

The University Museum  
The University of Tokyo

Bulletin No. 47

**KONSO-GARDULA RESEARCH PROJECT**

Volume 1

Paleontological Collections: Background and Fossil Aves,  
Cercopithecidae, and Suidae

Edited by

Gen Suwa, Yonas Beyene, and Berhane Asfaw



2014 TOKYO

## **Editorial Board**

Yoshihiro Nishiaki (Editor-in-chief, Archaeology)

Hiroshi Ikeda (Botany)

Mari Kuroki (Marine Biology)

Takenori Sasaki (Paleontology)

Gen Suwa (Physical Anthropology)

Eisei Tsurumi (Cultural Anthropology)

Masaya Yago (Entomology)

All communications pertaining to this Bulletin should be addressed to the Editorial Board, the University Museum, the University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan.

Issued March 20, 2014

ISSN 0910-481 X

© The University Museum, The University of Tokyo

Printed by Akita Kappan Printing Co., Ltd.

## CONTENTS

Acknowledgements	
Chapter 1. Introduction (Gen Suwa, Yonas Beyene, and Berhane Asfaw) .....	1
Chapter 2. The Konso Formation Paleontological Assemblages: Collecting and Documentation Methodologies (Gen Suwa, Hideo Nakaya, and Berhane Asfaw) .....	5
Chapter 3. Stratigraphic and Chronologic Context of the Konso Formation Paleontology (Shigehiro Katoh, Gen Suwa, Hideo Nakaya, and Yonas Beyene) .....	11
Chapter 4. Fossil Birds of the Konso Formation (Antoine Louchart) .....	25
Chapter 5. Fossil Cercopithecidae of the Konso Formation (Stephen R. Frost) .....	41
Chapter 6. Fossil Suidae of the Konso Formation (Gen Suwa, Antoine Souron, and Berhane Asfaw) .....	73
Appendix 1. Aves Referred Materials .....	89
Appendix 2. Cercopithecidae Referred Materials .....	91
Appendix 3. Suidae Referred Materials and Dental Metrics .....	97

---

Related Archival Materials: The KGA paleontological collection record plots (on file, available for viewing upon request)

## APPENDIX 2

**Cercopithecidae Referred Materials**

Appendix 2 includes the following listings of fossil materials referred to Cercopithecidae.

Table A2.1. *Theropithecus oswaldi oswaldi* referred craniodental materials.

Table A2.2. *Theropithecus oswaldi* ssp. indet. and *T. o. leakeyi* referred craniodental materials.

Table A2.3. Papionini, Cercopithecinae tribe indet., Colobinae indet., and subfamily indet. referred dental materials.

Table A2.4. *Theropithecus oswaldi* ssp. referred postcranial materials.

Table A2.5. Cercopithecidae indet. (sizes A, B and C) referred postcranial materials.

**Table A2.1.** *Theropithecus oswaldi oswaldi* referred craniodental materials

Specimen no.	Side	Sex	Element	Horizon	Level
<i>Theropithecus oswaldi oswaldi</i>					
Sorobo/Turoha Members (Stratigraphic interval 1)					
KGA4 19	L	female	MAX(M3)	4M	~TRT
?KGA4 647	R	male	UC	4M	~TRT
KGA4 813	L		UM	4M	TRT-
KGA4 819	R		Ldp frag	4M	TRT-
KGA4 1003	L		Udp4	4M	TRT-
KGA4 1170	R		MAN(M2-M3)	4M	TRT-
KGA4 1499	L		MAN(M3)	4M	~TRT
KGA4 1500	R		LM3 frag	4M	~TRT
KGA4 1502	R		UM	4M	~TRT
KGA4 1616	R		LM3	4M	~TRT
KGA4 1617	L		MAN(M2-M3)	4M	~TRT
KGA4 1996	R		LM1/2 frag	4M	TRT-
KGA4 2319	L		MAN(M1-M3)	4M	~TRT
KGA4 2476	R		LM1/2 frag	4M	TRT-

? indicates probable taxonomic attributions.

**Table A2.2.** *Theropithecus oswaldi* ssp. indet. and *T. o. leakeyi* referred craniodental materials

Specimen no.	Side	Sex	Element	Horizon	Level
<i>Theropithecus oswaldi</i> ssp. indet.					
Middle part of Kayle Member (Stratigraphic interval 3)					
KGA21	84	R	M1/2	21M	BRT-
<i>Theropithecus oswaldi leakeyi</i>					
?Upper part of Kayle Member (Stratigraphic interval 4 [or from 1])					
KGA4	1295	L	LM3 frag	4E?	cf~A3T
KGA11	274	L	LI1	Q	?~TBT/~TRT
Upper part of Kayle Member (Stratigraphic interval 4)					
KGA4	2610	L	LM1/2	4E	TBT-
KGA10	241		UM frag	10M	~LHT
KGA10	242	L	UM1/2	10M	~LHT
KGA10	366		M frag	10M	~LHT
?KGA10	554	L	UC	10U	LHT++
KGA10	559/1676	R/L	MAN(M3)/MAN(M3)	10M	LHT+
KGA10	590	R	MAN(M3)	10M	LHT+
KGA10	688	R	UM	10M	LHT+
KGA10	800	L	UM frag	10M	LHT+
KGA10	1559	R	LM3	10M	LHT+
KGA10	1579	R	UM	10M	LHT+
KGA10	1635	L	UM	10M	LHT+
KGA10	1643	L	LM1	10M	LHT+
?KGA10	1712	R	LP3	10M	~LHT
KGA10	1732	R	LP4	10M	~LHT
?KGA10	1862	R	LP3	10M	~LHT
KGA10	1884	L	LM frag	10M	~LHT
KGA10	2150	R	UP4	10L	~IVT
KGA10	2172	R	UM frag	10L	~IVT
KGA10	2478	L	MAN(M1)	10M	LHT+
KGA10	2738	L	UM frag	10M	~LHT
KGA10	2756	R	LM2	10M	~LHT
KGA10	2774	R	LM frag	10M	LHT+
KGA10	2776		frontal frag	10M	LHT+
KGA10	2791	L	LM1/2 frag	10M	LHT+
KGA12	640	RL	MAN(I1-C)	12L	KRT-
KGA12	650	R	MAN(P3-P4)	12L	KRT-
KGA12	664	R	MAN(M1-M2)	12L	KRT-
KGA12	1193	L	LP4	12L	KRT-
?KGA14	4	R	LC	14L	KRT-
KGA16	2	R	UM1/2	16M	TBT-
KGA16	3	L	LM1/2	16M	TBT-
KGA16	10	R	UM1-M2	16M	~TBT
Karat Member (Stratigraphic interval 5)					
KGA5	120	R	UM frag	5M	~BWT
KGA5	135	R	LM frag	5M	~BWT
KGA5	168	L	LM3 frag	5M	~BWT
KGA7	260	L	LM1/2	7U	~BOT
KGA7	271	L	UM frag	7U	~BOT
KGA7	309	R	LM frag	7U	~BOT
KGA7	310	R	UM	7U	~BOT
KGA7	321	R	UP4	7M	~BWT
KGA7	322	L	LM1/2 frag	7M	~BWT
KGA7	350		male calvaria	7M	~BWT
?KGA7	373	L	female LC	7M	~BWT
KGA7	382	L	UM frag	7M	~BWT
?KGA7	383	L	UI1	7M	~BWT
KGA7	392	L	LP4	7U	~BOT
?KGA7	429	L	male LC	7U	~BOT

Specimen no.	Side	Sex	Element	Horizon	Level
KGA7 430	L		LM frag	7U	~BOT
KGA7 465	L		LM3	7U	~BOT
KGA7 466	L		LM1/2	7U	~BOT
KGA8 154	L		LM1/2	8U	BWT+
KGA8 176	R		UM frag	8U	BWT+
KGA8 299	R		UM3 frag	8U	BWT+
?KGA8 300	L		UI2	8U	BWT+
KGA8 361	L		LM3	8M	~BWT
?KGA8 539	L	male	LC	8M	~BWT
KGA12 184	L		UM	12M	~BWT~12HGT-
KGA12 397	R		LM1/2 frag	12M	~BWT~12HGT-
KGA12 411	R		LM1/2 frag	12M	~BWT~12HGT-
KGA12 417			M frag	12M	~BWT~12HGT-
?KGA12 552	R	female	UC	12M	~BWT~12HGT-
KGA12 590	L		UM1-M2	12M	~BWT~12HGT-
KGA12 685	L		UP4	12M	~BWT~12HGT-
KGA12 840	L		LP4	12M	~BWT~12HGT-
KGA12 1146	L		LM3	12M	12HGT-
KGA12 1198	R		LM3	12M	12HGT-
KGA16 1	L		UM	16U	BNT+
KGA17 61			M frag	17M	BNT+

? indicates probable taxonomic attributions.

**Table A2.3.** Papionini, Cercopithecinae tribe indet., Colobinae indet., and subfamily indet. referred dental materials

Specimen no.	Side	Sex	Element	Horizon	Level
Papionini gen. et sp. indet.					
Sorobo Member (Stratigraphic interval 1)					
KGA4	1004	L	UP4	4M	TRT-
KGA4	1005	L	UP3 frag	4M	TRT-
KGA4	1995	R	UM	4M	TRT-
Upper part of Kayle Member (Stratigraphic interval 4)					
KGA10	10	L	LM1/2	10M	LHT+
KGA10	1456	L	UM	10M	~LHT
KGA10	2790	R	LM1/2	10U	LHT++
KGA16	24	R	LM3	16M	KRT-
Karat Member (Stratigraphic interval 5)					
KGA8	305	R	LM3	8U	BWT+
KGA12	914	L	Udp4	12M	12HGT-
Cercopithecinae tribe indet.					
Upper part of Kayle Member (Stratigraphic interval 4)					
KGA10	1619	R	LP4	10M	LHT+
Colobinae gen. et sp. indet.					
Upper part of Kayle Member (Stratigraphic interval 4)					
KGA10	1525	L	LI1	10L	IVT-
Karat Member (Stratigraphic interval 5)					
KGA12	1042	R	UM	12M	12HGT-
Subfamily indetermined					
Upper part of Kayle Member (Stratigraphic interval 4)					
KGA10	641		LM frag	10M	LHT+
KGA10	2287		M frag	10M	~LHT
Karat Member (Stratigraphic interval 5)					
KGA12	1148	L	male UC	12M	12HGT-

Table A2.4. *Theropithecus oswaldi* ssp. referred postcranial materials

Specimen no.	Side	Element	Horizon	Level	
<i>?Theropithecus oswaldi oswaldi</i>					
Sorobo/Turoha Members (Stratigraphic interval 1)					
KGA4	281	R	FEM dist	4M	TRT-
KGA4	285	R	CAL	4M	TRT-
KGA4	388	L	CAL	4M	TRT-
KGA4	389	L	HUM dist	4M	TRT-
KGA4	391	L	ULN prox	4M	TRT-
KGA4	549	L	SCA	4M	~TRT
KGA4	550	L	HUM dist	4M	~TRT
KGA4	765	R	FEM prox	4M	~TRT
KGA4	913	L	CAL	4M	TRT-
KGA4	1352	R	ULN prox	4M	TRT-
KGA4	1615	R	SCA	4M	~TRT
KGA4	1618	L	AST	4M	~TRT
KGA4	1668	R	ULN prox	4M	~TRT
KGA4	1669	R	FEM dist	4M	~TRT
KGA4	1981	R	FEM prox	4M	TRT-
KGA4	2271	L	AST	4M	~TRT
<i>?Theropithecus oswaldi</i> ssp. indet.					
Middle part of the Kayle Member (Stratigraphic interval 3)					
KGA4	2294	L	HUM prox	4HA	~4HAT
<i>?Theropithecus oswaldi leakeyi</i>					
Upper part of the Kayle Member (Stratigraphic interval 4)					
KGA4	2229	L	FEM prox	4E	TBT-
KGA4	2576		MTP dist	4E	A3T+
KGA10	647	L	TIB dist	10M	LHT+
KGA10	2365	L	MTT5 prox	10L	IVT-
Karat Member (Stratigraphic interval 5)					
KGA5	151	R	CAL	5M	~BWT~8HGT
KGA7	101	L	RAD prox	7U	BWT+
KGA7	388	L	MTT5 prox	7U	~BOT
KGA8	433	R	HUM dist	8U	~8HGT
KGA8	540	L	HUM dist	8U	BWT+
KGA12	311	L	HUM dist	12M	~BWT~12HGT-
KGA12	405	L	AST	12M	~BWT~12HGT-
KGA12	551	R	MTT5 prox	12M	~BWT~12HGT-
KGA12	678	R	MTT3	12M	~BWT~12HGT-
KGA12	794		PHX prox	12M	~BWT~12HGT-
KGA12	1195	R	HUM shaft	12M	12HGT-
KGA17	39	L	HUM dist	17M	~BNT



**Table A2.5.** Cercopithecidae indet. (sizes A, B and C) referred postcranial materials

Specimen no.	Side	Element	Horizon	Level
Cercopithecidae postcrania size A (vervet-size)				
Middle part of the Kayle Member (Stratigraphic interval 3)				
KGA4 1251	R	FEM prox	4HA	4HAT+
Upper part of the Kayle Member (Stratigraphic interval 4)				
KGA10 2013	L	HUM dist	10M	~LHT
Cercopithecidae postcrania size B (colobus-size)				
Middle part of the Kayle Member (Stratigraphic interval 3)				
KGA4 418	R	HUM prox	4HA	4HAT+
Upper part of the Kayle Member (Stratigraphic interval 4)				
KGA11 189	L	TIB prox	11ML	TBT-
Cercopithecidae postcrania size C				
Sorobo/Lower Turoha Members (Stratigraphic interval 1)				
KGA4 236		MTP dist	4M	~TRT
KGA4 390	R	RAD prox	4M	TRT-
KGA4 1501	R	NAV	4M	~TRT
Middle part of the Kayle Member (Stratigraphic interval 3)				
KGA4 1253	L	FEM prox	4HA	4HAT+
Upper part of the Kayle Member (Stratigraphic interval 4)				
KGA4 1303	L	ULN prox	cf 4E	cf ~A3T
KGA4 2575	L	SCA	4E	A3T+
KGA10 1644	R	AST	10U	LHT++
Karat Member (Stratigraphic interval 5)				
KGA12 208		VER lumbar	12M	~BWT~12HGT-
KGA12 1147	R	ULN prox	12M	12HGT-
KGA12 1181	R	MTT2 prox	12M	12HGT-