
Miscounted population of the southern white rhinoceros (in the early 19th century?)

Kees Rookmaaker

Rhino Resources Center
Chapelgate, St Neots Road, Dry Drayton CB3 8BE, United Kingdom
email: rhino@rookmaaker.freereserve.co.uk

Abstract

In 1900 the total number of white rhinos in the world was thought not to exceed 20 animals, which were living in a remote corner of Zululand, South Africa. While this fact is often repeated, there are discrepancies in the reports concerning the date and the total number. The historical evidence is placed in a context of game slaughter to eradicate the tsetse fly menace and efforts of a small conservation-minded community to safeguard the wilderness. There are no records before 1894, and between 1899 and 1927 the status of the white rhino was determined from hearsay only, with reported numbers remaining stable between 4 and 50 specimens. Indications are that actually in no one period did a great decrease in the population occur. Numbers reported were kept low for political reasons, and there are reasons to suggest that there must have been up to 200 white rhinos in Zululand throughout this period.

Résumé

En 1900, on pensait que le nombre total de rhinos blancs dans le monde n'excédait pas 20 animaux, qui vivaient dans un coin perdu du Zululand, en Afrique du Sud. Alors que cette affirmation est souvent reprise, il existe des divergences dans les rapports au sujet des dates et du nombre total. Les preuves historiques sont à situer dans un contexte d'abattage de gibier destiné à éradiquer la menace posée par la mouche tsé-tsé tandis qu'une petite communauté soucieuse de conservation s'efforçait de sauvegarder la vie sauvage. Il n'existe aucun rapport antérieur à 1894 et, entre 1899 et 1927, le statut du rhino blanc se basait uniquement sur des ouï-dire, les nombres restant stables, entre 4 et 50 spécimens. On dispose d'indications selon lesquelles, à aucun moment, il n'y a eu de forte diminution de la population. Les nombres rapportés ont été maintenus bas pour des raisons politiques et l'on a des raisons de penser qu'il y a eu jusqu'à 200 rhinos blancs au Zululand à cette période-là.

Introduction

The southern white rhinoceros, *Ceratotherium simum simum* (Burchell, 1817), which once ranged over large tracts of southern Africa, was almost exterminated at the beginning of the 20th century. At its lowest point, scarcely 20 animals were reported living in one small population in Zululand, South Africa. The population recovered and is now the most numerous rhinoceros taxon. This account is familiar, as it is found throughout rhino literature, both popular and scientific. However, on careful analysis, we discover variations on this theme. The year in which the minimum was reached is stated to be 1895 . . . or 1900 or 1910

or 1920. The number of remaining animals was maybe a handful . . . or 20 or 50 or 100. These inconsistencies have been noted earlier, for instance by Foster (1960), Player and Feely (1960), and Skinner and Smithers (1990). Here I provide historical background to determine if the evidence placed in the context of its times allows an improved understanding of this discrepancy.

Extinction of the white rhino

At the end of the 19th century, the educated public in Europe and America became increasingly aware of

the dwindling numbers of game animals in Africa, once thought to be abundant and inexhaustible. This impression was gained from the popular and well-informed writings of Frederick C. Selous (1851–1917), who first arrived in South Africa in 1871. He followed the example of contemporary hunters and adventurers in travelling from the coast directly to the regions between the Limpopo and Zambezi Rivers. In *A Hunter's Wanderings in Africa* (1881a), he expressed his growing concern about the reduction in the number of white rhinos. He illustrated his apprehension by quoting his own experiences on the River Chobe: in 1874 the white rhinoceros was a common sight; in 1877 only tracks could be found and in 1879 even those had disappeared. The conclusion was inevitable: 'it must be almost extinct in that portion of the country' (Selous 1881b). While he still hunted the species in Zimbabwe in 1882, Selous repeated his misgivings in his *Travel and Adventure in South-East Africa* of 1893, convinced that the white rhino was 'upon the verge of extinction' (Selous 1893: 58). According to him, 'some few white rhinoceroses no doubt still survive, but it is not too much to say that long before the close of the century the white rhinoceros will have vanished from the face of the earth' (Selous 1893: 158). These sentiments were generally echoed in the works of his contemporaries, and soon most people were convinced that the white rhinoceros was no more, or would be extinct very soon.

New discoveries

Although there were no known procedures to reduce the risk of imminent extinction, new discoveries diminished the pressure to act. In 1900, Major Alfred St Hill Gibbons returned to England with the skull of a rhinoceros killed in the Lado Enclave of Sudan, finally confirming the occurrence of the white rhino in central Africa. In 1911, Colonel Theodore Roosevelt mounted a major expedition to Rhino Camp in Uganda to secure specimens for the National Museum in Washington, DC, showing that the white rhino was locally abundant (Heller 1913). An earlier discovery was contained in news from South Africa that in 1894 a shooting party organized by C. R. Varndell had killed six white rhinos at the junction of the Black and the White Umfolozi Rivers in Zululand (Player 1972: 33). This was a surprise, because until that time nobody really suspected the existence of a population of white rhinos on the south-east coast of South Africa. That

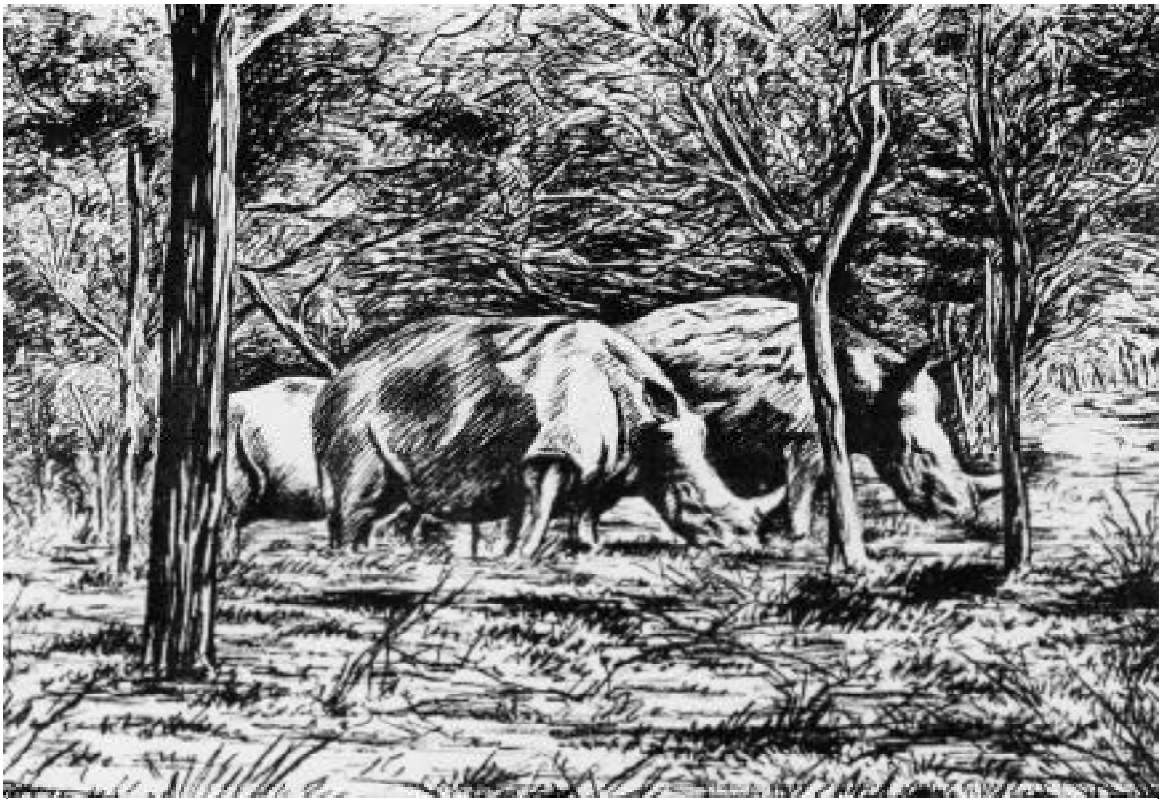
fact was hardly known and certainly not publicized. There were two reasons why these animals had remained undetected for a long time. In the first place, hunters or zoologists rarely visited Zululand during the 19th century. Only Adulphe Delegorgue (1814–1850) had secured a specimen of the white rhino near the Umfolozi River in 1842; that specimen was later donated to the Natural History Museum in Paris. Maybe the Zulus, perceived to be an aggressive tribe, deterred casual visitors from coming to the region. Second, the land was infested by tsetse flies, causing farmers who came early to settle in the neighbourhood of Durban to opt for less dangerous areas.

Preservation of the rhinoceros

When it became known that six rare white rhinos had been shot in Zululand in 1894, local conservationists successfully petitioned the government for their protection, and on 30 April 1895 the Umfolozi Junction Reserve was proclaimed. The area was undeveloped, unexplored, remote, uninhabited because of the prevalence of tsetse, and the game had remained undisturbed. This situation continued for quite awhile and was unchanged when Frederick Vaughan Kirby was appointed the first game conservator of Zululand in 1911 (he retired in 1928). In the years following this, however, Zululand became the focus of intense political campaigning, because farmers and settlers wanting to move into the area called for action to eradicate the tsetse fly (Pringle 1970). The government yielded to pressure from the strong farming community and ordered the extermination of all game. This decision resulted in an unimaginable slaughter of wildlife, impossible to comprehend or visualize today. In August 1917, Operation Game Extermination lifted all existing restrictions, allowing all animals except rhinos, hippos and nyala to be shot. No wonder the small community of conservation-minded zoologists in Durban started to lobby for the protection of wildlife. The white rhino, already extinct elsewhere, of great rarity and intrinsic value was certainly their most important weapon. In 1912, the white rhino was included in Schedule C (Royal Game), which meant that they could be captured or killed only under permit from the administrator. When the Umfolozi Reserve was deproclaimed in August 1920, as a result of demands by local farmers, the white rhino remained protected as Royal Game. The reserve was re-established in 1930.

Table 1. Estimates of numbers of white rhinos in South Africa, 1899–1938

Date	Region	Numbers	Reference
1899	Zululand	4	Renshaw 1904
1900	Zululand	a few	W.L. Sclater 1900, vol.1: 302
1901	Zululand	a few	Selous 1901: 185
1902	Zululand	2 escaped and were killed in December	C.R. Saunders in Newton 1903; Renshaw 1904
1903	Umfoloji	about 15	Magistrate of Mahlabatini, in Vincent and Geddes Page 1983: 78
1903	Zululand	traces abundant in reserve, animal not seen during short visit; total about 10	C.R. Saunders, in Newton 1903
1909	Zululand	12, including 2–3 calves	Selous 1914: 15
1911	Zululand	a few	Schouteden 1911
1912	Zululand	some 15	Stevenson-Hamilton 1912: 67
1913	Zululand	some 10	Heller 1913: 36
1916	Zululand	between 30 and 40 adult animals resident in the reserve, as well as a useful number of calves	Kirby in Pringle 1970: 124
1917	Umfoloji GR	about 30–40 plus a useful number of calves	Kirby 1917
1917	Zululand	about 12	Millais 1919: 154
1920		Now very scarce, found only in Zululand (where even there it is uncommon and where a special reserve exists for its preservation), and in parts of Rhodesia	Haagner 1920: 125
1920	Zululand	about 20 in the game reserves	Fitzsimons 1920: 207
1920	Zululand	about 20	Kirby 1920a
1920	Zululand	4 shot by Henry A. Snow, out of a population of 28	Hornaday 1924: 12; Kirby 1920b: 11
1920	Zululand	it can be assumed that there were between 150 and 200	Vincent and Geddes Page 1983: 79
1921	Zululand	extinct in the wild, a few semi-wild under government protection	Dollman 1921
1923	Umfoloji	a few	Lang 1923: 156, caption for fig. 1
1923	Umfoloji	certainly not more than 16, and probably not more than 12 in the reserve; two were shot by a young man	J. Stevenson-Hamilton, letter of 12 Oct 1923, published in Hornaday 1924; cf. Lang 1924: 174
1926	South Africa	20	Hobley 1926
1928	Umfoloji	28	Kirby, report of game conservator, in Pringle 1970: 135
1929	Zululand	official count 120, maybe 150	H. Lang in Shortridge 1934: 426
1930	Zululand	about 50	Ernest Warren in Shortridge 1934: 426
1930	Umfoloji	count: 120 in the reserve plus 30 on adjacent ground	Skinner and Smithers 1990: 567
1932	Umfoloji	220 counted	Kluge 1950
1934	Umfoloji GR	134 in the reserve and 72 outside	Capt. H.B. Potter in Vincent and Geddes Page 1983: 79
1936	Umfoloji GR	226 excluding calves	Kluge 1950
1938	Umfoloji GR	estimated at 300	Capt. H.B. Potter in Vincent and Geddes Page 1983: 79



White rhinoceros in South Africa. Undated drawing by Charles Bammy preserved in the South African Library, Cape Town.

Status of the white rhinoceros in Zululand

Before 1899, the number of rhinos living between the Black and the White Umfolozi Rivers was unknown. The estimates of the numbers published between 1899 and 1938 are listed in table 1. Two general observations are apparent. First, most figures were provided by people (like Selous), who never had an opportunity to obtain first-hand evidence in Zululand. Second, the numbers remained relatively stable during the entire period from 1899 to 1929, ranging from 4 to 50. Visits to the Umfolozi Reserve were rare, even by the authorities in charge; indeed for many years it was closed to the public entirely.

C.R. Saunders, the chief magistrate and civil commissioner of Zululand, went there in 1902 and while he saw many tracks, he failed to see a rhino. He estimated their number at about 10. Kirby went to Umfolozi during his official tours as game conservator of Zululand. In a paper published in 1917, he recognized that it was very difficult to compute the num-

ber of rhinos present inside or outside the reserve. He guessed that there would be 30 to 40 adults. As he excluded the unknown number of calves and all animals outside the reserve's boundary, his estimate could mean that there were almost certainly over 50 white rhinos alive in that part of Zululand. In 1922, Kirby gave a revised number of 20 white rhinos, and it is this latter figure that has been regularly quoted in the more recent literature on the subject (Vincent and Geddes Page 1983: 79). An unexpected response to Kirby's estimate was given by Maqubu Mtombela, who was employed as a game guard in Umfolozi from 1918. When Maqubu was interviewed in the late 1950s, he laughed about the number of rhinos and said that Kirby was hiding them: 'Maqubu maintained that there were far more white rhino in Umfolozi than there are at present. The big decline in numbers came in the drought of 1932' (Foster 1960: 24).

Wildlife authorities in the USA, when approached by members of nature conservation bodies in Natal in the 1920s, were greatly concerned about the continued existence of the rhinoceros in Zululand

(Hornaday 1924). In 1927, Dr Herbert Lang, associate curator of mammals of the American Museum of Natural History in New York, came to South Africa and spoke on behalf of the conservation movement, hoping to stem the tide of the anti-tsetse campaign (Pringle 1970: 127). The official war against wildlife continued unabated with an inconceivable effort. Between May 1929 and November 1930, for instance, 26,162 wild animals were killed in the buffer zone around Umfolozi and 377 inside the reserve (Pringle 1970: 132). Although possibly the rhino was officially spared, one wonders if a few were not accidentally included in the slaughter.

In 1928, Kirby stated that 28 rhinos existed, but a ranger called Wehrner counted 150. Herbert Lang knew that it was important to understand the actual numbers in the Umfolozi Reserve. At the end of the 1920s, he attempted an actual count and walked through the entire reserve, from dawn until night, and concluded that the only positive way to conduct a census was by individual identification of each animal (Pringle 1970: 135). Requested by the Game Ad-

visory Committee, Lang spent another three weeks in the reserve in November 1929 and reported 100 animals inside and 38 outside the reserve. R.H.T.P. Harris, who was in charge of tsetse fly research, in 1929 estimated the number to be 120 (Foster 1960). The estimates for the period between 1925 and 1930, therefore, ranged from 28 to 150 white rhinos in Umfolozi, with an unknown number outside the reserve.

A success story

We can now put the various pieces of evidence into perspective. The first question to answer is to what number was the southern white rhino reduced. The figures in tables 1 and 2 show that the estimates of between 4 and 50 animals were unrealistic. Even if this figure were applied to the Umfolozi Reserve alone, it does not take into account the remnant populations in other regions. It is also evident that none of the so-called estimates were based on actual counts or even on first-hand information. While Kirby (1917) estimated 30–40 adult animals, he said nothing about

Table 2. Estimates of numbers of white rhinoceros in Botswana, Mozambique, Zambia and Zimbabwe, 1896–1931

Date	Region	Estimate	Reference
1896	Matamiri bush, south bank of Sabi River	'has been favourite resort, but they have become almost extinct now even there. In 1895, I came upon a cow and big calf, but they are decidedly rare.'	Kirby 1896: 9
1899	Botswana, Lake Ngami	7, of which 3 left in 1904	Dr Gunning (Pretoria) in Renshaw 1904
1901	N. Mashonaland	a few still exist	Selous 1901: 185
1903	Botswana, Lake Ngami	4	Sidney 1965: 59
1909	Mashonaland	'a few may still linger in the neighbourhood of the Angwa River in northern Mashonaland'	Selous 1914: 15
1909	Mashonaland	not more than a dozen wild specimens, in one corner of north-eastern Mashonaland and in Umfolozi	Bryden 1909: 60
1912	Zimbabwe	'I heard, quite lately, that one or two had been seen in southern Rhodesia'	Stevenson-Hamilton 1912: 67
1920	Zimbabwe	'I understand it is now entirely extinct in Rhodesia'	Kirby 1920a: 224
1920	Zimbabwe	one or two in remoter parts	Fitzsimons 1920: 207
1923	Zambia, Tara	'there are quite a few at present living not far from here, just how many it is impossible to say'	Hubbard 1923: 229 [unlikely, says Lang 1924: 175]
1931	Zimbabwe	7 still exist on the Portuguese–Nuenetsi border	J.F. Fleming, 12 Jan 1931, in Shortridge 1934: 426

the number of calves (possibly five?), nor about the unknown number of rhinos living outside the reserve. Other sources are equally vague. The numbers were kept low for political reasons, rather than to reflect the true status. This was neatly summarized by Skinner and Smithers (1990: 567): 'By the end of the 19th century the southern white rhinoceros was reduced to only one population of about 50 to 100 in the southern part of the area which now forms the Hluhluwe–Umfolozzi Game Reserve in Natal. It appears the population estimate of 20 for this time was a deliberate under-estimate to convince politicians of the urgency of the situation.'

The year in which the population reached its minimum size is inconclusive from the literature. There are no records before 1894. From that time until about 1927, most authors, lacking first-hand observations, quoted very low numbers, up to a maximum of 40 white rhinos in southern Africa. Then suddenly in 1929, there were at least 150. This in itself is quite impossible as there must have been some change, positive or negative, during the period. In the absence of data, we may never know the truth.

It is my supposition, based on this historical evidence, that there is no reason to believe that there were ever less than 200 white rhinos in Zululand before 1929, initially perhaps augmented by another 50 elsewhere in Botswana, Mozambique, South Africa and Zimbabwe. The subspecies was exterminated in all areas outside Zululand during the first three decades of the 20th century.

I would say that the number of white rhinos never was as few as suggested in much of the literature. However, this historical analysis does show how effective conservation can be. There are now over 9000 white rhinos of the southern subspecies in the world—in national parks and on private land in South Africa, in other African countries, and in zoos and circuses around the world (Emslie and Brooks 1999). These numbers have come about because of stringent protection, law enforcement, personal devotion and far-sighted management on the part of the staff and authorities in South Africa. A similar effort is now necessary to save the northern white rhinoceros, *Ceratotherium simum cottoni* (Lydekker 1908), from extinction.

References

Bryden, H.A. 1909. *Animals of Africa*. Sands and Co., London and Edinburgh.

- Dollman, J.G. 1921. *Catalogue of the Selous collection of big game in the British Museum (Natural History)*. Trustees of the British Museum, London.
- Emslie, Richard, and Brooks, Martin. 1999. *African rhino: status survey and conservation action plan*. IUCN/ SSC African Rhino Specialist Group.
- Fitzsimons, F.W. 1920. *The natural history of South Africa: Mammals*, vol. 3. Longmans, Green and Co., London.
- Foster, W.E. 1960. The square-lipped rhinoceros. *Lammergeyer* 1:24–35, 1 plate.
- Haagner, Alwi. 1920. *South African mammals: a short manual for the use of field naturalists, sportsmen and travellers*. H.F.G. Witherby, Cape Town, and T. Maskew Miller, London.
- Heller, Edmund. 1913. The white rhinoceros. *Smithsonian Miscellaneous Collections* 6 (1), i, 1–56, plates 1–31.
- Hobley, C.W. 1926. The Zululand game reserves: a summary of the position and some suggestions. *Journal of the Society for the Preservation of the Fauna of the Empire* (N.S.) 6:42–48.
- Hornaday, W.T. 1924. Threatened quick extinction of the white rhinoceroses. *Zoological Society Bulletin, New York* 27(1):12–15.
- Hubbard, Wynant Davis. 1923. Big game in Rhodesia. *Journal of Mammalogy* 4:228–230.
- Kirby, F. Vaughan. 1896. *In haunts of wild game: a hunter-naturalist's wanderings from Kahlamba to Libombo*. William Blackwood and Sons, Edinburgh and London.
- . 1917. Game and game preservation in Zululand. *South African Journal of Science* 13:375–394.
- . 1920a. The white rhinoceros, with special reference to its habits in Zululand. *Annals of the Durban Museum* 2(5):223–242, plate 27.
- [signed 'Mfoholza']. 1920b. *The southern white rhinoceros: its history, peculiarities, habits and behaviour*. Wildlife Protection Society, Natal Branch, Durban.
- Kluge, E. 1950. The white rhinoceros of the Umfolozzi Game Reserve. *African Wild Life* 4 (2):154–159, 3 figs.
- Lang, Herbert. 1923. Recent and historical notes on the square-lipped rhinoceros (*Ceratotherium simum*). *Journal of Mammalogy* 4:155–163, plate 16, figs. 1–2.
- . 1924. Threatened extinction of the white rhinoceros (*Ceratotherium simum*). *Journal of Mammalogy* 5: 173–180.
- Millais, J.G. 1919. *Life of Frederick Courtenay Selous, D.S.O., Capt. 25th Royal Fusilliers*. Longmans, Green and Co., London.
- Newton, Alfred. 1903. Exhibition of, and remarks upon, photographs of the white rhinoceros taken by C. R.

- Saunders. *Proceedings of the Zoological Society of London* 1903(1):222–224, figs. 39–40.
- Player, Ian. 1972. *The white rhino saga*. Collins, London.
- Player, I.C., and Feely, J.M. 1960. A preliminary report on the square-lipped rhinoceros *Ceratotherium simum simum*. *Lammergeyer* 1(1):3–23, 1 plate, 3 maps.
- Pringle, John A. 1970. *The conservationists and the killers: the story of game protection and the Wild Life Society of Southern Africa*. T.V. Bulpin and Books of Africa, Cape Town.
- Renshaw, Graham. 1904. *Natural history essays*. Sherratt and Hughes, London and Manchester.
- Schouteden, H. 1911. Le Rhinocéros blanc. *Revue Zoologique Africaine* 1:118–124, pl. vi, fig. 1.
- Slater, William Lutley. 1900. *The mammals of South Africa*, vol. I: *Primates, Carnivora and Ungulata*. R.H. Porter, London.
- Selous, F.C. 1881a. *A hunter's wanderings in Africa, being a narrative of nine years spent amongst the game of the far interior of South Africa. Containing accounts of explorations beyond the Zambesi, on the River Chobe, and in the Matabele and Mashuna countries, with full notes upon the natural history and present distribution of all the large mammalia*. Richard Bentley and Son, London.
- . 1881b. On the South-African rhinoceroses. *Proceedings of the Zoological Society of London* 7 June, 1881, 725–734, pl. lxii.
- . 1893. *Travel and adventure in south east Africa, being the narrative of the last eleven years spent by the author on the Zambesi and its tributaries; with an account of the colonisation of Mashunaland and the progress of the gold industry in that country*. Rowland Ward and Co. Ltd., London.
- . 1901. The rhinoceros. In: C.J. Cornish, ed., *The living animals of the world, a popular natural history*, vol. 1: *Mammals*. Hutchinson and Co., London, p. 182–188, 8 figs.
- . 1914. The white or square-mouthed rhinoceros, *Rhinoceros simums*. In: F.C. Selous, J.G. Millais and Abel Chapman, *The gun at home and abroad: the big game of Africa and Europe*. The London and Counties Press Association, London. p. 14–17.
- Shortridge, Guy Chester. 1934. *The mammals of South West Africa: a biological account of the forms in that region*, vol. 1. William Heinemann, London.
- Sidney, Jasmine. 1965. The past and present distribution of some African ungulates. *Transactions of the Zoological Society of London* 30:1–397, figs. 1–39, maps 1–94.
- Skinner, John D., and Smithers, Reay H.N. 1990. *The mammals of the Southern African subregion*, new ed. University of Pretoria, Pretoria.
- Stevenson-Hamilton, J. 1912. *Animal life in Africa*. Heinemann, London.
- Vincent, J., and Geddes Page, J. 1983. Back from the brink: the white rhino story. In: *Proceedings of an International Symposium on 'The Extinction Alternative' presented by the Endangered Wildlife Trust, Johannesburg, 19–20 May 1983*. Endangered Wildlife Trust, Johannesburg. p. 77–82.

Ed. note: The author has published a similar paper, 'The alleged population reduction of the Southern White Rhinoceros (*Ceratotherium simum simum*) and the successful recovery' in 2001 in *Saugetierkundliche Mitteilungen* 45(2):55–70. We are publishing this version to bring the paper to a wider readership.