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SOME NEW MAMMAL RECORDS FROM THE RAINFORESTS OF SOUTH-EASTERN NIGERIA

FRANCESCO M. ANGELIC1 *, BOMIEGHA EGBIDE **
AND GODFREY C. AKANI °

* *Italian Foundation of Vertebrate Zoology (F.I.Z.V.), Via Cleonia 30, I-00152 Roma, Italy; frangema@tiscalinet.it*
** *38 Orazi Road, Rumueme, Port Harcourt, Rivers State, Nigeria*
° *Department of Biological Sciences, The Rivers State University of Science and Technology, P.M.B. 5080, Port Harcourt, Rivers State, Nigeria*

ABSTRACT - In this paper we report new data on the occurrence and range of seven mammal species in the rainforest region of south-eastern Nigeria. The species in question are: *Potamogale velox* (Insectivora), *Cercopithecus sclateri, Procolobus badius epieni* (Primates), *Manis tetradactyla* (Pholidota), *Funisciurus pyrropus talboti* (Rodentia), *Trichechus senegalensis* (Sirenia) and *Tragelaphus spekii gratus* (Artiodactyla). In terms of conservation (according to latest IUCN criteria and categories), we discovered some critical information concerning the mammal fauna in the area. In fact, out of these seven species, one is Critically Endangered (CR), four are Endangered (EN), one is Lower Risk, least concern (LR, lc), and one is Not Evaluated (NE). Deforestation and excessive hunting pressure are the biggest threats for mammals in the Niger Delta. In particular, endemic taxa and species whose range and status are unknown, could be particularly endangered.

Key words: New records, mammals, rainforest, south-eastern Nigeria.

INTRODUCTION

There is little information available concerning most of the mammals of Nigeria in terms of ecology and natural history (see Happold, 1987; Angelici *et al.*, 1999b). In particular, the knowledge of mammals around the Niger Delta is still fragmentary due to the different levels of exploration of the various areas of the Delta. The mammals of the Niger Delta have been specifically studied during short research programmes connected with integrated projects of petroleum extraction or agro-economic activities, and dissertations (see Ojonugwa, 1986; Singh *et al.*, 1995; Anonymous, 1995a, 1995b; Isoun *et al.*, 1996; Angelici, 1997). Some additional data were reported by Powell (1997). Recently, faunistic and ecological data about some selected species of Nigerian carnivores (Angelici, 2000; Angelici *et al.*, 1998, 1999a) and bats (Angelici *et al.*, 2000) were presented.

In this paper we report new data on the occurrence and range of some species of non-carnivore mammals in the rainforest region of south-eastern Nigeria.

METHODS

The research study was carried out during seven field expeditions (for a total of 258 days in the field) between September 1996 and July 1999 in five states of south-eastern Nigeria (Fig. 1): the central Niger Delta (Yenagoa region, Bayelsa State, 04°55'N, 06°16'E), the eastern Niger Delta (Port Harcourt region, River State, 04°45'N, 07°01'E), and regions of Aba (Abia State, 04°47'N, 07°35'E), Eket (Akwa-Ibom State, 04°50'N, 07°59'E), and Calabar (Cross River State, 04°48'N, 08°21'E). These areas, which are heavily populated with hundreds of villages interspersed

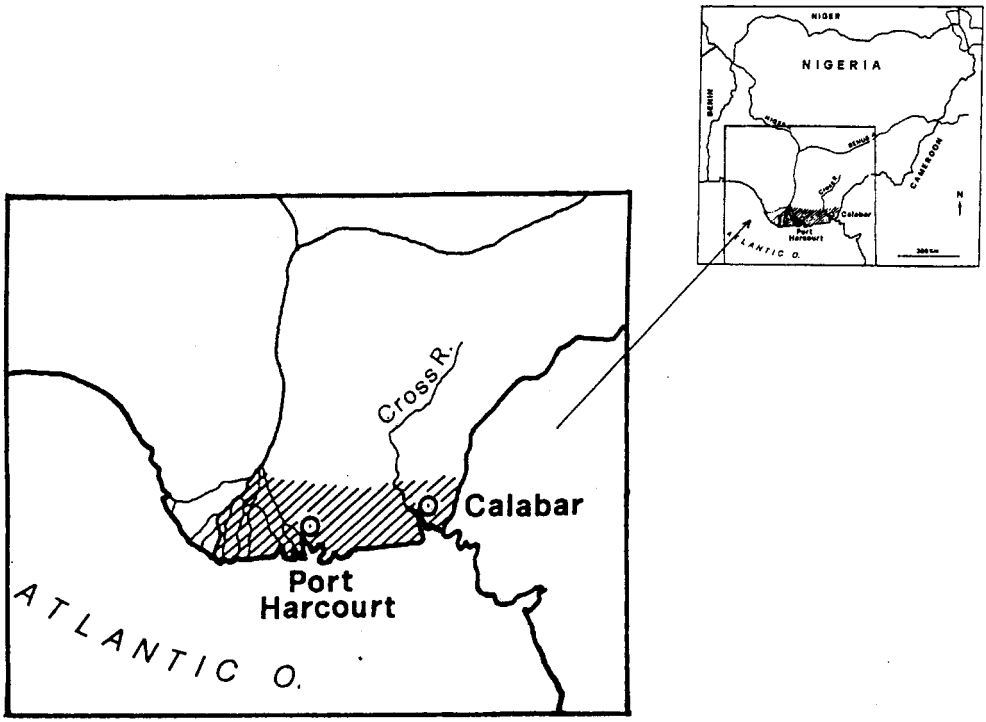

Figure 1 - Map of Nigeria showing the study area.

by patches of forest and cultivated land, are especially important for the economy of Nigeria because of the big oil extraction and liquefied natural gas transmission installations (cf. Politano, 1997; Angelici *et al.*, 1999b). The forest patches may be dryland or swamp rainforest type. Mangrove forests *(Avicennin* spp., *Rhizophora racemosa)* are the dominant vegetation types in the areas of the fluvial systems influenced by salt-water or brackish-water. The climate of the study regions is tropical sub-Saharan, with well-marked dry and wet seasons and relatively small monthly fluctuations in maximum and minimum temperatures (Griffiths, 1972).

In this paper, the majority of data were collected from specimens hunted in the field. No specimens was specifically killed for the purpose of this study. We used the following methods: a) specimens sighted or trapped and released by authors (Angelici *et al.*, 1999b); b) specimens shot or trapped by local hunters; c) specimens examined in small village markets (for methodology employed, see Akani *et al.*, 1998; Angelici *et al.*, 1999c). This last methodology is particularly profitable because in Nigeria a lot of people are involved in marketing animals as food (Martin, 1983; Anadu *et al.*, 1988; Angelici *et al.*, 1999c).

All species, considered to be important from a conservation or biogeographical point of view, have been classified following the IUCN (1994) criteria and categories. These categories were utilised at a local level (i.e. study area, see Fig. 1).

Results and Discussion

Insectivora

Tenrecidae Gray, 1821

Giant otter-shrew *(Potamogale velox* du Chaillu, 1860)

X/1996 - One specimen trapped by local hunters in a very small village along the Orashi river (04°44'43''N, 06'38' 10''E).

VII/1999 - One specimen on sale in Patani market, captured near Adagbabiri village (ca 05°14'N, 06°12'E).

This aquatic insectivore is found along streams, rivers and often in small creeks. According to Happold (1987), the status of this species is uncertain, but probably rare. Moreover, the Giant otter-shrew is localised east of the Cross river, and may occur in the Niger Delta (Happold, 1987). These are the first two recent reports west of the Cross River, because up to now the species has only been seen east of the Cross River (Happold, 1987; Kingdon, 1997). This species is considered an Endangered (EN) by IUCN (1996) for all its African range.

Primates

Cercopithecidae Gray, 1821

Sclater's guenon *(Cercopithecus sclateri* Pocock, 1904)

X/1996 - Along the Orashi River (ca 04°44'44''N, 06'38' 10''E) at least 6 Sclater's guenons were observed. This species had never been found in this locality before (Tooze, 1995; Tooze, pers. comm.).

X/1996 - Izumini, along the Blue river (ca 05°07'N, 07°22'6''E), three *C. sclateri* were observed. This sighting confirmed Tooze's (1995) observation.

At a later date, in the same locality **5** individuals were observed (VI/1999).

IV/1997 - Otari (04°08'11''N, 06°41'19''E): one live young specimen for sale in the local market.

V/1997 - One specimen shot by a local hunter in a very small village along the Orashi river (04°44'43''N, 06°38'10''E).

VIII/1998 - Abarikpo (05°08'11''N, 06°37'45''E): two specimens shot by hunters.

Sclater's guenon is one of Africa's rarest and least-known primates with very small and fragmented sub-populations, found only in the rainforest zone of southern Nigeria between the Niger and Cross rivers (Oates *et d.,* 1992). It lives mostly in the lower or medium strata of the rain forest (Oates *et al.,* 1992; Tooze, 1995; Oates, 1996). The species is vulnerable because of tree loss and is threatened by habitat destruction and hunting (Oates *et al.,* 1992; Angelici, 1997). It is classified as an Endangered (EN) by IUCN (1996), and as one of the four African primate species which does not occur in any protected areas (Butynski, 1997).

Niger Delta red colobus *(Procolobus badius epieni* Grubb and Powell, 1999)

Surroundings of Sagbama (ca 05°08'55''N, 06'1 2'E). One skin of this monkey (VII/1997), was observed.

IX/1996 - Kreigeni (05°17'59''N, 06'37' 41"E): through interviews with hunters and field investigations (Angelici, 1997; Angelici *et al.*, 1999b) we saw one killed specimen shown to us by a local hunter (VII/1998). This record is important because it is the first one east of the barrier proposed by Grubb and Powell (1999), and even east of the Niger river. In any case, this new locality is not too far (about 50 Km) from other places where the species occurs (Grubb and Powell, 1999). This taxon is an endemic race of the Niger Delta (Oates, 1996), and it was only recently discovered (Oates *et al.*, 1994), and formally described (Grubb and Powell, 1999). This subspecies is threatened because it is being suspected to increase hunting pressure, while their forest habitat is diminishing due to uncontrolled logging and disturbed by oil extraction (Oates *et al.*, 1994). Moreover, populations of the whole species *P. badius* are very poor and fragmented (Kingdon, 1997). This subspecies is considered Endangered (EN) by IUCN (1996).

Pholidota

Manidae Gray, 1821

Long-tailed pangolin (*Manis tetradactyla* Linnaeus, 1766)

Kreigeni (05°17'59''N, 06°37'41''E): according to previous hunter interviews (see Angelici *et al.*, 1999b), one specimen for sale was observed along the road (VII/1997).

Abarikpo (05'08'12''N, 06°37'45''E): following hunter interviews (1996-97), some

pieces of body (head, with parts of tail), were discovered in a local cellar (IX/1998).
Orubiri (04°42'25''N, 07'01 '13''E): one young specimen killed by a local hunter (I/1998). This record confirms previous hunter interviews in the same locality.
VIII/1997 - Opobo (04°34'N, 07°27'E): two specimens for sale in a local market.
II/1999 - Itu (05°12'N, 07°59'E). One specimen for sale along the road, together with two white-bellied pangolins (*Manis tricuspis* Rafinesque, 1821; cf. Angelici *et al.*, 1999c). This species was recorded in Nigeria in only one locality (west of the Niger river) in 1939 (Happold, 1987), and it is considered very rare (Brautigam *et al.*, 1994; Sodeinde and Adedipe, 1994). So, these are the second records for Nigeria, and the first ones within the Niger Delta. It is possible that misidentifications of the common *Manis tricuspis*, (Happold, 1987; Angelici *et al.*, 1999b) could explain the strange lack of records for this species. So, in the study area at least two *Manis* species live in sympatry (Kingdon, 1997; Stuart and Stuart, 1997). The habitat of the long-tailed pangolin is very localised and it prefers riverine and swamp forest (Kingdon, 1997). These pangolins are completely arboreal (Pagbs, 1970). This species is considered Lower Risk (least concern, LR Ic) at a local level.

Rodentia
Sciuridae Hemprich, 1820
Fire-footed rope squirrel (*Funisciurus pyrropus talboti* Thomas, 1923)
The only record involves one specimen which was trapped and offered for sale along the Orashi river (ca 04°44'43''N, 06'38' 10''E). This is the second recording west of the Cross river (Powell, 1997). Two subspecies have been recorded in Nigeria: *F. pyrropus talboti* (dark) previously from east of the Cross river (and in Cameroon), and *F. pyrropus raptorum* Thomas, 1903 (clear) from the Niger Delta (Happold, 1987). These recent data from Niger Delta show that the boundary (if there is one) between the two races is unknown (Happold, 1987), and maybe the taxonomic status of this subspecies needs to be re-evaluated (see Hoffmann *et al.*, 1993). Fire-footed rope squirrels have only been recorded in rainforest zones (Happold, 1987).

Sirenia
Trichechidae Gill, 1872
Manatee (*Trichechus senegalensis* Link, 1795)
In Nigeria, manatees live in permanent large rivers, estuaries, and lagoons with permanent water (Happold, 1987; Angelici, 1997). According to hunter interviews (1996-1999), Manatee is widespread in several localities within the eastern Niger Delta, and the latest capture occurred in January-February 1996, near Orubiri (see above; Angelici, 1997; Angelici *et al.*, 1999b). Nevertheless, the only recent sightings concern two individuals (probably an adult with calf) seen by one of our team (B. E.) in the surroundings of Agoloma village (05°09'40''N, 06'1 1'E), near the border between Bayelsa and Delta states (VI/1997). Manatees are protected by Nigerian law, but illegal poaching for their meat and fat has significantly reduced their numbers (Happold, 1987; Angelici, 1997). This species is considered Vulnerable (VU) by IUCN (1996) within its whole African range.

Artiodactyla
Bovidae Gray, 1821
Sitatunga (*Tragelaphus spekii gratus* Sclater, 1880)
Sitatungas are semi-aquatic. They live in marshes and swampy habitats in forested and non-forested regions (Owen, 1970; Happold, 1987). Anadu and Green (1990) consider this species as Endangered in the whole of Nigeria. Happold (1987) reports Sitatunga only near the Cameroon border, Chad border, and west of the Niger river. During this study some interviews with expert hunters were collected. Our direct investigations demonstrated the presence of Sitatunga in the following localities:
IV/1997 - Buguma (04'46'35 N, 06'40'54 E). Horns of a shot male Sitatunga were collected.

V/1997 - Orubiri (see above). Two living specimens (one adult female and one sub-adult) were seen by one of our team (F.M. A., together with E. Politano and A. Sigismondi) near a river bank (cf. Angelici, 1997).
III/1998 - Eket (04°50'N, 07°59'E) Some parts of the body (one specimen) for sale in the local market.
The species *Tragelaphus spekii* is considered Lower Risk (near threatened: LR, nt) within its whole African range (IUCN, 1996).

CONCLUSION

In general terms, the factors which threaten the Niger Delta mammal fauna do not only exist in the study region, but are already well known all over the world where rainforests are being destroyed and the dangers are also similar in other vertebrate communities (Akani *et al.*, 1999).
On the contrary, from a biogeographical point of view, the Niger Delta is considered by many to be an important and particular region (Happold, 1987; Kingdon, 1997; Angelici *et al.*, 1999b). In particular, the western and eastern boundaries of the eastern Niger Delta are represented by the Niger river, and the Cross river (Fig. 1), whereas the northern boundary is an ecological filter that gradually changes from a rainforest habitat to derived savannah, Guinea savannah, Sudan savannah, Sahel savannah and desert habitats (Happold, 1987). It was suggested that these large rivers (i.e. Niger and Cross) are the main barriers for many animal species, including mammals (Happold, 1987; Kingdon, 1989, 1997), but some recent medium-sized carnivores and antelope records seem to demonstrate that these barriers are not so impassable (Powell, 1997; Angelici *et al.*, 1999a).
In terms of conservation, according to IUCN (1994, 1996) criteria and categories, we found some of the mammal fauna in the area to be critical (Angelici *et al.*, 1999b). In particular, the main species are Sclater's guenon (*Cercopithecus sclateri)* and the Niger Delta red colobus *(Procolobus badius epieni),* as they are endemic primates. For these two taxa, programmes of oil extraction, and of the gas conduct tracing should be conditioned, and precise investigations should be planned (Oates, 1996). Concerning Sitatunga *(Tragelaphus spekii gratus*), Nigerian populations are fragmented and excessive hunting pressure seriously threaten this subspecies (Happold, 1987; Kingdon, 1997; Stuart and Stuart, 1997). The Giant otter-shrew (*Potamogale velox)* is particularly sensitive to water pollution (IUCN, 1996), and special attention should be given in order to save the last populations of Manatee *(Trichechus senegalensis).* Finally, very little information is available on the range and population status of the Fire-footed rope squirrel *(Funisciuruspyrropus talboti),* and of the Long-tailed pangolin (*Manis tetradactyla),* although this latter species seems to be rather more common than was previously thought.

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