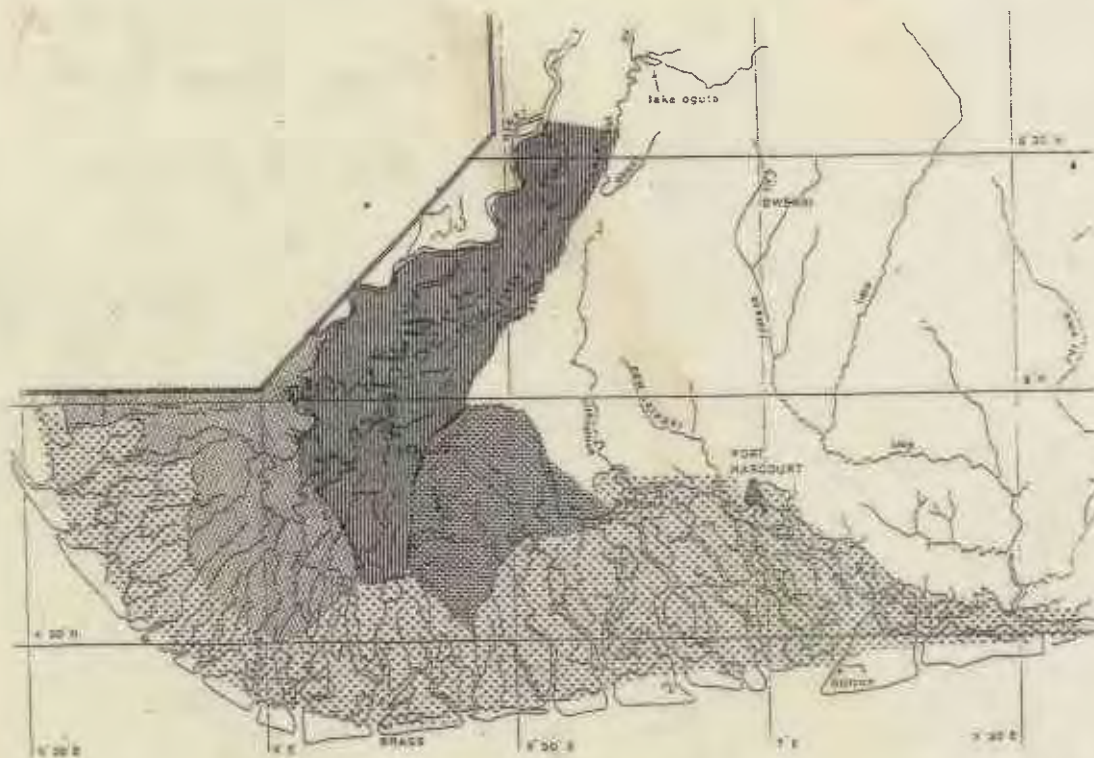




FINAL REPORT

WILDLIFE STUDY I



C.B. Powell

WILDLIFE STUDY I FINAL REPORT

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Contract E-00019

Final Report

by

C B Powell

submitted to

Environmental Affairs Department
The Shell Petroleum Development Company of Nigeria Ltd.
P.O. Box 263, Port Harcourt.

December 1995

EXECUTIVE SUMMARY

This study was a combined literature and preliminary field survey to assess the needs and direction for any substantive work in the wildlife component of SPDC(E)'s Niger Delta study.

It was found that published knowledge of Niger Delta wildlife is negligible, and in no way provides the local information normally needed for EIA's. A retrospective review of seven past industry environmental reports showed the consultants collectively mentioned two of the 17 nominally endangered mammals believed to be present in the particular project areas. They tended to overlook locally well-known species while listing, without comment, unexpected birds and animals belonging to other geographic zones.

The field survey increased to about 60 the number of 'larger mammals' definitely known from the SPDC(E) area, compared to a previous estimate of 45 species based on standard literature (Happold, 1987). Many of the finds made in this survey are important new records for the Niger Delta or Nigeria as a whole, viz two antelopes, five small carnivores and a few monkeys and squirrels. Hunters described many additional and yet-unidentified 'mystery' species.

The distributions of 30-odd key species are mapped. Their distribution patterns reveal several distinct faunal zones and species assemblages within the SPDC(E) area (Figure 1, page C-2 or 13).

Overall, the SPDC(E) area contains more species of global concern (12 or more 'Vulnerable' or 'Endangered' on the IUCN Red List) than any other part of Nigeria; and it contains all the 3-4 larger mammals more or less endemic to Nigeria. There is no known 'Red-Listed' bird (but the tiny and little-known Anambra Waxbill could be present). The only Red-Listed reptiles present are the Slender-snouted Crocodile and an undetermined number of marine turtles which nest on beaches.

Some of the Red-Listed species are more common and widespread than previously realized. Others survive only in small relict populations very susceptible to extinction through habitat destruction.

The main recommendation is to complete the species inventory for the different faunal zones (especially vis-vis the 'mystery' species) to provide the basic information needed in support of routine EIA work. It must be emphasized that this is long-term work, depending on the luck of the hunt for rare and very localized species, and that environmental contractors can hardly be expected work to so-called 'international standards' in the absence of local reference literature and experienced manpower.

Particular attention needs to be given to E & P activities ^{near} endangered relict populations and isolated forest blocks (which ~~themselves remain to~~ be identified and inventoried). This includes seismic exploration, and road and canal construction, all of which may promote hunting and forest-clearing opportunities, and cause 'sub-clinical' habitat changes to which some species are sensitive.

The species most in need ^{of} conservation attention are, in order of decreasing priority :

- Nigerian or Heslop's Pygmy Hippo - found solely in SPDC(E) area, virtually extinct.
- Delta Red Colobus monkey - new to science, in Apoi-Ekeremor area.
- relict populations of Chimpanzee, Elephant and Hippopotamus.
- Red-tailed or Sclater's monkey - national endemic, between Niger and Cross Rivers.

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with imagery
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X

ACKNOWLEDGMENTS

The research programme of which this survey is part, owes its start to the enlightened approach of Alhaji A R K Saba, Executive Secretary of the now defunct Natural Resources Conservation Council (NARESON), who approved what was at the time an open-ended survey of a remote and unknown area.

The information and specimens which form the basis of this report were provided by numerous hunters and community members. Those whose specimens proved to be new species records for the Niger Delta are Mrs Vida Amassomaowei of Sampou-APOI, Deputy Chief Wilfred Amini of Opu-Ogbogolo, Mr Simon Angadigha at Igovia-ENGENNI, Mr Warabe Arieri of Opume-OGBIA, Chief Stephen Joel of Okoroba, Chief Emmanuel Ojogbo of Gbanraun-APOI, Mr John Okenya of Udoda-ENGENNI and Mr Gabriel E Pabai of Azama-APOI.

Drs Peter Grubb, Harry van Rompaey and Daphne M Hills confirmed the identity of voucher specimens, gave comments on problem cases and helped with specialist literature. The overseas transport of voucher specimens and literature was helped by Nick Ashton-Jones, Oronto Douglas, Philip Hall, Miriam Isoun, Leventis Stores, Struan Simpson, Zena Tooze, Lodewijk Werre and Kay Williamson.

Naru Gbolakoro and Hanson Uyi partook and helped in many field trips and interviews. Elijah Leh, Alvin Doumu and Rev Gunn Dimogu helped with contacts. The Niger Delta Wetlands Centre helped in final production of the report.

SPDC staff J P van Dessel, Dr Amadi Amadi and Dr N E Attah were successively involved in scoping, supervising and facilitating the study. The management of SPDC's Eastern Division deserves special kudos for its initiative in stepping in to sponsor surveys such as this, filling large gaps in knowledge of the fauna and ecology of the Niger Delta and creating new research and conservation agenda for the area.

PROJECT TEAM

C B Powell - Project Leader

Dimie Otobo - Field Assistant / *Supervisor*

GLOSSARY

Organizations and Agencies etc.

- CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora. An international convention to control and monitor trade in endangered species. Decree 11 of 1985 is meant to fulfill Nigeria's obligations as a signatory to the convention.
- FEPA. Federal Environmental Protection Agency, Abuja.
- IUCN - The World Conservation Union <formerly the International Union for the Conservation of Nature>. Rue Mauverney 28, CH-1196 Gland, Switzerland.
- IUCN/SSC - The Species Survival Commission of the IUCN, made up of volunteer Species Specialist Groups.
- NARESCON. Natural Resources Conservation Council, The Presidency, Abuja. <now incorporated into FEPA>
- Red List - The *IUCN Red List of Threatened Animals* which categorizes the status of animals threatened with global extinction. It is updated every four years, based largely on information from the IUCN/SSC.
- SPDC(E). Shell Petroleum Development Company of Nigeria Limited, Eastern Division, Port Harcourt.
- WCMC - The World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, UK. tel +44 223 277314; fax +44 223 277136. A joint venture between IUCN, the World Wide Fund for Nature (WWF) and the United Nations Environment Programme (UNEP), maintaining a global conservation database (species, habitats, conservation sites).

Animal species and specimen terminology.

Endangered Species. An often very loosely used term to suggest the species is under some danger of eventual extinction. The term has explicitly defined meanings when used in the context of particular regulations, schedules or formal lists such as the IUCN Red List (global) or national Red Lists, or Decrees backing CITES agreements etc. See further under Appendix 2.

The species may be endangered locally but not globally (say, if good populations exist in another area).

Endemic Species. A species which is found uniquely in the geographic area under consideration. Its presence suggests there are possibly other unique features about the area's ecology or biodiversity.

Genus (plural genera). The ~~basic~~ unit of zoological classification which groups similar species. Similar genera, in turn, are grouped into Families. Common English and vernacular animal names often are the approximate equivalent of genera or families (e.g. rat, squirrel, genet, antelope).

The first word in a species' binomial name is the genus name. Therefore changes in opinion about the species' grouping causes an automatic change in its binomial name. E.g. the name of the common forest duiker (so-called 'hare') is *Cephalophus maxwelli* or *Philatomba maxwelli* depending on whether it is grouped in the same genus as other duikers (*Cephalophus*) or considered to be significantly different from them.

Mystery species. A term of convenience used in this report for animals of uncertain identity, known only from hunters' descriptions and vernacular names. They may or may not eventually prove to be distinct or new species.

Prospective subspecies. A population which, there is reason to believe, might be confirmed as a distinct subspecies after an appropriate comparative study. This is often the case with geographically isolated and unstudied populations.

Reference specimen. A specimen to be used for study and comparison, to ascertain similarities or differences in populations between different areas etc.

Species (singular; same spelling for plural). A distinct type of animal, different individuals of which can or could normally interbreed and produce fertile offspring. Each species usually has its own distinct geographic range, and habitat preferences etc. *Abbreviated as sp. (singular) and spp. (plural).*

behavior

Subspecies. A geographic variety of a species. In the case of geographically isolated or disjunct varieties, it is often a matter of opinion whether they are distinct enough to be considered distinct subspecies or different species.

Voucher specimen. A specimen which constitutes proof of a claimed identification and/or distribution record.

*Abbreviated as ssp. (singular)
and sspp. (plural).*

Habitat types.

Swampforest. A collective term for forests which are regularly flooded or have waterlogged soils. They have biological species compositions different from that in typical lowland rain forest. In this report, the terms flood-forest and marsh-forest are used for two general types of swampforest (see Section C.2). Other common types in the area are raphia forests and (along rivers and streams) riparian forests.

Farmbush. The vegetation/habitat type comprising a mosaic of farm and secondary re-growth. The fauna includes some invasive 'savanna' species (e.g. Ground Squirrel, Egyptian Mongoose) and lacks specialized high-forest species.

Totem species. Species of cultural or traditional importance to certain families or clans which have taboos against killing or eating those species.

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Section A. Introduction

This study was planned as a review of knowledge of wildlife of SPDC's eastern operational area, with limited field reconnaissance, to guide scoping of the substantive wildlife component of SPDC(E)'s Niger Delta Study. It followed preliminary work sponsored by NARESCON along the western boundary of the SPDC(E) area, which had led to the discovery of a new monkey and suggested industry-sponsored environmental studies were overlooking important species and distribution patterns (Powell, 1993).

It soon became evident that the SPDC(E) area contains significant species of wildlife - antelopes, monkeys, carnivores - not previously expected to occur in the Niger Delta or even in Nigeria as a whole. As a result the study undertook increased field work aimed at establishing a basic species list of larger mammals for the area and at getting an outline of the faunal zones.

Overall, this report provides

- (a) the basic annotated species list as of June 1995 (Section B).
- (b) a provisional outline of faunal zones (Section C.2; Fig. 2).
- (c) maps for important species including ecological indicators and 'mystery species' (Section C.3).
- (d) accounts of major species of interest (Section D).
- (e) summaries of aspects of special interest *viz* endemic, endangered and dangerous species (Section E).
- (f) a review of some past studies (Section F).

A.1. Scope of Coverage and Literature

This work covers those mammal groups which typically feature in pocket guides, and animals (mammals or not) of conservation concern as defined by inclusion in the 1994 IUCN Red List of Threatened Animals (Groombridge, 1993) and the World Conservation Monitoring Centre's synopsis *Nigeria. Conservation of Biological Diversity* (WCMC, 1988). In essence, this means all mammals excepting bats, shrews and murids (true mice & rats) and a few larger reptiles and birds.

For mammals the literature baseline is taken as Happold's 1987 *The Mammals of Nigeria*. For non-mammalian groups there is no such summary of Nigerian records. For all groups there is no specific literature on the distribution of species in the eastern half of the Delta, except for limited primates surveys in the Taylor Creek and Oguta areas (Anadu & Oates, 1988; Oates, 1989; Werre, 1991; Oates et al., 1992). The localities of literature records are shown in Table A.1 and Figure 1.

Table A.1. Localities with reliable literature records of larger mammals (number of species in parentheses).

a. Localities listed in Happold (1987) :-

Oguta (1)	5°42'N 6°48'E	Owerri (10)	5°29'N 7°02'E
Aba (6)	5°07'N 7°22'E	Amaku (1)	5°09'N 7°07'E
Ihia (1)	5°10'N 6°57'E		
Elele (12)	5°06'N 6°49'E	Ihie (4)	5°01'N 7°19'E
Ahoada (1)	5°05'N 6°39'E	Omoku area (1)	5°21'N 6°39'E
Agberi (2)	5°14'N 6°24'E	Sabagreia (1)	5°05'N 6°23'E
Degema (1)	4°45'N 6°46'E	Bakana (1)	4°44'N 6°58'E
Okrika (1)	4°44'N 7°05'E		

b. Other localities, not listed in Happold (1987) :-

Taylor Creek area - between Nun & Orashi Riv.s, 5°10' - 5°20'N.
 Akri 11 location, on border Imo & Rivers States, 5°42'N, 6°48'E.
 Port Harcourt - 4°46'N 7°01'E.

A.2 Field Survey

The field survey was exploratory, steered by intuition and opportunities as they arose. Hunters in target areas were located mainly through prior personal contacts, and in the first instance they were asked to give account of the variety of local animals using vernacular names. These names are most often generic, covering several similar species or even whole families. Color plates of animals (Dorst & Dandelot, 1970) were always available but for several practical reasons they were rarely useful for species-level identifications.

Much effort was made on arrangements to get specimens for identification of uncertain species and to build up a demonstration collection for subsequent interviews. To obtain specimens, other than the most common species, during a broad survey is difficult and time-consuming. Only by near the end of this work was a moderately basic collection assembled; this improved interviews at least in regard to being able to show hunters the key differences between similar species so they know what to watch for in future.

Figure 1 shows the main sites from where interview information is available, and Table A.2 lists the sites with their map coordinates. Results were uneven depending on the number and lengths of visits, and the experience of informants. Altogether about 140 trips were made from 15th Sept. 1993 (Trip CBP-43) to 14th June 1995 (Trip CBP-184).

Figure 1. Distribution of main locality records.

② Locality records cited by Happold, 1987.
(numeral within circle gives number
of species recorded).

★ Areas of 1988-1992 primate surveys
(Oates; Werre).

● Main interview sites, this study
including Powell, 1993.

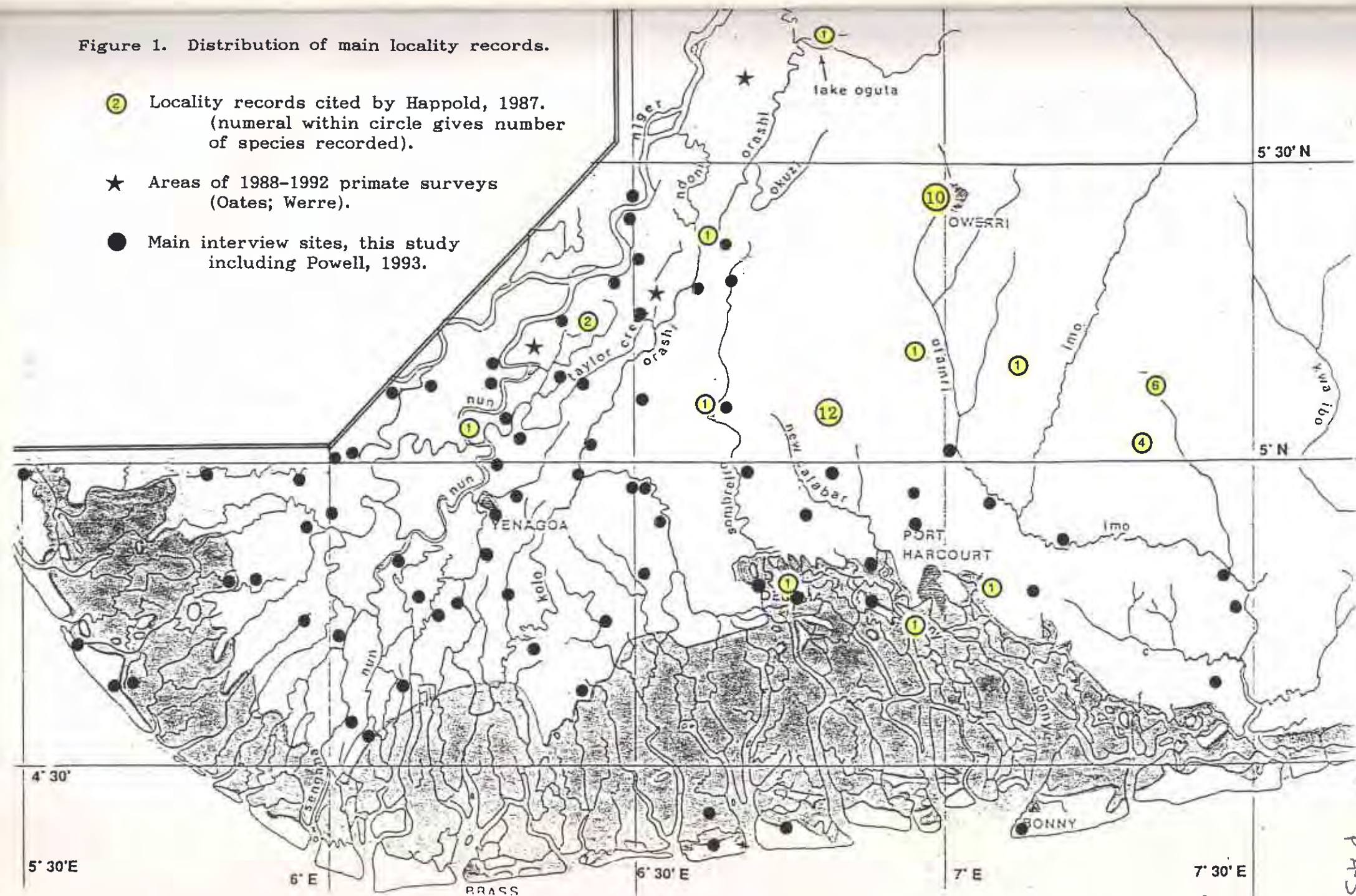


Table A.2. Localities of wildlife interviews and new records.

- a. Imo River System
 1. Umuechem, 5°01'-N, 7°02'E, on right (west) bank of Otamiri River
 2. Igbo-Etche, 4°57'N, 7°05'E, on west bank of Otamiri River about 18 km NNE of Port Harcourt P.O.
 3. Imo River Village, 4°53'N, 7°10+E, on left (north) bank of lower Imo River.
 4. Obete, 4°49-'N 7°30-'E, on right (west) bank of Imo River.
 5. Yae 4°45+'N, 7°28.5'E, at headwaters of Masea Stream on right (west) bank of lower Imo River.
 6. Ebubu, 4°46.8'N 7°08.8'E.
 7. Baen 4°38'N 7°27.5'E, 22 km ESE of Bori.
- b. NewCalabar-Sombreiro sector
 1. Aluu, forest NE of Aluu Central and north of Shell pipeline, ca. 4°57'N, 6°57-58'E. <Aluu is about 20 km NNW of Port Harcourt>
 2. Rumuekeni 4°53'N, 6°56.5'E (forest NE of village).
 3. Ibaa 4°58'N, 6°49'E, north of Rumuji.
 4. Rumuodogo 4°55'N, 6°47.5'E about 3 km SE of Rumuji.
 5. Okporowo-Ogbakiri 4°50'N, 6°54'E on west side of New Calabar River, about 15 km NW of Port Harcourt.
 6. Ikiri 5°17.5+'N 6°42+'E on west bank of Sombreiro River, 16 km SE of Omoku.
 7. Odiaje, 5°05.54'N 6°41.1'N, on east bank of Sombreiro Riv slightly upstream of Ahoada.
 8. Rumuekpe approx. 4°59'N, 6°41'E on east side of Sombreiro River.
- c. Orashi sector
 1. Omoku 5°21'N 6°39'E.
 2. Kreigani on east bank of Orashi River, 5°18'N, 6°37'E.
 3. Odieke ca. 5°01'N, 6°27'E, east bank of Orashi ca. 3 km S of Mbiana
 4. Okarki 4°59-'N, 6°26-'E, west bank of Orashi River at mouth of Kolo Creek
 5. Udoda (Okolobiana) ca. 4°58.5'N, 6°30'E on right (south) bank of River Orashi.
 6. Ozochi <Abessa> ca. 4°57'N, 6°32'E on right bank of River Orashi.
 7. Opu-Ogbogolo on west bank of Orashi Riv, ca. 4°54.2'N, 6°33.9'E
 8. Akara-Olu, 7.5 km NE of Mbiana. Approx. 5°06'N, 6°30.5'E.
- d. Ogbia-Odual sector
 1. Otuokpoti, 8 km south of Yenagoa, est.4°51'N 6°15.5'E.
 2. Anyama-Ogbia 4°45.5'N, 6°14-'E (or 4°46'N, 6°14'E) on west bank of Ekole Creek, 18 km S of Yenagoa.
 3. Otuaka 4°47+'N, 6°19-'E, on Otuaka Creek, between Ekole & Kolo Creeks, 16 km SSE of Yenagoa.
 4. Opume 4°39.6'N, 6°21'E, SW of Ogbia town and 15 km NNW of Nembe.
 5. Okoroba 4°37.7'N 6°25.5+'E, 11 km NNE of Nembe.
 6. Kugbo 4°43'N, 6°28'E.
 7. Emelego 4°49-'N 6°30.5+'E, approx. 33 km SSW of Ahoada.
- e. Yenagoa-Epie
 1. Swali, southeast side of Yenagoa, ca. 4°54'N, 6°15'E.
 2. Yenizue-Epie 4°56-'N 6°18-E.

cont'd . . .

(Table A.2. cont'd)

f. Lower Niger/Upper Nun River

1. Obiofu, east bank of River Niger at 5°25'N, 6°29'E.
2. Umuolu, west bank of River Niger at 5°26'N 6°30'E.
3. Elemebiri 5°21'N 6°31'E, east bank of lower Niger, 30 km W Omoku.
4. Samabri, east bank of lower Niger, 5°19'N 6°28.5'E.
5. Agberi, east bank of River Nun, 5°14'N 6°24'E.
6. Odi, west bank of River Nun, approx. 5°10'N, 6°15+E.
7. Kaiama, west bank of River Nun, 5°07'N, 6°18'E.
8. Tombia/Gbarantoru, on east bank of River Nun between Yenagoa and Taylor Creek entrance, approx. 5°00'N, 6°15'E. 15-21Sept'93.
9. Tungbo on east bank of Sagbama Creek, 4km SW of Sagbama/Forcados confluence, 10.5km SSSW of Patani Bridge, 5°7.4'N, 6°10.2'E.

g. Taylor Creek floodplain

1. Biseni 5°14.5'N, 6°32.5'E
2. Lake Isemu 10km ENE of Kaiama, 3.5km E of Sampou, 3-6km upstream of Okoso/Powei bridges, 5°8-9'N 6°23-24'E ~~<temp data>~~ *west of Taylor Ck*
3. Okordia approx. 5°08'N 6°27'E
4. Okolobiri on left/east bank of lower Taylor Creek, 5°02.5'N, 6°19.5+E
5. Aseingbene ca. 5°05'N, 6°19'E, west bank of lower Taylor Creek.

h. Marsh forest (non-epieni zone)

1. Azuzuama, on east bank of Middleton River (between Apoi & Ikebiri Creeks). 4°43+N, 5°57'E.
2. Emette, 4°44+N, 6°11+E, east bank of creek between Ipirigbene (on Seibiri Creek) and Odobio (on Ekole Creek).
3. Kanyanbiri 4°45-N 6°10'E, 11 km SE Oporoma, 3 km NNE Opuama (Seibiri)
4. Diebu, 4°37.5'N, 6°07.5' E on south bank Diebu Ck, east of Peremabiri.
5. Ologbobiri, 4°42-N, 6°02'E, west bank of River Sangana.
6. Angiama 4°49.5+N, 6°06.5+E east bank Nun Riv. upstream of Oporoma.
7. Oyeregbene 4°32.5-N, 6°04'E, east bank of R Nun downstream Peremabiri.
8. Igbematoro, 4°33'N, 6°02-E, on east bank of R Sangana (+ Igbematoro II on west bank, high forest).

i. Marsh forest (epieni zone)

1. Gbanraun-APOI, 4°47.5'N, 5°53.5N on right (northwest) bank of Pennington River
2. Azama-APOI (Aziama on maps) 4°53'N, 5°59.5'E on west (north) bank of Apoi Creek, Niger Delta
3. Sampou-Apoi 3.5 km NNE of Azama and ca. 4°55-N, 6°00+E. On creek from Azama to Fotorugbene & Toru-ibeni (Torugbene), about 12 km SW of junction of Sagbama & Egbedi Creeks.
4. Eriama 5°00.5+N, 5°59.5'E on right (north) bank of seasonal creek leading westward to Norgbene
5. Okunbiri 5°01'N, 6°03'E. west bank Sagbama Ck, 29 km SW of Patani.
6. Bulou-Orua 5°06+N, 6°07'E, west bank Sagbama Ck, ca.15 km SW/SSW of Patani
7. Ogbosuuri 4°58.5-N, 5°56.5-E, on left (south) bank of seasonal creek leading to Norgbene
8. Norgbene 4°59+N, 5°47'E on south bank of Amabulu Creek

cont'd . . .

(Table A.2. cont'd)

j. Coastal barrier islands

1. Ogbotobo 4°59.3'N, 5°31'E. between Ramos and Dodo estuaries.
2. Foropa 4°36+N, 5°39+E between Pennington and Digatoro estuaries.
3. Kula 4°20.5'N, 6°38.5'E between Santa Barbara & San Bartholomeo estuaries.
4. Abissa 4°24'N, 6°46'E between San Bartholomeo & Sombreiro estuaries.
5. Finima 4°24.5'N, 7°08.6'E near Bonny.

sites also

k. Mangrove (all incl. freshwater forest habitat ~~also~~)

1. Gbanraun-APOI 4°47.5'N, 5°53.5N on right (northwest) bank of Pennington River.
 2. Foropa 4°36+N, 5°39+E <see above under Coastal barrier islands>
 3. Ogonokom-ABUA 4°47+N, 6°42+E, west side of Sombreiro River between Abua and Degema Hulk.
 4. Degema 4°45'N, 6°46'E and Usokum <=Kala-Degema> 4°47'N, 6°46+E
 5. Bukuma 4°46'N, 6°54-'E, 4km NE of Buguma
 6. Belema ca. 4°25'N, 6°39'E between Santa Barbara & San Bartholomeo estuaries.
-

A.3 Scientific Identifications

Routine and preliminary identifications have been done with standard texts *viz* Dorst & Dandelot (1970), Haltenorth & Diller (1977), Happold (1987), Rosevear (1969) and Rosevear (1974).

Because of the critical zoogeographic position of Niger Delta (see Section C), questions of species- or subspecies-level identity surround many animals reported or collected during the work.

Voucher- and study-specimens are being deposited in one or other of two museums with comparative collections from West & Central Africa *viz.* the Natural History Museum (London) and the Royal Central African Museum (Tervuren - Brussels). The currently active specialists, studying the material, are Dr Peter Grubb (primates & hoofed mammals), Ms Daphne Hills (squirrels) and Dr Harry van Rompaey (small carnivores).

B. Inventory of Wildlife Species.

Happold (1987), on the basis of current knowledge, expected 45 species of larger mammals to occur in the forest zone between the Niger and Cross Rivers; he cites actual records for about 23-26 species in the SPDC(E) area (i.e. south of a line joining Oguta, Owerri and Aba). Almost entirely due to the present work, the confirmed number in the SPDC(E) area is now about 60 species.

An additional 20-30 unidentified 'mystery species' were reported by hunters during interviews. Some will be false leads, or represent animals so rare that years and great luck will be required to obtain a specimen or other proof.

Table B.1 summarizes the increase in species counts for the more popular groups, and shows this study has increased the confirmed numbers by about 50 percent so far. Given the preliminary nature of the survey and the number of unconfirmed hunters' reports, it is fairly certain that several species of mammals, including new-to-Nigeria and maybe endemic forms, still remain undetected in the SPDC(E) area.

in

Table B.1. Changes in numbers of species of major mammal groups, known or suspected to occur in the eastern Niger Delta.

Study	Numbers of Species				
	Antelopes	Monkeys	Carnivores	Squirrels	TOTALS
Previous authors					
Happold (1987)	6*	3*	7*	8*	24*
Others to 1992	-	2	-	-	2
This work					
Confirmed new records	2	3	6	2	13
Hunters' reports incl. mystery species	4	3	5	5	17
TOTALS	(12)	(11)	(18)	(15)	(56)

* = number of species listed by Happold (1987) as present or expected in forest zone between Niger and Cross Rivers.

Table B.2a gives a full list of confirmed and 'mystery' species of mammal, with coded annotations on their conservation rankings and status, priorities for attention in environmental studies, and indications on the reliability of 'mystery species'. Details on the more important species and their distribution is given in Sections C, D and E. Tables B.2b and B.2c similarly list reptiles and birds of conservation interest in the area.

Only common English names are given in Table B.2; corresponding scientific names and classification are given in Appendix 1. Species are grouped by family, and the family-groups are listed in conventional zoological order.

Table B.2. Wildlife Species in SPDC Eastern Zone.

Explanatory notes on numbered column headings :-

- (1) '!' denotes mammal species not expected from forest zone east of Niger acc. to Happold 1987.
'?' indicates a 'mystery' species, reported by hunters to be present but not identifiable as any known species.
- (2) '?' indicates presence is not certain ('??' = remotely possible).
For listings not supported by specimens or convincing evidence, the basis for the listing is given in parentheses as name of nearest known locality or 'rpt' meaning hunters' reports.
- (3) IUCN - International Ranking in 1994 IUCN Red List - see under (4).
- (4) WCMC - National Ranking in WCMC's 1988 Nigeria Biodiversity Report.
IUCN/WCMC Rankings:
Ex = not located in wild in past 50 years.
E = endangered; V = vulnerable; R = rare.
I/K = known (I) / suspected (K) to be in E or V or R categories.
- (5) Dcr11 - Ranking in Federal Endangered Species Decree No. 11 of 1985.
Schedule 1 - absolute prohibition; Schedule 2 - licence required.
- (6) Explanation of symbols.
* - Species needs conservation attention in SPDC(E) area (also **).
** - Species of highest importance, usually in small isolated populations which should be protected 'at all costs'.
SR - important easily-identified species to encourage SPDC/contractor staff to report; also require attention in EIA's.
EIA - species requiring attention in EIA's (see also SR category).
Tm - Totem species, under traditional protection in some localities.

B.2a. Mammal Species known or possibly present in SPDC Eastern Zone.

Species Notes (1)	Possible spp (2)	<u>Conservation Status</u>			Priorities (6)
		IUCN (3)	WCMC (4)	Dcr11 (5)	
Dwarf Galago		-	-	2	
Allen's Galago		-	-	2	
Needle-clawed Galago		-	-	2	
Angwantibo		V	?	1	
Potto		-	-	2	
! ? Drill (short-tail <i>alum</i>)	??(rpt)	E	Ex	1	** SR
Red-capped Mangabey		V	-	1	* EIA
Mona monkey		-	-	2	
White-nosed Guenon		-	-	2	
! White-throated Guenon		E	E	2	EIA
Sclater's Guenon		E	-	2	* SR
! Tantalus monkey		-	-	2	
! Delta Red Colobus		E/V	Ex	1	** SR
! Olive Colobus		V	?	1	* EIA
Chimpanzee		V/E	E	1	** SR Tm
? 'Dwarf Monkey'	?(rpt)				** SR

Species Notes (1)	Possible spp (2)	IUCN (3)	WCMC (4)	Dor11 (5)	Priorities (6)	
! Giant Pangolin	??(rpt)	-	-	1	** SR	
Tree Pangolin		-	-	1		
Long-tailed Pangolin		-	-	1	EIA	
Crawshay's hare	?(Owerri)	-	-	-		
Beecroft's Flying-squirrel		-	-	-		
Derby's (Fraser's) Flying-squirrel		-	-	-		
! ?Pel's Flying-squirrel	(rpt)				* SR	
! ?Dwarf Flying-squirrel	(rpt)				EIA	
? 'Yellow Flying-squirrel'	(rpt)				EIA	
Geoffroy's Ground Squirrel		-	-	-		
Redless Tree-squirrel		-	-	-		
Fire-footed Tree-squirrel		-	-	-		
Orange-headed Tree-squirrel		-	-	-		
! Small Green Squirrel		-	-	-		
Red-legged Sun-squirrel		-	-	-		
Giant Forest Tree-squirrel		-	-	-		
! ?					* SR	
! Rysay Squirrel	(rpt)	V	-	-	* EIA	
Gambian Giant Rat		-	-	-		
Emin's Giant Rat		-	-	-		
! Savanna Gerbil		-	-	-		
Common Afr. Dormouse		-	-	-		
Huet's Dormouse		-	-	-		
Brush-tailed porcupine		-	I	1		
! Crested porcupine	??(rpt)	-	I	1	SR	
Greater Cane-Rat		-	-	-		
? 'Short-tail Cane-Rat'	??(rpt)				* EIA	
! Side-striped Jackal	?(rpt)	-	-	2	EIA	
! Cape Clawless Otter		-	I	1	EIA	
! Spot-necked Otter	(rpt)	-	I	1	EIA	
? 'Small black otter'		-	I	1	EIA	
? 'Striped otter'	?(rpt)	-	-	-	* SR	
! ?Forest Ratel	??(rpt)	-	-	-	* EIA	
! Crested Genet		E	-	2	EIA	
! Large-spot Genet		-	-	2	EIA	
Forest Genet		-	-	2		
! ?African Linsang	??(rpt)	-	-	-	* SR	
Two-spot Palm-Civet		-	-	2		
African Civet		-	-	2		
! Egyptian Mongoose		-	-	2		Tm
! Long-nosed Mongoose		-	-	2	* EIA	Tm
Marsh Mongoose		-	-	2		Tm
!	??(rpt)	-	-	2	* EIA	
(Cusimanse		-	-	2		
? 'Big Cusimanse'	??(rpt)	-	-	2	*	

Species Notes (1)	Possible spp (2)	IUCN (3)	WCMC (4)	Der11 (5)	Priorities (6)	
! ?Golden Cat	??(rpt)	-	I	1	* SR	
Serval	?(Sapele)	-	I	1	* SR	
Leopard		-	I	1	* SR	Tm
Manatee		V	I	1	* EIA	Tm
! African Elephant		V	I	1/2	** SR	
Western Tree-hyrax		-	-	-		
! Giant Forest Hog	??(rpt)	-	I	1	* SR	
! Warthog	??(rpt)	-	-	2	SR	
! Bushpig	??(rpt)	-	-	-	* EIA	
Red River-hog		-	-	-		
Heslop's Pygmy Hippo		Ex	-	1	** SR	Tm
! Hippopotamus		-	-	2	** SR	Tm
Water Chevrotain		-	I	1	EIA	
African Buffalo		-	-	2	SR	
Sitatunga		-	E	1	EIA	
Bushbuck		-	K	-		
Maxwell's Duiker		-	V/I	-		
! Black-fronted Duiker		-	-	-	* SR	
! Agility's Duiker		V	I	-	** SR	
! Bay Duiker	?(Ibeku-Umuahia)	-	E	-	EIA	
! Red-flanked Duiker	?(Amaku)	-	R	-		
Yellow-backed Duiker		-	E	1	* SR	
Bates' Dwarf Antelope		-	E	-	EIA	
?'Large Black Duiker(s)'	(rpts)				** SR	
? buruwan/Necklaced Duiker	?(rpt)				** SR	
? 'ature duiker' (Ijo)	(skull)				* EIA	
? e-wan-gha (Ijo)	?(rpts)				* EIA	
? enata-ezogh (Oduval/Ogbia)	?(rpts)				* EIA	

Table B.2b Reptiles of conservation interest known or possibly present.

Family/Species	IUCN (3)	WCMC (4)	Dcr11 (5)	Priorities (6)
Varanidae				
Nile Monitor	-	I	I	Tm
Forest Monitor	-	-	-	Tm
Boidae				
Royal Python	-	I	I	Tm
Rock Python	-	I	I	Tm
Elapidae				
Black Cobra	-	-	-	Tm
Crocodylidae				
Slender-snouted Crocodile	V	?	-	* SR Tm
Nile Crocodile	-	I	I	SR Tm
Dwarf Crocodile	-	I	I	
Pelomedusidae				
W. Afr. Black Forest Turtle	-	-	-	Tm
W. Afr. Mud Turtle	-	-	-	Tm
Trionychidae				
African softshell turtle	-	-	-	
Testudinidae				
Serrate Hinge-back tortoise	-	-	-	Tm
Home's Hinge-back tortoise	-	-	-	Tm
Chelonidae				
Loggerhead ?	V	-	-	SR
Green Turtle ?	E	-	-	SR
Hawksbill Turtle ?	E	?E	-	SR
Olive Ridley	E	?E	-	SR
Dermochelyidae				
Leatherback	E	-	-	SR

Table B.2c. Endemic, officially endangered and culturally important birds known or possibly present in SPDC(E) area.

Family/Species	Residence Status	IUCN (2)	WCMC (3)	Dcr11 (4)	Notes
Pelecanidae: Pelicans	migr.	-	-	2	now rare
Ardeidae: Herons, Egrets & Bitterns	res/migr.	-	-	2	
Scopidae: Hammerkop	res.	-	-	2	footnote (1)
Ciconiidae: Storks	migr.	-	-	2	now rare
Aegypiidae: Vultures	res.	-	-	2	
Falconidae: Eagles, Falcons, Kites etc.	res/migr.	-	I/K	1	
- Palm-nut vulture	res.				footnote (1)
- River Eagle	res.				footnote (1)
Laridae					
- Damara Tern	migr.	R	?	-	prob. absent
Psittacidae: Parrots	res.	-	I/K	1	
Musophagidae					
- Blue Plantain-eater	res.	-	-	-	footnote (1)
Cuculidae: Cuckoos & Coucals					
- Senegal Coucal	res.	-	-	-	footnote (1)
Estrildidae: Estrildine Weavers					
- Fawn-breasted (Anambra) Waxbill	endemic	K	K	-	no record

(1) - Bird species for which there are scattered local traditions against killing or eating.

Section C. DISTRIBUTION OF SPECIES

C.1. Zoogeographic Background

The Niger Delta occupies a zoogeographically critical position, which gives special interest and significance to the identity and distribution of species within it. It is in the zone of transition or overlap between the Upper Guinea (West African) and Lower Guinea (Central African) rainforest faunas. It also contains disjunct outlier populations of a few species from each of those faunas, and is a minor centre of endemism on its own accord (Grubb, 1990).

Being a part of the Niger system, the delta also figures in the traditional view of the Niger River as a distributional barrier to supposed west-of-Niger and east-of-Niger species (listed by Happold, 1987: pp 246-249, Tables 15.1-15.3). When questions of boundaries arise in this regard, it has been customary, for lack of anything better, to draw an arbitrary line dividing the Delta into western and eastern halves (e.g. in Happold, 1987; Grubb, 1990).

Not surprisingly the actual situation is more complicated. The present work is starting to map species-specific boundaries, and some of these ~~at least are associated with~~ previously unrecognized faunal zones within the Delta.

^ indicate the existence of

C.2. Faunal zones within the Delta.

The distribution of animals normally corresponds to the distribution of suitable habitat types. The freshwater zone of the Niger Delta is usually classified as undifferentiated 'swamp forest' and there has been a corresponding assumption that the fauna is likewise undifferentiated.

The unpublished NARESCON/FEPA report (Powell, 1993) proposed and recognized two faunal or forest zones within the freshwater sector of the central axis of the Delta, based initially on the mutually exclusive distributions of two large endemic mammals :- the 'Flood Forest' zone with the Nigerian Pygmy Hippo and the 'Marsh Forest' zone with the newly discovered Delta Red Colobus monkey. The differences were attributed to different hydrological regimes.

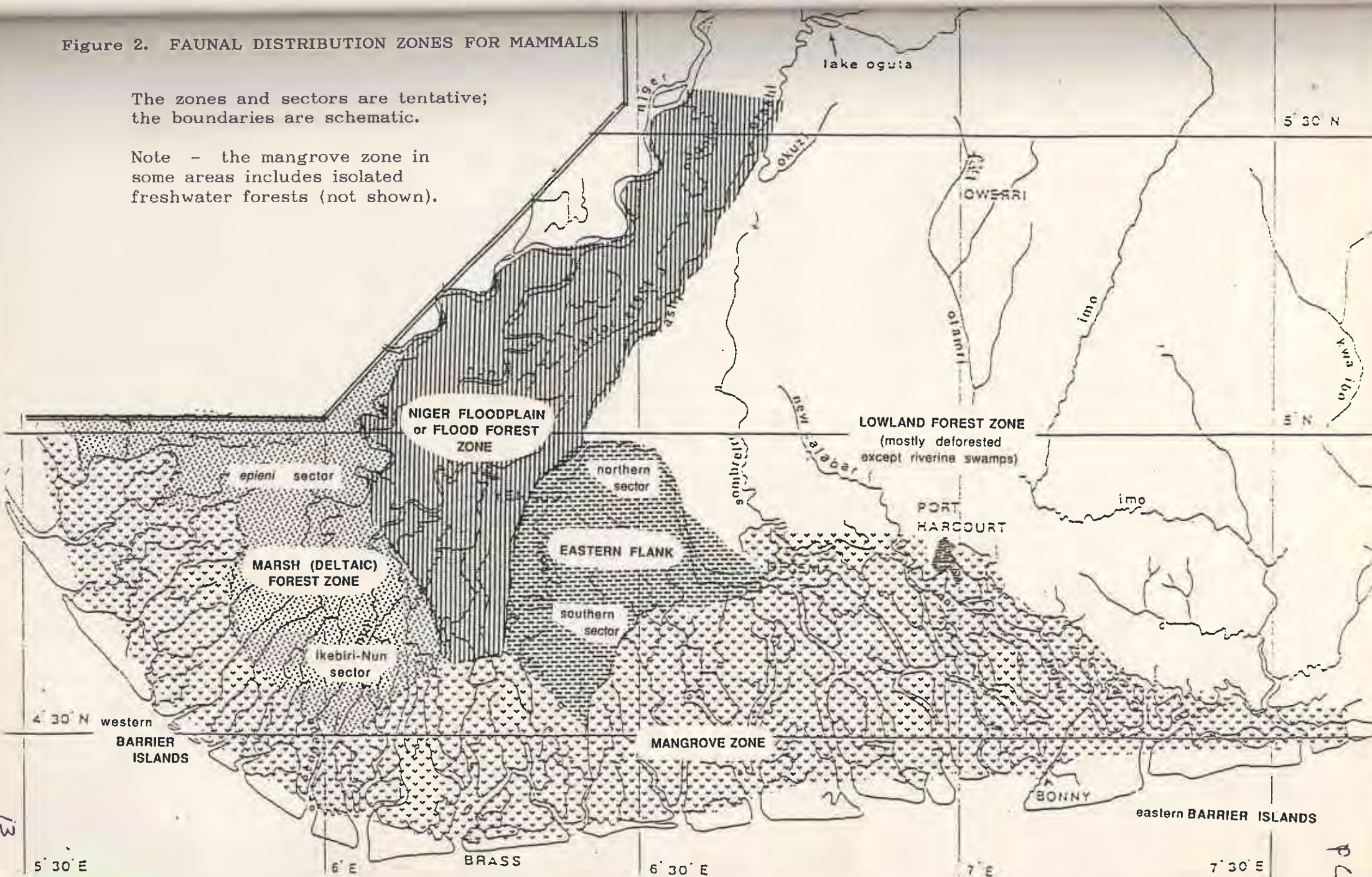
The present study confirms the distinction as concerns the fauna, and suggests additional zones as summarized below and shown in Figure 2. This scheme is tentative, based on limited data. It is put forward as a model to guide, and be modified by, future work. Many boundaries will in any case be ~~much~~ more intricate including extensions and outliers in adjacent zones, e.g. along river channels and on old levees.

- a. **LOWLAND FOREST ZONE** - the well-drained area east of the Orashi River (which forms the eastern boundary of the Niger floodplain). It is largely deforested by agriculture except riverine swamps. It is characterized by the Dwarf Antelope, and a few species which extend more westward into the Eastern Flank zone (Ogilby's Duiker, Sclater's Guenon and Allens's Galago).
- b. **NIGER FLOODPLAIN or FLOOD FOREST ZONE** - the forest area which is inundated by the annual Niger flood and which dries out in the dry season except for numerous flood channels and floodplain lakes. It is characterized by the Pygmy Hippo and a few savanna species which evidently spread along the flood distributaries e.g. the Tantalus Monkey and the Large-spotted Genet.

Figure 2. FAUNAL DISTRIBUTION ZONES FOR MAMMALS

The zones and sectors are tentative;
the boundaries are schematic.

Note - the mangrove zone in
some areas includes isolated
freshwater forests (not shown).



- c. EASTERN FLANK - the area between Kolo Creek and the Orashi River downstream of Okarki. This zone was probably typical 'Flood Forest' long ago when the Orashi was a major distributary of the Niger. It still has the Pygmy Hippo and Large-spotted Genet, but also several Lowland Forest non-swamp species (notably Ogilby's Duiker and Schlater's Guenon).

The southern sector has several species of special interest (chimpanzee, the black squirrel, and mystery species like the *ezinekpe* cat, drill-like ground monkey *alum* and *enata-ezogh* antelope). Some may be endemics; others may be relict populations of true lowland species now extinct in the rest of the Niger-Cross interfluvium.

- d. MARSH (DELTAIC) FOREST ZONE - this occupies the tidal freshwater sector where the tidal influence dampens the amplitude of the Niger flood and maintains a high water table in the dry season. The zone is characterized by the Black-fronted Duiker and the absence of otherwise widespread mammals like the Angwantibo, Giant Rats, Cusimanse mongoose and Bushbuck, and also the Pygmy Hippo. ~~The north-west sector~~ encompassed by Apoi and Bomadi Creeks, which receives little if any of the Niger flood, ~~one finds~~ the Red Colobus monkey.

and so has even less seasonality, is characterized by

- e. MANGROVE ZONE - the mammal fauna of the mangrove zone was listed by Rosevear (1947) as Mona monkey, Sitatunga, Speckle-throated Otter and Marsh Mongoose. During the present study hunters widely reported Clawless Otters and unidentified genets also as regular mangrove inhabitants.

Some sectors of the mangrove zone include islands of freshwater forest which need investigation, both for their fauna and also for the role they play in supporting the mammal fauna of the surrounding mangrove forest.

- f. BARRIER ISLANDS - these support ~~mainly~~ freshwater swamps with a fauna, ~~like~~ the Marsh Forest zone, ~~in respect to the~~ generally lacking absence of burrowing mammals. Some retain scarce relict populations of major species (elephant, hippopotamus, maybe leopards and chimpanzees), and some lack pigs.

C.3. Distributions of individual species.

The known distribution of the more important species (listed in Table C.1) is indicated on Maps S-01 to S-32. For species with distinct patterns, the map often shows only records which help define the distributional limits; the overall distribution is then explained in the upper-left box.

The meaning of the symbols as used on the maps are explained further below. Except for 'New Record' which always refers to a specific specimen, it is often difficult to decide on the most appropriate category for a record, or whether it warrants mention at all.

Of the As for species not mapped, some are too common and widespread to be of particular interest (e.g. Mona Monkey, Red-legged Squirrel, Civet, Palm-civet, Maxell's Duiker). For others, the records are too few and/or indefinite to be useful at this level (e.g. Allen's Galago, Long-nosed Mongoose, otter, and pangolin species).

Meanings of Map symbols :-

- Literature Record - published localities, not necessarily based on specimens or direct observations. Most are cited in Happold (1987) and most are several decades old.
- New Record - localities substantiated by specimens collected or sighted (as bush meat) during the author's 1992-1995 surveys.
- Reliable Report - localities where reports from hunters or trappers are strong and/or numerous enough to make it likely that the species is actually present.
- Other Report - localities where reports are less 'reliable' than defined above, but at least strong enough to deserve further investigation in critical cases. Some reports, which would otherwise be classed as reliable, of legendary animals like Leopard and Pygmy Hippos are put here; details are given under the species accounts in Section D.
- Locally Extinct - localities where hunters or trappers know the species but consider it to be extinct, usually in the past 10 to 30 years.
- Absent - localities where hunters or trappers report the animal to be unknown in the area in living memory. In many cases some of the same hunters know the species from their experience hunting elsewhere.

Table C.1. List of Species Distribution Maps.

PRIMATES

Angwantibo	Map S-01	Red-capped Mangabey	Map S-02
White-throated Guenon	Map S-03	Sclater's Guenon	Map S-04
Tantalus Monkey	Map S-05	Olive Colobus	Map S-06
Delta Red Colobus	Map S-07	Chimpanzee	Map S-08
Unidentified monkeys	Map S-09		

RODENTS

Ground Squirrel	Map S-10	Giant Rats	Map S-11
Black squirrel	Map S-12	Squirrels descr'd by hunters	Map S-12

CARNIVORES

Crested Genet	Map S-13	Large-spot/Forest Genets	Map S-14
Egyptian Mongoose	Map S-15	Cusimanse	Map S-16
Leopard	Map S-17	Unidentified carnivores	Map S-18

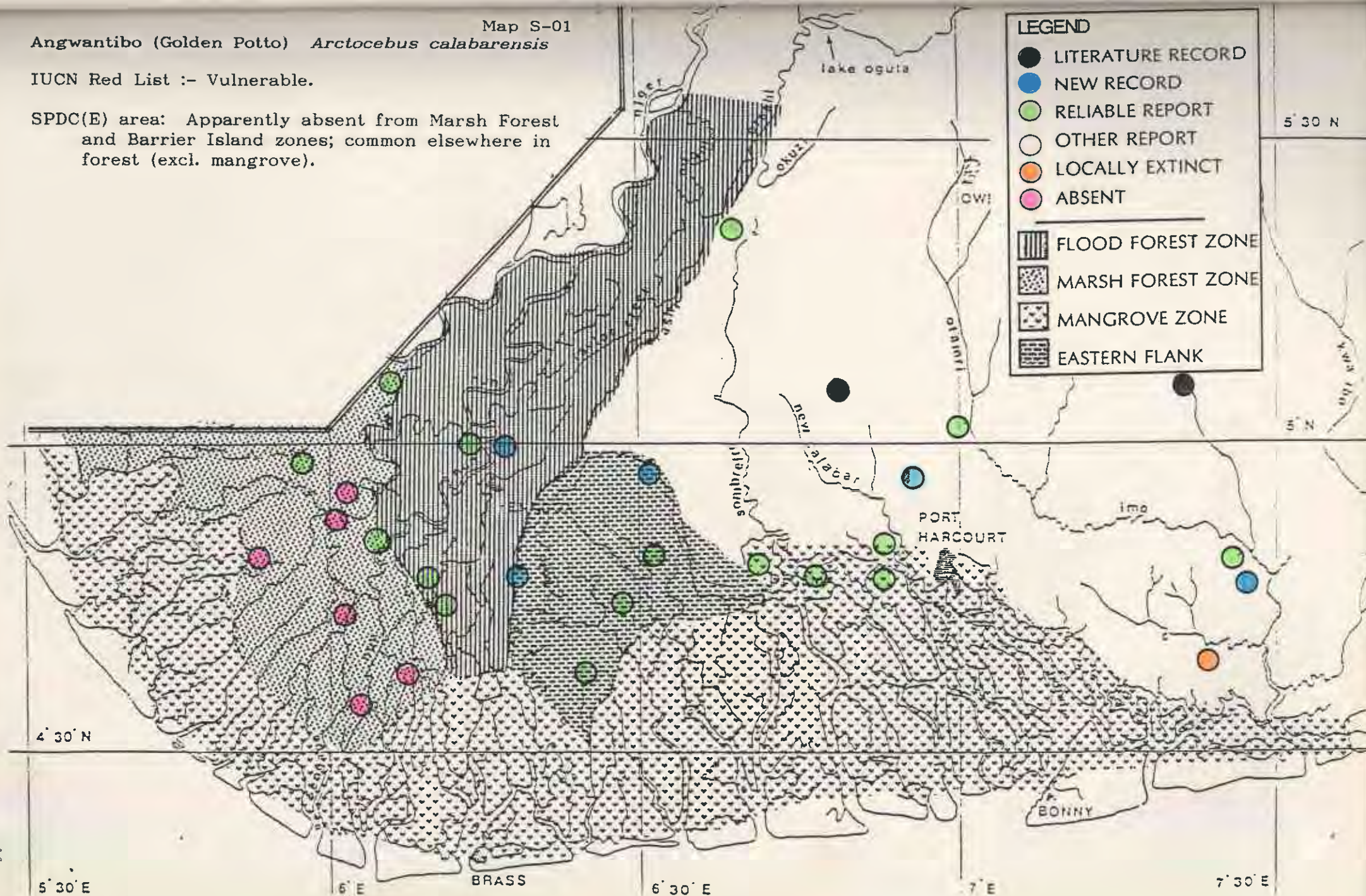
UNGULATES (HOOFED MAMMALS)

Tree Hyrax	Map S-19	African Elephant	Map S-20
Pygmy Hippopotamus	Map S-21	Hippopotamus	Map S-22
Water Chevrotain	Map S-23	African Buffalo	Map S-24
Sitatunga	Map S-25	Bushbuck	Map S-26
Black-fronted Duiker	Map S-27	Ogilby's Duiker	Map S-28
Yellow-backed Duiker	Map S-29	Bates' Dwarf Antelope	Map S-30
Unident. antelopes I	Map S-31	Unident. antelopes II	Map S-32

Map S-01
Angwantibo (Golden Potto) *Arctocebus calabarensis*

IUCN Red List :- Vulnerable.

SPDC(E) area: Apparently absent from Marsh Forest and Barrier Island zones; common elsewhere in forest (excl. mangrove).



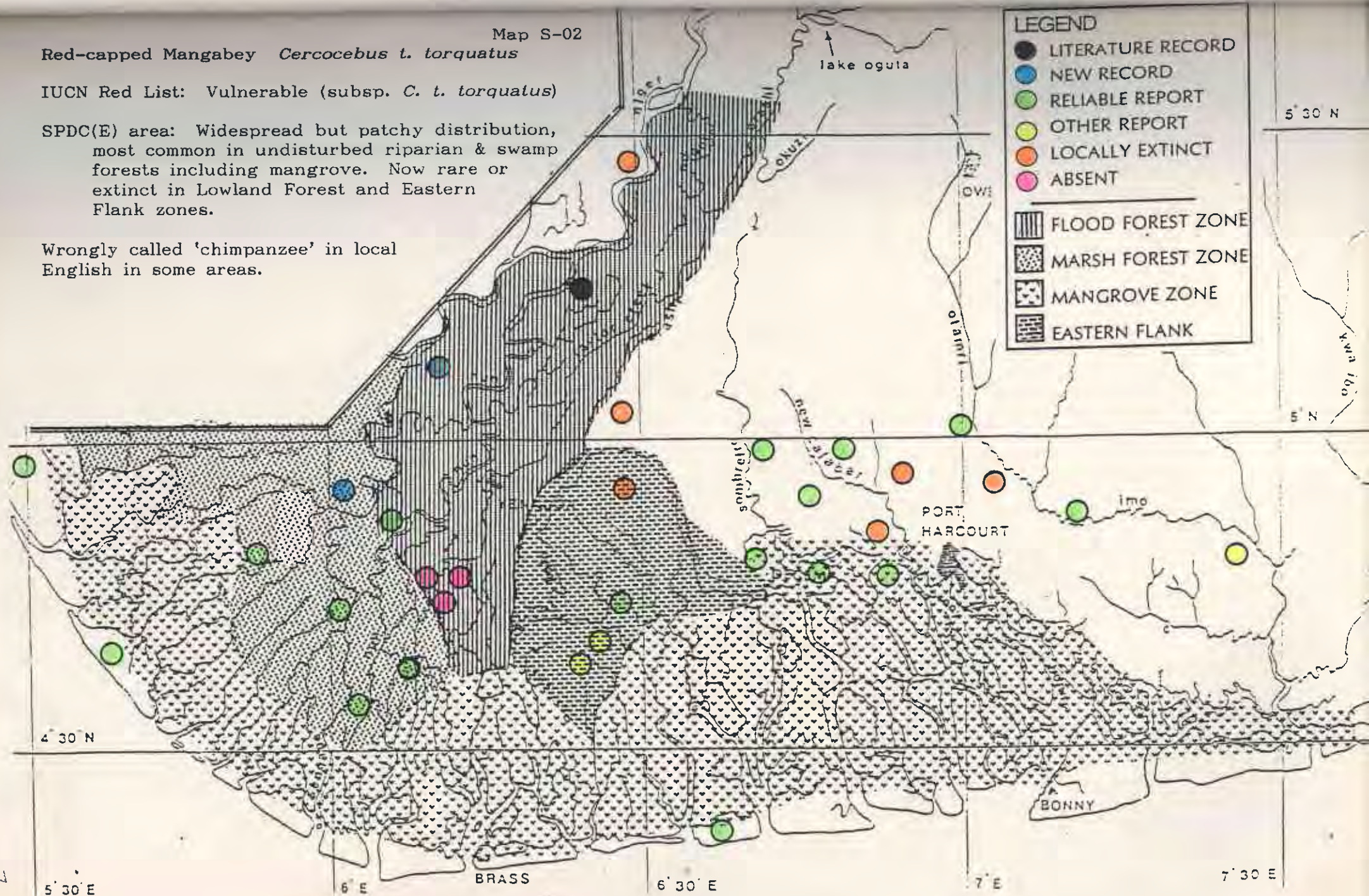
Map S-02

Red-capped Mangabey *Cercocebus t. torquatus*

IUCN Red List: Vulnerable (subsp. *C. t. torquatus*)

SPDC(E) area: Widespread but patchy distribution, most common in undisturbed riparian & swamp forests including mangrove. Now rare or extinct in Lowland Forest and Eastern Flank zones.

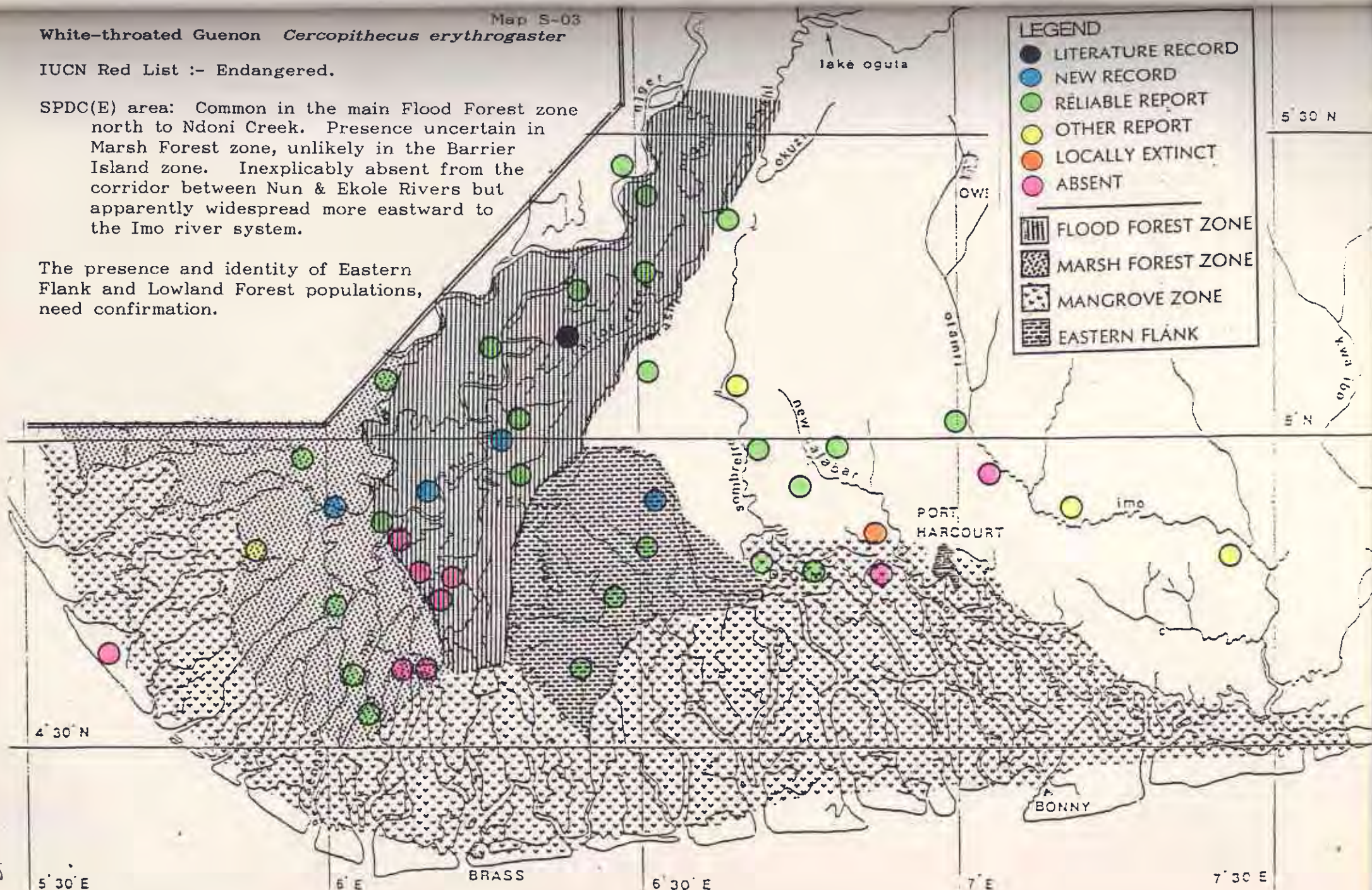
Wrongly called 'chimpanzee' in local English in some areas.



Map S-03

SPDC(E) area: Common in the main Flood Forest zone north to Ndoni Creek. Presence uncertain in Marsh Forest zone, unlikely in the Barrier Island zone. Inexplicably absent from the corridor between Nun & Ekole Rivers but apparently widespread more eastward to the Imo river system.

The presence and identity of Eastern Flank and Lowland Forest populations, need confirmation.



Sclater's Guenon *Cercopithecus sclateri*

Map S-04

IUCN Red List :- Endangered.

SPDC(E) area: Widespread throughout the Eastern Flank & Lowland Forest Zones; and perhaps on eastern Barrier Islands. Absent west of the Yenagoa-Brass axis.

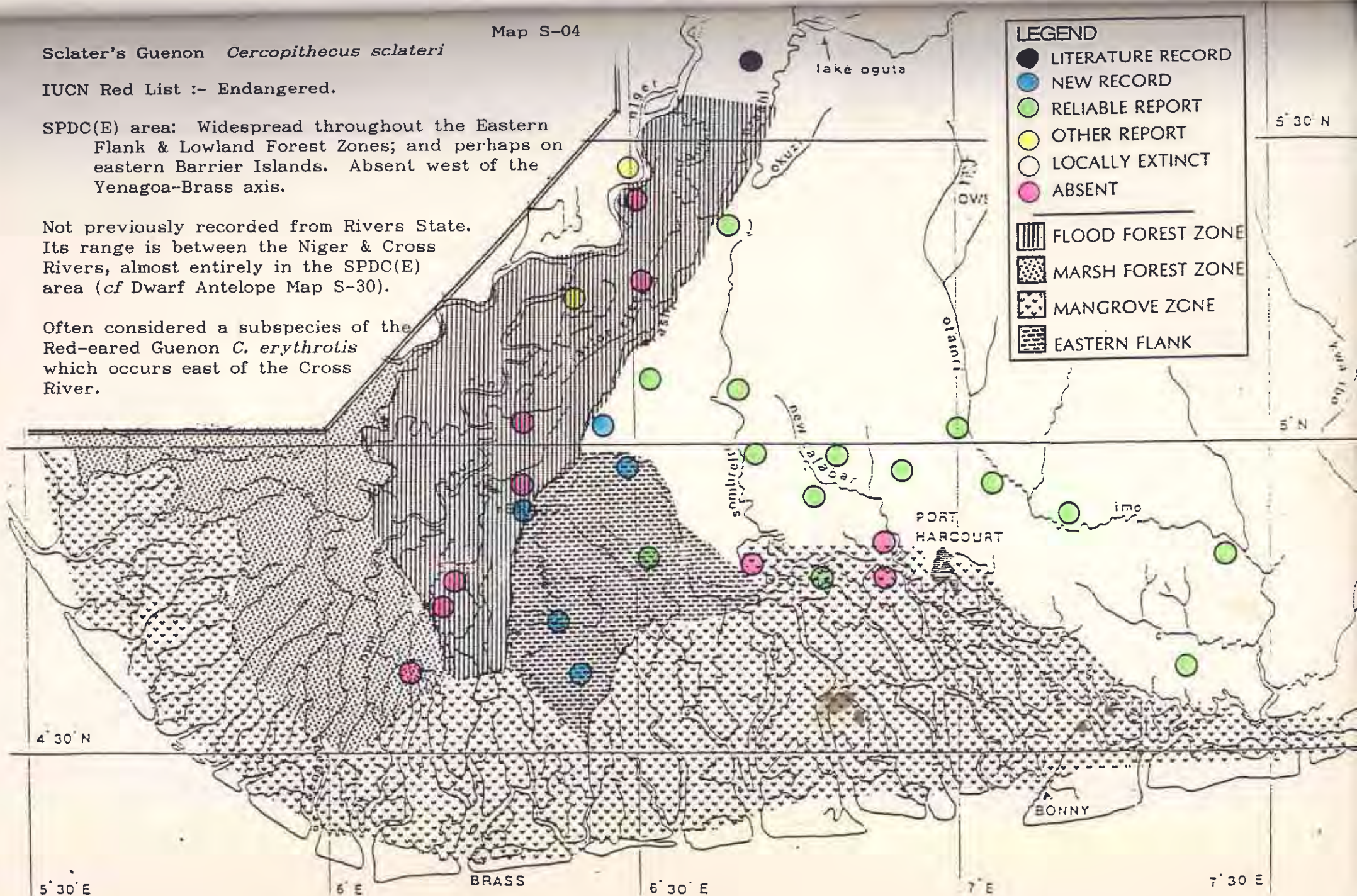
Not previously recorded from Rivers State. Its range is between the Niger & Cross Rivers, almost entirely in the SPDC(E) area (cf Dwarf Antelope Map S-30).

Often considered a subspecies of the Red-eared Guenon *C. erythrotis* which occurs east of the Cross River.

LEGEND

- LITERATURE RECORD
- NEW RECORD
- RELIABLE REPORT
- OTHER REPORT
- LOCALLY EXTINCT
- ABSENT

- ▨ FLOOD FOREST ZONE
- ▨ MARSH FOREST ZONE
- ▨ MANGROVE ZONE
- ▨ EASTERN FLANK



Tantalus monkey *Cercopithecus tantalus*

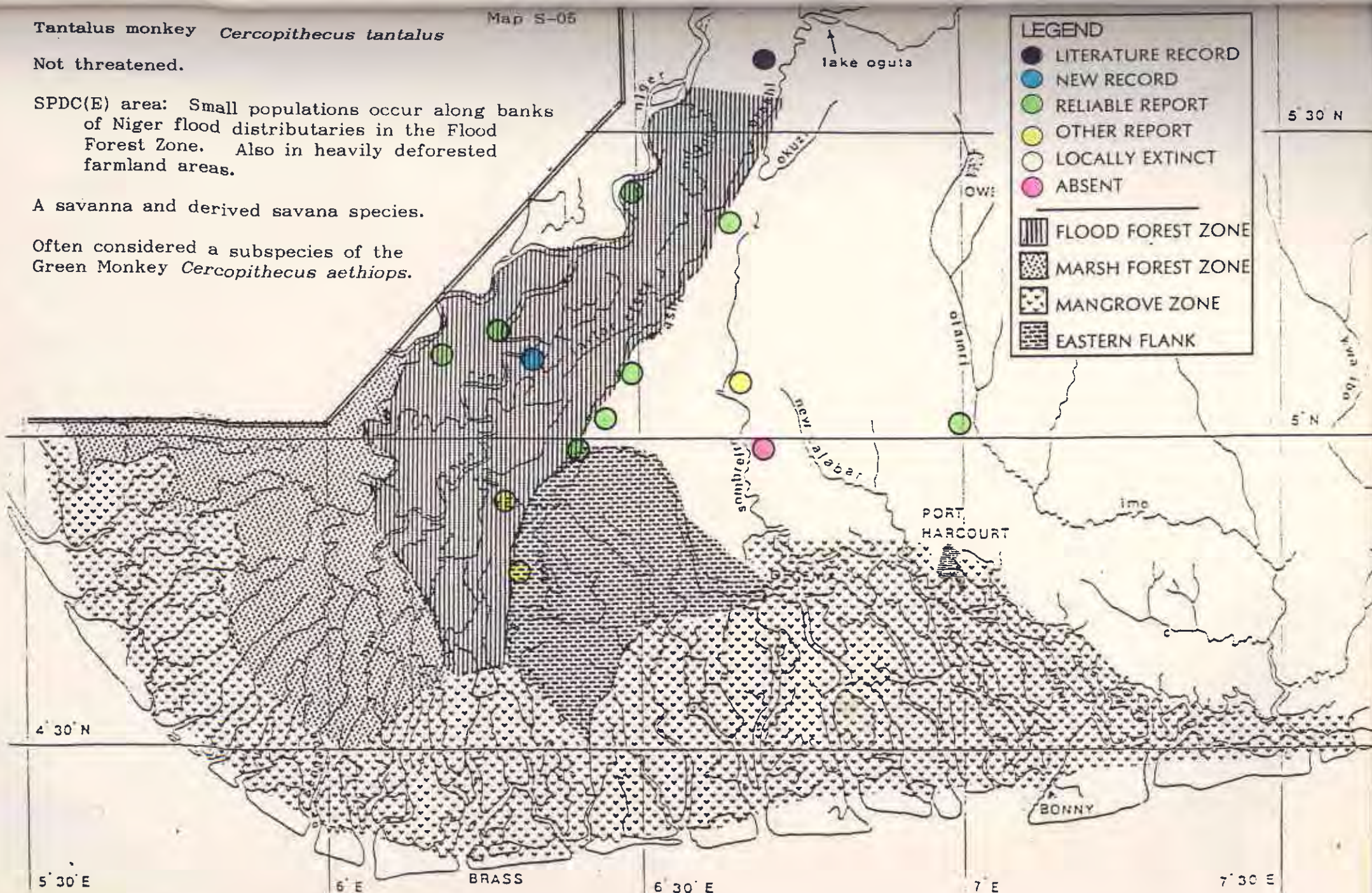
Not threatened.

SPDC(E) area: Small populations occur along banks of Niger flood distributaries in the Flood Forest Zone. Also in heavily deforested farmland areas.

A savanna and derived savanna species.

Often considered a subspecies of the Green Monkey *Cercopithecus aethiops*.

Map S-05

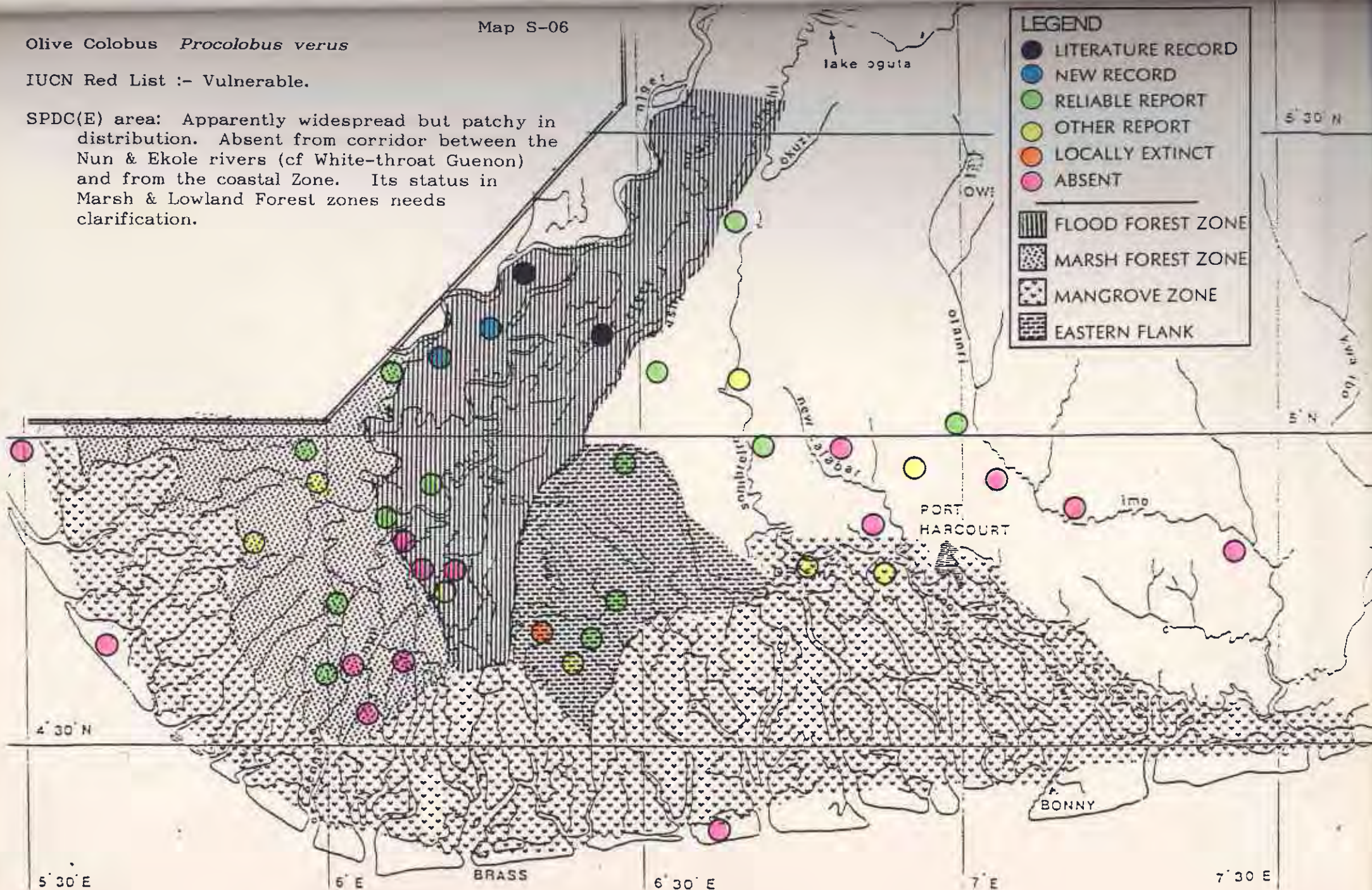


Olive Colobus *Procolobus verus*

Map S-06

IUCN Red List :- Vulnerable.

SPDC(E) area: Apparently widespread but patchy in distribution. Absent from corridor between the Nun & Ekole rivers (cf White-throat Guenon) and from the coastal Zone. Its status in Marsh & Lowland Forest zones needs clarification.



Delta Red Colobus *Procolous aff. pennantii*

Map S-07

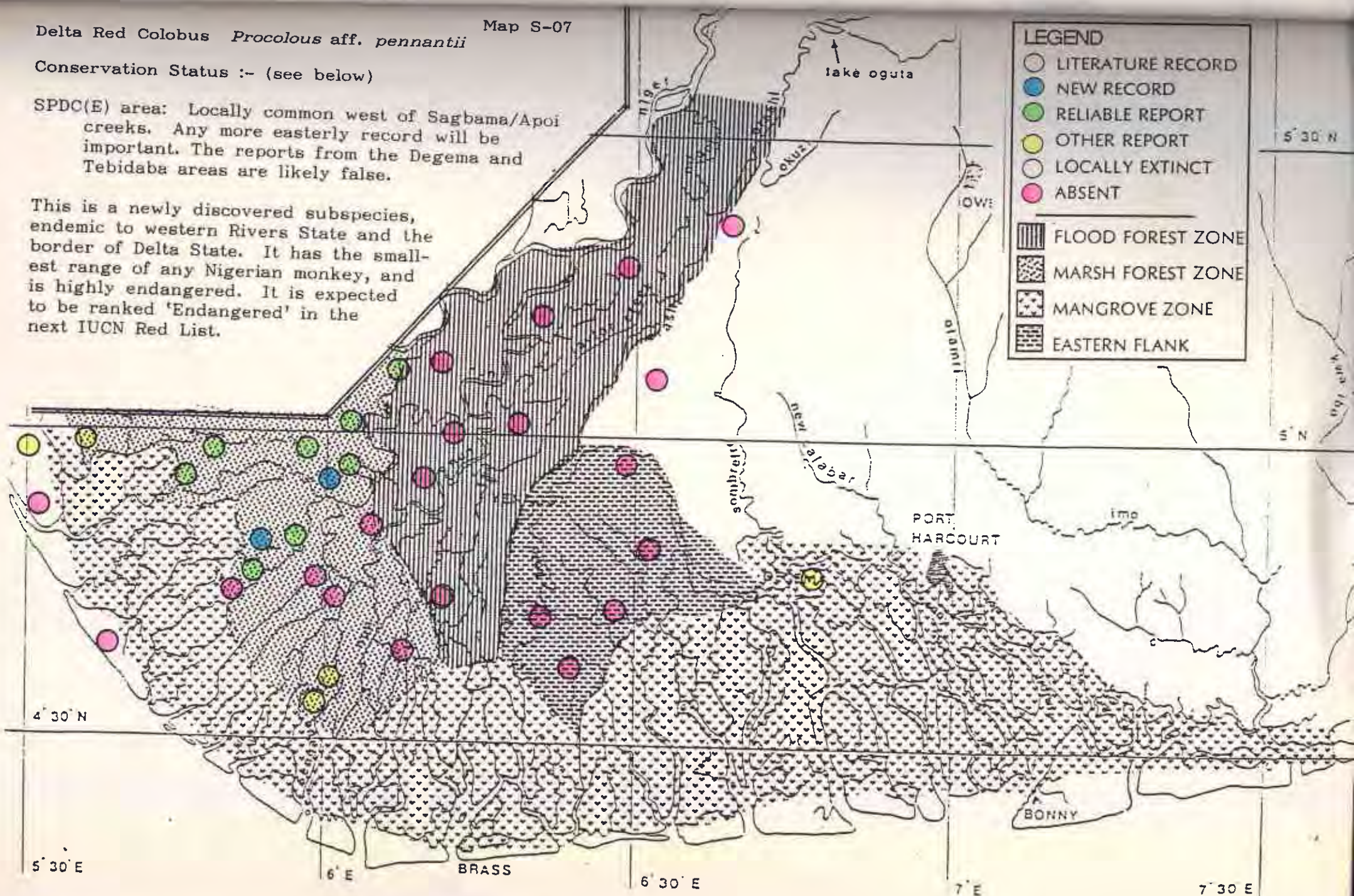
Conservation Status :- (see below)

SPDC(E) area: Locally common west of Sagbama/Apoi creeks. Any more easterly record will be important. The reports from the Degema and Tebidaba areas are likely false.

This is a newly discovered subspecies, endemic to western Rivers State and the border of Delta State. It has the smallest range of any Nigerian monkey, and is highly endangered. It is expected to be ranked 'Endangered' in the next IUCN Red List.

LEGEND

- LITERATURE RECORD
- NEW RECORD
- RELIABLE REPORT
- OTHER REPORT
- LOCALLY EXTINCT
- ABSENT
- ▨ FLOOD FOREST ZONE
- ▤ MARSH FOREST ZONE
- ▥ MANGROVE ZONE
- ▧ EASTERN FLANK

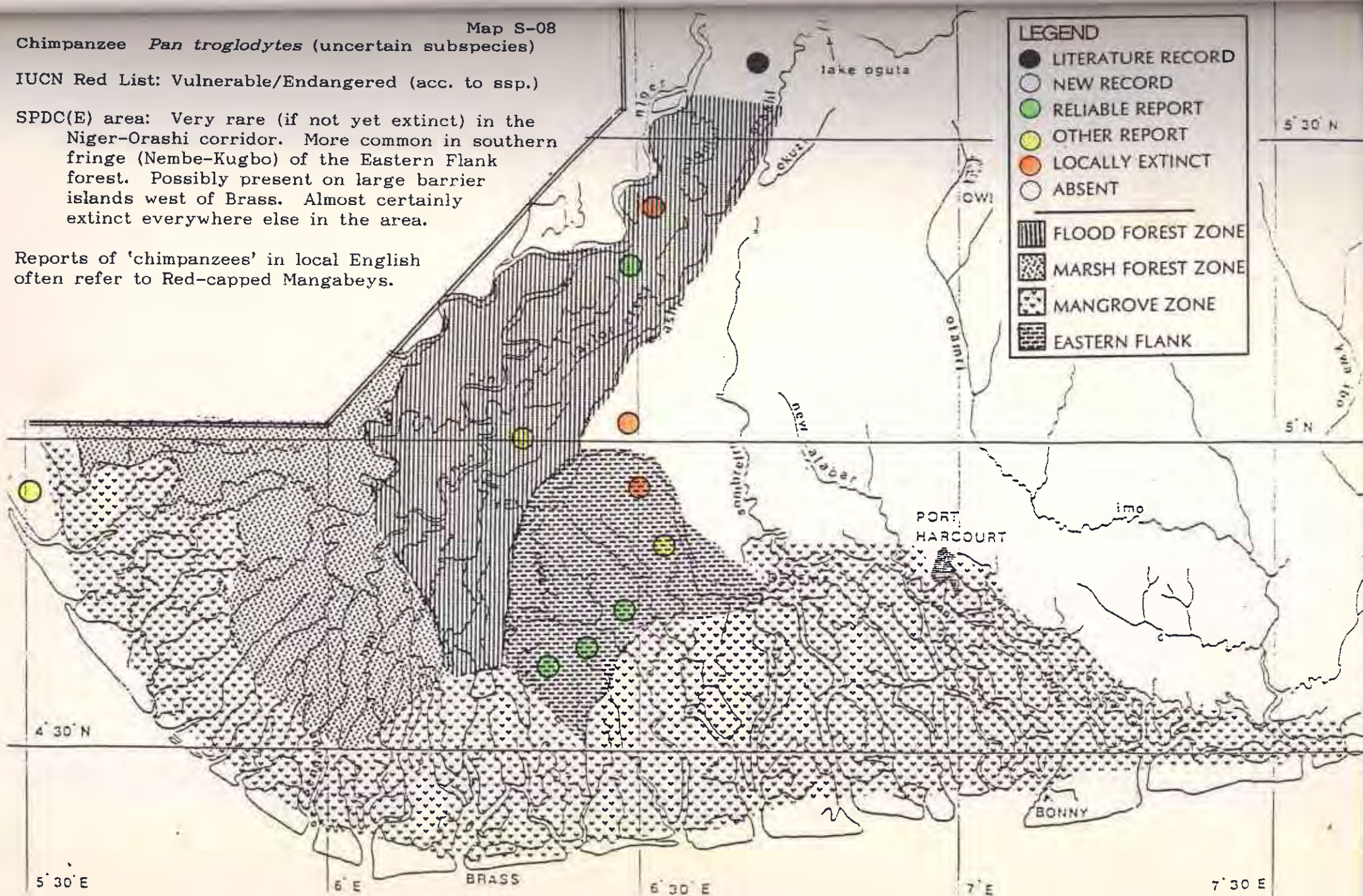


Map S-08
Chimpanzee *Pan troglodytes* (uncertain subspecies)

IUCN Red List: Vulnerable/Endangered (acc. to ssp.)

SPDC(E) area: Very rare (if not yet extinct) in the Niger-Orashi corridor. More common in southern fringe (Nembe-Kugbo) of the Eastern Flank forest. Possibly present on large barrier islands west of Brass. Almost certainly extinct everywhere else in the area.

Reports of 'chimpanzees' in local English often refer to Red-capped Mangabeys.



Unidentified monkeys





Map S-09

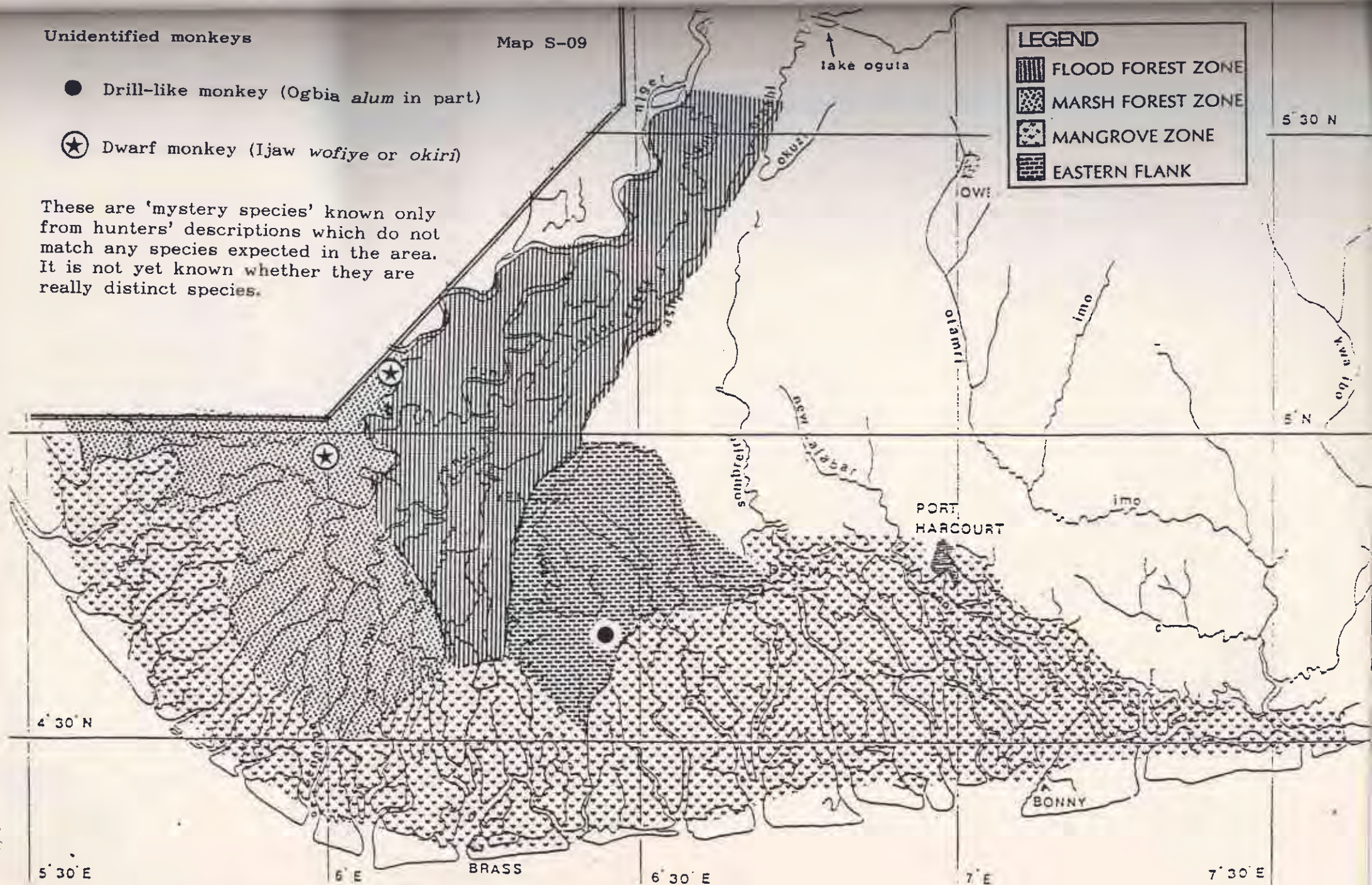
● Drill-like monkey (*Ogbia alum* in part)

★ Dwarf monkey (*Ijaw wofiye* or *okiri*)

These are 'mystery species' known only from hunters' descriptions which do not match any species expected in the area. It is not yet known whether they are really distinct species.

LEGEND

-  FLOOD FOREST ZONE
-  MARSH FOREST ZONE
-  MANGROVE ZONE
-  EASTERN FLANK



5° 30' N

4° 30' N

5° 30' E

6° E

BRASS

6° 30' E

7° E

7° 30' E

PORT
HARCOURT

BONNY

lake oguta

okuzi

imo

imo

new alabar

5° N

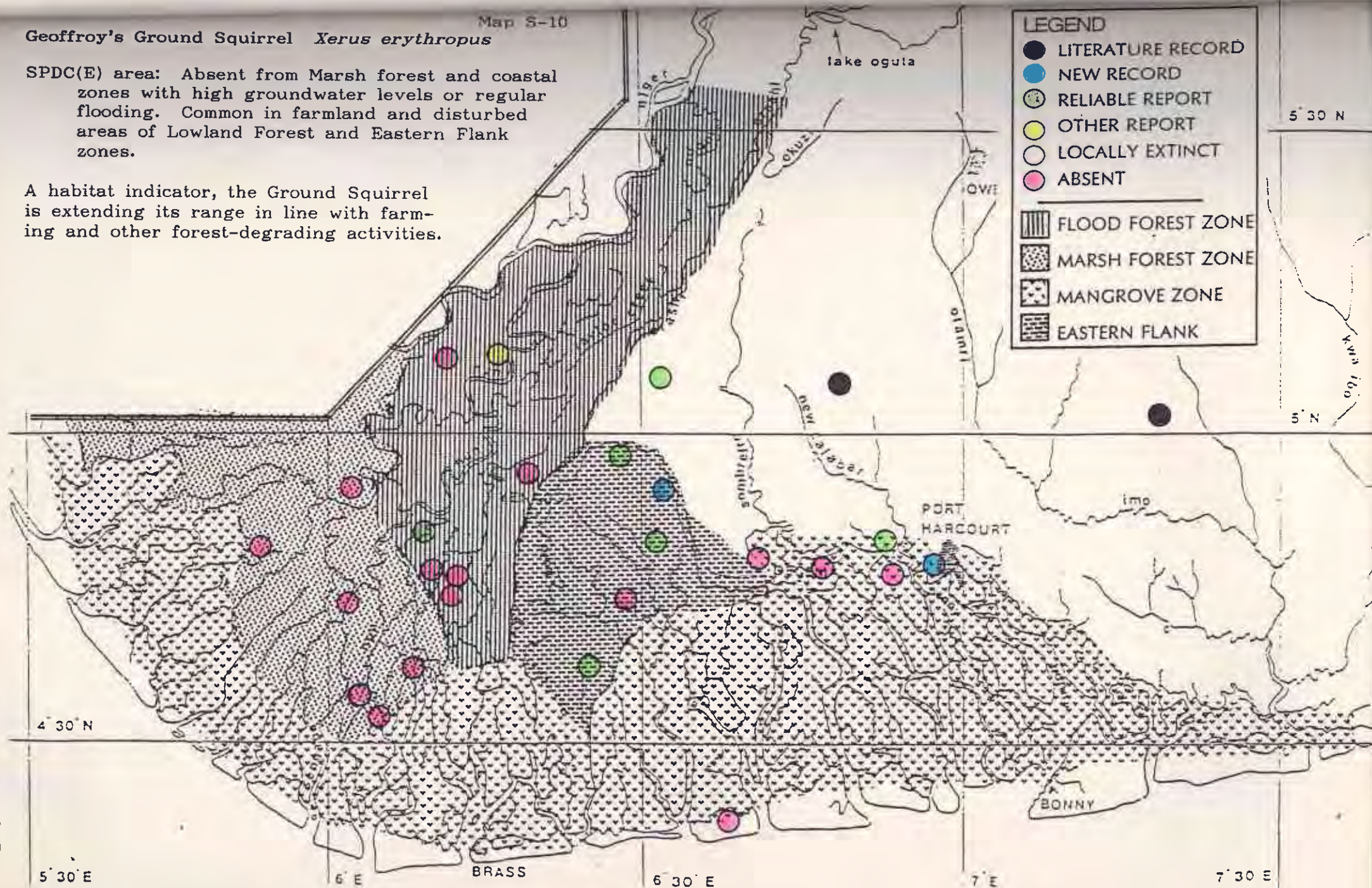
new ibo

Geoffroy's Ground Squirrel *Xerus erythropus*

Map S-10

SPDC(E) area: Absent from Marsh forest and coastal zones with high groundwater levels or regular flooding. Common in farmland and disturbed areas of Lowland Forest and Eastern Flank zones.

A habitat indicator, the Ground Squirrel is extending its range in line with farming and other forest-degrading activities.



Map S-12

A. Black Squirrel *Funisciurus* sp (normal symbols)

B. Squirrels described by hunters :-

★ Dwarf Flying-squirrel *Idiurus* sp.?

⊙ Pel's Flying-squirrel *Anomalurus* sp?

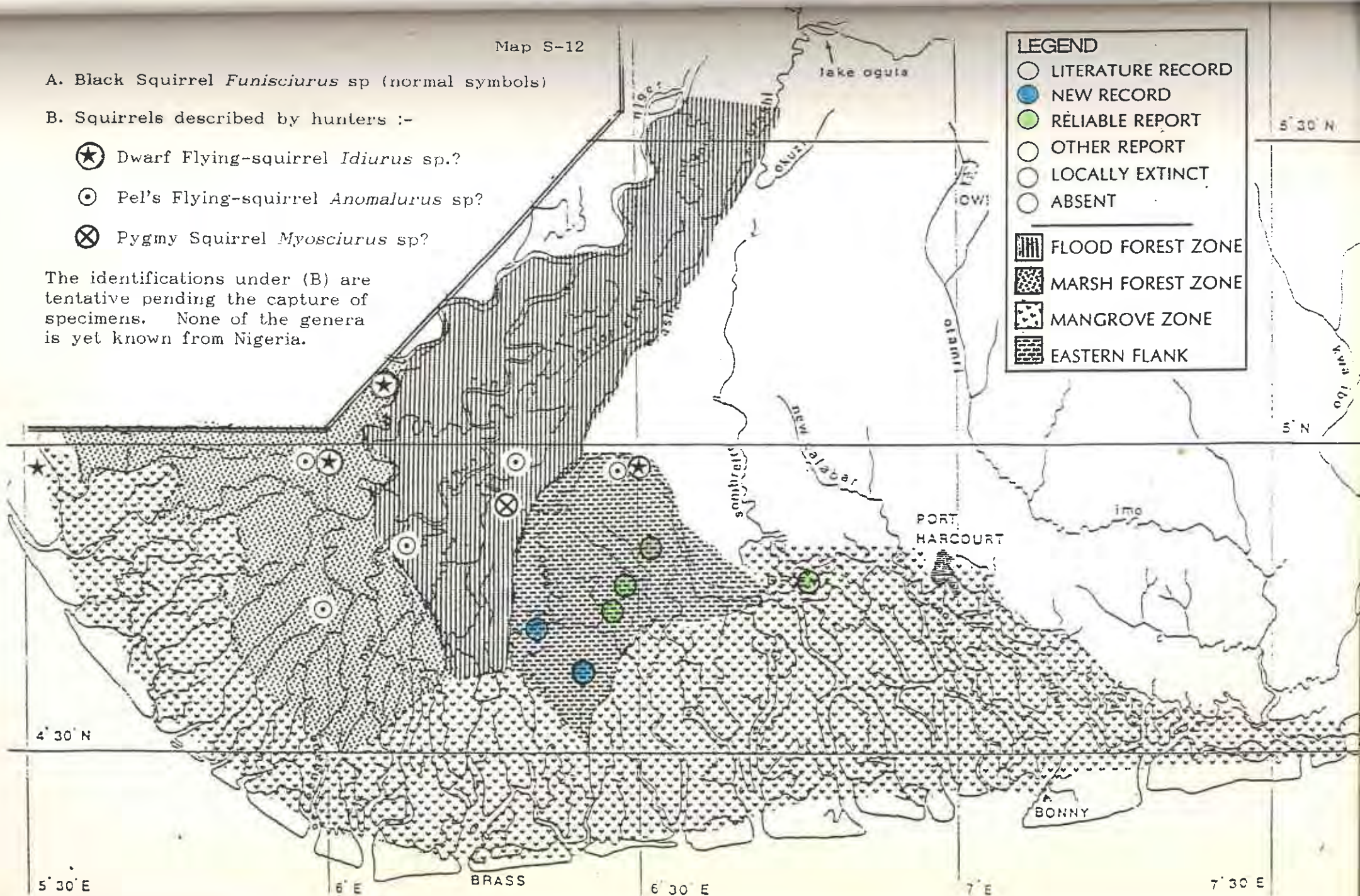
⊗ Pygmy Squirrel *Myosciurus* sp?

The identifications under (B) are tentative pending the capture of specimens. None of the genera is yet known from Nigeria.

LEGEND

- LITERATURE RECORD
- NEW RECORD
- RELIABLE REPORT
- OTHER REPORT
- LOCALLY EXTINCT
- ABSENT

- ▨ FLOOD FOREST ZONE
- ▨ MARSH FOREST ZONE
- ▨ MANGROVE ZONE
- ▨ EASTERN FLANK



Map S-13

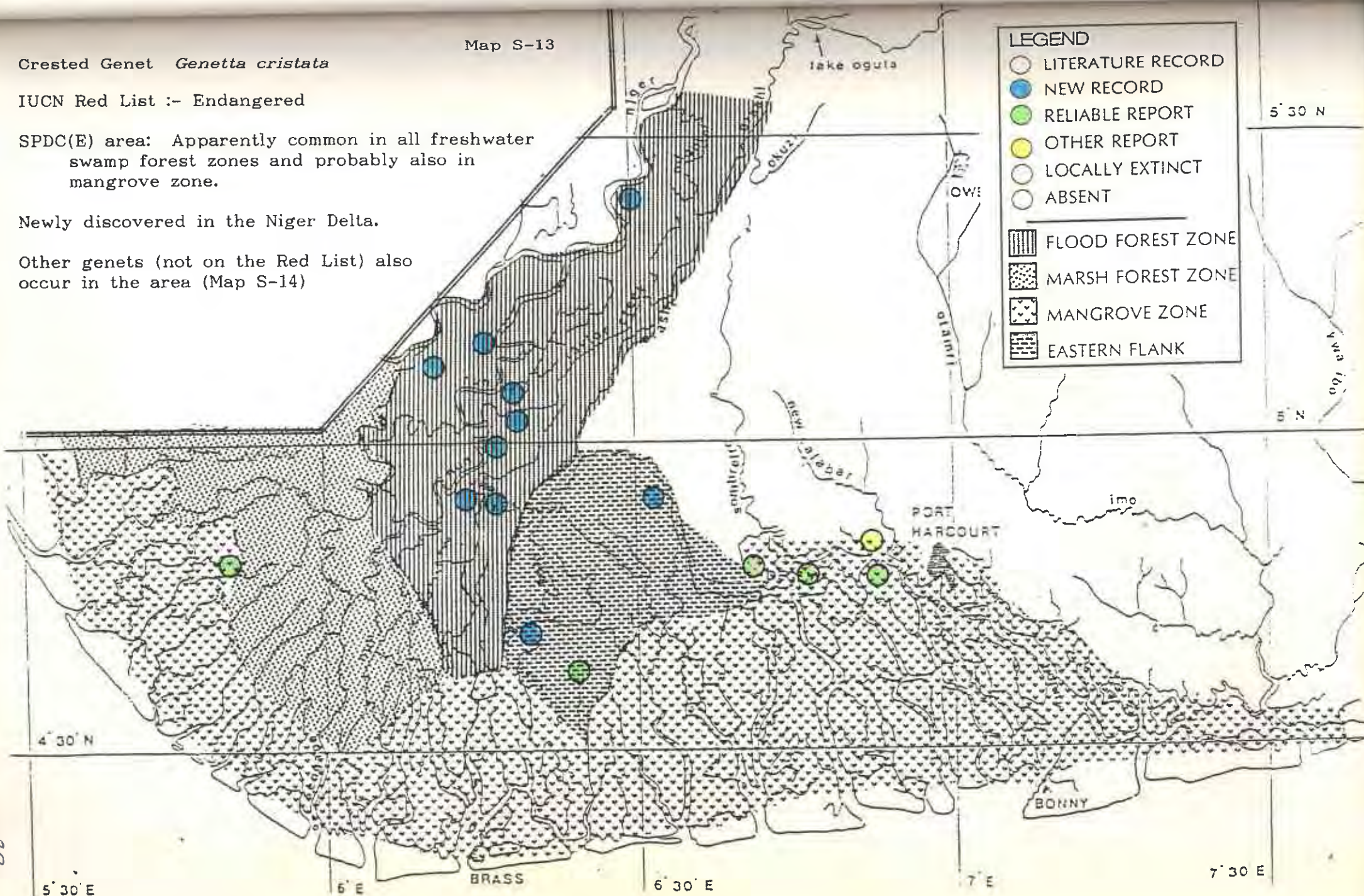
Crested Genet *Genetta cristata*

IUCN Red List :- Endangered

SPDC(E) area: Apparently common in all freshwater swamp forest zones and probably also in mangrove zone.

Newly discovered in the Niger Delta.

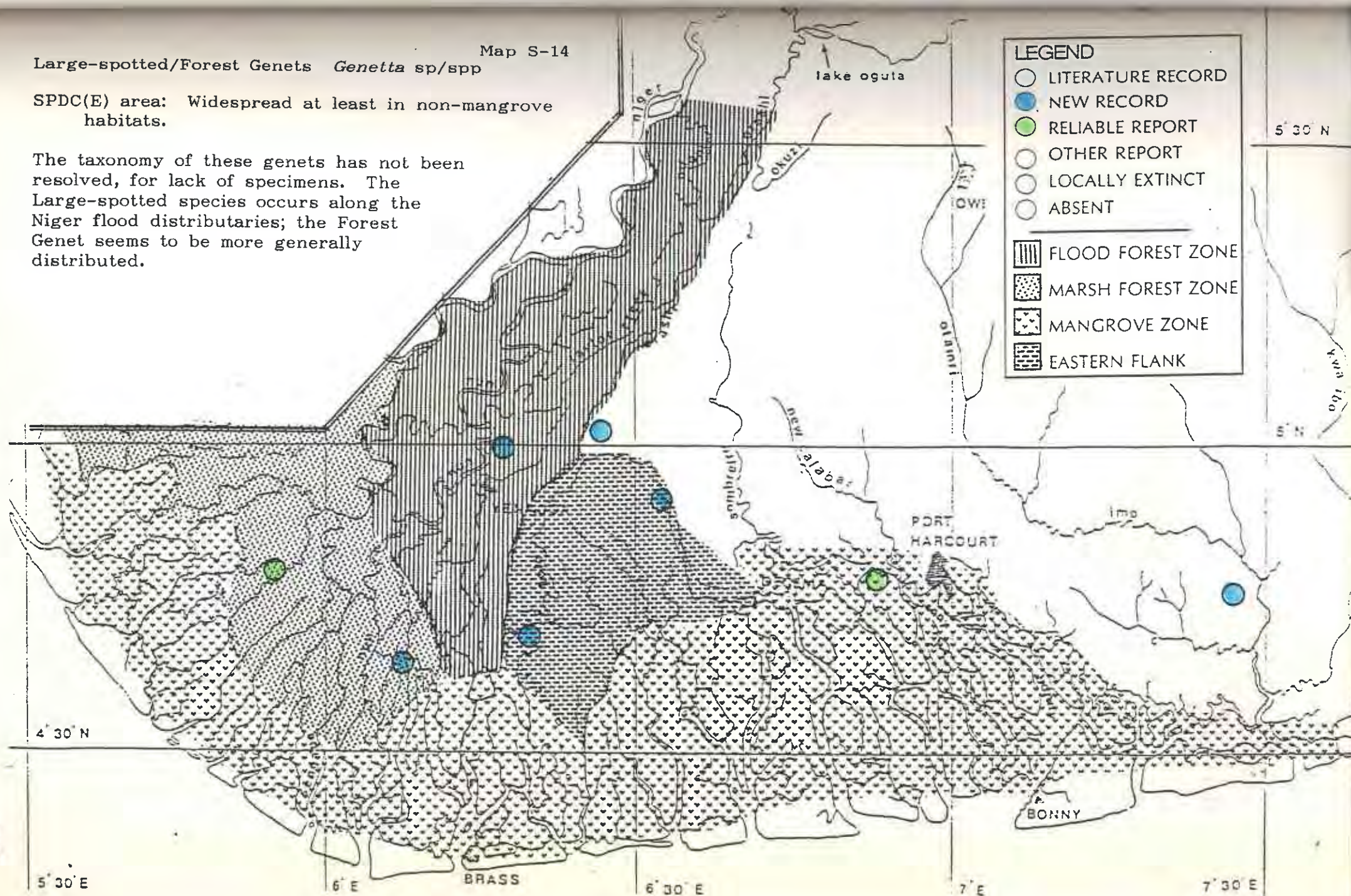
Other genets (not on the Red List) also occur in the area (Map S-14)



Map S-14
Large-spotted/Forest Genets *Genetta* sp/spp

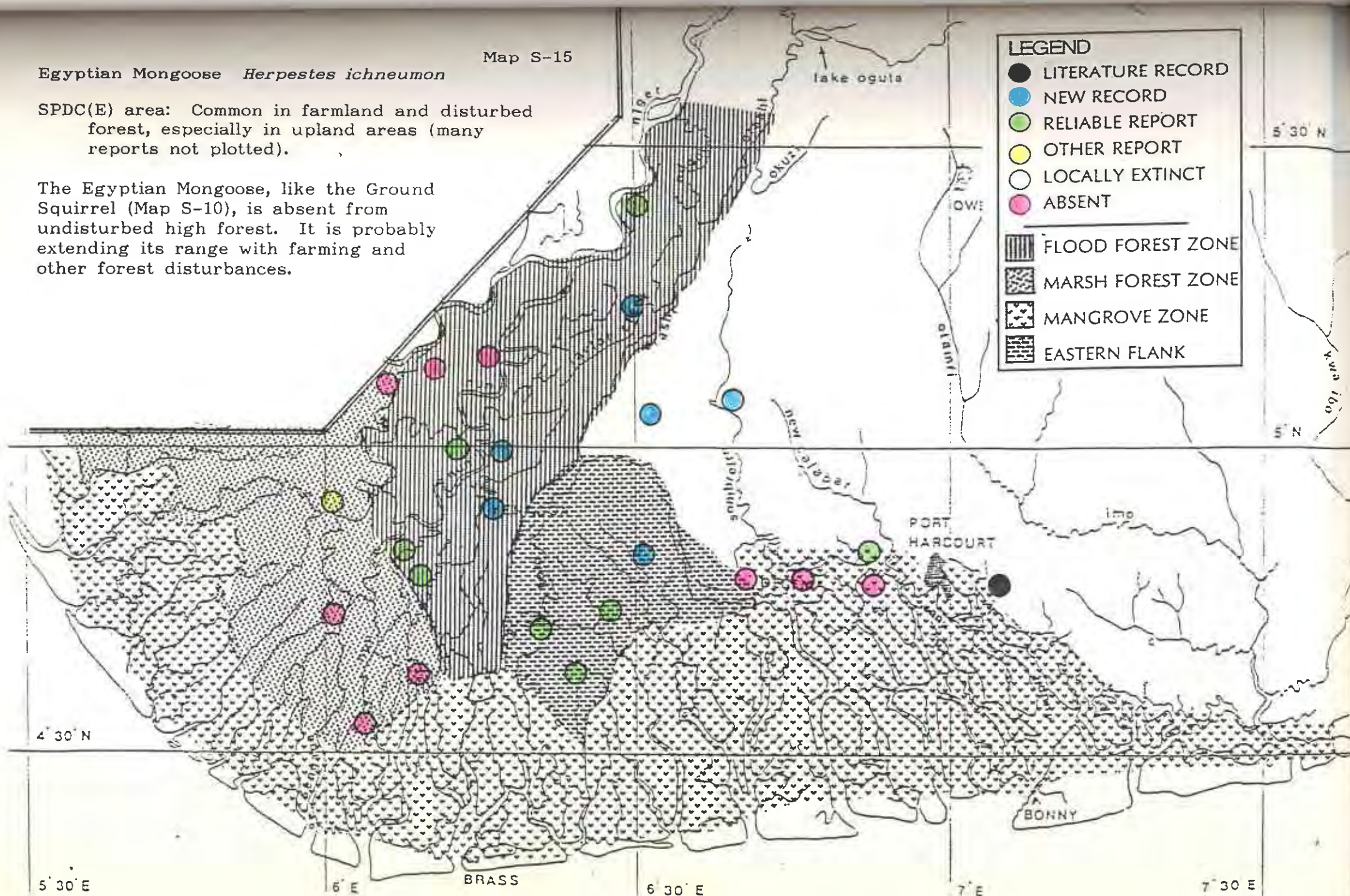
SPDC(E) area: Widespread at least in non-mangrove habitats.

The taxonomy of these genets has not been resolved, for lack of specimens. The Large-spotted species occurs along the Niger flood distributaries; the Forest Genet seems to be more generally distributed.



Map S-15

The Egyptian Mongoose, like the Ground Squirrel (Map S-10), is absent from undisturbed high forest. It is probably extending its range with farming and other forest disturbances.

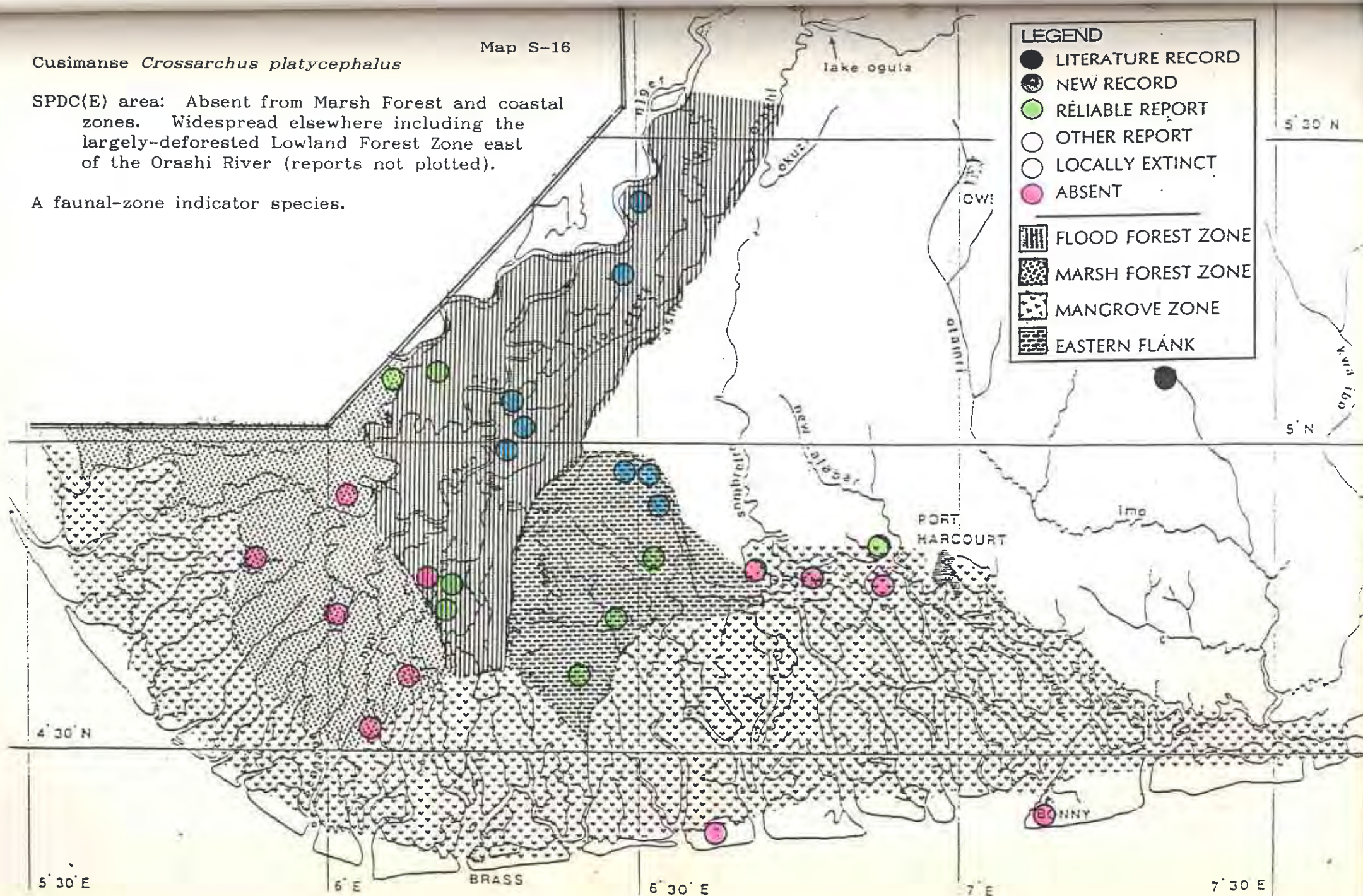


Cusimanse *Crossarchus platycephalus*

Map S-16

SPDC(E) area: Absent from Marsh Forest and coastal zones. Widespread elsewhere including the largely-deforested Lowland Forest Zone east of the Orashi River (reports not plotted).

A faunal-zone indicator species.



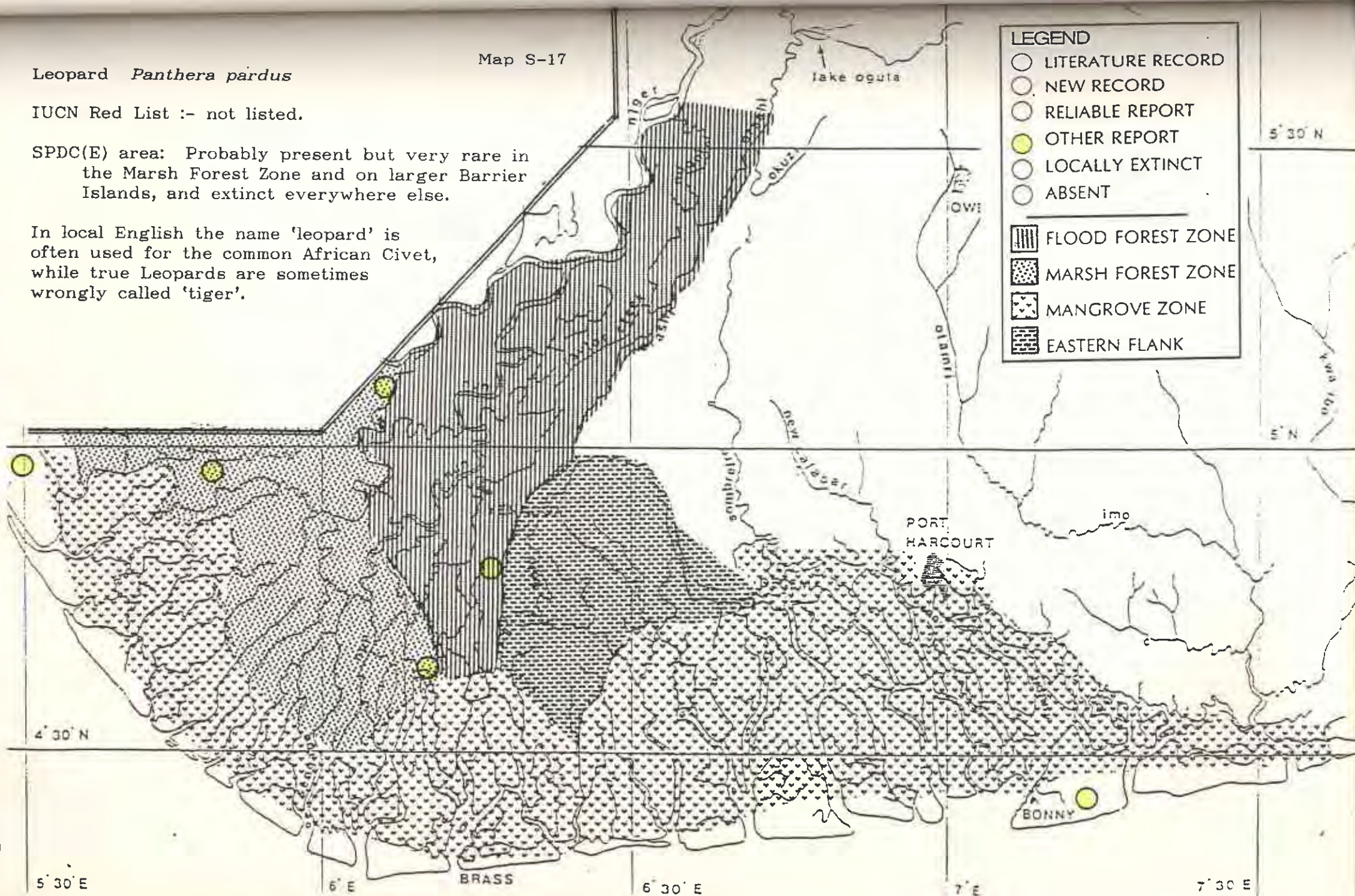
Leopard *Panthera pardus*

Map S-17

IUCN Red List :- not listed.

SPDC(E) area: Probably present but very rare in the Marsh Forest Zone and on larger Barrier Islands, and extinct everywhere else.

In local English the name 'leopard' is often used for the common African Civet, while true Leopards are sometimes wrongly called 'tiger'.



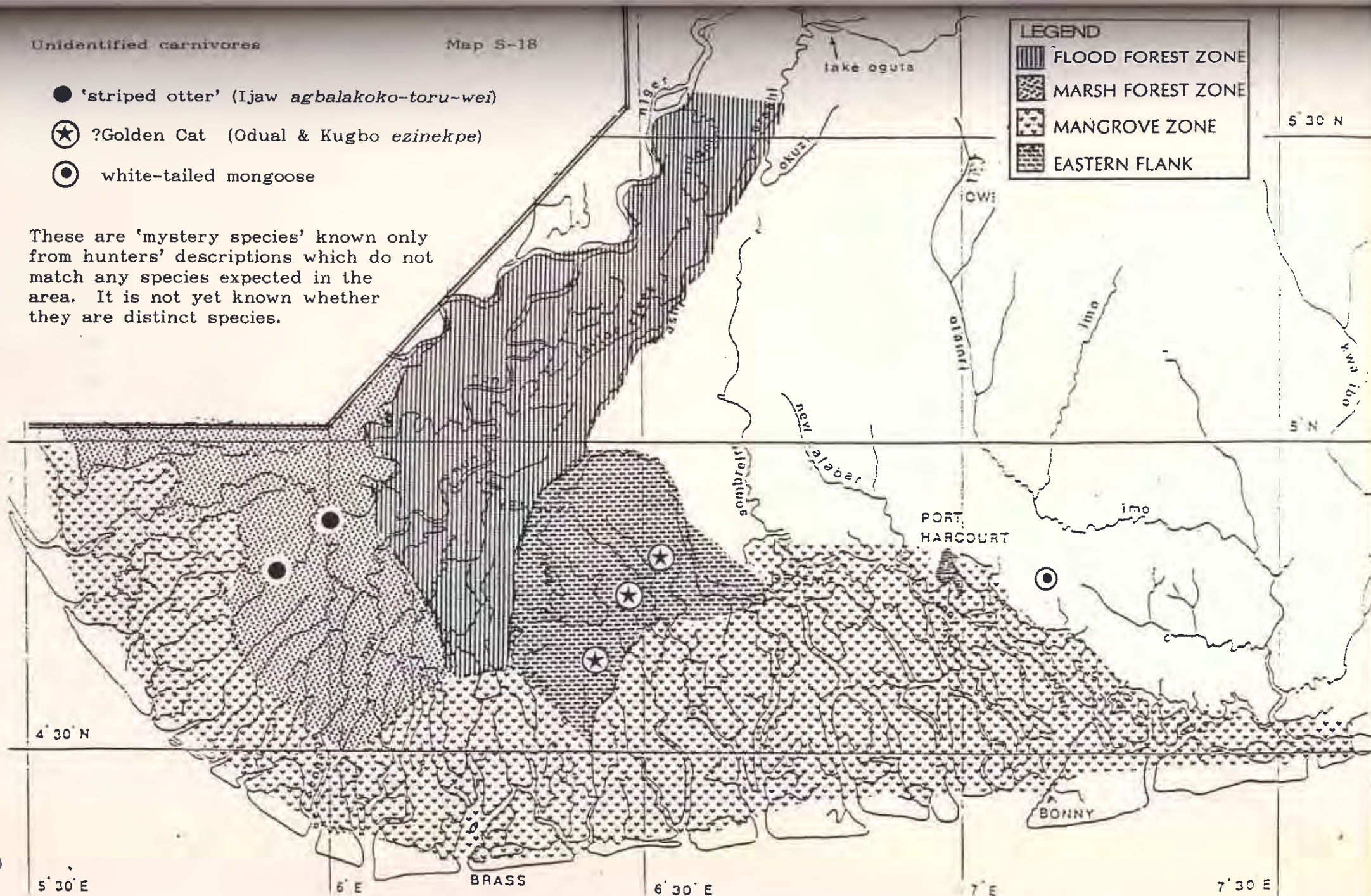
Unidentified carnivores

Map S-18

- 'striped otter' (Ijaw *agbalakoko-toru-wei*)
- ★ ?Golden Cat (Oduai & Kugbo *ezinekpe*)
- ⊙ white-tailed mongoose

These are 'mystery species' known only from hunters' descriptions which do not match any species expected in the area. It is not yet known whether they are distinct species.

LEGEND	
	FLOOD FOREST ZONE
	MARSH FOREST ZONE
	MANGROVE ZONE
	EASTERN FLANK

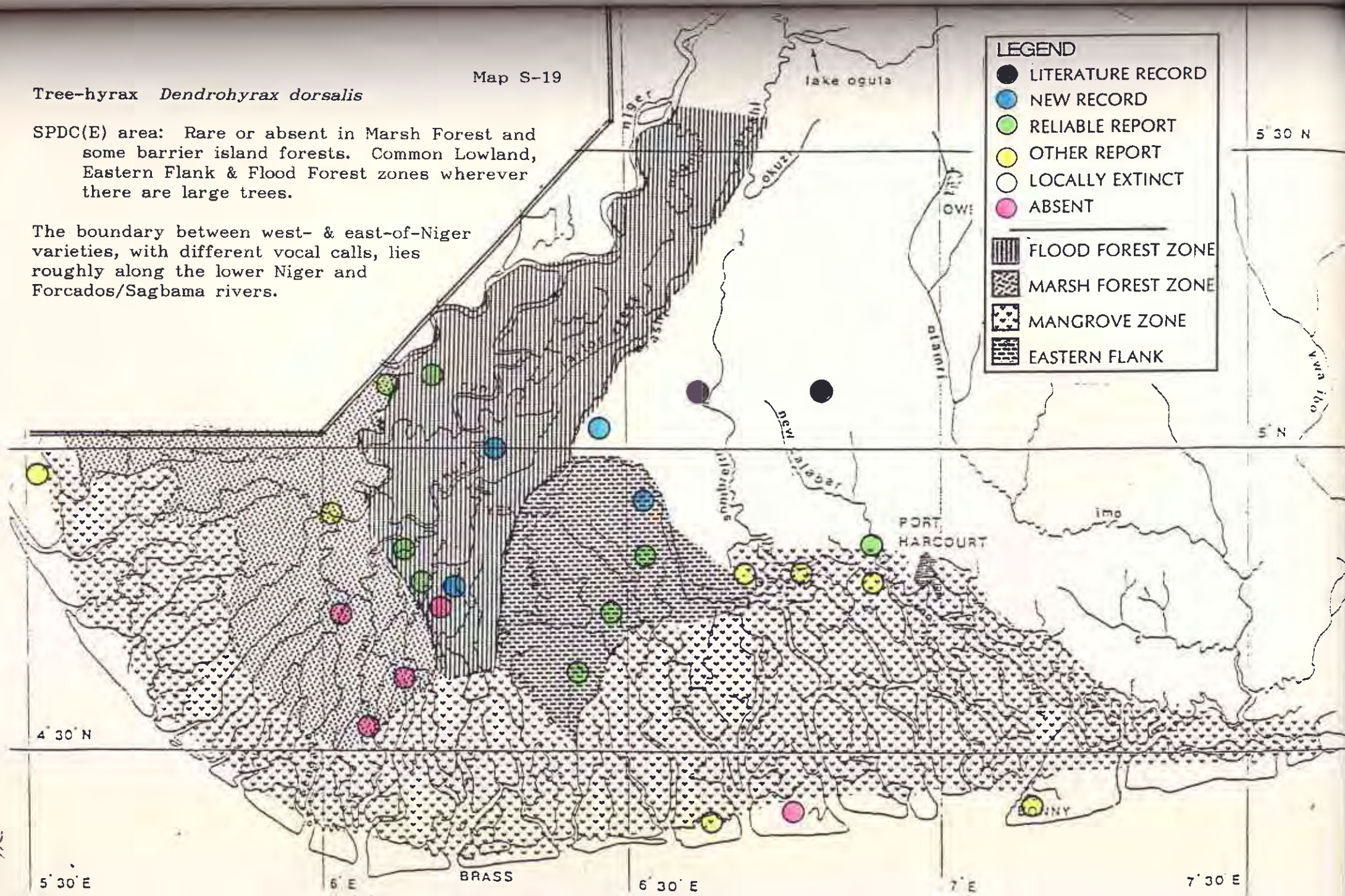


Tree-hyrax *Dendrohyrax dorsalis*

Map S-19

SPDC(E) area: Rare or absent in Marsh Forest and some barrier island forests. Common Lowland, Eastern Flank & Flood Forest zones wherever there are large trees.

The boundary between west- & east-of-Niger varieties, with different vocal calls, lies roughly along the lower Niger and Forcados/Sagbama rivers.



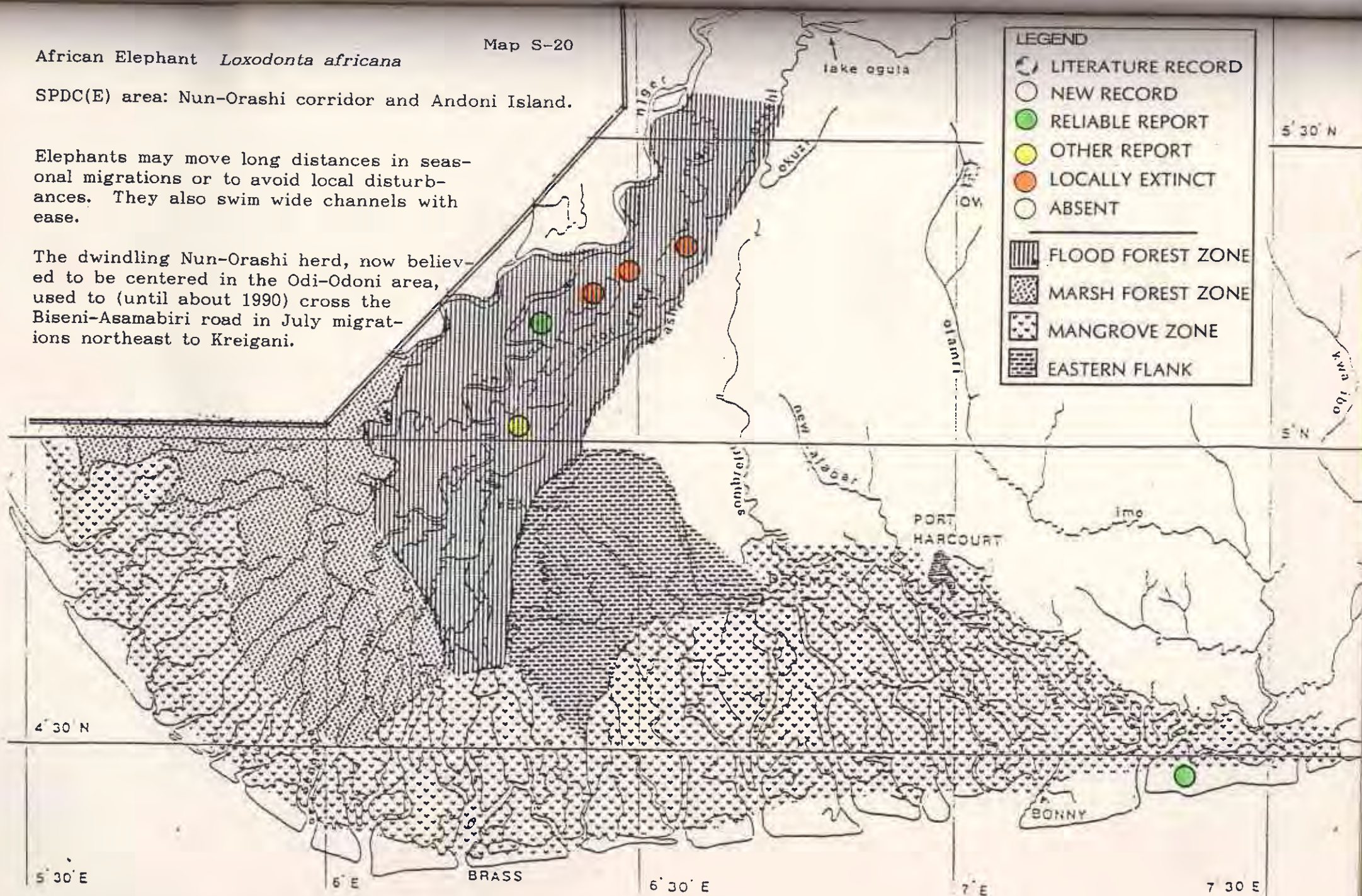
African Elephant *Loxodonta africana*

Map S-20

SPDC(E) area: Nun-Orashi corridor and Andoni Island.

Elephants may move long distances in seasonal migrations or to avoid local disturbances. They also swim wide channels with ease.

The dwindling Nun-Orashi herd, now believed to be centered in the Odi-Odoni area, used to (until about 1990) cross the Biseni-Asamabiri road in July migrations northeast to Kreigani.



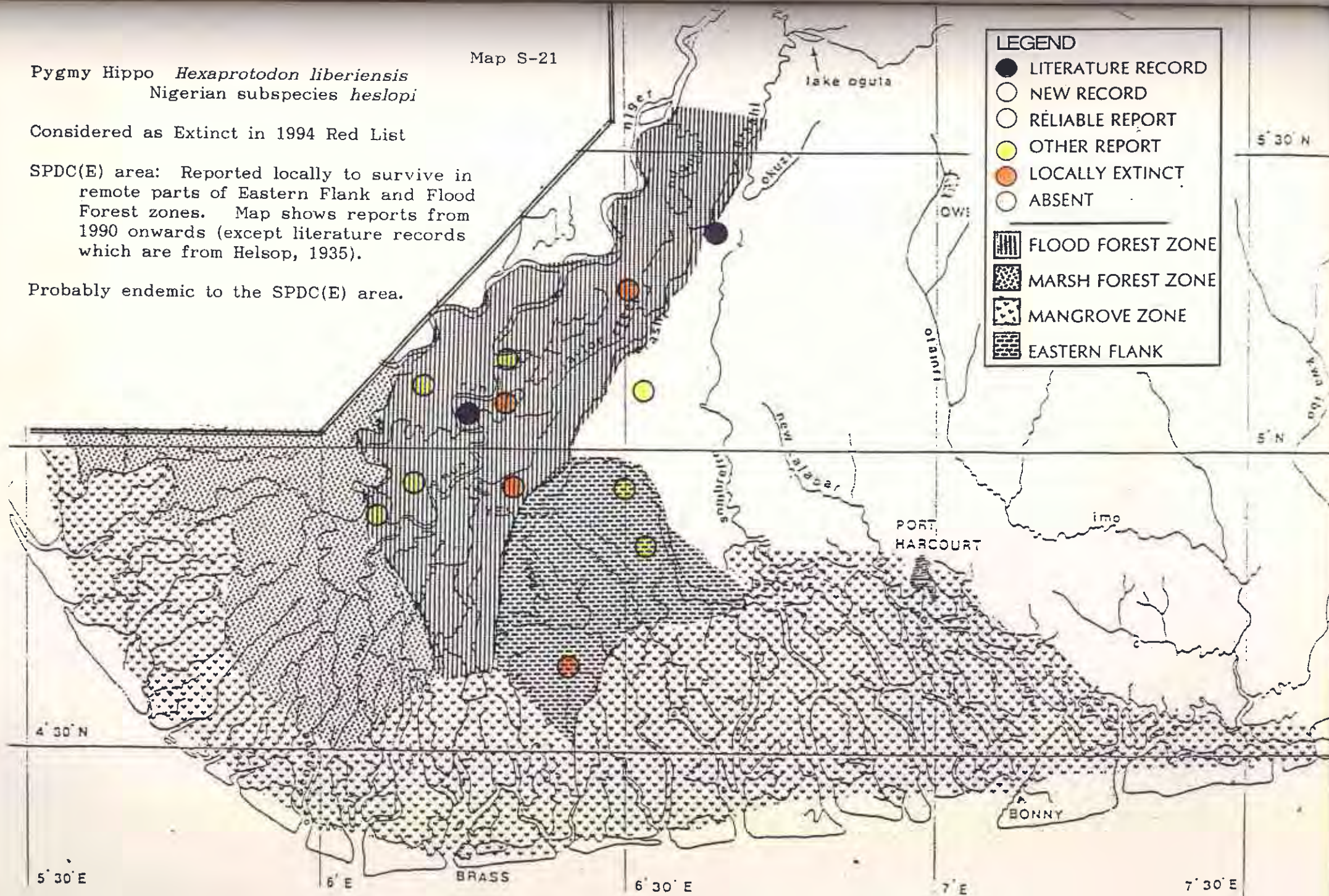
Pygmy Hippo *Hexaprotodon liberiensis*
Nigerian subspecies *heslopi*

Map S-21

Considered as Extinct in 1994 Red List

SPDC(E) area: Reported locally to survive in remote parts of Eastern Flank and Flood Forest zones. Map shows reports from 1990 onwards (except literature records which are from Helsop, 1935).

Probably endemic to the SPDC(E) area.

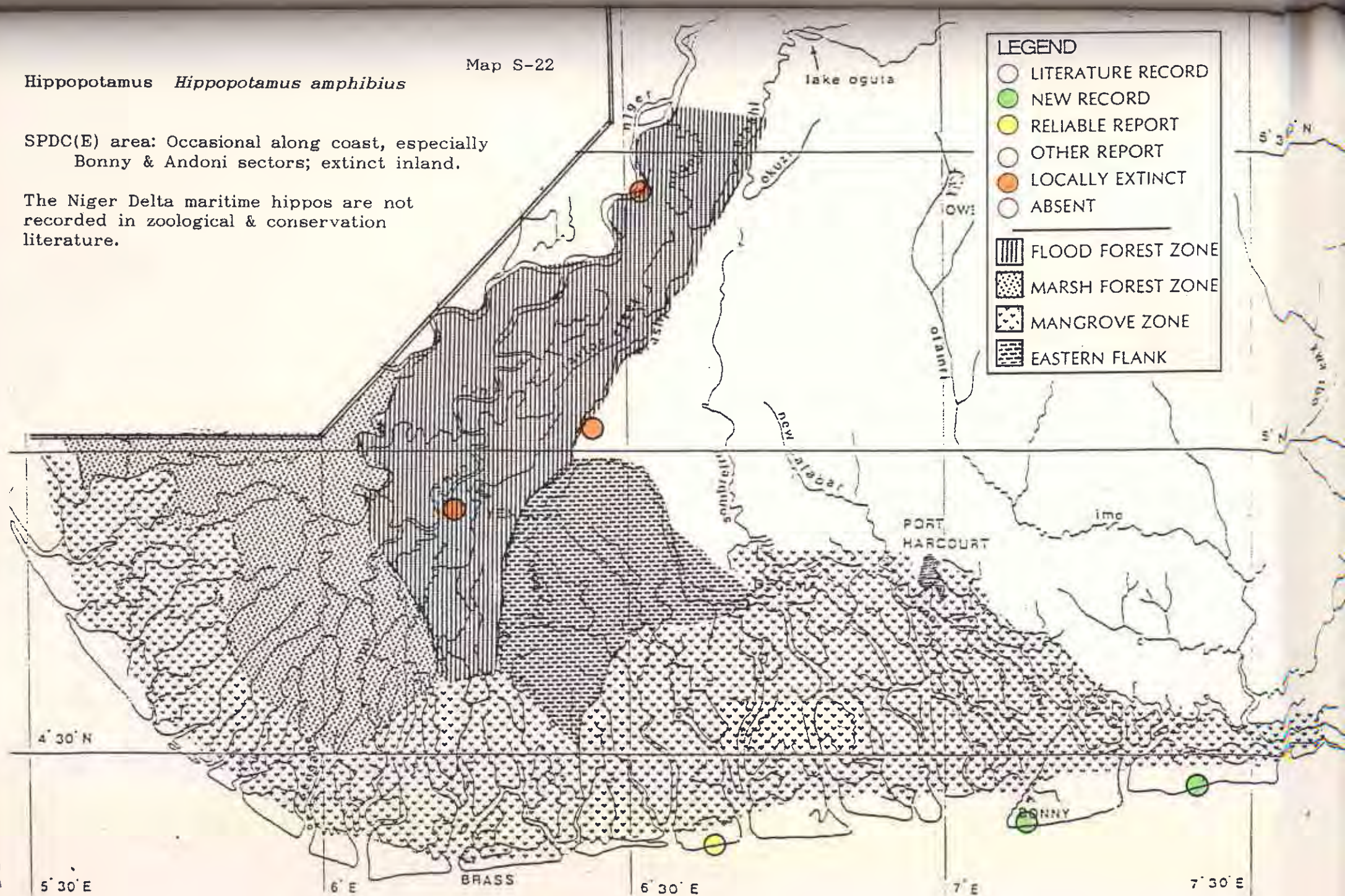


Hippopotamus *Hippopotamus amphibius*

Map S-22

SPDC(E) area: Occasional along coast, especially Bonny & Andoni sectors; extinct inland.

The Niger Delta maritime hippos are not recorded in zoological & conservation literature.

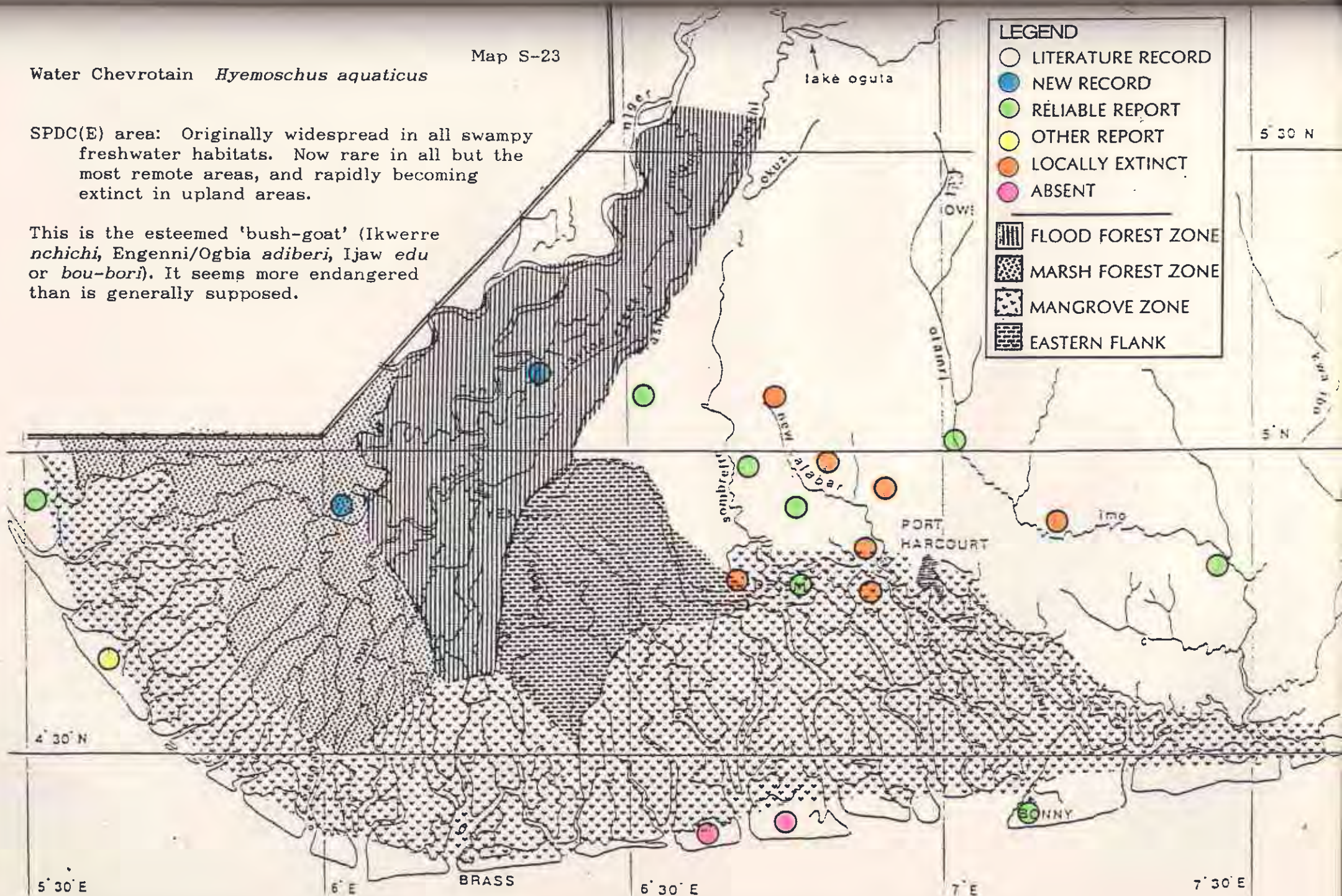


Water Chevrotain *Hyemoschus aquaticus*

Map S-23

SPDC(E) area: Originally widespread in all swampy freshwater habitats. Now rare in all but the most remote areas, and rapidly becoming extinct in upland areas.

This is the esteemed 'bush-goat' (Ikwerre *nchichi*, Engenni/Ogbia *adiberi*, Ijaw *edu* or *bou-bori*). It seems more endangered than is generally supposed.

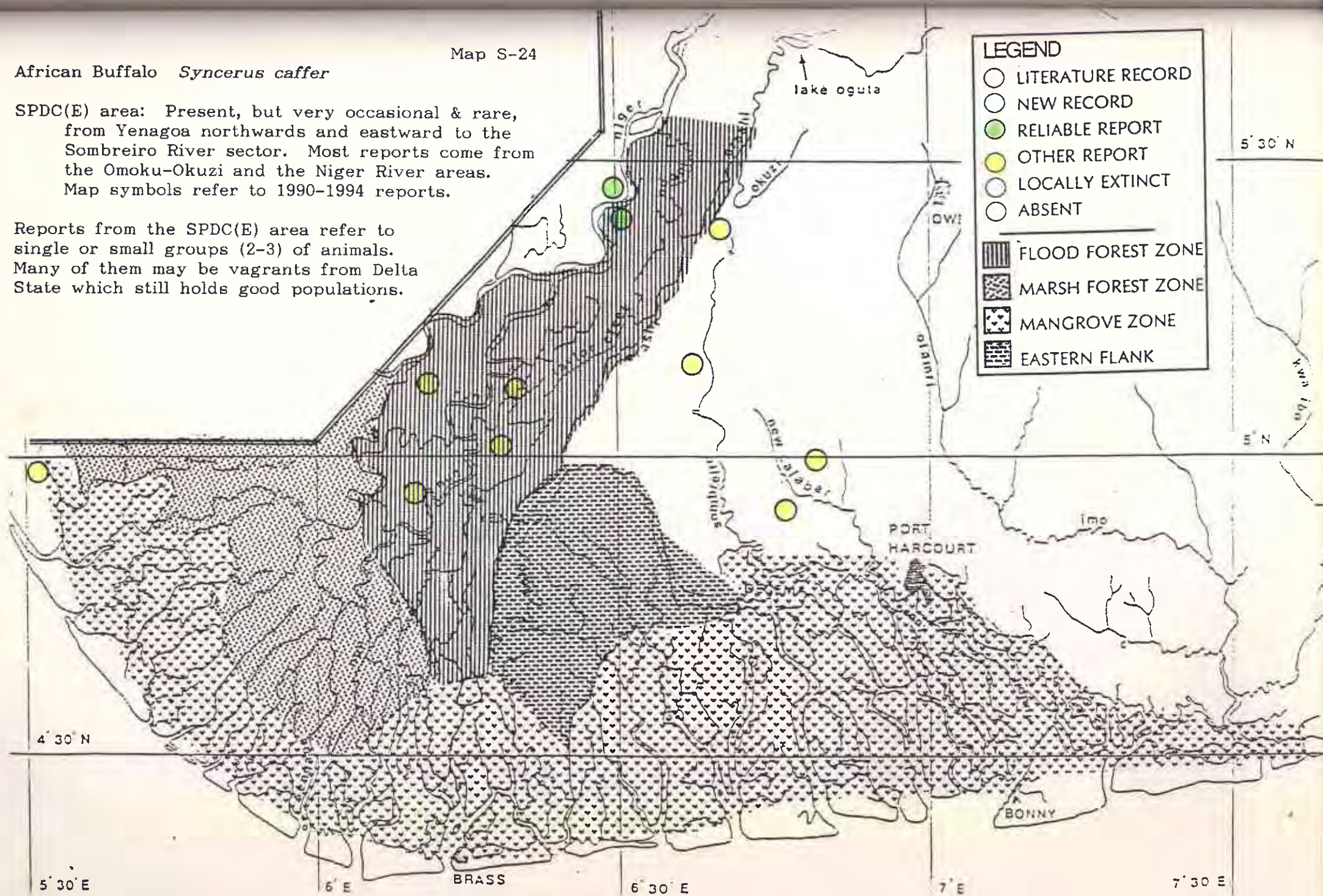


African Buffalo *Syncerus caffer*

Map S-24

SPDC(E) area: Present, but very occasional & rare, from Yenagoa northwards and eastward to the Sombreiro River sector. Most reports come from the Omoku-Okuzi and the Niger River areas. Map symbols refer to 1990-1994 reports.

Reports from the SPDC(E) area refer to single or small groups (2-3) of animals. Many of them may be vagrants from Delta State which still holds good populations.

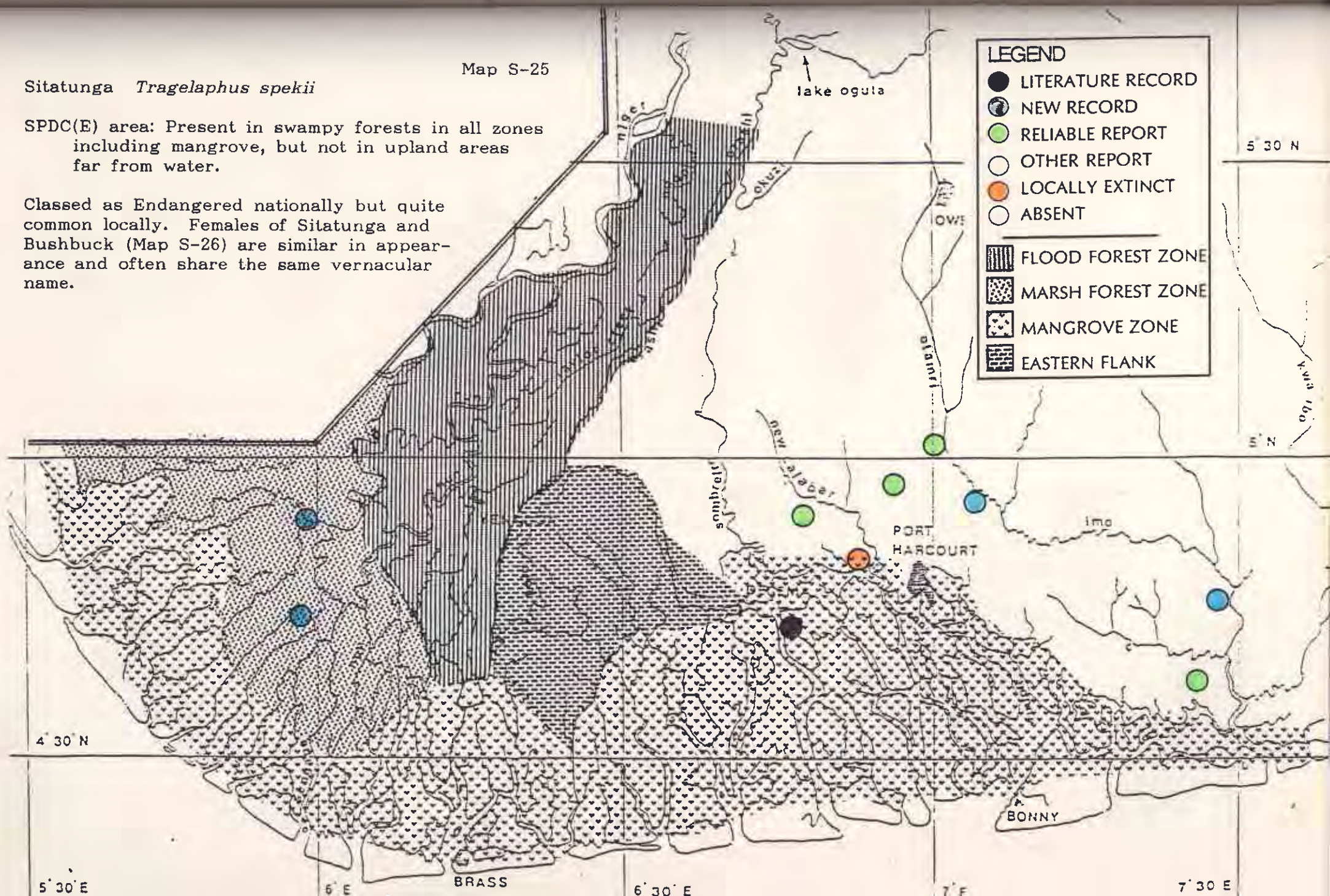


Sitatunga *Tragelaphus spekii*

Map S-25

SPDC(E) area: Present in swampy forests in all zones including mangrove, but not in upland areas far from water.

Classed as Endangered nationally but quite common locally. Females of Sitatunga and Bushbuck (Map S-26) are similar in appearance and often share the same vernacular name.



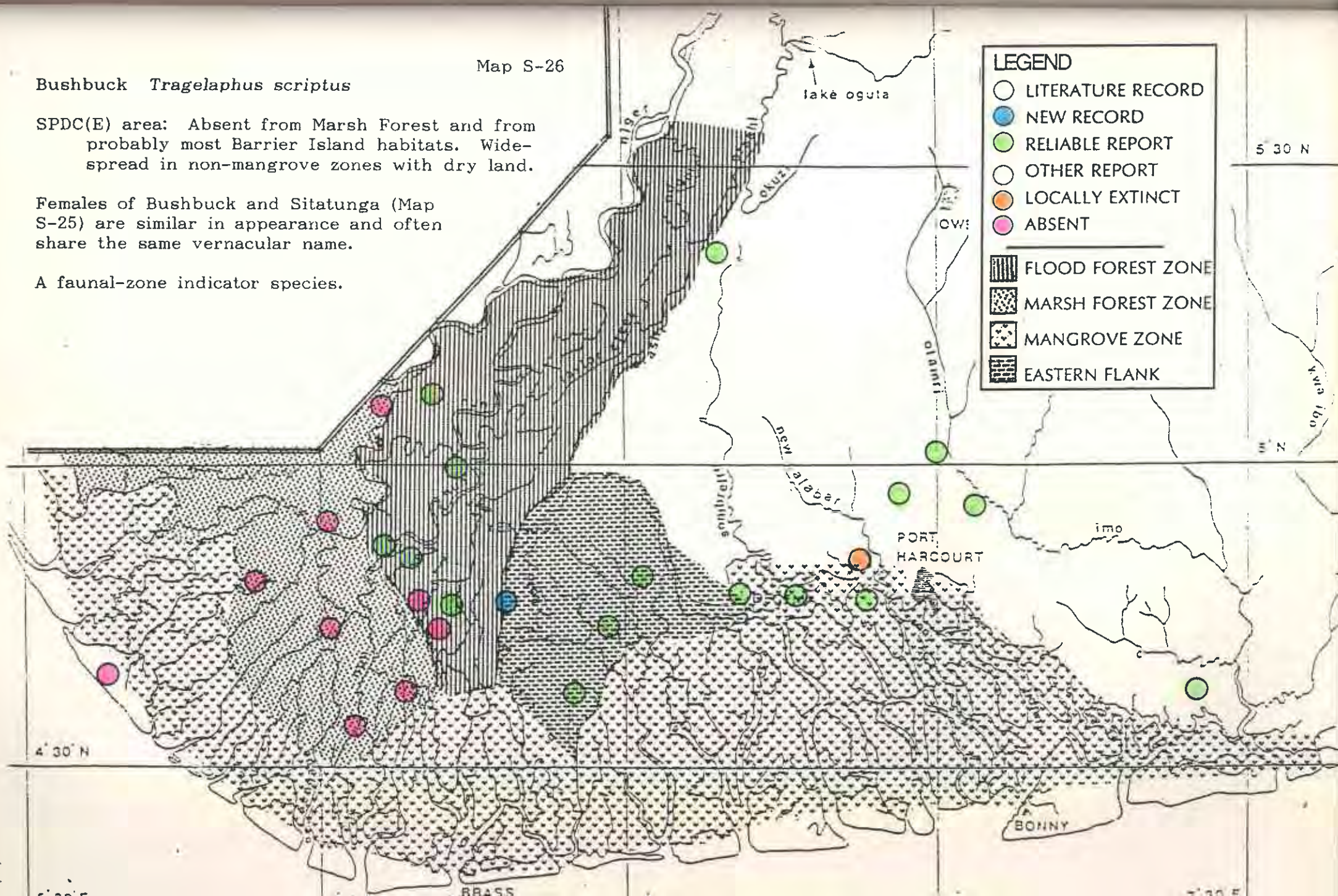
Bushbuck *Tragelaphus scriptus*

Map S-26

SPDC(E) area: Absent from Marsh Forest and from probably most Barrier Island habitats. Widespread in non-mangrove zones with dry land.

Females of Bushbuck and Sitatunga (Map S-25) are similar in appearance and often share the same vernacular name.

A faunal-zone indicator species.



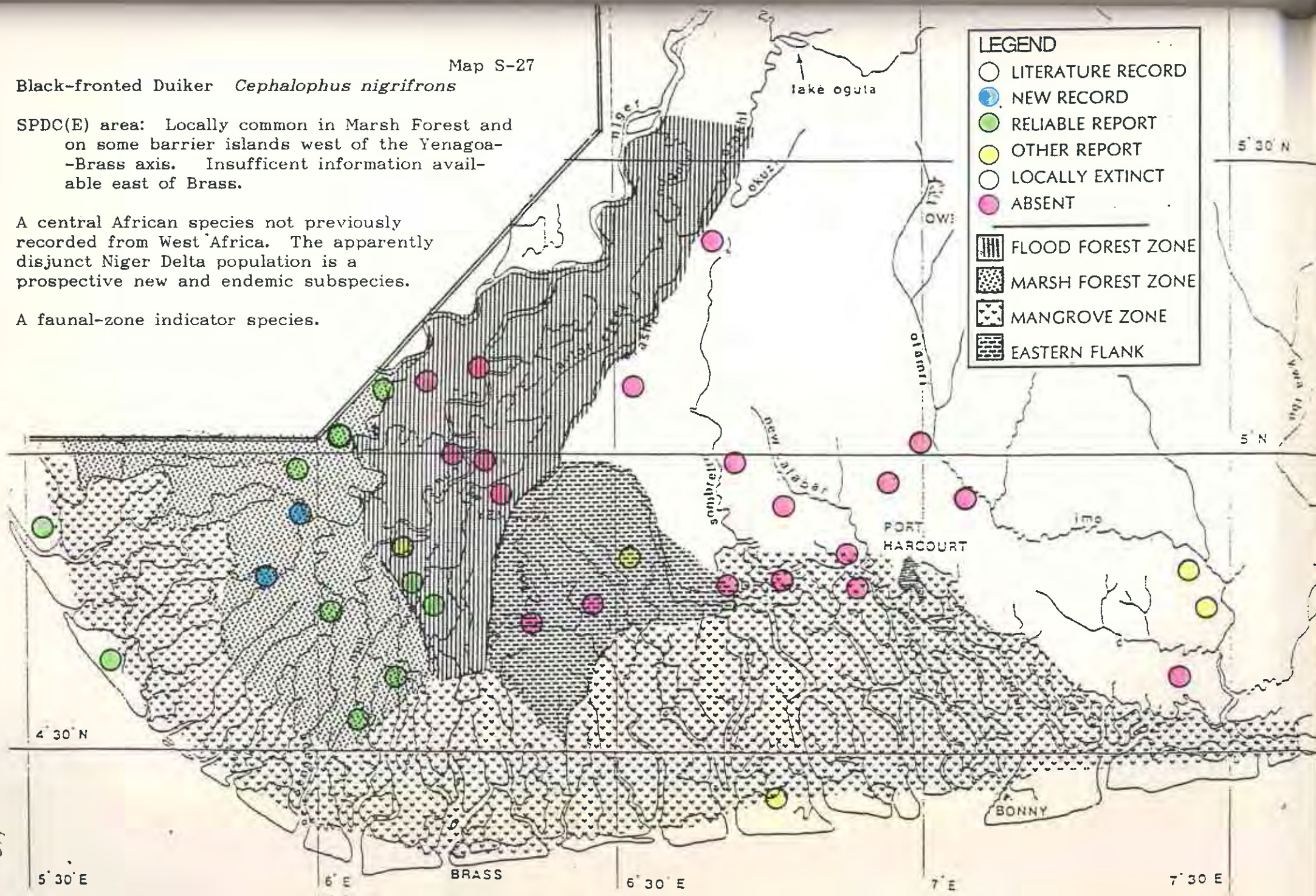
Map S-27

Black-fronted Duiker *Cephalophus nigrifrons*

SPDC(E) area: Locally common in Marsh Forest and on some barrier islands west of the Yenagoa-Brass axis. Insufficient information available east of Brass.

A central African species not previously recorded from West Africa. The apparently disjunct Niger Delta population is a prospective new and endemic subspecies.

A faunal-zone indicator species.



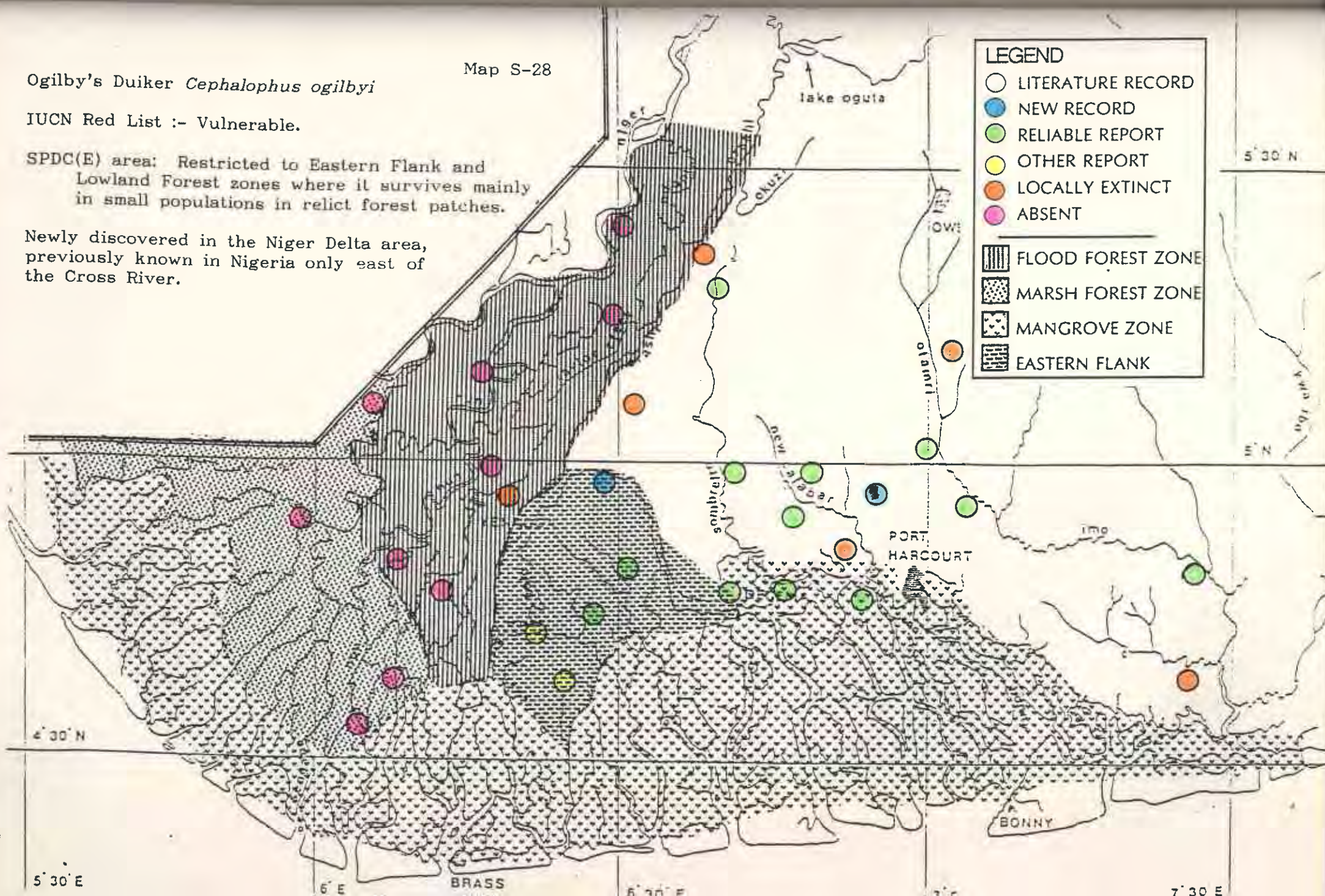
Ogilby's Duiker *Cephalophus ogilbyi*

Map S-28

IUCN Red List :- Vulnerable.

SPDC(E) area: Restricted to Eastern Flank and Lowland Forest zones where it survives mainly in small populations in relict forest patches.

Newly discovered in the Niger Delta area, previously known in Nigeria only east of the Cross River.



Yellow-backed Duiker *Cephalophus sylvicultor*

Map S-29

Classed as Endangered nationally.

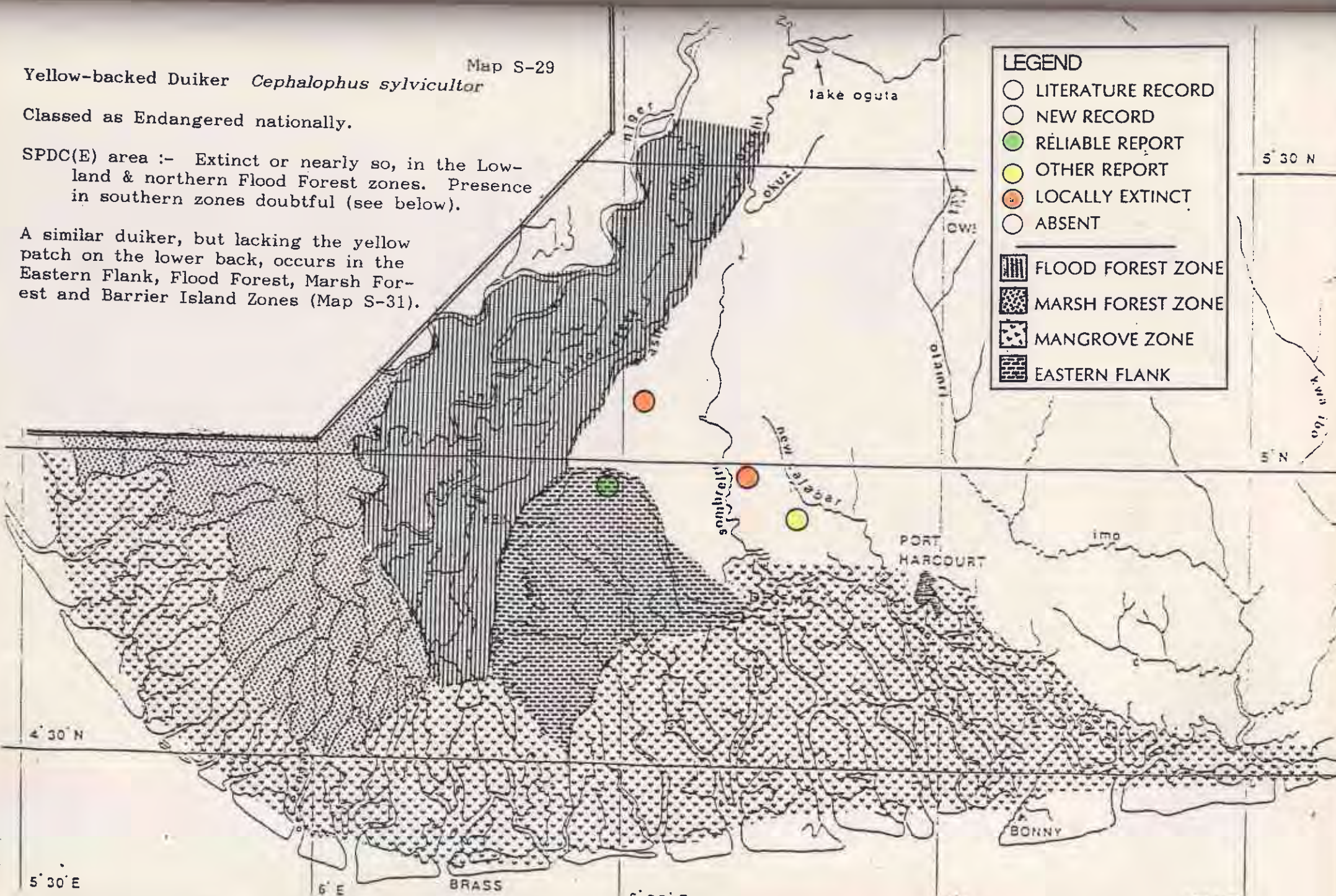
SPDC(E) area :- Extinct or nearly so, in the Low-land & northern Flood Forest zones. Presence in southern zones doubtful (see below).

A similar duiker, but lacking the yellow patch on the lower back, occurs in the Eastern Flank, Flood Forest, Marsh Forest and Barrier Island Zones (Map S-31).

LEGEND

- LITERATURE RECORD
- NEW RECORD
- RÉLIABLE REPORT
- OTHER REPORT
- LOCALLY EXTINCT
- ABSENT

- FLOOD FOREST ZONE
- MARSH FOREST ZONE
- MANGROVE ZONE
- EASTERN FLANK



44

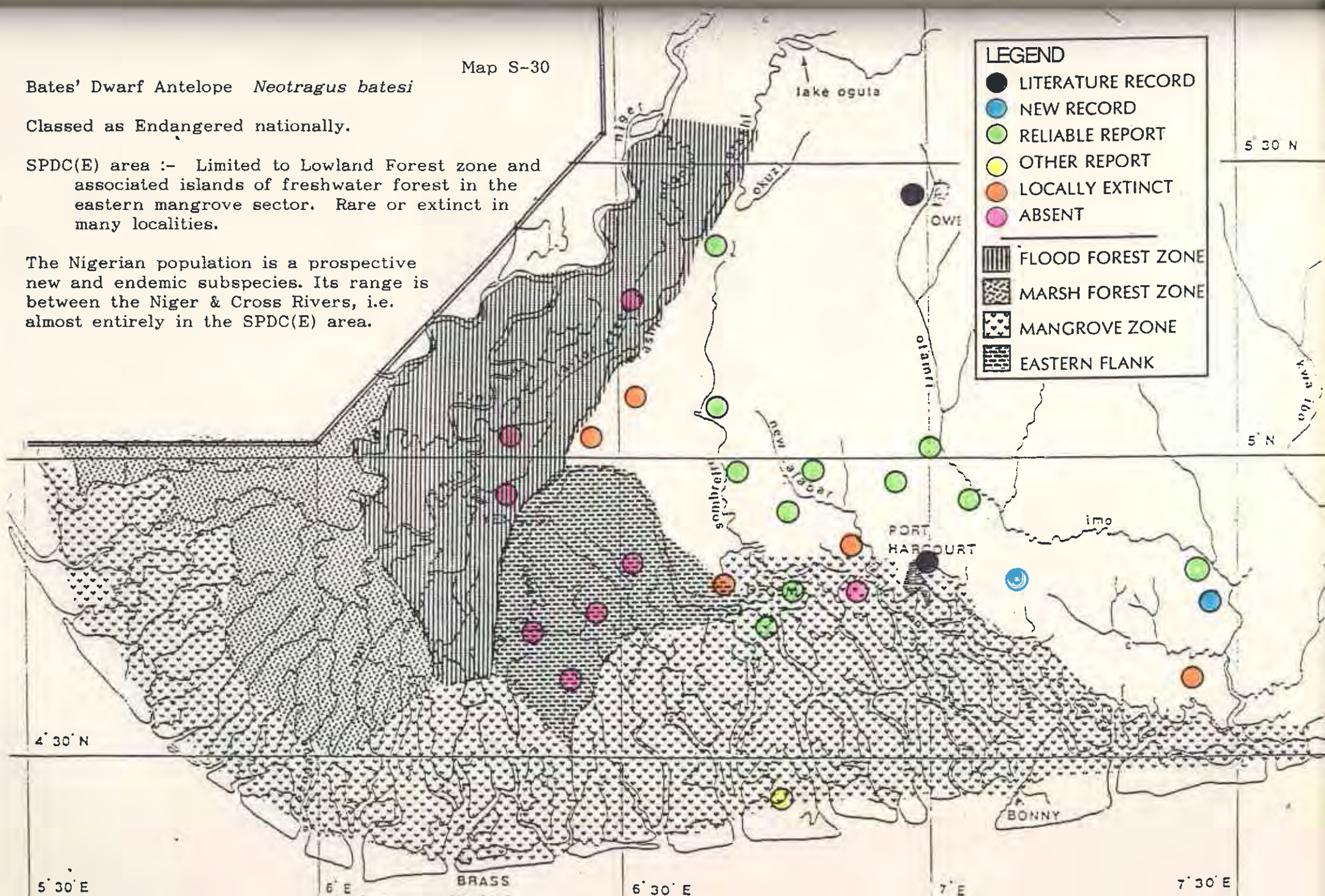
Bates' Dwarf Antelope *Neotragus batesi*

Map S-30

Classed as Endangered nationally.

SPDC(E) area :- Limited to Lowland Forest zone and associated islands of freshwater forest in the eastern mangrove sector. Rare or extinct in many localities.

The Nigerian population is a prospective new and endemic subspecies. Its range is between the Niger & Cross Rivers, i.e. almost entirely in the SPDC(E) area.



Unidentified antelopes (I)

Map S-31

Large Black Duiker - Ijo *biyou-nama*; Kugbo *agbugh*.

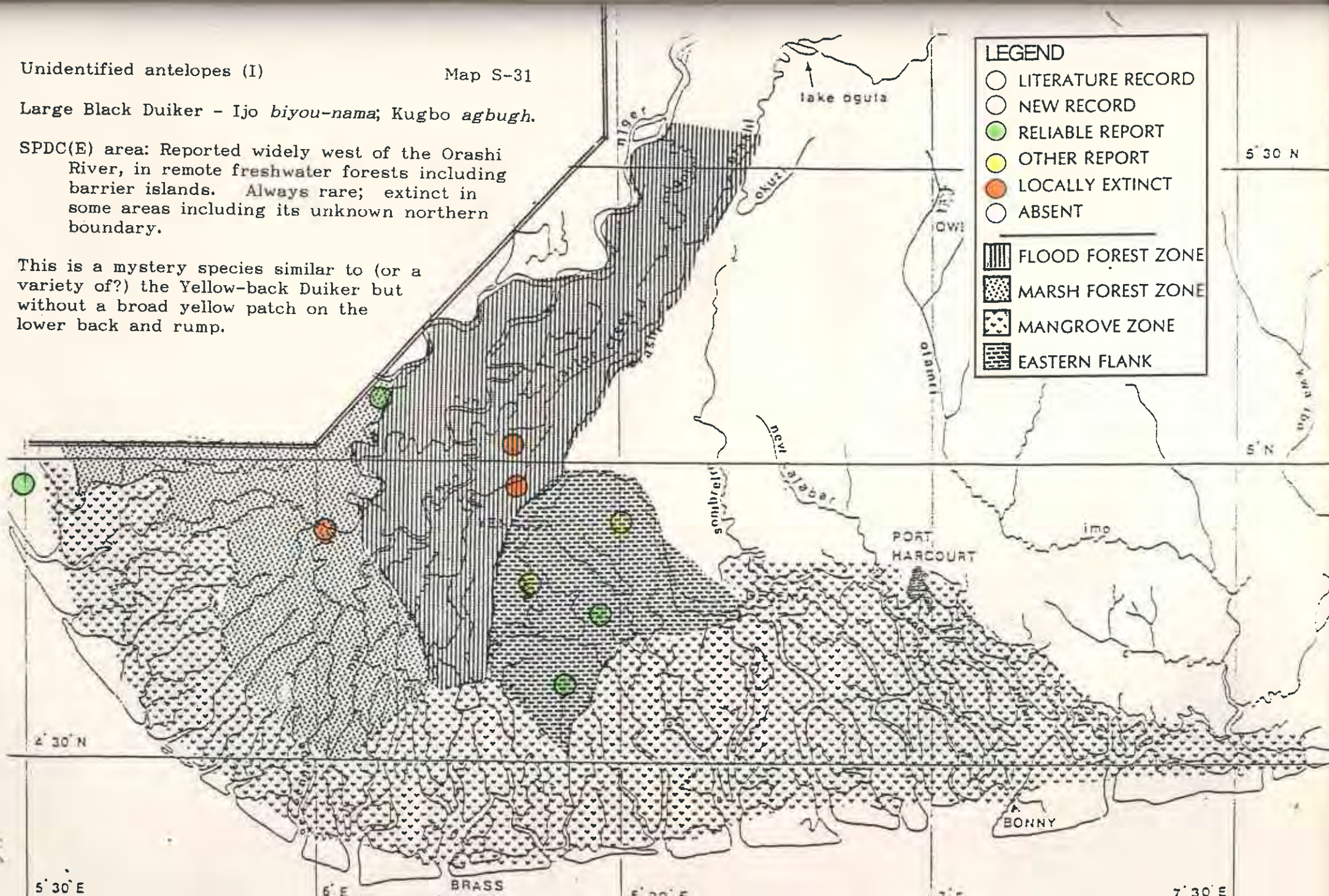
SPDC(E) area: Reported widely west of the Orashi River, in remote freshwater forests including barrier islands. Always rare; extinct in some areas including its unknown northern boundary.

This is a mystery species similar to (or a variety of?) the Yellow-back Duiker but without a broad yellow patch on the lower back and rump.

LEGEND

- LITERATURE RECORD
- NEW RECORD
- RELIABLE REPORT
- OTHER REPORT
- LOCALLY EXTINCT
- ABSENT

- ▨ FLOOD FOREST ZONE
- ▨ MARSH FOREST ZONE
- ▨ MANGROVE ZONE
- ▨ EASTERN FLANK

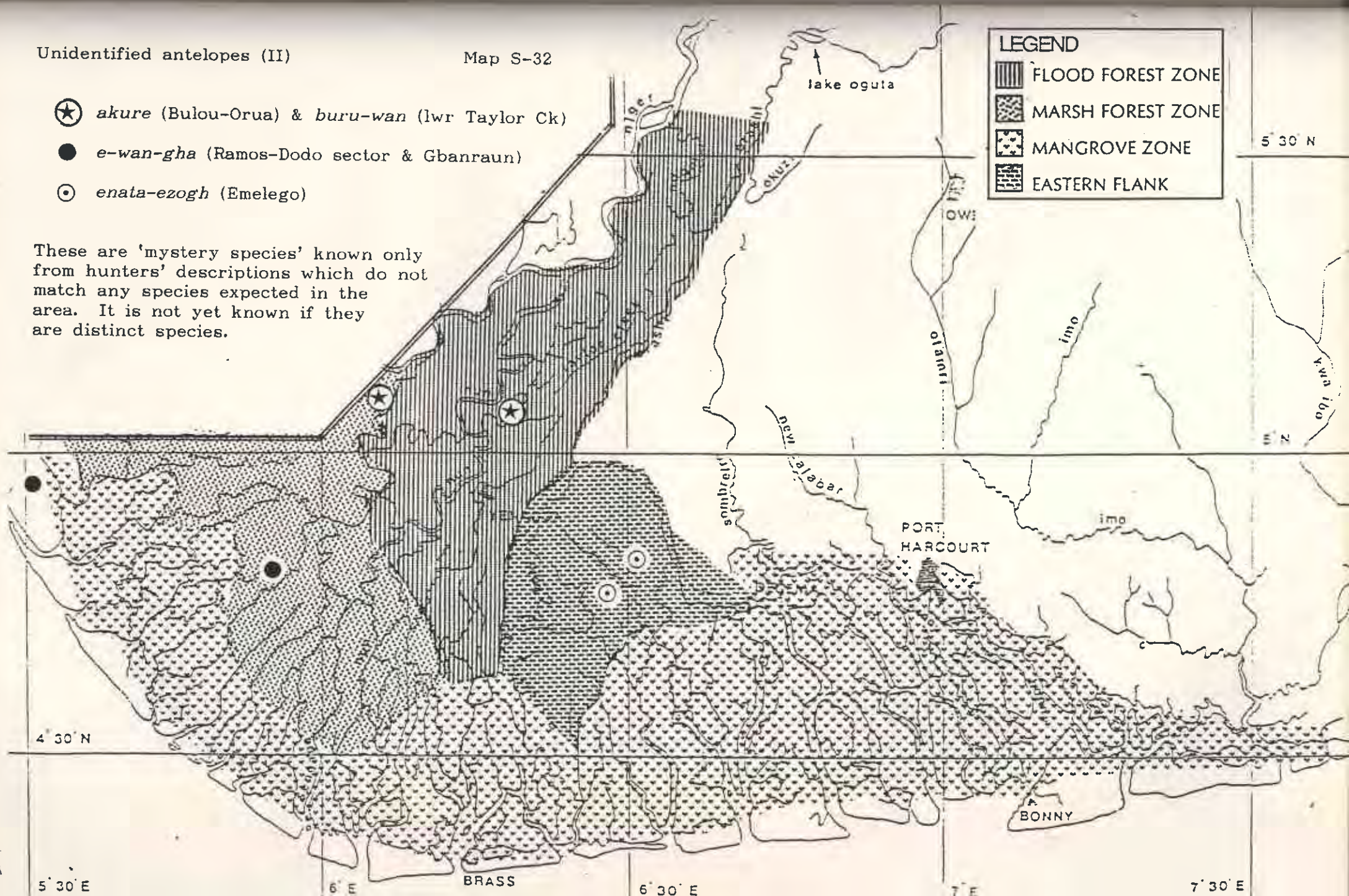


Unidentified antelopes (II)

Map S-32

- ★ *akure* (Bulou-Orua) & *buru-wan* (lwr Taylor Ck)
- *e-wan-gha* (Ramos-Dodo sector & Gbanraun)
- *enata-ezogh* (Emelego)

These are 'mystery species' known only from hunters' descriptions which do not match any species expected in the area. It is not yet known if they are distinct species.



Section D. Account of Major Species

Sclater's Guenon	D-1	White-throated Guenon	D-1
Red Colobus Monkey	D-1	Olive Colobus	D-2
Chimpanzee	D-2	Black-bellied Pangolin	D-3
Otters	D-3	Crested Genet	D-4
Leopard	D-4	Manatee	D-4
Elephant	D-5		
Pygmy Hippo	D-5	Hippopotamus	D-6
Ogilby's Duiker	D-6	Yellow-backed Duiker	D-7
Blackfronted Duiker	D-7	Bates' Dwarf Antelope	D-8

Sclater's Guenon - *Cercopithecus sclateri*

This is a national endemic species (or subspecies of *C. erythro-*
tis) previously known from only a few areas between the Niger & Cross
 Rivers, viz. some Ibo villages where it is traditionally protected,
 the west bank of the Cross River including the Stubbs Creek area, and
 the Niger-Orashi floodplain corridor north of Ndoni Creek (Oates et
 al., 1992). South of Ndoni Creek it is replaced by the White-throated
 monkey.

northeast of
 the SPDC
 area,

present and in places common

The species is now known to be common further south, from east of
 Mbiama south to Ogbia and eastwards including the already-gazetted
 Upper Orashi Forest Reserve which seems a prime choice for a conserv-
 ation area. It is not known to occur in any other conservation area,
 except the Stubbs Creek reserve which apparently is not undergoing the
 expected development.

White-throat Guenon - *Cercopithecus erythrogaster*

This is a traditional 'west-of-Niger' species (e.g. Happold,
 1987; Inahoro, 1992) which however has been found to occur further
 east, in the Taylor Creek area of the Nun-Orashi floodplain corridor
 south of Ndoni creek (Oates, 1985, 1989).

is uncertain
 At the least
 it

Its eastern boundary runs southward, well east of the Nun River,
 from Mbiama probably along Kolo Creek to near Nembe. There are poss-
 ibly scattered populations much further east within the range of
 Sclater's Guenon; a headless skin from Opu-Ogbogolo (eastern Upper
 Orashi Forest Reserve) appear to be from a White-throated guenon, and
 there are unconfirmed hunters reports from the lower Imo River. If
 these prove true, they will either represent the first instance of
 co-occurrence of White-throated and Sclater's guenon, or indicate a
 complicated boundary between the two species.

Red Colobus Monkey - *Procolobus cf. pennantii*

locally well-known to indigenes

This large leaf-eating monkey was only recently found in the
 Niger Delta area, in the 'marsh-forest' zone between the Forcados &
 Sagbama/Apoi channels where it is common (Powell, 1993). It is un-
 known elsewhere in Nigeria (Happold, 1987). The nearest populations
 are on Bioko Island (sp or ssp *pennantii*) and in the Cameroon border
 area (*preussii*). see Gadsby, 1990 for evidence of it on the Nigerian
 side). The Niger Delta population is being described as a new sub-
 species, which will add to the list of animals endemic to the Niger
 Delta (Grubb and Powell, in prep.).

ssp

Olive Colobus - *Procolobus verus*

The Nigerian isolate of this Upper Guinea species was first reported in 1970, ca. 60 km SE of Niger-Benue confluence (Menzies, 1970). It is fairly widespread, if not always common, in the northern 'flood-forest' zone of the Delta (Williamson, 1971; Anadu & Oates, 1982, 1988); Anadu & Oates also had reports of it, albeit maybe extinct, in the Omo Forest Reserve in Ogun State.

The species seems especially common in the Odi-Tungbo sector where it is commonly killed by hunters. It occurs eastward in the Upper Orashi Forest Reserve and there are unreliable reports of it further east in the Sombreiro and Imo valleys. It seems rare or absent from the southern 'marsh-forest' and barrier island zone, but at least in some areas (e.g. the Azama-Ogbosuwari-Orua sector) its range overlaps that of the Red Colobus.

The differences between the Upper Guinea and Nigerian populations have not been studied.

Chimpanzee - *Pan troglodytes*

The West African 'black-faced chimp' (subspecies *verus*) is ranked as more endangered than the typical subspecies *troglodytes* (1994 Red List) and may be distinct enough to be reproductively isolated (Morin et al., 1994). The taxonomic status of the Delta populations however is not clear. Happold (1987) and Grubb (1990) class Nigerian chimps as an isolate of *P. t. verus*. The 1994 Red List, by not listing *verus* for Nigeria, implies Delta populations belong to *P. t. troglodytes*.

Previously recorded localities for chimps in the Delta are the defunct Ogbede Forest Reserve (Heslop, 1935: south of the Ahoada-Mbiama road, now extinct), Kpakama (Happold, 1987: extant), the Taylor Creek Reserve area (Oates, 1989; Werre, 1991; Powell, 1993: extant but rare) and the Ramos-Dodo barrier island (Powell, 1993).

Chimps are commonly reported in lower Ogbia between Akipela/Etiama on the east and Kugbo/Idema/Agrisaba on the west. This area is partly in the proposed Okoroba/Edumonon forest reserve. Hunters estimate there are 5-10 family groups remaining, which would mean a total population probably not exceeding 50 individuals.

In general, chimps are treated with limited respect through most of the 'riverine' parts of the Delta. Biseni indigenes (Taylor Creek area) traditionally do not kill chimps unless necessary in which case the corpse is given a traditional burial. At Kugbo (Ogbia) there is reportedly a highly protected and somewhat tame population. But in Ogbia and Kpakama hunters have killed chimps in the past few years as acts of bravado. In Ogbotobo it appears natives treat chimps with indifference.

Anadu & Oates (1982:14) obtained no records in recent sightings of chimps in their Bendel State interview sites. Likewise in Rivers State, interviews indicate that chimps are extinct in numerous remote areas (Powell, 1993). Significant populations may exist unreported on barrier islands between the Escravos and Ramos rivers.

Black-bellied Pangolin *Manis tetradactyla*

Over most of southern Nigeria, this species is very rare compared to the White-bellied Pangolin. Happold (1987) listed it as "very rare; recorded from only one locality in 1939" (Ohusu Forest Reserve, north of Benin). Shodeinde & Adedipe (1994) had none in a sample of 142 pangolins from southwest Nigeria including the Omo Forest reserve; one of the 10 hunters they interviewed reported once having caught a specimen. Anadu & Oates (1982) listed the species from all their forest zone interview sites in Bendel State but without any direct evidence; in my experience, hunters are generally unable to distinguish the two species until shown the differences on specimens, not from pictures. In eastern Nigeria, Cozens & Marchant (1951) listed only the White-bellied species from Owerri Province. Gadsby (1990) recorded no specimen (but nine of *M. tricuspis*) in her bushmeat survey in Cross River State. Rosevear (1937), writing when the British Cameroons was a part of Nigeria, gave no record, saying "its exact range is not known".

The only possible direct evidence for the Black-bellied pangolin, apart from the Ohusu record, which I can trace in print is Oates' (1989:20) sighting of "*Manis* sp., probably *tetradactyla*" in the Niger floodplain at Iberu northwest of Oguta.

In fact it is about equally common as the White-bellied species in the floodplain between the Orashi and Nun rivers (4 voucher specimens at hand) and probably throughout the swampforest zone. The species' rarity outside the Delta is probably due to a preference for swampforests, and its diurnal habits which make it more susceptible to capture.

Speckle-throated and Clawless Otters.

Otters are missing from mammal lists for Ondo State (Agbelusi, 1994), Bendel State (Anadu & Oates, 1982) and Owerri Province (Cozens & Marchant, 1951). Happold (1987) found no forest-zone records for Nigeria except east of the Cross River.

Clawed and clawless otters - *Lutra* and *Aonyx* - are both common or abundant throughout freshwater and mangrove creeks of the Delta. Fishermen know them as daily pests which remove fish from traps ~~etc~~ but they are difficult to catch, which accounts partly for the lack of records. Only two species are to be expected on the basis of published knowledge, local descriptions and the numbers of local names at single sites give some suggestion of a third species.

Heslop (1935) was almost certainly aware of the existence of otters in what he termed 'Region A' (eastern Niger Delta) of the old Owerri Province but he evidently assumed they were otter-shrews. His text reads: "Otter-shrew (*Potamogale velox*). This is the species usually known as "Mangrove-otter," though of course it has no relationship whatsoever with the Otters. It appears to occur throughout the Region 'A'. Further information is required as to the habits and distribution of this most interesting and entertaining species." Rosevear (1947) explicitly listed the Speckle-throated Otter for mangrove swamps in Nigeria,

but in the present study hunters indicated it is the Clawless Otter which is the typically mangrove species-

This is an endangered species (1994 IUCN Red List) previously known only from the Mamfe & Oban areas of the Nigeria-Cameroon boundary (Heard & Van Rompaey, 1990). It was reported from the Nun sector of the Delta by Powell (1993) tentatively as *Genetta bini*, a closely similar species described by Rosevear (1974) from a single specimen from Ohusu FR north of Benin and not discovered since.

The Crested Genet is now known also from the Upper Orashi Forest Reserve and seems to be common where it occurs. It remains to be seen whether it is distinct or disjunct from the Oban-Mamfe population, or the west-of-Niger 'Benin Genet'. The expectation is that it should range across the Delta and will prove to encompass the Benin Genet. However Anadu & Oates (1982:14) found no evidence of the Benin Genet in their survey of Bendel State. Unfortunately the treatment of genets in Happold (1987), based on then-available literature, is badly muddled and does not permit identification of the Benin or Crested Genets.

Leopard - *Panthera pardus*

Some fairly reliable reports of occurrences come from remote roadless areas of Rivers State (Powell, 1993; this report). These include the Agge-Dodo barrier island (sightings by Gilbert Murumuru of Ogbotobo), Bolou-Orua's Kada-Ogba forest (southern SALGA) and Oyeregbene south of Peremabiri. The species is probably widespread but rare through the southern tidal-freshwater zone and on some barrier islands. ^ Very

The species is likely extinct in more inland areas. Anadu & Oates (1982) also concluded there was no evidence for survival of leopards in their survey sites including the Kwale area between the Ase & Niger Rivers and the Taylor Creek & Nun River reserve areas.

Throughout the riverine area generally, the killing of a leopard give prestige to the hunter and is often accompanied by ritual ceremonies. No report of any recent killing has been received. The killing of leopards is taboo in Otuaka north of Ogbia, but the species is nevertheless locally extinct. A leopard-like animal (*seri*), also taboo to kill, is reported in Kula (Santa-Barbara/San-Bartholemew barrier island) but its existence and identity remain to be confirmed.

Manatee - *Trichechus senegalensis*

There appears to be no published record of manatees in the Delta proper (Happold, 1987; Shodeinde, 1993; J A Powell, pers. comm.). However the species is widespread throughout the Delta including mangrove creeks, and most common in the tidal freshwater zone where bankside floating grass is present all year (Powell, 1993). Abundance is difficult to assess but in some seasonal creeks in the lower Orashi system, up to 3-6 specimens are killed yearly as they migrate in or out to the all-year channels. They are also reported to be present in the lower Imo River where they are known as 'hippopotamus' in local English.

The manatee is traditionally protected against hunting at Aboh area on the lower Niger. Elsewhere it is widely killed or hunted. A very few specialist manatee hunters operate seasonally with harpoons and special entangling nets; some of the hunters are northerners who come down the Niger or visit the lower Imo river for the purpose. In the flood-forest zone manatees are trapped in cross-channel fish traps in seasonal creeks. In the tidal freshwater zone, large cage-traps are sometimes constructed (photo in RPI/NNPC, 1985); more often in this zone the only hunting pressure is from occasional migrant hunters.

Elephant - *Loxodonta africana*

NARESCON's 1991 'Elephant Conservation Action Plan for Nigeria' indicates no known herds in the Delta, and Happold (1987) considers elephants to be extinct in the Delta because of lack of any recent reports.

In fact two herds are well known in Rivers State. The largest is that on Andoni Island, examined by Dr Chris Thouless in August 1993 following the death of a seismic crew member. His experienced estimate was that "judging from the size of Andoni Island and the number of sightings it seems very unlikely that there are more than 50 elephants". The once-large Taylor Creek herd collapsed in the 1960's and local estimates put the number at about 15-20 specimens centred south of Odoni opposite Odi (Werre, 1991; Powell, 1993). Probably more have been killed in the meantime and the area is now being traversed by OMPADEC's Sampou-Samabri road under construction. The herd used to migrate north towards Kreigani in the early rainy season (July, when tracks could always be sighted crossing the Biseni-Samabri DFFRI road) but no longer does so.

Other herds may conceivably exist in Bendel State on barrier islands between the Escravos and Ramos rivers, and (Anadu & Oates, 1982) between the Ase and Niger rivers.

Pygmy Hippo - *Hexaprotodon <Choeropsis> liberiensis*.

For lack of recent reports, the 1994 IUCN Red List ranked the Nigerian Pygmy Hippo (*Hexaprotodon liberiensis heslopî*) as Extinct (see also Eltringham, 1993b). There is indeed a consensus, based on hunters' accounts, that the Pygmy Hippo did become extinct or practically so in the 1960's in some areas: the Niger-Orashi floodplain corridor, the Taylor Creek conservation area, and the Yenagoa and the Okoroba areas (Oates, 1989; Werre, 1991; Powell, 1993; pers. comm., Ashton-Jones). A few reports, consistent with a lone vagrant specimen, have been received in the Odi-Sampou area in the early 1990's.

In two other areas, not visited by earlier workers, there are local reports that the Pygmy Hippo survives. These are southwest of Tungbo in the proposed Egbedi Creek Forest reserve, and more especially the Upper Orashi Forest Reserve. The reports mostly concern the sighting of tracks or evidence of disturbance to water and vegetation in ponds and lakes in the dry season when such waters are fished. None concerns mothers with young. Hunters and bush fishermen in the two areas take the species as rare and limited to the most remote areas.

The historical distribution of the Pygmy Hippo appears limited to the 'flood forest' zone. It can be traced by local knowledge of its name which persists among hunters due to the animal's legendary spiritual powers and associated rituals required on killing a specimen (*odufiowei*, *abein* or *ebei* in Ijo-group languages; *agumagu* or *ogomogu* in Igbo-group languages). It appears the species' western limit ran along the Niger-Forcados-Sagbama rivers, and the eastern boundary was along the Orashi system. The southern limit ran from Bomadi or Sagbama south almost to Oporoma then southeast to the Ogbia area. Anadu & Oates (1982) could not obtain evidence for the animal's existence at any of their interview sites.

The main threat to the species survival appears to be habitat destruction and general disturbance from logging and similar activities especially in the Upper Orashi Forest Reserve. Although a few living hunters are known to have killed specimens, the average local hunter is unlikely to do so. For instance one common superstition in the Upper Orashi reserve area is that anyone who kills an *ebei* will become mentally deranged, see his colleagues and other humans as bush-meat, and start matcheting them etc.

Hippopotamus - *Hippopotamus amphibius*

Hippos are now extinct in freshwater sector of the Niger Delta. Although not mentioned in major reviews (Happold, 1987; Eltringham, 1993a), small numbers survive along the sea-coast in the Andoni-Bonny sector where they have some degree of traditional protection. Usually they are reported in shallow coastal water or on beaches. One group spends the day in a freshwater swamp between Finima and the coast. Scattered reports are heard of single animals or small groups elsewhere along the coast.

The Finima group may number about 10 (estimate of Finima hunter Festus Brown). They are probably endangered by imminent nearby developments (Mobil terminal; LNG plant) and by the partial collapse of traditional protection. One was shot in the mid-1970's by a then State Governor; two more were claimed to have been killed by a licensed hunter because they disturbed his camp.

A report of hippos at Kula, cited in Powell (1993), is partially correct. Kula natives report that a group of 5-7 hippos appear on the coast for a short time in the flood season in some years, and claim that they are seasonal migrants from Bonny.

The general belief among coastal people is that the main site for hippos is Andoni island, but no details are available (e.g. ANON., 1988). The Andoni hippos deserve attention in connection with development of the proposed Andoni Game Reserve.

Ogilby's Duiker - *Cephalophus ogilbyi*

This species, previously known in Nigeria only east of the Cross River, is now known to occur in the 'upland' area of Rivers State (including around Port Harcourt) and along the northern edge of the Upper Orashi Forest Reserve. Its local range extends west across to near the Mbiama-Yenagoa Road where it is now extinct or nearly so. It is absent west of the Mbiama-Yenagoa road and in the central Delta including the Taylor Creek, Egbedi Creek, Nun River and Apoi Creek reserve areas.

A few relic forests

The species is ranked as endangered nationally (Anadu & Green, 1990) and vulnerable internationally (1994 Red List). The CITES sheet for it gives "Wild Population: No data available, but total number estimated not to exceed 2000 individuals", and "Captive Population: No data available" (Sheet Code A-119.009.009.011. 1984(1)).

The Delta population is in critical danger from uncontrolled hunting as well as habitat destruction. In the words of Simon Dan Odon of Yenizue-Epie, the first hunter to describe it in interviews, the species is "almost finished this side; . . . very stupid, doesn't escape well." The IUCN/SSC Action Plan (East, 1990:169) gives the following comments: "This duiker occurs in moist lowland forests from Sierra Leone to western Cameroon and Bioko Island (Equatorial Guinea) It appears to be rare and localized through out most of its range and is one of the least known forest duiker species. Its populations are retreating in the face of widespread forest destruction and uncontrolled hunting. Protection of sufficient undisturbed forest habitat to support viable populations is essential to ensure this species' long-term survival."

Yellow-backed Duiker - *Cephalophus silvicultor*

This is the largest duiker in Africa and is nationally endangered (Anadu & Green, 1990). It has always been considered rare and local. It often appears in species lists but with no indication of whether it is still extant.

In most of the 'flood forest' zone of Rivers State (Taylor Creek, Nun River sectors) hunters agree it has declined to the point of virtual extinction. According to Mr Simon Dan Odon of Yenizue-Epie is reason is the ease with which the animal is caught: it "constructs a road it runs along. People used to set traps on the roads - that has finished it this side. Can hide briefly in bush but will come back to its road - can be cut off and ambushed by hunters."

The Upper Orashi FR is the only area where we have accounts of recent kills and skulls are commonly seen in hunters houses. It (or a similar to-be-determined species) has been reported as still present also on the Ramos-Dodo barrier island and in the Ogbosuwari-Orua sector between the Forcados and Sagbama rivers.

Black-fronted Duiker - *Cephalophus nigrifrons*

This duiker, like the Red Colobus monkey, is a 'marsh-forest' species not previously recorded from Nigeria. Also like the Red Colobus it is unknown to hunters in the northern 'flood-forest' of the Delta. The Delta population is a western range extension for the species and is disjunct from the nearest population in the Cameroons.

The Black-fronted Duiker is common or abundant throughout the range of the Delta Red Colobus, and probably it extends much further eastwards and westwards in swampy zones. A P Leventis (pers. comm.) identified a specimen for sale between Sapele and Ologbo in the early 1970's, and a red duiker, reported by hunters in the proposed Lower Imo Forest Reserve ~~probably~~ also belongs to this species.

possibly

(Ogoni koo)

Bates' Dwarf Antelope - *Neotragus batesi*

The Nigerian population of this Lower Guinea species occurs, like Sclater's Guenon, only between the Niger and Cross Rivers. The next nearest population is south of the Sanaga River in Cameroon (Lamarque et al., 1990). The taxonomic distinctness of the two populations, separated by 300 km and two major river barriers, has not been studied due to the lack of Nigerian specimens.

Published information on the Nigerian population is limited to reports on the few available specimens (Rosevear, 1948; Cozens, 1951; Cozens & Marchant, 1951). Heslop (1935, followed by Happold, 1987) lists the species from Nembe and Oloibiri based on reports of <in vernacular English> 'hares' at those localities; but the name 'hare' is also used for the common duiker. The species is listed as nationally endangered, and is considered "definitely scarce" and "threatened by uncontrolled hunting and habitat destruction" (Anadu & Green 1990).

Bates' Dwarf Antelope formerly ranged westward to the Orashi river where it is now very scarce or extinct. It is unknown to hunters west of the Orashi-Kolo Creek axis, i.e. in the Niger-Orashi floodplain corridor and in the range of the White-throated Guenon.

The species is reportedly ^{fairly} common around Yae in the proposed Lower Imo River Forest Reserve, in other parts in Ogoni- and Ikwerre-land where forests remain (e.g. Ebubu), and probably along the Imo river valley. Unconfirmed reports indicate it or a similar but larger species may occur on beach-ridge forests between Kula and Bonny.

and present but fast declining

E.1. Endemic species.

E.1.a. Reptiles.

None of the listed reptiles is endemic to Nigeria. The Delta's fauna of smaller reptiles, mostly snakes and lizards, is unstudied; there is no strong *a priori* reason to expect endemic species except maybe forest geckos, chameleons and worm snakes.

E.1.b. Birds.

Two birds are considered endemic to Nigeria :- the Ibadan Malimbe (*Malimbus ibadanensis*) in western Nigeria and the Fawn-breasted or Anambra Waxbill (*Estrilda poliopareia*) around Onitsha. The waxbill is a small sparrow-like bird which may be expected along the Niger/Nun River and flood channels eastward to the Orashi River, in seasonally flooded areas with tall grass.

E.1.c. Mammals.

The standard literature (e.g. Stuart et al., 1990) lists three mammals more-or-less endemic to southern Nigeria, and only one of them (Nigerian Pygmy Hippo) as present in the SPDC(E) area. Actually the area contains all three national endemics plus at least four more prospective endemics, listed below. Because of the shortage of research specimens from the area, their status remains to be studied and confirmed. Generally, endemism is only at the level of subspecies.

1. The White-throated monkey (*Cercopithecus erythrogaster*) occurs as far east as the Orashi River, and perhaps further. Previously it was assumed to be found only west of the Niger, extending to southern Benin and Togo.
2. Sclater's monkey occurs in forests from the Orashi & Kolo channels east to the Imo River. It was previously known from only north and east of the SPDC(E) area (Oates et al., 1992), between the Niger and Cross Rivers.
3. The Delta Red Colobus monkey occurs in the central Delta between Nikorogha Creek and Sagbama/Apoi Creeks. It is probably the only Red Colobus in Nigeria and is being described as a new subspecies.
4. an unidentified Black Squirrel, known only from the Ogbia-Odual sector, may be a new species but remains to be studied.
5. Heslop's Pygmy Hippo (*Hexaprotodon liberiensis heslopi*) is known only from Rivers State (disregarding a record of skulls from Arochuku Division). It is often assumed extinct (for lack of records since the 1930's) but local reports indicate that it survives the Upper Orashi Forest Reserve, in the area between Sabagreia and Tungbo, and perhaps also behind Otuan, behind Ikibiri and around Odi.
6. Black-fronted Duiker, not previously known from Nigeria, occurs in the tidal freshwater zone. The Delta population, isolated from the rest of the species in central Africa, could possibly be a new subspecies.
7. Dwarf Antelope, present between the Orashi & Cross Rivers, is also isolated from the rest of the species in central Africa, and is likely a distinct subspecies.

Additional endemics may occur among other species with disjunct populations in the Delta (e.g. Olive Colobus, ?Pel's Flying-squirrel) or among the mystery species.

E.2 Summary of status of 'Endangered Species' in SPDC(E) area

Species of national conservation concern are arranged below by their status within the SPDC(E) area. The area hosts nearly all the Global 'E'-class animals present in Nigeria; the only others are the Drill (Cameroon & Cross River) and Wild Dog (pan-African savanna).

The 'mystery species', some of which may be real and endangered, are not considered here.

<u>Species</u>	<u>Status outside Niger Delta</u>		<u>Distribution</u>
	<u>Global</u>	<u>National</u>	
Critically Endangered, reduced to isolated relict populations			
Chimpanzee	V/E	E	Akpede, Kugbo-Ogbia, ?Ramos-Dodo
Elephant	V	I	Andoni; Odoni-Odi area
Nig. Pygmy Hippo	Ex/E	-	?Upper Orashi FR; ?Orua-Tungbo sector
Hippopotamus	-	-	Andoni Island, Finima (Bonny)
Crested porcupine	-	-	?Bukuma (maybe extinct in area)
Possibly Critically Endangered			
Delta Red Colobus	(E)	(E)	South-central Delta forests
Very rare and dispersed			
Leopard	-	I	Marsh and coastal forests
Buffalo	-	-	?Niger-Orashi floodplain corridor
Yellow-back Duiker	-	E	Lowland forest
Reported widely as declining in numbers or as locally extinct			
Red-capped Mangabey	V	-	Swamp forests & mangrove
White-belly Pangolin	-	E	Forests
Black-belly Pangolin	-	E	Forests, especially swamp forest
Manatee	V	I	Brackish & freshwater channels esp. freshwater tidal sector
Water Chevrotain	-	I	Freshwater swamp forest
Ogilby's Duiker	V	I	East-of-Niger lowland forest
Dwarf Antelope	-	E	East-of-Niger lowland forest
(plus all species in relict populations, see above)			
Locally common, but with limited distributions nationally			
White-throat Guenon	E	E	freshwater riverine part of Niger Delta
Sclater's Guenon	E	?	Forests west of Orashi-Kolo axis
Olive Colobus	V	?	Swamp forest, northern sector
Black-belly Pangolin	-	E	Flood & Swamp forests
Spot-necked Otter	-	I	Remote swamps, mangrove
Cape Clawless Otter	-	I	Large waterways, mangrove
Crested Genet	E	-	Swamp forest, ?mangrove
Long-nosed Mongoose	-	-	Probably widespread in forest of area
Sitatunga	-	E	Freshwater swamp forest, mangrove
Black-fronted Duiker	-	-	Freshwater marsh forest
Status very uncertain			
Slender-snout Crocodile			swampy riverine areas
chelonid sea turtles			sea beaches throughout

E.3. Wildlife species which could endanger field staff.

The greatest risks would seem to be incidents in which members of crews may :-

- (1) encounter snared animals and try to intervene. Trapped and/or wounded pigs are locally notorious killers.
- (2) encounter the new-born young of powerful animals in a situation which provokes the mother's aggression.

a. Elephant:

Conditions of danger:

- when elephant does not sense the approach of humans until after they are too close (well under 200 meters).
- when mother elephant fears for safety of her baby.
- when an elephant has been shot & wounded in the area recently.

Geographic areas:

- Andoni Island
- west bank of Nun River between Odoni and Sampou, opposite Odi (note these animals, the remnant of the TaylorCreek herd, might have moved due to human activity on construction of OMPADEC road from E-W Highway to Samabri)

Signs of presence:

- abundance of biting flies (also a sign for pigs).
- sound & smell of farting, loud and frequent.
- fresh dung, footprints, vegetation damage, noise of elephant breaking vegetation.

Precautions:

- read protocol prepared by Dr C Thouless (meeting of 1st Aug'93).
- before entering the area, check with local hunters on recent elephant activity.
- once in the area, make enough noise to ensure elephants are aware of your presence from a distance.

b. Pigs:

Conditions of danger:

- trapped specimens, and also females defending their young, are aggressive.
- most deaths occur when hunters try to deal with snared specimens

Geographic areas:

- all forests (except mangrove) but including 'islands' of fresh-water forest within the mangrove zone. *and a few barrier islands*

Signs of presence:

- abundance of biting flies (also a sign for elephants).
- noise and disturbed ground from the struggling of snared pigs.

Precautions:

- i. if a live trapped pig is encountered:
 - do not approach or interfere, even if the animal may appear weak or unconscious.
 - withdraw from the area, and make arrangements for appropriate persons to safely kill the animal.
- ii. if there is evidence of a pig having very recently escaped wounded from a snare.
 - withdraw with great caution, following the original path of entry. (Some hunters claim that wounded pigs lie in wait for the hunter/trapper to return, to attack and kill him.)
- iii. field staff should not hunt or trap big game, nor join locals in it.

c. Buffalo or Bushcow:

Conditions of danger:

- when an animal has been wounded or is attacked.

Geographic areas:

- generally absent from SPDC(E) area except for rare lone individuals or pairs in the northern half (north of Yenagoa and more generally north of the East-West highway). Highest incidence of reports is around Omoku between Orashi and Niger Rivers; and eastward to the Sombreiro River north of Ahoada and north-west of Elele.
- common in some areas on west bank of Niger in Delta State.

Signs of presence:

- cow-like footprints; usually the presence of a bushcow is well known to local woodsmen and often also farmers.

Precautions: as for Pigs.

d. Nile Crocodile

Conditions of danger:

- when intruders approach a nest or young hatchlings, the guarding mother may attack.

Geographic areas:

- around large rivers & lakes in remote areas, especially where crocodiles have traditional protection (sacred lakes etc.).

Signs of presence:

- nests of this species are covered holes dug in bare ground, e.g. along the back edge of sandbanks.
- nests are not normally detectable, unless by presence of fresh eggshells after hatching or destroyed by small predators.
- tracks of guarding female may be present around nest.

Precautions:

- check for abundance of Nile Crocodiles in areas of activity.
- in such areas in the nesting season (see below), avoid likely nesting sites.
- nesting is expected in the dry season, incubation lasts 2-3 months with young hatching in the early rains.

Other local crocodiles viz. the Dwarf Crocodile ('alligator', max. length 2 meters) and Slender-snouted Crocodile (max. length 4 meters) nest in mounds constructed of vegetal matter etc.

e. Hippopotamus

Conditions of danger:

- when hippos are attacked or provoked.
- hippos are known to capsize small local craft (canoes, dinghies)

Geographic areas:

- Andoni Island; Finima; vagrant individuals elsewhere along coast

Signs of presence:

- in backshore areas, footprints and the animals' trackways

Precautions:

- check with local residents about hippo presence and activity
- stay clear and do not disturb any animal which may be sighted

Note: the Niger Delta coastal hippos are highly endangered, surviving only due to traditional protection afforded by landlord communities.

- f. Other large wildlife. Chimpanzees (locally called 'gorilla') and leopards (in some areas called 'tigers') have intimidating vocalizations, but are not considered as dangerous to adult men provided the animals are not attacked directly. Pygmy hippos (*abein* or *ogumogu*) are considered dangerous locally but only through their spiritual powers if killed; they are virtually extinct and any evidence of living animals should be reported.

Section F. Review of wildlife in past SPDC(E) environmental reports

Reports of seven past SPDC(E) studies were reviewed to identify weakness etc for remedial action in the planning of new studies. The studies represent only three of the faunal zones and are listed in Table F.1 with serial numbers (S/N) used for identification hereafter.

Table F.1. Faunal Zone placement of SPDC(E) reports reviewed.

S/N	Faunal Zone	Type	Short title	Year	Contractor/consultant
35	Lowland forest	EIA	AGG Grid (Land)	1995	OASONS/Abere
49	Lowland forest	EES	Rumuekpe-Bomu	1993	UNICALC./Ntukidem-Afaide
54	Eastern flank	PIAS	Enwhe Field	1993	ECOSPHERE/Amubode
34	Mangr/East.flank	EIA	Soku Gas Plant	1992	IPS/ -?-
40	Mangr/East.flank	EIA	Nembe Ck F/L's	1993	GEO-GROUP/ -?-
11	Mangrove	BEDA	Belema F/S	1993	EDO-SU/ -?-
37	Mangrove	EIA	AG project(Swamp)	1994	OASONS/Abere

1. Evidence of relevent background knowledge or experience.

None of the write-ups made reference to any wildlife literature or unpublished reports, not even basic texts and guides (Booth, 1960; Dorst & Dandelot, 1970; Haltenorth & Diller, 1977; Happold, 1973 & 1987) or the sources for the species identifications. To go a step further, three reports (#11, 34, 40) did not even indicate the identity of the person(s) responsible for their own wildlife sections.

As shown further below, none of the consultants seemed to know what fauna was normal or important in his project area. This is not surprising, insofar as wildlife training and research in Nigeria is largely savanna-based and local literature is almost non-existent.

One project team (#49) did include someone with relevent local experience, namely the author of one of the very few local studies (Ewa Ita, 1984) which was done only a few miles from the SPDC project site. Ironically, he was not placed under wildlife studies, yet his old study included local endangered species completely overlooked by all seven SPDC reports reviewed.

2. Methods.

Five studies (#34, 35, 37, 49, 54) claimed to involve observers walking along transects in a bid to estimate densities of different species through sightings of animals and signs of their presence. This is a standard method in open habitats and for some groups (e.g. monkeys and birds) but for several reasons was not very useful in the present studies. An exception is study #54 where it was used to compare relative numbers in different impact zones. Other studies had the opportunity to use their data for meaningful comparisons between habitat types (e.g. mangrove vs freshwater swamp, farmland vs bush) but failed to do so, or to give information on location and habitat-type of the transect.

Most studies claimed to include interviews with local persons, but the results do not include distinctive local species which would have been mentioned by any knowledgeable local hunter. Such species are marked with a single asterisk on Table F.2.

3. 'Endangered' species.

The studies collectively mentioned only two of the 17 endangered mammals actually known or suspected to occur in the areas in which the studies were carried out (Table F.2). Among the overlooked species are all four of the globally endangered species ('E' on IUCN Red List) and many with distinctive local names which would have been mentioned by local hunters etc. Obviously such animals should have been targeted in EIA's (#34, 35, 37, 40) and any attempted species inventory.

Table F.2. Representation of endangered mammals in reviewed reports

<u>Species</u>	<u>Conservation Ranking</u>			<u>S/N's of studies, within species range, in which the species is :</u>	
	<u>IUCN</u>	<u>WCMC</u>	<u>D-11</u>	<u>Listed / Not Listed</u>	
White-throated Monkey	E	E	II	--	40? 54?
Sclater's Monkey	** E		II	--	35 49 54
Crested Genet	E	-	II	--	11? 34 35? 37? 40? 49 54
*Heslop's Pygmy Hippo	** E/Ex?		I	--	54
Angwantibo	V		I	--	35 49 54
*Red-capped Mangabey	V	-	I	11	34 37? 40? 45
Olive Colobus Monkey	V	?	I	--	54
*Manatee	V	i	I	--	11 34 40?
*Ogilby's Duiker	** V	i	-	--	35 49 54
Sitatunga	-	E	I	34 49	11 35? 37? 40? 45 54
*Yellow-backed Duiker	** -	E	I	--	49? 54
*Bates Dwarf Antelope	** -	E	-	--	35 49
White-bellied Pangolin	-	-	I	--	35 40? 49 54
Black-bellied Pangolin	-	-	I	--	34 40? 49 54
Cape Clawless Otter	-	i	I	--	11 34 35? 37? 40? 45
Spot-necked Otter	-	i	I	--	11 34 40? 54
*Water Chevrotain	** -	i	I	--	34 35? 40? 49? 54

Legend :-

* = species easily identified by species-specific vernacular names.

** = species which should have received extra attention because of their local conservation status or habitat-dependence.

IUCN = IUCN 1994 Red List (Groombridge, 1993);

WCMC = WCMC, 1988;

D-11 = Decree 11 (Endangered species ...) of 1985. Schedules I & II.

E = endangered, Ex = extinct; V = vulnerable, i = insufficient information.

4. Records of unexpected species.

Most reports (#11, 34, 35, 37, 49, 54) listed species not expected in the Niger Delta (Table F.3). As they were not remarked upon, it is possible they were misidentifications and the consultants did not know what fauna was normal for the project areas.

The other report (#40: Nembe Creek) only mentioned general signs of wildlife ("monkey, rodents and snakes") without species identifications except for the statement "Grasscutter, snail, bushbuck and red flanked duiker are among those commonly served during meals". The Red-flanked Duiker is a savanna species not yet known from Rivers State and the Bushbuck was probably also absent from the actual project area; the common antelopes there are the Sitatunga and Maxwell's Duiker.

Table F.3. Extra-limital species recorded in reviewed reports

Species	S/N of Report
Savanna species	
<Roan antelope> <i>Hippotragus</i> sp	#37
Red-flanked Duiker	#40
Red Patas monkey	#37
Green monkey - <i>Cercopithecus aethiops</i>	#37 #49
Swallow-tail Kite - <i>Elanus riocourii</i>	#37
White-breast Cuckoo-shrike - <i>Coracina pectoralis</i>	#37
Yellow-fronted canary - <i>Serinus mozambicus</i>	#37
Swamp Flycatcher - <i>Muscicapa aquatica</i>	#37
Brown-backed woodpecker - <i>Ipophilus obsoletus</i>	#37
Yellow-bellied parrot - <i>Poicephalus senegalus</i>	#37
Hoopoe	#54
Senegal wood-hoopoe	#54
Non-Nigerian Species	
Palm squirrel - <i>Epixerus ebii</i> <Upper Guinea>	#34 #35 #37
Sun-squirrel - <i>Heliosciurus punctatus</i> < " " >	#11 #49
Ducks <central, east & south African species>	#54
African Polchard - <i>Aythya erythrophthalmus</i>	
Red-billed Duck - <i>Anas erythrorhynchus</i>	
African Black Duck - <i>Anas sparsa</i>	
Moor Frog - <i>Rana arvalis</i> <European>	#49
Mountain-country Species	
Otter Shrew <i>Potamogale velox</i>	#11
<Oriole Finch> <i>Linurgus olivaceus</i>	#34
<from Cameroun, Obudu Plateau, Fernando Po, in forests of 1800-9000 ft elevation>	

5. Miscellaneous comments.

- a. Animal classification. Two reports listed bats (which of course are flying mammals) in the list of bird species (#37, 49). Two others listed snails and reptiles under mammals (#34, 54).
- b. Ordering of species in lists. For all animal groups there is a conventional 'phylogenetic' order in which species-groups are usually listed. In most of the reports reviewed, there was no discernible order whatsoever in the lists; even different species of monkeys or rodents or antelopes were not grouped together.
- c. Contradiction between English and scientific names.
 - African Civet (large carnivore) given as *Cryptomys zechi* (a rare subterranean savanna rodent (#49)
 - Mona monkey (*Cercopithecus mona*) given as *Cercopitheaus petaurista* (the Upper Guinea equivalent of the White-throated Guenon *C. erythrogaster*) (#37)
 - Spot nosed monkey (presumably *Cercopithecus nictitans*) given as *Cercopithecus erythrogaster* (White-throated Guenon) (#11)
 - West African ground squirrel (*Xerus erythropus*, a savanna and farmland species) given as *Epixerus* sp. (a rare high-forest genus) (#37)
 - Red river hog (*Potamochoerus porcus*) given as *Potamochoerns aethiopicus* (*aethiopicus* is the specific name of the Warthog) (#34)
- d. Probable misidentifications. In several cases the reports listed rare-or-absent species but failed to mention look-alike species which were certainly present and probably quite common.
 - listing Fish Eagle but not Palm-nut Vulture (#11 #34 #37)
 - listing Wood Ibis but not any white egrets (#34)
 - listing *Rhynchops* sp. and *Pelecanus* sp. but not kingfishers and Hammerkops (#11)
- e. Use of indicator species. Several reports (#34, 35, 49) list the Gambian Giant Rat which is a savanna and farmland species. Actually in forest habitat it is replaced by Emin's Giant Rat, which was not mentioned in any report but was probably present in all the study areas. Although in this example it is not easy to distinguish the two species without specimens in hand, other similar examples exist and it seems that the consultants generally were not attuned to drawing ecological conclusions from the presence or absence of particular species.
- f. "A checklist of mammalian fauna in some forest reserves and proposed game sanctuary in Rivers State". The Soku report (#34) contains this attractively titled Table which however has more errors than can be expediently listed.

6. 'Nigerian Animals that don't exist.'

The above heading is the title of an[~] article by Rosevear (1948a) about the use of wrong English names in Nigeria for Nigerian animals. Several of the reviewed reports used only such 'local English' names, which properly refer to very different animals (usually European or South American ones) ~~from~~ what is intended. The use of these names will cause confusion or consternation if the reports are seen abroad. Table F.4 shows such names which occurred in the reviewed reports, and some other common ones in circulation.

Table F.4. Comparison of some local and standard English animal names.

<u>Local English</u>	<u>Standard English</u>	<u>Probable species</u>	<u>S/N of Rpts</u>
*hare	duiker/dwarf antelope	Maxwell's Duiker	37, 54
iguana	monitor lizard	Nile Monitor	34, 37, 54,
alligator	Dwarf Crocodile	Dwarf Crocodile	37
boa constrictor	python	Rock Python	37
rabbit	Giant or Pouched Rat		
fox	mongoose		
*gorilla	chimpanzee		
beaver or bear	otter		
*hippopotamus	manatee		
ostrich	Goliath Heron		

* Note - true hares, true gorilla and true hippopotamus also occur in Nigeria, but only two in the SPDC(E) area: hares in derived savanna and hippopotamus along the coast.

One report (#37) listed synonymous local English and standard English names (*viz* iguana, Nile monitor lizard) as if they were two separate species. This conundrum is not unique but has also been seen in a report for a different oil company by a different consultant.

The solution is to require the use of either scientific or vernacular names.

Section G. RECOMMENDATIONS

1. Continuation of species inventory.

This is of the highest priority as the yet-unidentified 'mystery' species are likely to include those of highest concern i.e. the rarest and/or most localized species. Also full inventories represent base-line data not obtainable in quick EIA's.

The inventory requires long-term, and sometimes widespread, monitoring of hunters' catches in the various zones and sectors. The exercise would be more effective if there was liaison with field crew and staff at flowstations to help report easily identified target species ('SR' priority in Table B.2).

2. The status of prospective endemics needs to be assessed.

For this, study specimens need to be put at the disposal of taxonomic specialists. The species involved include the Black-fronted Duiker, the Dwarf Antelope, and several of the mystery species.

3. Distribution boundaries and zonation.

Knowledge of faunal boundaries shortens the list of species needing attention in individual EIAs, and indicates areas and species of concern.

Normally, species distributions correspond to habitat types and physical barriers. Hence, areas of potential occurrence can sometimes be obtained directly from imagery, especially where it concerns isolated habitat blocks like relict forests, and riverine swamps. The main exception is for major species like chimpanzee, elephant, hippopotamus, pygmy hippo and buffalo.

4. In-house activities and priorities

4a. Critical wildlife sites and habitats. Great attention need be given to identify, and safeguard, critical wildlife habitat.

These include relict forest blocks in Lowland Forest, isolated freshwater forests in the mangrove zones, areas susceptible to impact from changes in hydrological regimes due to slot and road construction. Also at stake are isolated populations of highly endangered species.

To this end, preliminary in-house EIA's should be done prior to the seismic exploration stage. A fair amount can be gleaned from suitable imagery. Also at this stage information on locally protected and sacred areas should be obtained.

4b. Effects of E & P activities. Anecdotal reports of effects need to be collated from local sources, especially by field crew. The main categories are (i) species which are slow to return to an area after disturbance by seismic activities, (ii) utilization of cut lines by hunters and trappers, (iii) *ditto* for animals and (iv) instances of oil spills impacting wildlife.

- 4c. Routine environmental studies. Each environmental study needs site-specific wildlife scoping, depending on the faunal zone involved.

Studies should include information based on interviews with local trappers & hunters etc using vernacular names. Special attention should be given to animals given 'EIA' and 'SR' priority in Table B.2, to any discrepancies with this report and to identifying critical habitats.

Quantitative transect surveys are rarely useful in short-term work, except in special cases e.g. relative comparisons within the study.

5. Preparation of wildlife information literature.

The lack of available and suitable literature for the identification of wildlife is a major problem encountered by consultants. Even when they can be obtained, the information relating to the Niger Delta area is (due to this study) now out of date. Provision of simple guides might help improve work quality, and will certainly be a public service to the local education system.

→ and to encourage interest in the living environment of the Niger Delta -

6. Conservation areas.

In any environmental public service activity considered by SPDC, support for conservation areas should rank high. At present the Niger Delta has no conservation area even though it probably holds more endangered and national endemic species than other parts of Nigeria.

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Appendix 1. Scientific names of species listed

1. MAMMALS

ORDER PRIMATES

Family Lorisidae

- Potto (= Bosmann's Potto) *Perodicticus potto* (Muller 1766)
 Angwantibo *Arctocebus calabarensis* (Smith 1860)
 (= Golden Potto)

Family Galagidae (bushbabies)

- Needle-clawed Galago *Euoticus elegantulus* (Le Conte 1857)
 Allen's Galago *Galago alleni* Waterhouse 1837
 Dwarf Galago *Galagoides demidovii* (Fischer 1808)

Family Cercopithecidae (monkeys)

- Red-capped mangabey *Cercocebus torquatus* (Kerr 1792)
 Mona monkey *Cercopithecus mona* (Schreber 1775)
 Putty-nosed Guenon *Cercopithecus nictitans* (Linnaeus 1766)
 White-throated Guenon *Cercopithecus erythrogaster* Gray 1866
 (= Red-bellied Guenon)
 Sclater's Guenon *Cercopithecus sclateri* Pocock 1904
 Tantalus monkey *Cercopithecus tantalus* Ogilby 1841
 (= Green Monkey)
 Olive Colobus *Procolobus verus* (Van Beneden 1838)
 Delta Red Colobus *Procolous cf pennantii*

Family Pongidae (apes)

- Chimpanzee *Pan troglodytes* Blumenbach 1779

ORDER PHOLIDOTA

Family Manidae (scaley-anteaters)

- Black-bellied pangolin *Manis tetradactyla* Linnaeus 1766
 (=Long-tailed pangolin)
 White-bellied Pangolin *Manis tricuspis* Rafineque 1820
 (= Tree Pangolin)

ORDER LAGOMORPHA

Family Leporidae (hares & rabbits)

- Crawshay's hare *Lepus crawshayi* de Winton 1899

ORDER RODENTIA

Family Anomaluridae - scaley-tailed flying squirrels

- Beecroft's Flying-squirrel *Anomalurus beecrofti* Fraser 1852
 Derby's Flying-squirrel *Anomalurus derbianus* (Gray 1842)

Family Sciuridae - True Squirrels

- Red-legged Sun-squirrel *Heliosciurus rufobrachium* (Waterhouse 1842)
 Redless Tree-squirrel *Funisciurus anerythrus* (Thomas 1890)
 Orange-head Tree-squirrel *Funisciurus leucogenys* (Waterhouse 1842)
 Fire-foot Tree-squirrel *Funisciurus pyrrhopus* (Cuvier 1833)
 Giant Forest Tree-squirrel *Protoxerus stangeri* (Waterhouse 1842)
 Small Green Squirrel. *Paraxerus poensis* (A. Smith 1834)
 Geoffroy's Ground Squirrel *Xerus erythropus* (E Geoffroy 1803)

Family Cricetidae - Pouched Rats

Savanna Gerbil	<i>Tatera valida</i> (Bocage 1890)
Emin's Giant Rat	<i>Cricetomys emini</i> Wroughton 1910
Gambian Giant Rat	<i>Cricetomys gambianus</i> Waterhouse 1840

Family Muscardinidae

Huet's Dormouse	<i>Graphiurus hueti</i> Rochebrune 1883
Common Afr. Dormouse	<i>Graphiurus murinus</i> (Desmarest 1822)

Family Hystricidae

Crested Porcupine	<i>Hystrix cristata</i> Linnaeus 1758
Brushtailed Porcupine	<i>Atherurus africanus</i> Gray 1842

Family Thryonomidae

Greater Cane Rat	<i>Thryonomys swinderianus</i> (Temminck 1827)
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ORDER CARNIVORA

Family Canidae

Side-striped Jackal	<i>Canis adusta</i> (Sundevall, 1846)
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Family Mustelidae

Cape Clawless Otter	<i>Aonyx capensis</i> (Schinz 1821)
Spot-necked Otter	<i>Lutra maculicollis</i> Lichtenstein 1835
(= Speckle-throat Otter)	[^] L

Family Viverridae - civets and genets ^{et's}

African Civet	<i>Civettictis civetta</i> Schreber 1778
Two-spot Palm Civet	<i>Nandinia binotata</i> (Gray 1830)
Forest Genet	<i>Genetta ?poensis</i> Waterhouse 1838
Large-spot Genet	<i>Genetta ?pardina</i> I Geoffroy 1832 s.l.
<or ? <i>genettoides</i> Temminck 1853>	
<or ? <i>rubiginosus</i> Pucheran 1855 ssp. <i>fieldiana</i> Du Chaillu 1860>	
Crested Genet	<i>Genetta cristata</i> Hayman, 1940
African Linsang	<i>Poiana richardsonii</i> (Thompson 1842)

Family Herpestidae

Egyptian Mongoose:	<i>Herpestes ichneumon</i> (Linn. 1758)
Long-nosed Mongoose:	<i>Xenogale naso</i> (de Winton 1901)
Marsh Mongoose:	<i>Atilax palidunosus</i> (G Cuvier 1777)
Cusimanse	<i>Crossarchus platycephalus</i> Goldman, 1984
Black-legged Mongoose	<i>Bdeogale nigripes</i> Pucheran 1855

Family Felidae

Golden Cat	<i>Profelis auratus</i> (Temminck 1827)
Serval	<i>Felis serval</i> Schreber 1776
Leopard:	<i>Panthera pardus</i> (Linnaeus 1758)

ORDER SIRENIA

Family Trichechidae

Manatee	<i>Trichechus senegalensis</i> (Link 1795)
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ORDER PROBOSCIDEA

Family Elephantidae

African Elephant	<i>Loxodonta africana</i> (Blumenback 1797)
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ORDER HYRACOIDEA

Family Procaviidae
Western Tree-hyrax

Dendrohyrax dorsalis (Fraser 1854)

ORDER ARTIODACTYLA

Family Suidae

Common Warthog
Red River Hog
Giant Forest Hog

Phacochoerus africanus (Pallas 1766)
Potamochoerus porcus (Linnaeus 1758)
Hylochoerus meinertzhageni Thomas 1904

Family Hippopotamidae

Hippopotamus
Pygmy Hippopotamus
(Nigerian or Heslop's Pygmy Hippo - subspecies *heslopi* Corbet 1969)

Hippopotamus amphibius Linnaeus 1758
Hexaprotodon liberiensis (Morton 1849)

Family Tragulidae

Water chevrotain

Hyemoschus aquaticus (Ogilby 1841)

Family Bovidae - Subfamily Bovinae

African Buffalo
Bushbuck
Sitatunga

Syncerus caffer (Sparmann 1779)
Tragelaphus scriptus (Pallas 1766)
Tragelaphus spekii Sclater 1864

Family Bovidae - Subfamily Cephalophinae

Maxwells' Duiker

Bay Duiker
Black Duiker
Black-fronted Duiker
Ogilby's Duiker
Red-flanked Duiker
Yellow-backed Duiker

Philatomba maxwelli (H Smith 1827)
 ?= *Philatomba monticola* (Thunberg 1789)
Cephalophus dorsalis Gray 1846
Cephalophus niger Gray 1846
Cephalophus nigrifrons (Gray 1871)
Cephalophus ogilbyi (Waterhouse 1838)
Cephalophus rufilatus Gray 1846
Cephalophus silvicultor (Afzelius 1815)

Family Bovidae - Subfamily Antilopinae

Bates' Dwarf Antelope

Neotragus batesi de Winton 1903

2. REPTILES

Family Varanidae	
Nile Monitor	<i>Varanus niloticus niloticus</i> Linn., 1766
Forest Monitor	<i>Varanus niloticus ornatus</i> (Daudin)
Family Boidae	
Royal Python	<i>Python regius</i> (Shaw 1802)
Rock Python	<i>Python sebae</i> (Gmelin, 1788)
Family Elapidae	
Black Cobra	<i>Naja melanoleuca</i> Hallowell, 1837
Family Crocodylidae	
Slender-snouted Crocodile	<i>Crocodylus cataphractus</i> Cuvier, 1824
Nile Crocodile	<i>Crocodylus niloticus</i> Laurenti, 1766
Dwarf Crocodile	<i>Osteolaemus tetraspis</i> Cope, 1861
Family Pelomedusidae	
W. Afr. Black Forest Turtle	<i>Pelusios niger</i> (Duméril & Bibron, 1835)
W. Afr. Mud Turtle	<i>Pelusios castaneus</i> (Schweigger 1812)
Family Trionychidae	
African softshell turtle	<i>Trionyx triunguis</i> (Forsk., 1775)
Family Testudinidae	
Serrate Hinge-back tortoise	<i>Kinixys erosa</i> (Schweigger 1812)
Home's Hinge-back tortoise	<i>Kinixys homeana</i> Bell 1827
Family Chelonidae - sea turtles	
Loggerhead	<i>Caretta caretta</i> (Linn. 1758)
Green Turtle	<i>Chelonia mydas</i> (Linn 1785)
Hawksbill Turtle	<i>Eretmochelys imbricata</i> (Linn. 1758)
Olive Ridley	<i>Lepidochelys olivacea</i> (Eschscholtz, 1829)
Family Dermochelyidae - leatherback turtle	
Leatherback	<i>Dermochelys coriacea coriacea</i> (Linn 1758)

3. BIRDS

Palm-nut vulture	<i>Gyphoierax angolensis</i> (Gmelin, 1788)
River Eagle	<i>Haliaetus vocifer</i> (Daudin, 1800)
Damara Tern	<i>Sterna balaenarum</i> (Strickland, 1852)
Grey Parrot	<i>Psittacus erithacus</i> Linn., 1758
Blue Plantain-eater	<i>Corytheola cristata</i> (Vieillot, 1816)
Senegal Coucal	<i>Centropus senegalensis</i> (Linn., 1766)
Fawn-breasted Waxbill (= Anambra Waxbill)	<i>Estrilda poliopterea</i> Reichenow, 1902

Appendix 2. Explanation of Conservation Rankings and Legal Status of 'Endangered Species'

1. IUCN or Global Listings (IUCN Red List)

The conservation status of animal species is carried out mainly by Species Specialist Groups (SSG's) of the IUCN's Species Survival Commission (SSC). The SSGs compile regional summaries with country-level rankings, and also global rankings which are compiled 4-yearly into the international 'Red List of Threatened Animals'.

Not all species are well enough known to be ranked. The 1994 Red List (p. x) estimates the following coverage :-

Birds :-	virtually all species assessed
Mammals :-	more than half of all species assessed
Reptiles :-	20% of all species assessed
Amphibia :-	12% of all species assessed
Fishes :-	under 10% of all species assessed

The categories used (Ex, E, V, T, R, I, K, T) are defined as follows (pp. xxix-xxx):

Extinct (Ex): Species not definitely located in the wild during the past 50 years. (Criterion as used by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.)

N.B. On a few occasions, the category Ex? has been assigned; this denotes that it is virtually certain that the taxon has recently become extinct.

Endangered (E): Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating.

Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. Also included are taxa that may be extinct but have definitely been seen in the wild in the past 50 years.

Vulnerable (V): Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security has not yet been assured; and taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range.

N. B. In practice, 'Endangered' and 'Vulnerable' categories may include, temporarily, taxa whose populations are beginning to recover as a result of remedial action, but whose recovery is insufficient to justify their transfer to another category.

Rare (R): Taxa with small world populations that are not at present 'Endangered' or 'Vulnerable', but are at risk.

These taxa are usually localised within restricted geographic areas or habitats or are thinly scattered over a more extensive range.

Indeterminate (I): Taxa known to be 'Endangered', 'Vulnerable' or 'Rare' but where there is not enough information to say which of the three categories is appropriate.

Insufficiently known (K): Taxa that are *suspected* but not definitely known to belong to any of the above categories, because of lack of information.

Threatened (T): Threatened is a general term to denote species which are 'Endangered', 'Vulnerable', 'Rare', 'Indeterminate', or 'Insufficiently known' and should not be confused with the use of the same term by the U.S. Office of Endangered Species. In previous volumes it has been used to identify taxa comprised of several sub-taxa which have differing status categories.

Brian Groombridge (ed.), 1993. 1994 IUCN Red List of Threatened Animals. IUCN Gland, Switzerland and Cambridge, UK. lvi + 286 pp. ISBN 2-8317-0194-5.

2. National Listings

The conservation status of species within Nigeria is covered by

- (a) regional 'Actions Plans' compiled by SSGs of the IUCN's Species Survival Commission. Several exist which cover Nigeria.
- (b) databases maintained by the World Conservation Monitoring Centre (WCMC) in collaboration with the Species Survival Commission. The WCMC's last summary for Nigeria was in 1988 (IUCN, 1988).

IUCN, 1988. 'Nigeria. Conservation of Biodiversity'. World Conservation Monitoring Centre, Cambridge, UK.

- (c) A slightly more recent summary by Drolet (1990).

Drolet, C A, 1990. *Biological Survey of Nigeria. A program development submitted to the IUCN*. Final Report. pp ix + 49 pp (23-37 photos). C A Drolet, Canadian Wildlife Service, Quebec City.

The reliability of national listings depends on the availability of local information, which is very low for Nigeria's forest fauna.

3. 'Decree 11' - The Endangered Species (Control of International Trade and Traffic) Decree No. 11 of 1985.

This decree was made in respect of Nigeria's obligations as a signatory to the 'Convention on International Trade in Endangered Species of Wild Fauna and Flora' (CITES). It lists species in which international trade is either prohibited (Schedule I species) or allowed only under licence (Schedule II species).

Decree 11 prescribes fines and imprisonment (six months, compulsory on second offence) for the mere possession of the listed species, some of which are locally quite common and hardly endangered at all.

Oryx 29(2):71-73. Ninth Meeting of the Conference of the Parties to CITES. Fort Lauderdale, November 1994.

Summary of the main results of the Ninth Meeting of the Conference of the Parties to CITES. TRAFFIC. Cambridge, UK, November 1994.

CITES Update No.31. US Department of the Interior, December 1994.