

ON THE BODY TEMPERATURES OF BIRDS COLLECTED ON THE CARP-TRANSSVAAL MUSEUM NAMIB DESERT EXPEDITION.

C. K. BRAIN and O. P. M. PROZESKY

Transvaal Museum, Pretoria.

In the course of the Namib Desert Expedition (May, 1959), the opportunity presented itself to measure the body temperatures of most of the birds collected. One of us (C.K.B.) was doing temperature work on reptiles using a fast-registering rectal thermometer which appeared as suitable for bird studies as for reptile ones. In each case the bird was shot, usually with a .410 shotgun and while the animal was still alive its rectal temperature was measured immediately. Each measurement recorded was made within about 30 seconds of the bird being shot. The figures listed should give some indication of body temperature during normal activity; if any error has occurred, it is likely to be a more or less constant one throughout the series.

Where possible, an attempt was made to measure temperatures on several individuals of the same species. It was found that, during normal activity, the temperatures of such individuals do vary, but in no observed case by more than 2 deg. C., despite the fact that there were sometimes air temperature differences of 20 or 30 deg. C. For instance, one turtle dove had a body temperature of 43.4 deg. C. when the air temperature was 3.4 deg. C., while another read 44.0 deg. C. when the air temperature was 23.2 deg. C.

There are indications that the temperature of a sleeping bird should drop during the course of a cold night. The opportunity to test this possibility occurred on the night of May 7, while the expedition was camped at Djab, about 100 miles west of Windhoek. A colony of masked weavers (*Ploceus velatus*) was found to be using a nearby tree as a night roost. During the early evening, as the birds came in, three specimens were collected showing body temperatures of 41.2, 41.2 and 41.3 deg. C. The air temperature was 19.0 deg. C. Three further specimens were collected early the following morning while it was still dark and before the birds had woken up. They were shot with a silent rubber band to avoid disturbing the rest of the colony. Their temperatures were 39.2, 39.2 and 40.3 deg. C. while that of the air was 12.4. The difference between the means of the two sets of body temperatures is 1.6 deg. C., suggesting that in this case a night drop in body temperature was apparent but small.

In all, reliable body temperatures were obtained on 130 birds belonging to 66 species. Temperatures varied from 38.0 to 44.0 deg. C. The three species with the lowest temperatures were as follows: eagle owl (*Bubo africanus africanus*) 38.0 deg. C.; lesser flamingo (*Phoeniconaias minor*) 38.8 deg. C.; Cape dikkop (*Burhinus capensis*) 39.3 deg. C. The highest body temperatures were found among the doves: six specimens of the Namaqua dove (*Oena capensis capensis*) had a range of from 42.8 — 43.8 deg. C., with a mean of 43.3, while temperatures of five specimens of the turtle dove (*Streptopelia capicola tropica*) varied from 42.2 to 44.0 deg. C. with a mean of 43.3.

On the basis of the 130 temperature measurements listed below it would certainly be inadvisable to generalise on the body temperatures of South African birds as a whole. It may be significant, however, that 50 of the 66 species investigated had temperatures of between 41 and 43 deg. C. The actual distribution of the sample is shown in Figure 1; where several measurements are available for one species, the mean has been employed.

NAME	BODY TEMP. Deg. C.	AIR TEMP. Deg. C.	LOCALITY
<i>Phoeniconaias minor</i> Lesser flamingo	38.8	9.2	Sandwich Harbour, S.W.A.
<i>Phalacrocorax capensis</i> Cape cormorant	41.5	19.0	Sandwich Harbour, S.W.A.
<i>Poliohierax semitorquatus</i> <i>semitorquatus</i> Pigmy falcon	41.4 40.7	25.4 24.8	Auob, R.N. Cape Nossob, R.N. Cape
<i>Melierax musicus</i> Chanting goshawk	40.6 40.2	25.7 19.2	Gogas Dist., S.W.A. Walvis Bay, S.W.A.
<i>Falco tinnunculus</i> Rock kestrel	41.7	20.1	Usakos dist., S.W.A.
<i>Francolinus adspersus</i> Red-billed francolin	41.5 41.6	24.0 24.0	Dordabis dist., S.W.A. Dordabis dist., S.W.A.
<i>Lophotis ruficrista ruficrista</i> Red-crested korhaan	40.2	22.2	Stamprietfontein, S.W.A.
<i>Stephanibyx coronatus coronatus</i> Crowned plover	41.8	23.0	Auob R.N. Cape
<i>Burhinus capensis</i> Cape dikkop	39.2	19.8	Rooibank, S.W.A.
<i>Rhinoptilus africanus africanus</i> Double-banded courser	39.9 41.0 40.4	18.0 20.0 12.0	Auob R.N. Cape Gamichab, S.W.A. Gamichab, S.W.A.
<i>Pterocles namaqua</i> Namaqua sandgrouse	42.2	16.2	Auob R.N. Cape

Oena capensis
Namaqua d

Streptopelia
Turtle dove

Stigmatopelia
senegalensis
Laughing d

Columba g
Rock pigeo

Bubo africanus
Spotted eag

Urocolius m
Red-faced m

Coracias ca
Lilac-breast

Coracias no
Mozambiqu

Lophoceros
Yellow-bille

Rhinopoma
cyanomelas
Scimitar-bil

Tricholaema
Pied barbet

NAME	BODY TEMP. Deg. C.	AIR TEMP. Deg. C.	LOCALITY
<i>Oena capensis capensis</i>	43.0	23.0	Auob R.N. Cape
Namaqua dove	43.8	25.5	Auob R.N. Cape
	43.5	23.0	Auob R.N. Cape
	43.6	22.5	Auob R.N. Cape
	42.8	26.5	Auob R.N. Cape
	43.4	26.5	Auob R.N. Cape
<i>Streptopelia capicola tropica</i>	44.0	23.2	Auob R.N. Cape
Turtle dove	43.5	21.2	Auob R.N. Cape
	43.4	21.2	Auob R.N. Cape
	43.4	3.4	Auob R.N. Cape
	42.2	19.8	Gobabeb, S.W.A.
<i>Stigmatopelia senegalensis</i>	42.2	26.0	Gobabeb, S.W.A.
<i>senegalensis</i>	42.4	24.8	Gobabeb, S.W.A.
Laughing dove	43.2	19.0	Gobabeb, S.W.A.
<i>Columba guinea phaenota</i>	41.5	24.5	Auob R.N. Cape
Rock pigeon			
<i>Bubo africanus africanus</i>	38.0	24.2	Gobabeb, S.W.A.
Spotted eagle owl			
<i>Urocolius indicus lacteifrons</i>	41.6	23.0	Gobabeb, S.W.A.
Red-faced mousebird			
<i>Coracias caudata caudata</i>	41.6	21.8	Stamprietfontein-Dordabis,
Lilac-breasted roller			S.W.A.
<i>Coracias naevia mosambica</i>	40.9	26.5	Windhoek, dist., S.W.A.
Mozambique roller			
<i>Lophoceros flavirostris leucomelas</i>	41.2	13.0	Kuruman R.N. Cape
Yellow-billed hornbill			
<i>Rhinopomastus cyanomelas</i>	40.6	13.4	Gobabeb, S.W.A.
<i>cyanomelas</i>	42.0	24.0	Gobabeb, S.W.A.
Scimitar-bill hoopoe			
<i>Tricholaema leucomelas centrale</i>	41.7	16.6	Stamprietfontein dist.,
Pied barbet			S.W.A.
	43.0	24.0	Natab, S.W.A.