**Table S1: Model Selection Output – Whole animal analysis**

**Evaporative water loss**

| | *df* | *AICc* | *delta* |
|---|---|---|---|
| ***Above the Inflection Point*** | | | |
| Sex + $T_a$ | 5 | 263.8 | 0 |
| Sex + $T_a$ + $T_a$×Sex | 6 | 266.2 | 2.32 |
| $T_a$ | 4 | 266.3 | 2.48 |
| $M_b$ + Sex+ $T_a$ | 6 | 273.5 | 9.71 |
| $M_b$ + $T_a$ | 5 | 274.2 | 10.35 |
| ***Below the Inflection Point*** | | | |
| $T_a$ | 5 | 43.7 | 0 |
| *null* | 3 | 47.2 | 3.47 |
| Sex + $T_a$ | 5 | 48.7 | 5.03 |
| Sex | 4 | 51.7 | 7.96 |
| Sex + $T_a$ + Sex×$T_a$ | 6 | 56.3 | 12.61 |

**Resting metabolic rate**

| | | | |
|---|---|---|---|
| ***Above the Inflection Point*** | | | |
| Sex + $T_a$ | 5 | 77.2 | 0 |
| $T_a$ | 4 | 78.5 | 1.26 |
| Sex + $T_a$ + Sex×$T_a$ | 6 | 85.0 | 7.82 |
| $M_b$ + Sex | 5 | 85.6 | 8.38 |
| $M_b$ + Sex + $T_a$ | 6 | 88.0 | 10.79 |
| ***Below the Inflection Point*** | | | |
| *null* | 3 | -5.3 | 0 |
| Sex | 4 | -3.8 | 1.46 |
| $M_b$ | 4 | 3.4 | 8.61 |
| $T_a$ | 4 | 4.1 | 9.37 |
| Sex + $T_a$ | 5 | 5.7 | 10.96 |

**Core Body Temperature**

| | | | |
|---|---|---|---|
| ***Above the Inflection Point*** | | | |
| $T_a$ | 4 | 162.6 | 0 |
| Sex + $T_a$ | 5 | 167.0 | 4.44 |
| $M_b$ + $T_a$ | 5 | 174.7 | 12.14 |
| Sex +$T_a$ | 6 | 174.9 | 12.36 |
| $M_b$ + Sex + $T_a$ | 6 | 178.3 | 15.76 |

| | | | |
|---|---|---|---|
| ***Below the Inflection point*** | | | |
| $T_a$ | 4 | 162.6 | 0 |
| Sex+ $T_a$ | 5 | 167.0 | 4.44 |
| $M_b$ + Sex | 5 | 174.7 | 12.14 |
| $M_b$ + Sex + $T_a$ ×Sex | 6 | 174.9 | 12.36 |
| $M_b$ + Sex + $T_a$ | 6 | 178.3 | 15.76 |
| **EHL/MHP** | | | |
| ***Above the Inflection Point*** | | | |
| $T_a$ | 4 | -19.4 | 0 |
| Sex + $T_a$ | 5 | -14.2 | 5.21 |
| $M_b$ + $T_a$ | 5 | -6.1 | 13.27 |
| Sex + $T_a$ + $T_a$×Sex | 6 | -4.7 | 14.70 |
| $M_b$ + Sex + $T_a$ | 6 | -2.5 | 16.91 |
| ***Below the Inflection Point*** | | | |
| *null* | 3 | -87.3 | 0 |
| Sex | 4 | -80.9 | 6.45 |
| $T_a$ | 4 | -75.1 | 12.28 |
| $M_b$ | 4 | -73.1 | 14.28 |
| Sex + $T_a$ | 5 | -68.5 | 18.88 |
| **EHL/MHP vs $T_a$−$T_b$** | | | |
| ***Above the Inflection Point*** | | | |
| $T_a$−$T_b$ | 4 | -5.6 | 0 |
| Sex + $T_a$−$T_b$ | 5 | -0.4 | 5.13 |
| Sex + $T_a$−$T_b$ + $T_a$−$T_b$ ×Sex | 6 | 7.7 | 13.26 |
| $M_b$ + $T_a$−$T_b$ | 5 | 7.8 | 13.37 |
| $M_b$ + Sex + $T_a$−$T_b$ | 6 | 11.4 | 16.97 |
| ***Below the Inflection Point*** | | | |
| *null* | 3 | -82.7 | 0 |
| Sex | 4 | -76.3 | 6.47 |
| $T_a$−$T_b$ | 4 | -71.1 | 11.62 |
| $M_b$ | 4 | -68.5 | 14.29 |
| Sex + $T_a$−$T_b$ | 5 | -64.5 | 18.22 |

**Table S2: Model Selection Output – Mass-specific analysis**

| | *df* | *AICc* | *delta* |
|---|---|---|---|
| **Mass-specific evaporative water loss** | | | |
| ***Above the Inflection Point*** | | | |
| $T_a$ | 4 | -696.3 | 0 |
| Sex + $T_a$ | 5 | -683.3 | 12.98 |
| Sex+ $T_a$ + Sex×$T_a$ | 6 | -666.6 | 29.68 |
| ***Below the Inflection Point*** | | | |
| $T_a$ | 4 | -494.6 | 0 |
| *null* | 3 | -491.6 | 3.01 |
| Sex + $T_a$ | 5 | -497.6 | 14.95 |
| **Mass-specific resting metabolic rate** | | | |
| ***Above the Inflection Point*** | | | |
| $T_a$ | 4 | -833.7 | 0 |
| Sex + $T_a$ | 5 | -819.2 | 14.43 |
| Sex + $T_a$ + Sex×$T_a$ | 6 | -801.7 | 32.00 |
| ***Below the Inflection Point*** | | | |
| *null* | 3 | -390.9 | 0 |
| Sex | 4 | -375.1 | 15.88 |
| $T_a$ | 4 | -373.7 | 17.30 |

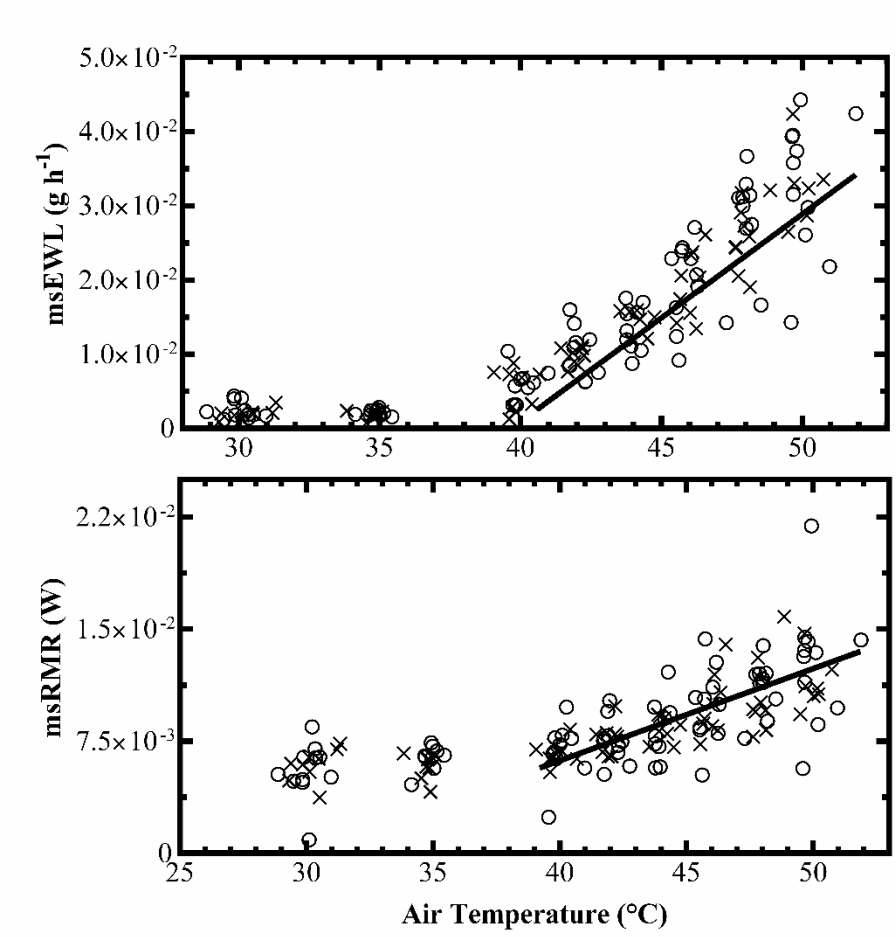


**Figure S1. Mass-specific evaporative water loss (msEWL) and mass-specific resting metabolic rate in relation to air temperature ($T_a$) in southern yellow-billed hornbills (*Tockus leucomelas*).** Data were obtained from 10 females (circles) and nine males (crosses) using open flow-through respirometry. Lines indicate linear mixed-effects regression models fitted for msEWL = $0.0028T_a - 0.11$ ($T_a > 40.5$°C) and msRMR = $0.000061T_a - 0.18$ ($T_a > 39.2$°C). Inflections in msEWL occurred at $T_a = 40.5$°C for males and $T_a = 39.7$°C females, above which EWL increased with increasing $T_a$. Below the inflection point, sex did not emerge as a significant predictor (see also Table S2). msEWL increased significantly with $T_a$ ($t = 5.71$, $P < 0.001$; Fig. S2). At $T_a$ values above the inflection, msEWL increased linearly and significantly with $T_a$ ($t = 20.45$, $P < 0.001$; Fig. S2), and sex did not emerge as a significant predictor (Table S2). Inflections in msRMR occurred at $T_a = 39.2$°C for males and at $T_a = 38.8$°C for females. Within the thermoneutral zone the null model provided the best fit (Table S2). At $T_a$ above inflection points, msRMR increased linearly and significantly with $T_a$ ($t = 10.18$, $P < 0.001$; Fig. S2) and sex did not emerge as a significant predictor (Table S2).