

TABLE S1. Material examined in this study.

Accession	Species	Latitude	Longitude	Locality	Country	Host or microhabitat	Collector or origin	Date Collected	Designation
OP3086	<i>Ornithodoros apertus</i>	-0.790983	36.304829	Crescent Island, Lake Naivasha	Kenya		Heisch & Grainger	??/??/1950	PARATYPE (GTTM)
OP5051	<i>Ornithodoros compactus</i>	-31.376720	21.056726	Klein Noute, Northern Cape	South Africa				
OP5160	<i>Ornithodoros compactus</i>	-31.376720	21.056726	Klein Noute, Northern Cape	South Africa		Lab reared		
OP2412ii	<i>Ornithodoros kalahariensis</i>	-27.458376	23.423468	Khazi Reserve, Kuruman	South Africa	Sand under tree	GAH Bedford	??/10/1934	
OP2418i	<i>Ornithodoros kalahariensis</i>	-26.937690	24.717766	Vryburg	South Africa	Native hut	CP Lounsbury	14/02/1928	
OP2751v	<i>Ornithodoros kalahariensis</i>	-25.462498	19.439781	Tweerivieren, Gibeon	Namibia	Sand, Mixed lot		21/12/1956	
OP2959i	<i>Ornithodoros kalahariensis</i>	-28.417231	21.182475	Upington	South Africa	Under trees	W Brink	07/03/1952	
OP3016i	<i>Ornithodoros kalahariensis</i>	-25.801523	23.691562	Jakkalskop, Vrijburg	South Africa	Under tree	R du Toit	08/02/1956	
OP3016ii	<i>Ornithodoros kalahariensis</i>	-27.466891	22.866725	Luton, Kuruman	South Africa	Under trees		09/06/1956	
OP3023i	<i>Ornithodoros kalahariensis</i>	-27.897672	25.149168	Harmonie's Hof, Kirstiana (via Vrijburg)	South Africa			05/06/1956	
OP5037ii	<i>Ornithodoros kalahariensis</i>	-29.451949	19.201923	Nam, Northern cape	South Africa		B Mans	04/02/2011	
OP5039ii	<i>Ornithodoros kalahariensis</i>	-29.790000	17.428484	Komaggas, Northern Cape	South Africa		D de Klerk	02/02/2011	
OP5041	<i>Ornithodoros kalahariensis</i>	-25.878382	23.957733	Tosca, Northern Cape	South Africa		D de Klerk	26/09/2011	
OP5042	<i>Ornithodoros kalahariensis</i>	-27.986705	21.426700	Droeduin, Northern Cape	South Africa		S Human	??/??/2010	
OP5056	<i>Ornithodoros kalahariensis</i>	-27.986705	21.426700	Droeduin, Northern Cape	South Africa		S Human	??/??/2010	PARATYPE (GTTM) - DNA samples

OP5059	Ornithodoros kalahariensis	-25.878382	23.957733	Tosca, Northern Cape	South Africa		D de Klerk	26/09/2011	HOLOTYPE
OP5060	Ornithodoros kalahariensis	-27.986705	21.426700	Droeduin, Northern Cape	South Africa		S Human	??/??/2010	PARATYPE (SAMC)
OP5061	Ornithodoros kalahariensis	-25.878382	23.957733	Tosca, Northern Cape	South Africa		D de Klerk	26/09/2011	PARATYPE (USNTC)
OP5077	Ornithodoros kalahariensis	-28.540774	25.230385	Boshof, Free state	South Africa			01/03/2014	
OP5077	Ornithodoros kalahariensis	-28.540774	25.230385	Boshof, Free State	South Africa				
OP2413iii	Ornithodoros moubata	-25.716437	27.704721	Wolhuterskop, Brits	South Africa		Mrs Maynard and HK Munro	30/05/1920	
OP2416i	Ornithodoros moubata	-25.640117	28.159909	ex-Onderstepoort, Pretoria	South Africa	Native huts	Lab reared	05/09/1941	
OP2416ii	Ornithodoros moubata	-25.640117	28.159909	ex-Onderstepoort, Pretoria	South Africa	Native huts	Lab reared	01/09/1941	
OP3089i	Ornithodoros moubata	-25.593192	26.400650	Groot Marico	South Africa	African hut	Bind	??/??/1957	PARATYPE OF NEOTYPE (GTTM)
OP5044	Ornithodoros moubata	-24.901676	26.119925	Groot Marico district	South Africa		B Mans	02/02/2012	
OP5054	Ornithodoros moubata	-24.901676	26.119925	Groot Marico district	South Africa		Ben Mans	02/02/2012	
OP3023ii	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		GA Walton	??/06/1960	
OP5040	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		A Hayward	01/01/2011	
OP5057	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		A Hayward	01/01/2011	PARATYPE (GTTM) - DNA samples
OP5062	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		A Hayward	01/01/2011	HOLOTYPE
OP5063	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		A Hayward	01/01/2011	PARATYPE (SAMC)
OP5064	Ornithodoros noorsveldensis	-33.248351	24.288374	Allemanskraal, Steytlerville	South Africa		A Hayward	01/01/2011	PARATYPE (USNTC)
OP2419ii	Ornithodoros pavementosus	-26.598394	18.143418	Wittenhorst, Keetmanshoop	Namibia	Native huts	H Sigwart	08/09/1928	
OP2644i	Ornithodoros pavementosus						M Schlechter	04/03/1898	

OP2644ii	Ornithodoros pavimentosus			SWA	Namibia		Lounsbury collection	??/03/1908	
OP2644iii	Ornithodoros pavimentosus			SWA	Namibia				
OP2644iv	Ornithodoros pavimentosus			SWA	Namibia			??/??/1899	
OP2644v	Ornithodoros pavimentosus	-28.417231	21.182475	Upington	South Africa	Cattle	J Steenkamp	29/01/1911	
OP2644vi	Ornithodoros pavimentosus	-29.622333	24.052657	Abbot's Dam, Hopetown	South Africa	Beneath Karree-boom	F Thompson	??/12/1915	
OP2700ii	Ornithodoros pavimentosus	-22.535833	17.025817	Prospect, Windhoek	Namibia	Bovine		19/02/1947	
OP3043i	Ornithodoros pavimentosus	-22.483958	18.967619	Kalkpan 314, Gobabis	Namibia	Kraals		22/10/1957	
OP3108v	Ornithodoros pavimentosus						Lab reared OP		
OP5037i	Ornithodoros pavimentosus	-29.451949	19.201923	Nam, Northern cape	South Africa		B Mans	04/02/2011	
OP5039i	Ornithodoros pavimentosus	-29.790000	17.428484	Komaggas, Northern Cape	South Africa		D de Klerk	02/02/2011	
OP5050	Ornithodoros pavimentosus	-26.004386	16.415523	Urus Farm, Luderitz	Namibia	Cow	CJ Steenkamp	27/06/1985	
OP5055	Ornithodoros pavimentosus	-29.451949	19.201923	Nam, Northern cape	South Africa		B Mans	04/02/2011	PARATYPE (GTTM) - DNA samples
OP5058	Ornithodoros pavimentosus	-29.790000	17.428484	Komaggas, Northern Cape	South Africa		D de Klerk	02/02/2011	PARATYPE (USNTC)
OP5065	Ornithodoros pavimentosus	-29.790000	17.428484	Komaggas, Northern Cape	South Africa		D de Klerk	02/02/2011	HOLOTYPE
OP5066	Ornithodoros pavimentosus	-29.790000	17.428484	Komaggas, Northern Cape	South Africa		D de Klerk	02/02/2011	PARATYPE (SAMC)
OP2415ix	Ornithodoros phacochoerus	-25.036484	33.655401	Chai Chai	Mozambique	Native huts	PEA Emile Cusker and CP Lounsbury	01/11/1919	
OP2415x	Ornithodoros phacochoerus	-26.972271	31.321468	Hlatikulu	Swaziland		JS Dunn and CP Lounsbury	08/12/1913	
OP2415xi	Ornithodoros phacochoerus	-26.610841	30.715869	Tweepoort, Transvaal	South Africa		FC Joubert	18/02/1913	
OP5047	Ornithodoros phacochoerus	-22.491673	31.238487	Pafuri, Kruger National Park	South Africa		A Dekker	04/06/2012	
OP5048	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	

OP5053	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	PARATYPE (GTTM) - DNA samples
OP5067	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	HOLOTYPE
OP5068	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	PARATYPE (SAMC)
OP5069	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	PARATYPE (USNTC)
OP5070	Ornithodoros phacochoerus	-22.491673	31.238487	Pafuri, Kruger National Park	South Africa		A Dekker	04/06/2012	
OP5071	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	
OP5072	Ornithodoros phacochoerus	-25.350068	31.886691	Crocodile bridge, Kruger National Park	South Africa		A Dekker	20/09/2010	
OP2645i	Ornithodoros porcinus	-15.376886	35.326943	Zomba	Malawi			08/09/1906	
OP2645ii	Ornithodoros porcinus	-2.644323	29.938164		Ruanda-Urundi	Native hut	HRF Colhaet	??/08/1945	
OP2645iv	Ornithodoros porcinus	-10.219042	26.080454	Biano	DRC	Human hut	DH Suter	26/02/1956	
OP2684i	Ornithodoros porcinus	-1.289154	36.719777	Kabiria, Wasaka district	Kenya		GHE Hopkins	??/01/1938	
OP2684ii	Ornithodoros porcinus	3.380405	33.966061	Lolelia River, Karamoja	Uganda	<i>Phacochoerus aethiopicus</i>	GHE Hopkins	23/02/1942	
OP5045	Ornithodoros porcinus	3.631648	37.700032	Ziwani, Tsavo west	Kenya	Elephant (backline/ears)	E Kanduma	09/07/2011	
OP3087i	Ornithodoros porcinus domesticus	-6.519769	35.662427	M'Noho, Mwitikira, Dodoma	Tanzania	African hut	Bred 1957, GA Walton		HOLO-ALLOTYPE (GTTM)
OP3087ii	Ornithodoros porcinus domesticus	0.044909	37.640055	Kangeta, Meru	Kenya	African hut	Bred 1956, GA Walton		PARATYPE (GTTM)
OP3087iii	Ornithodoros porcinus domesticus	-4.239454	39.591280	Tiwi, Digo	Kenya	Fowl hut	Bred 1957, GA Walton		PARATYPE (GTTM)

OP3088i	Ornithodoros porcinus porcinus	-6.519769	35.662427	Mwitikira, Dodoma	Tanzania	Warthog burrow		??/02/1956	PARATYPE (GTTM)
OP2775i	Ornithodoros savignyi	9.575834	41.860415	Dire Dawa	Ethiopia	Camel?	AD Charters	??/??/1944	
OP2775ii	Ornithodoros savignyi	29.407931	31.395744	El Manswiya, Giza Pro	Egypt	Under tree	H Hoogstraal	??/11/1950	
OP2775iv	Ornithodoros savignyi	2.067955	45.293634	Mogadishio	Somalia		M Maffi	22/05/1957	
OP2958i	Ornithodoros savignyi	14.425954	33.539793	Wad Medani	Sudan	Camel	H Hoogstraal	24/01/1952	
OP2958ii	Ornithodoros savignyi	1.718481	44.760288	Merca Station	Somalia		S Congiu	??/06/1959	
OP5038	Ornithodoros savignyi	13.293591	30.361340	El Obeid	Sudan		DSM Hassan	01/03/2013	
OP5043	Ornithodoros waterbergensis	-23.775079	27.481704	Lephalale	South Africa		B Mans	21/08/2012	
OP5043ii	Ornithodoros waterbergensis	-23.775079	27.481704	Lephalale	South Africa		B Mans	21/08/2012	
OP5046	Ornithodoros waterbergensis	-22.956677	29.316727	Bergpan	South Africa		D de Klerk	14/02/2014	
OP5049	Ornithodoros waterbergensis	-22.666625	28.749983	Tonash, N Transvaal	South Africa	warthog burrow	G Thomson & E Nevill	01/09/1979	
OP5052	Ornithodoros waterbergensis	-23.775079	27.481704	Lephalale	South Africa		B Mans	21/08/2012	
OP5073	Ornithodoros waterbergensis	-23.775079	27.481704	Lephalale	South Africa		B Mans	21/08/2012	HOLOTYPE
OP5074	Ornithodoros waterbergensis	-23.775079	27.481704	Lephalale	South Africa		B Mans	21/08/2012	PARATYPE (GTTM) - DNA samples
OP5075	Ornithodoros waterbergensis	-22.956677	29.316727	Bergpan	South Africa		D de Klerk	14/02/2014	PARATYPE (SAMC)
OP5076	Ornithodoros waterbergensis	-22.956677	29.316727	Bergpan	South Africa		D de Klerk	14/02/2014	PARATYPE (USNTC)

FIGURE S1. Operational definitions for tarsus I landmarks.

- LM Definition
- 1 medial base inflection of lobe 1/antero-proximal margin of tarsis I
 - 2 medial lobe inflection of lobe 1
 - 3 widest medial point on lobe 1
 - 4 highest point on lobe 1
 - 5 widest lateral point on lobe 1
 - 6 lateral lobe inflection of lobe 1
 - 7 lateral base inflection of lobe 1
 - 8 medial base inflection of lobe 2
 - 9 medial lobe inflection of lobe 2
 - 10 widest medial point on lobe 2
 - 11 highest point on lobe 2
 - 12 widest lateral point on lobe 2
 - 13 lateral lobe inflection of lobe 2
 - 14 lateral base inflection of lobe 2
 - 15 medial base inflection of lobe 3.1
 - 16 highest point on lobe 3.1
 - 17 Haller's organ medial margin
 - 18 Haller's organ centre
 - 19 Haller's organ lateral margin
 - 20 widest medial point on lobe 3.2 tip
 - 21 widest lateral point on lobe 3.2 tip
 - 22 lateral base inflection of lobe 3.2



FIGURE S2. Point map distribution of *Ornithodoros* (*Ornithodoros*) species against annual precipitation data. Circles represent localities of collections studied morphologically, triangles represent localities of previously published 16S sequences.

