APPENDIX 1. Birds (contd)

"fork" of Scarce is often held closed). Bates's Swift was also reported by Taylor (1981) near Buea, but he makes no mention of Scarce Swift, which we consider far more likely.

- *Apaloderma narina*: recorded by Stuart (1986) and his colleagues from the south-western slopes, but the only trogon caught and photographed (identified at the time as *A. narina*) turned out to be *A. aequatoriale* on careful re-examination. There are no other records of *A. narina* on Mt Cameroon, so the occurrence of this species requires confirmation.
- *Neocossyphus rufus*: the mention in Louette (1981) that this species occurs in the Cameroon forest "from Mt Cameroon eastwards" is based (M. Louette *in litt.*) on a single sight record from Missellele (on the Tiko plain, not part of the mountain area) by Young (1946). However, Young does not mention *N. poensis*, widely distributed in the forest zone north of the Sanaga, whereas there are no certain records (and no specimens) of *N. rufus* anywhere north of the Sanaga River. *N. rufus* should therefore be rejected for the time being.
- *Bradypterus* spp.: there is a confusing account of two *Bradypterus* species in Grimes (1971), both names used now considered as synonyms of *B. lopezi*; however, the description of the habitat of "*B. camerunensis*" (high reedy grass at Buea) and of their vocal behaviour (singing in flight with wing snapping) excludes the possibility of *B. lopezi* and refers to *B. baboecala*, as indeed corrected later (W. Serle in Grimes 1972).
- *Cisticola anonymus*: Young (1946) records it from Hut 1 (1830 m), surely in error for *C. chubbi*.
- *Malaconotus monteiri perspicillatus*: Stuart & Jensen (1986: 63) give convincing arguments in favour of considering this as probably an aberrant morph of *Malaconotus gladiator*. It was collected over a century ago (Reichenow 1894) and never found again. *M. monteiri* is known from the Angolan escarpment.
- *Ploceus baglafecht* (in Grimes 1971) was in error for *P. bicolor* (W. Serle in Grimes 1972).
- *Ploceus melanocephalus*: Hivekovics & Palatitz (1998) write that this was one of the commonest species recorded in secondary bush near a banana plantation on the west coast. We assume this is a slip of the pen for another weaver (?*P. cucullatus*) as *P. melanocephalus* is a species of northern savannas, not recorded from the forest zone in Cameroon. (Another error in that paper involves the altitude of Mann's Spring, given as 3400 instead of 2300 m.).

APPENDIX 2. Bird breeding records and ringing schedules.

1. Breeding records:

Mesopicos elliotii. Feeding fledgling 8 Mar., but almost independent (eggs probably Dec.).
Andropadus tephrolaemus. Feeding fledgling (not full-grown) 9 Mar. (eggs Jan.).
Saxicola torquata. Feeding at nest 12 Mar. (eggs Feb.); two females with "old" BP, 7 and 10 Mar. (eggs Jan.).
Bradypterus lopezi. Active brood patch (BP with eggs or small young) 5 Mar. (eggs Feb.).
Cisticola chubbi. Pair nest-building 5-7 Mar.; female with active BP (eggs/small young) 6 Mar.; two females with older BP (young out) both 6 Mar. Laying in Jan. (2), Feb. (1) and Mar. (1).
Urolais epichlora. Feeding fledgling 9 Mar. (not quite full-grown) and 12 Mar. (eggs Jan.).
Apalis cinerea. Feeding full-grown fledgling 12 Mar. (eggs Jan.).
Platysteira cyanea. Feeding fledgling 12 Mar. (eggs Jan.).
Elminia albiventris. Feeding big fledgling in several places on 4, 9, 10 and 12 Mar. (eggs all from Jan.).
Pseudoalcippe abyssinica. Feeding big fledgling 6 Mar. (eggs Jan.).
Laniarius atroflavus. Families with fledglings in two places, 7 Mar. (eggs Jan.).
Onychognathus walleri. Feeding fledgling at Spider Camp, 12 Mar. (eggs Jan.).
Ploceus melanogaster. Female with active BP (eggs or small young), 5 Mar. (eggs Feb.).

2. Bird ringing schedules:

All at Mann's Spring (4°07'N,9°08'E).

Ring n°	Species	Age/sex	Date	Retraps
7L.7440	Nectarinia preussi	ad m	09/03/01	1st ringed 30/11/96
A.63511	Cossypha isabellae	juv/1Y	05/03/01	
A.63512	Pseudoalcippe abyssinica	ad m	05/03/01	
A.63513	Cossypha isabellae	1Y	05/03/01	
A.63514	Cossypha isabellae	ad m	05/03/01	
A.63515	Cossypha isabellae	ad m	06/03/01	
A.63516	Mesopicos elliotii	fg m	06/03/01	
A.63517	Serinus burtoni	ad	06/03/01	
A.63518	Linurgus olivaceus	ad m	06/03/01	
A.63519	Serinus burtoni	ad m	06/03/01	
A.63520	Cossypha isabellae	ad f	06/03/01	
A.63521	Pseudoalcippe abyssinica	ad f	06/03/01	
A.63522	Ploceus melanogaster	ad f	06/03/01	
A.63523	Cossypha isabellae	ad m	06/03/01	
A.63524	Cossypha isabellae	ad m	06/03/01	
A.63525	Pseudoalcippe abyssinica	ad f	06/03/01	
A.63526	Cossypha isabellae	ad m	06/03/01	
A.63527	Pseudoalcippe abyssinica	ad m	07/03/01	
A.63528	Andropadus tephrolaemus	ad f	07/03/01	
A.63529	Andropadus tephrolaemus	ad f	07/03/01	
A.63530	Ploceus melanogaster	ad f	07/03/01	
A.63531	Ploceus melanogaster	ad m	07/03/01	
A.63532	Ploceus melanogaster	ad f	07/03/01	
A.63533	Andropadus tephrolaemus	ad m	07/03/01	
A.63534	Andropadus tephrolaemus	ad f	07/03/01	
A.63535	Pseudoalcippe abyssinica	ad m	07/03/01	
A.63536	Linurgus olivaceus	ad f	07/03/01	
A.63537	Serinus burtoni	fg	07/03/01	
A.63538	Andropadus tephrolaemus	fg	07/03/01	
A.63539	Linurgus olivaceus	ad m	08/03/01	
A.63540	Linurgus olivaceus	ad f	08/03/01	
A.63541	Andropadus tephrolaemus	ad f	08/03/01	
A.63542	Andropadus tephrolaemus	ad f	08/03/01	
A.63543	Linurgus olivaceus	ad m	08/03/01	
A.63544	Andropadus tephrolaemus	ad m	08/03/01	
A.63545	Cossypha isabellae	ad m	08/03/01	
A.63546	Andropadus tephrolaemus	ad f	08/03/01	
A.63547	Cossypha isabellae	ad f	08/03/01	
A.63548	Andropadus tephrolaemus	ad f	09/03/01	
A.63549	Andropadus tephrolaemus	ad	09/03/01	
A.63550	Andropadus tephrolaemus	ad f	09/03/01	
A.63551	Linurgus olivaceus	ad m	09/03/01	
A.63552	Serinus burtoni	ad f	09/03/01	
A.63553	Serinus burtoni	ad f	09/03/01	
A.63554	Serinus burtoni	ad	09/03/01	
A.63555	Serinus burtoni	ad f	09/03/01	
A.63556	Linurgus olivaceus	ad f	09/03/01	
A.63557	Linurgus olivaceus	ad m	09/03/01	
A.63558	Ploceus insignis	ad m	09/03/01	
A.63559	Andropadus tephrolaemus	ad f	09/03/01	
A.63560	Euplectes capensis	ad f	09/03/01	
A.63561	Linurgus olivaceus	ad m	09/03/01	
A.63562	Andropadus tephrolaemus	ad f	09/03/01	
A.63563	Ploceus melanogaster	ad f	09/03/01	
A.63564	Ploceus melanogaster	ad m	09/03/01	

APPENDIX 2. Ringing schedules (contd)

Ring n°	Species	Age/sex	Date	Retraps
A.63565	Serinus burtoni	ad f	09/03/01	
A.63566	Serinus burtoni	ad	09/03/01	
A.63567	Cossypha isabellae	ad m	09/03/01	
A.63568	Andropadus tephrolaemus	ad f	09/03/01	
A.63569	Andropadus tephrolaemus	ad	09/03/01	
A.63570	Andropadus tephrolaemus	ad m	10/03/01	
A.63571	Serinus burtoni	ad	10/03/01	
A.63572	Andropadus tephrolaemus	ad f	10/03/01	
A.63573	Linurgus olivaceus	ad f	10/03/01	
A.63574	Andropadus tephrolaemus	ad f	10/03/01	
A.63575	Linurgus olivaceus	ad m	10/03/01	
A.63576	Euplectes capensis	ad m	10/03/01	
A.63577	Andropadus tephrolaemus	ad f	10/03/01	
A.63578	Pseudoalcippe abyssinica	ad m	10/03/01	
A.63579	Pseudoalcippe abyssinica	1Y	10/03/01	
A.63580	Pseudoalcippe abyssinica	ad	10/03/01	
A.63581	Andropadus tephrolaemus	ad f	10/03/01	
A.63582	Andropadus tephrolaemus	ad m	10/03/01	
A.63583	Serinus burtoni	ad m	10/03/01	
A.63584	Serinus burtoni	1Y	10/03/01	
A.63585	Serinus burtoni	ad m	10/03/01	
A.63586	Andropadus tephrolaemus	ad f	10/03/01	
B.31196	Laniarius atroflavus	1Y f	07/03/01	
B.31197	Turdus pelios	ad m	07/03/01	
B.31198	Turdus pelios	ad	07/03/01	
B.31199	Turdus pelios	ad	07/03/01	
B.31200	Turdus pelios	ad f	08/03/01	
B.31204	Turdus pelios	ad m	08/03/01	
B.31205	Turdus pelios	ad m	08/03/01	
B.31206	Turdus pelios	ad f	08/03/01	
B.31207	Turdus pelios	ad f	08/03/01	
B.31208	Turdus pelios	ad f	08/03/01	
B.31209	Turdus pelios	ad m	08/03/01	
B.31210	Turdus pelios	ad f	09/03/01	
B.31211	Turdus pelios	ad m	09/03/01	
B.31212	Turdus pelios	ad f	09/03/01	
B.31213	Turdus pelios	ad m	09/03/01	
B.31214	Turdus pelios	ad f	09/03/01	
B.31215	Turdus pelios	ad m	09/03/01	
B.31216	Turdus pelios	ad f	09/03/01	
B.31217	Sarothrura elegans	ad m	09/03/01	
B.31218	Turdus pelios	ad	09/03/01	
B.31219	Turdus pelios	ad f	10/03/01	
B.31220	Turdus pelios	ad f	10/03/01	
BB.3084	Turdus pelios	ad m	05/03/01	
BB.3085	Turdus pelios	ad f	05/03/01	
BB.3086	Turdus pelios	ad m	05/03/01	
BB.3087	Turdus pelios	ad f	06/03/01	
BB.3088	Turdus pelios	ad m	06/03/01	
BB.3089	Turdus pelios	ad f	06/03/01	
BB.3090	Turdus pelios	ad f	06/03/01	
BB.3091	Turdus pelios	ad f	06/03/01	
BB.3092	Turdus pelios	ad m	06/03/01	
BB.3093	Turdus pelios	ad m	06/03/01	
BB.3094	Turdus pelios	ad f	06/03/01	
BB.3095	Turdus pelios	ad m	06/03/01	
BB.3096	Turdus pelios	ad m	06/03/01	

Ring n°	Species	Age/sex	Date	Retraps
BB.3097	Turdus pelios	ad f	06/03/01	
BB.3098	Turdus pelios	ad f	07/03/01	
BB.3099	Turdus pelios	ad f	07/03/01	
BB.3100	Turdus pelios	ad m	07/03/01	
C.6465	Turdus pelios	ad m	10/03/01	
C.6466	Turdus pelios	ad f	10/03/01	
C.6467	Turdus pelios	ad f	10/03/01	
C.6468	Turdus pelios	ad f	10/03/01	
C.6469	Laniarius atroflavus	ad f	10/03/01	
C.6470	Turdus pelios	ad m	10/03/01	
C.6471	Turdus pelios	ad m	10/03/01	
H.0786	Columba arquatrix	ad	07/03/01	
K.146707	Bradypterus lopezi	ad m	05/03/01	1st ringed 29/11/96
K.146730	Bradypterus lopezi	ad f	05/03/01	1st ringed 01/12/96
RJ.07355	Turdus pelios	ad m	10/03/01	1st ringed 29/11/96
T.8280	Muscicapa adusta	ad f	05/03/01	
T.8281	Nectarinia preussi	fg f	05/03/01	
T.8282	Nectarinia preussi	ad f	05/03/01	
T.8283	Nectarinia preussi	ad m	06/03/01	
T.8284	Muscicapa adusta	ad m	06/03/01	
T.8285	Muscicapa adusta	juv	06/03/01	
T.8286	Cryptospiza reichenovii	juv	06/03/01	
T.8287	Estrilda nonnula	ad	06/03/01	
T.8288	Estrilda nonnula	ad	06/03/01	
T.8289	Cryptospiza reichenovii	ad m	06/03/01	
T.8290	Cryptospiza reichenovii	ad m	06/03/01	
T.8291	Cryptospiza reichenovii	ad f	06/03/01	
T.8292	Estrilda nonnula	ad f	06/03/01	
T.8293	Phylloscopus trochilus	ad m	06/03/01	
T.8294	Cryptospiza reichenovii	ad m	06/03/01	
T.8295	Cryptospiza reichenovii	ad m	06/03/01	
T.8296	Cryptospiza reichenovii	ad m	07/03/01	
T.8297	Phylloscopus trochilus	ad	07/03/01	
T.8298	Elminia albiventris	ad f	07/03/01	
T.8299	Elminia albiventris	ad m	07/03/01	
T.8300	Estrilda nonnula	ad f	07/03/01	
T.9251	Estrilda nonnula	ad	07/03/01	
T.9252	Estrilda nonnula	ad	07/03/01	
T.9253	Phylloscopus trochilus	ad	07/03/01	
T.9254	Estrilda nonnula	ad	07/03/01	
T.9255	Nectarinia preussi	fg f	07/03/01	
T.9256	Phylloscopus trochilus	ad	07/03/01	
T.9257	Phylloscopus trochilus	ad	07/03/01	
T.9258	Phylloscopus trochilus	ad	07/03/01	
T.9259	Estrilda nonnula	ad	07/03/01	
T.9260	Estrilda nonnula	ad	07/03/01	
T.9261	Phylloscopus trochilus	ad	07/03/01	
T.9262	Cryptospiza reichenovii	ad f	07/03/01	
T.9263	Estrilda nonnula	ad	07/03/01	
T.9264	Estrilda nonnula	ad	07/03/01	
T.9265	Estrilda nonnula	ad	07/03/01	
T.9266	Estrilda nonnula	juv	07/03/01	
T.9267	Elminia albiventris	fg	07/03/01	
T.9268	Estrilda nonnula	ad	07/03/01	
T.9269	Estrilda nonnula	fg	07/03/01	
T.9270	Cryptospiza reichenovii	ad m	07/03/01	
T.9271	Phylloscopus trochilus	ad	07/03/01	
T.9272	Phylloscopus trochilus	ad	07/03/01	
T.9273	Estrilda nonnula	ad	07/03/01	

APPENDIX 2. Ringing schedules (contd)

Ring n°	Species	Age/sex	Date	Retraps
T.9274	Cryptospiza reichenovii	ad m	07/03/01	
T.9275	Cryptospiza reichenovii	ad m	07/03/01	
T.9276	Cryptospiza reichenovii	ad m	07/03/01	
T.9277	Nectarinia preussi	ad m	07/03/01	
T.9278	Estrilda nonnula	ad	08/03/01	
T.9279	Estrilda nonnula	ad f	08/03/01	
T.9280	Estrilda nonnula	ad f	08/03/01	
T.9281	Estrilda nonnula	ad f	08/03/01	
T.9282	Cryptospiza reichenovii	ad f	08/03/01	
T.9283	Cryptospiza reichenovii	ad f	08/03/01	
T.9284	Phylloscopus trochilus	ad	08/03/01	
T.9285	Cryptospiza reichenovii	ad m	09/03/01	
T.9286	Cryptospiza reichenovii	ad f	09/03/01	
T.9287	Phylloscopus trochilus	ad	09/03/01	
T.9288	Phylloscopus trochilus	ad	09/03/01	
T.9289	Phylloscopus trochilus	ad	09/03/01	
T.9290	Phylloscopus trochilus	ad m	09/03/01	
T.9291	Estrilda nonnula	juv	09/03/01	
T.9292	Estrilda nonnula	ad f	09/03/01	
T.9293	Estrilda nonnula	juv	09/03/01	
T.9294	Cryptospiza reichenovii	ad f	09/03/01	
T.9295	Estrilda nonnula	ad	09/03/01	
T.9296	Estrilda nonnula	ad	09/03/01	
T.9297	Estrilda nonnula	ad	09/03/01	
T.9298	Estrilda nonnula	ad	09/03/01	
T.9299	Estrilda nonnula	ad	09/03/01	
T.9300	Estrilda nonnula	ad	09/03/01	
T.9401	Phylloscopus trochilus	ad	09/03/01	
T.9402	Cryptospiza reichenovii	ad m	09/03/01	
T.9403	Estrilda nonnula	ad	09/03/01	
T.9404	Estrilda nonnula	ad	09/03/01	
T.9405	Estrilda nonnula	ad	09/03/01	
T.9406	Nectarinia preussi	ad m	09/03/01	
T.9407	Nectarinia preussi	ad m	09/03/01	
T.9408	Cryptospiza reichenovii	ad m	09/03/01	
T.9409	Cryptospiza reichenovii	ad f	09/03/01	
T.9410	Nectarinia preussi	ad m	09/03/01	
T.9411	Nectarinia preussi	ad m	09/03/01	
T.9412	Muscicapa adusta	ad m	09/03/01	
T.9413	Cryptospiza reichenovii	ad f	10/03/01	
T.9414	Phylloscopus trochilus	ad	10/03/01	
T.9415	Cryptospiza reichenovii	ad f	10/03/01	
T.9416	Phylloscopus trochilus	ad	10/03/01	
T.9417	Cryptospiza reichenovii	ad m	10/03/01	
T.9418	Cryptospiza reichenovii	ad m	10/03/01	
T.9419	Estrilda nonnula	ad	10/03/01	
T.9420	Estrilda nonnula	ad	10/03/01	
T.9421	Estrilda nonnula	ad	10/03/01	
T.9422	Phylloscopus trochilus	ad	10/03/01	
T.9423	Phylloscopus trochilus	ad	10/03/01	
T.9424	Phylloscopus trochilus	ad	10/03/01	
T.9425	Muscicapa adusta	ad m	10/03/01	
T.9426	Muscicapa adusta	ad m	10/03/01	
T.9427	Estrilda nonnula	ad	10/03/01	
T.9428	Estrilda nonnula	ad	10/03/01	
T.9429	Phylloscopus trochilus	ad	10/03/01	
T.9430	Estrilda nonnula	ad	10/03/01	

Ring n°	Species	Age/sex	Date	Retraps
VR.00603	Cossypha isabellae	ad m	08/03/01	1st ringed 29/11/96
VR.00604	Andropadus tephrolaemus	ad f	08/03/01	1st ringed 29/11/96
VR.00606	Linurgus olivaceus	ad m	08/03/01	1st ringed 29/11/96
VR.00644	Ploceus melanogaster	ad m	07/03/01	1st ringed 01/12/96
X.81913	Nectarinia oritis	ad f	05/03/01	
X.81914	Nectarinia oritis	ad m	05/03/01	
X.81915	Cisticola chubbi	ad f	06/03/01	
X.81916	Bradypterus lopezi	1Y m	06/03/01	
X.81917	Cisticola chubbi	ad f	06/03/01	
X.81918	Cisticola chubbi	ad f	06/03/01	
X.81919	Sylvia borin	ad	06/03/01	
X.81920	Bradypterus lopezi	juv	06/03/01	
X.81921	Cisticola chubbi	ad m	06/03/01	
X.81922	Cisticola chubbi	juv	06/03/01	
X.81923	Cisticola chubbi	ad f	06/03/01	
X.81924	Cisticola chubbi	juv	06/03/01	
X.81925	Cisticola chubbi	ad f	06/03/01	
X.81926	Cisticola chubbi	ad m	06/03/01	
X.81927	Cisticola chubbi	ad m	06/03/01	
X.81928	Cisticola chubbi	ad f	06/03/01	
X.81929	Bradypterus lopezi	ad f	06/03/01	
X.81930	Bradypterus lopezi	juv f	07/03/01	
X.81931	Saxicola torquata	ad m	07/03/01	
X.81932	Saxicola torquata	ad f	07/03/01	
X.81933	Nectarinia oritis	ad m	07/03/01	
X.81934	Nectarinia oritis	ad m	07/03/01	
X.81935	Pseudoalcippe abyssinica	ad f	09/03/01	
X.81936	Anthus trivialis	ad	09/03/01	
X.81937	Bradypterus lopezi	ad	10/03/01	
X.81938	Anthus trivialis	ad	10/03/01	
X.81939	Saxicola torquata	ad f	10/03/01	
X.81940	Saxicola torquata	juv m	10/03/01	
X.81941	Platysteira cyanea	ad f	10/03/01	

APPENDIX 3. Mammals of Mount Cameroon.

In most cases, we follow the nomenclature of Wilson & Reeder (1993). Because of the continually evolving state of nomenclature of African mammals, authors' names and dates are given for each taxon; but only publications dealing with Mount Cameroon collections are detailed in the list of references.

SORICIDAE (shrews)

Crocidura attila Dollman 1915. Collected at Buea and Batoki (Eisentraut 1963). Formerly included in the species *C. buettikoferi* Jentink 1888.

Crocidura denti Dollman 1915. Specimens referred to this species by Eisentraut (1973) are from Mueli and Victoria.

Crocidura dolichura Peters 1876. There are specimens from Batoki, Isobi and Bonjongo (Eisentraut 1963), the last being the type-locality.

Crocidura eisentrauti Heim de Balsac 1957. This shrew is endemic to Mt Cameroon, being known only from the type-locality "Johann-Albrecht-Hütte, 2900 m" (i.e. hut n° 2) and at 1850 m (Eisentraut 1973).

Crocidura goliath Thomas 1906. Eisentraut (1973) considered shrews from Isobi and Victoria to be intermediate between this species and the form *giffardi* de Winton 1898 (this latter now considered a race of *C. olivieri*), but Hutterer & Schlitter (1996) list them as *C. goliath*.

Crocidura hildegardeae Thomas 1904. Listed from Mt Cameroon by Hutterer & Schlitter (1996), this being based on the provisional inclusion in this species of *C. vulcani* Heim de Balsac 1956 (type-locality: Bibundi crater, Mt Cameroun) (R. Hutterer *in litt.*).

Crocidura jouvenetae Heim de Balsac 1958. Listed from Mt Cameroon by Hutterer & Schlitter (1996), on the basis of specimens attributed to *C. crossei* Thomas 1895 from Batoki (Eisentraut 1963).

Crocidura olivieri (Lesson 1827). There are specimens from Buea and Isobi (Eisentraut 1963), the former being the type-locality of the race *bueae* Heim de Balsac & Barloy 1966. These shrews have sometimes been called *C. flavescens* (I. Geoffroy 1827) or *C. odorata* (Leconte 1857).

Crocidura poensis (Fraser 1843). Specimens from Mueli and Isobi (Eisentraut 1963) are attributed to this species, rather than *C. nigeriae* Dollman 1915, by Hutterer & Schlitter (1996).

Suncus infinitesimus (Heller 1912). Listed from Mt Cameroon by Hutterer & Schlitter (1996).

Paracrocidura schoutedeni Heim de Balsac 1956. A specimen from Mueli (Eisentraut 1963). This was named as a distinct race *camerunensis* by Heim de Balsac (1960).

[*Myosorex* sp. There is no evidence for this genus on Mt Cameroon, the taxon "*Myosorex preussi*" (Matschie 1893) described from here having been shown not to be a biological species.]

Sylvisorex ollula Thomas 1913. Collected at Mueli (Eisentraut 1973), this is a species of conservation concern.

Sylvisorex morio (Gray 1862). Endemic to Mt Cameroon (the type-locality is "Cameroon Mountains"), this shrew is known from 1000 m (near Buea) up to nearly 3000 m (hut 2) (Eisentraut 1973).

[*Sylvisorex granti* Thomas 1907. One was reportedly collected at 2000 m in grassland, above Buea (Bowden 1986a), but the species is not accepted for Mt Cameroon by Hutterer & Schlitter (1996)].

Sylvisorex johnstoni (Dobson 1888). Reported from Mt Cameroon (Rosevear 1953, Hutterer & Schlitter 1996).

PTEROPODIDAE (fruit bats)

Straw-coloured Bat *Eidolon helvum* (Kerr 1792). This intra-African migrant occurs in large numbers at times at lower levels, up to 1000 m in the Buea area (Eisentraut 1973).

Rousettus aegyptiacus (Geoffroy E. 1810). This cave-inhabiting bat is widespread in numbers below about 1600 m (Eisentraut 1973). Mueli is the type-locality of the race *occidentalis* (Eisentraut 1960).

Lissonycteris angolensis (Bocage 1898). As for the last species, recorded up to about 1850 m (Eisentraut 1973, Fedden & Macleod 1986).

Myonycteris torquata (Dobson 1878). There are specimens from Isobi and Mueli (Eisentraut 1963).

Hammer-head Bat *Hypsignathus monstrosus* Allen H. 1861. Recorded from several localities at lower altitudes (Buea, Victoria etc.) (Aellen 1952; Eisentraut 1963, Fedden & Macleod 1986).

Epomops franqueti (Tomes 1860). Known from various localities and doubtless widespread at lower levels (e.g. Eisentraut 1963, Fedden & Macleod 1986), to about 1000 (Buea: Bergmans 1989).

Micropteropus pusillus (Peters 1868). There are specimens from several localities, from Buea and at lower levels (Bergmans 1989).

Nanonycteris veldkampii (Jentink 1888). Collected at a handful of localities at lower altitudes: Victoria, Bota and Buea (Bergmans 1989).

Scotonycteris zenkeri Matschie 1894. There are a few specimens from sea-level (Bergmans 1990, Fedden & Macleod 1986), to above Mueli (Eisentraut 1963).

Scotonycteris ophiodon Pohle 1943. This rare bat was collected above Mueli by Eisentraut (1963).

Megaloglossus woermanni Pagenstecher 1885. Widespread at lower levels, up to 1300 m (Bergmans 1997, Fedden & Macleod 1986).

EMBALLONURIDAE (tomb bats)

Saccolaimus peli (Temminck 1853). Reported from Mt Cameroon (Dobson 1878); not found by recent investigators (Eisentraut 1973), but known elsewhere in SW Cameroon.

NYCTERIDAE (slit-faced bats)

Nycteris hispida (Schreber 1775). This common lowland species has been collected at Mueli and Buea (Eisentraut 1963).

Nycteris grandis Peters 1865. Collected from Mubenge-Isongo (Eisentraut 1973).

Nycteris major (Andersen K. 1912). Known from a hollow tree, Mubenge-Isongo (Eisentraut 1963) (listed doubtfully under *N. capensis* -- now *N. thebaica* E. Geoffroy 1818 -- by Aellen 1952).

[*Nycteris thebaica* E. Geoffroy 1818. Also reported by Aellen 1952 from Buea, but not mentioned by Eisentraut 1973, and confirmation needed.]

Nycteris arge Thomas 1903. Collected at Mubenge-Isongo (Eisentraut 1973).

RHINOLOPHIDAE (horse-shoe bats)

Rhinolophus landeri Martin 1838. There are records from caves in several localities, from Buea (*c.* 1100 m) and lower (Aellen 1952, Eisentraut 1973, Fedden & Macleod 1986).

Rhinolophus alcyone Temminck 1852. Collected at Buea (Eisentraut 1963) and Victoria (Aellen 1952).

Rhinolophus simulator K. Andersen 1904. Collected in a cave near Buea (1000-1100 m), and as high as the Musake hut (1850 m) (Eisentraut 1973, under the name *R. alticolus* Sanborn 1936).

Hipposideros cyclops (Temminck 1853). Known from several localities (especially in hollow trees), Buea and lower (Aellen 1952, Eisentraut 1963, Fedden & Macleod 1986).

Hipposideros camerunensis Eisentraut 1956. This rare bat was collected in a tree hole above Buea (*c.* 1400 m), the type-locality Buea (Eisentraut 1973).

Hipposideros ruber (Noack 1893). Occurs commonly to as high as 1850 m (Eisentraut 1973), often in large roosts in caves (Fedden & Macleod 1986). It is possible that the very similar non-forest species *H. caffer* (Sundevall 1846) occurs at low levels, e.g. a report from Victoria (Aellen 1952; but see Eisentraut 1973).

APPENDIX 3. Mammals (contd)

Hipposideros beatus K. Andersen 1906. Collected at Isobi (Eisentraut 1973).

VESPERTILIONIDAE (pipistrelles)

Kerivoula smithi Thomas 1880. There is an old specimen from Mt Cameroon, listed as this species by Aellen (1952) and Eisentraut (1973), rather than the related *K. phalaena* Thomas 1912.

Chalinolobus argentata (Dobson 1875). The type-locality of this bat is Mt Cameroon, but it has apparently not been found by later workers (Eisentraut 1973), although known elsewhere in S Cameroon. This and the next two species have sometimes been placed in the genus *Glauconycteris*.

Chalinolobus poensis (Gray 1842). A specimen from Isongo is perhaps best put with this species (Eisentraut 1973), rather than *C. beatrix* (Thomas 1901) (as in Aellen 1952).

Chalinolobus egeria (Thomas 1913). The type-locality is Bibundi (Eisentraut 1973).

Eptesicus tenuipinnis (Peters 1872). Common at low levels -- Bota, Debundscha, Mubenge-Isongo (Eisentraut 1963).

Myotis bocagei (Peters 1870). Collected on the beach at Batoke (Fedden & Macleod 1986).

Pipistrellus africanus (Rüppell 1842). The banana bat is common at low levels, up to 1700 m above Buea (Eisentraut 1973, Fedden & Macleod 1986). Also known as *P. nanus* (Peters 1852).

Pipistrellus nanulus Thomas 1904. Fedden & Macleod (1986) collected a specimen in forest at 850 m (i.e. near Etinde).

Pipistrellus eisentrauti Hill 1968. This rare bat was collected at 1100 m above Buea (Eisentraut 1973), and commonly in forest from 700 m up to 2000 m or so (Fedden & Macleod 1986).

Miniopterus schreibersi (Kuhl 1817). Locally common in forest and grassland (roosting in caves), from 850 m (Fedden & Macleod 1986) to us high as Musake hut (1850 m) (Eisentraut 1973), and even to Mann's Spring at 2260 m (Jones in Fedden & Macleod 1986). Although Aellen (1952) reported *M. inflatus* Thomas 1903 from Mt Cameroon, there was possibly confusion with *M. schreibersi* (Eisentraut 1973).

MOLOSSIDAE (free-tailed bats)

Chaerephon pumila (Cretzschmar 1826). There is an old specimen of this non-forest species from Victoria (Eisentraut 1973). Sometimes placed in the genus *Tadarida*.

LORIDAE (galagos) (sometimes placed in the Galagonidae or Lorisidae)

Potto *Perodicticus potto* (Müller P. L. S. 1766). Probably widespread at low levels, and there are specimens from Bolifamba, Isobi and elsewhere (Eisentraut 1963, Gadsby & Jenkins 1992).

Pallid Needle-clawed Galago *Euoticus pallidus* (Gray 1863). Collected at Buea (Eisentraut 1963) and known to local hunters (Gadsby & Jenkins 1992). Formerly considered a race of *E.* (or *Galago*) *elegantulus* (Le Conte 1857).

Allen's Galago *Galago alleni* Waterhouse 1838. Heard at Spider Camp (1600 m) (pers. obs.), and one reported seen above Bonenza at 550 m (Bowden 1986b).

Demidoff's Dwarf Galago *Galagoides demidoff* (Fischer G. 1806). Heard by us on Etinde (900 m), and reported up to 1600 m (Eisentraut 1973).

CERCOPITHECIDAE (monkeys)

Red-capped Mangabey *Cercocebus torquatus* (Kerr 1792). There are specimens from Batoki and Isobi (Eisentraut 1963).

Drill *Mandrillus leucophaeus* (Cuvier F. 1807). Present locally at low altitudes, but heavily hunted (Gadsby & Jenkins 1992, Davies & Wanzie 1995, Usongo 1998).

Putty-nosed Monkey *Cercopithecus nictitans* (Linnaeus 1766). We heard it on Etinde (900 m).

Red-eared Monkey *Cercopithecus erythrotis* Waterhouse 1838. There is a specimen from Mueli (Eisentraut 1963), and this monkey was seen on the southern slopes at 500 and 700 m

(Bowden 1986b). It is not clear why its presence should have been queried by Usongo (1998).

Mona Monkey *Cercopithecus mona* (Schreber 1774). Noted on the southern slopes between 300 and 700 m (Bowden 1986b), and also reported by Gadsby & Jenkins (1992).

Crowned Monkey *Cercopithecus pogonias* Bennett 1833. Seen on the southern slopes at 650 m (Bowden 1986b), and also reported by Gadsby & Jenkins (1992).

Preuss's Monkey *Cercopithecus preussi* Matschie 1898. We heard 4 different males calling at dusk near Mann's Spring (2250 m), and also on Etinde at 900 m. Noted at several other localities from 700 m (on the southern slopes) (Bowden 1986b). Although the type-locality is Victoria (= Limbe), the specimen is more likely to have come from the mountain itself.

HOMINIDAE (great apes) (sometimes placed in the Pongidae)

Chimpanzee *Pan troglodytes* (Blumenbach 1775). On the southern slopes heard at several places between 20 and 1200 m, especially around 900 m, where there were a number of parties (Bowden 1986b).

MUSTELIDAE (weasels and otters)

[Cape Clawless Otter *Aonyx capensis* (Schinz 1821). Davies & Wanzie (1995) list "otter" from the Mt Cameroon project area. There is no definite record that I can trace, but it is perhaps this species that is intended, as it is known from coastal lagoons between Douala and Tiko (Rosevear 1974).]

HERPESTIDAE (mongooses)

Long-nosed Mongoose *Herpestes naso* de Winton 1901. Collected at Mueli (Eisentraut 1963) and known to hunters (Gadsby & Jenkins 1992).

[Marsh Mongoose *Atilax paludinosus* (Cuvier G. 1829). Reported by hunters (Gadsby & Jenkins 1992), but this ought to be confirmed.]

Cusimanse *Crossarchus obscurus* Cuvier F. 1825. Collected at a number of localities (Eisentraut 1963) to as high as 1600 m (Eisentraut 1973), and probably the commonest forest mongoose.

Black-footed Mongoose *Bdeogale nigripes* Pucheran 1855. Eisentraut (1963) collected one specimen at Buea, and others were seen by Gadsby & Jenkins (1992).

VIVERRIDAE (genets)

Crested Genet *Genetta cristata* (Gray 1830). This species has been collected at Buea (Eisentraut 1963) and reported elsewhere (Gadsby & Jenkins 1992).

Large-spotted Genet *Genetta maculata* (Gray 1830) (incl. *poensis* and *fieldiana*). Collected at Isobi (Eisentraut 1963) and reported elsewhere (Gadsby & Jenkins 1992).

African Linsang *Poiana richardsoni* (Thomas 1842). There is a specimen of this forest genet from Buea (Eisentraut 1973).

Civet *Civettictis civetta* (Schreber 1778). Probably common at low and mid-altitude in the area (Gadsby & Jenkins 1992).

Palm Civet *Nandinia binotata* (Gray 1830). Collected at several localities up to about 600 m (Eisentraut 1963), and even in forest as high as Musake hut at 1850 m (Eisentraut 1973).

FELIDAE (cats)

Golden Cat *Felis aurata* Temminck 1827. There appears to be no specimen from any nearer than Mubenge (Eisentraut 1963), but the species is listed by Davies & Wanzie (1995).

[Leopard *Panthera pardus* (Linnaeus 1758). Listed by Davies & Wanzie (1995), but nothing appears to be known of the present status of this much-persecuted species.]

APPENDIX 3. Mammals (contd)

TRICHECHIDAE (manatees)

[Manatee (or Lamantin) *Trichechus senegalensis* Link 1795. Listed from the Mount Cameroon area by Davies & Wanzie (1995), but it is difficult to see any suitable river habitat in what is now the project area. The status of this endangered species requires investigation. It is known from as near as Rio del Rey (Grigione & Powell 1989).]

ELEPHANTIDAE (elephants)

African Elephant *Loxodonta africana* (Blumenbach 1797). In 1984 Bowden (1986b) reported signs up to 1300 m on the southern slopes. The few elephants that now remain are mostly on the north-western slopes, in "elephant bush" (J. Acworth pers. comm.), but their present status is in urgent need of investigation. Hunters confirm that Elephants are now absent from the southern slopes, and indeed people can cultivate high up the mountain (e.g. up to 1300 m above Mapanja) where the presence of Elephants in the past made this impossible.

PROCAVIDAE (hyraxes)

Tree Hyrax *Dendrohyrax dorsalis* (Fraser 1854). Heard at night below Mann's Spring (< 2200 m) and at Spider camp (*c.* 1600 m), and known from several localities in forest at lower levels (Bowden 1986b, Eisentraut 1973).

SUIDAE (pigs)

Red Forest Hog (or Bush Pig) *Potamochoerus porcus* (Linnaeus 1758). Reported as high as 1600 m (Eisentraut 1973), but must now be scarce through hunting, as we saw no signs.

TRAGULIDAE (chevrotains)

[Water Chevrotain *Hyemoschus aquaticus* (Ogilby 1841). Listed for Mt Cameroon by Davies & Wanzie (1995), but it needs to be determined if it is really in the protected area, as its habitat of waterside forest is largely lacking. The nearest specimens are probably those from Ekundu and Mbonge (Eisentraut 1963).]

BOVIDAE (ungulates)

Buffalo *Syncerus caffer* (Sparrman 1779). A skull seen from the northern side of the mountain (Eisentraut 1973) but must now be very rare, and in need of a proper survey.

[Sitatunga *Tragelaphus spekei* Sclater 1864. As for the last species, listed for Mt Cameroon by Davies & Wanzie (1995), but it needs to be determined if it is really in the protected area, as its habitat of waterside forest is largely lacking.]

Bushbuck *Tragelaphus scriptus* Pallas 1766. We heard it on two separate evenings at Mann's Spring (2300 m), and there are several specimens and sightings from lower altitudes (Bowden 1986b, Eisentraut 1963).

Blue Duiker *Cephalophus monticola* (Thunberg 1789). Present at lower altitudes, whence a number of specimens (Eisentraut 1963), and well-known to hunters (Gadsby & Jenkins 1992).

Yellow-backed Duiker *Cephalophus sylvicultor* (Afzelius 1815). Reported by Davies & Wanzie (1995), but nothing is known of the status of this, the largest duiker.

Peters's Duiker *Cephalophus callipygus* Peters 1876. There is reportedly a specimen from Isobi (Eisentraut 1963).

[Black-fronted Duiker *Cephalophus nigrifrons* Gray 1871. Bowden (1986b) reported seeing one caught by a hunter at 800 m on the southern slopes, but there is no other record from the area, and it has been doubted. It is perhaps a misidentification of *C. dorsalis* (Gadsby & Jenkins 1992). Although it has recently been found in SE Nigeria (East 1998) the marshy habit it favours is absent from Mt Cameroon, and the species is generally absent from localities north of the Sanaga.]

Bay Duiker *Cephalophus dorsalis* Gray 1846. This largely nocturnal species is known from a few records (Eisentraut 1963, Gadsby & Jenkins 1992).

Ogilby's Duiker *Cephalophus ogilbyi* (Waterhouse 1838). There is a specimen from Mueli (Eisentraut 1963), and others were seen by Gadsby & Jenkins (1992).

[Grimm's Duiker *Sylvicapra grimmia* (Linnaeus 1758). Tracks in grassland around Mann's Spring were said by our guides to be of this non-forest species.]

MANIDAE (pangolins)

Tree Pangolin *Manis tricuspis* Rafinesque 1821. A few records, up to 550-600 m (Bowden 1986b, Eisentraut 1963).

Long-tailed Pangolin *Manis tetradactyla* Linnaeus 1766. Known from one carried by a hunter near Buea (Bowden 1986b).

SCIURIDAE (squirrels)

African Giant Squirrel *Protoxerus stangeri* (Waterhouse 1843). Widespread in lowland forest, up to *c*. 1100 m at Buea (Eisentraut 1963).

Red-legged Sun Squirrel *Heliosciurus rufobrachium* (Waterhouse 1842). Common in low and mid-altitude forest, up to at least Musake hut (*c*. 1850 m: Rosevear 1969).

Lady Burton's Squirrel *Funisciurus isabella* (Gray 1862). Common at higher and mid-altitude, to at least 2300 m at Mann's Spring (pers. obs.). The type-locality of the species is Cameroun Mt at *c*. 7000 ft (2130 m). Although Rosevear (1969) reports it from Musaka on the Mungo river, this is surely in error for Musake hut (hut n° 1) on the mountain.

Red-cheeked Squirrel *Funisciurus leucogenys* (Waterhouse 1842). Occurs in forest up to 1600 m (Eisentraut 1973). A specimen collected at 700 m (on the southern slopes) had been killed by a Cassin's Hawk Eagle *Spizaetus africanus* (Bowden 1986a).

Cuvier's Fire-footed Squirrel *Funisciurus pyrropus* (Cuvier F. 1833). One caught at 200 m on the southern slopes (Bowden 1986a).

Green Squirrel *Paraxerus poensis* (Smith A. 1830). Widespread in forest at lower levels, up to about 1100 m in the Buea area (Eisentraut 1963).

ANOMALURIDAE (African "flying squirrels")

Beecroft's Flying Squirrel *Anomalurus beecrofti* Fraser 1853. Present at low altitudes, though there is a specimen from as high as 1900 m (Eisentraut 1973).

Lord Derby's Flying Squirrel *Anomalurus derbianus* (Gray 1842). Collected at Isongo and Bai (Eisentraut 1973), at low altitudes.

MYOXIDAE (dormice) (sometimes separated as Gliridae)

Graphiurus lorraineus Dollman 1910. These small dormice -- under the name *G. murinus* (Desmarest 1822) -- are reported from forest up to 2100 m (Eisentraut 1973).

MURIDAE (rats & mice)

Cricetomys emini Waterhouse 1840. This giant rat is common in low and mid-altitude forest, up to 1400 m (Eisentraut 1963). In the past it was treated as a race of *C. gambianus* Waterhouse 1840 (essentially a non-forest species).

Dendromus oreas Osgood 1936 (type-locality Mt Cameroon). This small climbing mouse inhabits savanna and bushy areas from 1850 m (Musake hut) up to 4000 m (near the summit) (Eisentraut 1973). Sometimes treated as a race of *D. mesomelas* Brants 1827, but mostly considered a species endemic to Mt Cameroon.

Deomys ferrugineus Thomas 1888. This lowland forest species was collected at Mueli (Eisentraut 1963).

Dasymys rufulus Miller 1900. There are specimens from localities between 1100 m and Mann's Spring at 2300 m (Eisentraut 1973, pers. obs.), but perhaps not common, as its grassland habitat is greatly limited by annual fires. Sometimes treated as a race of *D. incomtus* (Sundevall 1847). Musake hut is the type-locality of the subspecies *longipilosus* (Eisentraut 1963).

Oenomys hypoxanthus Pucheran 1855. A forest rat, collected at a few localities up to 1850 m (Eisentraut 1963, Eisentraut 1973).

APPENDIX 3. Mammals (contd)

[*Lemniscomys striatus* (Linnaeus 1758). This striped grass mouse is reported from Mt Cameroon by Bowden (1986a) on the basis of Rosevear (1969), but in fact that author does not record it from here and neither does Eisentraut in his publications, and Bowden would seem to have misread Rosevear.]

Hybomys univittatus (Peters 1876). This forest rat has been collected at Isobi (30 m) and Buea (1000 m) (Eisentraut 1963).

Rattus rattus (Linnaeus 1758). Known from Buea (Eisentraut 1963), this is a ship-assisted immigrant from Europe, very long established.

Lophuromys roseveari Verheyen, Hulselmans, Colyn & Hutterer 1997. Very common throughout the mountain, in forest and grassland, diurnal and nocturnal, from 1000 m (Buea) up to 3100 m (Verheyen *et al.* 1997, pers. obs.). The single high-altitude *Lophuromys* on Mt Cameroon is now considered to be an endemic species, originally treated as *L. sikapusi* (Temminck 1853).

Lophuromys nudicaudus Heller 1911. This lower-altitude forest species is known from specimens from Mueli and Buea (Eisentraut 1973).

Hylomyscus aeta (Thomas 1911). Specimens from a number of localities between 1200 and 1850 m are attributed to this species (in a taxonomically very difficult genus), by Eisentraut (1973).

Hylomyscus alleni (Waterhouse 1838). One was collected on the southern slopes at 550 m (Bowden 1986a), i.e. above Bonenza, and others at Batoki and Mueli (Eisentraut 1973).

Hylomyscus stella Thomas 1911. Specimens from Mt Cameroon are attribued to this species by Eisentraut (1973).

Stochomys longicaudatus (Tullberg 1893). Collected at Isobi and Buea, up to 1000 m (Eisentraut 1963,1973).

Mastomys erythroleucus Temminck 1853. This is the common, commensal lowland mouse, and it is known from the northen side of the mountain (Eisentraut 1963), and doubtless elsewhere. Also variously called *M. coucha,* or *Praomys natalensis*.

Praomys tullbergi (Thomas 1894). Occurs in cultivated areas at low altitudes (Bowden 1986a, Eisentraut 1973).

Praomys morio (Trouessart 1881). Occurs widely in forest from 550 m (Bowden 1986a) up to about 3000 m (Eisentraut 1970) (type-locality Cameroon Mt).

Malacomys longipes Milne-Edwards 1877. This lowland forest rat has been collected at Batoki and Isobi (Eisentraut 1963).

Mus musculus Linnaeus 1758. This household mouse (arrived on ships from Europe) is reported from Victoria (= Limbe) (Eisentraut 1963).

Mus setulosus Peters 1876. (type-locality Victoria = Limbe). This farmland species is known from localities to as high as Buea (Eisentraut 1963).

Otomys tropicalis Thomas 1902. Quite common in grassland and scrub between Mann's Spring at 2300 m and the summit area at 4000 m (Eisentraut 1973). Also collected in a dry stream at 1650 m on the southern slopes (Bowden 1986a). The local race *burtoni* (endemic to the Cameroon highlands) has sometimes been placed in *O. irroratus* (Brants 1827).

HYSTRICIDAE (porcupines)

Atherurus africanus Gray 1842. A favourite prey of hunters (Gadsby & Jenkins 1992), collected at Mueli and Buea (Eisentraut 1963).

THRYONOMYIDAE (cane-rats)

Thryonomys swinderianus (Temminck 1827). This cane-rat has been collected at Buea (Eisentraut 1963), and is well known to hunters (Gadsby & Jenkins 1992).

APPENDIX 4. Gazetteer (with altitudes, where known; * at/near sea-level)

Batoke (Batoki)* ..... 4°02'N,9°06'E
Bibundi crater* ..... 4°13'N,8°59'E
Bimbia*..... 3°57'N,9°12'E
Bokwango ..... 4°09'N,9°13'E
Bolifamba ..... 4°08'N,9°18'E
Bonakanda ..... 4°04'N,9°11'E
Bonenza* ..... 4°03'N,9°05'E
Bonjongo..... 4°06'N,9°09'E
Bota*..... 4°01'N,9°11'E
Buea (1000 m) ..... 4°09'N,9°14'E
Debundsha (Debundscha)*..... 4°05'N,8°59'E
Ekona ..... 4°13'N,9°20'E
Ekundu ..... 4°43'N,9°00'E
Etinde (Little Mt Cameroon)
(1713 m)..... 4°04'N,9°08'E
Etome (see Batoke)
Fako (Mt Cameroon)
(peak 4095 m) ..... 4°12'N,9°10'E
Idenau* ..... 4°15'N,9°00'E
Isobi* ..... 4°10'N,9°00'E
Isongo ..... 4°04'N,9°01'E
Johann-Albrechts-hütte (hut n° 2)
(2900 m) ..... 4°11'N,9°11'E
Limbe (ex-Victoria)*..... 4°00'N,9°12'E
Mann's Spring (Mannsquelle)
(2300 m) ..... 4°07'N,9°08'E
Mapanja (900 m) ..... 4°05'N,9°10'E
Mbonge..... 4°33'N,9°05'E
Mubenge ..... 4°05'N,9°00'E
Mueli (Mweli) (4-600 m) . 4°23'N,9°07'E
Musake hut (Musake-hütte)
(hut n° 1) (1850 m)..... 4°10'N,9°12'E
Powo ..... 4°14'N,9°20'E
Spider camp (1550 m) ..... 4°07'N,9°09'E
Tiko*..... 4°06'N,9°22'E
Victoria (now Limbe)* ..... 4°00'N,9°12'E

APPENDIX 5. An Aide-Mémoire for the preparation of small mammal specimens.

Material needed

Dissecting kit; gloves; magnesium carbonate powder; borax powder; fine wire (e.g. 5 & 10 amp fuse wire); cotton wool; needles & thread; pins; card boards; alcohol (95% & 70%); formalin (40% & 5%); ether; hydrogen peroxide; labels; notebook; ruler, dividers and scale; paint brush; syringe; naphthalene.

Procedure

1. Wipe blood and dirt off the specimen. Use magnesium carbonate powder liberally at all times to keep the specimen and your hands dry and not sticky. Tie a numbered label to the specimen.
2. Record all details of each numbered specimen in your notebook, as well as on the label (e.g. date, place, habitat, sex, measurements, how preserved).
3. Weigh and measure the specimen. For something like a rat, lay it on its belly on a piece of card board, stretch it straight (very slightly), pin against nose, base of tail and tip of tail. Then measure between pins the HB (head-body) and tail. If possible also measure ear (from base of notch to tip) and HF (hind foot, from back of heel to tip of nail). The dividers are best for this. If weighing it in a container, don't forget to subtract weight of container!
   For a bat, measure FW (forewing, the legth of the long bone) and ear.
4. Examine externaly for sex (to be confirmed when you have opened up the specimen).
5. Lay the specimen on its back and start to cut the skin from the sex organs to the chin. Then peel off the skin from each side (if possible just with your fingers, using a scalpel as little as possible to avoid damaging the skin). Cut the leg bones (forewing bones in a bat) to allow a good length of bone to stay with the skin.
6. Skin the tail (in a fresh specimen it ought to be possible to pull the bone out of the skin gently.

APPENDIX 5. Preparation of specimens (contd)

7. Peel the skin off the head as far as the ears, eyes and nose. Then very carefully use the scalpel to remove the skin finally from the skull.
8. Clean the skin of any flesh remaining on the inside, and of any blood. Cover the skin thoroughly with borax powder.
9. Examine and measure the sex organs in the carcass. Cut of the head, label it, and start to boil it gently.
10. If you are collecting tissues for genetic DNA analysis, cut up very finely the heart, lungs, gonads and other soft matter, and preserve it in a small container of 95% alcohol, clearly labelled with the specimen number. Remember to clean thoroughly with water the scissors you use before collecting tissues from another specimen.
11. Turn the skin back the right side out now. Make sure the leg (or forearm) bones are clean of tissue and well covered in borax powder. Wrap the leg bones in cotton wool, and from there try to remake in cotton wool the carcass which you have removed. For a rat, replace the tail bone with a thin wire, wrapped in a little cotton wool. The best specimen will be one in which the size and shape of the cotton filling are most like the original!
12. Sew up the belly, and then mould the specimen into a natural-looking shape. Place it on a piece of card, and pin it. Pins can be stuck through the feet, but should otherwise be placed either side of the nose and tail, to hold them in place. Remember, the specimen should not take up more space than is necessary in the museum drawer; so pin a rat's legs parallel to its body, while a bat's wings should be half-open. Use a paint brush to brush the fur into shape.
13. Put the skin into a closed box or trunk, where it cannot bounce about if moved. Place napthalene balls in the box to deal with harmful insects. The specimens will dry more quickly if placed daily in an airy place, but remember to put them back with the napthalene at night and if it looks like rain!
14. Take the skull and remove the meat, gently, with a scalpel. In particular, take all the brain from a small hole made in the back of the skull (use tweezers). Do not touch the palate (inside of the mouth) of a bat's skull -- it is often important for identification. Once the skull is fairly clean it can be placed in a container of ether solution (50%) for a day or two (to remove some of the grease). After that, put it into a small container of hydrogen peroxide for no more than 24 hours. This will result in a clean, white skull. Label the skull, preferably also by writing its number on it with indian ink.

The most useful specimens for scientific study are dry skins and skulls, prepared as described above. But if, for any reason, this is not possible, then specimens should be preserved in formalin or alcohol. Formalin 40% should be diluted to 5% (i.e. roughly one part formalin to eight parts water). Alcohol 70% is better (ideally, use 50% at first, then after a day remove to 70%). For wet preservation, do not remove the intestine and other soft tissues from the carcass (unless you take careful measurements and know the person for whom the specimen is intended does not need these organs in place). The skull is left in place. But open up the body so the preservative can enter, and better still, use a syringe to inject preservative into the thicker parts of the body.

Important.

Some of the materials used can be dangerous; for example, hydrogen peroxide can burn your skin, so use gloves with it. Wash your hands always after working with specimens.

Skins without labels and accompanying data are useless. Skulls and skins which cannot be identified as belonging to each other have a limited value.

The trouble taken to preserve specimens properly will be more than repaid by the importance of scientific data from a part of Africa that remains poorly studied.