77 \pm 0.58	4.86 \pm 0.60	4.50 \pm 0.46	4.74 \pm 0.46	4.81 \pm 0.58	5.00 \pm 0.54	5.75 \pm 0.59	6.70 \pm NA							
EWL (g H ₂ O hr ⁻¹)	0.68 \pm 0.25	0.67 \pm 0.15	1.03 \pm 0.28	1.71 \pm 0.37	2.02 \pm 0.43	2.32 \pm 0.32	2.46 \pm 0.37	3.21 \pm 0.47	2.69 \pm NA							
EWL (% of Mb hr ⁻¹)	0.43 \pm 0.15	0.42 \pm 0.09	0.67 \pm 0.16	1.03 \pm 0.22	1.23 \pm 0.30	1.42 \pm 0.23	1.57 \pm 0.25	1.95 \pm 0.21	1.70 \pm NA							
EHL/MHP	0.42 \pm 0.12	0.55 \pm 0.11	0.87 \pm 0.23	1.42 \pm 0.22	1.63 \pm 0.36	1.88 \pm 0.40	1.97 \pm 0.31	2.14 \pm 0.30	1.59 \pm NA							
T_b ($^\circ\text{C}$)	41.1 \pm 0.5	41.1 \pm 0.6	41.8 \pm 0.5	41.8 \pm 0.6	42.0 \pm 0.3	42.1 \pm 0.8	42.5 \pm 0.8	43.6 \pm 0.8	43.6 \pm NA							

																	Mourning Doves							
T_{air} ($^\circ\text{C}$)	30 $^\circ\text{C}$ (n=4)	35 $^\circ\text{C}$ (n=7)	40 $^\circ\text{C}$ (n=14)	42 $^\circ\text{C}$ (n=19)	44 $^\circ\text{C}$ (n=13)	46 $^\circ\text{C}$ (n=9)	48 $^\circ\text{C}$ (n=12)	50 $^\circ\text{C}$ (n=12)	52 $^\circ\text{C}$ (n=10)	54 $^\circ\text{C}$ (n=10)	56 $^\circ\text{C}$ (n=6)	58 $^\circ\text{C}$ (n=4)	60 $^\circ\text{C}$ (n=4)	62 $^\circ\text{C}$ (n=0)	64 $^\circ\text{C}$ (n=1)	66 $^\circ\text{C}$ (n=1)								
RMR (W)	1.03 \pm 0.42	0.75 \pm 0.22	0.76 \pm 0.22	0.64 \pm 0.18	0.72 \pm 0.16	0.66 \pm 0.10	0.58 \pm 0.14	0.70 \pm 0.20	0.77 \pm 0.20	0.64 \pm 0.07	0.77 \pm 0.13	0.87 \pm 0.53	1.00 \pm 0.39	NA	0.90 \pm NA	0.75 \pm NA								
RMR (mW g ⁻¹)	9.41 \pm 3.16	7.37 \pm 2.32	7.07 \pm 1.67	6.32 \pm 1.71	7.01 \pm 1.98	6.07 \pm 0.72	6.11 \pm 1.72	6.72 \pm 1.64	7.94 \pm 2.04	6.14 \pm 0.56	7.39 \pm 1.22	8.28 \pm 3.80	8.92 \pm 2.65	NA	8.12 \pm NA	7.25 \pm NA								
EWL (g H ₂ O hr ⁻¹)	0.71 \pm 0.28	0.74 \pm 0.16	1.29 \pm 0.49	1.27 \pm 0.44	1.69 \pm 0.32	1.91 \pm 0.21	1.96 \pm 0.42	2.45 \pm 0.39	3.00 \pm 0.55	3.10 \pm 0.39	3.73 \pm 0.46	4.01 \pm 0.75	5.52 \pm 2.17	NA	5.57 \pm NA	6.61 \pm NA								
EWL (% of Mb hr ⁻¹)	0.65 \pm 0.20	0.72 \pm 0.12	1.20 \pm 0.40	1.24 \pm 0.36	1.64 \pm 0.30	1.76 \pm 0.17	2.05 \pm 0.40	2.37 \pm 0.32	3.09 \pm 0.63	2.99 \pm 0.29	3.58 \pm 0.53	3.96 \pm 0.63	4.96 \pm 1.54	NA	5.02 \pm NA	6.37 \pm NA								
EHL/MHP	0.44 \pm 0.04	0.65 \pm 0.19	1.05 \pm 0.17	1.26 \pm 0.25	1.51 \pm 0.29	1.83 \pm 0.17	2.19 \pm 0.47	2.27 \pm 0.35	2.47 \pm 0.23	3.08 \pm 0.43	3.08 \pm 0.48	3.37 \pm 1.27	3.54 \pm 0.66	NA	3.88 \pm NA	5.52 \pm NA								
T_b ($^\circ\text{C}$)	41.0 \pm 0.1	41.0 \pm 0.7	41.7 \pm 0.5	42.0 \pm 0.5	42.1 \pm 0.7	42.2 \pm 0.5	42.1 \pm 0.8	42.1 \pm 0.8	42.9 \pm 0.9	42.2 \pm 0.8	41.9 \pm 0.9	42.0 \pm 1.1	43.1 \pm 1.3	NA	42.6 \pm NA	43.2 \pm NA								

																	White-winged Doves							
T_{air} ($^\circ\text{C}$)	30 $^\circ\text{C}$ (n=3)	35 $^\circ\text{C}$ (n=8)	40 $^\circ\text{C}$ (n=12)	42 $^\circ\text{C}$ (n=12)	44 $^\circ\text{C}$ (n=13)	46 $^\circ\text{C}$ (n=11)	48 $^\circ\text{C}$ (n=15)	50 $^\circ\text{C}$ (n=10)	52 $^\circ\text{C}$ (n=10)	54 $^\circ\text{C}$ (n=7)	56 $^\circ\text{C}$ (n=5)	58 $^\circ\text{C}$ (n=5)	60 $^\circ\text{C}$ (n=2)	62 $^\circ\text{C}$ (n=3)	64 $^\circ\text{C}$ (n=2)	66 $^\circ\text{C}$ (n=0)								
RMR (W)	1.22 \pm 0.10	0.98 \pm 0.39	0.93 \pm 0.25	0.99 \pm 0.25	0.86 \pm 0.20	0.91 \pm 0.22	0.97 \pm 0.28	0.93 \pm 0.21	1.07 \pm 0.24	1.01 \pm 0.31	1.05 \pm 0.13	1.17 \pm 0.25	1.37 \pm 0.24	1.04 \pm 0.36	1.45 \pm 0.47	NA								
RMR (mW g ⁻¹)	8.49 \pm 0.87	6.90 \pm 1.81	6.36 \pm 1.39	6.76 \pm 1.54	6.13 \pm 0.94	6.41 \pm 1.24	6.57 \pm 1.70	6.41 \pm 1.22	7.00 \pm 1.37	6.71 \pm 2.08	7.09 \pm 1.08	7.70 \pm 1.30	9.37 \pm 2.05	7.09 \pm 2.67	10.42 \pm 3.01	NA								
EWL (g H ₂ O hr ⁻¹)	0.87 \pm 0.20	0.99 \pm 0.49	1.75 \pm 0.81	1.95 \pm 0.72	2.30 \pm 0.53	2.86 \pm 0.62	3.41 \pm 0.85	4.01 \pm 0.90	4.49 \pm 1.24	5.47 \pm 2.26	5.15 \pm 0.88	6.59 \pm 1.21	7.29 \pm 0.81	9.40 \pm 1.22	11.79 \pm 0.02	NA								
EWL (% of Mb hr ⁻¹)	0.60 \pm 0.14	0.69 \pm 0.23	1.20 \pm 0.48	1.32 \pm 0.47	1.63 \pm 0.28	2.01 \pm 0.29	2.31 \pm 0.51	2.76 \pm 0.51	2.95 \pm 0.77	3.64 \pm 1.55	3.47 \pm 0.52	4.39 \pm 0.95	4.99 \pm 0.75	6.49 \pm 1.45	8.52 \pm 0.31	NA								
EHL/MHP	0.45 \pm 0.08	0.62 \pm 0.12	1.16 \pm 0.25	1.22 \pm 0.28	1.70 \pm 0.34	2.04 \pm 0.50	2.27 \pm 0.47	2.72 \pm 0.30	2.68 \pm 0.57	3.32 \pm 0.32	3.14 \pm 0.74	3.69 \pm 1.24	3.37 \pm 0.23	6.17 \pm 2.33	5.38 \pm 1.74	NA								
T_b ($^\circ\text{C}$)	41.6 \pm 0.6	41.3 \pm 0.6	41.6 \pm 0.7	41.9 \pm 0.7	41.7 \pm 0.7	41.8 \pm 0.8	41.7 \pm 0.9	42.4 \pm 0.9	41.8 \pm 1.0	42.4 \pm 0.6	42.8 \pm 1.0	42.7 \pm 0.9	43.5 \pm 1.6	42.8 \pm 1.5	42.3 \pm 1.3	NA								