

Preliminary data on the biodiversity of rodents and insectivores (Mammalia) in the periphery of Kisangani (D. R. Congo)

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ABSTRACT. This study presents the species diversity of rodents and insectivores s.l. as observed in the forests around Kisangani (D.R. Congo) between 1979 and 2003. 7736 specimens were collected using Victor snap traps, Sherman live traps and pitfalls. In total, 49 small mammals species (36 rodents and 18 shrews) were identified of which 42 were actually captured and 7 more were observed around Kisangani.

The number of species varied between habitats : 16 species were found (12 rodents, 4 shrews) in primary forest, 36 species (21 rodents, 15 shrews) in secondary forest, 31 species (20 rodents, 11 shrews) in fallow lands and 16 species (15 rodents and 1 shrew) in wetlands. On the right bank of the Congo River, 40 species were collected against 19 on the islands and 15 on the left bank of the Congo River. At this stage, the right bank seems to be more diverse as far as the small mammal fauna is concerned, but more studies on the left bank need to be conducted.

KEY WORDS : biodiversity, Rodentia, Insectivora, Kisangani, Democratic Republic of Congo.

INTRODUCTION

In the Democratic Republic of Congo, small mammal phylogeny and zoogeography are thoroughly studied in the eastern national parks and their peripheral zones, with syntheses by HOLLISTER (1916), HATT (1940) and SCHOUTEDEN (1948).

Ecological studies of small mammals in the Democratic Republic of the Congo (DRC) forest zones are rare however. According to COLYN (1986), most of the rain forest region between the Congo River and the Rift Valley, although recognized as containing some endemic species, remains unstudied. DUDU (1991) also noted that the small mammal species from eastern Kivu (Albertine Rift) was studied much better than that of other regions of the DRC, more particularly the lowland rainforests.

In Kisangani, small mammal studies (shrews and rodents) started in 1979 in order to determine their specific diversity and ecology. Some results were already published by DUDU et al. (1985, 1997, 2005); COLYN & DUDU (1986); DUDU & GEVAERTS (1986, 1987); DUDU (1989), HUTTERER & DUDU (1990); KADANGE et al. (1998). Data on other collections are still unpublished, for instance the shrew collections of which specimens remain to a large extent unidentified.

This work is a synthesis of the main results from the study on the diversity of small mammals around Kisangani in different types of forests and the derived, anthropogenic habitats. We will establish the specific richness and distribution of rodents and shrews in all habitats by combining the available data from 1979 to February 2003.

MATERIAL AND METHODS

Study areas

The forest zones studied lie within a radius of about 50 km around the city of Kisangani (0°31'N, 25° 11'E, altitude 396-425 m above sea level). Previously covered by primary rainforest, this area contains at present different forest ecosystems (primary and secondary forests) on the two banks of the Congo River and its islands and is also characterised by peri-urban degraded areas (fallow lands and fields). It includes localities that, according to the distribution stated by COLYN (1991), are part of the East Central faunistic zones (islands and right bank of the Congo River) and South Central faunistic zone (left bank).

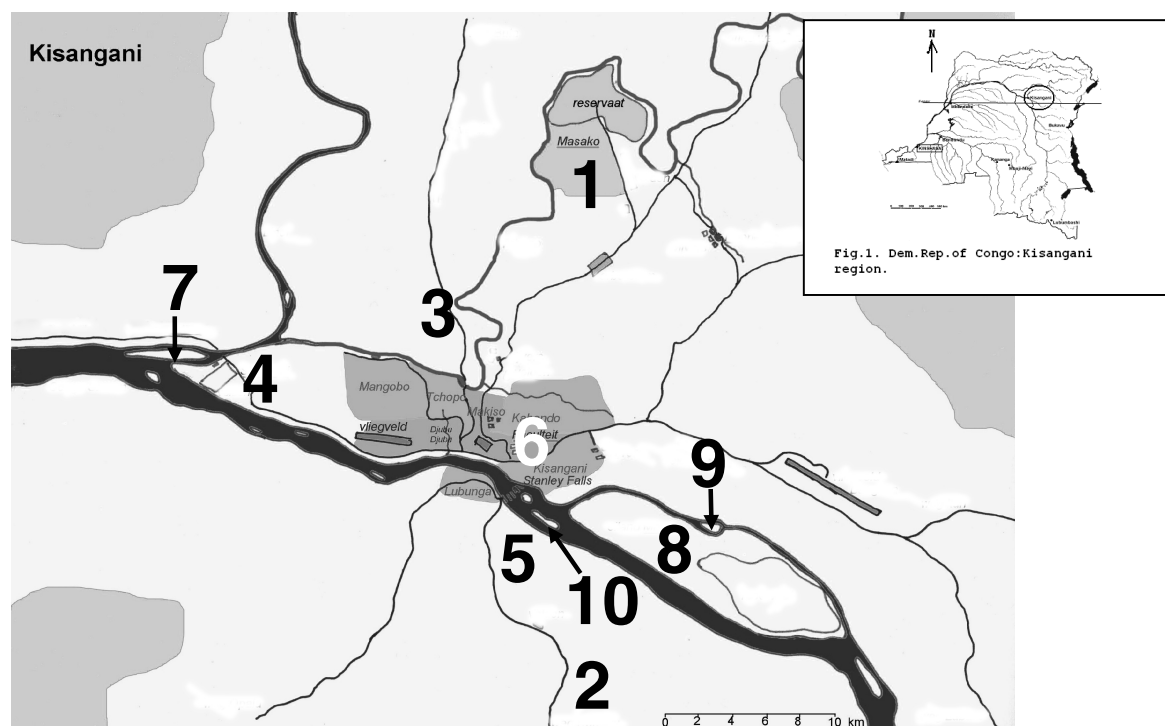


Fig. 1. – Map of the Kisangani area (after H. Gevaerts) indicating the different study sites. 1 : Masako forest reserve; 2 : Yoko forest reserve; 3 : Zoo Kisangani; 4 : Linoko; 5 : Lula; 6 : Kisangani town; 7 : Kungulu island; 8 : Mbiye island; 9 : Mafi island; 10 : Tundulu island. Inlay : map of D.R. Congo showing the position of Kisangani.

The main study sites (Fig. 1) are the protected areas (Masako, Yoko, forest of the Kisangani Zoo), islands within the Congo River (Mbiye, Mafi, Kungulu and Tundulu) and the surroundings of Kisangani city (Kabondo, Grand-seminaire, Linoko, concession of the Science Faculty, Plateau medical, Plateau Boyoma, Kikongo and finally Lula on the left bank of the Congo River).

Masako Forest Reserve (2.105 ha) is located 15 Km north-east of Kisangani, on the old Buta's road. One third of the reserve is occupied by primary forest; the remainder consists of old-growth secondary forests, fallow lands and crops. The Yoko Forest Reserve (6.975 ha) lies south of Kisangani, on the left bank of Congo River, between 21 and 38 km, towards Ubundu. It consists of young and old-growth secondary forests. The Zoo of Kisangani (84 ha), an artificial forest, is located on the right bank of Tshopo river, 4 km from the city, on the road towards Buta. The islands Mbiye (5600 ha), Tundulu (76 ha) and Mafi (20 ha) are located upstream on the Congo River to the south-east of Kisangani. Only Kungulu island (100 ha), at the convergence of the Lindi and the Congo rivers, lies downstream from Kisangani city. All islands are covered by primary forests, secondary forests, fallow lands and wetland forests.

Primary forest :

This type of habitat is essentially composed of *Gilbertiodendron dewevrei* and *Scaphopetalum thonneri* as undergrowth, whereas for the wetter areas on the different islands, it is heterogeneous and semi deciduous with *Gilbertiodendron dewevrei* and *Coelocaryon bothryoides* on Mbiye and *Piptadeniastrum africanum* and *Celtis mildbraedii* on Kungulu. The undergrowth is dominated by

Cyathogyna viridis and *Pycnocoma insularis* respectively on Mbiye and Kungulu islands (MOSANGO, 1991; NSHIMBA, unpublished data).

Secondary forest :

The secondary forests are very diverse, comprised of a mixture of trees also occurring in old fallow lands and primary forest. On the right bank of the river, it is characterised by *Zanthoxylum gillettii*, *Cynometra hankei*, *Pterisanthus macrocarpus*, *Musanga cecropioides*, *Terminalia superba*, etc., and on the left bank by *Scorodophloeus zenkeri*, *Albizia adiantifolia*, *Uapaca guineensis*, *Cynometra alexandrii*, *Panda oleosa*, *Musanga cecropioides*, etc. (LOMBA & NDJELE, 1998)

Wetland forest :

The wetland forests are constantly or periodically inundated and this habitat is composed out of various trees depending on whether they are located in the forest or on banks of watercourses. They include : *Uapaca guineensis*, *Uapaca heudelotii*, *Mitragyna stipulosa*, *Trichilia retusa*, *Coelocaryon botryoides*, *Alchornea cordifolia*, *Costus lucanisianus*, etc.

Fallow lands :

Formed essentially by herbaceous groupings consisting of *Panicum maximum*, *Pennisetum purpureum*, *P. polystachyon*, *Spermacoce latifolia* and of shrub associations of *Cnestis ferruginea*, *Craterispemum cerinanthum*, *Afromomum laurentii* and *Costus lucanisianus*, *Triumpheta cordifolia* and *Selaginella myosurus*. (NYAKABWA, 1982 and BAELONGANDI, unpublished data)

Kisangani region within the equatorial climate zone of the Afi type according to the Köppen classification. Precipitation is abundant year-round but not uniformly distributed, with a monthly average around 152mm (1970-1990). Even during the driest month there is more than 60mm rainfall and a relative humidity averaging 85%. Therefore there is no real dry season, but two 'drier' seasons with weak precipitation exist: December - February and June-August with a minimum in January. Two wet seasons exist with heavy precipitation: March-May and September-November with maxima in April and in October.

Capture-removal studies were carried out in different biotopes with the use of various trapping techniques, such as pitfalls, capture-removal grids and capture-removal lines with different trap systems. Mostly the sampling was conducted during one-year periods, with captures each month. The sample years were not always consecutive. In rare cases, the sampling period was shorter (3 to 6 months). Specimens were sampled using removal trapping in lines and in grids, with Victor Rat traps (175 x 85 mm) and Sherman LFA live traps (76 x 89 x 229 mm), both baited with palm nut, cassava bread or cassava carrot. Traps were placed at 10m distance; the distance between the lines varied from 500 to 1000m. The number of traps and the length of the trapping line varied according to the dimensions of the different habitats and the study aspects. Grids have only been used at Masako from 1985 to 1988. Twelve grids were used in fallow lands, 12 grids in the secondary forest and 4 in the primary forest. The grids (100 x 100m) consisted of 100 signposted trap stations, placed at 10m distance, with two traps per station within a radius of 1m from the signpost. A grid was thus covered by 200 traps and the grids were separated by minimum 200m distance.

Since November 2001, the pitfall capture technique permitted to increase the specific richness of rodents and shrews of certain localities. Each pitfall line had a length of 105 m with a station each 5 metres, thus the pitfall line consisted of 20 plastic buckets, buried so that the rim was level with the ground. The buckets were 290 mm high with a superior diameter of 290 mm and a lower diameter of 220 mm. The bottom was pierced with small holes to permit the infiltration of water during rain showers. The pitfalls were installed following protocols in STANLEY et al. (1998) and NICOLAS et al. (2003). A canvas or plastic drift fence of 0.5m height was constructed that bisected the rim of the buckets. At each end of the pitfall line, the fence was prolonged for 2.5 metres beyond the last bucket. Generally, we constructed three pitfall lines within different habitats at each locality. The distance between two lines varied according to the explored localities: from 200m to 2000m for Masako and from 300 to 1000m for the islands (Mbiye and Kungulu). The trapping continued for 3 to 6 days (Victor and Sherman traps) or for 21 consecutive days (pitfall lines) during a sampling period that varied from 1 to 12 months per study year.

***Sampling periods per locality
are as follows :***

Kungulu :

December 1978 to April 1979;

May – August 1998;
February, March and July 1999;
February 2003.

Tundulu :

December 1980 to April 1981;
May to July 1994

Mbiye :

October 1982;
December 1994 to September 1996;
January to December 2000
February 2002.

Kisangani city :

August 1993 to July 1994;
August to November 1997;
June 1998 to February 1999;
May 1994 to August 1994

Zoo :

January to June 1980;
June 1985 to May 1986;
December 1995 to October 1996

Yoko :

June 1995 to May 1996

Masako :

October 1984 to November 1985;
December 1985 to December 1986;
April 1985 to April 1986;
June 1986 to April 1988;
May 1996;
September 1997 to November 1997;
June 1999 and November 2001.

The specimens were fixed in formalin 10% and biopsies were preserved in ethylic alcohol 85%. The determination of rodents was effected at first at the University of Antwerp, Belgium (Evolutionary Biology Group, late Prof. Verheyen) then later at the Laboratoire d'Ecologie et de Gestion des Ressources Animales (LEGERA, Kisangani) by comparing morphometric and cranio-dental characters as described by DELANY (1975), HOLLISTER (1916), MEESTER & SETZER (1971), HUTTERER & HAPOLD (1983), HUTTERER & DUDU (1990). Shrew specimens were identified at the Alexander Koenig Museum (Germany) and the University of Rennes (France) with morphological (skull morphometrics) and karyological techniques.

We calculated different indices of diversity for the different study localities and habitats. We calculated the Shannon –Wiener diversity index using the following formula :

$$H = -\sum(\pi \log_2 \pi) \text{ (BARBAULT, 1981).}$$

We also calculated the equitability E using the formula H/H_{\max} and the Simpson's index

$$D = 1 - \sum(\pi)^2.$$

Finally, we calculated the trapping success (the number of individuals captured per 100 trap nights).

RESULTS

The materiel collected sums up to 7736 specimens (rodents and insectivores combined), with in total 25 species of rodents (4 families) and 17 species of shrews or

TABLE 1

Diversity indices for the Rodentia and Insectivora captured at all mainland study sites, per habitat and per study site. Masako, the zoo and Kisangani town lie on the right bank of the Congo River, Yoko and Lula are situated on the left bank. The number of specimens is indicated, together with the specific richness SR (number of species), the Shannon-Wiener Index H, the equitability E and the Simpson Index. PF = primary forest, SF = secondary forest, FL = fallow land, WF = wetland forest, total = total per study site, if more than one habitat was prospected.

	Masako					Zookis.				Ki. Town		Yoko				Lula
	PF	SF	FL	WF	Total	SF	FL	WF	Total	FL	SF	FL	WF	Total	FL	
Rodentia																
# spec.	168	1809	1772	410	4159	274	157	44	475	766	64	54	73	191	100	
SR	12	19	19	15	23	6	9	6	11	10	7	9	7	12	8	
H	2.18	2.75	3.04	3.04	3.06	1.62	2.03	0.51	2.04	1.74	1.63	2.73	2.17	2.34	2.29	
E	0.61	0.65	0.71	0.78	0.68	0.63	0.64	0.20	0.59	0.52	0.58	0.86	0.77	0.65	0.77	
Simpson	0.87	0.80	0.85	0.85	0.84	0.60	0.61	0.99	0.66	0.54	0.57	0.81	0.71	0.63	0.76	
Insectivora																
# spec.	24	78	39	9	150					35	3	7	10	20	3	
SR	4	15	10	4	16					4	2	1	1	2	2	
H	1.52	2.93	2.90	1.01	2.96					0.79	0.92			0.29	0.92	
E	0.76	0.75	0.87	0.51	0.74					0.39				0.29		
Simpson	0.60	0.81	0.84	0.34	0.82					0.26	0.44			0.10	0.44	

TABLE 2

Diversity indices for the Rodentia and Insectivora captured at all island study sites, per habitat and per study site. The number of specimens is indicated, together with the specific richness RS (number of species), the Shannon-Wiener Index H, the equitability E and the Simpson Index. PF = primary forest, SF = secondary forest, FL = fallow land, WF = wetland forest, total = total per study site, if more than one habitat was prospected.

	Mbiye					Kungulu				Tundulu			Mafi
	PF	SF	FL	WF	Total	PF	SF	FL	Total	SF	FL	Total	FL
Rodentia													
# capt.	305	223	298	298	1124	36	100	72	208	86	104	190	83
SR	6	8	9	6	11	4	8	7	10	2	3	4	8
H	0.84	0.87	1.19	1.21	1.58	1.88	2.04	2.44	2.39	0.09	0.95	0.69	1.96
E	0.32	0.29	0.38	0.47	0.34	0.94	0.68	0.87	0.72	0.09	0.60	0.35	0.65
Simpson	0.26	0.25	0.36	0.42	0.33	0.71	0.70	0.79	0.75	0.02	0.38	0.24	0.62
Insectivora													
# capt.	67	12	44	29	152	9	45	6	60				20
SR	3	1	2	2	4	1	4	1	4				1
H	1.04		0.77	0.41	0.87		0.86		0.66				
E	0.66		0.77	0.41	0.44		0.43		0.33				
Simpson	0.48		0.35	0.98	0.37		0.31		0.22				

TABLE 3

Total number of species, trap nights, number of specimens and trap success per locality (rodents and insectivores combined). * Total number of trap nights not available.

	Masako	Zookis	Kisangani	Yoko	Lula	Mbiye	Kungulu	Tundulu	Mafi
# Species	39	11	14	14	10	15	14	4	9
Trap nights	19465	2212	2994	2880	670	9756	3016	750	*
Total # captures	4309	475	801	211	103	1276	268	190	103
Trap success	22.14	21.47	26.75	7.33	15.37	13.08	8.89	25.33	*

elephant shrews (3 families). The following Rodentia were found: *Colomys goslingi*, *Dendromys mystacalis*, *Deomys ferrugineus*, *Funisciurus pyrrhopus*, *Funisciurus anerytrus*, *Grammomys kuru*, *Graphiurus lorraineus*, *Graphiurus surdus*, *Hybomys lunaris*, *Hylomyscus stella*, *Hylomyscus aeta*, *Hylomyscus parvus*, *Lophuromys dudui*, *Lophuromys flavopunctatus*, *Lemniscomys striatus*, *Malacomys longipes*, *Mastomys natalensis*, *Mus minutoides*, *Oenomys hypoxanthus*, *Praomys jacksoni*,

Praomys mutoni, *Praomys misonnei*, *Paraxerus boehmi*, *Rattus rattus* and *Stochomys longicaudatus*.

The following Insectivora (sensu lato, including Chrysochloridae and Macroscelidae) were found: *Amblysomys leucorhinus*, *Crocidura olivieri*, *C. cfr. hildegardeae*, *C. denti*, *C. dolichura*, *C. jacksoni*, *C. latona*, *C. littoralis*, *C. cfr. ludia*, *C. congobelgica*, *C. caliginea*, *Petrodromus tetradactylus*, *Rynchoncyon cirnei*, *Scutisorex somereni*, *Sylvisorex jonhstoni*, *Sylvisorex cf oriundus* and *Suncus infinitesimus*.

TABLE 4

Trap nights, number of specimens and trapping success per habitat for the localities and years where these data are available. Several years were thus omitted. The year 2001 at Masako was omitted here due to unfinished determination work. PF = primary forest, SF = secondary forest, FL = fallow land, WH = wet habitat.

	Masako (1985-1987, 1997, 1999)				Mbiye island (1996, 2000, 2002)				Kungulu island (1999, 2003)		
	PF	SF	FL	WH	PF	SF	FL	WH	PF	SF	FL
# captures	141	1705	1691	362	220	109	223	171	32	198	25
Trap nights	830	6480	5790	1480	1936	1060	2141	2168	280	2280	200
Trap. success/hab.	16.99	26.31	29.21	24.46	11.36	10.28	10.42	7.89	11.43	8.68	12.50

Eight other species were not captured but often observed in the wild or found at game meat markets and are thus added to the species list: *Anomalurus beecrofti* and *A. derbianus* (Anomaluridae), *Protoxerus stangeri* and *Heliosciurus rufobrachium* (Sciuridae), *Atherurus africanus* (Histicidae), *Thryonomys swinderianus* (Thryonomidae), *Cricetomys emini* (Cricetidae) and *Potamogale velox* (Potamogalidae).

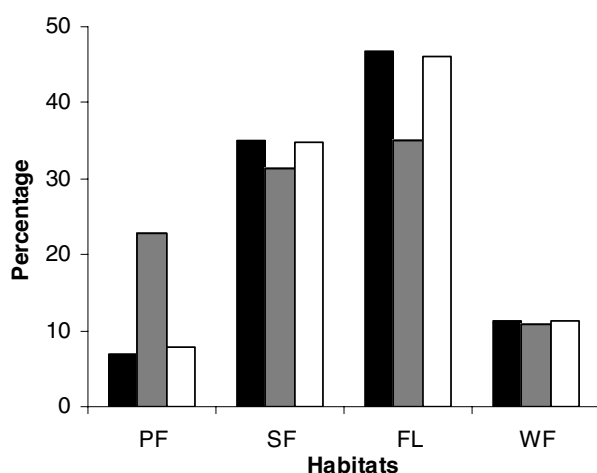


Fig. 2. – Total number of captures per habitat for rodents (black), insectivores (shaded) and rodents and insectivores combined (white).

In total, 99% of captures were rodents. Masako yielded the highest diversity ($H=3.06$, $E=0.68$, $D=0.84$ for rodents and $H=2.96$, $E=0.74$, $D=0.82$ for shrews), as indicated by Tables 1 and 2. The highest trapping success was observed in degraded areas (in town and on Tundulu island); the lowest trap success values were found at the Yoko reserve (7.33%) and the island Kungulu (8.89%), as indicated by Table 3. Trap success per habitat is given in Table 4 for all localities where these data are available.

The most common species captured during our study in the different habitats are *Praomys jacksoni*, *Lophuromys dudui* and *Lemniscomys striatus*. *Praomys jacksoni*, *Lemniscomys striatus*, *Hylomyscus stella*, *Hybomys lunaris*, *Oenomys hypoxanthus*, *Mus minotoïdes*, *Stochomys longicaudatus*, *Gramnomys kuru* (formerly *Thamnomys rutilans*), *Rattus rattus*, *Malacomys longipes* and *Lophuromys dudui* occur almost everywhere. A few species are particular to one bank of the Congo River. *Praomys misonnei*, *P. mutoni*, *Hylomyscus aeta*, *Hylomyscus parvus*, *Paraxerus boehmi*, *Funisciurus pyrrhopus*, *Deomys ferrugineus* and

Dendromys mysticalis appear to be strictly confined to forests of the right bank of the Congo River. In contrast, *Lophuromys flavopunctatus* occurs abundantly on the left bank of the Congo River in forests as well as in fallow lands. The highest diversity is recorded on the right bank with 40 species of which Masako alone is populated by 39 species and represents 55.7% of all captures. On the islands, 19 species (14 rodents, 5 shrews) are present and on the left bank, although few studies have taken place there, 15 species are present (12 rodents, 3 insectivores). The specific diversity varies in the different habitats. In the forests (primary and secondary), 45 species (38 captured and 7 observed, 30 rodents and 15 insectivores) are found, against 38 species in fallow land (31 captured and 7 observed, 26 rodents and 12 insectivores).

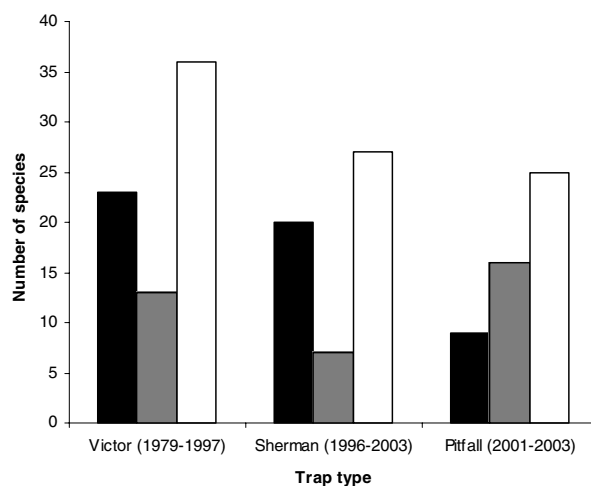


Fig. 3. – Number of species per trap type for rodents (black), insectivores (shaded) and rodents and insectivores combined (white).

Species distribution differs per habitat (Fig. 2). Fallow lands contain the highest relative abundance of rodents and shrews with respectively 47% and 35% of captures; followed by secondary forests (35% and 31%). The lowest numbers of rodents were captured in primary forest for rodents and in wet habitats for insectivores. The comparison of different trapping techniques illustrated in Fig. 3 shows a higher capture rate for Soricidae in the pitfalls whereas rodents have a higher capture rate with Victor and Sherman traps. All species are captured regularly in all months (Table 5).

TABLE 5

TNumber of captures per species per season for the localities and during the years were these data are available (DS = dry season, WS = wet season).

Sites	year	Season	Colomys goslingi	Deomys ferrugineus	Funisciurus pyrrhopus	Funisciurus anerythrus	Graphiurus .lorrainaeus	Graphiurus surdus	Hybomys lunaris	Hylomyscys stella	Hylomyscys aeta	Hylomyscys parvus	Lophuromys dudui	Lemniscomys striatus	Malacomys longipes	Mastomys natalensis	Mus minutoides	Oenomys hypoxanthus	Praomys jacksoni	Praomys mutoni	Praomys missonnei	Paraxerus boehmi	Stochomys longicaudatus	Grammomys kuru	Total
Masako	1985	DS	2	69	0	0	0	0	60	36	8	0	13	4	8	2	4	0	101	2	19	8	16	5	369
		WS	2	87	1	0	0	2	75	72	6	3	49	28	31	0	9	1	138	9	0	6	25	19	563
	1986	DS	0	127	1	0	1	0	259	127	4	14	87	21	19	1	3	0	235	17	3	5	37	39	1000
		WS	0	105	0	0	0	1	193	98	6	16	82	22	12	0	11	0	219	3	7	4	31	13	823
Mbiye	1996	DS	1	0	0	1	2	0	0	0	0	0	8	4	9	0	0	1	63	0	0	0	0	3	92
		WS	1	0	0	1	0	0	0	0	0	0	8	1	12	0	0	0	80	0	0	0	0	5	108
	2000	DS	1	0	0	0	0	0	0	18	0	0	11	0	0	0	5	0	61	0	0	0	0	0	96
		WS	1	0	0	0	0	0	0	13	0	0	14	0	0	0	4	0	73	0	0	0	0	0	105
Yoko	1996	DS	2	0	0	0	0	0	20	7	0	0	0	5	2	0	2	0	26	0	0	0	5		71
		WS	2	0	1	0	0	0	32	5	0	0	0	0	0	0	4	2	61	0	0	0	5		112

DISCUSSION

The highest abundance was noted in fallow lands whereas the lowest is noted in primary forest and in wet habitats. This distribution probably depends on food resource availability in these different habitats. Almost all species were captured in the dry as well as in the wet season as noted by DUDU et al. (2005). The highest diversity of rodents was noted in Masako, followed by the island Kungulu and the Yoko forest reserve on the left bank. Some species such as *Suncus infinitesimus*, *Sylvisorex johnstoni*, *Sylvisorex cfr oriundus*, *Dendromus mystacalis* are found for the first time during our studies at Masako forest. According to COLYN & DUDU (1986), habitats with a high floral diversity usually support a high fauna diversity. Except for Masako, diversity data on shrews are still lacking. This prevents us from extending our analysis to include the Insectivora. More details on dietary analysis, feeding habit, coexistence, occurrence and food overlap of shrews in Masako forest are given in DUDU et al. (2005). STANLEY et al. (1998) reported that pitfalls are effective for surveying insectivore fauna but are less successful with larger rodents. This is confirmed by our results. The combination of snap traps, Sherman life traps and pitfalls should be more efficient to collect mid-sized small mammals.

The most abundant species in the region are *Praomys jacksoni* (34% of total captures), *Lophuromys dudui* (16%) and *Hybomys lunaris* (12%). According to DUDU and GEVAERTS (1987), *Praomys jacksoni* and *Lophuromys dudui* occur everywhere in Kisangani and its surroundings. *Lemniscomys striatus* has been collected at many sites, but occurs everywhere with a low abundance (3.56% of total captures). *Deomys ferrugineus* (7.79%) was mostly captured in Masako forest reserve and has been signalled once only at Linoko (Left bank of the Lindi river) in 1998. The absence of some species on either bank does not mean that they do not occur there because our small mammals surveys are still incomplete. For example COLYN (personal communication), found

Praomys mutoni also on the left bank of the Congo River, although it was missing in our collections from that area. The presence of *Thryonomys swinderianus* might be recent (starting from 1992). It occurs around Kisangani as a result of forest destruction (DUDU, 1994).

Crociodura olivieri (3.70%) and *Scutisorex somereni* (0.87%) are the most abundant insectivore species occurring in all study sites and habitats. The study of Insectivora with pitfalls has only been conducted on the right bank of the Congo River and on some islands. Our study does not cover areas situated beyond 50 km of Kisangani and trapping effort was different at the different sites. This explains partly the absence of some species such as *Crociodura nigrofusca*, *C. goliath*, and *C. turba* collected previously in the forests between Maiko and Tshopo rivers (COLYN, 1986) in our collections. Future collections from the left bank of the Congo River should help to better understand shrew biodiversity and only part of the shrew collection data at Masako have been used in the present article.

We compared the number of terrestrial small mammals species from a number of studies carried out in different parts of the DRC (Table 6). Although the small mammal survey reported in the present paper is not exhaustive, the tropical lowland forests around Kisangani may be already be classified among the most diverse equatorial forests of central Africa as far as rodent and shrew 'species diversity is concerned.

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TABLE 6

Comparison between the number of species per genus from different studies in rainforest habitat, inside and outside the DRC. A = present study, B = DUDU, 1991, C = COLYN, 1986 (A, B, C all in the Kisangani area); D = DIETERLEN & DE BALZAC, 1979 in the Kivu; E = LEIRS et al., 1999 in Kikwit; F = ECOFAC II 2000 (Ngotto, Central African Republic; unpublished report); G = ECOFAC 2001 (Mt. Doudou, Gabon; unpublished report)

Family	Genus	A	B	C	D	E	F	G
Anomaluridae	<i>Anomalurus</i>	2	2	3		1		
Cricetidae	<i>Cricetomys</i>	1	1	1		1		
	<i>Deomys</i>	1	1				1	1
	<i>Dendromys</i>	1				3		
	<i>Tatera</i>					2		
Gliridae	<i>Graphiurus</i>	2	2			1		
Muridae	<i>Colomys</i>	1	1	1		1		
	<i>Dasymys</i>					1		
	<i>Gramomys</i>			1		2		
	<i>Heimyscus</i>							1
	<i>Hybomys</i>	1	1	1			1	1
	<i>Hylomyscus</i>	3	3	1		1	1	3
	<i>Lemniscomys</i>	1	1	1		1		
	<i>Lophuromys</i>	2	1	1		2	1	1
	<i>Mastomys</i>	1	1			1		
	<i>Mus</i>	1	1	1		2		
	<i>Malacomys</i>	1	1	1		1	1	1
	<i>Oenomys</i>	1	1	1		1		
	<i>Pelomys</i>					3		
	<i>Praomys</i>	3	3	2		1	1	2
	<i>Rattus</i>	1	1	1		1		
	<i>Steatomys</i>					1		
	<i>Stochomys</i>	1	1	1			1	1
	<i>Thamnomys</i>	1	1	1				1
Sciuridae	<i>Funisciurus</i>	2	2	2		2		
	<i>Protoxerus</i>	1		1		1		
	<i>Paraxerus</i>	1	1	1		1		
	<i>Heliosciurus</i>			1				
Hystriidae	<i>Atherurus</i>	1	1	1				
Thryonomidae	<i>Thryonomys</i>	1				1		
Potamogalidae	<i>Potamogale</i>	1	1	1				
Chrysochloridae	<i>Amblysomus</i>	1	1	1				
	<i>Chlorotalpa</i>					1		
Macroscelidae	<i>Petrodromus</i>	1				1		
	<i>Rynchon</i>	1	1	1				
Soricidae	<i>Congosorex</i>						1	
	<i>Crocidura</i>	10	9	6	9	10	12	5
	<i>Myosorex</i>				1			
	<i>Paracrocidura</i>						1	1
	<i>Sylvisorex</i>	2			4		3	2
	<i>Suncus</i>	1					1	1
	<i>Scutisorex</i>	1	1					
Total species		49	40	33	15	44	25	21

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