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Systematics and zoogeography of the small mammal fauna of Cameroun: Description of two new *Lophuromys* (Rodentia: Muridae) endemic to Mount Cameroun and Mount Oku

by W.N. VERHEYEN, J. HULSELMANS, M.COLYN & R. HUTTERER

Abstract

The mountain forest archipelago of south-east Nigeria and west Cameroun is known to be an important biogeographical region. A constantly increasing number of endemic taxa is being described.
The present morphometrical revision of the *Lophuromys* in museum collections from this mountain-range allowed us to identify and describe two new endemic species.
Lophuromys roseveari sp.n. belongs craniometrically to the "unspeckled" *L. sikapusi* species complex and seems to have a distribution restricted to the mountain forest belt on Mt Cameroun.
Lophuromys dieterleni sp.n. is morphologically and morphometrically related to the *L. flavopunctatus* species complex but has an "unspeckled" pelage. This taxon is endemic to the mountain forests of Mt Oku and seems to be sympatric with *L. sikapusi*. Its closest relative is *L. eisentrauti*, endemic to the nearby Mt Lefo mountain.
It is likely that new taxa will be described whenever a generic revision is undertaken but the present list of endemic mammals is already sufficiently impressive to classify the mountain forests of Mt Cameroun and Mt Oku as high priority regions for the conservation of African mammal diversity.
Key-words: Rodentia, Muridae, *Lophuromys*, systematics, morphology, morphometrics, zoogeography, Africa

Résumé

La succession des forêts de montagne du sud-est du Nigéria et de l'ouest du Cameroun constitue une région bien connue pour son importance biogéographique. En effet, le nombre de taxons endémiques décrits de cette région est en constante augmentation.
La présente révision morphométrique des *Lophuromys* des collections des musées, provenant de cette chaîne de montagnes, nous a permis d'identifier et de décrire deux nouvelles espèces endémiques;
Le *Lophuromys roseveari* sp.n. appartient, craniométriquement, au groupe d'espèces *L. sikapusi* «non-tachetées», et sa distribution semble être limitée à la zone des forêts de montagne du Mt Cameroun.
Lophuromys dieterleni sp.n. est apparenté, morphologiquement et morphométriquement, au groupe d'espèces *L. flavopunctatus*, mais possède un pelage «non-tacheté». Ce taxon est endémique des forêts de montagne du Mt Oku et semble être sympatrique avec *L. sikapusi*. Son plus proche parent est *L. eisentrauti*, espèce endémique de la montagne Mt lefo, non loin de là. Il est probable que de nouveaux taxons seront décrits dès qu'une révision générique sera entreprise, mais la liste actuelle des mammifères endémiques est déjà suffisamment impressionnante pour que les forêts de montagne des Mt Cameroun et Mt Oku soient classées comme hautement prioritaires pour la préservation de la diversité des mammifères africains.
Mots-clés: Rodentia, Muridae, *Lophuromys,* systématique, morphologie, morphométrie, zoogéographie, Afrique.

Introduction

The biogeography of the small mammal fauna of the mountain forest archipelago of south-east Nigeria and western Cameroun was recently discussed by HUTTERER et al. (1992). They argued that only a careful systematic approach can lead to solid conclusions, and that "Much more sampling in these mountains and subsequent rigid systematic analyses have to be done before we can fill the empty space in the puzzle we have before us. (p. 411)".
However, the small mammal collections already available from these isolated mountain forests are, at least for certain genera, sufficient to arrive at adequate taxonomic insights, on the condition that they are integrated in regional or preferably continent-wide revisions. We here describe two new *Lophuromys* taxa within such a context.
It is becoming increasingly clear that taxonomic studies of the small mammal fauna of these isolated mountain forests will often reveal new endemic taxa. We are aware that collecting and morphologically describing new "endemics" alone will not suffice to fill in the above-mentioned "puzzle". DNA-sequencing of selected genes of adequately choosen marker-taxa will prove essential to unravel the biogeographical history of this mountain range.

Material and methods

Pending that such an approach becomes possible, we continue to apply the classic morphological and morphometrical methodology. The description of the craniological measurements, age-classes, acronyms of museums and institutes, as well as the statistical methods, follow VERHEYEN, COLYN & HULSELMANS (1996). Where needed, we provide more details in the legends of the graphs.
The data sets used in the descriptions are concentrated

FIG.1.1

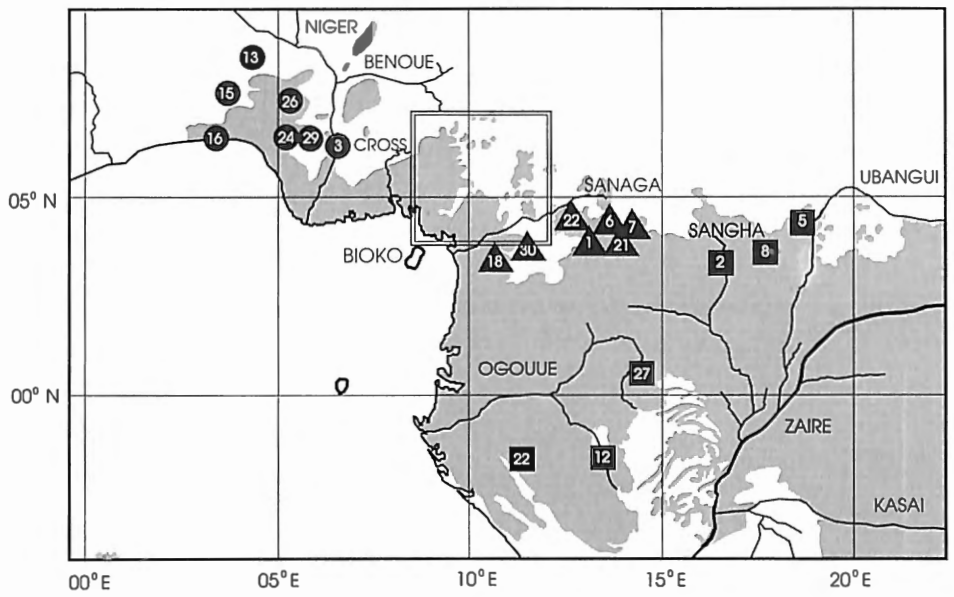

FIG.1.2

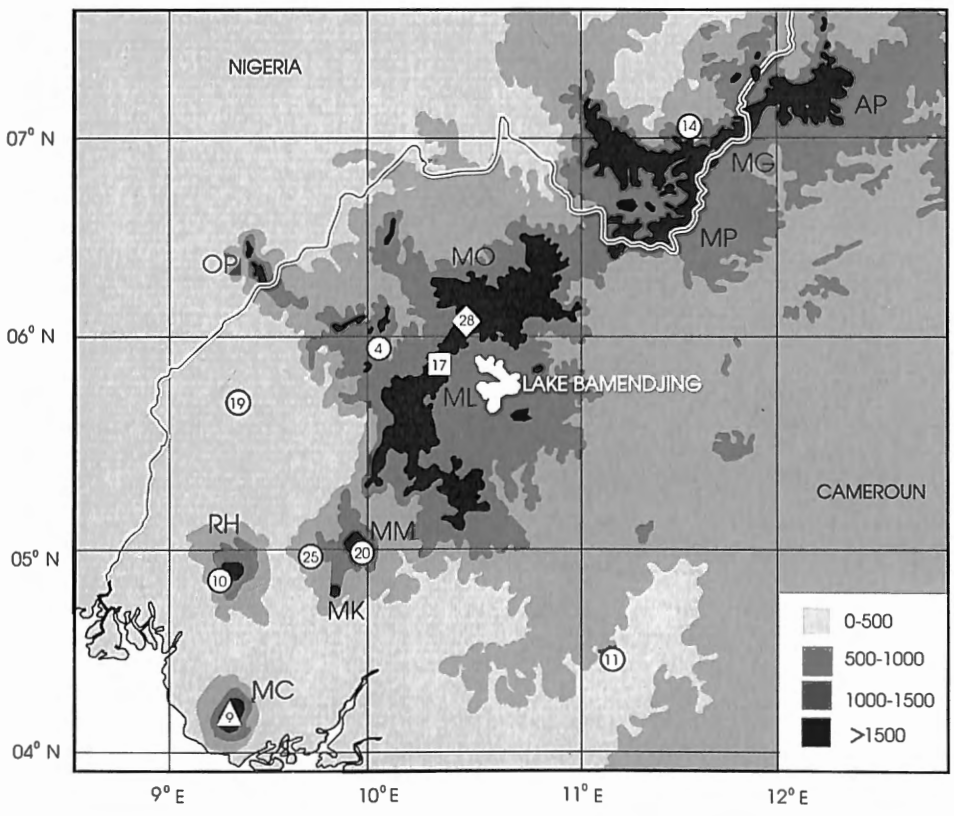

Fig. 1. -
Schematic representation of the geographic distribution of the collecting localities of the *Lophuromys* specimens used in this study. The number in the symbols refers to each locality as mentioned in table 2 where coordinates and altitudes are mentioned.

1.1. The geographic distribution of the OTU's of *Lophuromys sikapusi* as defined in this study. The following symbols characterize the localities of
● OTU:SANAGA N. = (NIG-CAM.N)
■ OTU: GAB-CON-RCA
▲ OTU: CAM.S.
The boundaries of the tropical forest are based on maps edited by J.A. SAYER et al. (1992).

1.2. Schematic representation of the mountain range on the border between Cameroun and Nigeria with indication of the more important mountains and plateaus (based upon a map published by HUTTERER et al., 1992)
(MC): Mt Cameroun; (MK): Mt Kupe; (MM): Mt Manenguba; (ML): Mt Lefo; (MO): Mt Oku; (MP): Mambilla Plateau; (AP): Adamaoua Plateau; (MG): Gotel Mts; (OP) Obudu Plateau.
△ *Lophuromys roseveari* sp. n.
◇ *Lophuromys dieterleni* sp.n.
○ *Lophuromys sikapusi*
□ *Lophuromys eisentrauti* (type locality Mt Lefo)

in annexes (App. 1-1;1-2;2-1;2-2;3;4) to this paper. Only skulls with fully erupted M^3 were retained in the analyses (age classes 1-2-3-4); specimens with severely eroded teeth were excluded (cl. 5). Since our experience with large series of *Lophuromys sikapusi* and *L. flavopunctatus* has shown that sexual dimorphism is insignificant, we made no attempt to evaluate sexual dimorphism in our new taxa.

Out of the total set of 24 available cranial measurements, 19 were selected for multivariate analyses (see table 1). This selection was imposed by the need to plot a number of essential type-specimens and some geographically unique specimens on the multivariate graphs.

Our analyses are based upon the following 5 operational taxonomical units (OTU's):

- UGANDA : - *Lophuromys ansorgei* DE WINTON, 1896
  - from Crater-track (Q.E.Park - Uganda)
  - 84 complete adult skulls
- KIVU : - *Lophuromys flavopunctatus laticeps* THOMAS & WROUGHTON, 1907
  - from Mutura (Kivu-province-Zaïre)
  - 133 complete adult skulls
- N.SANAGA : - *Lophuromys sikapusi* (TEMMINCK,1853)
  - Nigeria and Cameroun north of Sanaga River
  - 40 complete adult skulls
- GAB-CON-RCA: - *Lophuromys sikapusi* (TEMMINCK,1853)
  - Gabon-Congo-RCAfricaine
  - 57 complete adult skulls
- CAM.S. : - *Lophuromys sikapusi* species-complex
  - Cameroun south of the Sanaga River
  - 16 complete adult skulls

For more details on the composition of these OTU's, we refer to App. 5.1. and 5.2.

The corresponding metrical data sets can be obtained through e-mail (hulsel@ruca.ua.ac.be).

The necessity to split the available *L. sikapusi* material from the study area into three separate OTU's became apparent through a series of preliminary analyses. We found that all specimens from Cameroun south of the Sanaga (CAM.S) appear to be craniometrically sufficiently different from N.SANAGA and GAB-CON-RCA to be considered incertae sedis; it is even possible that they

Table 1. - Recapitulation and short description of the measurements as used in this study. For a full description we refer to VERHEYEN et al. (1996). Only measurements marked with * were retained for the multivariate analyses.

NUMBER	ACRONYMS	MORPHOMETRICAL CHARACTERS
M 1	GRLS	greatest length of skull
M 2	PRCO	condylobasal length
M 3	HEBA	henselion-basion
M 4 *	HEPA	henselion-palation
M 5 *	PAFL	length of palatal foramen
M 6 *	DIA1	length of diastema
M 7 *	DIA2	distance alveolus M1 and upper incisor
M 8 *	INTE	smallest interorbital breadth
M 9 *	ZYGO	zygomatic breadth
M10 *	PALA	smallest palatal breadth
M11 *	UPTE	length of upper cheekteeth
M12 *	UPDA	breadth of upper dental arch
M13 *	M1BR	greatest breadth of first upper molar
M14 *	ZYPL	smallest breadth of zygomatic plate
M15	BNAS	greatest breadth of nasals
M16	LNAS	greatest length of nasals
M17 *	LOTE	length of mandibular teeth
M18 *	CHOB	greatest breadth of choanae
M19 *	BULL	length of auditory bulla
M20 *	BRCA	greatest breadth of braincase
M21 *	DINC	depth of upper incisor
M22 *	ROHE	mediosagittal projection of rostrum height
M23 *	ROBR	greatest rostrum breadth
M24 *	PCPA	distance coronoid and angular processes

will prove to be related to *L. ansorgei,* the eastern representative of the *L. sikapusi* species-complex. Our results suggest that the Sanaga River has been an effective zoogeographical barrier between the *sikapusi* populations of GAB-CON-RCA and N.SANAGA. However, more voucher-specimens from southern Cameroun as well as a number of karyotyped specimens and DNA sequences are needed to confirm this.
Fig.1 gives an overall view of the geographical distribution of the species, specimens and types involved. The coordinates of the localities and their approximate altitudes can be found in table 2.

The *Lophuromys* of Mount Cameroun

In a key to the species of *Lophuromys* in his excellent book "The Rodents of West Africa", ROSEVEAR (1969:202-203) mentions a form of "brush-furred rat" from Mount Cameroun that he tentatively considers to be "possibly an independent species". He even gives an extended description (p.305) of the skin and skull of specimen BMNH 34.6.6.3 from Onyanza (alt. 8500 ft), the only specimen at that time available to him. On p.306 he wonders why EISENTRAUT (1963) " ... amongst all the numerous *Lophuromys* (36) he collected on the Cameroun

Table 2. - Alphabetical gazetteer of the collecting localities of the *Lophuromys* specimens included in this study. The localities are followed by their co-ordinates and approximate altitudes (m). The numbers preceding the localities refer to fig.1 illustrating the distribution of the species.

REF.NR.	LOCALITY	COORDINATES	ALTITUDE
1	Abong-Mbang	03.57N - 13.11E	650
2	Adibori	03.10N - 16.03E	350
3	Asaba	06.11N - 06.43E	50
4	Bamenda	05.55N - 10.09E	1000
5	Bangui	04.23N - 18.37E	500
6	Bertoua	04.34N - 13.46E	500
7	Bimba	04.10N - 14.07E	400
8	Boukoko	03.54N - 17.56E	500
9	Buea (Mt.Cameroun)	04.09N - 09.13E	1000-1800
-	Crater-track (Q.E.Parc)	00.06S - 29.56E	1250
-	Dabocrom	06.20N - 01.30W	200
10	Dikume	04.55N - 09.15E	1100
11	Donenkeng	04.39N - 11.14E	400
12	Franceville	01.40S - 13.31E	600
13	Gambari	08.16N - 04.20E	300
14	Gangirwal (Gotel Mts)	07.02N - 11.42E	2300
(9)	Hütte II (Mt Cameroun)	04.11N - 09.12E	3000
15	Ibadan	07.23N - 03.56E	150
16	Lagos	06.27N - 03.28E	50
17	Lefo (Mt)	05.50N - 10.20E	2550
18	Lolodorf	03.17N - 10.50E	500
19	Mamfe	05.46N - 09.18E	150
20	Manenguba (lager III)	05.00N - 09.50E	1800
(9)	Mansquelle (Mt Cameroun)	04.09N - 09.07E	2250-3100
21	Mieri	04.14N - 13.58E	600
22	Minta	04.35N - 12.48E	600
23	Mouila	01.50S - 11.02E	100
(9)	Musake (Mt Cameroun)	04.08N - 09.12E	1850-2200
-	Mutura	01.26S - 30.28E	1480
24	Nikruwa	06.14N - 05.21E	150
25	Nyasoso	04.57N - 09.40E	850
26	Oda (south of Akure)	07.10N - 05.05E	200
27	Odzala	00.37N - 14.37E	500
28	Oku (Mt)	06.12N - 10.32E	2050
(9)	Onyanza (Mt Cameroun)	eastern slope	2600
(2)	Salo 2	03.11N - 16.06E	350
29	Sapoba	06.20N - 05.31E	150
30	Yaoundé	03.51N - 11.31E	1050

Mountain, has not recorded any markedly long-haired examples corresponding to the British Museum specimen, since he generally draws attention to such character if any skin displays it" .
EISENTRAUT (1973), reacting to these remarks, admits that, after re-examining the rather important *Lophuromys* series he collected on Mount Cameroun, all of his specimens unmistakably show a long, soft and dense dorsal pelage averaging 13-14mm in hairlength. He concludes: "Sofern die Langhaarigkeit nicht als blosse phänotypische Erscheinung und damit als Anpassung an das kühlere Montanklima auszusehen ist, dürfte es sich wohl um eine Montanrasse von *sikapusi* handeln, da die Masse und die Schädelmerkmale weitgehend *sikapusi*-Charakter zeigen " (p.85).
DIETERLEN (1976, 1979:296) agrees with these observations and adds, after close scrutiny of the specimen BMNH 34.6.6.3. from Onyanza, that (1) the external measurements given by ROSEVEAR are probably the result of shrinkage of the skin due to preparation, (2) the other possibly important characters invoked by ROSEVEAR are not relevant when the other *Lophuromys*-material of Mt Cameroun is taken into consideration. He arrives at the conclusion " ... dass die Diskussion um dieses Stück mit Rosevears (1969) eigenen Sätzen abgeschlossen werden kann ..." it would appear that this form agrees more with *sikapusi* than *nudicaudus*, and it may prove to be nothing more than a montane race of that species. In most respects it is just a little smaller.
We were able to study not only the above mentioned *Lophuromys* specimens collected by Eisentraut and his colleagues on Mount Cameroun (West-Afrika-Reise 1966/67) but also material from Mount Cameroun available in other museums, and studied these within the scope of a bigger continent-wide revision of the *Lophuromys sikapusi* species-complex. This comparison leads us to the conclusion that the Mount Cameroun population differs sufficiently to warrant species rank.

Description of *Lophuromys roseveari* sp.n.

HOLOTYPE

ZFMK 69.297; ad. female; round skin; skull complete; collected by M. EISENTRAUT (18 march 1967) at MUSAKE (04.08N - 09.12E) on the slope of Mount Cameroun at an altitude of 1850-2200m; collecting number 656.

PARATYPES

15 specimens, all collected on the slopes of Mount Cameroun but at different localities and altitudes.

MUSAKE (04.08N - 09.12E) alt. 1850-2200m
ZFMK 69.292 (ad.male; skin+skull; coll.nr. 655)
ZFMK 69.302 (ad.female; skin+skull; coll.nr. 658)
SMNS 5345 (ad.male; skin+skull; coll.nr. 66)
SMNS 5346 (ad.male; skin+skull; coll.nr. 81)
SMNS 5348 (ad.male; skin+skull; coll.nr. 92)
SMNS 5351 (ad.male; skin+skull; coll.nr. 97)
collected by M. EISENTRAUT.

MANNSQUELLE (04.09N - 09.07E) alt. 2250-3100m
BMNH 50296 (ad.female; skin+skull; coll.nr. 220/48)
collected by D.R. ROSEVEAR.

HÜTTE II (04.11N - 09.12 E) alt. 3000m
ZFMK 69.293 (ad.female; skin+skull; coll.nr.716)
ZFMK 69.296 (ad.female; skin+skull; coll.nr.712)
collected by M. EISENTRAUT.

BUEA (04.09N - 09.13E) alt. 1000m
SMNS 5340 (ad.male; skin+skull; coll.nr. 58)
SMNS 5341 (ad. sex unknown; skin+skull; coll.nr. 60)
ZFMK 61790 (ad.male;skin+skull; coll.nr. 4)
collected by M. EISENTRAUT.

BUEA (04.09N - 09.13E) alt. 1800m
MHNP 1991.1246 (ad.female; skin+skull; coll.nr. 1246)
MHNP 1991.1247 (ad.male; skin+skull; coll.nr. 1247)
collected by PREVOST.

BUEA (04.09N - 09.13E) alt. 1250m
MHNP 1991.1249 (ad.female; skin+skull; coll.nr. 1249)
collected by PREVOST.

TYPE LOCALITY

The holotypes and paratypes were collected on the slopes of Mount Cameroun at altitudes between approximately 1200 and 3000m.
The collector's notes indicate that the specimens were mostly caught in "grassland" or "grassland near forest-fringes" or "among small patches of wood" or in "high forest". In a few instances "native farm" , "garden", "deforested zone in forest", "tree-plantation" and "elephant-grass" are mentioned.

ETYMOLOGY

We dedicate this new species to D.R. ROSEVEAR in appreciation of his taxonomical and zoogeographical insight into the Western and Central African small mammal fauna.

DIAGNOSIS

L. roseveari is a new species of "unspeckled and short-tailed brush-furred rat" belonging to the *sikapusi-ansorgei* species-complex. Consequently, it is differentiated cranially and dentally from the *nudicaudus-huttereri* species-complex, from *L. rahmi,* the smaller endemic species from the mountainous region of Kivu (Zaire),

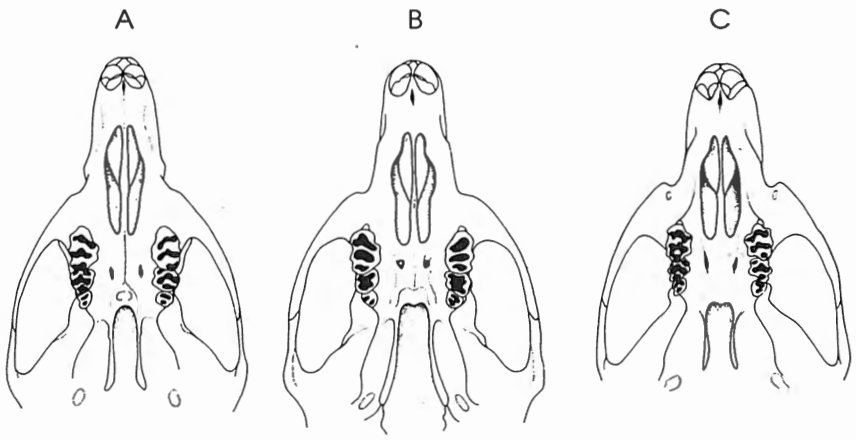

Fig. 2. - Schematic drawings of the ventral side of adult crania of (A) *Lophuromys roseveari* (ZFMK69.297-type), (B) *Lophuromys sikapusi* (RUCA10.051-Gabon) and (C) *Lophuromys dieterleni* (ZFMK69.289-type).
The skulls are aligned with the anterior borders of the first molars.

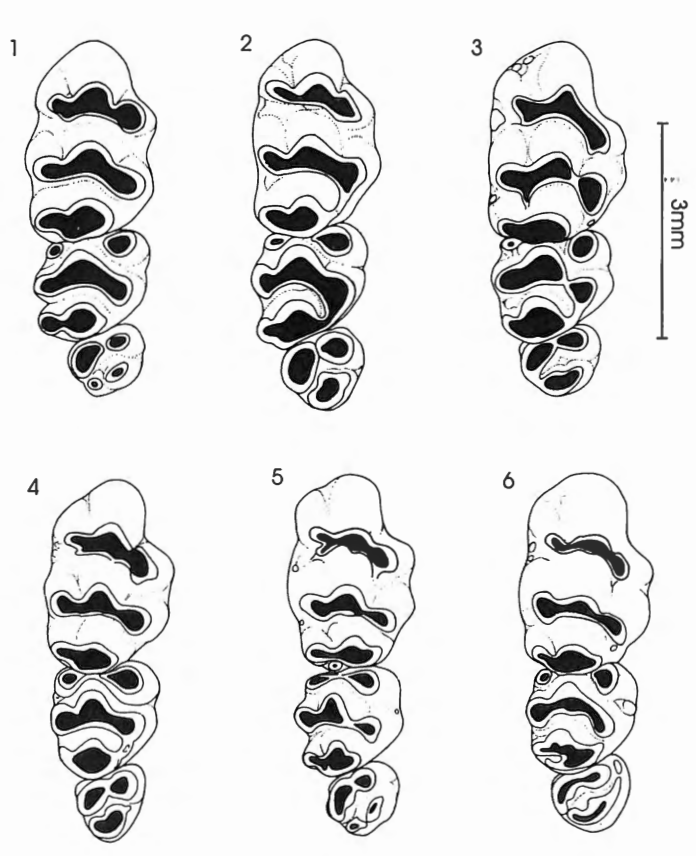

Fig. 3. -
Comparative drawings of the right maxillary teeth of *Lophuromys roseveari* (4) and some specimens representative for the *Lophuromys sikapusi* species-complex:

(1) *sikapusi* NHML 25.734 (Ghana-syntype)
(2) *sikapusi* KMMA 90032M132 (Ivory Coast - Mopoyem)
(3) *sikapusi* RUCA 10108 (Gabon - Franceville)
(4) *roseveari* ZFMK 69.297 (Cameroun-Mt Cameroun - Musake; type)
(5) *sikapusi* BMNH 48.993 (Cameroun-Mamfe)
(6) *sikapusi* ZFMK 91.223 (Cameroun-Mt Oku)

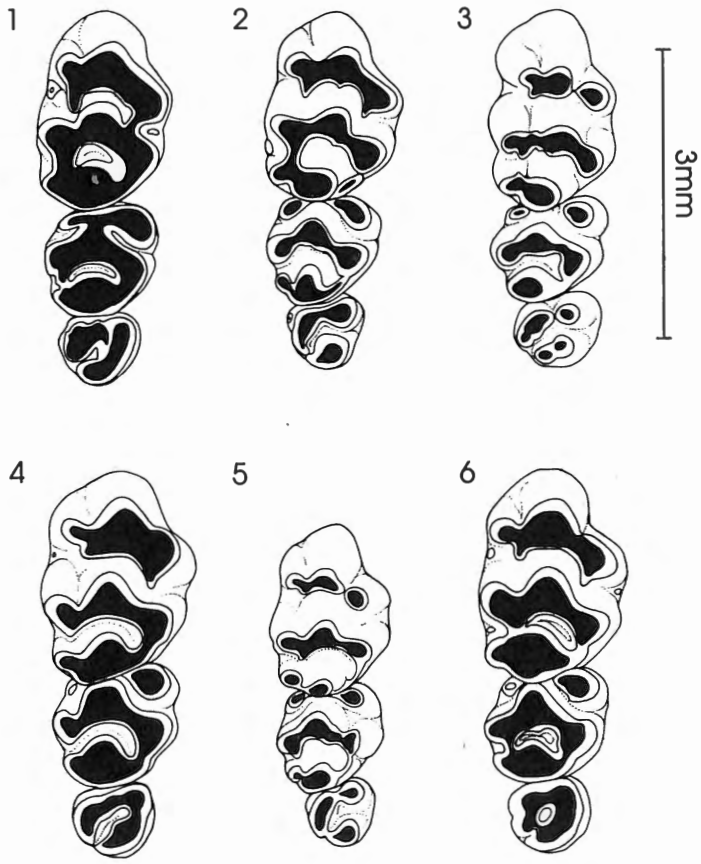

Fig 5. - Comparative drawings of the right maxillary teeth of *Lophuromys dieterleni* (2) and some selected specimens from the *Lophuromys flavopunctatus* species-complex:

(1) *laticeps* BMNH 7.6.14.35 (Zaïre-lake Kivu; type)
(2) *dieterleni* ZFMK 69.289 (Cameroun-Mt Oku; type)
(3) *rubecula* BMNH 10.4.1.165 (Uganda-Elgonyi; type)
(4) *flavopunctatus* BMNH 60.5.4.101 (Ethiopia-Ankober?; type)
(5) *eisentrauti* ZFMK 74.436 (Cameroun-MtLefo; type)
(6) *rita* BMNH 9.1.3.36 (Zaïre-Lufupa River; type)

Table 3. -External measurements of *Lophuromys roseveari* sp. n. compared with populations of adult (cl.2-3-4) *Lophuromys sikapusi* captured in Mopoyem (Ivory Coast) and Odzala (Congo).
(W: weight; Tol: total length; HB: head + body length; Tl: tail length; HF: hindfootlength-nail; El: earlength).

	W	Tol	HB	Tl	HF	El	
L. roseveari	63.5	193.5	127.5	66.0	22.5	18.5	$\bar{x}$
Mt. Cameroun	49 - 88	164 -219	104 - 141	50 - 78	20,0 - 25,1	16 - 21	min - max
	24	29	32	29	32	28	n
L. sikapusi	68.5	206	136.8	69.5	23.9	16.2	$\bar{x}$
Mopoyem	50 - 95	189 - 231	122 - 152	60 - 82	22 - 25	15 - 18	min - max
	165	116	167	116	132	112	n
L. sikapusi	68.7	198.3	130.1	68.1	22.1	15.8	$\bar{x}$
Odzala	49 - 92	179 - 222	112 - 145	59 - 80	20,4 - 24,3	14,4 - 17,5	min - max
	24	20	24	20	24	20	n

and from *L. eisentrauti,* the smallish endemic species of Mt Lefo in the Cameroun highlands related to the *flavopunctatus* species-group. Within the *sikapusi-ansorgei* species-complex, *L. roseveari* can immediately be recognized by its (1) remarkably slender, narrow skull, (2) somewhat larger bullae, (3) bigger ears and (4) somewhat softer and longer pelage (hair length on dorsum (±15mm).

Discussion of the morphological characters (table 3; figs 2 and 3)

A statistically valid comparison of the external metrical characters (table 3) is not possible since these data have been collected by different researchers almost certainly using differing measuring methods. However, we can conclude safely that, whereas most of the external measurements suggest that *L. roseveari* is just a fraction smaller than *L. sikapusi*, its ear length scores clearly higher.
Concerning the pelage, we confirm the findings of ROSEVEAR (1969) who notes that the middorsal region has a softer feel than in *L. sikapusi.*
Confusion with *L. nudicaudus* can be excluded for both external measurements and pelage texture (VERHEYEN et al., 1996).
The general habitus of the skull (fig. 2) shows a clear resemblance to *L. sikapusi-ansorgei.* However, the skull of *L. roseveari* has a notably more slender and fragile build but in profile has the same rostrum and skull height as *L. sikapusi-ansorgei.*
In addition, the morphology of the molars of the upper and lower jaw (fig.3) clearly relates *L. roseveari* to the *L. sikapusi-ansorgei* species-complex.
Compared to typical *sikapusi* and *ansorgei* the skull of *L. roseveari* has

(1) strikingly narrower choanae;
(2) a more reclining anterior border of the zygomatic plates;
(3) weakly developed supra-orbital ridges and notch;
(4) more slender zygomatic arches;
(5) a relatively longer and more slender processus angularis of the mandibula.

Discussion of the craniometrical data

UNIVARIATE ANALYSIS (table 4 and 5)

The basic statistics show the variation coefficients to be far below 10% except for the "choanae breadth" (nr.18) which is an unreliable measurement.
When comparing *L.sikapusi* samples from GAB-CON-RCA, N.Sanaga and the sample from Mt Cameroun by means of one way ANOVA, only 8 out of 24 variables are not significantly different between the samples (M1, M2, M3, M5, M6, M8, M16, M24). Most of these variables are skull-length measurements.
The other 16 variables are highly significantly different. In most cases, tested by SNK a posteriori tests, the three samples are significantly different, the Mt Cameroun sample being the smallest (M9, M10, M11, M12, M13, M14, M15, M17, M18, M21, M22). These are mostly width-measurements. In four more cases the Mt Cameroun sample scores the lowest, but differs neither from *sikapusi* N.Sanaga (M7, M20, M23) nor from *sikapusi* GAB-CON-RCA (M4). For only one variable (M19 = length of the bulla) the Mt Cameroun sample is the largest.
Summarizing, the Mt Cameroun is characterized by a clearly narrower skull and somewhat heavier bullae.

Table 4. - Basic statistics of *Lophuromys roseveari* sp. n. compared with the basic statistics of *Lophuromys ansorgei* (OTU=UGANDA), *Lophuromys sikapusi* (N.SANAGA) and *Lophuromys sikapusi* (GAB-CON-RCA).
Only specimens from age classes 2-3-4 were retained.
For the complete set of metrical data of *L. roseveari* we refer to App. 2.1. and 2.2.
The composition of the craniological series of the other species can be consulted in App. 5.1. and 5.2.; the entire craniometrical data sets can eventually be obtained through e-mail.

L.sikapusi (GAB-CON-RCA)							L.sikapusi (N.Sanaga)						
	N	MEAN	MIN	MAX	STD	CV%		N	MEAN	MIN	MAX	STD	CV%
M1	51	31.24	28.80	33.35	0.960	3.07	M1	24	31.59	29.45	33.35	0.915	2.90
M2	51	30.04	27.55	31.85	1.051	3.50	M2	30	30.05	27.85	31.65	0.846	2.82
M3	51	25.46	14.35	27.35	1.868	7.34	M3	31	25.93	23.65	27.50	0.867	3.34
M4	52	12.72	11.50	13.50	0.480	3.78	M4	31	13.02	12.00	13.75	0.421	3.23
M5	52	6.62	5.95	7.45	0.321	4.85	M5	31	6.74	6.00	7.50	0.369	5.48
M6	52	8.15	7.35	9.00	0.433	5.32	M6	31	8.06	7.30	8.65	0.372	4.62
M7	51	10.01	9.10	10.80	0.502	5.02	M7	30	9.65	8.90	10.70	0.397	4.11
M8	52	6.38	5.95	6.80	0.214	3.35	M8	31	6.41	6.00	7.05	0.208	3.25
M9	52	15.62	14.50	16.75	0.546	3.50	M9	31	15.31	14.05	16.25	0.554	3.62
M10	52	3.64	3.15	4.25	0.257	7.05	M10	31	3.67	3.20	4.15	0.237	6.45
M11	52	4.91	4.55	5.30	0.168	3.43	M11	31	5.12	4.75	5.40	0.179	3.49
M12	52	7.36	6.15	7.90	0.319	4.34	M12	30	7.35	6.70	7.85	0.271	3.68
M13	52	1.78	1.70	2.00	0.063	3.52	M13	31	1.84	1.70	1.95	0.062	3.35
M14	52	2.98	2.55	3.45	0.215	7.21	M14	31	2.79	2.15	3.20	0.212	7.60
M15	52	3.02	2.70	3.40	0.142	4.71	M15	30	2.98	2.70	3.35	0.163	5.48
M16	51	12.85	11.45	14.00	0.632	4.92	M16	25	13.02	11.80	14.10	0.574	4.41
M17	52	4.52	4.25	4.90	0.153	3.37	M17	28	4.73	4.20	5.20	0.188	3.97
M18	52	1.48	1.15	1.80	0.153	10.37	M18	27	1.76	1.35	2.40	0.262	14.85
M19	52	5.13	4.70	5.50	0.207	4.04	M19	31	5.31	4.85	5.85	0.228	4.29
M20	52	13.12	12.50	13.65	0.284	2.17	M20	31	12.92	12.25	14.10	0.343	2.65
M21	51	1.28	1.10	1.45	0.078	6.10	M21	29	1.35	1.15	1.55	0.095	7.05
M22	52	6.61	6.05	7.35	0.308	4.66	M22	31	6.64	6.00	7.20	0.304	4.59
M23	51	5.41	4.80	6.00	0.235	4.34	M23	31	5.12	4.80	5.60	0.177	3.45
M24	49	8.68	7.75	9.35	0.384	4.42	M24	21	8.58	7.75	9.50	0.331	3.86

L.roseveari							L.ansorgei						
	N	MEAN	MIN	MAX	STD	CV%		N	MEAN	MIN	MAX	STD	CV%
M1	15	31.27	30.30	32.55	0.697	2.23	M1	39	32.95	30.50	34.40	1.021	3.10
M2	21	29.71	28.30	31.50	0.881	2.97	M2	46	31.61	28.75	34.35	1.128	3.57
M3	20	25.34	24.00	27.20	0.813	3.21	M3	46	27.07	24.50	29.60	1.067	3.94
M4	34	12.71	11.95	13.55	0.374	2.94	M4	49	13.63	12.50	14.85	0.513	3.76
M5	34	6.60	6.15	7.10	0.234	3.55	M5	49	7.30	6.40	8.25	0.303	4.15
M6	35	8.10	7.60	8.65	0.280	3.45	M6	49	8.76	7.80	9.80	0.400	4.57
M7	34	9.69	9.00	10.70	0.372	3.84	M7	48	10.74	9.55	11.75	0.481	4.48
M8	36	6.39	6.05	6.75	0.166	2.59	M8	50	6.40	5.95	6.80	0.218	3.40
M9	21	14.66	13.90	15.55	0.522	3.56	M9	47	16.11	14.50	17.45	0.617	3.83
M10	36	3.37	2.85	3.85	0.259	7.67	M10	50	3.92	3.35	4.50	0.228	5.82
M11	36	4.82	4.50	5.05	0.142	2.94	M11	50	5.34	5.00	5.75	0.154	2.89
M12	36	6.93	6.50	7.45	0.256	3.69	M12	48	7.99	7.35	8.55	0.287	3.60
M13	36	1.75	1.65	1.85	0.051	2.90	M13	50	1.96	1.80	2.15	0.072	3.68
M14	32	2.55	2.10	2.95	0.214	8.37	M14	50	2.93	2.40	3.65	0.267	9.11
M15	35	2.69	2.20	3.20	0.181	6.72	M15	49	3.15	2.90	3.40	0.145	4.62
M16	23	13.05	11.95	14.00	0.605	4.64	M16	45	13.85	12.15	15.25	0.710	5.13
M17	36	4.42	4.15	4.70	0.128	2.90	M17	49	4.96	4.65	5.20	0.138	2.77
M18	31	1.27	1.00	1.50	0.103	8.12	M18	49	1.71	1.15	2.50	0.222	12.95
M19	23	5.49	5.00	5.90	0.202	3.68	M19	50	5.34	4.90	5.80	0.173	3.24
M20	27	12.74	12.05	13.65	0.324	2.54	M20	46	13.53	12.75	14.15	0.325	2.40
M21	35	1.20	1.05	1.30	0.062	5.16	M21	49	1.32	1.05	1.50	0.096	7.28
M22	35	6.21	5.80	6.60	0.213	3.44	M22	49	7.04	6.45	7.80	0.299	4.25
M23	35	5.16	4.80	5.70	0.230	4.46	M23	49	6.16	5.45	6.90	0.320	5.20
M24	21	8.70	8.15	9.50	0.344	3.95	M24	47	9.25	8.10	10.05	0.458	4.95

Table 5. -Results of ANOVA (one way) analyses performed on 24 craniodental measurements of age classes (2+3+4) of *Lophuromys roseveari* sp. n. and *Lophuromys sikapusi* (OTU:GAB-CON-RCA, N.SANAGA). A posteriori tests (Student, Newman, Keuls) are used to evaluate the differences between OTU's (SOKAL & ROHLF, 1969) indicated by the column <OTU>.

	MS B	DF B	MS W	DF W	F	P	SIGN<OTU>
M1	*101.80*	*2*	*82.96*	*87*	*1.227*	*0.298*	*n.s.*
M2	*92.32*	*2*	*92.46*	*99*	*0.998*	*0.372*	*n.s.*
M3	*283.74*	*2*	*211.73*	*99*	*1.340*	*0.267*	*n.s.*
M4	102.83	2	19.02	114	5.406	0.006	** ROSE,GAB-CON-RCA.<N.SAN.
M5	*19.46*	*2*	*9.79*	*114*	*1.989*	*0.142*	*n.s.*
M6	*7.43*	*2*	*14.25*	*115*	*0.521*	*0.595*	*n.s.*
M7	159.47	2	19.41	112	8.216	0.000	*** N.SAN.,ROSE<GAB-CON-RCA.
M8	*0.84*	*2*	*3.96*	*116*	*0.212*	*0.809*	*n.s.*
M9	685.20	2	29.57	101	23.170	0.000	*** ROSE<N.SAN.<GAB-CON-RCA.
M10	98.95	2	6.37	116	15.543	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M11	81.42	2	2.67	116	30.441	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M12	223.11	2	8.36	115	26.681	0.000	*** ROSE<N.SAN.<GAB-CON-RCA.
M13	6.68	2	0.35	116	19.197	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M14	181.67	2	4.58	112	39.698	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M15	122.72	2	2.56	114	47.950	0.000	*** ROSE<N.SAN.<GAB-CON-RCA.
M16	*40.16*	*2*	*37.43*	*96*	*1.073*	*0.346*	*n.s.*
M17	78.87	2	2.40	113	32.840	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M18	178.63	2	3.08	107	57.974	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M19	108.69	2	4.52	103	24.069	0.000	*** GAB-CON-RCA.<N.SAN.<ROSE
M20	134.20	2	9.69	107	13.842	0.000	*** ROSE<N.SAN.<GAB-CON-RCA.
M21	19.59	2	0.62	112	31.813	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M22	209.54	2	7.97	115	26.295	0.000	*** ROSE,GAB-CON-RCA.<N.SAN.
M23	102.31	2	4.82	114	21.211	0.000	*** N.SAN.,ROSE<GAB-CON-RCA.
M24	*8.91*	*2*	*13.21*	*88*	*0.675*	*0.512*	*n.s.*

MULTIPLE DISCRIMINANT ANALYSIS (table 6, fig.4)

In this analysis M1, M3, M9, M16, M18, M24 were excluded to maximize the number of specimens, especially in the Mt Cameroun sample. After forward selection also M5 was discarded. Wilk's Lambda is significally lower than 1, indicating a good discrimination between the groups. 58% of the total variation is expressed in root 1. The scatter diagram of root 1 versus root 2 shows the three groups to differentiate clearly, the Mt Cameroun group being separated along root 2. When looking at the factor structure matrix M19 (bulla length) is most positively correlated with root 2 : this measure is the largest in the Mt Cameroun sample (see univariate analysis). Most negatively correlated with root 2 are M17 (lower teeth length), M21 (upper incisor depth), M11 (upper cheekteeth length) and M13 (first molar breadth). The squared Mahalanobis distances show the Mt Cameroun group to be somewhat more separated from the two *sikapusi* groups.

A number of selected specimens are plotted on fig.4 in order to clarify their position in relation to *L.roseveari*. Both type specimens (*L.sikapusi* and *L.afer*) clearly fall in the N.SANAGA sector, suggesting that this OTU will prove to be rather closely related to typical west African *L.sikapusi*. The CAM.S population identifies itself clearly as *sikapusi*-related and overlaps with both N. SANAGA and GAB-CON-RCA.

The skulls from Manenguba (ZFMK 69.294) and Mt Oku (ZFMK 91223) coming from high altitudes (1800m and 2050m respectively) fall well within the *sikapusi*-range and are thus not related to *L.roseveari*. On the other hand, the skull SMNS 5355 from Musake that we judged to be somewhat aberrant and in our opinion not to be included in our paratypical series of *L.roseveari*, when plotted, situates itself well within the *L.roseveari* range. Finally, skull SMNS 41328 from Gangirwal (Gotel Mts; alt. 2300m) situates itself morphologically and metrically clearly within *L.sikapusi* (N.Sanaga).

Also in this analysis, it is more than obvious that the Mt Cameroun specimens are well differentiated from the other *sikapusi* groups, their probability of correct classification being 100%.

Conclusions

The *Lophuromys* rats living on the higher flanks of Mt Cameroun are sufficiently differentiated to be considered specifically distinct from their *sikapusi* relatives inhabiting both the lowland forests and also the rest of the montane forest-archipelago of the surrounding Nigeria-Cameroun region. However, in view of the considerable morphometrical differences also encountered between the studied OTU's (GAB-CON-RCA - N.SANAGA), we expect that the exact systematical position of the Mount Cameroun form will only become clear within a continent-wide revision of the *Lophuromys sikapusi-ansorgei* complex which should include also DNA-sequences and caryological data.

Finally, we point out that the fauna of Mount Cameroun is already characterized by some endemic mammals such as *Sylvisorex morio* (Gray, 1862), *Crocidura eisentrauti* Heim de Balsac, 1957 (HUTTERER, 1993), and the subspecies *Otomys irroratus burtoni* (Thomas, 1918) which may equally represent a good species (DIETERLEN and VAN DER STRAETEN, 1992). *Lophuromys roseveari* is thus the fourth mammal taxon known only from this mountain.

The Lophuromus of Mount Oku

In his publication on the zoogeographical importance of Mount Oku (Bamenda-Banso highlands of west Cameroun) EISENTRAUT (1968) mentions that he and his collaborators collected five *Lophuromys* on Mount Oku during his 1966-67 expedition to Cameroun. He provisionally assigned these specimens to *L. sikapusi* subsp. indicating, however, that they are characterized by somewhat aberrant skull characteristics when compared with typical *L. sikapusi*.

EISENTRAUT (1973) expatiates over this statement by comparing this Oku material also to his Mount Cameroun series, by adding a number of external and cranial measurements, and arrives at the conclusion that his Mount Oku material is clearly differentiated. He adds, however, that the two specimens collected in Manenguba closely resemble his Oku material and thus suggest a close relationship between both samples.

DIETERLEN (1979:296), reviewing the same material, considers the differences described by EISENTRAUT (1973) to be very slight when compared to the other *sikapusi* forms. On the same page he describes the new taxon *eisentrauti* from Mount Lefo (Bamenda highlands) that he considers to be a subspecies of *L. sikapusi*.

We finally draw attention to the paper by HUTTERER et al. (1992) where they discuss the literature concerning the *Lophuromys* of the forest islands of eastern Nigeria and adjacent Cameroun (DIETERLEN, 1979; HAPPOLD, 1987; HUTTERER & JOGER, 1982; EISENTRAUT, 1975). They arrive at the conclusion that the observed size differences between the smallish Mount Lefo specimen and the *Lophuromys* representatives from Mt Cameroun, Rumpi-Hills, Mt Kupe, Mt Oku, Gotel Mts and the Adamaoua Plateau are important enough to elevate the Mount Lefo population to full species rank as *Lophuromys eisentrauti* DIETERLEN, 1979.

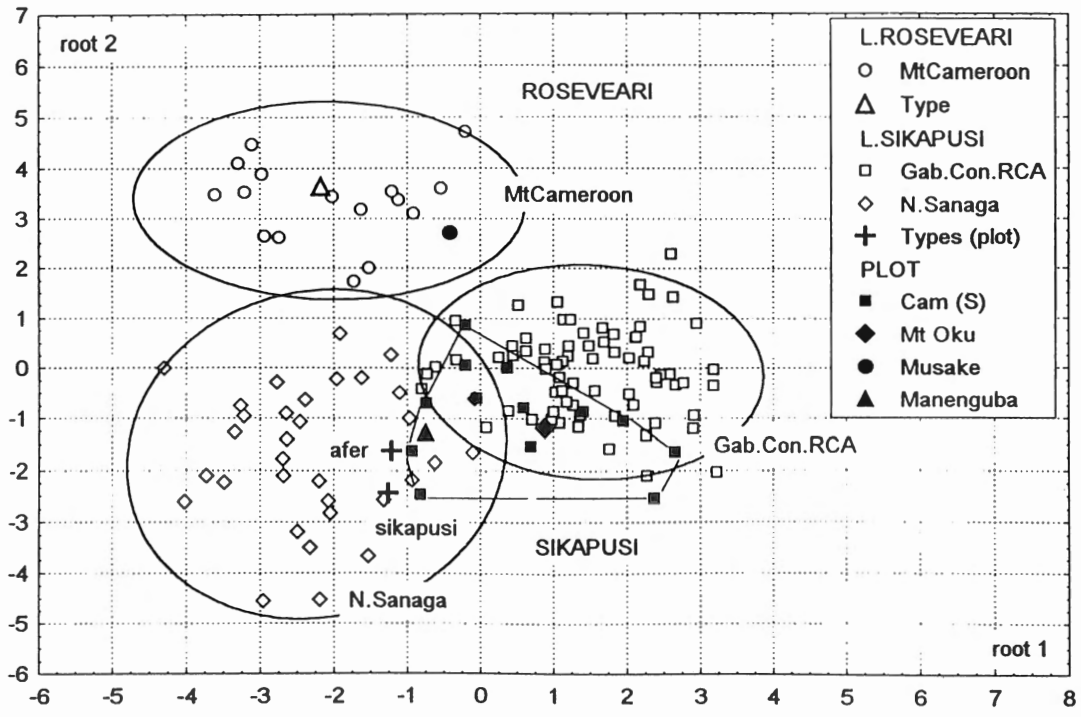

Fig.4. - Canonical analysis on a selected data set of *Lophuromys roseveari* sp.n. (MT CAMEROUN), *Lophuromys sikapusi* (S.SANAGA) and *Lophuromys sikapusi* (GAB-CON-RCA)

Description of *Lophuromys dieterleni* sp.n.

HOLOTYPE

ZFMK 69.289; ad. male; round skin; skull complete; collected by M. EISENTRAUT (21 January 1967) on the border of the crater-lake of Mount Oku (Lager IV; 06.12N - 10.32E; alt. 2100m) in the Bamenda-Banso highlands; collecting number 384.

PARATYPES

4 specimens from the same locality as the type-specimen and collected by EISENTRAUT between 17 and 31 January 1967.
ZFMK 69.286 (ad. female; skull + skin; coll. nr. 459) -
ZFMK 69.287 (ad. female; skull + skin; coll. nr. 347) -
ZFMK 69.288 (ad. male; skull + skin; coll. nr. 369) -
ZFMK 69.290 (ad. male; skull + skin; coll. nr. 389).

Table 6. - Summary of the main results of the discriminant function analyses on a selected craniometrical data set between *Lophuromys roseveari* sp.n. and *Lophuromys sikapusi* (GAB-CON-RCA) and *Lophuromys sikapusi* (N.SANAGA).

"Wilk's Lambda = 0,0679 F (34,206) = 17,1836 p<0,0000

	Raw Coefficients for Canonical Variables		Factor Structure Matrix	
Variable	Root 1	Root 2	Root 1	Root 2
M02	-0.0089	0.0068	-0.0202	-0.0159
M04	-0.0205	0.0016	-0.1304	-0.0613
M06	-0.0126	0.0029	-0.0033	0.0378
M07	0.0290	0.0062	0.1135	0.0438
M08	-0.0195	0.0117	-0.0601	-0.0581
M10	-0.0164	-0.0168	0.0306	-0.1301
M11	0.0072	-0.0277	-0.1623	-0.3396
M12	0.0190	-0.0104	0.1094	-0.2407
M13	-0.0571	-0.0028	-0.1461	-0.3334
M14	0.0213	-0.0019	0.2209	-0.0892
M15	0.0176	-0.0374	0.1439	-0.3194
M17	-0.0125	-0.0112	-0.1825	-0.3987
M19	-0.0098	0.0169	-0.2279	0.1663
M20	0.0152	-0.0013	0.1926	-0.0870
M21	-0.0067	-0.0291	-0.1171	-0.3481
M22	0.0114	-0.0260	0.0322	-0.2356
M23	0.0217	0.0215	0.2366	0.0784
Constant	7.5052	8.5667		
Eigenval	3.3548	2.3792		
Cum.Prop	0.5851	1.0000		

Squared Mahalanobis Distances (upper triangle)
F-values (lower triangle)
dF= 17 ; 103

	GAB-CON-RCA	N.Sanaga	roseveari
GAB-CON-RCA	--	16.9815	24.9017
N.Sanaga	19.0717	--	25.8787
roseveari	16.5550	14.0544	--

TYPE LOCALITY

The holotype and paratypes were collected on Mt Oku at 2100m altitude in the rather narrow high forest belt that encircles the crater lake.

ETYMOLOGY

We name this new species after our friend and colleague Dr. Fritz DIETERLEN to underline the importance of his ecological work on the small mammal fauna of Central Africa and more specifically on the genus *Lophuromys*.

DIAGNOSIS

Externally *L. dieterleni* is an "unspeckled and short-tailed brush furred" rat. However, the study of the skull and teeth demonstrates that it is neither related to the *sikapusi-ansorgei* species-complex nor to the *nudicaudus-huttereri* species-complex, nor to *L. rahmi*. Cranially, it is clearly related to the *L. flavopunctatus* species-complex and thus forms part of the so called "speckled and short-tailed brush furred" rats.
Craniometrically it is easily distinguished from its geographically closest relative *L.eisentrauti* (Mt Lefo) and from a representative population of *L. flavopunctatus laticeps* THOMAS & WROUGHTON,1907 from Kivu (Zaïre).

Discussion of the morphological characters (figs 2 and 5)

A straightforward description of the differences based solely on morphological characters between the skulls of the *sikapusi* and *flavopunctatus* species-groups remains difficult. Generally speaking, the skulls of the *sikapusi*-group are somewhat bigger and heavier than typical *flavopunctatus* (including *dieterleni*); on the other hand *flavopunctatus* skulls and consequently *dieterleni* skulls have a somewhat broader silhouette and a shorter rostrum. A similar difficulty is encountered when comparing the upper-tooth morphology (see figs. 3 and 5) and yet there is an unmistakable but subtle difference in the form and structure of the M^1. A conspicuous difference in M^1 morphology is that in *flavopunctatus*-related species there is often a clear ridge between t_6 and t_9 which is almost always absent in the *sikapusi*-group.

Discussion of the craniometrical data

UNIVARIATE ANALYSIS (table 7)

When comparing the small sample (n=5) of Mt Oku specimens to a large sample (n=118) of *L.flavopunctatus* from Kivu, most minima and maxima of Mt Oku specimens fall within the observed range for *L.flavopunctatus,* except for some measurements (M8,M9,M14,M21). Despite the small size of the Mt Oku sample, some variables indeed differ significantly between the two samples. These measures include the longer snout (M2 and M4), the wider orbital region and larger zygomatic plate (M8, M9, M10, M14), the heavier upper incisors (M21) and the shorter upper molar row (M11). When compared to the type-series of *L.dieterleni*, the skull of the type of *L.eisentrauti* described from Mount Lefo proves to be clearly smaller in all the observed measurements except for the choanal breadth (M18) where it scores higher. Although the type of *L.eisentrauti* is a young specimen (age class 1), most of these observed differences cannot be explained by growth alone.

MULTIPLE DISCRIMINANT ANALYSIS (table 8, fig. 6)

In order to maximize the number of specimens, a set of 17 variables on 279 specimens were analysed, including two samples of *L.sikapusi,* one from north of the Sanaga River and one from south of the Sanaga, one sample of *L.ansorgei* from Uganda and one sample of *L.flavopunctatus* from Kivu. The discriminant scores of the specimens from Mt Oku were calculated a posteriori and plotted on the scattergram.
Wilk's Lambda is significantly different from 1, approaching zero, indicating a good discrimination between the groups. Figure 6 shows a clear separation of the three species in the plane of root1/ root 2, which expresses 91% of total variation, the two samples of *L.sikapusi* for the greater part overlapping each other. The Mahalanobis' squared distances confirm the more distant positions of *L.flavopunctatus* and of *L.ansorgei* with respect to *L.sikapusi.*
When plotting the Mt Oku specimens, four of the five clearly fall outside the 95% equal probability ellipses of the groups concerned, the fifth specimen lying on the ellipse of *L.sikapusi* (S.Sanaga). Another Mt Oku specimen (ZFMK 91.223) showing unmistakable skull and teeth characteristics of *L. sikapusi* (figs.3.6 and 5.2) clearly plots within the area of that species. The types of *L.f.laticeps* and of *L.f.zena* fall within the *flavopunctatus* area. The type of *L.eisentrauti* lies clearly outside all of the groups considered but is closest to *L.dieterleni.*
Since the Mt Oku specimens were not incorporated in the analysis because of the small sample size it is difficult to interprete these results in terms of canonical coefficients or of factor structure. However, the Mt Oku sample is differentiated from *L.flavopunctatus* along root 2, which is influenced most by interorbital breadth on the positive side and by the greatest rostrum breadth on the negative side. This seems to confirm the trend of the univariate analysis. Future introduction in the analysis of a bigger population of Mt Oku-specimens as a separate group may well change the factor structure.

Table 7.- Basic statistics of *Lophuromys dieterleni* sp.n. compared with the basic statistics of *Lophuromys flavopunctatus laticeps* (Kivu province - Zaire).
On the right side the results of the T-Student test are shown.
For the complete set of metrical data of *L.dieterleni* we refer to App.4.
The composition of the craniological series of the *L. flavopunctatus laticeps* population can be consulted in App.5.1. The entire craniometrical data set can eventually be obtained through e-mail.

	L.flavopunctatus Kivu						L.dieterleni MtOku									
Variables	MEAN	N	MIN	MAX	STD	CV%	MEAN	N	MIN	MAX	STD	CV%	TStud	DF	P	SIGN
M1	30.13	118	27.70	31.75	0.783	2.60	30.95	2	30.90	31.00	0.071	0.23	-1.48	118	0.141	n.s.
M2 (PRCO)	28.68	118	26.35	30.30	0.795	2.77	29.49	4	29.10	29.75	0.301	1.02	-2.02	120	0.046	*
M3	24.25	118	21.55	25.80	0.768	3.17	24.46	4	23.45	24.95	0.686	2.80	-0.55	120	0.583	n.s.
M4 (HEPA)	12.09	118	11.00	13.00	0.420	3.48	12.44	5	12.00	12.85	0.390	3.13	-1.82	121	0.072	*
M5	6.27	118	5.55	6.85	0.272	4.34	6.33	5	6.15	6.45	0.144	2.28	-0.50	121	0.616	n.s.
M6	7.81	118	6.85	8.50	0.310	3.97	7.60	5	7.35	7.85	0.235	3.09	1.48	121	0.140	n.s.
M7	9.22	118	8.00	10.10	0.365	3.96	9.05	5	8.70	9.35	0.306	3.38	1.02	121	0.309	n.s.
M8 (INTE)	6.06	118	5.55	6.55	0.212	3.49	6.67	5	6.50	6.85	0.168	2.52	-6.31	121	0.000	***
M9 (ZYGO)	15.15	118	13.85	16.05	0.469	3.09	15.62	5	15.25	16.10	0.407	2.61	-2.19	121	0.030	*
M10 (PALA)	3.14	118	2.65	3.65	0.189	6.00	3.33	5	3.20	3.50	0.115	3.46	-2.21	121	0.029	*
M11 (UPTE)	5.08	118	4.50	5.65	0.220	4.32	4.85	5	4.70	5.15	0.177	3.64	2.31	121	0.023	*
M12	6.81	118	6.30	7.35	0.225	3.31	6.96	5	6.70	7.20	0.198	2.85	-1.51	121	0.133	n.s.
M13	1.75	118	1.45	2.00	0.090	5.12	1.74	5	1.65	1.80	0.055	3.15	0.29	121	0.773	n.s.
M14 (ZYPL)	2.90	118	2.40	3.40	0.198	6.83	3.28	5	3.05	3.45	0.211	6.43	-4.25	121	0.000	***
M15	2.90	118	2.60	3.25	0.143	4.94	2.93	5	2.70	3.15	0.189	6.45	-0.52	121	0.601	n.s.
M16	12.20	118	11.00	13.40	0.505	4.14	12.60	3	12.35	12.75	0.218	1.73	-1.35	119	0.178	n.s.
M17	4.49	118	3.90	5.00	0.197	4.38	4.47	5	4.35	4.65	0.110	2.45	0.18	121	0.857	n.s.
M18 (CHOB)	1.41	117	0.90	2.00	0.199	14.08	1.20	5	1.05	1.35	0.127	10.62	2.35	120	0.020	*
M19	5.21	112	4.75	5.85	0.197	3.78	5.21	5	5.00	5.50	0.219	4.21	0.00	115	0.998	n.s.
M20	13.02	118	12.40	13.80	0.280	2.15	12.98	5	12.75	13.25	0.186	1.43	0.30	121	0.764	n.s.
M21 (DINC)	1.29	118	1.10	1.50	0.091	7.08	1.48	5	1.45	1.55	0.045	3.02	-4.73	121	0.000	***
M22	6.63	118	5.65	7.25	0.323	4.87	6.72	5	6.45	7.10	0.251	3.74	-0.59	121	0.556	n.s.
M23	5.46	118	4.75	6.20	0.325	5.95	5.46	5	5.25	5.75	0.225	4.12	0.02	121	0.981	n.s.
M24	8.73	117	7.85	9.60	0.344	3.94	8.90	5	8.20	9.20	0.405	4.55	-1.06	120	0.291	n.s.

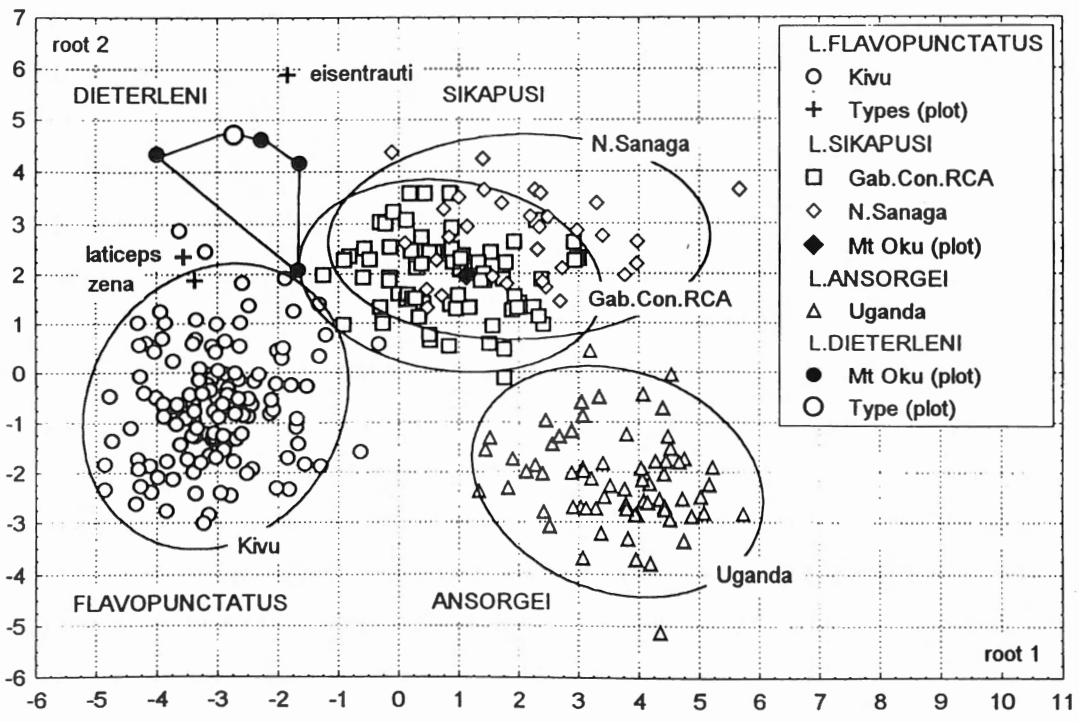

Fig. 6. - Canonical analysis on a selected data set of *Lophuromys ansorgei* (OTU = UGANDA), *Lophuromys sikapusi* (OTU = GAB-CON-RCA and OTU = N.SANAGA) and *Lophuromys flavopunctatus laticeps* (OTU = KIVU) in order to situate by plotting *Lophuromys dieterleni* sp. n. and some possibly related types and geographically critical specimens.

Table 8.- Summary of the main results of the discriminant function analyses on a selected craniometrical data set between *Lophuromys flavopunctatus laticeps* (KIVU) - *Lophuromys sikapusi* (GAB-CON-RCA) - *Lophuromys sikapusi* (N.SANAGA) - *Lophuromys ansorgei* (UGANDA).

L.dieterleni

Wilk's Lambda = 0,01444 F(51;831) = 51,3620 p<0,0000

	Raw Coefficients for Canonical Variables			Factor Structure Matrix		
Variable	Root 1	Root 2	Root 3	Root 1	Root 2	Root 3
M04	0.0149	0.0117	0.0125	0.2789	-0.0654	0.0889
M05	0.0183	-0.0017	-0.0012	0.3204	-0.1363	0.0860
M06	-0.0185	-0.0226	0.0244	0.1782	-0.1299	-0.0428
M07	0.0070	0.0035	-0.0310	0.2564	-0.0906	-0.1934
M08	0.0064	0.0344	0.0035	0.1803	0.1519	-0.0032
M09	-0.0102	0.0041	-0.0041	0.1175	-0.0761	-0.1196
M10	0.0153	0.0130	0.0153	0.3562	0.0055	-0.0839
M11	-0.0258	-0.0278	0.0198	0.1134	-0.3651	0.3307
M12	0.0240	-0.0038	-0.0132	0.4478	-0.1488	-0.1151
M13	0.0542	-0.0087	0.0092	0.3379	-0.2598	0.1912
M14	-0.0161	0.0075	-0.0225	-0.0633	0.0082	-0.1745
M17	0.0155	-0.0044	0.0127	0.3316	-0.2838	0.3153
M19	-0.0042	0.0031	0.0076	0.0381	-0.0694	0.1764
M20	-0.0003	-0.0135	-0.0065	0.1034	-0.2044	-0.1486
M21	-0.0386	0.0114	0.0541	-0.0010	0.0519	0.2372
M22	-0.0123	-0.0052	0.0096	0.0542	-0.1560	0.0833
M23	-0.0037	-0.0263	-0.0085	0.1326	-0.5154	-0.1729
Constant	-14.9026	20.0037	-11.4263			
Eigenval	7.6183	2.9703	1.0228			
Cum.Prop	0.6561	0.9119	1.0000			

Squared Mahalanobis Distances (upper triangle)
F-values (lower triangle)
dF=17 ; 279

	Kivu	GAB-CON-RCA	N.Sanaga	Uganda
Kivu	--	24.3839	41.3193	47.4136
GAB-CON-RCA	61.2466	--	15.0399	26.4710
N.Sanaga	58.4700	18.4565	--	31.6164
Uganda	115.8419	51.1512	38.2740	--

Conclusions

The brush-furred rats living in the high forest surrounding the crater-lake of Mt Oku occupy a somewhat confusing position in the "classical" taxonomy of the genus *Lophuromys*. Indeed, on the one hand their "unspeckled" dorsal pelage suggests a closeness to the *sikapusi*-species group, but on the other hand they possess a skull and molar morphology characteristic of the *flavopunctatus*-species group.

Both EISENTRAUT (1968, 1973) and DIETERLEN (1979) overstressed the "unspeckledness of the pelage" and underestimated the importance of the skull and molar characters that were correctly observed and described by the former author.

In our opinion *L. dieterleni* is an endemic species probably restricted to the narrow high forest-belt encircling the crater-lake of Mt Oku and belonging to the *L. flavopunctatus* species-group in spite of its "unspeckled" dorsal pelage. The specimen ZFMK 91223, collected by local

people in a village at the foot of Mt Oku on 5 January 1991, clearly belongs to *L. sikapusi* and shows that it possibly is sympatric with *L. dieterleni*. Also the specimens we have seen from Manenguba are clearly *L. sikapusi*.
We consider *L. eisentrauti* from Mt Lefo to be the species closest to our new species *L. dieterleni*. Indeed, both taxa are "unspeckled" but with skull and molar characters typical for the *flavopunctatus*-group. It is also worthwhile mentioning that both type localities are separated by a stretch of 40km of montane grassland and that both type specimens were collected in isolated patches of montane high forest.
By inclusion of *Lophuromys dieterleni*, the mammal fauna of Mt Oku contains a number of endemic taxa, namely one genus (*Lamottemys*), 4 species (*Lamottemys okuensis* Petter, 1986, *Lemniscomys mittendorfi* Eisentraut, 1968, *Hylomyscus grandis* Eisentraut, 1969, *Lophuromys dieterleni* sp.n.), and one subspecies (*Chrysochloris stuhlmanni balsaci* Lamotte & Petter, 1981). Other species (*Myosorex okuensis* Heim de Balsac, 1986, *Sylvisorex camerunensis* Heim de Balsac, 1968, *Sylvisorex isabellae* Heim de Balsac, 1968, *Praomys hartwigi* Eisentraut, 1968, *Hybomys eisentrauti* Van der Straeten & Hutterer, 1984, *Otomys occidentalis* Dieterlen & Van der Straeten, 1992) are shared by some neighbouring mountain forests only (EISENTRAUT, 1968; LAMOTTE & PETTER, 1981; PETTER, 1986; HUTTERER et al., 1992). It is likely that more new taxa will be described in the future, but the present list of local mammals is impressive enough already to classify the Mt Oku forest as a high priority region for the conservation of African mammal diversity.

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LOCALITY	MUSEUM	NUMBER	SEX	AGE	CR	P	AL	COLLECTOR	NUMBER	DATE
MUSAKE	ZFMK	69297	F	2	X	X	-	EISENTRAUT	656	18 mar 67
04.08N-09.12E										
1850m-2200m	ZFMK	61789	M	1	X	X	-	EISENTRAUT	806	28 mar 58
	ZFMK	69292	M	1	X	X	-	EISENTRAUT	655	18 mar 67
	ZFMK	69299	M	2	X	X	-	EISENTRAUT	724	25 mar 67
	ZFMK	69300	M	1	X	X	-	EISENTRAUT	657	18 mar 67
	ZFMK	69302	F	2	X	X	-	EISENTRAUT	658	18 mar 67
	SMNS	5344	M	2	X	X	-	EISENTRAUT	65	28 jan 54
	SMNS	5345	M	3	X	X	-	EISENTRAUT	66	28 jan 54
	SMNS	5346	M	2	X	X	-	EISENTRAUT	81	30 jan 54
	SMNS	5347	M	4	X	X	-	EISENTRAUT	89	31 apr 54
	SMNS	5348	M	3	X	X	-	EISENTRAUT	92	31 jan 54
	SMNS	5349	M	2	X	X	-	EISENTRAUT	93	31 jan 54
	SMNS	5350	M	2	X	X	-	EISENTRAUT	94	31 jan 54
	SMNS	5351	M	2	X	X	-	EISENTRAUT	97	01 feb 54
	SMNS	5352	F	2	X	X	-	EISENTRAUT	101	01 feb 54
	SMNS	5353	F	3	X	X	-	EISENTRAUT	111	01 feb 54
	SMNS	5355	F	3	X	X	-	EISENTRAUT	172	15 feb 54
	SMNS	5356	?	3	X	X	-	EISENTRAUT	181	17 feb 54
MANNSQUELLE	SMNS	5357	M	4	X	X	-	EISENTRAUT	470	19 apr 54
04.09N-09.07E	SMNS	5358	M	3	X	X	-	EISENTRAUT	481	24 apr 54
2250m-3100m	SMNS	5359	M	3	X	X	-	EISENTRAUT	485	25 apr 54
	SMNS	5360	M	2	X	X	-	EISENTRAUT	477	22 apr 54
	BMNH	50.294	M	2	X	X	-	ROSEVEAR	224/48	01 apr 48
	BMNH	50.295	M	2	X	X	-	ROSEVEAR	226/48	01 apr 48
	BMNH	50.296	F	2	X	X	-	ROSEVEAR	220/48	27 mar 48
HUTTE II	ZFMK	61788	M	2	X	X	-	EISENTRAUT	836	02 apr 58
04.11N-09.12E	ZFMK	61791	M	?	X	X	-	EISENTRAUT	119	26 nov 57
3000m	ZFMK	69293	F	3	X	X	-	EISENTRAUT	716	23 mar 67
	ZFMK	69296	F	3	X	X	-	EISENTRAUT	712	23 mar 67
	SMNS	6490	F	3	X	X	-	EISENTRAUT	834	02 apr 58
	SMNS	6491	F	1	X	X	-	EISENTRAUT	835	02 apr 58
	SMNS	6492	F	2	X	X	-	EISENTRAUT	841	02 apr 58
BUEA	SMNS	5337	M	2	X	X	-	EISENTRAUT	11	17 jan 54
04.09N-09.13E	SMNS	5339	F	2	X	X	-	EISENTRAUT	46	24 jan 54
1000m	SMNS	5340	M	3	X	X	-	EISENTRAUT	58	27 jan 54
	SMNS	5341	?	2	X	X	-	EISENTRAUT	60	28 jan 54
	SMNS	5342	M	3	X	X	-	EISENTRAUT	275	15 mar 54
	SMNS	5343	M	3	X	X	-	EISENTRAUT	290a	17 mar 54
	ZFMK	61790	M	3	X	X	-	EISENTRAUT	4?	29 oct 57
BUEA	MHNP	1991.1246	F	3	X	X	-	PREVOST	1246	03 nov 73
04.09N-09.13E	MHNP	1991.1247	M	1	X	X	-	PREVOST	1247	03 nov 73
1800m										
BUEA	MHNP	1991.1249	F	3	X	X	-	PREVOST	1249	29 oct 73
04.09N-09.13E										
1250m										
ONYANZA	BMNH	34.6.6.3	?	1	X	X	-	STEELE	2	08 jan 33
(eastern slope)										
2600m										
Mt CAMEROUN	BMNH	85.1074	M	3	X	-	X	BONDEN	16	?
04.09N-09.05E										
1500m										

Appendix 1.1. - Listing of the specimens of *Lophuromys roseveari* sp. n. that have been included in this study. For the definition of the acronyms of the institutions and museums, and the age classes we refer to VERHEYEN et al. (1996). (cr = cranium; p = skin, al = in spirit; F = female; M = male).

LOCALITY	MUSEUM	NUMBER	W	TOL	HB	TL	HF	EL	REMARKS
MUSAKE	ZFMK	69297	60	199	132	67	220	180	Type L.roseveari
04.08N-09.12E									
1850m-2200m	ZFMK	61789	68	198	133	65	240	190	
	ZFMK	69292	57	184	119	65	230	180	Paratype
	ZFMK	69299	0?	181	119	62	230	190	
	ZFMK	69300	48	181	120	61	230	190	
	ZFMK	69302	54	175	113	62	230	180	Paratype
	SMNS	5344	49	179	115	64	210	180	
	SMNS	5345	57	195	127	68	230	0	Paratype
	SMNS	5346	55	195	123	72	215	180	Paratype
	SMNS	5347	61	193	121	72	220	210	
	SMNS	5348	50	185	117	68	220	190	Paratype
	SMNS	5349	62	194	129	65	220	170	
	SMNS	5350	51	171	124	47	220	190	
	SMNS	5351	46	191	129	62	215	0	Paratype
	SMNS	5352	34?	183	125	58	210	160	
	SMNS	5353	62	184	119	65	0	175	
	SMNS	5355	37?	150	100	50	230	190	
	SMNS	5356	58	209	135	74	240	200	
MANNSQUELLE	SMNS	5357	54	186	139	47	220	180	
04.09N-09.07E	SMNS	5358	56	160	128	32	230	180	
2250m-3100m	SMNS	5359	60	202	129	73	210	180	
	SMNS	5360	57	0	135	0	220	0	
	BMNH	50.294	0	210	135	75	210	200	
	BMNH	50.295	0	202	132	70	200	170	
	BMNH	50.296	0	219	141	78	250	180	Paratype
HUTTE II	ZFMK	61788	0	188	126	62	235	190	
04.11N-09.12E	ZFMK	61791	77	202	130	72	220	180	
3000m	ZFMK	69293	63	186	131	55	210	170	Paratype
	ZFMK	69296	70	193	131	62	220	180	Paratype
	SMNS	6490	0	199	132	67	230	185	
	SMNS	6491	0	182	121	61	240	190	
	SMNS	6492	0	181	118	63	240	170	
BUEA	SMNS	5337	52	203	127	76	230	180	
04.09N-09.13E	SMNS	5339	77	195	127	68	210	190	
1000m	SMNS	5340	57	0	0	60	220	180	Paratype
	SMNS	5341	58	190	122	68	220	190	Paratype
	SMNS	5342	88	206	135	71	220	200	
	SMNS	5343	70	207	132	75	240	210	
	ZFMK	61790	85	194	139	55	230	190	Paratype
BUEA	MHNP	1991.1246	84	198	137	61	230	0	Paratype
04.09N-09.13E	MHNP	1991.1247	0	195	132	63	260	0	Paratype
1800m									
BUEA	MHNP	1991.1249	82	211	141	70	250	0	Paratype
04.09N-09.13E									
1250m									
ONYANZA	BMNH	34.6.6.3	0	0	0	0	220	150	
(eastern slope)									
2600m									
Mt CAMEROUN	BMNH	85.1074	70	176	126	50	251	190	
04.09N-09.05E									
1500m									

Appendix 1.2. - Additional data on the specimens of *Lophuromys roseveari* sp. n. that have been included in this study. (W = weight; Tol = total length; HB = head + body length; Tl = taillength; HF = hindfootlength-nail).

LOCALITY	MUSEUM	NUMBER	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
MUSAKE	ZFMK	69297	3205	3040	2600	1300	630	835	975	650	1505	325	490	685
04.08N-09.12E														
1850m-2200m	ZFMK	61789	0	3010	2595	1275	660	820	970	625	0	325	455	675
	ZFMK	69292	0	2925	0	1290	660	805	970	640	1500	315	480	680
	ZFMK	69299	0	0	0	1250	665	795	945	650	1435	315	480	680
	ZFMK	69300	0	0	0	1255	665	785	945	625	1420	325	480	680
	ZFMK	69302	3065	2900	2475	1250	665	780	950	625	1465	355	490	700
	SMNS	5344	0	0	0	1220	650	765	905	635	0	315	480	670
	SMNS	5345	3065	2900	2505	1250	655	810	940	615	1415	335	450	660
	SMNS	5346	0	2935	2485	1250	680	805	965	630	1435	305	485	675
	SMNS	5347	0	0	0	1335	680	855	1020	660	1510	375	475	725
	SMNS	5348	0	2835	2425	1205	665	775	935	605	0	350	455	650
	SMNS	5349	0	0	0	0	670	805	945	640	1415	335	490	690
	SMNS	5350	0	0	0	1280	665	820	975	635	0	320	475	680
	SMNS	5351	0	2830	2400	1215	615	775	925	615	1400	315	480	675
	SMNS	5352	0	0	0	1230	615	760	910	635	0	310	480	665
	SMNS	5353	0	3020	2585	1310	640	825	990	630	1530	360	495	715
	SMNS	5355	2815	2680	2295	1155	585	710	860	590	1325	315	470	675
	SMNS	5356	3190	3045	2575	1270	660	805	990	660	1490	360	500	730
MANNSQUELLE	SMNS	5357	3200	3060	2615	1325	665	850	1025	675	0	385	495	745
04.09N-09.07E	SMNS	5358	0	0	0	1275	0	800	965	640	0	310	475	675
2250m-3100m	SMNS	5359	0	3040	0	1305	670	830	1000	655	1515	375	500	740
	SMNS	5360	0	0	0	0	0	0	0	655	0	345	460	685
	BMNH	50.294	0	0	0	1280	650	810	950	640	0	305	505	670
	BMNH	50.295	3125	3010	2560	1280	680	810	0	635	0	305	465	675
	BMNH	50.296	0	2935	2505	1275	665	795	940	640	1400	350	475	665
HUTTE II	ZFMK	61788	3030	2935	2510	1255	620	795	955	650	0	325	495	695
04.11N-09.12E	ZFMK	61791	0	0	0	0	0	0	0	0	0	0	0	0
3000m	ZFMK	69293	3075	2990	2570	1275	640	810	975	655	1465	370	465	700
	ZFMK	69296	3095	2960	2540	1260	660	845	1010	615	1495	335	475	700
	SMNS	6490	0	0	0	1245	685	810	980	620	0	285	460	725
	SMNS	6491	0	0	0	1250	630	770	925	635	1445	330	500	670
	SMNS	6492	0	0	0	1230	640	770	935	620	0	320	480	655
BUEA	SMNS	5337	3130	2920	2495	1265	645	815	970	630	1435	320	470	670
04.09N-09.13E	SMNS	5339	0	0	0	1280	660	800	965	650	0	340	500	705
1000m	SMNS	5340	3065	2905	2460	1260	665	805	965	635	1425	320	485	680
	SMNS	5341	3075	2865	2440	1195	625	760	900	625	1390	305	495	670
	SMNS	5342	0	0	0	1300	675	845	1000	650	0	365	495	715
	SMNS	5343	0	0	0	1270	665	815	965	650	0	355	485	720
	ZFMK	61790	3220	3130	2675	1325	710	835	1015	665	1555	355	490	720
BUEA	MHNP	1991.1246	3110	2985	2535	1285	660	810	970	615	1440	360	480	700
04.09N-09.13E	MHNP	1991.1247	3040	2875	2420	1205	620	740	890	595	1420	305	480	670
1800m														
BUEA	MHNP	1991.1249	3255	3150	2720	1355	695	860	1070	650	1555	365	470	715
04.09N-09.13E														
1250m														
ONYANZA	BMNH	34.6.6.3	2995	2850	0	1250	665	815	0	590	0	315	485	660
(eastern slope)														
2600m														
Mt CAMEROUN	BMNH	85.1074	0	0	0	1315	710	865	1020	655	1515	375	505	730
04.09N-09.05E														
1500m														

Appendix 2.1. - Craniometrical data set (M1 to M12) of *Lophuromys roseveari* sp. n. specimens and types. For details on the origin of individual specimens see App. 1.1. and 1.2. For the description of the measurements see table 1 and VERHEYEN et al. (1996).

LOCALITY	MUSEUM	NUMBER	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
MUSAKE	ZFMK	69297	175	285	270	1400	440	115	530	1320	120	630	520	870
04.08N-09.12E														
1850m-2200m	ZFMK	61789	175	260	260	0	435	115	545	0	115	640	510	885
	ZFMK	69292	175	250	265	1275	445	100	515	1295	125	625	525	0
	ZFMK	69299	175	255	250	1325	435	120	535	1285	120	630	535	855
	ZFMK	69300	175	240	260	1260	450	120	555	1280	125	610	500	810
	ZFMK	69302	175	250	265	1280	450	125	535	1265	130	615	520	885
	SMNS	5344	170	210	250	1200	415	120	0	0	110	580	510	0
	SMNS	5345	170	230	265	1315	420	125	560	1255	120	630	485	820
	SMNS	5346	175	260	255	0	460	125	575	1265	125	610	485	835
	SMNS	5347	175	0	270	1315	440	145	0	1245	130	625	540	0
	SMNS	5348	165	250	265	0	425	130	540	1250	115	600	505	0
	SMNS	5349	175	245	255	1195	450	130	565	1280	115	630	490	815
	SMNS	5350	175	240	265	1300	440	140	0	1205	115	630	515	0
	SMNS	5351	180	230	270	0	440	130	560	1235	115	595	480	0
	SMNS	5352	170	250	260	1200	450	0	540	0	125	585	515	825
	SMNS	5353	170	230	260	0	435	130	575	1295	105	615	520	0
	SMNS	5355	170	210	260	1155	445	125	495	1220	100	545	515	0
	SMNS	5356	175	0	275	1335	455	0	555	1290	130	650	570	0
MANNSQUELLE	SMNS	5357	180	230	290	1400	445	0	590	0	125	650	550	0
04.09N-09.07E	SMNS	5358	175	0	280	0	450	0	565	1265	125	605	485	0
2250m-3100m	SMNS	5359	185	0	265	0	450	120	0	1295	110	640	535	0
	SMNS	5360	170	295	0	0	435	125	550	1280	125	0	0	870
	BMNH	50.294	175	270	270	1305	460	125	0	0	125	610	480	850
	BMNH	50.295	180	275	265	1340	445	120	545	0	0	630	485	880
	BMNH	50.296	170	285	320	0	430	140	570	1245	120	590	515	0
HUTTE II	ZFMK	61788	180	255	250	1245	450	100	0	1365	115	610	520	870
04.11N-09.12E	ZFMK	61791	0	0	0	0	0	0	535	1290	0	0	0	0
3000m	ZFMK	69293	180	280	260	1255	425	130	515	1260	115	600	510	865
	ZFMK	69296	180	245	265	1365	425	130	500	1250	120	625	520	925
	SMNS	6490	175	235	265	0	425	140	0	0	125	625	530	930
	SMNS	6491	170	250	245	1280	455	135	0	1290	120	610	495	830
	SMNS	6492	165	250	220	0	445	135	0	1280	120	585	490	0
BUEA	SMNS	5337	180	230	260	1305	440	130	0	1300	115	605	485	0
04.09N-09.13E	SMNS	5339	180	255	285	1345	465	150	0	0	120	635	545	0
1000m	SMNS	5340	165	270	265	1250	435	115	535	1270	115	615	520	855
	SMNS	5341	180	280	280	1275	470	120	545	1245	115	600	510	855
	SMNS	5342	180	230	310	0	455	0	0	0	120	650	520	0
	SMNS	5343	180	255	275	0	450	130	0	0	130	650	520	880
	ZFMK	61790	180	265	270	1390	435	120	545	1310	125	650	520	950
BUEA	MHNP	1991.1246	170	270	260	1310	440	120	550	1250	120	630	535	870
04.09N-09.13E	MHNP	1991.1247	170	245	270	1235	450	110	555	1265	105	590	515	810
1800m														
BUEA	MHNP	1991.1249	170	290	290	1355	430	110	555	1320	115	660	560	885
04.09N-09.13E														
1250m														
ONYANZA	BMNH	34.6.6.3	170	255	280	1205	455	135	0	1255	0	570	460	780
(eastern slope)														
2600m														
Mt CAMEROUN	BMNH	85.1074	175	275	300	0	450	130	0	1280	115	640	530	880
04.09N-09.05E														
1500m														

Appendix 2.2. - Craniometrical data set (M13 to M24) of *Lophuromys roseveari* sp. n. specimens and types. See App. 1.1. and 1.2. For the description of the measurements see table 1 and VERHEYEN et al. (1996).

	LOCALITY	MUSEUM	NUMBER	SEX	AGE	CR	P	AL	COLLECTOR	NUMBER	DATE
A	OKU SEE	ZFMK	69289	M	2	X	X	-	EISENTRAUT	384	21 jan 67
	OKU SEE	ZFMK	69286	F	3	X	X	-	EISENTRAUT	459	31 jan 67
	OKU SEE	ZFMK	69287	F	3	X	X	-	EISENTRAUT	347	17 jan 67
	OKU SEE	ZFMK	69288	M	3	X	X	-	EISENTRAUT	369	19 jan 67
	OKU SEE	ZFMK	69290	M	2	X	X	-	EISENTRAUT	389	22 jan 67
B	LEFO Mt	ZFMK	74436	M	1	X	X	-	EISENTRAUT	81	06 mar 74
	KIVU (lake)	BMNH	7.6.14.35	F	3	X	X	-	CARRUTHERS	318	29 nov 06
	DABOCROM	NHML	25734	F	2	X	X	-	PEL	-	1840-1876
	AKROPONG	NHMB	4868	F	1	X	-	X	RIIS	706	-
C	OKU Mt	ZFMK	91223	F	1	X	X	-	FULLING	K23	05 jan 91
	MANENGUBA (lake)	ZFMK	69294	F	4	X	X	-	EISENTRAUT	275	12-Dec-1966
	NYASOSO	ZFMK	69295	M	2	X	X	-	EISENTRAUT	263	12 dec 66

	LOCALITY	MUSEUM	NUMBER	W	TOL	HB	TL	HF	EL	REMARKS
A	OKU SEE	ZFMK	69289	60	193	116	77	200	180	Type L.dieterleni
	OKU SEE	ZFMK	69286	62	198	123	75	220	170	Paratype of L.dieterleni
	OKU SEE	ZFMK	69287	63	0	128	0	240	180	Paratype of L.dieterleni
	OKU SEE	ZFMK	69288	60	198	124	74	210	170	Paratype of L.dieterleni
	OKU SEE	ZFMK	69290	49	0	113	0	200	170	Paratype of L.dieterleni
B	LEFO Mt	ZFMK	74436	0	147	94	53	190	140	Type L. sikapusi eisentrauti
	KIVU (lake)	BMNH	7.6.14.35	0	0	108	0	200	170	Type L. laticeps
	DABOCROM	NHML	25734	0	0	0	0	0	0	Syntype (a) L. sikapusi
	AKROPONG	NHMB	4868	0	0	0	0	210	116	Type L. afer
C	OKU Mt	ZFMK	91223	66	181	108	73	230	0	
	MANENGUBA (lake)	ZFMK	69294	64	0	136	67	220	170	lager III
	NYASOSO	ZFMK	69295	78	201	123	78	220	180	

Appendix 3. - A. Listing of the specimens of *Lophuromys dieterleni* sp. n. that have been included in this study.
B. Listing of the *Lophuromys* types referred to in this study.
C. Listing of some specific *Lophuromys sikapusi* specimens from the Cameroun Highlands.

	LOCALITY	MUSEUM	NUMBER	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
A	OKU SEE	ZFMK	69289	3090	2940	2480	1260	640	785	930	685	1600	320	470	685
	OKU SEE	ZFMK	69286	0	2975	2495	1285	645	770	935	650	1525	335	515	720
	OKU SEE	ZFMK	69287	0	2970	2345	1270	645	775	915	685	1610	350	475	710
	OKU SEE	ZFMK	69288	3100	2910	2465	1205	615	735	875	655	1550	325	485	670
	OKU SEE	ZFMK	69290	0	0	0	1200	620	735	870	660	1525	335	480	695
B	LEFO Mt	ZFMK	74436	2680	2425	2065	1090	545	640	760	630	1330	315	460	635
	KIVU (lake)	BMNH	7.6.14.35	2905	2730	2330	1185	580	710	860	620	1510	315	515	685
	DABOCROM	NHML	25734	2980	2860	0	1255	650	745	895	610	1530	375	500	735
	AKROPONG	NHMB	4868	0	2660	2280	1180	610	690	805	575	0	325	470	675
C	OKU Mt	ZFMK	91223	3065	2920	2510	1220	655	755	905	625	1480	350	495	720
	MANENGUBA	ZFMK	69294	3025	3010	2560	1305	655	750	970	640	1480	325	550	730
	NYASOSO	ZFMK	69295	3075	2965	2580	1270	675	780	970	670	1515	335	520	670

	LOCALITY	MUSEUM	NUMBER	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
A	OKU SEE	ZFMK	69289	175	345	285	1275	445	105	500	1325	145	670	535	895
	OKU SEE	ZFMK	69286	175	345	310	0	465	135	535	1305	155	655	575	900
	OKU SEE	ZFMK	69287	175	340	315	0	445	110	500	1295	150	710	565	915
	OKU SEE	ZFMK	69288	165	305	285	1270	445	120	550	1275	145	680	525	920
	OKU SEE	ZFMK	69290	180	305	270	1235	435	130	520	1290	145	645	530	820
B	LEFO Mt	ZFMK	74436	160	245	265	1040	420	155	495	1215	130	590	470	745
	KIVU (lake)	BMNH	7.6.14.35	170	290	295	1115	455	150	645	1330	135	625	505	875
	DABOCROM	NHML	25734	180	270	285	1215	475	205	505	1310	130	620	495	0
	AKROPONG	NHMB	4868	175	240	290	1090	452	170	480	1240	115	575	480	0
C	OKU Mt	ZFMK	91223	180	290	280	1210	430	120	500	1360	120	650	490	885
	MANENGUBA	ZFMK	69294	180	250	285	1270	520	150	500	1290	135	650	550	875
	NYASOSO	ZFMK	69295	170	255	280	1290	475	140	510	1260	115	660	520	845

Appendix 4. - A. Craniometrical data set of *Lophuromys dieterleni* sp. n.
B. Craniometrical data set of the *Lophuromys* types referred to in this study
C. Craniometrical data set of some specific *L. sikapusi* specimens from the Cameroun Highlands.
For details on the origin of individual specimens: see App.3.
For description of the measurements: see table 1 and VERHEYEN et al. (1996).

Lophuromys ansorgei De Winton, 1896

OTU : UGANDA 84 ex. (37 M ; 46 F; 1 ? ; cl1=34; cl2=33; cl3=13; cl4=4)

Cratertrack (Q.E. Parc) 00.06S; 29.56E (alt. 1250m)

BMNH: 65.1373 ; 65.1374 ; 65.1377 ; 65.1378 ; 65.1380 ; 65.1381 ; 65.1385 ; 65.1386 ; 65.1387 ; 65.1388 ; 65.1389 ; 77.1812 ; 77.1813 ; 77.1814 ; 77.1816 ; 77.1817 ; 77.1819 ; 77.1820 ; 77.1821 ; 77.1822 ; 77.1823 ; 77.1824 ; 77.1825 ; 77.1826 ; 77.1827 ; 77.1828 ; 77.1829 ; 77.1830 ; 77.1831 ; 77.1832 ; 77.1833 ; 77.1835 ; 77.1836 ; 77.1837 ; 77.1839 ; 77.1842 ; 77.1843 ; 77.1844 ; 77.1847 ; 77.1849 ; 77.1850 ; 77.1852 ; 77.1856 ; 77.1857 ; 77.1861 ; 77.1862 ; 77.1863 ; 77.1865 ; 77.1868 ; 77.1871 ; 77.1873 ; 77.1876 ; 77.1877 ; 77.1878 ; 77.1880 ; 77.1882 ; 77.1884 ; 77.1888 ; 77.1889 ; 77.1892 ; 77.1893 ; 77.1897 ; 77.1898 ; 77.1900 ; 77.1901 ; 77.1903 ; 77.1904 ; 77.1906 ; 77.1908 ; 77.1909 ; 77.1910 ; 77.1911 ; 77.1912 ; 77.1914 ; 77.1916 ; 77.1918 ; 77.1919 ; 77.1923 ; 77.1924 ; 77.1926 ; 77.1927 ; 77.1928 ; 77.1932 ; 77.1934.

Lophuromys flavopunctatus laticeps Thomas and Wroughton, 1907

OTU : KIVU 133 ex. (69 M ; 63 F; 2 ? ; cl1=15; cl2=67; cl3=37; cl4=14)

Mutura 01.26S; 30.28E (alt. 1480m)

KMMA: 74.020.M.693 ; 74.020.M.697 ; 74.020.M.699 ; 74.020.M.700 ; 74.020.M.701 ; 74.020.M.702 ; 74.020.M.703 ; 74.020.M.707

RUCA: R352 ; R353 ; R354 ; R356 ; R357 ; R358 ; R360 ; R365 ; R366 ; R368 ; R371 ; R372 ; R382 ; R417 ; R418 ; R419 ; R420 ; R421 ; R422 ; R426 ; R429 ; R430 ; R431 ; R432 ; R434 ; R435 ; R436 ; R437 ; R438 ; R453 ; R454 ; R461 ; R465 ; R466 ; R468 ; R472 ; R473 ; R474 ; R475 ; R476 ; R479 ; R481 ; R482 ; R483 ; R484 ; R488 ; R505 ; R506 ; R507 ; R509 ; R511 ; R512 ; R513 ; R514 ; R515 ; R517 ; R519 ; R520 ; R523 ; R527 ; R528 ; R529 ; R530 ; R532 ; R533 ; R536 ; R550 ; R602 ; R612 ; R615 ; R616 ; R620 ; R624 ; R644 ; R645 ; R646 ; R648 ; R649 ; R650 ; R653 ; R654 ; R656 ; R657 ; R658 ; R659 ; R660 ; R663 ; R666 ; R671 ; R682 ; R684 ; R685 ; R692 ; R693 ; R695 ; R703 ; R714 ; R715 ; R718 ; R720 ; R721 ; R722 ; R723 ; R724 ; R725 ; R726 ; R727 ; R728 ; R729 ; R738 ; R739 ; R742 ; R743 ; R745 ; R749 ; R750 ; R751 ; R753 ; R755 ; R756 ; R758 ; R768 ; R823 ; R832 ; R833

Appendix 5.1. - Listing of the specimens of *L. ansorgei* (OTU = UGANDA) and *L. flavopunctatus laticeps* (OTU = KIVU) that were used in the process of describing our new taxa.

Lophuromys sikapusi (Temminck, 1853)

N.SANAGA
NIG-CAM (N) 41 ex. (22 M ; 18 F; cl1=9; cl2=16; cl3=12; cl4=4)

Asaba (nr3)	BMNH:	95.5.3.19
Gangirwal (nr.14)	SMNS:	41.328
Gambari (nr.13)	BMNH:	62.257 ; 62.258
Ibadan (nr.15)	BMNH:	50.284 ; 50.287 ; 66.366 ; 66.367 ; 68.591
Lagos (nr.16)	BMNH:	20.3.18.31 ; 26.11.24.56 ; 26.11.24.57
Bamenda (nr.4)	AMNH:	241317 ; 241318
Dikume (nr.10)	BMNH:	57.320 ; ZFMK: 69298
Donenkeng (nr.11)	FMNH:	43717 ; 43718 ; 99199
Mamfe(nr.19)	BMNH:	48.1000 ; 48.1001 ; 48.1002 ; 48.1003 ; 48.991 ; 48.992 ; 48.993 ; 48.994 ; 48.995 ; 48.996 ; 48.997 ; 48.997 ; 48.999 ; 48998
Nikruwa (nr.24)	BMNH:	50.291 ; 66.369 ; 66.373 ; 66.374
Nyasoso (nr.25)	BMNH:	69.291 ; 69.295
Oda (nr.26)	BMNH:	62.259
Sapoba (nr.29)	BMNH:	50.288

GAB-CON-RCA
GAB-CON 57 ex. (33 M ; 24 F; cl1=12; cl2=20; cl3=22; cl4=3)

Franceville (nr.12)
RUCA: G10050 ; G10051 ; G10056 ; G10057 ; G10058 ; G10073 ; G10080 ; G10081 ; G10082 ; G10083 ; G10085 ; G10107 ; G10108 ; G10128 ; G10129 ; G10130
Odzala (nr. 27)
RUCA: R22214 ; R22215 ; R22232 ; R22244 ; R22270 ; R22271 ; R22272 ; R22327 ; R22328 ; R22338 ; R22339 ; R22340 ; R22341 ; R22342 ; R22343 ; R22366 ; R22367 ; R22368 ; R22369 ; R22370 ; R22371 ; R22378 ; R22379 ; R22380 ; R22381 ; R22411 ; R22412 ; R22435 ; R22461 ; R22462 ; R22463 ; R22464 ; R22465 ; R22466 ; R22467 ; R22468 ; R22469 ; R22470 ; R22471 ; R22502

Mouila (nr.22)MHNP: 1949.520

RCA 16 ex. (11 M ; 3 F; 2 ? ; cl1=10; cl2=5)

Adibori (nr.2)	RUCA:	R13270; R13364 ; R13436 ; R13686 ; R13694 ; R13739 ; R13768
Bangui (nr.5)	MHNP:	1965.197
Boukoko (nr.8)	MHNP:	1965.196; 1965.199
R.C.A.	MHNP:	1947.261
Salo2 (nr.2)	RUCA:	R13151 ; R13290 ; R13323 ; R13329 ; R13517

INCERTAE SEDIS
OTU : CAM (S) 14 ex. (5 M ; 5 F; 4 ? ; cl1=7; cl2=6; cl3=1)

Abong Mbang (nr.1)	MHNP:	1952.472 ; 1952.473
Bertoua (nr.6)	AMNH:	241322
Bimba (nr.7)	KMMA:	76.14.M.4
Lolodorf (nr.18)	UMZM:	104242 ; 104244 ; 104245
Mieri (nr.20)	KMMA:	76.14.M.1 ; 76.14.M.2 ; 76.14.M.3 ; 76.65.M.3 ; 76.65.M.4
Minta (nr.21)	AMNH:	241320
Yaounde (nr.30)	MHNP:	1958.256

Appendix 5.2. - Listing of the specimens of *L.sikapusi* that were used in this article. For the definition of the OTU's involved we refer to "Material and Methods".
The number between brackets after each locality refers to table 2.