

SUMMARY OF DRINKING PATTERNS AND WATER DEPENDENCY

Table S1: Summary of surface water use for the avian community at Tswalu Kalahari Reserve, including: the number of point counts during which species were observed (total point counts provided in parentheses); the number of “waterhole” focals during which a species was observed drinking (defined as *drinking_int* in main text; total number focals provided in parentheses); the significance of time of day in *drinking_int* (AM represents drinking before noon; PM represents drinking after noon); the significance and direction (positive versus negative trend) of *drinking_int* trend in relation to maximum air temperature; and a summary of body water samples obtained (total number of individuals showing enriched samples, over total number of individuals sampled during the enrichment periods). Species are categorized according to dominant dietary guild; i.e. frugivores (FRU), insectivores (INS), granivores (GRA), omnivores (OMN), nectarivores (NEC), carnivores (CAR). Significance values are indicated by: n.s. as $p > 0.1$; $p < 0.1$; * $p < 0.05$; ** $p < 0.01$

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Acacia Pied Barbet <i>Tricholaema leucomelas</i>	OMN	10	0			0/4
African Red-eyed Bulbul <i>Pycnonotus nigricans</i>	OMN	10	62	PM***	n.s.	
Anteater Chat <i>Myrmecocichla formicivora</i>	INS	35	10	n.s.	n.s.	0/2
Ashy Tit <i>Parus cinerascens</i>	INS	10	0			0/4
Black-chested Prinia <i>Prinia flavicans</i>	INS	41	0			0/21
Black-faced Waxbill <i>Estrilda erythronotos</i>	GRA	2	3	n.s.	n.s.	1/1
Black-throated Canary <i>Chrithagra atrogularis</i>	GRA	3	10	n.s.	n.s.	

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Bokmakierie <i>Telephorus zeylonus</i>	INS	21	2			0/1
Brubru <i>Nilaus afer</i>	INS	3	0			
Burchell's Sandgrouse <i>Pterocles burchelli</i>	GRA	1*	29	AM***	n.s.	
Cape Glossy Starling <i>Lamprotornis nitens</i>	OMN	5	29	n.s.	n.s.	
Cape Penduline Tit <i>Anthoscopus minutus</i>	INS	1	0			0/1
Cape Sparrow <i>Passer melanurus</i>	GRA	11	63	n.s.	n.s.	2/2
Cape Turtle-Dove <i>Streptopelia capicola</i>	GRA	23	260	n.s.	negative**	1/1
Chestnut-vented Tit-Babbler <i>Parisoma subcaeruleum</i>	INS	23	0			0/6
Common Fiscal <i>Lanius collaris subcoronatus</i>	INS	29	5	n.s.	positive*	0/6
Common Ostrich <i>Struthio camelus</i>	GRA	9	12	n.s.	positive*	
Common Scimitarbill <i>Rhinopomastus cyanomelas</i>	INS	4	0			0/2
Common Swift <i>Apus apus</i>	INS	1	0			
Common Whitethroat <i>Sylvia communis</i>	INS	1	0			

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Crimson-breasted Shrike <i>Laniarius atrococcineus</i>	INS	10	0			0/1
Crowned Lapwing <i>Vanellus coronatus</i>	INS	4	9	PM*	n.s.	
Desert Cisticola <i>Cisticola aridulus</i>	INS	2	0			
Diderick Cuckoo <i>Chrysococcyx cupreas</i>	INS	4	0			0/1
Dusky Sunbird <i>Cinnyris fuscus</i>	NEC	3	0			
Eastern Clapper Lark <i>Mirafra fasciolata</i>	OMN	20	0			
Eurasian Golden Oriole <i>Oriolus oriolus</i>	FRU	1	0			
Fawn-coloured Lark <i>Calendulauda africanoides</i>	OMN	40	0			0/11
Golden-breasted Bunting <i>Emberiza flaviventris</i>	GRA	1	1			1/1
Jacobin Cuckoo <i>Clamator jacobinus</i>	INS	3	0			
Kalahari Scrub-Robin <i>Cercotrichas paena</i>	INS	34	0			0/12
Kori Bustard <i>Ardeotis kori</i>	INS	1	0			
Kurrichane Buttonquail <i>Turnix sylvacticus</i>	INS	4	0			

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Lark-like Bunting <i>Emberiza impetuari</i>	GRA	12	45	n.s.	positive**	
Laughing Dove <i>Streptopelia senegalensis</i>	GRA	21	170	n.s.	positive *	0/1
Lesser Grey Shrike <i>Lanius minor</i>	INS	15	0			
Long-billed Crombec <i>Sylvietta rufescens</i>	INS	2	0			
Marico Flycatcher <i>Bradornis mariquensis</i>	INS	14	0			0/5
Namaqua Dove <i>Oena capensis</i>	GRA	37	265	n.s.	negative*	11/13
Namaqua Sandgrouse <i>Pterocles namaqua</i>	GRA	1	65	n.s.	negative*	
Northern Black Korhaan <i>Afrotis afraoides</i>	INS	12	0			
Pearl-spotted Owlet <i>Glaucidium perlatum</i>	CAR	0	0			0/1
Pirit Batis <i>Batis pririt</i>	INS	4	0			
Pygmy Falcon <i>Polihierax semitorquatus</i>	CAR	1	0			0/1
Red-backed Shrike <i>Lanius collurio</i>	INS	3	5	n.s.	n.s.	
Red-billed Quelea <i>Quelea quelea</i>	GRA	1	0			

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Red-crested Korhaan <i>Lophotis ruficrista</i>	INS	19	0			
Red-faced Mousebird <i>Urocolius indicus</i>	FRU	5	9			
Red-headed Finch <i>Amadina erythrocephala</i>	GRA	11	6	n.s.	n.s.	
Red-necked Falcon <i>Falco chicquera</i>	CAR	1	0			
Cinnamon-breasted Bunting <i>Emberiza tahapisi</i>	GRA	0	0			0/1
Rufous-cheeked Nightjar <i>Caprimulgus rufigena</i>	INS	0	0			0/1
Rufous-eared Warbler <i>Malcorus pectoralis</i>	INS	2	0			0/3
Scaly-feathered Finch <i>Sporopipes squamifrons</i>	GRA	39	0			6/48
Secretarybird <i>Sagittarius serpentarius</i>	CAR	2	3	n.s.	n.s.	
Shaft-tailed Whydah <i>Vidua regia</i>	GRA	2	0			
Sociable Weaver <i>Philetairus socius</i>	OMN	16	82	PM	positive***	5/36
Southern Grey-headed Sparrow <i>Passer diffusus</i>	GRA	4	0			
Southern Masked-Weaver <i>Ploceus velatus</i>	OMN	18	99	n.s.	n.s.	1/9

Species	Diet	Number of abundance point counts observed (62)	Number of drinking focals observed (287)	Time of drinking	Temperature dependency	Enriched/ Total samples
Southern Pale Chanting Goshawk <i>Melierax canorus</i>	CAR	1	3	n.s.	positive*	
Southern Yellow-billed Hornbill <i>Tockus leucomelas</i>	OMN	1	0			
Spike-heeled Lark <i>Chersomanes albofasciata</i>	OMN	4	0			0/1
Tinkling Cisticola <i>Cisticola rufilatus</i>	INS	0	0			0/1
¹ Violet-eared Waxbill <i>Uraeginthus granatinus</i>	GRA	5	15	n.s.	n.s.	9/12
¹ Wattled Starling <i>Creatophora cinerea</i>	OMN	4	2			
White-backed Mousebird <i>Colius colius</i>	FRU	9	18	AM*	positive*	0/7
White-browed Sparrow-Weaver <i>Plocepasser mahali</i>	OMN	51	17	PM****	Positive****	1/25
Yellow Canary <i>Crithagra flaviventris</i>	GRA	17	109	PM *	positive*	1/4
Yellow-bellied Eremomela <i>Eremomela icteropygialis</i>	INS	7	0			0/1

Table S2: Summary of two competing models (1 and 2) and a nul model (3) representing the intercept only of variables describing the probability of drinking (*drinking_int*) for the avian community at Tswalu Kalahari Reserve. Variables include: maximum air temperature T_{air} recorded on each day; time of day (as a factor before and after 1200 hours, UTC + 2 hr); and the estimated relative “abundance” of each species. Number of observations (n) per guild are shown, and model selection was based on Akaike Information Criteria (AIC). Log likelihood values are also provided.

Model:			
	n	Log likelihood	AIC
Granivores			
1 <i>Drinking_int</i> ~ maximum T_{air}^* + abundance**	3725	-1252.8.9	2515.7
2 <i>Drinking_int</i> ~ maximum T_{air}^* + Time + abundance**	3725	-1252.4	2516.7
3 <i>Drinking_int</i> ~ 1	3725	-1259.1	2524.2
Omnivores			
1 <i>Drinking_int</i> ~ maximum T_{air}^{**} + Time**	1432	-632.5	1275.0
2 <i>Drinking_int</i> ~ maximum T_{air}^{**} + Time** + abundance	1432	-632.5	1277.0
3 <i>Drinking_int</i> ~ 1	1432	-644.0	1294.0
Insectivores			
1 <i>Drinking_int</i> ~ maximum T_{air}^{**} + Time* + abundance	1994	-176.7	365.4
2 <i>Drinking_int</i> ~ maximum T_{air}^{**} + Time*	1994	-178.5	366.9
3 <i>Drinking_int</i> ~ 1	1994	-187.9	381.0
Frugivores			
1 <i>Drinking_int</i> ~ maximum T_{air}^* + Time** + abundance	571	-93.8	199.7
2 <i>Drinking_int</i> ~ Time**	571	-97.2	202.3
3 <i>Drinking_int</i> ~ 1	571	-102.5	210.5

* p<0.1; *p<0.05; **p<0.01