

REPTILES OF LOANGO NATIONAL PARK, OGOOUÉ-MARITIME PROVINCE, SOUTH-WESTERN GABON

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(with two text-figures)

ABSTRACT.— We provide a preliminary list of the reptiles occurring in Loango National Park, Ogooué-Maritime Province, south-western Gabon. The list includes 37 species (3 crocodylians, 8 chelonians, 14 lacertilians and 12 ophidians) distributed in 30 genera and 16 families, and is accompanied by our biological observations. Loango's herpetofauna is remarkable for its mixture of forest, bunchgrass prairie, mangrove and marine species, and for the high number of endangered and protected species, notably all three African crocodiles and three locally nesting sea turtles.

KEYWORDS.— Reptiles, biodiversity, Loango National Park, Gamba Complex of Protected Areas, Gabon.

INTRODUCTION

Loango National Park (1550 sq. km, LNP) was recently officially established by H. E. President Bongo Ondimba as part of the Complexe d'Aires Protégées de Gamba, and was also classified as a Ramsar site (no. 352). It falls in both Etimboué and Ndougou Departments of Ogooué-Maritime Province in southwestern Gabon, and includes the former Réserve de Petit-Loango and parts of the Domaine de chasse d'Iguéla and Domaine de chasse de Ngové-Ndogo (Anonymous, nd). It is renowned for high densities of large mammals, including lowland gorilla, chimpanzee, elephant, hippopotamus and buffalo. However, although sea turtles have received special attention (Dijkstra, 1993; Fretey and Girardin, 1988; Fretey, 2001; Pauwels, 2004), the remaining herpetofauna of LNP has never been specifically studied. The park is composed of a mosaic of coastal vegetation types on white sand, including forest, scrub and grassland. This environment, which is common along the coast, has never been herpetologically studied in Gabon.

The Smithsonian Institution, in collaboration with the Shell Foundation and Shell Gabon, has initiated studies (the Smithsonian Institution

Monitoring and Assessment of Biodiversity, [SI/MAB] Program) to inventory and conserve the biodiversity of the Gamba Complex of Protected Areas. As part of the SI/MAB Program we undertook a seven week survey of the herpetofauna of a part of LNP, corresponding to the former Réserve de Petit-Loango north of the village of Setté Cama.

MATERIALS AND METHODS

The survey took place from 24 September to 11 November 2002, i.e., at the transition between the dry and wet seasons. Our base camp was established in bunchgrass prairie at 02° 20' 27"S, 09° 35' 33"E, a few hundred meters from the beach and approximately 11km from the mouth of the Ndogo lagoon. Sampling activities were undertaken mainly around the camp area and up to 7km inland.

Specimens were mainly located opportunistically, during visual surveys of all habitats by up to four people. Surveys were undertaken during the day and during the evening. Search techniques included visual scanning of terrain and refuge examination (e.g., lifting rocks and logs, peeling away bark, scraping through leaf

litter, etc.). To supplement opportunistic collecting, habitats were also sampled using arrays of funnel and pitfall traps placed along drift fences. Trap lines were set in different microhabitat types. Drift fences consisted of lengths of black plastic sheeting 30 cm high and stapled vertically onto wooden stakes. An apron left at the base was covered with soil and leaf litter to direct specimens intercepted during their normal movements along the fence towards the traps.

Pitfall traps comprised plastic buckets (275 mm deep, 285 mm top internal diameter, 220 mm bottom internal diameter) sunk with their rims flush to ground level and positioned so that a drift fence ran centrally across the mouth of each trap. One pitfall trap was set at each end of a drift fence with the remaining traps spaced between at regular 8 m intervals. Holes in the base of the buckets allowed water drainage. A few leaves provided shelter for small species. Cylindrical funnel traps were made from fine, steel wire mosquito mesh, shaped by hand and with stapled seams. Measurements were roughly 60 x 25 cm, with funnel entrances narrowing to approximately 30 mm diameter. Traps had funnel openings at one or both ends. The flexible mosquito mesh allowed the funnel entrance to be distorted to a quarter round profile so that the sides fitted flush with the ground and with the drift fence wall. Traps were covered with light vegetation to hide them and to provide cover for captured specimens. They were checked every morning and during the day if a survey team was working in the region. Captive specimens were removed by simply opening a stapled seam, after which it was re-stapled shut. Specimens not retained as voucher specimens were released in the vicinity of capture, but 10m from the trap line. The lengths and orientation of trap arrays were tailored to local conditions, and were set for variable periods (see below). A trap-day is defined as one trap in use for a 24-hour period. Trapping locations included:

- PT1 (02° 20' 25"S, 09° 35' 40"E), 26 Sept. to 25 Oct. In dry inland forest, seven meters in from, and running parallel to, the ecotone with bunchgrass prairie. The latter is domi-

nated by the grass *Rhynchelytrum filifolium* (Poaceae), with ca. 50% cover of vegetation, 50% bare sand.

- PT2 (02° 20' 24"S, 09° 35' 43"E), 26 Sept. to 25 Oct. About 60 m from the ecotone with bunchgrass prairie, in open, wet inland forest dominated by *Sacoglottis gabonensis* trees (Humiriaceae) and with an understory dominated by *Diospyros* (Ebenaceae), and with few lianas.
- PT3 (02° 20' 27"S, 09° 35' 50"E), 26 Sept. to 25 Oct. Same forest type as for PT2, slightly wetter, with one extremity of the trap ending in a stream bed (dry before the beginning of the rainy season, later inundated).
- FT1 (02° 20' 24"S, 09° 35' 47"E), 26 Sept. to 25 Oct. Beside large fallen log in swamp forest.
- FT2 (02° 20' 24"S, 09° 35' 42"E), 26 Sept. to 25 Oct. In swamp forest, partly encircling the buttresses of a large tree (*Sacoglottis gabonensis*).
- FT3 (as for PT3), 26 Sept. to 25 Oct. Running along stream bed.
- FT/PT4 (02° 20' 40"S, 09° 35' 27"E), 6 to 27 Oct. 6 funnels + 2 buckets (buckets installed on 10 Oct.). Close to the beach, in forest dominated by tall (25 m) *Manilkara lacera* (Sapotaceae) and *Hyphaene guineensis* palm trees (Arecaceae); understory dominated by *Syzygium guineense* trees (Myrtaceae).
- FT/PT5 (02° 20' 40"S, 09° 35' 27"E), 6 to 27 Oct. 6 funnels + 2 buckets (buckets installed on 10 Oct.). Same habitat as FT/PT4.
- FT6 (02° 20' 39"S, 09° 35' 28"E), 6 to 27 Oct. Beside a pond in a forest patch between bunchgrass prairie and mangrove.
- FT/PT7 (02° 20' 39"S, 09° 35' 27"E), 6 to 27 Oct. 2 funnels + 1 bucket. Near FT/PT5, partly encircling a small pond.
- PT8 (02° 21' 56"S, 09° 36' 26"E), 26 Oct. to 2 Nov. In swamp forest near mangrove.
- PT9 (02° 21' 52"S, 09° 36' 28"E), 26 Oct. to 2 Nov. In forest with numerous *Ceiba pentandra* (Bombacaceae).

- PT10 (02° 21' 45"S, 09° 36' 28"E), 26 Oct. to 2 Nov. Close to PT9 with same habitat; partly encircling a tall *Ceiba pentandra*.
- FT11 (02° 20' 36"S, 09° 35' 36"E), 30 Oct. to 10 Nov. Forest patch in bunchgrass prairie, partly inundated following the first rains of the rainy season.
- FT12 (02° 20' 36"S, 09° 35' 37"E), 30 Oct. to 10 Nov. Same habitat as FT11.
- FT13 (02° 20' 36"S, 09° 35' 38"E), 30 Oct. to 10 Nov. Same habitat as FT11.
- PT14 (02° 20' 35"S, 09° 38' 10"E), 3 to 10 Nov. 2002. In swamp forest.
- PT15 (02° 20' 37"S, 09° 38' 11"E), 3 to 10 Nov. In swamp forest near a temporary pond.
- PT16 (02° 20' 39"S, 09° 38' 12"E), 3 to 10 Nov. Close to PT15, and along the same temporary pond.

Some voucher specimens were collected, anesthetized and injected with formalin (5%) then preserved in 70° ethanol. They are housed in the herpetological collections of the following institutions: Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (IRSNB); Port Elizabeth Museum, Humewood, South Africa (PEM); United States National Museum, Washington D.C., U.S.A (USNM); and the Smithsonian Institution Biodiversity Center, Vembo, Gamba, Gabon (GAM). Scale counts (after Dowling's [1951] method for ventrals; terminal tail scute not included among subcaudals) and measurements were collected from all squamate vouchers and are available from the authors (OSGP).

SPECIES ACCOUNTS

CHELONII

Cheloniidae:

Chelonia mydas (Linnaeus, 1758). Voucher specimen: PEM R5452 (skull), 02° 20' 25"S, 09° 35' 14"E. An adult green sea turtle (curve carapace length 895mm) was found dead on the beach about one km S of camp on 12 Oct. The next morning, the body was found about 100m inland where it had been carried by a leopard (*Felidae: Panthera pardus*) whose tracks were clearly visible all along the way between the two locations. A nest was located on the beach

opposite camp during the night of 12 to 13 Oct. The next night tracks of marsh mongoose (*Herpestidae: Atilax paludinosus*) and blotched genet (*Viverridae: Genetta tigrina*) were present around the nest but no eggs were eaten. The species was regularly seen in the sea from the beach in Oct.-Nov. and seems locally common.

Lepidochelys olivacea (Eschscholtz, 1829). No voucher specimens. On 22 Oct. at 22h00 an adult female was photographed (see Ward et al., 2003: 89, 296) as it began to dig its nest. The nest was about 50m behind the high tide line in sand with patchy grass.

Dermochelyidae:

Dermochelys coriacea (Vandelli, 1761). No voucher specimen. On 27 Sept. two females nested on the beach in front of the camp. Both nests were completely washed away by a very high tide on 7 to 8 Oct. Other nests were recorded on 28 Oct., 30 Oct. (4 nests), 1 Nov. (this nest was associated with three fake nest holes while all others we observed had only one fake nest hole; some eggs were dug out by *Ocypode* crabs – crab voucher at IRSNB, I.G. 29926), 2 Nov., 6 Nov. (2 nests; one of these females illustrated by Ward et al. 2003: 69), and 8 Nov. Dijkstra (1993) recorded leatherback turtle nesting at Petit Loango.

Pelomedusidae:

Pelusios castaneus (Schweigger, 1812). Voucher specimen: PEM R5967: 1.4 km N of camp, 800m inland, 1 Nov. Found freshly dead on its back in bunchgrass prairie (see Ward et al., 2003: 133); it had probably died from overheating. Two adult females were found on 28 Oct. in a temporary pool in bunchgrass prairie (02° 20' 17"S, 09° 35' 27"E) following heavy rain (90mm) the previous afternoon. Maran (2002) recorded the presence of this species in LNP.

Pelusios niger (Duméril & Bibron, 1835). No voucher specimens were obtained during our survey, but Maran (2002: 61) recorded the presence of this species in LNP.

Testudinidae:

Kinixys erosa (Schweigger, 1814). Voucher specimens: PEM R5966: PT15, 9 Nov. The spe-

cies was abundant in the survey area, and was observed foraging in leaf litter, or sheltering under dead logs or in hollow trees in dense and open forest. Several adult specimens fell into pitfall traps (PT2 and PT3) and were released.

Trionychidae:

Cycloderma aubryi (Duméril, 1856). No voucher specimens were retained, but a healthy adult specimen was found on the beach about 6 km S of camp in early July (M. Lee). It made no attempt to bite when handled and was released.

Trionyx triunguis (Forsskål, 1775) No voucher specimens were retained, but an adult specimen (curved carapace length 67 cm, maximum curved carapace width 52cm) was found at mid-day (5 Nov.; specimen illustrated by Ward et al., 2003: 166) in a channel linking a lagoon to the sea (02° 19' 13"S, 09° 35' 14"E). It was immobile in shallow (30 cm deep) water and did not attempt to bite when handled.

Crocodylia

Crocodylidae:

Crocodylus cataphractus Cuvier, 1824. No voucher specimens. Dijkstra (1993) recorded the species from "Lagune Sette Cama" (which was distinguished from "Lagune N'Dogo"). The species was reported to be very common in the Sounga area and is called *ngandou dousomb* (plural: *ngandou tsidoussomb*) by the Loumbou villagers in Setté Cama area (Mackayah, pers. comm., Nov. 2002).

Crocodylus niloticus Laurenti, 1768. No voucher specimens were retained, but specimens were common in the larger coastal lagoons. A large (2.5 m) specimen was basking on a sand strip between a lagoon mouth and the sea (12 Oct., 02° 16' 43"S, 09° 35' 13"E); 19 Oct., a slightly smaller specimen was walking on the bank of the same lagoon; 21 Oct., a young subadult active in a lagoon just behind the beach, 6 km N of camp; 22 Oct, 2230 h, the same specimen (illustrated by Ward et al., 2003:82-83) was found in the sea 60m N of the lagoon which had just broken through into the sea; 25 Oct., a subadult (SVL 98 cm, tail L 106 cm) was found dead in a channel linking a lagoon to the ocean

(02° 19' 39"S, 09° 35' 14"E) which had broken through following heavy rains three days before (the crocodile may have been injured by massive logs which were abundant around its dead body, as has been reported for *Dermochelys coriacea*, Fretey, 2001); 4 Nov, 2100-2130 h, several specimens were active on the beach and escaped by running into the ocean, including a 2.5 m specimen (02° 19' 24"S, 09° 35' 11"E), a 1.5 m (total L) subadult (02° 18' 05"S, 09° 35' 11"E) and another of the same size 400 m N. Four juveniles were present in a lagoon connected to the sea (02° 16' 25"S, 09° 35' 14"E). All the above specimens were identified as Nile crocodiles by their characteristic snout shape. This species is called *ngandou koussi* (plural: *ngandou tsikoussi*) by the Loumbou villagers in Setté Cama area (Mackayah, pers. comm., Nov. 2002).

Osteolaemus tetraspis Cope, 1861. No voucher specimens were retained, but after the onset of the rainy season this species was extremely common in pools and swamps in the forest. This species is called *imbaghala* (plural: *bimbaghala*) by the Loumbou villagers in Setté Cama area (Mackayah, pers. comm., Nov. 2002).

Lacertilia

Agamidae:

Agama agama (Linnaeus, 1758). Voucher specimens: PEM R5431 (02° 20' 57"S, 09° 35' 35"E), 29 Sept; USNM 561457, on beach 1 km S of camp, 28 Oct; GAM 049 (02° 21' 54"S, 09° 36' 17"E), 29 Oct; USNM 561458 (02° 20' 23"S, 09° 35' 14"E), 28 Oct. The species was not abundant, and it was restricted to the beach and adjacent dry forest where it was regularly observed on *Hyphaene guineensis* palms and on dead trees. It occurred in strict syntopy with *Trachylepis affinis* (see below).

Chamaeleonidae:

Chamaeleo dilepis Leach, 1819. Voucher specimen: PEM R5434: camp, 29 Sept. The single specimen was found sleeping at night on a tree branch (Rubiaceae) about 2 m above the ground at the junction of forest and bunchgrass prairie.

Gekkonidae:

Hemidactylus fasciatus Gray, 1842. Voucher specimens: PEM R5420 (02° 20' 42"S, 09° 36' 28"E), 25 Sept; PEM R5433: PT2, 30 Sept.; GAM 055 (02° 20' 28"S, 09° 35' 26"E), 7 Oct.; GAM 056, FT2, 13 Oct.; IRSNB 16895, near PT15, 3 Nov.; USNM 561474, near PT8, 1 Nov.; USNM 561475, near PT16, 5 Nov.; USNM 561476, PT15, 8 Nov. During the day this large gecko was usually found under tree bark or in dead, rotting logs; e.g. PEM R5420, under bark of douka tree (*Tieghemella africana*, Sapotaceae) in open forest with little under-storey; another specimen (not collected) in same region in a dead log of *Diospyros cf iturensis* (Ebenaceae). At night specimens were usually active on large tree trunks, between 1.8 to 2 m above ground.

Hemidactylus mabouia (Moreau de Jonnés, 1818). Voucher specimens: PEM R5426 (02° 20' 43"S, 09° 35' 26"E), 27 Sept.; PEM R5432, GAM 057 (02° 20' 57"S, 09° 35' 35"E), 29 Sept.; USNM 561481, beach opposite camp, 17 Oct.; GAM 058 (02° 20' 58"S, 09° 35' 34"E), 30 Oct. All specimens collected were found in the beach area, either in dead logs on dunes, or under bark on dead trees.

Hemidactylus muriceus Peters, 1870. Voucher specimens: PEM R5436, PEM R5969 (02° 20' 15"S, 09° 35' 54"E), 2 Oct.; PEM R5440 (02° 20' 20"S, 09° 35' 39"E), 3 Oct.; PEM R5445, FT2, 8 Oct.; IRSNB 16662, 2 km S of camp, 1.2 km inland, 16 Oct.; GAM 059, near PT1, 30 Oct.; GAM 060 (02° 20' 42"S, 09° 37' 16"E), 1 Nov.; USNM 561484, near PT16, 5 Nov.; USNM 561485, near camp, 7 Nov.; USNM 561486 (02° 20' 39"S, 09° 38' 11"E), 8 Nov.; USNM 561487, 1 km E of camp, 8 Nov. During the day specimens were found under wood debris on the ground or in leaf litter. One specimen was found in wood debris in a stream bed in syntopy with *Natriciteres fuliginoides*. At night it is active in shrubbery, often on thin branches from ground level up to 1.5 m above ground. Two adult females each contained two eggs; USNM 561484 (SVL 55.5mm), eggs 7.0 x 4.9 mm; USNM 561486 (SVL 50.5 mm), eggs 7.1 x 5.0 mm.

Gerrhosauridae:

Gerrhosaurus nigrolineatus Hallowell, 1857. Voucher specimens: PEM R5437 (02° 20' 27"S, 09° 35' 33"E), 3 Oct.; PEM R5405 (02° 20' 27"S, 09° 35' 33"E), 8 Oct.; PEM R5965, near PT1, 10 Oct.; PEM R5411 (02° 19' 56"S, 09° 35' 32"E), 11 Oct.; USNM 561466-67, near PT1, 11-12 Oct.; USNM 561468, near PT1, 14 Oct.; PEM R5435, FT/PT4 (in funnel), 15 Oct.; GAM 053, GAM 054, IRSNB 16892-93, near FT/PT4, 15 Oct. (GAM 053) & 16 Oct. All specimens were observed active during the day in bunchgrass prairie. The observed and voucher specimens fell into three size categories: juveniles (SVL 46 to 58 mm, umbilical scar obvious), subadults (SVL 69 to 79 mm, umbilical scar faint or undetectable), and adults (SVL >137 mm). An adult was observed to investigate a small tunnel in bunchgrass prairie from which two gray-rumped swallows (*Pseudohirundo griseopyga*; vouchers BKS 5969 & 5974) were later trapped.

Scincidae:

Feylinia grandisquamis Müller 1910. Voucher specimens: PEM R5428-9, PEM R5448, PT3, 29 Sept. and 11 Oct.; PEM R5449, FT/PT4 (in pitfall), 11 Oct.; USNM 561492 (02° 20' 29"S, 09° 35' 56"E), 2 Oct.; IRSNB 16889 (02° 20' 20"S, 09° 35' 39"E), 3 Oct.; USNM 561490, PT3, 6 Oct.; USNM 561493-94, FT/PT4 (in pitfall), 13 & 16 Oct.; IRSNB 16890, near PT10, 28 Oct.; USNM 561491, PT9, 1 Nov.; GAM 051, near PT15, 3 Nov.; GAM 052 (02° 20' 23"S, 09° 35' 13"E), 4 Nov. Widespread in wooded and forested habitats, but not open bunchgrass prairie although one specimen GAM 052 was found in sand under a log on the beach 2 m above high tide level. Another specimen (IRSNB 16890) was caught by day under wood debris between the roots of a *Ceiba pentandra* tree. All females contained eggs in various stages of development: USNM 561492 (SVL 105 mm), two eggs (6 x 4.2 mm); USNM 561494 (SVL 98 mm), two eggs (13 x 4.5mm); IRSNB 16890 (SVL 103 mm), three eggs (11.2 x 5.0 mm); USNM 561493 (SVL 109 mm), two eggs in left ovary; PEM R5429 (SVL 88 mm), two eggs (12 x 5

mm) in left ovary. All males (SVL 78-118 mm) were sexually mature and had swollen testes and sperm-filled seminal vesicles. Some specimens were in a pre-slough blue colouration, which was lost after skin shedding. Confusion with this condition probably accounts for Jackson's (2002) report of an unusual "pale, periwinkle blue" colour variant in *Feylinia currori*.

Lygosoma fernandi (Burton, 1836) Voucher specimens: PEM R5444, FT2, 7 Oct.; USNM 561500, PT15, 4 Nov. A very secretive species, of which only two were caught in traps and none were seen active during the survey.

Panaspis breviceps (Peters, 1873) Voucher specimens: PEM R5446, near FT3, 10 Oct.; PEM R5455, near PT3, 14 Oct.; GAM 069 (02° 20' 39"S, 09° 38' 11"E), 12 Oct.; USNM 561502, PT16, 4 Nov. This skink was only found in swamp forest, where it was active among tree roots and dry stream beds.

Panaspis reichenowii Peters, 1874. Voucher specimens: USNM 561504, 2 km S of camp, 2.7 km inland, 16 Oct.; GAM 070, 1.5 km N of camp, 1.5 km inland, 26 Oct. One specimen was running in sunny weather on a dead branch about a meter above the ground, whilst another was active on the ground and entered a tree hole alongside a dry stream bed.

Trachylepis affinis (Gray, 1838) Voucher specimens: PEM R5425 (02° 20' 43"S, 09° 35' 26"E), 27 Sept.; IRSNB 16898, camp, 18 Oct.; PEM R5450 (02° 21' 37"S, 09° 36' 07"E), 26 Oct.; PEM R5452, beach, 1.5 km S of camp, 28 Oct.; GAM 061-062 (02° 20' 23"S, 09° 35' 14"E), 28 Oct.; USNM 561505 (02° 21' 54"S, 09° 36' 17"E), 1 Nov.; USNM 561506 (02° 20' 24"S, 09° 35' 14"E), 4 Nov.; USNM 561507 (02° 20' 07"S, 09° 35' 25"E), 4 Nov. Relatively common along the coastal belt, particularly in association with dead logs of *Hyphaene guineensis* palm tree and in the mangroves among roots of *Rhizophora racemosa* (Rhizophoraceae). Also in bush clumps in bunchgrass prairie, but absent from closed-canopy forest. We follow Bauer (2003) in referring African skinks previously placed in *Mabuya* to *Trachylepis* Fitzinger, 1843.

Trachylepis albilabris (Hallowell, 1857). Voucher specimens: PEM R5421, PT1, 27 Sept.; PEM R5422-3, PT2, 27 Sept.; PEM R5424, PT2, 28 Sept.; PEM R5427, FT2, 29 Sept.; PEM R5442, PT3, 5 Oct.; PEM R5447, PT1, 10 Oct.; PEM R5456-7, PT2, 14 Oct.; USNM 561510, near PT1, 1st Oct.; GAM 063, FT2, 2 Oct.; GAM 064 (02° 20' 27"S, 09° 35' 33"E), 7 Oct.; GAM 065, camp, 7 Oct.; USNM 561511, PT1, 8 Oct.; USNM 561512, PT2, 8 Oct.; IRSNB 16899, FT/PT5 (in pitfall), 13 Oct.; USNM 561513, FT2, 13 Oct.; IRSNB 16900, PT2, 17 Oct. An adult male was found on 2 Oct. in PT3 and released. Another adult was released from FT6 on 23 Oct., another from PT2 on 24 Oct., another from PT10 on 28 Oct., another from PT9 on 29 Oct., another from PT8 on 2 Nov., two others from FT11 and PT10 on 31 Oct., and another from PT14 on 5 Nov. This skink was the most common reptile in LNP, where it was restricted to closed canopy forest, and is replaced in open areas (mangroves, coastal belt and bunchgrass prairie) by *T. affinis*. It forages on the ground in leaf litter, but usually basks and shelters on dead logs.

Trachylepis polytropis Boulenger, 1903. Voucher specimens: PEM R5443, PT3, 8 Oct.; PEM R5453, near PT1, 14 Oct.; PEM R5454, near PT3, 14 Oct.; USNM 561520, PT15, 7 Nov.; GAM 066, PT14, 7 Nov. This large skink was found only in closed canopy forest, where it was much less abundant than *T. albilabris* and preferred large dead trees. A small specimen on a dead tree was captured in a funnel trap baited with two gryllids.

Varanidae:

Varanus ornatus (Daudin, 1803). Voucher specimen: PEM R5459 (skull), (02° 21' 14"S, 09° 35' 47"E), 8 Oct. Part of the skeleton of an adult found dead inside a hollow tree on the beach. Fresh tracks of adults were frequently found on the beach, often following the high tide line for several hundred meters. An adult male (72 + 107 cm) was found basking in the morning in bunchgrass prairie near PT1. Its tongue was white. A specimen was photographed in

November on the beach about 8 km S of camp while it was eating *Dermochelys* eggs (see Ward et al., 2003: 69).

Serpentes

Colubridae:

Boiga blandingii (Hallowell, 1844). No voucher specimen. On 17 Oct. (22h00) a sub-adult was filmed (S. LAHM) while active in a tree 1.5 km E of camp.

Dipsadoboa duchesnii (Boulenger, 1901). Voucher specimens: PEM R5458 (02° 20' 36"S, 09° 35' 37"E), 28 Oct.; PEM R5459, USNM 561530-31, IRSNB 16888, near PT16, 5 Nov.; GAM 050 (02° 20' 36"S, 09° 35' 37"E), 6 Nov. All specimens were caught at night, either in forest patches in bunchgrass prairie or on bushes on the banks of temporary ponds where frogs were breeding. An adult female (PEM R5458) had ingested an adult *Hyperolius phantasticus* (Boulenger, 1899) vent first, and also contained 4 immature eggs. The subcaudal count (116) of one female (GAM 050) exceeded the previous maximum (113) for females (Chippaux, 2001).

Hapsidophrys smaragdina (Schlegel, 1837). No voucher specimen. An adult was seen (2 Nov.) at midday basking on a dead tree trunk at the ecotone between a forest patch and bunchgrass prairie (02° 20' 36"S, 09° 35' 37"E).

Mehelya stenophthalmus (Mocquard, 1887). No voucher specimen. A piece of shed skin, found on 25 Sept. (02° 20' 42"S, 09° 36' 28"E) about 2 m above the ground in a large hollow tree, was referable to this species. It had a double-keeled enlarged vertebral row, keeled ventrals, and ?-15-15 dorsal scale rows with a weak mediodorsal double keel, and very weak keels without secondary keels on dorsal rows. The latter character precludes *M. poensis* or *M. capensis* (Meirte, 1992), and the scales of *M. guirali* are "strongly keeled and striated, the striations directed obliquely towards the keels" (Boulenger, 1893). Comparison of the shed skin with *M. stenophthalmus* (IRSNB 13041) showed that body scalation and keels were identical.

Natriciteres fuliginoides (Günther, 1858). Voucher specimens: PEM R5430, near PT3, 29 Sept.; PEM R5438-9, USNM 561554 (02° 20' 20"S, 09° 35' 39"E), 3 Oct.; IRSNB 16903 (02°

20' 42"S, 09° 37' 48"E), 25 Oct.; PEM R5486, GAM 067-068 (2°20'20"S, 9°35'43"E), 9 Oct.; USNM 561553 (2°20'33"S, 9°36'00"E), 10 Oct.; USNM 561555, IRSNB 16896 (02° 20' 24"S, 09° 35' 47"E), 12 Oct. Common in swamp forest and river courses. Snakes were active among leaf litter during the day or found under logs or debris in marshy areas and river beds. One specimen (IRSNB 16903) contained the remains of a *Dimorphognathus africanus* (Anura: Ranidae), while in captivity another ate another small ranid (*Phrynobatrachus auratus*, Figure 1). Two specimens increased the range of scale counts known in the species, with a ventral count of only 115 (PEM R5430; previous minimum 117; Chippaux, 2001) and a subcaudal count of 73 (USNM 561554; previous minimum 74; Chippaux, 2001).

Philothamnus carinatus (Andersson, 1901). Voucher specimen: PEM R5441 (02° 20' 27"S, 09° 35' 33"E), 5 Oct., a recent hatchling crawling in the morning in bunchgrass prairie.

Psammophis cf. *phillipsii* (Hallowell, 1844). Voucher specimens: PEM R5451, (02° 20' 35"S, 09° 35' 46"E), 13 Oct.; USNM 561547, camp, 26 Oct.; GAM 071 (02° 20' 41"S, 09° 35' 34"E), 29 Oct.; GAM 072, camp, 2 Nov.; USNM 561548, 300 m S of camp, 2 Nov.; PEM R5857, (02° 20' 10"S, 09° 35' 27"E), 4 Nov. The taxonomy of the *Psammophis sibilans-phillipsii* complex in West and Central Africa remains confused. The lateral head coloration of LNP specimens (see Figure 2 and Ward et al., 2003: 15, 138) is similar to that of the specimen illustrated by Chippaux (1999, 2001: pl. 36) for *P. phillipsii*; although Hughes (2000: 31) stressed that that picture rather illustrated a *P. sibilans*. However, the specimen illustrated by Chippaux was caught near Cotonou airport, Benin (Chippaux, pers. comm., Nov. 2002). The meristic characters of the LNP specimens correspond to those given by Chippaux (*loc. cit.*) for *P. phillipsii*, except that the anal scale is divided in all. All specimens were collected in bunchgrass prairie. An adult (PEM R5451; Fig. 2) was excavated by day from the ending part of the nest burrow of a black-headed bee-eater (Meropidae: *Merops breweri*) in bunchgrass prairie. The burrow was 320cm long and reached a depth of 60cm. The



FIGURE 1: *Natriciteres fuliginoides* eating a small ranid *Phrynobatrachus auritus* in Loango National Park (W. R. Branch).



FIGURE 2: *Psammophis* cf. *phillipsii* from Loango National Park (W. R. Branch).

snake's stomach contained a chick of *M. breweri*. A juvenile (GAM 071) was found at night (23h00) sheltering in an isolated grass clump in flooded bunchgrass prairie. Another specimen (PEM R5857) was active in late afternoon (1640 h) by a temporary pond in bunchgrass prairie and tried to escape by diving underwater. Its stomach contained five adult *Hyperolius phantasticus*, two being ingested vent first.

Rhamnophis aethiops Günther, 1862. Voucher specimen: USNM 561538 (02° 19' 17"S, 09° 36' 21"E), 26 Oct., found by day on a branch 1.6 m above the ground in open forest.

Thrasops flavigularis (Hallowell, 1852). Voucher specimen: PEM R5856 (02° 20' 42"S, 09° 35' 53"E), 5 Nov., was active at 16h20 in bunchgrass prairie, and tried to climb into a tree to escape.

Pythonidae:

Python sebae (Gmelin, 1789). No voucher specimen. The shed skin of a small juvenile was found on the beach about 5 km S of the camp on 24 Sept.

Typhlopidae:

Typhlops angolensis (Barboza du Bocage, 1866). No voucher specimen. An adult specimen (total L ca. 30 cm) was found in PT2 on 12 Oct., but subsequently escaped.

Viperidae:

Bitis gabonica (Duméril & Bibron, 1845). No voucher specimen. We examined the picture of an adult specimen taken by Nick Nichols in the park in January 2004. The specimen had been found on a lagoon island. Three specimens were observed by Nick Nichols and Mike Fay in the park during the megatranssect in December 2001.

DISCUSSIONS

For a while the Loango area formed part of the French Congo, and data on "Loango" have been presented in old French papers dealing with the Congo Français. Boulenger (1900: 433) defined the "Gaboon district" as "the part of West Africa situated between Camaroons and Loango, in the French Congo". Although in old litera-

ture references to "Loango" are numerous, it is quite problematic to decide whether or not these are situated within the borders of LNP or even if they are situated in Gabon. For instance, Boulenger (1893: 47) cited "*Typhlops anomalous* (Bocage, 1873)" (in fact a *Rhinotyphlops*) from "South-west Africa (Mossamedes; Loango?)". Boulenger (1894: 287, 288, 358; 1896: 186, 263, 436, 509, 603, 616, 617, respectively) recorded from the "Mouth of the Loango": *Grayia caesar* (OSGP examined the specimen BMNH 94.8.4.13 from that locality), *G. smithii* (re-quoted by Boulenger, 1909), *Philothamnus heterodermus*, *Thelothornis kirtlandii* (Broadley, 2001: 66, mentioned a *T. kirtlandii* [BMNH 94.8.4.20] from the "mouth of the Loango", "Congo-Brazzaville"), "*Elapops modestus*", "*Dendraspis jamesonii*", "*Atheris squamiger*", "*Tropidonotus fuliginoides*", "*Boodon olivaceus*", *Hormonotus modestus* and "*Simocephalus guirali*". Boulenger (1900) listed *Lacerta echinata*, *Grayia smithii*, *Hormonotus modestus* and "*Simocephalus guirali*" from Loango. Boulenger long confused *Grayia ornata* and *G. smithii*; a specimen from "Sette Cama, Gaboon" was identified by him as *smithii* in 1894 and as *ornata* in 1909 (it is most probably BMNH 89.7.6.4 that OSGP examined and which is indeed *ornata*). Mocquard (1902: 410) mentioned *Leptodira Duchesnii* (sic) from "Loango" and "Sette Cama"; RASMUSSEN (1989: 256) listed the specimen MNHN 1900.2 from "Loango" in "Congo", and the specimen MNHN 1894.268 from "Setta Cama" (sic) in Gabon. GANS (1959: 154, 156) listed *Dasypeltis palmarum* from "Loango", Angola (!), based on Boettger (1888). Chippaux (2001: 109-10) indicated two dots situated in southwestern Gabon on the distribution map for *D. palmarum*, but in fact these dots were erroneously placed in Gabon (Chippaux, pers. comm., Jan. 2003). Boettger (1888) listed numerous species from "Loango" and various localities on "Loangoküste". For example, Boettger listed *Mabuia* (sic) *maculilabris* from "Tschintschoscho in Loango" (*loc. cit.*: 27), *Feylinia macrolepis* from "Massabe in Loango" (*loc. cit.*: 35), or *Philothamnus dorsalis* from "Molembo in Loango" (*loc. cit.*: 59). De Witte (1965: 51) mentioned *Chamaeleo d. dilepis*

(MNHN 1897.241) from “Loango”, “République du Congo”. De Massary (1993: Annex 3: vii) mentioned two specimens of *Causus maculatus* (MNHN 1973.1259-60) from “Loango, Congo”. Trape & Roux-Estève (1995) listed 13 snake species (*Atractaspis congica*, *A. irregularis parkeri*, *Chamaelycus fasciatus*, *Dasypeltis palmarum*, *Dipsadoboa duchesnii*, *Hapsidophrys smaragdina*, *Lamprophis f. fuliginosus*, *Mehelya capensis savognani*, *Natriciteres o. olivacea*, *Dendroaspis j. jamesoni*, *Elapsoidea guentheri*, *Typhlops l. lineolatus*, *Causus maculatus* – the same as those mentioned by de Massary) from “Loango” and gave for that locality the geographic coordinates of a point (4°39’S, 11°48’E) situated in Congo Brazzaville. The Loango indicated on the map provided by du Chaillu (1863) seems to be situated more inland than the limits of LNP. Such a great confusion leads us to take into account only recent, unambiguous records, which seems also pertinent at a conservation point of view.

Although twelve snake species were recorded from LNP, only three were common: *Dipsadoboa duchesnii* in forest near ponds, *Natriciteres fuliginoides* in swamp forest, and *Psammodromis cf. phillipsii* in bunchgrass prairie. Where it occurs, *Philothamnus carinatus* is often an abundant species (e.g. *Monts de Cristal* in northern Gabon, Pauwels et al. 2002b), and it is surprising that we found only a single recently-hatched specimen during the present survey. Despite its small size and abundance in the direct vicinity of our traps, *Natriciteres fuliginoides* was never captured in either funnel or pitfall traps. The largest reptile that we caught in a pitfall trap was an adult *Kinixys erosa* (on 17 Oct.) which had a curve carapace length of 294mm (total straight length of carapace and plastron until extremities of gulars 266mm). Pitfall (eight species) and funnel (six species) were not as effective as general searches in sampling reptiles, but did capture two species (*Lygosoma fernandi*, in both trap types; *Typhlops angolensis*, in pitfall trap only) that were not found by active searching. Only 12 snake species represents a low diversity compared to other reptile lists from Gabon (24 snake species were recorded at Lopé by Blanc and Frétey, 2000; 32

in the *Massif du Chaillu* and 32 in the *Monts de Cristal* by Pauwels et al., 2002a-b), and probably reflects under-collecting rather than a truly impoverished snake fauna.

The density of Red river hogs *Potamocheilus porcus* was high in the park, as attested by their numerous tracks and our visual encounters in all sampled sites. Large land crabs were also common nearly everywhere, and dozens of specimens were found in the pitfall and funnel traps. The combined presence of these nocturnal animals could well be responsible for the low density or even the complete absence, of a number of expected terrestrial species (given their general geographic distribution) in the sampled sites. This could also explain the high proportion of (semi-) arboreal and/or diurnal squamates among the taxa recorded.

The lack of permanent water points in the area we surveyed could explain the apparent absence of aquatic species like *Grayia ornata* or *Hydraethiops melanogaster*, otherwise widely distributed and abundant in most parts of Gabon. Due to the overall similarity between the bunchgrass prairie at Loango and the savanna at Lopé, and the presence of several savanna dwelling taxa at Loango, we expect a number of additional savanna and ubiquitous species in Loango that were recorded at Lopé: for instance the occurrence of *Poromera fordii* (in grassy areas in forest near permanent streams) (Lacertidae), *Calabaria reinhardtii* (Boidae), *Aparallactus modestus*, *Dasypeltis scabra*, *Lamprophis olivaceus*, *Philothamnus heterodermis* (Colubridae), *Dendroaspis jamesoni*, *Naja melanoleuca* (Elapidae), *Typhlops congestus* (Typhlopidae), *Atheris squamigera*, *Bitis nasicornis* and *Causus maculatus* (Viperidae) seems very probable. Surveys of other parts of the park, like the Sounga area which offers permanent streams where the villagers told us that *Grayia ornata* was common, and cultivated lands, or the Iguéla zone, will undoubtedly bring a number of new records. All five sea turtle species known to occur in Gabon (Fretey, 2001) should be confirmed soon from LNP. Although no amphisbaenids were recorded during the Loango survey, both *Cynisca bifrontalis* and *Monopeltis galeata* were recently recorded from lowland

forest habitats in the Gamba Complex (Branch et al., 2003). These records were southern range extensions that straddle the LNP where both species may also occur.

CONCLUSIONS

Although Loango's herpetofauna did not prove to be extremely rich (comparable to Lopé with its 38 species but less than Monts de Cristal with 48 or Massif du Chaillu with 50), it offers a unique combination of West African grassland, forest and marine species. The presence of all three African crocodile species, as well as several other protected reptile species, among them three sea turtle species which nest on Loango's beaches, strongly justifies the pertinence of the protection of Loango's area. Nonetheless, a number of species will undoubtedly still be recorded from the park, especially among snakes. In total we believe that a list of about 50 reptile species can reasonably be expected for the park. Each new record will still increase the –already high– value of the park at a conservation and herpetological point of view.

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