

4.3 CONGO

Introduction

Congo covers 342 000 km², and with a population of 1 660 000 (1983) has a mean population density of 4.9 persons/km². It lies between 3°34'N and 5°00'S, and 11°11' and 18°35'E. The Atlantic coast is 190 km long, excluding the inlet of Conkouati Lagoon, which provides a further 55 km of tidal shoreline. A coastal plain, about 60 km wide, rises into low hills and then to the Chaîne du Mayombe, crossing the country from SE to NW with high points of 930 m asl at Mt. Fougouati and 800 m asl at Mt. Bamba. Between these mountains and the Massif du Chaillu, which also crosses the country from SE-NW farther inland, is the Plain of Dihèse. Beyond the Massif du Chaillu, even farther inland, a series of plateaux, between 500-650 m asl, covers almost all of Congo between latitudes 2-4°S, and thereafter extends northwards up the Gabonese border. In the east the border with Zaire is formed by the Congo (Zaire) and Oubangui Rivers. In this northern sector, between 2°S and 3°34'N, the land slopes from west to east, into the central depression of the Zaire Basin.

There are 7 drainage systems. The Oubangui/Congo River system is the largest and drains some 232 320 km², covering most of the eastern part of the country. Three minor systems drain the coastal plain, one of which comprises the Nyambi, Mousa, Ngongo and Louvanisi Rivers, and empties to the sea via Conkouati Lagoon. South of this is the Noubi River, and south of Pointe Noire (4°46'S/11°43'E), the Lome River system. Much of the southern central part of the country, including most of the Massif du Chaillu, the Plain of Dihèse and the Chaîne du Mayombe, is drained by the Kouilou River and its tributary, the Niari, which together have the second largest catchment in Congo, amounting to some 50 820 km². The Ogooue River, which reaches the sea in Gabon, drains 3 basins in Congo. It rises in Congo, as does one of its principal tributaries, the Ngounye River, and these streams drain two separate parts of the Massif du Chaillu in Congo, while another tributary, the Ivindo River, drains the extreme northwest of Congo. The Nyanga River rises and reaches the sea in Gabon, but its upper course crosses a small corner of Congo in the southwest near Diva-lie (2°43'S/12°01'E).

Climate

There are 4 principal climatic zones in Congo. In the most northerly region, above 1°N, rainfall is in the vicinity of 1700 mm/yr (1718 mm at Impfonclo), rising to 2000 mm in the hills along the western border. There is a short dry season in December-January and most rain falls during violent thunderstorms in the afternoon or night. Mean annual temperatures are 25-26°C, with diurnal ranges of the order of 9-14°C. The coolest month is August, at the height of the long wet season, but the lowest temperatures, c. 13°C, are recorded in January, and the highest, c. 40°C, in March. Humidity is generally high throughout the year, but plunges in the far north to 20% during the dry season.

The central region, between 1°N and 2°S, has a true equatorial climate with no dry season and little variation in temperature throughout the year. Mean annual precipitation is generally close to 1700 mm, but rises to 2000 mm in the west. Mean annual temperature is 25°C, with a mean monthly minimum of 23°C in June/July and a mean monthly maximum of 27°C in April.

The plateau region of SE Congo also has a mean annual rainfall of 1700 mm, rising to 2200 mm in the hills on the Gabonese border and falling to about 1300 mm along the southern border on the Congo River. It is for example, 1351 mm at Brazzaville. The region enjoys a distinct dry season from June-September, and a very wet one from October-May. Mean annual temperature is 24°C, but the range is 18-32°C.

The climate is more variable in the coastal region of the SW. Taken overall it is the driest part of the country, with two dry and two wet seasons. The main dry season is from June-September, and the short dry season from January-February. Mean annual rainfall is variable along the coast, averaging 1500 mm (1512 mm at Pointe Noire), but it increases inland to 1800 mm on the mountains of the Chaîne du Mayombè. In passing inland it falls again, to 1200 mm, over the Plain of Dihesè. March-April is the wettest period, and mists occur during May-September. Relative humidity however, remains at 82-84% throughout the year. Mean monthly temperatures range from 21-27°C, with absolute minima of 12-13°C and absolute maxima of 35°C.

Wetlands

By far the largest wetland in Congo covers the Cuvette Congolaise, the large low lying area between the Oubangui/Congo Rivers and the western hills. Here well over 6 500 000 ha are subject to permanent or seasonal inundation. Another important wetland system occurs in the headwater basin of the Ivindo/Djoua River in the northwest, between 470-600 m asl. In the southwest, wetlands occur on the tributaries of the Kouilou River leaving the Massif du Chaillu, and on the Plain of Dihesè. Other wetlands occur on all river systems of the coastal plain, and mangroves occur in Conkouati Lagoon and in the estuaries of the Ngouniè, Kouilou and Loeme Rivers.

Wetland Flora

About 65 % of Congo is covered by rain forest and 25 % by savanna, with areas of short grassland, various types of herb swamp and gallery forest comprising the remaining 10%. Much of the rain forest is swamp forest, and this covers some 25 % of the total land surface. The savannas are almost entirely situated south of the equator.

Large areas of floating grassland occur in the swamp forest along river courses in permanently inundated situations in the Cuvette Congolaise and on M'Bamou Island in Malebo Pool. These are dominated by *Echinochloa pyramidalis*, *Leersia hexandra*, *Oryza barthii*, *Vossia cuspidata*, and some large sedges. These species all root in the mud, but generally emerge above the water surface. The vegetation is dense and often develops into free-floating rafts containing other hygrophilous plants, principally species of

Laurembergia, *Ludwigia*, *Polygonum*, *Stipularia* and *Utricularia*, with *Cyclosorus striatus* and occasional plants of *Cyrtosperma senegalense*.

In the southern parts of the Cuvette Congolaise patches of peaty, boggy steppe form a mosaic with swamp forest; they generally contain some bushes or low trees, and patches of tall sedge, but the cover is principally a dense herb layer 30-50 cm high, and all plants are hygrophilic. The grasses *Hypogynium spathiflorum*, *Jardinea gabonensis*, *Panicum parviflorum* and *Rhynchospira rottioides* are common, together with species of *Andropogon*, *Loudetia* and *Setaria*, and the sedges *Eleocharis nupeensis*, *Kyllinga pungens* and *Rhynchospora albida*. Other plants include Araceae, Commelinaceae, Eriocaulaceae, Melastomaceae, Onagraceae, Rubiaceae and Xyridaceae. The patches may become surface dry and be burned during the short dry season, but standing water is always retained in depressions.

On the fringes of the Cuvette, north of the Likoual a River, a tall tufted grassland of *Andropogon schirensis*, with some *Hyparrhenia diplandra* and *Loudetia phragmitoides*, may occur on waterlogged soils where it forms a mosaic with seasonally inundated swamp forest.

Low grasslands dominated by *Loudetia simplex* occur in several places, but are particularly important on the Bateke Plateau, and some occur on waterlogged soils. Leached white sands on the plateaux, when they are frequently waterlogged, support *Loudetia simplex* with *Bulbostylis laniceps*, *Ctenium newtonii* and *Monocymbium ceresifonne* as associates. This grades into a richer association on soils with a higher organic content, where *Andropogon huillensis*, *Panicum parviflorum* and *Rhynchospira rottioides* join the association, together with species of *Mesanthemum* and *Xyris*.

Papyrus swamps occur around the lakes and along the rivers of the Coastal Plain, and along some rivers on the Plain of Dihesè. They comprise dominant monospecific stands of *Cyperus papyrus*, with *Cyclosorus striatus*, *Cyrtosperma senegalense*, *Lygodium scandens* and *Vossia cuspidata* as lower growing associates, and occasionally, isolated trees or clumps of *Ficus congensis*. The papyrus swamps proper are fringed on their landward margins by a halo of herb swamp dominated by *Echinochloa pyramidalis* and *Leersia hexandra*, together with species of *Eleocharis*, *Nymphaea*, *Oryza*, *Polygonum*, *Utricularia* and *Xyris*. Outside this, in a transition to terrestrial vegetation, there is a zone which is partly bushy and partly herbaceous. This is rooted in peaty soil, which although always waterlogged, is flooded only temporarily. Here *Arundinella funanensis*, *Echinochloa pyramidalis*, *Ficus congensis*, *Honckenya ficifolia*, *Leersia hexandra*, *Ludwigia acuminata* and *Lygodium scandens* are common.

Swamp forests dominate the low lying Cuvette Congolaise, and are also well developed along rivers in the three headwater basins of the Ogooue system and also in the Kouilou/Niari system. Small pockets of swamp forest are found along minor streams throughout the country. The forests of the Cuvette are very similar to those of the central Zaire Depression. Much of the forest has a canopy between 25-30 m, but with regularly spaced emergents over 30 m tall. In the south of the Cuvette the canopy is lower, c. 20 m, but still with tall emergents. Floristically the forests are complex and include the following species:

Acioa lujae, *Albizia laurentii*, *A. zygia*, *Alstonia congensis*, *Anopyxis klaineana*, *Anthocleista liebrechtsiana*, *Anthonotha pynaertii*, *Anubias affinis*, *Baikaea insignis*, *Berlinia brunellii*, *B. grandiflora*, *B. sapinii*, *Berberia laurentii*, *Brazzea congensis*, *Bridelia macrantha*, *B. ripicola*, *Ceiba thonningii*, *Chrysobalanus atocorensis*, *Coelocaryon botryoides*, *Coffea congensis*, *Crotonogyne giorgii*, *C. poggei*, *Dacryodes edulis*, *Dialium pachyphyllum*, *Dichaetanthera africana*, *D. strigosa*, *Dichostemma glaucescens*, *Elaeis guineensis*, *Entandrophragma palustre*, *Eriocoelum microspermum*, *Ficus mucoso*, *Garcinia smeathmannii*, *Gilbertiodendron dewevrei*, *Guibourtia denzeusei*, *Hymenocardia heudelotii*, *Irvingia smithii*, *Lanea welwitschii*, *Lasiodiscus mannii*, *Mallotus oppositifolius*, *Mimusops warneckei*, *Mitragyna stipulosa*, *Monopetalanthus pteridophyllus*, *Nauclea diderrichii*, *N. pobeguinii*, *Oubanguia africana*, *Paramacrolobium coeruleum*, *Parinari congensis*, *P. glabra*, *Pseudospondias microcarpa*, *Pycnanthus marchalianus*, *Raphia hookeri*, *R. laurentii*, *R. sese*, *Ricinodendron palustre*, *Sersalia palustre*, *Spondiathus preussii*, *Sterculia ambacensis*, *S. bequaertii*, *Symphonia globulifera*, *Syzygium gillettii*, *S. guineense*, *Treculia africana*, *Trichelia retusa*, *Uapaca guineensis*, *U. heudelotii*, *Uvaria laurentii*, *Uvariadendron mayumbense*, *Voacanga thouarsii*, *Xylopi aethiopica* and *X. rubescens*. Buttresses, stilt roots and pneumatophores are common. Understorey species are well developed only in clearings and along river banks and include *Cyrtosperma senegalense*, *Leptonychia batangensis*, *Marantochloa congensis*, *Sarcophrynium schweinfurthianum* and *Stipularia africana*, while the widespread climbers are *Artabotrys pynaertii*, *Calycolobus klaineanus*, species of *Memecylon*, *Popowia* and *Pouchetia*, and the lianoid palms *Ancistrophyllum*, *Calamus* and *Eremospatha*. Epiphytic ferns, orchids and Araceae are abundant. Palm swamps, dominated almost exclusively by *Raphia* spp., occur throughout Congo, and are common between papyrus swamps and swamp forests proper and also in fresh water areas at the back of the mangrove.

Temporarily inundated gallery forests in the southwest contain *Alchornea cordifolia*, *Caloncoba welwitschii*, *Carapa procera*, *Mitragyna stipulosa*, *Pycnanthus angolensis* and *Symphonia globulifera* among numerous other species. On some rivers, e.g. along parts of the Niari and around some of its associated lagoons, *Pandanus candelabrum* forms monospecific stands, and in the coastal plain swamp forests of *Anthostema aubryanum*, *Raphia hookeri*, *R. vinifera*, *Klainedoxa* sp., *Pandanus candelabrum*, *Phoenix reclinata* and *Symphonia globulifera* often lie behind, and grade into, tidal forests dominated by *Rhizophora racemosa*. Other mangrove species include *Avicennia africana*, *Chrysobalanus icaco*, *Conocarpus erecta*, *Dalbergia ecastaphyllum*, *Drepano carpus lunatus*, *Rhizophora harrisonii* and *R. mangle*.

Wetland Fauna

Fishes: Over the 1190 km of the eastern and southern boundaries of Congo, the Oubangui/Congo River provides close to 535 000 ha of open water, and while the fish fauna of this stretch of water is known in broad terms, that of the other river systems in the country has not been investigated in any detail. The fishes of the Congo at Malebo Pool have been investigated (Poll, 1959), and studies have been carried out 6r upstream at Yangambi (0°47'N/24°24'E) in Zaire. Other studies have been made in Zaire at Lake Tumba opposite the

confluence of the Oubangui and Congo Rivers and these, together with details of the hydrology of the river, are referred to in section 4.6. Many fish species move out of the rivers into the swamp forests of the Cuvette Congolaise during the two high water periods each year, and while the spectrum of these is likely to be similar to that at Yangambi, this has not been confirmed. Several species of *Clarias* have been identified in the Cuvette however, together with *Ctenopoma fasciolatum*, *Hemichromis* sp., *Polypterus palmus*, *Protopterus aethiopica* and *P. dolloi*, and all of these have been identified at Yangambi and at Malebo Pool. Other species found in the rivers include *Heterobranchus* spp., *Hepsetus odoe*, *Hydrocynus goliath*, *H. vittatus*, *Lates niloticus*, *Malapterus electricus*, shoaling species of *Microthrissa* and small open water species of *Barbus*.

Reptiles: Three crocodiles occur in Congo wetlands, *Crocodylus cataphractus*, *C. niloticus* and *Osteolaemus tetraspis*, also a water monitor, *Varanus niloticus*, and several aquatic or semi-aquatic snakes including *Boulengerina annulata*, *Natriciteres olivacea*, *Naja melanoleuca* (sometimes in lakes), *Philothamnus irregularis*, *Psammophis sibilans* and *Python sebae*. Arboreal species include *Dasyzeltis fasciata*, *Dendroaspis* cf. *jamesonii*, *Thelotornis kirtlandii* and reputedly, *Thrasops occidentalis* (in the north). Terrapins, *Pelomedusa* sp. and *Pelusios subniger*, are also present.

Birds: The avifauna is rich and includes *Acrocephalus schoenobaenus*, *A. arundinaceus*, *Actitis hypoleucos*, *Anhinga rufa*, *Ardea purpurea*, *Ardeola ralloides*, *Botaurus stellaris*, *Callidris nzinuta*, *Ceryle rudis*, *Chlidonias leucoptera*, *Corythornis cristata*, *Eupodotis* spp., *Francolinus* spp., *Gallinago media*, *Glareola nordmanni*, *Haliaeetus vocifer*, *Ixobrychus minutus*, *Hirundo rustica*, *Larus fuscus*, *Megaceryle maxima*, *Motacilla flava*, *Nycticorax nycticorax*, *Pandion haliaetus*, *Phalacrocorax* spp., *Riparia riparia*, *Rhynchops flavirostris* and *Scotopelia peli*.

Mammals: The large mammals resident in, or visiting, Congo wetlands include *Cephalophus sylvicultor*, *Hippopotamus amphibius*, *Hyemoschus aquaticus*, *Hylochoerus meinertzhageni*, *Kobus ellipsiprymnus*, *Loxodonta africana africana*, *L. africana cyclotis*, *Phacochoerus aethiopicus*, *Potanzochoceros porcus*, *Redunca redunca*, *Sylvicapra grinzmia*, *Syncerus caffer nanus*, *Tragelaphus euryceros*, *T. scriptus* and *T. spekei*, with *Trichechus senegalensis* in the estuarine parts of rivers. Both Gorilla gorilla and Pan troglodytes have been observed in swamp forest during unflooded periods.

Smaller mammals which live in, or visit, the swamps, the flooded gallery forests and the riverbanks include *Aonyx congica*, *Atherurus africanus* (gallery forests), *Atilax paludinosus*, *Dasymys bentleyi* (herb swamps), *Felis aurata*, *Genetta tigrina*, *Herpestes ichneumon*, *H. naso*, *H. sanguineus*, *Lutra nzaculicollis*, *Mauls gigantea* (gallery forests), *M. tetradactyla* (swamp forests), *Potamogale velox* and *Thryonomys* cf. *swinderianus* (papyrus swamps). Arboreal species in the palm and swamp forests include *Anomalurus beecroftii*, *Cercocebus albigena* (W Congo), *C. torquatus*, *Cercopithecus ascanius*, *C. cephus*, *C. neglectus*, *Colobus badius oustaleti*, *C. polykomos*, *Epixerus ebii*, *Funisciurus congicus*, *F. pyrrhopus*, *Galago demidovii*, *Heliosciurus rufobrachium*, *Nandinia binotata*, *Paraxerus poensis* and *Protoxerus stangeri*.

List of Wetlands Described

1. The Cuvette Congolaise
2. The Ivindo/Djoua Headwater Basin
3. The Dihese Plain & Niari Valley
4. Wetlands of the Coastal Plain
5. Wetlands of the Lower Congo River

1. The Cuvette Congolaise

Country: Congo

Coordinates: 3°34'N- 3°30'S/15°30'-18°40'E

Area: 10 890 000 ha (wetland = c. 6 900 000 ha)

Altitude: 324-330 m asl

Nearest Towns: Brazzaville (285 km SSW); Gamboma; Impfondo

General: This vast area, which measures 700 km from north to south, is scarcely above river level and is virtually all wetland. It is inundated, either temporarily or permanently, from the Oubangui/Congo Rivers in the east to the low hills in the west, a distance of 220 km in places. Most of the area is covered by swamp forest, but broad belts of floating grasses occur in the middle of the forest along the courses of the Likouala aux Herbes and Likouala Rivers. An herbaceous swamp extends for 300 km up the Likouala aux Herbes River (a tributary of the Sangha River) in a continuous belt 10-20 km wide, and for 180 km up the Likouala River, in a narrower and discontinuous belt. Altogether these floating prairies cover close to 342 000 ha. Permanent swamp forests are well developed at several points along the west bank of the Congo River, between Liranga (0°43'S/ 17°32'E) and a point 2°07'S/16°15'E, opposite the town of Bolobo, in places where streams have deltaic confluences with the Congo. The largest of these deltas is that of the Alima River, but permanent swamp forests also occur behind the herbaceous swamps on the Likouala and Likouala aux Herbes Rivers, and in the north on the meandering Motaba and Mbongoumba Rivers, and also in small patches along many headwater streams along the western boundary of the cuvette. Temporarily inundated swamp forests fringe many of the rivers and cover the inter-riverine flats. Evergreen rain forests interdigitate with the swamp forests on narrow tongues of higher land extending out from the hills in the north, and also along levees and other higher land flanking the Oubangui and Sangha Rivers. In the south, patches of marshy savanna and boggy steppes form mosaics with each other and the temporarily inundated swamp forest, being prominent at the mouth of the Sanga River, and between the Alima and Kouyou Rivers.

Human Impact & Utilisation: The Cuvette is sparsely populated and mostly undeveloped. Pygmies live and hunt in the forests, but overall the wetlands are little disturbed. The Congo/Oubangui Rivers are navigable above Brazzaville and the river is the scene of much passenger and cargo traffic.

Conservation Status: A National Park, Odzala National Park, and the adjacent Reserves of Lekoli-Pandaka and M'Boko protect some 284 000 ha on rising land at the western extremity of the Cuvette, between the Mambili and Likouala Rivers. The area is relatively undisturbed and there is no tourism. Swamp forest occurs at the lowest levels, while

hygrophilous *Andropogon* savanna occupies much of the higher area where there are also some salt pans. Lake Moba, a lake with conspicuously blue water, occurs in the National Park.

2. The Ivindo/Djoua Headwater Basin

Country: Congo

Coordinates: 1°00' -2°10' N/13°11' -14°26'E (in Congo)

Area: 1 000 000 ha (c. 330 000 ha wetland in Congo)

Altitude: 480-600 m asl

Nearest Towns: Souanke (10 km E); Brazzaville (650 km SSE)

General: Swamp forests occur on several of the headwater tributaries of the Ivindo and Djoua Rivers in Congo, south of Souanke (2°03'N/14°09'E), but are best developed on the Karangoua, Ouaga and Ebaka Rivers. The former enters the Ivindo, and the last two the Djoua, some way above the confluence of these major streams (1°13'N/13°13'E), 473 m asl. The three major swamp forest blocks on these rivers all reach 15 km in width and over 50 km in length and cover a total of 205 000 ha. The individual blocks have areas of 50 000 ha (Karangoua), 90 000 ha (Ouaga) and 65 000 ha (Ebaka), and all comprise both permanent and temporarily inundated forests. Primary forest along the Djoua River, which forms the border with Gabon, is subject to inundation on both banks for a distance of more than 150 km above its confluence with the Ivindo. The flood may extend more than 25 km into the forest on both banks of the river, and it is estimated that there are at least 100 000 ha of swamp forest in Congo.

Human Impact & Utilisation: This area east of the Ivindo River and north of the Djoua River is very isolated. There are no proper roads to the area, which is very sparsely populated on both sides of the border, and the swamp forests are undisturbed.

Conservation Status: Unprotected.

3. The Dihese Plain & Niari Valley

Country: Congo

Coordinates: 3°13' - 4°00'S/12°25' -12°57'E

Area: 300 000 ha (c.60 000 ha permanent wetland)

Altitude: c. 100-200 m asl

Nearest Towns: Dolise (50 km S); Brazzaville (300 km ESE)

General: Swamps of various types accompany several NW-SE oriented tributaries of the Kouilou River on the Plain of Dihese. On the northern side of the plain the Gokango supports extensive swampy areas, but inundated lands are best developed between several minor streams which enter the Kouilou on its south bank in the centre of the plain, where they cover 50 000 ha, and along the lower course of the Niari River where it meanders along the eastern edge of the Plain. Here it flows in a narrow valley between the escarpment of the Massif du Chaillu and a low parallel ridge on the margin of the Dihese Plain proper. A floodplain, up to 8 km wide, accompanies the river for a straight line distance of 43 km, but in this section the river bed is over 100 km long, so much does it meander. The floodplain covers about 26 000 ha, and the river channel is accompanied by intermittent patches of permanent swamp.

Swamp forests are found in galleries along all the rivers of the region, but papyrus occurs in inter-riverine situations in the central plain, south of the Kouilou River. In the far south, a large

papyrus swamp, 56 km long and up to 9 km wide, oriented SE-NW, lies to the west of the Loma/Louila Rivers (4°17'-4°35' S/12°46'-13°13'E). Close by there are no less than a dozen large patches of evergreen forest on hydromorphic soils which are sometimes flooded. Some measure as much as 20 x 6 km, and all are oriented SE-NW along the axis of the Dihese Plain. This area drains from its southern end, into the Loma and Louila Rivers, which flow into the Loudima River and thence to the Niari River, or from the northern end, via the Loubomo and Louvakou Rivers, directly to the Kouilou River.

Human Impact & Utilisation: The many rivers and lagoons on the plain are fished by the local population, and hunting occurs on the wetland margins. The wetlands are otherwise little exploited.

Conservation Status: An important wetland area is afforded faunal protection in the Tsoulou Faunal Reserve. This covers 30 000 ha on the Dihese Plain, including the confluences of the Kouilou River with the Niari and Leboulou Rivers. However, the reserve is not patrolled effectively and poaching is common. Apart from this reserve, wetlands on the plain are unprotected.

4. Wetlands of the Coastal Plain

Country: Congo

Coordinates: 3°39'-5°00' S/11°09' -12°22'E

Area: 900 000 ha (wetland)

Altitude: 0-80 m asl

Nearest Towns: Pointe Noire (on plain); Brazzaville (330 km E)

General: In the north, a strip of papyrus and *Raphia-Pandanus* swamp, several kilometres wide, extends across the border from Gabon, connecting the head of M'Banio Lagoon (3°46'S/11°10'E) in that country with Lake Tchibenda and Conkouati Lagoon. Immediately inland of this there are swamps on the Louboumou River centred at 3°48'S/11°55'-11°59'E.

From the Conkouati Estuary (4°00'S/11°15'E) to the Kouilou River mouth (4°29'S/11°43'E) the coast is of high relief, and an almost continuous belt of littoral steppes, 10-40 km wide, extends along the coastal hills. This is backed by littoral forest, but along the courses of the rivers, which have cut narrow valleys through the coastal hills, papyrus and palm-pandan swamps are well developed, with pockets of swamp forest on their fringes. Papyrus and palm-pandan swamps enclose the inland parts of Conkouati Lagoon, occupying some 35 000 ha behind the tidal forests. They also occur along stretches of the Noubi and Loeme Rivers with blocks of 7000 and 27 500 ha respectively. Lakes Cayo (4°55'S/11°58'E) and Loufoualeba, on the Loeme River, are almost completely enclosed by papyrus stands over 4 m high, as are Lakes Yangala (4°07'S/11°36'E) and Yaubi (4°11'S/11°40'E) on the Noubi River. Swamps accompany the Loeme River upstream from Lake Cayo in a strip 4 km wide and 62 km long. However, the largest papyrus swamp covers a broad and roughly rectangular depression, measuring over 30x30 km, flooded by the Kouilou River and its tributaries the Loundji and Ntombo Rivers, centred at 4°22'S/11°55'E. This includes, on the north side of the Kouilou, Lakes Kobambi (4°10'S/11°45'E), Nanga (4°14'S/11°49'E) and Dinga (4°11'S/11°54'E), all enclosed by swamplands. In total this wetland block comprises approximately 95 000 ha, and the total

area of papyrus or associated vegetation on the coastal plain is more than 160 000 ha. A series of small lakes, some 4 km inland, at an altitude of 35 m asl, have rather diffuse drainage. Some have streams entering and draining them to the sea, others are situated in swamp areas and have no permanent watercourses associated with them, e.g. Lake La foubau (4°19'S/11°35 'E).

Tidal forests occur in all estuaries and in Conkouati Lagoon, grading into fresh water palm-pandan swamps, backed by papyrus or fresh water swamp forests. Tidal influence extends 10-30 km inland on several rivers. At the Kouilou River mouth the mangrove forests have bare mudflats in their centres.

Human Impact & Utilisation: Oil exploration has occurred all along the Congo littoral and production occurs both onshore and offshore, as a consequence of which some of the coastal lagoons are now polluted by petroleum wastes, e.g. Loubi (Djeno) Lagoon. In the north, Conkouati Lagoon has been used for many years for the export of timber which is brought to a jetty at the head of the lagoon for shipment. The littoral forests are still being felled throughout the coastal region. In the south, there is a timber export point on Lake Cayo. The human population is locally quite dense, but the wetlands are comparatively little exploited, except that they are fished and reeds are used for thatching. Some mangrove forest has been cleared in forestry operations, and mangrove timber has been widely used for fuel.

Conservation Status: Unprotected. Conkouati Lagoon and the associated Lakes Kiroka, Tchibenda and Tchimba and much surrounding wetland are situated in the Conkouati Faunal Reserve, which in theory afforded protection for the wildlife from May 1980, but in effect, due to lack of enforcement, has had little impact.

5. Wetlands of the Lower Congo River

Country: Congo

General: Wetlands have a restricted distribution on the Congolese bank of this river in its lower course. Above Malebo Pool, still strictly part of its middle course, the river is confined between hills on both banks and it is deep, c.30 m, and swift flowing. It broadens at Malebo Pool where the current slows to some 5 km/hr, and here, apart from the large central M'Bamou Island, there are several minor islands on the north side of the Pool in Congo. Rather more than half of M'Bamou Island, on its northern side, is covered by aquatic grassland which is inundated for much of the year. At high water the grasses either float, or emerge a few centimetres above the water. This aquatic prairie which is 18 km long and possibly 6 km wide at maximum, covers about 6500 ha. It is backed on the southern side by mesophile forest some of which is subject to periodic inundation. The small islands in the Pool are also flooded and support similar vegetation. Downstream of Malebo Pool, various hygrophilic associations occur, but they are not very extensive and are described in section 4.6, Zaire.

Human Impact & Utilisation: The aquatic prairies of Malebo Pool are undisturbed.

Conservation Status: Unprotected.