

recently (1956) Mr B. Shenton has seen 5 different rhinoceroses on the road between Moshi Camp and the Kafue, showing that the species is still increasing. He thinks that there are at least 20 rhinoceroses on either side of the Junga stream in this area, and spoor has been seen as far north as the woodland near the Lushimba air strip (Ann. Rep. Game Dep. 1956). Further west, it occurs sparingly in the vicinity of the old, abandoned village of Hinafuma, the Mundu and west Kabanga streams, undoubtedly linking up in the past, if not today, with those in the Lalafuta area. The most northerly record in the last few years is on the western boundary of the Park, a few miles north of Lushimba. In the past they probably ranged north-westwards towards the Loba river, some way to the north-west of the Park. One of the Game Guards saw one on the Loba many years ago, although it would be very surprising if there were any there today. In the eastern part of the Park, there is a single record of spoor seen on the Mikusa. Mr Ansell believes that rhinoceroses may be found farther south (in the Mumbwa District) in the vicinity of the Mukombo tributary of the Kafue river.

In the Central Province sector of the Kafue National Park, Grimwood reports that rhinoceroses occur on the Nalusanga headwaters and in the Luansanza river area, and Vaughan includes these in an estimated total of seven for the Central and Southern Province sectors.

Of the plateau areas outside the Park, Ansell, writing on the rhinoceros in the North-Western Province (personal communication, also 1952, p.108) says that in the Balovale, Kabompo, Mwinilunga and Solwezi districts, there is no record of its occurrence during recent times and it is doubtful if it ever was present. In the Luswishi area, east of the Lunga river on the Kasempa-Ndola border, there is a closed sleeping-sickness area in the vicinity of Luswishi, Mufunshi, Luwembo and Mininga rivers and the upper Kaungashi, in which it is practically certain that rhinoceroses still exist, although they have undoubtedly suffered a good deal of persecution. They may still be in fair numbers, but precise information as to quantity or limits of range is lacking. There are about twelve on the boundary between the Luswishi and the eastern Lunga rivers (N. J. Carr, personal communication).

On the Dongwe and Lalafuta rivers, Ansell believes that an odd rhinoceros or two may possibly exist in the vicinity of these rivers on the Kasempa-Mankoya borders, and as recently as 1950, on the south bank of the Lalafuta, not far from its source, spoor was reported of a pair. Those that remain, however, can be only a remnant, and in spite of legislation probably have slender chances of survival. It is probable that most of the south-western part of Kasempa, along the Mankoya border, once held fair numbers of rhinoceroses.

In the Central Province plateau area, Grimwood reports an isolated group of about twelve animals living in a small patch of thick bush to the west of the Nambala hills in Mumbwa District. This population is confirmed by both Vaughan and Ansell.

In the Southern Province plateau, Mr Vaughan records a single specimen on the Sichifula stream.

At the beginning of this century, the rhinoceros was very plentiful in Northern Rhodesia, especially so in the country lying on either side of the Luangwa river (Lyell 1910, p.49 and Wroughton 1907, p.32), and in other parts of the country where conditions were suitable. Lyell (1913, p.163) writes that at that time they were numerous in the Machinga mountains from where they would wander down into the Luangwa river valley, and Codrington (1906, p.142) and P. Mathis more recently (personal communication) found them numerous in the northern and central regions of the Mweru Marsh Reserve in the bush and broken country. Today, the rhinoceros has completely disappeared from this latter region, and is not found to the north of the Muchingas where the last were shot some fifty years ago in the Moorokoso districts. Pitman in 1934 (p.14) did, however, mention that a few migrants from the Belgian Congo visited the "mateshi" bush in the north-western corner of the Mporokoso district, but it is very doubtful if these have survived until today. According to Savory (1958, personal communication) there are at least two rhinoceroses left on the Muzombwe Hill (east of Muzombwe).

The rhinoceros was very much more numerous in Northern Rhodesia during the last century than it is today. There was a sharp decline in numbers at the turn of the century, and from the thousands of rhinoceroses that lived there at one time, in 1934 Pitman (p.331) estimated that

1,500 remained in the entire country. In spite of protection the decline has continued, although somewhat more slowly, until today, when less than half the number estimated by Pitman remain. These are totally protected in the whole of the former Kaonde-Lunda Province and in the Mumbwa, Namwala and Petauke districts, but until shooting is entirely prevented in all the other districts, the decline in numbers will continue, and the rhinoceros will face extinction in Northern Rhodesia.

### Tanganyika

Black rhinoceroses are distributed generally throughout Tanganyika, being more numerous in the northern districts than in the southern. In the northern districts, they are common in the Ngorongoro highlands, the eastern edge of the Serengeti plain and in the Rift valley, notably in the Mto-wa-Mto forest; in the Lake Natron area; on the slopes of Kilimanjaro and particularly on the eastern slopes of Mount Meru and in the Sanya corridor. They appear to be fairly common throughout Tanganyika Masailand, and the highland areas extending south from Lake Natron and the Kenya border to the Ufiami highlands, bordering Central Province (A. Brooks, personal communication and Report 1935, p.3; 1955, p.4).

They are fairly common in the Tarime and Loliondo districts and are quite common in the Masai and Arusha areas, especially near Moshi. Major Russell (Honorary Game Ranger) estimates that there are still approximately 1,000 rhinoceroses in the Ngurdoto area in Arusha district (Report 1953, p.21 and 1954b, p.26). In the narrow strip of country lying between Lake Manyara and the Rift wall which has been closed for shooting, rhinoceroses are said to abound (Report 1955, p.6). They are found on the slopes of Kilimanjaro up to about 9,000 feet, and in the Pare district and on the Umba steppes. In Tanga Province, rhinoceroses are common throughout the Pare mountains and on the lowland to the north and south of these mountains. In this area, which is densely populated, they are said to be a constant nuisance to native agriculture. They are reported to occur in the region north of the Korogwe-Handeni-Kondoa road (Report 1954b, p.9). They occur in the Mkomazi Game Reserve, the northern sector of which is contiguous with the Tsavo National Park in Kenya, thus making the two areas mutually beneficial (Report 1954b, p.6).

In the Serengeti National Park there are approximately 50 rhinoceroses (aerial counts by M. Grzimek, January, 1958), and these are mainly concentrated in the crater highlands, particularly in the forests of Ngorongoro. In the Ngorongoro crater a number were killed recently by the Masai following the excision of the crater from the Serengeti National Park. They are fairly common around the Lagajia, Endulen and Kakessio areas. In the western sector of the Park they are scattered through the hilly country between the Grumeti and Duma rivers. They are more common to the north of Wangeussi Hill. A few are found round Banagi, and there are some in the Speke Gulf area of Lake Victoria.

South of Lake Victoria rhinoceroses are still found near Kahama and Shinyanga where some were destroyed in recent years during experimental tsetse research operations (Potts 1950, p.14 and Swynnerton & Hayman 1951, p.339). At Maji Moti, on the northern shores of Lake Manyara, buffaloes and rhinoceroses have been subjected to intensive hunting pressure from Europeans, with the result that the game in this area is now completely wild (Anon. 1951c, p.71). South of the lake at Babati they are said to be plentiful. In 1930, they were particularly abundant in this area, in the Shanwa region (Sayers 1930, p.404). Further west they are found near Biharamulo, and in the east of the Bukoba Province, to the south of the Kagera river they are fairly numerous. It is a surprising fact that the Black rhinoceros does not range north of this river into the Uganda Protectorate. The Kagera river is a most effective water barrier, and the Black rhinoceroses of Karagwe in Bukoba Province have never, within historical times, been found to the north of this river in Uganda (Pitman, personal communication).

Further south, rhinoceroses are rare in Western Province, and only a few are left on the Wembere river and along the Malagarasi river in Kasulu district (Report 1954b, p.26). In the Ugalla River Controlled Area rhinoceroses have not yet been recorded, but they are known to occur in small numbers in the country to the north and south (Report 1955, p.6). They are very rare in Kahama and Nzega districts abutting on to Lake Province. Near Tabora they are also very rare, and a few

are found on the Wembere up to the Eyasi area. They are very plentiful in the Yaida Swamp. In Central Province, rhinoceroses are plentiful around Lake Chaya, and are also moderately plentiful in the "Itigi" thicket of the Manyoni and Singida districts. A small number may still be found along the Ruaha river, and Swynnerton & Hayman (1951, p.67) record them from Dodoma and Mpwapwa.

In the Rungwa Game Reserve, which lies on the borders of Central and Southern Highlands Provinces, rhinoceroses occur (Report 1952b, p.3 and 1954b, p.7). In the Lake Rukwa catchment area of Southern Highlands and Western Provinces, they are found now only on the Lupa plateau where they have been persecuted during recent years, with the result that their range has been considerably reduced (Report 1946, p.32). In the Lake Katavi Game Reserve rhinoceroses were seen in 1954 (Report 1955, p.5). According to Mr Davis, they are found at Pela, in Kinyamwezi. There are none in the Sumbawanga district to the north-west of Lake Rukwa.

There are very few rhinoceroses in Southern Highlands Province and in Southern Province. A small number may be found along the Ruaha river, and Swynnerton & Hayman record them from Dodoma, Mpwapwa, Kilosa and Morogoro to the north of the Ruaha, and from Iringa and the Lihangwa river to the south of the Ruaha. A few are living between Matandu and the Mbemkuru rivers; on the Lihangwa river between Nangu and Ngarambi; in the Kipere and north and south of the Mavuju river (Ionides, personal communication). A few, which are increasing (Ionides), are found also on the Njenje river and the lower Mbarangandu. They are more common to the north, on the Luwegu, Rufiji and Kilombero rivers and their tributaries. In the Selous Game Reserve they are more in evidence than formerly and there now seems to be a fair stock of them in the Reserve (Report 1953, p.10 and 1954b, p.8). Further south near the Mozambique border there are a few in the Tunduru region to the west of Muhuves. A small number are found near Kandulu and Shimililo, and one was shot on the coast near Ruo.

In Eastern Province, rhinoceroses occur in the Morogoro and Kilosa districts, and adjacent areas of Korogwe and Bagamoyo districts.

Although the Black rhinoceros is still found in many districts of Tanganyika, it has, as in other countries, been much persecuted, and numbers have been seriously diminished. In northern Tanganyika rhinoceroses were extremely numerous at the end of last century. For example, Schlobach writes (see Schillings 1907, p.438) that he encountered as many as 30 rhinoceroses a day in Karagwe during 1903 and 1904, and Johnston (see Thomas 1885, p.221) found them very common on the elevated plains at the base of Kilimanjaro although not on the mountain itself; and Lonnberg (1910a, p.32) records them as being especially common round the hippo lakes between Meru and Kilimanjaro. Indeed rhinoceroses were so numerous that their horns were an important item of trade (Johnston 1886, p.541 and p.354). It has been largely due to the actions of hunters that these numbers have been so reduced. To give but two examples—Mr John Willoughby killed 66 rhinoceroses during four months hunting in 1887 near Kilimanjaro. Another, named Delegorgue, killed 56 during an eight months expedition (Jeannin 1951, p.118). During the first year of the 1914–18 war, Woodhouse (1916, p.74) found that a large number of rhinoceroses had been shot especially by the enemy. A regular hunting party used to go out from Taveta and from Salita to kill rhinoceros with, it appears, the double object of providing meat for African troops and sport for German officers. Thus the rhinoceroses which used to exist in large numbers in the upper Rombo, Ziway swamp, the bush fringing the Tabeta forest, Lake Jipe, on Latema, Reata, the Mokinni hills, and in the Kitobo forest, may be taken to be nearly extinct. A slow-breeding species such as the rhinoceros cannot survive under such attacks.

At the beginning of this century, the rhinoceros was generally distributed throughout Tanganyika, being very much more numerous in the northern districts than in the southern. In the south it has never been common, and was absent from the high plateau and southern shores of Lake Tanganyika at the end of last century as it is today (Johnston 1897, p.292). Scott Elliot, writing in 1895, confirmed that the rhinoceros was abundant around the marshy lakes of Karagwe (p.339), but queries whether it was the black species (1896, p.246). The white species, however, has never existed in this area, and undoubtedly the animals seen were *Diceros bicornis bicornis*. The Karagwe Black rhinoceros is a bulky animal, and this may account for some of the early European explorers

reporting that the White rhinoceros occurred in the area. Matschie (1895, p.97), an authority on the fauna of German East Africa at the beginning of the present century, lists the following places as regions in which the rhinoceros was then known to occur : Ugalla, Kawende (Bohm) ; Duthumi in Khutu, Marenga Mkali, Mgunda Mkali (Burton) ; Katuma in Kawende and between Lake Tanganyika and Tabora (Livingstone) ; Mabunguru in the Mgunda Mkali, Ugalla, Mtambo and Gombe River in Ukongo (Cameron) ; Ugogo (Grant, Bohmer, Stuhlmann) ; Karagwe up to the Kagera river (Lugard, Stuhlmann) ; Usindja (Stuhlmann) ; Usui, Karagwe (Grant) ; Niangani in northern Usandawi, Manyara lake, Sossian in northern Massai territory (Neumann) ; Sasne on the Pangani, Kilimanjaro (Hohnel) ; Useri on the slopes of Kilimanjaro (Hunter).

The rhinoceros has disappeared from several areas that it inhabited at the end of last century, and is rare in places where it was once plentiful, but it is still fairly common in certain localities in northern Tanganyika.

### Kenya

The Black rhinoceros has never been rare in Kenya, and today it is still widely spread throughout the Colony from the high, inland forest to the low, coast country, but owing to poaching, numbers are decreasing annually. Two subspecies of the Black rhinoceros have been recorded from Kenya. Of these the larger, *Diceros bicornis bicornis*, ranges throughout the southern provinces, up to the southern bank of the Tana river, and then along the western coast of Lake Rudolf and through the Turkana area. The rhinoceros does not inhabit moist or tropical districts (Cornish 1900, p.649), and is therefore found neither in the moist strip of low land approximately forty-five miles wide, flanking the east coast from Mombasa southward, nor in the Kavirondo districts to the north-east of the Victoria Nyanza. North of the Tana river, a smaller subspecies, *Diceros bicornis somaliensis*, is found throughout the north-eastern territories of Kenya Colony.

The Black rhinoceros occurs still in most game areas in Kenya. It is protected in the Tsavo National Park, the Amboseli National Reserve, the Nairobi National Park, the Mara National Reserve, the Mountain National Parks and the Marsabit National Reserve. In southern Kenya, some of the largest horned rhinoceroses to be found anywhere in Africa occur, and they are strictly protected. In the Mara plains area, there may be about 100 rhinoceroses—an improvement over the estimated figure for ten years previously. (Fraser Darling 1959, in lit.). They are scattered, but few, through the Narok area where they are increasing slowly following protection (Report 1953c, p.36). They are plentiful in the cattle country such as on the Loita hills, Mosiro area, along the Uaso Nyiro and in the Rift valley (Report 1951d, p.18). They were very heavily shot in the game country in the Narok area up to July, 1951, when they were protected. Increases were noted during the latter part of the year (Report 1956a, p.29).

The rhinoceroses of the Amboseli National Reserve have been a well-known feature, especially the long-horned "Gertie" and "Gladys". There are said to be as many as 150 in the area of five miles radius from Ol Tokai Camp, but this would appear to be an optimistic estimation. A specimen in the Coryndon Museum (No.5823) was obtained from Makindu in January, 1956. Aerial counts made by the Game Ranger at Kajiado (Report 1956a, p.5) in September, 1955, found one rhinoceros between Olorgesallie and Kibongo, another between Magadi and the Uaso Nyiro river, one in the Shombole swamp, two in the Uaso Nyiro wooded corridor and two in the Lake Natron-Shombole area.

In the Tsavo National Park rhinoceroses are common in spite of poaching encouraged by the sale of the rhinoceros horn. In the western sector of the Park there may be 200 or 300, and there may be as many in the eastern sector. During a half-hour's drive along the Sabaki river one evening in September, 1958, the writer counted 17 rhinoceroses. From Poachers Look-out a similar number may be seen at one time (Report 1955c, p.20). Recent anti-poaching operations have resulted in a decrease in poaching in the Tsavo Park, but undoubtedly a number of rhinoceroses are still poached annually. They appear to be decreasing in some areas whilst increasing in others especially in some of the impenetrable Kitui bush and in the forests. The Wakamba poach in the area (Report, 1951d, p.7; Report 1951a, p.46). The large number of rhinoceroses which used to live in the bush north and south of the Tsavo river have been much reduced but probably many

of them have moved down to the Athi river. In 1953 (Report 1955e, p.36) many herds were reported along the Athi river and on the Yatta plateau. They were still seen in the open grassland in the Makindu triangle (1953). In the Samburu district, rhinoceroses have been subjected to heavy shooting and poaching by the Boran along the Samburu-Boran border, and it is suggested that the rhinoceroses north of the Uaso Nyiro river in the Samburu district should be given a long rest (Report 1956a, p.23). A fairly large number of rhinoceroses can be seen in the open bushland to the north and east of the Mombasa-Nairobi railway (Ritchie 1945, p.26), and Stockley (1948) claimed to have seen 50 round the Tana river in the region south of Embu. In the Makueni fly-belt, before any settlement was possible to the east of Unoa hill in 1948, over 1,000 rhinoceroses had to be shot (Wilson 1954, p.144).

Rhinoceroses occur in the Nairobi National Park where they are found in the thorn bush and more forested regions rather than in the open (Beaton 1952, p.59 and Report 1955c, p.20). In the Kenya Mountain National Parks rhinoceroses are thought to be fairly common on the Aberdares and Mount Kenya although the effect of the Mau Mau disturbance on the species is not yet fully known. They have been found on these mountains at 11,000 feet (Stockley 1948). Prior to the disturbance there were a good number living in the Nyeri forest (Report 1953a, p.38). At Tree-tops, a number may be seen on most days at the waterhole. During the writer's visit on the 8th August, 1958, seven rhinoceroses were seen from the tree-house. Rhinoceroses are said to be on the increase in Nanyuki and the Isiolo leasehold area (Report 1953c, p.36 and 1955e, p.71).

At the end of last century, and at the beginning of this century, the rhinoceros was common on the plains south of the Athi river, and alongside the Nairobi-Mombasa railway. The territory for a mile on either side of the railway was made into a game reserve, and it was possible to view rhinoceroses from the train (Eliot 1905, p.262). Many observers mentioned seeing rhinoceroses in the Athi Plains Reserve at the beginning of the century, and several were shot in the neighbouring unprotected areas, although Stigand (1909, p.280) wrote that rhinoceroses were then found only in the Reserve itself (Vandeleur 1898 ; Purvis 1900 ; Elliot 1896, p.18 and Stigand 1909, p.24). Champion (1912, p.19) saw rhinoceroses on the Kathua river, and Woodhouse (1912, p.31) records a single one in Ngonga's country (Yala river, North Kavirondo district).

In the Taveta area, the rhinoceros was numerous (Anon. 1904, p.39) and Lugard (1893, p.290) mentions that in 1888 at Makongeni, when the Sabaki had become flooded, great numbers of rhinoceros had come down to the forest (see also Willoughby 1889, p.286). Near the coast, in the mangrove swamps, Graham (1929, p.164) saw rhinoceroses coming down to the flats at night. They were found throughout the Rift valley and were numerous in many areas (Stigand 1909, p.280). Percival (1906c, p.215) wrote that near Baringo they were more numerous than anywhere else. They were recorded on the Laikipia plateau by Dickinson (1907, p.82), on the Mau plateau by Vandeleur (1898), on the southern borders of Kikuyu where it abuts on Masailand (Lugard 1893, p.323), at Elmenteita and Simba (Chapman 1908, p.142), and generally along the Rift valley up to the northern territory of Turkana. In some areas Dugmore (1925, p.261) claimed that the rhinoceroses were so numerous that he had seen as many as 13 at one time.

The forest rhinoceros of Mount Kenya is distinctly bigger on the average than those of the adjacent plains, and as one passes northwards, the rhinoceroses become gradually smaller with poor horns, until, north of the lower Tana and in Somaliland, they are about half the weight of the big forest rhinoceros. This smaller subspecies, *Diceros bicornis somaliensis*, ranges as far south as the desert Nyika zone of the northern Uaso Nyiro river and the northern bank of the Tana river. Fair numbers of rhinoceroses are scattered over the whole Maralal district, but in the area where shooting parties operate they have recently been severely shot (Report 1956a, p.27). Rhinoceroses are found throughout north-eastern Kenya in fair number, but in the extreme north, between the upper Giuba and Lake Rudolf, there are very few to be found today, although they were more numerous in this region at the end of last century (Reale Accademia d'Italia 1943, p.73). Fifty years ago rhinoceroses were very plentiful on the eastern shores of Lake Rudolf (Stigand 1909, p.24), but there were none there in 1921 (K. Caldwell, personal communication). In 1925 they were said to be common all over the Northern Reserve, with the exception of El Bata plains. The Game Warden considered this Reserve to be well stocked then, and mentioned places such as

around Seya on the Meru-Barsaloi road, and the area between Irerr and Laisamis where they were at times very plentiful (Report 1926, p.60).

Today, rhinoceroses are found in most regions of Kenya, although owing to expanding human populations and increased agriculture, their numbers have had to be reduced in certain areas and every year a few are shot in control operations. Thus, in 1950, 84 were shot on control ; in 1951—60 ; 1952—57 ; 1953—19 ; 1954—45 ; 1955—18 (Report 1951d, p.7 ; 1953b, p.12 ; 1955e, p.14 and 1956a, p.10).

In 1944, 140 were shot in the region south-east of Machakos (Stockley 1948). Mr W. Hale estimates that there are possibly between 3,000 and 4,000 rhinoceroses remaining in Kenya. This may be an overestimation, and they are probably more numerous in Tanganyika, where their distribution is very much more local than in Kenya (Report 1935a, p.44). Owing to the protection afforded to it, the Black rhinoceros is still common in several parts of Kenya, and with adequate protection from poaching, an ensured water supply and leniency in control measures, the rhinoceros should survive here if only in the reserves. The rhinoceros is not a migratory animal and therefore tends to remain in an area provided that adequate food and water are available. Although this factor helps the poacher, it also ensures that the rhinoceros will not normally become a "pest" by making periodic migrations out of its sanctuary.

### **Somalia**

According to Zammarano (1930, p.165), the Black rhinoceros *Diceros bicornis somaliensis*, is scarce in the Italian colony of Somalia because it has been persecuted by the natives. It was, at the time of Zammarano's writing, still found in the Auadle territory to the east of the Uebi; in Macanne territory ; to the north of Bugda ; near Govanle and to the north of Dafet. It was more frequent in Goscia, in the woody region on the right bank of the Juba and in the extreme southern bend of the Oltregiuba. Ward & Sorrell (1950, p.33) write that rhinoceroses are undoubtedly found in the areas of Malkagira and Dsheik Uama today, where they are living in dense bush and are seldom seen, even by nomads.

### **Ethiopia, British Somaliland and Eritrea**

The Black rhinoceros of Ethiopia, *Diceros bicornis somaliensis*, was widely distributed at one time, but today it is rare and exists only in districts along the southern and western borders where it is still found in flat, bushy country (von Rosen 1953, p.38). Turner (1937, p.59) states that rhinoceros tracks are occasionally seen near B.P.84 (B.P.=boundary pillar) of the British Somaliland frontier.

Fifty years ago the rhinoceros was not as scarce as it is today, although Drake-Brockman (1909, p.113) described "only a few still to be found in western Ogaden and southern Borana". They were usually confined to the lower elevations in Abyssinia and did not ascend above 5,000 feet in the northern portion of the country, and were absent from the high plateau. Blanford (1870, p.243) met them on the banks of the Anseba (Eritrea) where they were fairly common. They were most common in the valleys of Ogaden especially along the Tug Jerer and the Tug Fafan southward as far as the Webbi, beyond which they were plentiful in Gallaland (Swayne 1895, p.296). Straker (Bryden et al 1899, p.48) confirms this distribution : "They are fairly numerous on the southern side of the Haud, and are particularly so between Milmil and Ime, and again south of the Webbi Sheybelli". Donaldson Smith shot a rhinoceros near Gardubbela and writes that the country beside the Tug Turfa "swarmed with rhinos", and beside the Galana Amara rhinoceroses "abounded". He also records seeing them near Kodo and on the eastern side of Lake Rudolf. In Northern Territory, Ghika (1898) saw traces of eleven rhinoceroses in the valley of the Jerer, from where their range passed northward into British Somaliland. At the beginning of this century it no longer existed north of Burao (Drake-Brockman 1910, p.106) but it was still found towards the Abyssinian border in the Haud and the Nogal valley. Ghika (1898, p.177) wrote that the rhinoceros was rare in the Haud, and then found only in the rainy season, but Swayne (1894, p.321 and 1895, p.296) claimed that it was common in the southern and south-eastern parts of the Haud. Both Swayne and Ghika agree with Drake-Brockman that rhinoceroses

were not found within a hundred miles south of Berbera or in Gouban and L'Ogo, although they had been known to wander as far north as the open grass plains of Toyo. Swayne (1894, p.321) never found them in the Habr Awat, Esa and Gadabursi country or to the south-east of Berbera where they were said to exist.

The rhinoceros has become a rare animal in Ethiopia where it was described as common only fifty years ago. Unfortunately it is becoming scarcer every year due to continual poaching and its future in this country is very uncertain. The horn of the Black rhinoceros commands a high market price. The great demand for this commodity by Asians has increased during recent years with the gradual extermination of the Indian, Sumatran and Javan rhinoceroses, and in areas such as Somalia and Ethiopia where there is little or no game preservation, a rapid decline in the rhinoceros species has occurred.

### **Uganda**

The distribution of the Black rhinoceros in Uganda has remained comparatively unchanged during the past fifty years. Rhinoceroses are found in northern, eastern and central Uganda, but do not occur in the west or south. A few occur to the east of the Albert Nile in East Madi where they are seen very seldom and cause little damage (Report 1956, p.40 and 1957, p.44). In the Murchison Falls National Park the Black rhinoceros is thinly distributed in the northern sector where as many as seven have been seen in one day. In the Park, they are more common near the Nile and in the giraffe country in the north-eastern sector. There are not many in the open Lolim area (Report 1954d, p.10 and 1955d, p.11). This National Park offers the only sure protection for the Black rhinoceros in Uganda today, and at a rough estimate there are between 100 and 150 rhinoceroses inside the Park.

To the north of the Victoria Nile, they are found in western Acholi, the Aswa river region, in Lango and to the east in Karamoja. In these regions they are localised and nowhere numerous. The main strongholds are in the Zoka Forest Reserve of the western Acholi sleeping sickness area and north Karamoja (Report 1954c, p.13). Until recently they were numerous in the Maruzi peninsula of Lango, but on the 1st January, 1954, a campaign was commenced by the Uganda Tsetse Control Department to exterminate all "game", including the Black rhinoceros, from this area (Kwania and Maruzi counties of Lango District), and 24 were killed during the year (Report 1956b, p.31). However, it is believed that the rapid spread of cultivation and settlement in this area would have destroyed them in any case (Report 1956, p.29).

In Acholi, although the rhinoceros may still be met in the remoter districts, it is believed that its numbers are decreasing. Those in the Lamwo and Chua counties are constantly harried and hunted by people slipping across from the Sudan (Report 1957, p.31), although they are fairly common in the bush in parts of central Chua (Robson, personal communication). A few have been killed in tsetse control operations.

In Karamoja, rhinoceroses occur only in the north, with the exception of five that have been cut off between Otuken and Longorokippi (1954). Within their limited areas, rhinoceroses are doing well in northern Karamoja and a number of calves were dropped during 1955 (Report 1954c, p.47 and 1957, p.51). In 1954, over a hundred were known to the north between Kotido and the Rom/Kuputh road (Report 1956, p.52).

At the beginning of the present century, the Black rhinoceros was not plentiful in Uganda (Knowles 1911, p.21) although it was probably more numerous than it is today. In 1935, Thomas & Scott (p.385) described the remaining rhinoceros strongholds as Karamoja, parts of Chua, the Maruzi country in Lango, and Gulu. In Gulu at that time, it was believed that the rhinoceros was increasing steadily and extending its range. In its other haunts it did not appear to be on the decrease either.

Almost every Game Report written for Uganda during the past twenty years has contained details of the damage done to man and his crops by the rhinoceros, and records the numbers of rhinoceroses killed in control measures. It has been suggested that this damage does not warrant the yearly quota of this mammal destroyed. The Black rhinoceros is by no means common in Uganda, and if it is to survive in this country, it must be protected continually.

**Sudan**

The range of the Black rhinoceros in the Sudan has been drastically reduced in the last century. Today it is found only to the east of the Nile in the savannah woodland of Equatoria Province from the Uganda border to Bor, and it is believed that there are not more than 200-300 in the whole area (A. Forbes, personal communication). On the west bank of the Nile an isolated colony occurs in northern Bahr el Ghazal Province, consisting of two small pockets in the Wau area. The first of these pockets is an island of thornbush north of Wau, and the other is in the valley of the river Chel west of Wau. There are probably not more than twenty or thirty individuals in this colony west of the Nile.

It is reported that Black rhinoceroses occur in the Nimule Game Reserve (Forbes 1949, p.14), and Forbes within recent years has seen five together near a salt lick on the river Kit on the Juba-Nimule road. Sutcliffe (1952, p.21) records finding rhinoceroses recently in the forests of the Aliab valley between Tombe and Bor. There are rumours of a strange beast with a clover-shaped spoor occurring in the Nasr district (Forbes 1950, p.27). Owen (1950b, p.24) saw a pair of Black rhinoceroses near Aweng, and in 1947, the Copenhagen Museum Expedition shot one near Gogrial.

At the beginning of the present century the Black rhinoceros was more widely distributed in the Sudan than it is today, and in some areas was considered common (Lugard 1893, p.520). Its most northerly distribution was in the Kassala Province from El Damer to a line drawn roughly between Roseires and Gallabat (Gleichen 1905, p.98). In the days of Sir Samuel Baker, the Black rhinoceros was plentiful on the upper Atbara and Setit rivers, but by 1913 it was extremely scarce between the Nile and the Abyssinian border (Allen 1914, p.324). In the Blue Nile Province, a few remained in the southern part of the country between the Blue Nile, Dinder and Rahad, although they were quite exterminated from the Blue Nile itself, and only a few remained on the uppermost reaches of the Dinder river about a day's march beyond Um Orug Island. Flower believed that only about 10 or 12 were left on the upper Dinder, and these were not breeding (Allen 1914, p.325). In Kordofan Province, Audas counted seven on the Wadi Maarna some forty miles south of Lake Keilak in March, 1914. Further south, in the Upper Nile Province, the rhinoceros was known to the south of the Sobat river and along the east bank of the Nile in suitable localities such as Mongalla in Equatoria Province. It was in this region that Chapman (1921, p.282) remarked that the rhinoceros was on the increase, and where it is still found today. It was also fairly common near Torit.

As with the White rhinoceros, the future of the Black rhinoceros in the Sudan is very uncertain, and unless it is adequately protected it will disappear from this country within a few years.

**Belgian Congo**

Both the Black rhinoceros and White rhinoceros occur in the Belgian Congo, but their habitats are completely separate. The White rhinoceros is confined to the north-eastern corner of the territory, whereas the Black rhinoceros is found, very rarely, only in south-east and east Katanga, where it inhabits the wooded savannah, the forest edges and the dry savannah (Schouteden 1943, p.115 and 1946, p.263). By some, the Black rhinoceros is considered to be extinct in Katanga, but according to De Witte there are some rare individuals still living on the plateau of the Kundelungu and in the region of Bukama. Jobaert (1955, p.54) states that there are no Black rhinoceroses remaining in the Parc national de l'Upemba today, although in 1939, spoor was seen on the Kitara plateau near Lusinga. At one time, rhinoceroses existed in the east of Ruanda, but they were exterminated. In September, 1958, two males and four females were reintroduced into the area which is now the Parc National de la Kagera, and a year later they were reported to be in good health. The introduced animals were captured in Karagwe District in Tanganyika, only a short distance from the Belgian national park to which they were transferred.

At the end of last century the Black rhinoceros was more numerous and widely spread in Katanga. According to Johnston (1908, p.320) it occurred in the basin of the Lualaba, below its junction with the Luapula, and also between the Lualaba and south-west Tanganyika (including all the lower course of the Luapula) where one of the finest "big game countries" in the world still

existed (p.349). Rhinoceroses were also found at that time north of Mubangi Wele. Captain Burrows (1898) found them in small groups in the region of Katanga and Manyema, although in the latter area, Foà (1908, p.405) wrote that only the natives who live on the edge of the lake knew it. In 1910, Black rhinoceroses did not exist in large numbers in Katanga Province, but occurred in all areas to the east of the Lubudi, with the Lukuga as the northern range limit, and the frontiers of the colony as the eastern and southern limits. They were found wherever land was suitable, in the hills bordering Lukuga valley, in the Marungu, at Kundelungu, Kibara and Biano, on the hills of the Lufira valley and its tributaries, the Kalule valley, in the mountains marking the watershed between the Congo and Zambesi, and they were especially numerous in the mountains separating the Lualaba and its tributary the Great Lubudi (Jobaert 1955, p.59). In 1919 about 150 still existed in the triangle formed between the Masompe, the Lualaba and the Great Lubudi, but these were exterminated in 1925. Before the First World War, rhinoceroses were relatively abundant on the high plateau of Marungus, and quite frequent on the highlands neighbouring the Lukuga in the Albertville region, but they were exterminated (Schouteden 1927, p.28). According to Lang (Schouteden 1927, p.24) the Black rhinoceros existed in north-eastern Uele until relatively recent times, but it was exterminated completely during a rinderpest epidemic which went through Uele District and neighbouring areas.

The Black rhinoceros was never found in the equatorial forests of central and western Belgian Congo (Foà 1908, p.405 and Johnston 1884, p.383). It is uncertain how many rhinoceroses remained in the Belgian Congo at the end of last century, but these were undoubtedly far in excess of the mere handful remaining there today. The Parc national de la Kagera is the only national park in which members of this species are protected in the Belgian Congo. It is hoped that under strict protection these introduced animals will survive and multiply in the same way as the White rhinoceroses have done in the Parc national de la Garamba.

### French Equatorial Africa

The Black rhinoceros is protected in French Equatorial Africa where it is found in the Logone basin, the upper Salamat, across Ubangui-Charri to the Sudan border. The best established groups of this species live in the Ndele reserves:—the Vassako reserve, the Bamingui national park, the Gribingui fauna reserve and that of Koukourou and the Miadiki, all of which are situated to the west and south of Ndele. The Black rhinoceroses living near the Sudan, are found in the Vakaga basin, partly in the Ouandjia-Vakaga reserve (right bank of the Vakaga) and partly on the left bank in the country which is not a reserve, up to the Garo river, and even up to Gounda in the west. There should still be several along the main course of the greater Aoukale, and between the Aoukale and the Bahr Oulou, but this is not certain, and poaching is very intensive and difficult to suppress. Several existed between the Yata river and the Sudan, to the south-west of Birao in 1934, but Blancou (1952, p.16) is uncertain whether they are still there. To the east of the upper Ouaka there are several between Loamba and Mbari. There may also be a few in the upper Kotto. However, all the records mentioned above are a mere remnant of the large numbers of rhinoceroses that once lived in French Equatorial Africa.

At the beginning of this century the range of the Black rhinoceros was approximately from 7°N. to 14°N., but following the massacres which occurred from about 1920 to 1932, they are now actually in sight of extinction in many areas, and have disappeared entirely from others. It was about this time that the last survivors were destroyed in the Lake Tchad area—an area in which they were at one time abundant (Rode 1943, p.164). In 1900, Meynier saw many rhinoceroses in the N'guigmi region on the north-western borders of Lake Tchad (Meynier 1923), and confirmed that they were not rare at that time, but by 1925 they had completely disappeared and they are unknown there today (Lavauden 1932, p.516). They have also disappeared from the Moussoro district where one of the last was killed in 1916, and from the region of Fort-Lamy where they were once very abundant.

The last survivors in western Oubangui are confined exclusively to the basin of the Ouham (Anna 1950, p.26). In 1940, a few lived on the southern bank of Lake Tchad, but there are none there today. They were once very common on the Batha rivers and to the south of Ouaddai,

but Malbrant (1952, p.29) says that these have disappeared also. In the first edition of Malbrant's "Faune du Centre Africain français" a few survivors were said to exist in the region of Maoua Tial (Mongo district) in 1936, but these were exterminated. It is probably the same for those that escaped the massacre between Logone and Chari in the region of Logone Gana. At Mayo Kebbi some exist to the east and south of Bongor, and to the south of Palla where one was killed in 1948. At Baguirmi, where they were very abundant fifteen years ago, they are now confined to the tsetse regions to the south of Melfi, from the east of Andi to Lake Iro and in the south of Daguela, but they are very rare there today. Some rhinoceroses still exist between Niellim and Koutou, and they have nearly disappeared from the Salamat where they were often found in 1928 in all the districts of Man-gueigne and to the south of Am-Timan, on the Koubo Gara and the Koubo Azrek. It seems that only a few survivors remain in the extreme west of this region, and they have disappeared from the Goz Sassulko Reserve.

A number still exist in Chari, notably in the south of the Fort Archambault district and Moissala, and in the region of Gore near Logone. The situation is better in the north of Oubangui. According to Anna (1948), at least 20 exist in the west of this territory in the area including a little south of the Nana Barya near to its mouth, and the east of the Bahr Sara in the same region up to the south of Batangafo. More to the east, rhinoceroses live in the triangle formed by the Ouandango-Kabo-Batangafo routes, and are found also in the neighbourhood of Gribingui, although there are only a few there. They are more common in the east, either in the hunting reserve at Gribingui-Bamingui, or in the Bamingui-Bangoran National Park. They are found more to the north between Gribingui and Bamingui, but according to Blancou, their favourite habitat is in a region, which is sometimes boggy, situated midway between the Bamingui and the Mandakouvou, a tributary of the Gribingui. In the national Park, the localities which contain the most rhinoceroses are on the right bank of the Bamingui and on the upper course of the Vasaka. They are also common in the middle course of the Bangoran, and on the upper course of the Koukourou.

A certain number of rhinoceroses are found in the triangle formed by Bamingui, Koukourou and the M'bres-N'dele road, and they are also met to the east of N'dele towards the Sudan frontier, and to the south.

Malbrant (1952, p.27) from whom much of the above information was obtained, writes that the rhinoceros is scarcely found in the Tchad region where it was abundant fifty years ago. The habitat of the rhinoceros is now limited to isolated regions which are generally infested with tsetse fly and scarcely accessible. The principle cause of the massacre of the rhinoceros in French Equatorial Africa has been the steep rise in the price of the horn from 1925 to 1935.

Due to protective measures taken since 1932, the species has been temporarily saved from extinction, although poaching during the last World War made it necessary to restock several areas. Blancou (1952, p.16) estimates that from the time of the creation of the Game Department of French Equatorial Africa, there has been an increase from 100 individuals in 1934, to 200 in 1937 (of which 130 were from Oubangui-Chari and 70 from Tchad). In 1948, there were more than 300 in the Oubangui territory, of which, about half were in the Bamingui National Park, and about 50 in the neighbouring reserves. The game inspector, Anna, considers that this number has now (1953) increased to about 400. Unfortunately, a similar increase has not been reported from Tchad where there are probably no more than 100 survivors.

### French Cameroons

The Black rhinoceros occurs in the northern regions of the French Cameroons (Jeannin 1936, p.32 and Rode 1943, p.164). Its range stretches from the base of the Ngaoundere hills up to the Benue. As in other French territories, the number of rhinoceroses has diminished considerably since the beginning of the century. It was then a common animal, whereas now it is rare. It occurs between the valleys of the Mayo's Rei, Veimba, Oldini, Alim, Benoue in the Boubandjidda, and the Faro, Deo and Yal valleys, and the Mayo Issoulou valley in the Baouro Koti. Some were found in the lower Faro near Benoue. It may wander to Ba-Ili and to Tchad towards the Logone-Birai region of the Cameroons, and it is possible that it may occur still on the borders of the Cameroons and Tchad. Kieffer (1953, p.272) estimates that there are about 400 rhinoceroses

living in the Boubandjidda, Bénoué and Faro reserves, about half of which occur in the Boubandjidda reserve. In 1922, the rhinoceros was found in the territory of Demsa and Bacheo, in the Kangou, along the Mayo Oulo towards Colombe, and along the Kebbi to the south of Figuil. The last rhinoceros in this area seems to have been killed in 1931 by the hunter M'Bororo of Lere. In 1928-1929, G. de Galassus claimed that a forest rhinoceros occurred in the Batouri district (about 4°N.) (Blancou 1954, p.360).

Anna (1950, p.26) writing about the present distribution defines the southern range limit of the Black rhinoceros by a line drawn from Kouki towards the east, crossing the Nana Bakasso, Ouham and Fafa, passing about thirty kilometres to the south of Batangafo to the region of the junction of the Dy with the Fafa, and continuing in the direction of Fort Crampel. Towards the north, the rhinoceros crosses the Tchad frontier and occurs again in the region of Goree and Moissala, mixing with those from western Oubangui.

### French West Africa

Bigourdan & Prunier (1937, p.284) are convinced that the Black rhinoceros has never existed in French West Africa. However, a native of Niamey, in Niger Province, claims that it once existed in the Djerma-Ganda (Canton situated between Niamey and Tillabery to the east of the Niger), and a European hunter informed these authors that he believed in the existence of a few rhinoceroses in the north of the Ivory Coast. One or two were said to have been killed near Bouna about 1905, but there is no proof of rhinoceroses being in these areas today. It seems very probable that the Black rhinoceros has its western range limit in French Equatorial Africa.

### Nigeria

The Black rhinoceros is extinct in Nigeria. The last record of its existence in this country was in 1935 to the north of the Benue river (Rosevear, personal communication). It used to occur in the bush savannah not far from Yong plateau (Rosevear 1953, p.120; F.C. 1940, p.14 and Shorthose 1932, p.8). A few were said to live on the Gongola, a tributary of the Benue, and a few existed on the Cameroons border. An old Nigerian Handbook reported the presence of rhinoceroses to the north of Ogoja where there are none today. This report received confirmation from Munshi hunters near Alifokpa in that neighbourhood at the beginning of the present century, when a party killed two curious animals "second to the elephant, and with horns on their noses". It is probable that these had strayed in from the Gongola region.

### Liberia

Sir Harry Johnston (1906a, p.757) wrote that the Mandingos of the northern regions of Liberia asserted that a rhinoceros once lived in their country, and were able to recognise pictures of the animal. However, although its existence was constantly being reported by Arabs, Hausas or Mandingos in regions of west, central Africa between Lake Tchad and the upper Niger, one had never been sent to Europe from these regions. Today, there is no proof of the existence of the rhinoceros as far west as the Niger, and it can be assumed that the western range limit of the Black rhinoceros, although at one time in Nigeria, is now in French Equatorial Africa.

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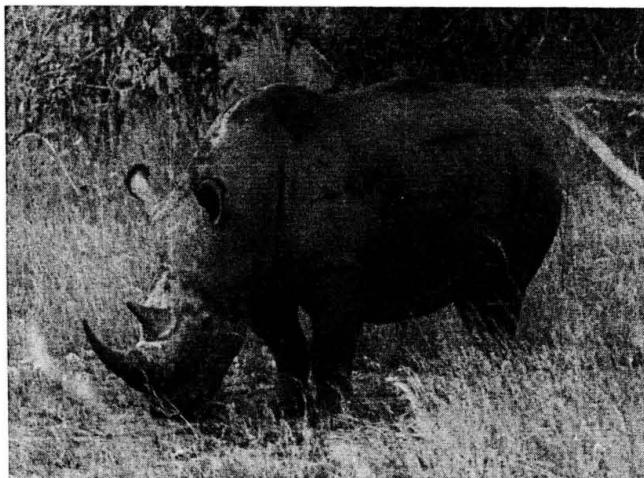


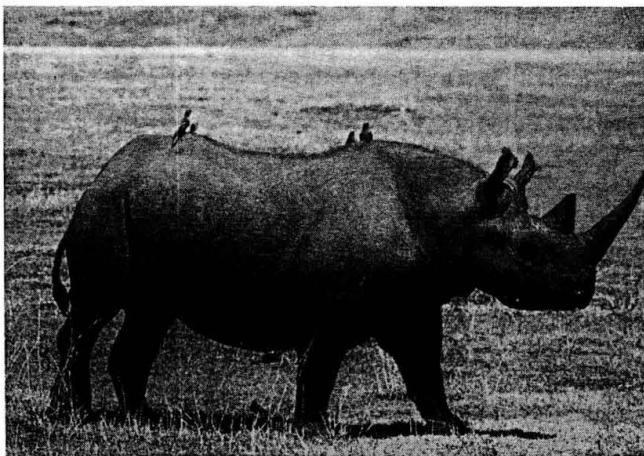
Photo: P. Molloy

9. White rhinoceros, *Ceratotherium simum cottoni*. Second only to the elephant in size amongst land mammals, the White rhinoceros has two similar subspecies of which the northern race, shown here, has a less well-developed occipital crest. The nostrils are elongated and the square-lipped mouth is characteristic of this grazing animal.



10. White rhinoceros, *Ceratotherium simum simum*. The remains of a bull, shot circa 1935, indicate that the White rhinoceros survived in Mozambique recently.

Photo: B. Grzimek



11. Black rhinoceros, *Diceros bicornis*. The common rhinoceros of Africa has a pointed, prehensile upper lip which is used in browsing. Its nostrils are rounded.