Types and type localities of ungulates named from southern Africa

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Sixty names given to southern African ungulates are critically reviewed. All original descriptions have been examined. An attempt is made to resolve apparently contradictory statements in the literature relating to authorship, dates of publication, localities from which types were obtained, and the nature of the types themselves. Where they do not appear to be generally known, syntypes, holotypes, lectotypes and type localities are identified as far as possible. Specimens regarded as types after the original description was published are designated as lectotypes where their status is not entirely clear. In some cases lectotypes are chosen from among syntypes where these belong to more than one biological species, so as to ensure stability in nomenclature. Type localities for 22 nominal species have been identified, clarified, corrected or restricted with respect to those cited by Meester *et al.* (1986). Type material applying to about 22 names probably survives. Some types may still exist unnoticed in the Paris museum and other institutions.

Key words: southern African ungulates, types, type localities.

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Introduction

The nomenclature of southern African ungulates has been extensively discussed by P. L. Sclater & Thomas (1895–1900), W. L. Sclater (1900), Lydekker (1913, 1915, 1916), Lydekker & Blaine (1914a, b), Shortridge (1934), Allen (1939), Roberts (1951), Ellerman *et al.* (1953), Skead (1973) and, most recently, by Meester *et al.* (1986). One would have thought that there was little need for further study of this subject. However, in compiling accounts of the species of Perissodactyla and Artiodactyla (Grubb 1993a, 1993b), it became apparent that generally accepted type localities of southern African ungulates had not always been established with certainty. Different opinions in the literature concerning the location of type localities had not always been reconciled. Often this was because types or syntypes had not been identified. Hence there is still a need for a review of ungulate names.

Methods

This paper seeks to identify types of nominal species whose names are the earliest applied to populations of ungulates occurring within the southern African subregion and whose type localities are therefore within the subregion. Some other names that are of systematic or nomenclatural significance, although now treated as junior synonyms, are also discussed. For each nominal species, the original form in which the name was published, the nature of the type or syntypes, and the original statement of type or syntype localities are quoted. Original text is cited between quotation marks. The identities of the type and type locality are reviewed and reassessed, if necessary, together with any relevant comment. Type specimens were not always distinguished when new names were coined, so a name may be based on several syntypes, not all belonging to the same biological species. In other cases, a type has been recognised but not in the original

description and not through an explicit designation. Lectotypes are therefore designated where needed. Species and species names are those recognised in Meester *et al.* (1986), except for the bontebok and blesbok and the suids, where Rookmaker (1991) and Grubb (1993b, 1993c) are followed. Genera are those recognised by Meester *et al.* (1986), except that *Sigmoceros* is regarded as a synonym of *Alcelaphus*.

I have consulted all references cited by date in the libraries of the Natural History Museum, London, and the Zoological Society of London. Years of publication are as given in the references, except for some particular cases that are discussed as they arise. Buffon's 'Histoire naturelle' is treated as a serial publication since the chapters are separately titled and wholly self contained and Buffon is not always the author.

Species accounts

African elephant, *Loxodonta africana*

'*ELEPHAS Africanus*' Blumenbach, 1797:125, Fig. C, based on a right lower second molar [holotype]. 'Diese im mittlern und sudlichern Africa einheimische Gattung' [since restricted to the Orange River region].

The type is in Göttingen University according to Shortridge (1934:357) but its whereabouts are unknown according to Pohle (1926:63), who restricted the type locality to the Orange River region.

'*Elephas capensis*' G. Cuvier, 1798:149; type not identified [lectotype now known to be a skull in Paris], ' ... du Cap' [type locality since restricted to the Orange River region].

In 1795 the French transferred most of the Prince of Orange's natural history collection to Paris (Rookmaaker 1989:121). Using this material, Citoyen Cuvier (1799), as he then styled himself, was able to compare the skull of an elephant from Ceylon with one from the Cape of Good Hope. He had already described *Elephas capensis* in the previous year without referring to a specimen. Osborn (1942:1193) identified the Cape skull as the type of this taxon, though it is actually the lectotype (here designated) as Cuvier mentioned other material supposedly from the Congo. Matschie (1900:193) seemed to think the skull came from the 'Oranje-Gebiete' but did not explain how he arrived at this conclusion.

The use of the Orange River region as a restricted type locality for nominal species of African elephant is questionable. In the 18th Century the fauna of the upper Orange River was hardly known, while that of the lower Orange, now the border between Namibia and South Africa, would have been observed only after a long trek through western Cape Province. Elephants were likely to have been encountered long before the lower Orange was reached (Rookmaaker 1989:284). It seems more probable that because of their size, specimens of elephants that eventually reached Europe were obtained nearer the Cape of Good Hope than the Orange River. The issue may become significant if Southern African elephant populations prove to belong to more than one subspecies.

'*E*[*lephas*]. *africanus toxotis*' Lydekker, 1907:388, based on a mounted female in the South African Museum, Cape Town, from 'West Cape', South Africa ('the West Cape Elephant, which survives only in a few protected localities such as Mossell Bay ...') [now known to be from the Addo Bush, Alexandria district, Cape Province].

As generally noticed (though not by Osborn 1942:1193), Lydekker (1916:87) was later informed that the type had been shot in the Addo Bush.

Black rhinoceros, *Diceros bicornis*

'RHINOCEROS bicornis' Linnaeus, 1758:56, based on the writings of Kolb, Jacobaeus and Schroeckius [type since selected as the animal described by

Kolb], from 'India' [type locality since selected from presumed syntype localities as Cape of Good Hope].

The type locality was identified and selected by Thomas (1911:144). Hopwood (1939: 453) chose the animal described by Kolb as the lectotype, so as to avoid the consequences of non-African species possibly being included among the syntypes. A mounted skeleton in Leiden, 'cat. A', is said to be the holotype (Zukowsky 1965:32–33), but this cannot be correct as it was not mentioned by Linnaeus or by the authors cited by him, and according to Mertens (1966:116) it must be the neotype. But an incorrectly designated holotype does not become a neotype by default. The Code of Zoological Nomenclature (International Commission on Zoological Nomenclature 1985:157, 159) states that 'A neotype is to be designated ... only in exceptional circumstances ... in the interests of stability of nomenclature; the designation of a specimen to be a neotype other than in accordance with these conditions is not valid.' 'A neotype is not to be designated as an end in itself, or as a matter of curatorial routine, and any neotype so designated has no standing in nomenclature.'

White rhinoceros, *Ceratotherium simum*

'*Rhinoceros simus*' Burchell, 1817:97; type not identified [since selected as a tooth in the Oxford University Museum], from 'l'interior de l'Afrique Méridionale, ... vers le vingt-sixième degré de latitude' [since identified as Klein Heuningvlei, Vryburg district, Cape Province].

Selous (1899) stated that Burchell had obtained this rhinoceros in 'the Batlapeen country, not far from the present native town of Kuruman'. Shortridge (1934:428) followed this description but referred to 'Balatpan' country (Batlhapin of Skead 1983:9). Cave (1947:141–144) received information on Burchell's manuscripts. He found that the illustration accompanying the original description (Burchell 1817) corresponded very closely with one of several drawings Burchell had made in the field of a rhinoceros killed on October 1812, 'in the locality of Chue Spring (approximately lat. 26°15' S., long. 23°10' E), on the Makuba Range, in the present Bechuanaland.' Roberts (1951:241) and Ellerman *et al.* (1953:164) overlooked this information. Chue Spring is now known as Klein Heuningvlei and is in northern Cape Province (Skead 1973:76). The specimen drawn by Burchell appears to be the only one for which there are documentary records, though Burchell's field notes may need to be re-examined to confirm this. However, fragmentary material of white rhinoceros, brought back to Britain by Burchell, comes from two different individuals (Cave 1962:693). One of these could well be the animal illustrated in the original description but it is not possible to tell which. Cave quite properly considered the material to be syntypical. Cave's action is in agreement with Recommendation 73F of the Code (International Commission on Zoological Nomenclature 1985:73) in not assuming that there was only a single type specimen. The illustrated animal is also syntypical and Cave could have regarded it as the lectotype, but after mentioning it in his earlier paper (Cave 1947), he then unaccountably stated that Burchell's original description of the white rhinoceros was 'unillustrated' (Cave 1962: 691). He chose a material record of the species, namely a tooth, as lectotype, a right maxillary second molar, # 8221 (old catalogue # 1568), Oxford University Museum (Cave 1962:694).

Mountain zebra, *Equus zebra*

'EQVUS [sic] Zebra' Linnaeus, 1758:74, based on animals described by Edwards and Ray [one of Edwards' specimens later designated the type and here regarded as the lectotype]; '*Habitat in* India, Africa' [restricted to Perdekop, Ceres district, Cape Province].

Thomas (1911:154) noted the real country of origin and restricted the type locality to Cape of Good Hope. He described the first animal illustrated by Edwards (plate issued perhaps

as early as 1751; text 1758:27), the 'Zebra mas.' [= masculine], as 'typical', so it is taken to be the lectotype (here designated, should there be any doubt). It was drawn in 1751 from a stuffed skin in the Royal College of Physicians, London. Burchell (1822:138–139) stated that the locality Paardeberg (= Perdekop; Skead 1973:178) was named after the mountain zebra, which in former times had occurred there. Roberts (1951:244) selected this locality as the restricted type locality for *Equus zebra*, and as it is in western Cape Province where the species is likely to have been first encountered by Europeans, this seems appropriate.

'*Equus montanus*' Burchell, 1822:139, type not identified except that Burchell (1822:138) indicated that he had obtained material for the British Museum [a skin now known to have been presented to the Museum is here designated as the lectotype], but did not mention any locality [now known to be Wagenpadsberg].

Burchell (1822:139) renamed the mountain zebra, which he called the 'Wilde Paard', because he mistakenly thought that what he termed the 'Zebra' (now *Equus burchellii*) was the same as the *E. zebra* of Linnaeus. He did not treat the two as conspecific, a conclusion Azzaroli & Stanyon (1991:425) appear to have drawn from Roberts (1951:247), although confusion between zebra species does occur in his narrative (Burchell 1823:273; see account of *Asinus burchellii* in this paper). Ellerman *et al.* (1953:165) and Meester *et al.* (1986:175) did not give a type locality, but noted the reference to 'Paardeberg' (Burchell 1822:138). In coining the name *E. montanus*, Burchell was creating a new nominal species, and since he claimed to have material, the type locality cannot be a place where the species was already extinct at the time he wrote! On 27th March 1813, Burchell obtained a mountain zebra that is still in the Natural History Museum, London, as an unlabelled skin (Lydekker 1916:35; Pickering 1997:320) and is here designated as the lectotype. It was obtained at 'Wagenpadsberg [= Wagenpadskop?], beyond the Snow Mountains' (Burchell, 1836:4), which is the type locality.

Burchell's zebra, *Equus burchellii*

'*Asinus Burchellii*' Gray, 1824:247, based on a skin obtained by Burchell [since destroyed; the skull may still exist] from 'The flat parts near the Cape' [now identified as Little Klibbolikhonni Fontein, Kuruman district, Cape Province].

One of the earliest records of this species is a drawing in the collection of R. J. Gordon dated November 1777 (Rookmaaker 1989: 286), but over forty years were to pass before Burchell's zebra was recognised as a distinct species. Although the type locality of *Asinus burchellii* has now been securely identified, various authors have disagreed about its location. This led to Skead (1973:27, 102) recognising separate type localities for '*Equus burchelli*, Gray, 1822' (Campbell) and '*Equus quagga burchelli*, Gray, 1825' (Little Klibbolikhonni Fountain), hence implying the existence of two separate descriptions of the taxon. W.L. Sclater (1900:289) identified the type locality as 'Grootfontein about halfway between Griquatown and the junction of the Vaal and Modder rivers, in what is now Griqualand West', and was closely followed by Shortridge (1934:398) and by Roberts (1951:247), who gave Campbell as the modern name of Grootfontein. Shortridge (1934:398) cited the reference as '*Asinus burchelli* Gray, 1822, Zool. Journ., I, pp. 451–452', but this date and the page numbers do not refer to Gray's paper for they are actually those of Burchell (1822:451–452)! This error explains Skead's first (1973:27) quotation. Roberts (1951:247) gave the date of Gray's publication as 1825, explaining Skead's (1973:102) second citation, the correct date being 1824. There was indeed only one description of Burchell's zebra. But why should it have appeared that there were two type localities? The explanation emerges from studying Burchell's own records of

shooting the species of zebra that was to be named after him:

1) November 14 1811, Groote Fontein: two animals shot (Burchell 1822:451–453). W. L. Sclater's (1900:289) conclusion (that this was the type locality) was understandable, as Burchell himself said that he was preparing one of these specimens so that it could be stuffed and mounted. But if a specimen from Groote Fontein was ever brought back to England, it was not the one presented to the British Museum (Burchell 1836).

2) June 21 1812, Little Kosi Fountain: 'a wild paard (*Equus montanus*), or *quakka*, as it was often called, was shot' (Burchell 1823:273). From the locality, this must have been a Burchell's zebra. In view of Burchell's efforts to distinguish the three South African equids (Burchell 1822: 139), it is ironic that he should then confound all three in one! There is no evidence that Burchell preserved this specimen.

3) November 24 1812: a specimen was obtained at Little Klibbolikhonni Fountain (Burchell 1836:4) which he brought back to London and which was studied by Gray. This specimen must be the holotype (Cabrera 1936:92; Harper 1945:339; Ellerman *et al.* 1953:167). Two skulls collected by Burchell are in the Oxford University Museum (Pickering 1997:316, 318, 324) and it is conceivable that one belongs with the skin of the holotype. Possibly a study of the unpublished parts of Burchell's journal will provide an answer to this problem. Burchell's (1836) list of specimens was evidently not available to W. L. Sclater, who hence had no means of knowing that the type had not come from Groote Fontein. The list—a mere pamphlet—is a rare work and not dated. Cabrera (1936:92, 109) and Ellerman *et al.* (1953:167) believed it had been published in 1825. 1836 is the date now given in the Natural History Museum (London) Catalogue.

'*Hippotigris antiquorum*' Hamilton Smith, 1841:327, based on the animal described by Pigafetta; on a late foetus obtained by Andrew Smith; and on a menagerie specimen [A. Smith's specimen has been selected as the type]. Hamilton Smith stated that 'the Congo Dauw extends from the Gareep [Orange] along the west side of Africa to the Zezeere in Nigritia … abounds particularly in the province of Bamba … It is likely to spread also from Congo eastward to the Galla country … Near the Gareep river they seem to be mixed with what we consider the Cape Dauw or The Dauw. *Hippotigris Burchelli*' [lectotype locality now known to be near the Molopo River, Mafeking district, Cape Province].

The illustration accompanying Hamilton Smith's account is a copy of 'The zebra of the plains *Equus Burchellii*' (Bennett 1829:177) drawn by Harvey from a tame mare kept in the Tower Menagerie, London, in the 1820s. It should be regarded as one of the paralectotypes. The type locality has been given as Southwest Africa, north of the sources of the Orange River (Lydekker 1916:23), or Angola (Cabrera 1936:94). However, Roberts (1951:247) identified Hamilton Smith's reference to the foal of A. Smith (in Kirby's edition of A. Smith's diary). It had been found dead near Molopo [River] on 28 May 1835. Another (and adult?) specimen was shot between Liklagoa and Molopo on 15 August but does not seem to have been preserved. The foal is indeed BM 75a, cited by Lydekker (1916:22), purchased from the South African Museum by J. E. Gray. The latter's annotations are in Natural History Museum (London) copies of A. Smith (1837:15) and Stevens & Stevens (1837). Roberts went on to state: 'I, therefore, nominate Molopo (Mafeking district), Bechuanaland, as the type locality for *Equus antiquorum*, this being equivalent to H. Smith's "Gareep", the Molopo being a tributary of the Orange—or Gariep—River.' This would appear to be an entirely proper designation of a lectotype and consequent restriction of the type locality, but Ellerman *et al.*

(1953:167) and Meester *et al.* (1986:176) did not mention it.

'*Hippotigris isabellinus*' Hamilton Smith, 1841:332, based on a specimen [holotype; possibly identical to the lectotype of *H. antiquorum*] in the collections of the British Museum. 'The late Dr. Leach believed the skin to have come from the Cape' [but if identical with the lectotype of *H. antiquorum*, the type locality would be near the Molopo River, Mafeking district, Cape Province].

Hamilton Smith (1841) believed this 'Isabella Quagga' represented the *zebre* or *Ane isabelle* of Levaillant, seen in Great Namaqualand (see also Rookmaaker 1989:256). Roberts (1951:246–247) also considered this taxon to be a quagga, immature because of its small size ('scarcely ten hands high' or 100 cm!), 'much paler than the true Quagga and probably therefore from the lower Orange River area, where most mammals are very pale.' A white zebra seen by Gordon at the Kraal of Geisiquas, Gordonia, northern Cape Province, was thought by Rookmaaker (1989:117) to be a faded colour variant of the quagga. The name *H. isabellinus* has consistently been included in the synonymy of the quagga, but with the much lighter background coloration of its pelage, the type seems more appropriately assigned to Burchell's zebra. The latter would have seemed pale relative to the quagga and the light coloured animals seen by Levaillant and Gordon may also have been Burchell's zebras. Gray (1843, 1852) did not mention the holotype. But only four years before Hamilton Smith published his description of *H. isabellinus*, Gray had purchased a zebra of very small stature—because it was a foetus—now regarded as the lectotype of *H. antiquorum* (see discussion of Andrew Smith's specimen under that heading). It seems very unlikely that at a time when large-mammal specimens from Africa were still scarce in London, two foetal or new born zebras should arrive at the British Museum within a period of five years, without arousing comment and comparisons. It seems more probable that Andrew Smith's specimen and the holotype of *H. isabellinus* are one and the same, and that although Hamilton Smith (1841:327) had heard of Andrew Smith's zebra foetus, he did not know it was the specimen he sketched in the Museum and named *H. isabellinus*.

'*Equus chapmanni*' Layard, 1865:417, based on the skin of an immature animal sent to London [here designated lectotype; presumably since destroyed], shot by Thomas Baines on 14 April 1863, on 'the salt-pan on the elevated plain between the Zambezi and Botletle Rivers' [since identified as about 30 miles from the Boteti River at the Makgadikgadi Pan, Botswana].

From Chapman's (1868) account of his journey, the probable collecting locality of the type can be narrowed down to about 30 miles east of the south-flowing loop of the Boteti River. According to Lydekker (1916:24) 'Sclater's plate [in Layard 1865:Pl. 22] must be regarded' as the type, but this was a zoo animal not connected in any way with Chapman's expedition. The lectotype of this nominal species is here designated as the specimen shot by Baines. Baines painted zebras shot on 17 July 1862 (north of Matietsie River, 20 or so miles south of the Zambezi), 19 July 1862 (Nyati River, south of Victoria Falls) and 7 December 1862 (east of Logier River) which are reproduced by Datta (1999). She regarded the first of these paintings as an iconotype, and possibly all the illustrated zebras should be regarded as syntypes (now paralectotypes). Burchell's zebra still occurs in the area of the type locality and specimens obtained at quarter-degree squares 2024-B-3 and 4 (map in Smithers 1971:202) are topotypes of *E. chapmanni*.

Quagga, *Equus quagga*

'EQUUS Quagga' Boddaert, 1785:160, based on accounts by Buffon ('BUFF. suppl. XI. p. 150. tab. 7.'), Edwards and Pennant [no type selected; lectotype here

designated as the animal illustrated by Edwards], from 'Caffrorum regione' [Seekoei River, Colesburg district, Cape Province, now identified as locality of paralectotype, here selected as type locality].

'EQUUS Quagga' Gmelin, 1788:213, based on accounts of the quagga by Pennant, Masson and Edwards, and on Buffon's account of the 'Zebre' [Edwards' animal since selected as type], 'Habitat in Africa meridionale.'

According to Allen (1939:561), Harper (1945:334) and Roberts (1951:246) the quagga was first included in scientific nomenclature by Gmelin (1788:213) but they seem to have overlooked Boddaert's (1785:160) prior account. Pennant (1781: 14), cited by Boddaert, in turn quoted Hop, Masson and Edwards. Hop's and Masson's accounts (Rookmaaker 1989:37, 133) do not appear to be very informative. Edwards drew a quagga as the 'Zebra femina' in 1751 from the living animal belonging to the Prince of Wales (Edwards 1758:29–30). The drawing was copied by Buffon (1776a:Pl.4) who still regarded it as a mountain zebra, *E. zebra*. It was identified as the type (lectotype) of *E. quagga* Gmelin by Pocock (1904:318) and if there should be any doubt that Pocock's action applies also to *E. quagga* Boddaert, it is here designated the lectotype of that nominal species as well. Buffon's (1782a) account of the quagga was based on Allamand, who obtained his information from Gordon (Rookmaaker 1989:127). Gordon had drawn a young quagga that he had caught in late November 1777, at Seacow (Seekoei) River (Rookmaaker 1989: 113). This is the only identifiable locality of a syntype (now a paralectotype) and should be regarded as the restricted type locality of the species.

Bushpig, *Potamochoerus larvatus koiropotamus*

SUS KOIROPOTAMUS Desmoulins, 1831:139 and Pl. 146, Fig. 2, based on 'un individu rapporté par de Lalande' [holotype] from the 'midi de l'Afrique' [now known to be 150 leagues from the Cape of Good Hope].

According to De Beaufort (1964:557), the type specimen reached Paris in 1820 and was still in the collection. The presumed collecting locality of '150 lieues du Cap de Bonne Esperance' is inscribed on the mount. Skead (1980:381) and Rookmaaker (1989:6) have noted that early accounts of wildlife in South Africa did not clearly differentiate between the bushpig and the warthog, and the species of pig to which reference was made can not usually be reliably identified. Gordon was an exception, for on manuscripts and drawings and in his journal for 1777 and 1778 he recognised wild varken (bushpig) with incisors, seen near the Cape, mainly in bush along rivers, and bosvarken (Cape warthog) without incisors, living in holes, usually in groups of 4–5 or 8–9, running fast with tails in the air, and found in the interior (Rookmaaker 1989:113–114, 288–290). Sparrman (1783) also seems to have been aware that there were two species of wild pig, but he never observed the bushpig (grafsvin or bergvarken). The first scientific naming of the bushpig was provided by Schreber in 1791:Pl. 327, where he used the name *Sus africanus*. Without accompanying text, it is not clear whether he was misapplying Gmelin's *Sus africanus*, which properly refers to the common warthog of Senegal, or coining a new appellation. S. Daniel (1805: Pl. 21) was another who knew of the two suids. He illustrated the African hog or wild hog of Africa (bushpig), which abounded in the woods of Sitsikamma (Tsitsikamma). It differed from the barbaroussa [sic] or Ethiopian hog (warthog). The barbaroussa is properly the babirussa, *Babyrousa babyrussa* of Sulawesi, Indonesia! Thunberg (1811b: 320) also recognised two species, and he used Gmelin's or Schreber's name for the bushpig or 'wilde Varken'. Daniel's picture was copied to illustrate F. Cuvier's (1822) description of the Malagasy *Sus larvatus*, the first valid name assigned to any bushpig. It was not until 1831 that the South African population acquired the name *Sus koiropotamus*. Confusion with the warthog continued,

when Jardine (1836b:232) also used Daniel's picture and written account of the African hog, this time to represent the 'Aethiopian wart-hog *Phascochaeres* [sic] *larvatus*', citing *S. koiropotamus* as a separate taxon (Jardine 1836b:212).

Common warthog, *Phacochoerus africanus*

'*Phacochoerus sundevallii*' Lönnberg, 1908:54 [original spelling cited as '*Phacochoerus sundevalli*' by Roberts (1951:268) and Meester *et al.* (1986: 185)], based on specimens collected by Johan Wahlberg in Natal. The number of syntypes was not stated and no lectotype has been designated.

The common warthog was first noted in southern Africa by Sundevall (1846a:121) when he reported Wahlberg's collection. In his journal Wahlberg (1994) recorded shooting warthogs (vlakvark) near the Umslatus (Mhlatuze) River and in other areas of Natal, but also in the Transvaal. If collecting dates or collecting localities can be traced in museum archives, it may be possible to identify syntypical localities more precisely.

Cape warthog, *Phacochoerus aethiopicus*

'*Aper aethiopicus*' Pallas, 1766:16, based on accounts of wild pigs by Kolb, Flacourt, Adanson and Buffon, and on a boar in the menagerie of the Prince of Orange at The Hague [here designated the lectotype], from 'Promontorio Bonae Spei advectus atque in SERENISSIMI PRINCIPIS AURIACI theriotrophaeum' [now known to be from between Kaffraria and Great Namaqualand, 200 leagues from the Cape of Good Hope].

The boar in the menagerie at The Hague is here designated the lectotype since more than one species was included among the syntypes. It was the subject of a painting by Aart Schouman (Tuijn & Van der Feen 1969:70), copied and engraved in Pallas (1766), Vosmaer (1766), Allamand (1776) and other publications. It had been obtained between Kaffraria and Great Namaqualand (Pallas 1766), two hundred leagues from the Cape of Good Hope (Vosmaer 1766), so possibly in the hinterland of the Karoo. Rookmaaker (1989:290) mentioned that it was this animal that attacked its keeper, and E. Geoffroy Saint-Hilaire (1803:234) cited a museum specimen 'N°. CCCCLIV. Cet individu a vécu à la ménagerie de Hollande; il tua un de ses gardiens.' The inference is that the lectotype was one of the specimens transferred to Paris. Whether it still exists is not known.

Hippopotamus, *Hippopotamus amphibius*

'*Hippopotamus Capensis*' Desmoulins, 1825:220, based on a skin and skeleton obtained by Delalande [holotype] in 'La colonie du Cap' [now known to be the lower Berg River, separating Piquetberg and Malmesbury districts, Cape Province].

De Beaufort (1964) did not mention the holotype but it may still exist in Paris. Delalande (1822:154), Schwarz (1934:261) and Varley (1956:8) identified the collecting locality.

Giraffe, *Giraffa camelopardalis*

'Camelopardalis Giraffa' Schreber, 1784:Pl. 255, type not identified [now known to be the animal illustrated, obtained by Hop and Brink] and type locality not cited [now known to be near Warmbad, Namibia].

'CAMELOPARDALIS Giraffa' Boddaert, 1785:133, type not identified but Buffon was cited: 'BUFF. XIII. 1. tab. 1.1.* 1. 4. & tab. 1.3. (cornua) *edit. belg.* 4to', 'ad Cap. bon. Sp.'

The illustration used by Schreber is based on Buffon (1776b:Pl. 64) who obtained his information from Allamand and other sources concerning a young animal captured by Hop and Brink on 5 October 1761, near Warmbad, southern Namibia, and whose skin had been brought to Leiden (Dagg

1971:1; Rookmaaker 1989:291). Boddaert's (1785:133) later account is based on the same source. Therefore, *C. giraffa* Schreber is a senior synonym of both *C. giraffa* Boddaert and of *C. capensis* Lesson. The prior name for the southern African giraffe is *Giraffa camelopardalis giraffa*, as Rookmaaker (1989:275, 291) has shown, and not *G. c. capensis* (Meester *et al.*, 1986:188).

'Camelopardalis Capensis' Lesson, 1842: 168, based on *La Giraffe*, 'Levaill., voy. pl. 8 et 9' [a specimen shot by Levaillant] from 'Cap de Bonne Esp' [now known to be Lowen River, Keetmanshoop, Namibia].

Levaillant shot a giraffe most probably in 1783 on the 'Rivière des Lions' (Rookmaaker 1989:256) or Lowen River (Skead 1973:125), and this is the basis for Lesson's description (Harper 1940:323).

Common duiker, *Sylvicapra grimmia*

'CAPRA grimmia' Linnaeus, 1758:70, based on the account of Ray [holotype now known to be a specimen seen by Grimm], with locality 'Africa' [now known to be Cape Town].

Ray's account is based on the 1686 report by Grimm of a specimen he had seen in the Fort at Cape Town (Thomas 1911:153; Rookmaaker 1989:296).

Blue duiker, *Philantomba monticola*

'*Capra monticola*' Thunberg, 1789:66, based on a specimen seen by Thunberg [holotype] at Lange Kloof [Langkloof, Uniondale and Humansdorp districts, Cape Province].

The identity of the animal seen by Thunberg has been questioned (Schwarz 1914a:35, 1914b:492; Allen 1939:489), as the original description is very brief and the local name was stated to be 'oribi'. But as Schwarz (1920:949), Ellerman *et al.* (1953:180) and Rookmaaker (1989:295) have clearly shown, the applicability of the name *C. monticola* to the blue duiker was definitively established by Thunberg (1811a) in a later paper. Here he presented a fuller description based on the skin of a male blue duiker that he had in front of him in Uppsala, and that had been obtained from 'Goda Hopps Udden'. Thunberg nevertheless continued to be confused between the blue duiker and the oribi, a species he does not seem to have known at first hand (Rookmaaker 1989:299). Thunberg (1811b:314–315) maintained that the Khoikhoi (Hottentot) name for the blue duiker was ourebi and cited Allamand's illustration of an oribi. His persistent confusion between the two species is not relevant to the use of the name *C. monticola* in view of the material evidence described in his other paper (Thunberg 1811a). The latter account had the same effect as creating a neotype since it resolved any possible disputes concerning the identity of the holotype, now lost to us. Thunberg's confusion can be excused since other authors, in the absence of adequate documentary and material evidence, confounded the Persian wild goat (*Capra hircus* or *aegagrus*) with the gemsbok (*Oryx gazella*), or the dzerin (the goitered gazelle of Asian steppes and deserts, *Gazella subgutturosa*) with either the bontebok (*Damaliscus pygargus*) or the blaaubok (*Hippotragus leucophaeus*). The type locality for *Capra monticola* is Langkloof (Skead 1973:116) but in identifying its location, Ellerman *et al.* (1953:180) chose the wrong one—Langkloof in Sutherland at 32°10'S, 20°05'E—when it is correctly the valley of the same name in Uniondale and Humansdorp districts of the subcoastal area of Cape Province, where the blue duiker does occur (Skead 1973:116–117), at c. 33°48'S, 23°00'–24°30'E. Roberts (1951:323) did not list the name *Capra monticola* Thunberg, but attributed the name *Cephalophus monticola* to Gray, for which he gave 'Galgebosch, Uitenhage' as the type locality. Originally this was the type locality for *Antilope caerula* Hamilton Smith (see below). Roberts was aware of the type locality of *A. caerula* and thus seems to have supposed that these two nominal taxa (*C. monticola* and *A. caerula*)

had the same type locality. But as Ellerman *et al.* (1953:180) had correctly cited Langkloof as the type locality of *C. monticola*, it might appear that there were two type localities for the latter, or at least that Roberts had made some sort of amendment of the type locality. Skead (1980:444) accepted the latter interpretation: 'If Roberts' choice of type locality at "'Galgenbosch', Uitenhage" was more appropriate [than Langkloof] because it was the well-known outspan on the early trek route to the east and a place where blue duiker occurred, it is felt that the use of this archaic name ... should be replaced by the more appropriate "Thornhill, Port Elizabeth district, C.P.", the site of the old "Galgenbosch" outspan and, later, farm.' Rookmaaker (1989:296), in referring to *Antilope monticola*, stated that Skead, following Roberts, had restricted the type locality to Thornhill, but Thornhill is the type locality of the nominal species *A. caerula*, not of the nominal species *C. monticola*.

'A[ntilope]. Caerula' Hamilton Smith, 1827:268, where reference is made to a specimen obtained by Burchell [since identified as the type and here designated the lectotype, in the Natural History Museum, London], and the locality is 'on the borders of the Cape Colony' [now known to be Thornhill, Port Elizabeth district, Cape Province].

Burchell (1836:6) listed a specimen of '*Antilope pygmaea*' from Galgebosch, Uitenhage District, obtained in February 1814, which is BM 48a, a skull with horns and skin (Pickering 1997:322). It is here designated the lectotype because it was not demonstrably the only material available to Hamilton Smith. Roberts (1951:323) noted that the type locality was alleged to be 'near Cape Town' but did not give a reference and then correctly pointed out that the type is actually from Galgebosch (now known as Thornhill—see above).

Red duiker, *Cephalophus natalensis*

'*Cephalophus Natalensis*' A. Smith, 1834:217, no type designated [type, here designated a lectotype, since identified in the Natural History Museum, London] but both sexes described, from 'about Port Natal' [Durban].

Lydekker & Blaine (1914a:69) listed a specimen BM 42.4.11.4, the skull and skin of a female purchased from the South African Museum and accessioned in 1842, and stated that it is the type. It is still in the collection of the Natural History Museum, London. At the auction of the South African Museum collection (A. Smith 1837:14), this specimen and no other of the species was offered for sale. It should nevertheless be regarded as the lectotype (here designated), because Smith (1834:217) was able to describe both sexes and so would have had access to more than one specimen.

Suni, *Neotragus moschatus*

'NESOTRAGUS LIVINGSTONIANUS' Kirk, 1865:657, based on specimens from Shupanga and Lupata [one survives in London as the lectotype, here designated; the lectotype locality is Shupanga, Mozambique].

The only specimen now available is a mere remnant, a frontal bone with horns and scalp, BM 64.12.19.5, in the collection of the Natural History Museum, London (Lydekker & Blaine 1914a:164). It is here declared to be the lectotype.

Sharpe's grysbok, *Raphicerus sharpei*

'RAPHICERUS SHARPEI COLONICUS' Thomas and Schwann, 1906:583, based on a male holotype BM 5.12.9.81 and paratype from Klein Letaba, Transvaal.

The types are preserved as skulls and skins (the paratype is BM 5.12.9.80) in the collection of the Natural History Museum, London (Lydekker & Blaine 1914a:155).

Grysbok, *Raphicerus melanotis*

'*Antilope melanotis*' Thunberg, 1811b:312; no type designated and no locality cited [here chosen as the Cape Peninsula].

Levaillant encountered the grysbok on the Cape Peninsula. In the translation where this is mentioned (Levaillant 1796:132), Forster named it *Antilope dama*, var. *grisea*, which is a nomen nudum (Rookmaaker 1988:215, 216, 1989:300). The locality may nevertheless be selected as the restricted type locality of *Antilope melanotis* Thunberg, as it is one of the earliest references to the species. Rookmaaker (1988:214) thought a skull in Uppsala was the type, as it had been examined by Thunberg, but later (Rookmaaker 1989:300) appreciated it had not been obtained by Thunberg until 1824, after the original description had been published. G. Cuvier (1804:244) named 'Le GRISBOCK' '*Antilope grisea*', 'des environs du Cap'. 'C'est a Forster qu'on doit la connoissance de cette espèce' (presumably Forster's account in Buffon 1782g). This name is preoccupied by *A. grisea* Boddaert, 1785:139, which applies to the bontebok (*Damaliscus pygargus*).

Steenbok, *Raphicerus campestris*

'*Antilope campestris*' Thunberg, 1811b:311, 'ut videre licet in edition Allamandi, Supplement. 4. p. 43. et Suppl. 5. p. 119'. The latter account is based on Forster in Buffon (1782f). No locality is cited [here chosen as Zwartland].

Shortridge (1934:496) stated 'Type (in the Stockholm Museum?) from near Cape Town', but no specimen was available to Thunberg until 1824, after he had already described the steenbok (Rookmaaker 1989:299). As in the case of the grysbok, Forster provided a name for this species, *Antelope dama*, var. *rupestris*, in the text of the translation where Levaillant (1796:160) recorded the species in Zwartland. Again, the name is a nomen nudum (Rookmaaker 1988:216, 1989:254, 300) but a potential restricted type locality is provided, which is here chosen.

Klipspringer, *Oreotragus oreotragus*

'Antilope Oreotragus' Zimmermann, 1783:269, based on Forster in Buffon (1782e) [the type is the specimen illustrated], from 'die Cafferen' [now known to be False Bay, Cape district, Cape Province].

The type locality was said to be the Cape (Shortridge 1934:477), 'The highest cliffs at the Cape' (Harper 1945:668), or 'Cape of Good Hope (i.e. the Cape Peninsula)' (Roberts 1951:332), though the reason for Roberts' apparent restriction of the type locality was not given. According to Rookmaaker (1989:299), Forster saw the type specimen in Cape Town but Forster himself (1844:382) narrowed down the occurrence of the klipspringer to False Bay: 'in summis habitat rupibus, praesertim in ipsa extremitate Africae, ipssisimoque Prom. b. spei, prope *Valse-Bay* (Sinum Falsum).' Forster is known to have visited False Bay as well as Cape Town (Rookmaaker 1989:44–45).

Damara dikdik, *Madoqua kirkii*

'*Neotragus damarensis*' Günther, 1880:20, based on a female holotype from Damara Land; 'this antelope frequents rocky hills in the vicinity of Omaruru (about a degree north of Wallvisch Bay)' [type locality now recognised as the vicinity of Omaruru, Namibia].

The holotype is a skull and skin, BM 79.12.25.1, in the collection of the Natural History Museum, London (Lydekker & Blaine 1914a:184). The type locality is generally accepted as Omaruru though it is not made clear in the original description that the holotype was obtained there.

Springbok, *Antidorcas marsupialis*

'Antilope marsupialis' Zimmermann, 1780:427, based on the account of Allamand [who figured the holotype],

from 'die Lander am Cap der guten Hoffnung' [since restricted to southern Cape Province].

A live springbok was first seen in Europe when Gordon brought one to Holland in 1774, following his first journey to the Cape interior in 1773–1774. It was described and illustrated by Allamand (Rookmaaker 1989:112, 298) using a painting by Schouman, according to Tuijn & Van der Feen (1969:76), who regarded this animal as the type. Indeed it appears to be the holotype. Since Gordon left little record of his first expedition, no information on the type locality is available. Lydekker & Blaine (1914a:111) stated 'Typical locality probably southern Cape Colony [= Province]', and this may be taken to be a restriction of the type locality.

Vaal rhebok, *Pelea capreolus*

'Antelope Capreolus' Forster, 1790, in Levaillant 1790:71 [Not *Antilope* (Shortridge1934:519) or *Antilopa* (Ellerman *et al.* 1953:190)], based on a male shot and described by Levaillant [the type], from Ouwe-Hoeck [Houhoek Pass, Caledon district, Cape Province].

The author has been cited as Bechstein 1799:98 (Allen 1939:517; Roberts 1951:294), even though Bechstein himself had acknowledged Forster's annotation of the translation of Levaillant as the source of the name! The author was also correctly identified as Forster by Shortridge (1934:519), who in addition noted the correct type locality as Oude-Hoek, Bot River. This is listed merely as Cape of Good Hope by other authors (Allen 1939:517; Ellerman *et al.* 1953:190) or not even mentioned (Roberts 1951:294). Skead (1974:79) confirmed that the locality is now known as Houhoek Pass.

Oribi, *Ourebia ourebi*

'Antilope Ourebi' Zimmermann, 1783:268, based on the account of Allamand [who described syntypes obtained by Gordon], 'Bewohnt die Cafferen' [= Kaffraria, east Cape (see Skead 1973:89) and not 'die Cafferey' nor the Cape of Good Hope (Allen 1939:500; Ellerman *et al.* 1953:187; Meester *et al.* 1986:204). Syntype localities now known, from which the type locality is here selected as Bruintjieshoogte, Somerset East district, Cape Province].

Allamand got his information from Gordon, who was the first European to reliably identify this antelope when he obtained specimens in 1777 (Rookmaker 1989:113–114, 127, 299). Gordon described and measured oribi at Bruintjeshoogte and Tarka River, noted the species near Steynsburg, Krom River and Lange Kloof, and sent drawings and a skin to Allamand. The animals thus made known to Allamand and then Zimmermann are syntypes. Roberts (1951: 337) designated the type locality as Uitenhage (district), without any kind of explanation (Rookmaaker 1989:299), and the place was listed as a restriction of Cape of Good Hope for the type locality by Ellerman *et al.* (1953:187) and Meester *et al.* (1986:204). There is no indication that Gordon collected oribi in Uitenhage district (Rookmaaker 1989:337). The type locality should be chosen from those places where he is known to have seen this antelope, and is here selected as Bruintjeshoogte (Bruintjieshoogte according to Skead 1973:21) where he first encountered it.

Mountain reedbuck, *Redunca fulvorufula*

'Antilope *fulvorufula*' Afzelius, 1815:250, based on the account of Thunberg and on the skin described by Allamand [representing syntypes], 'inter arbores montivaga' [no type locality identified; later restricted to eastern Cape Province].

Gordon did not mention this species in his journal though he knew of it, as is clear from his archives: he listed it in his ms, he had a drawing of it (now in the Gordon Atlas), and he sent a skin to Allamand (Rookmaaker 1989:127). The restricted type locality is

given as eastern Cape Province by Allen (1939:519) and later authorities.

Reedbuck, *Redunca arundinum*

'ANTILOPE Arundinum' Boddaert, 1785:141, based on Le Ritbok of Buffon (1782g) [concerns syntypes described by Allamand], 'Habitat ad Cap. bon. Sp.' [syntype localities now known, from which Bethulie, Orange Free State is here selected as type locality].

A description by Allamand, copied by Buffon, is the sole basis for Boddaert's name. Allamand in turn relied on drawings and a skin sent to him by Gordon (Rookmaaker 1989:303). No lectotype has been designated. The type locality was given as 'Southern Africa (Eastern Cape)' by Shortridge (1934:508); was listed as the Cape of Good Hope by Allen (1939:517); and restricted to Bathurst district on the basis of Barrow's travels by Roberts (1951:292). Barrow (1801:187) merely listed the 'rietbok' as one of the antelopes he encountered in the Zuure Veldt. But Gordon's journals reveal that he (Gordon) found reedbuck at Sneeuwberg, and also at Bethulie on the Orange River where he shot and measured specimens (Rookmaaker 1989:113–114). Bethulie is therefore selected as the type locality and must replace Roberts' restriction of the latter, which was not related to the original description of the species.

Puku, *Kobus vardonii*

'*Antilope Vardonii*' Livingstone, 1857:256, footnote, and plate opposite p.71, based on animals observed on the Zambezi [no type identified; the male animal in the plate constitutes the type] 'thirty or forty miles above Libonta' (p. 255) [Libonda, Zambia].

The puku is the only southern African species of ungulate that has not been given a scientific name from within the area. The name used by Livingstone would be a nomen nudum were it not for the illustration. No specimen survives that could be termed the type (see Lydekker & Blaine 1914a: 268–270). Sclater & Thomas (1897:159) identified the type locality as 'the Barotse country beyond Libonta.' It was given as the Chobi Valley by Lydekker & Blaine (1914a:268) (now forming the boundary between Botswana and the Caprivi Strip of Namibia), a conclusion not supported by the original description or accepted by other authors. Ansell (1978:59) discussed the type locality and suggested that it is in quarter-degree square 1423-C-1. He recognised the modern spelling of Libonta, noting that the puku is now extinct in this area.

Lechwe, *Kobus leche*

'*Kobus Leche*' Gray, 1850:23; type not specified [since identified as a skin in the Natural History Museum, London], from the 'banks of the river Zoaga, lat 21°' [now known to be the Botete River past its junction with the Thamalakane at 20°7'S, Botswana].

Europeans first discovered the lechwe on Livingstone's expedition to Lake Ngami (Livingstone 1857:71). Smithers (1971:233) has pinpointed the modern site of the type locality, where the species no longer occurs. The type is a mounted skin, BM 50.7.4.2, presented in 1850 by Captain F. Varian (Lydekker & Blaine 1914:248), who had obtained it from W. C. Oswell (Oswell 1851).

Waterbuck, *Kobus ellipsiprymnus*

'ANTILOPE ELLIPSIPRYMNUS' Ogilby, 1833:47 ['*Antilope ellipsiprymna*' (sic) in table of contents, p. vi, in same volume], based on a stuffed adult male specimen in the collection of A. Steedman [holotype], from 'about twenty-five days' journey north of the Orange River between Latakoo and the western coast of Africa' [since selected as the upper Notwani River in the Gaborone area, Botswana].

The fate of the holotype is not known. Steedman (1935:(2)94–96) gave a further description of the species, with an unnumbered plate (opposite p. 94) illustrating the holotype. On an unnumbered page of addenda and errata he stated 'I could not correctly ascertain the precise locality of the "*Antilope Ellipsiprymnus*" of the parties from which I procured the specimen in my possession, farther than that it came from beyond the Orange River; ... I have since been informed that it is found in small herds in the Bechuana country, near the sources of the Caledon River...' If this Caledon is the tributary of the Orange, in Orange Free State, then Steedman had an exaggerated view of its length. In no way can it be thought to rise as far north as Bechuanaland. Other authors have been unaware of Steedman's account which, while it is not very helpful in determining the type locality of the species, does make it clear that Steedman did not shoot the holotype himself and could not tell where it had come from. Roberts (1951:289) restricted the type locality by presuming it was on the Molopo River. However, Du Plessis (1969:145–148) did not locate any records of waterbuck formerly occurring along this river. Smithers (1971:233) commented on both Ogilby's and Roberts' notion of the type locality and noted that the country west of Lataku is not suitable habitat for the species nor is the Molopo west or north of this region. In view of ample evidence that the waterbuck formerly occurred northeast of Lataku along the Limpopo and its tributaries, 'the type-locality might more properly be placed on the top reaches of the Notwani River in the Gaborone area.' Smither's suggestion is here accepted.

Impala, *Aepyceros melampus*

'*Antilope Melampus*' Lichtenstein, 1812a: Plate opposite page 544, showing a male impala. Type not designated [now known to be the animal in the plate, since transferred as a specimen to the Berlin Museum], from 'Koossi-Thale' [Khosis, Kuruman district, Northern Cape Province].

The impala first became known to science in 1801 through the expedition of Truter and Somerville, of which the artist S. Daniell was a member (S. Daniell 1804:Pl. 9; Barrow 1806:407), but it was not scientifically named until encountered by Lichtenstein (1812a:543–544). The type specimen was in Berlin, according to Lichtenstein (1812b:167) and may still exist. The type locality has been misunderstood. Sclater & Thomas (1897:19) stated that 'Lichtenstein met with his specimen near Klipfontein in Namaqualand.' Shortridge (1934:550) and Allen (1939:520) cited the type locality as 'Klipfontein, Little Namaqualand, Cape of Good Hope.' Though still believing that a place of this name was the type locality, Ellerman *et al.* (1953:195) pointed out that the Klipfontnein visited by Lichtenstein is not in Little Namaqualand but in southern Bechuanaland. It is not within the state of Bechuanaland, now Botswana, but further south in Postmasburg district, Northern Cape Province (Skead 1973:102). This should have been evident not only from Lichtenstein's narrative, but also from his paper on antelopes, where he indicated that the impala was obtained in the 'lande der Beetjuanen' (Lichtenstein 1812b:167). But Lichtenstein did not collect an impala at Klipfontein anyway! What he actually said about the discovery of his new antelope was that he came across it at 'Koossi-Thale' (Lichtenstein 1812a:544), as W. L. Sclater (1900:206) had long ago clearly noticed. This was before he reached Klipfontein where no impala were seen, as Skead (1980:490) has more recently confirmed. Skead (1973:99) identified Koossi as the modern Khosis.

Sassaby, *Damaliscus lunatus*

'*Antilope lunata*' Burchell, 1823:334 [not 1824, as cited by Allen (1939:482); see Ellerman *et al.* (1953:201, 205)], based on an animal shot for Burchell [holotype, now in Natural History Museum, London] at the Makkwarin River [Matlhwareng River, Kuruman district, north Cape Province].

W. Danniell (1820:Pl. 18) provided an engraving of the 'Sassayby' from this brother's sketches made on the Truter and Somerville expedition before Burchell (1823:334) had provided a scientific name. Shortridge (1934:458) stated the type locality was 'Southern Bechuanaland'. Skead (1973:140) noted the modern spelling of the Makkwarin River. The type is a frontlet and horns of a female, BM 642a, all that is left of an animal shot for Burchell on 9 July 1812 (Burchell 1823:334; Lydekker & Blaine 1914a:38), still in the Natural History Museum, London (Pickering 1997:321).

Bontebok, *Damaliscus pygargus pygargus*

'ANTILOPE *Dorcas*' Pallas, 1766:6, based on the dorcas of Aelianus; on the tzeiran [dzerin] or ahu [*Gazella subgutturosa*] of Buffon and the Turks and Persians; on the cervicapra of Houttuyn (1762:206) [a bontebok]; and on bontebok skins. No type was identified and no lectotype has since been designated. No locality was given [type locality since selected as Kafferkuils River, Riverdale district, Cape Province].

In an article where he introduced the new generic name *Antilope*, Pallas (1766:6) gave a description which could apply to the bontebok: 'Urrhopygium *late*, etiam supra caudam, niveum; *unde Pygargi* nomen meretur' (Rump broad, snow-white, also above the tail, from which it deserves the name of pygargus). But his syntypes represent more than one biological species. Pallas made no reference to the name *Capra dorcas* of Linnaeus, which applies to the dorcas gazelle. In a later publication (Pallas 1767:10) he decided his *Antilope dorcas* referred to the dorcas of the ancients and to la gazelle of Buffon and gave a new name, *A. pygargus*, to the bontebok (still including the dzerin). But he believed the *Capra dorcas* of Linnaeus referred to another species, the North African bubal (*Alcelaphus buselaphus*). In a third contribution (Pallas 1777:15), he appreciated that the name *Capra dorcas* had been applied to the bubal in Houttuyn's edition of Linnaeus' 'Systema naturae' but, he seemed to indicate, it had originally been proposed by Linnaeus for the same species as his (Pallas's) *Antilope dorcas*, since he listed *Capra dorcas* Linnaeus in the synonymy with a query. Like other naturalists of his day, Pallas maintained scholarly standards by relating material records of animals to descriptions published by other writers. This was not always an easy task even concerning the works of contemporaries and often led to changes of synonymy in later publications. But it was fruitless where classical writings were concerned, as unbeknown to the savants, the mammals described in antiquity (for example, dorcas, hippelaphus, oryx, pygargus or strepsiceros) were usually quite different species from those of southern Africa, when they could be identified at all. Which classical name eventually became associated with a biological species was fortuitous. Anyway, it was in pursuit of these aims that Pallas excluded his name *Antilope dorcas* from application to the bontebok by assigning it to a different biological species. This would not now be acceptable under the Code (International Commission on Zoological Nomenclature 1985) but the same result could have been achieved legitimately by selecting a type for *A. dorcas* Pallas that is not a bontebok from among the syntypes that are the basis for the name. Pallas of course did not do this, as the Code was established much later. Nor did he have to, as the name *A. dorcas* of Pallas, if it was not to be used for the dorcas gazelle, was to be treated as a junior secondary homonym of *Capra dorcas* Linnaeus once that both names were assigned to the same genus, *Antilope*. Summaries of the literature from the last century (Lydekker & Blaine 1914a:33, 1914b:71) show that the names *Antilope dorcas* (Linnaeus) and *A. pygargus* Pallas were used widely for the dorcas gazelle and the bontebok respectively.

Once *A. dorcas* (Linnaeus) and *A. pygargus* became assigned to the separate genera *Gazella* and *Damaliscus* respectively, the name *A. dorcas* Pallas continued to be generally ignored. If it were to be regarded as

applying to the bontebok, then it could be said that the homonymy with *A. dorcas* (Linnaeus) no longer existed, as they had not originally been proposed within the same genus. Harper (1940:328) held this view and resurrected the name *A. dorcas* Pallas, treating it as the senior synonym of *A. pygargus* Pallas, and *Damaliscus dorcas* (Pallas) has been widely used for the bontebok since then. Harper (1940) said that the original description of *Antilope dorcas* 'applies quite unmistakably to the bontebok', but while this seems obvious, it would not be technically correct to assume that the name must necessarily be attached to this species. In order to associate Pallas's name *A. dorcas* irrevocably with the bontebok, a type specimen which is indeed a bontebok must be selected, as the syntypes belong to more than one biological species. Harper failed to select a type. He did restrict the type locality, but this has no nomenclatural significance. The name *Antilope dorcas* Pallas remains in limbo, for its synonymy has not been finalised.

Rookmaaker (1991) has recently re-evaluated the case and has drawn attention to another problem, pointing out that Article 59 of the Code (International Commission on Zoological Nomenclature 1985) precludes the use of Pallas's name *A. dorcas* for the bontebok since 'A junior secondary homonym replaced before 1961 is permanently invalid.' Even though *Damaliscus dorcas* (Pallas) has been in currency for the last 51 years, technically it can not be used, since it was replaced by *A. pygargus* at the time when it was included in the genus *Antilope*. If in the interest of stability it is thought important to retain the name *Damaliscus dorcas* (Pallas) for the bontebok, then it is incumbent upon those holding that view to make an appropriate submission to the Commission for Zoological Nomenclature.

'*ANTILOPE PYGARGUS*' Pallas, 1767:10, based on the tzeiran or ahu described by Olearius, Kaempfer and Buffon; on the capra variegata of Kolb [a bontebok], on the cervicapra of Houttuyn (1762:206); and on bontebok skins [Houttuyn's animal is here designated the lectotype]; no locality was cited [since restricted to Swart River, Caledon district, Cape Province].

No type has been designated so far, but a type is needed since Pallas evidently continued to confuse two biological species in one nominal species. If no skins can reliably be identified as having been among those available to Pallas, then the animal illustrated by Houttuyn (1762:206), which is clearly a bontebok, should be treated as the lectotype (here designated). The type locality of *Damaliscus dorcas* was restricted to Kafferkuils River, Riversdale district, by Harper (1940:329). Bigalke (1948) restricted the type locality of *D. pygargus* to Swart River. The two restrictions apply technically to different nominal species and only the second concerns *D. pygargus*.

[*Antilope*] 'albifrons' Burchell, 1823:335 [not 1824: see Ellerman *et al.* 1953:201, 205]; no type mentioned [type since identified, here designated a lectotype; presented to British Museum by Burchell]; no locality cited [locality of lectotype since recognised as near Swellendam, Cape Province].

'Late systematic writers have applied to the *Blesbok* the name of *Pygargus* (White-rump)', wrote Burchell (1823), 'which by earlier authors was intended for the *Springbok*: and as this name becomes absurd and contradictory when thus used, I have taken the liberty of substituting in its place, that of albifrons.' Harper (1939:89) pointed out that Burchell (1836:5) later recanted, synonymising his *Antilope albifrons* with *A. pygargus*, and stating this species is 'The *Blesbok* of the Colonists, and sometimes *Bontebok*.' In the map of his journey Burchell (1823) referred to a campsite as 'Bontebok Station' that is outside the range of the bontebok but within the former range of the blesbok. There is no escaping Harper's (1939) conclusion that Burchell did not differentiate between the bontebok and blesbok. Roberts (1951:286) tried to argue that

Burchell thought the name *A. pygargus* was suitable for the bontebok (with white on rump in front of tail) but inappropriate for the blesbok (no white in front of tail). This he presumed had led Burchell to give a new name specifically for the blesbok. But it seems clear that Burchell was considering what he thought was a nomenclatural confusion between the bontebok and the springbok, to which the name *A. pygarga* or *A. pygargus* had been incorrectly applied, for example by Thunberg (1811b:315). Harper (1939) selected BM 644a, shot by Burchell on 17 January 1815 (Burchell 1836:5) near Zwellendam, as the type. All that is left of it is a frontal bone and horn (Pickering 1997:321). It is here designated the lectotype.

Blesbok, *Damaliscus pygargus phillipsi*

'*Damaliscus phillipsi*' Harper, 1939:90, based on specimen 35443 in the Museum of Comparative Zoology, Harvard, an adult male shot by P. Andreka, July 23 1936 in Orange Free State.

There is no good reason for selecting a more specific type locality.

Lichtenstein's hartebeest, *Alcelaphus lichtensteinii*

'*A*[*ntilope*]. *Lichtensteinii*' Peters, 1849 [reprinted in 1912:90]; no type identified [later, lectotype chosen from syntypes in Berlin Museum]; no locality mentioned [locality of lectotype now identified as Tette, Mozambique].

After first naming his new species in 1849, Peters (1852) later provided a much fuller account, reporting it from 'Tette, Sena, Borar a 16° ad 18° lat. austr.' Matschie & Zukowsky (1917:191–193) chose number 8671, a male represented by a skull in the Berlin Museum, Pl. 43 in Peters (1852), from Tette, as the lectotype, and a female, number A.20,04,11, also represented by a skull, without precise locality, as cotype (paralectotype).

Caama or red hartebeest, *Alcelaphus buselaphus caama*

'*Antilope Caama*' E. Geoffroy Saint-Hilaire, 1803:269; based on Buffon (1782d) and Schreber (1787:Pl. 277, copied from Buffon, 1782d:Pl. 15); no type designated; 'N^{O}. DXXII. Individu provenant de Hollande'; 'PATRIE. Le cap de Bonne-Esperance.'

This work is widely but not definitively regarded as unavailable for the purposes of zoological nomenclature, on the grounds that, supposedly, it was not published (see Wilson & Reeder 1993:831 for discussion and references), but the International Commission on Zoological Nomenclature has not ruled on its availability. Only two names in this work concern South African ungulates, *Antilope caama* and *A. equina*, and as far as can be ascertained, they have not been attributed to Geoffroy in any publications listed in this paper, except for Desmarest's (1804) allusion to *Antilope equina* Geoff.

'*Antilope caama*' G. Cuvier, 1804:242 [not 1816 as cited by Sclater & Thomas (1894:35), De Beaufort (1964:573) or Skead (1973:2)]; based on 'Buffon' (Daubenton 1764b:336–337, Pl. 38, Fig. 2), Buffon (1782d) and Schreber (1787:Pl. 277, copied from Buffon 1782:Pl. 15) [syntypes since identified as specimens collected by Gordon], from Le 'Cap' [syntype localities since identified, from which Steynsburg, Cape Province, is here selected].

Though camaa may be a preferred spelling of the Khoikhoi or Hottentot vernacular name, the specific name has always been spelt *Antilope* or *Alcelaphus caama*, not *A. camaa* as cited by Rookmaaker (1989:84, 293–294).

One of the earliest illustrations of the red hartebeest was Bewick's (1790) woodcut of the 'hart-beest', clearly identifiable from the black markings and the form of the horns. Buffon's (1782d) account and illustration is derived from Allamand, who in turn

received a picture of a male and the skin of a female from Gordon. Gordon shot a red hartebeest near Steynsburg in 1777 and had it drawn, and shot another at the mouth of the Orange River in 1779 (Rookmaaker 1989:127, 294). The skin that was listed by E. Geoffroy Saint-Hilaire (1803:269) may have been the one described by Allamand and hence one of the syntypes. Possibly it still exists. If E. Geoffroy Saint-Hilaire's (1803) name for the red hartebeest is available, the Paris specimen becomes the lectotype of *Alcelaphus buselaphus caama.* As a restricted type locality I suggest Steynsburg because it is the place from which material leading to the description of the species was most probably obtained. De Beaufort (1964:573) mentioned two specimens in the Paris Museum received in 1820 from Delalande and seemed to assume that they should be cotypes, but the sixteen-year gap between Cuvier's description published in 1804 (De Beaufort thought the date was 1816) and their arrival in Paris precludes any connection.

Allen (1939:474) cited *Antelope koba* Erxleben, 1777:293, as the earliest name for the caama. Erxleben based this name on le koba of Buffon (1764a:201–257) and Daubenton (1764a:267–268) (an animal which cannot now be identified but with which the horns and frontal of a kob, *Kobus kob*, have been associated) and on the Senegal antelope of Pennant, with 'Habitat ad Senegal.' Pennant (1771:38) based his own account on Buffon (1764a) and on a skin that he had bought in Amsterdam. In that era, an antelope skin purchased in Amsterdam is more likely to have come from South Africa than from Senegal. From the description he gave and the accompanying woodcut, this specimen was evidently a red hartebeest. Whatever Buffon's koba might be, coming from Senegal it could not be a red hartebeest. Pennant's identification of his skin as a koba was therefore wrong and the syntypes of *A. koba* Erxleben involve two biological species, the Senegal koba and the South African red hartebeest. Because of this confusion we should rely on the earliest relevant reference to determine the lectotype of *A. koba* Erxleben. Clearly it is Buffon's animal. There would be no good reason to select Pennant's skin instead. In any case, there are no grounds for altering the generally accepted specific name of the red hartebeest.

Skead (1973:2) gave Agterbruintjieshoogte as the type locality of '*Alcelaphus buselaphus caama*, G. Cuvier, 1816', but it is actually the supposed type locality of the notional *Antilope dorcas* Sparrman, 1783 which, if an accepted species-group name, would represent a different nominal species from *A. caama*. Ellerman *et al.* (1953:203) followed by Meester *et al.* (1986:194) cited *Antilope dorcas* Sparrman, 1785:(2)219 (not of Pallas 1766) as the earliest name for the red hartbeest. 'Sparrman, 1785' is an English translation of Sparrman (1783). Sparrman (1783:608, translated into English in 1977:157) evidently thought that the bubal (*Alcelaphus buselaphus buselaphus*) and the red hartebeest (*A. b. caama*) were one species. He expressly stated that in this broad sense, Pallas had described the species under the name *Antilope bubalis*, but that Linnaeus had previously named it *Capra dorcas*. He chose to retain this latter specific name for reasons of precedence, but he was transferring it to the genus *Antilope* in the light of Pallas's classification of antelopes. In no sense can Sparrman be credited with creating a new nominal species: there is no such name as *Antilope dorcas* Sparrman, 1783. Sparrman can be commended for his scholarly scruples, which amount to an early acceptance of nomenclatural priority. Unfortunately, he had been misled by other authors into thinking that the name *A. dorcas* referred to the North African bubal (see discussion under *Antilope dorcas*), and we now know that the name *A. bubalis* is a junior synonym of *Alcelaphus buselaphus buselaphus* not applicable to the red hartebeest.

Blue wildebeest, *Connochaetes taurinus*

'*Antilope taurina*' Burchell, 1823:278, footnote [not 1824; see Ellerman *et al.* 1953:201, 205], based on five specimens

shot on his expedition, one being given to the British Museum [here designated the lectotype], apparently from Kosi Fountain [Khosis, Kuruman district, Cape Province; but locality of lectotype now known to be Klein Heuningvlei, Vryburg district, Cape Province].

The blue wildebeest had been seen by Hop in 1761, by Gordon in 1779, by Levaillant in 1783 (Rookmaaker 1989:36, 117, 254) and by Truter and Somerville in 1801 (Barrow 1806:409, W. Daniel 1820:Pl. 37), who described it under its local name of kokoon (kgokong). Not until Burchell encountered the species was it given a scientific name. There has been understandable confusion concerning both the type specimen and the type locality, as the following citations illustrate. Lydekker & Blaine (1914a:56) listed BM 138b as the type from 'Madji Mountains, Bechuanaland'. Shortridge (1934:467) referred to the 'Type (in the British Museum) from Khosi Fountain, between Klaarwater and Litakun, southern Bechuanaland'. Allen (1939:478) gave the type locality as 'Bechuanaland.' Roberts (1951:279) mentioned 'Madji Mountain (= Makuba Range, Heuningvlei Nature Reserve, between Kuruman and Molopo Rivers), southern Bechuanaland'. Ellerman *et al.* (1953:205) gave 'Khosi Fountain, about 30 miles S. by W. from Kuruman, northern Cape Province.' Skead (1973:99) cited 'Khosis, Kuruman, N. C.'

Burchell (1823:278) recorded that he first noticed what to him was a new species when he reached Kosi Fountain (22 June 1812). During his travels, five specimens of blue wildebeest were shot and Burchell kept two of them, one being given to the British Museum. Later (Burchell 1836:7) he gave details of this specimen, stating it was shot on 8 October 1812 at 'Chue Spring, Maadji Mtn' (Klein Heningvlei according to Skead 1973:76). The specimen is female and survives as an almost complete skull and skin (Pickering 1997:322). It is formally designated the lectotype here. Sclater & Thomas (1895:97) had already stated that Burchell's specimen 'seems to have formed the basis of his technical description', but the remains of one or more animals also collected by Burchell are in the Oxford University Museum (Pickering 1997:325) so the species is represented by syntypes.

Black wildebeest, *Connochaetes gnou*

'Antilope Gnou' Zimmermann, 1780:102, based on the accounts of Allamand and Sparrman, from 'die lander der Caffern, ziemlich tief ins land vom Cap gerechnet, in grossen Waldern ohnmeit der Uchtermanns Brenjes hogde und Camdebo' [Agterbruintjieshoogte, Somerset East district, Cape Province, here selected from syntype localities as type locality].

Allen (1939:478) and Roberts (1951:278) followed earlier authors in listing the original description as '*Bos gnou*, Zimmerman, 1777:372', but the name is not available (Hemming 1950). This earlier account of the black wildebeest was based solely on le gnou of Allamand, who had described a live animal captive in Holland, and had seen a drawing and head skins as well (Rookmaaker 1989:293). The captive animal is a syntype of *A. gnou* Zimmermann, 1780 (Tuijn & Van der Feen 1969:75). The type locality was restricted by Harper (1940:329) to Colesburg, a region where the species still occurred in the 1850s (Sclater & Thomas 1895:114) and which corresponded to the area where according to Buffon (1782b) it could be encountered 160, 180 and 200 leagues from the Cape of Good Hope. Although no locality records are available from Allamand (Rookmaaker 1989:293) that does not mean that we should accept Harper's restriction of the type locality. Harper (and Rookmaaker) appears to have overlooked Zimmerman's (1780) account, where localities from Sparrman are given. Of these, Uchtermanns Brenjes hogde (= Agterbruintjieshoogte; Skead 1973:2) may be selected as the type locality, since in this area Sparrman (1783:579–580) had shot a black wildebeest which he later described

(Sparrman 1779a) and which is another of the syntypes.

Gemsbok, *Oryx gazella*

'CAPRA Gazella' Linnaeus, 1758:69, based on Ray's (1693:79) 'Gazella Indica cornibus rectis longissimus nigris ...' from 'India' [since identified as South Africa].

Thomas (1911:152) formally noted that South Africa was the correct type locality.

Blaauwbok, *Hippotragus leucophaeus*

'ANTILOPE *leucophaea*' Pallas, 1766:4, based on Kolb's animal with pre-Linnean name capra coerulea and on many skins [the specimen in Leiden has been chosen as the lectotype], 'Promontoriae bonae Spei missas' [since restricted to Swellendam district, Cape Province].

The mounted specimen in Leiden was designated the lectotype by Husson & Holthuis (1969:153), who restricted the type locality to the Swellendam district (p. 154).

Roan antelope, *Hippotragus equinus*

'*Antilopa equina*' E. Geoffroy Saint-Hilaire, 1803:259, based on a skin, number DVII, in the Paris museum; 'PATRIE. Inconnue.'

Possibly this name is not available on the grounds that it was not published (see account of *Alcelaphus buselaphus caama*).

'*Antilope equina* Geoffr.' Desmarest, 1804, based on the skin in the Paris museum [holotype]; 'On ignore le lieu natal de cette *gazelle* [type locality since chosen as Takoon, Vryburg district, Cape Province, but locality of holotype appears to be near Plettenberg Bay].

Circumstances surrounding the discovery and description of the roan antelope remain obscure. A European first noticed this species when Robert Jacob Gordon obtained a skin and horns, apparently from near Plettenberg Bay, in 1778. He had illustrations of it prepared (Rookmaaker 1989:70, 85–86), one of which (Mohr 1967:17) shows the whole skin, complete with tail, horns and hooves, as if pegged out for drying. In the following year, the skin was sent to the Stadholder's cabinet in The Hague, where it remained without being described (Rookmaaker 1989:301). In 1795 the French transported much of the collection to Paris and it was intended that Etienne Geoffroy Saint-Hilaire would study this material. According to a manuscript list, it included 'des peaux d'antilopes' (Thomas 1892:318; Rookmaaker 1989:121). The looted specimens were never brought back to the Netherlands. In 1800 or thereabouts (I. Geoffroy Saint-Hilaire 1839:5, footnote), E. Geoffroy Saint-Hilaire compiled his list of mammal specimens in the Paris museum, a printed version appearing in 1803. This work included a detailed description of a skin of 'L'ANTILOPE OSANE. *Antilopa equina*'. 'Nous possedons cette peau depuis longtemps' (p.259). It is clear that some of the specimens had come from Holland because Geoffroy said so in the catalogue. These included *Pongo pygmaeus, Papio ursinus, Chrysochloris asiatica, 'Sciurus erythopus', 'Lemmus albicaudatus'* and the only red hartebeest in the collection, none of which were specified in the manuscript list mentioned above, as well as a kangaroo (*Macropus giganteus*) and a warthog (presumably *Phacochoerus aethiopicus*) which were specifically cited. Few antelopes from the Cape were in the collection—blaauwbok, gemsbok, common duiker and springbok, which with the red hartebeest totalled only six specimens. It seems very likely that the roan antelope skin described by Geoffroy was the one that had been collected by Gordon and had come from Holland. Later it could not be found (De Beaufort 1964:573). Gordon did not mention his discovery of the roan antelope in his journal (Rookmaaker 1989:301), only in annotations to a painting of the specimen and a map. On the painting he described it, in translation modified from Rookmaaker (1989:85), as 'An unknown gazelle. Possibly a hybrid between a tzeiran

and pasan or Cape chamois [gemsbok] and blaauwbok. I have found since that time [sic; his discovery] that this animal occurs in the country of bapouroe boukana capii [sic; Mohr (1967:16) gives this as 'Caponrese boekana Capii land'; near the Vaal River according to Rookmaaker], behind the [country of the] bushmen, and it is not a hybrid. But it is strange that this animal was the only one of its species ever to stray some 300 hours from its country. It was found by me in the forests near Plettenberg Bay.' On his map of South Africa, Gordon wrote in translation (Skead 1980:521) 'I am sure the animal was the product of a blaaubok and a gemsbok because I saw no similar animal within 200 hours of this place [a reference to Plettenberg Bay?]. N.B. I have since heard for sure from the Hottentots that the animal is not a hybrid but is found (although not in large groups) at the Hei Karieb in Taubqua Land [along the Vaal River].'

Du Plessis (1969:184) could trace no record of the species as far south as Plettenberg Bay. It is remarkable that Gordon should have obtained a roan antelope there, and he seems to have been aware of this singularity. There is no suggestion of dissimulation, particularly as his writings remained private. Both his manuscript notes make reference to the Vaal River area and hours of travel probably represent estimated distances between Plettenberg bay and the Vaal. In discussing the illustration of the roan on Gordon's map, Skead (1987:865) suggested that Gordon may have seen the species along the Orange River in 1779, between Augrabies Falls and the point where he turned back west of Prieska. The roan antelope is not mentioned in Gordon's account of this journey (Rookmaaker 1989:116–117). It seems probable that Gordon learnt from informants that roan antelope were found along the Vaal. He came to recognise this region as 'its country', where roan antelope occurred more commonly, and realised that it was a distinct species, not a rare hybrid.

Klein (1974) has shown that during the Last Glacial to Holocene the roan antelope was present in southern Cape Province outside its known Recent range. Material has been obtained from five sites between 22° and 26° E, including Nelson Bay Cave near Plettenberg Bay. It seems possible that a population survived into the 18th Century in this region, as Klein (1974:111) implies, and that Gordon was the only European to see or obtain a specimen.

After Gordon, the first Europeans to record seeing the roan antelope were Truter and Somerville in 1801 when they visited the vicinity of the Kuruman River (Barrow 1806:415, S. Daniell 1805:Pl. 24). No specimen was obtained, which perhaps explains why Daniell relied on Kolb to produce his fanciful illustration. From Barrow's (1806) account, Harper (1940:330) chose the type locality of the roan antelope as 'somewhat to the north east of Kuruman, "near Latakoo" (apparently the later Litakun, at approximately lat. 27°S, long. 24°E.).' This is Old Lattakoo or Takoon, about 60 km northeast of Kuruman town (Skead 1973:176, 218), and not Kuruman itself (either town or district) as suggested by Meester *et al.* (1986:211), Kuruman town being New Lattakoo (Skead 1973:112). Tentatively, this designation of the type locality now becomes redundant. The type locality should be regarded as Plettenberg Bay.

Sable antelope, *Hippotragus niger*

'*A*[*igererus* (sic)]. *Niger*' Harris, 1838a:71 ['*Aigocerus niger*' in Harris 1838b:2], based on the author's observations; no type mentioned [later Harris (1838b) said it was an adult male 'set up by Monsieur Verreaux, the French naturalist at Cape Town …']. 'It inhabits the great mountain range in the county of Mataveld …' [later (Harris 1938b) the locality was stated to be 'On the northern side of the Cashan range of mountains, about a degree and a half south of the tropic of Capricorn …'; that is Magaliesberg in Krugersdorp and Rustenburg, Transvaal].

The original description has been widely supposed to be in Harris (1938b) but McAllan & Ross (1989) have shown it was in an earlier publication (Harris 1838a). The

spelling of the genus to which the sable antelope was first assigned (*Aigererus*) is likely to be a compositor's error for *Aigocerus*, with 'oc' in manuscript read as 'er'. The Cashan range was identified as the Magaliesberg (Shortridge 1934:577). The type was stated to be BM 38.8.1.2, a skull with horns, and a skin, from an animal shot by Sir William Cornwallis Harris in 1836 and presented by Captain Alexander in 1838 (Lydekker & Blaine 1914b:143).

Bushbuck, *Tragelaphus scriptus*

'Antilope Sylvaticus' Sparrman, 1780:197, based on an adult male illustrated by Sparrman [lectotype, here designated], the species being recorded from 'Groot Vaders Bosh och Houtniquas Bosh' [Grootvadersbosch, Swellendam, and Outeniqualand, George, the former since selected as the type locality].

The description was based on a stuffed skin (Rookmaaker 1989:142) but Sparrman's reference to more than one locality implies he had knowledge of other specimens so his skin should be recognised as the lectotype (here designated). The identification of the syntype localities is based on Skead (1973:70, 174). According to Rookmaaker (1989:302), Roberts (1951:314) selected Grootwadersbosch as the type locality but Lydekker & Blaine (1914b:178) and Allen (1939:547) had already regarded it as the type locality.

'Antelopus Roualeynei' Gordon Cumming, 1850:169, based on an adult male and other specimens [skull in Natural History Museum, London, here designated the lectotype], from between the Ngotwani and Macoolwey Rivers [Notwani and Mokolo, Botswana; locality of lectotype] and also further east.

Although Ellerman *et al.* (1953:207) stated that the emended spelling *Tragelaphus scriptus roualeyni* used without comment by Thomas (1891:389) is correct, since Gordon Cumming's first name was Roualeyn (not Roualeyne), this is an unjustified emendation. A Latin form of Roualeyn could quite legitimately be 'Roualeyneus' to give the genitive 'Roualeynei'. Gordon Cumming's name for the Limpopo bushbuck has been treated as a nomen nudum (Allen 1939:547, Ellerman *et al.* 1953:207) and authorship has been assigned to Gray, but Gray's description (1852:140)—'Smaller. Horns shorter, less diverging and more ascending'—is little better than Gordon Cumming's reference to wide set and symmetrical horns. There is insufficient reason to reject Gordon Cumming as the author of the name. Gordon Cumming (1850:(2)168) first met with a 'serolomootlooque' (seRolo-botlhoko is the seTswana name according to Smithers 1971:228) when he shot a buck on June 12 1847, between the Notwani and Mokolo Rivers, tributaries of the Limpopo. This area is in Botswana near the Transvaal border, at about 23°30'S, 27°20'E. He described the animal as carrying 'a very fine wide-set pair of horns' and (p. 169) 'he was one of the most perfect antelopes I had ever beheld, both in symmetry and colour.' He said he had prepared a full description though it appears that this was never published. Gordon Cumming went on to cross the Limpopo into what is now the Transvaal and shot more bushbuck on 20, 24 and 29 June 1847, before reaching the Lepalala (Lephalala) River. The skull BM 52.9.22.2 may have resulted from one of these later kills but in the absence of contrary evidence, it is assumed to be the first specimen obtained on the Botswana side of the Limpopo. It is here designated the lectotype, as Gordon Cumming had clearly seen several individuals. Bushbuck are still present at the type locality (Smithers 1971:228), so a fuller description of the typical population could be obtained.

'*Tragelaphus scriptus ornatus*' Pocock, 1900:94, based on a male holotype, BM 81.4.20.4, from 'Linyante on the Chobe River' [Linyanti River, forming the boundary between the Caprivi Strip of Namibia and Botswana, or Linyanti Swamps, mostly within the Caprivi Strip; type locality here restricted to Namibia].

As well as the male holotype, a female (BM 81.4.20.5) and an immature animal (BM 81.4.20.6) were taken in the same area by the collector, F. C. Selous (Lydekker & Blaine 1914b:176), and may be regarded as paratypes. No evidence is available to determine whether Selous obtained his specimens in Namibia rather than Botswana. Shortridge (1934:584) cited the east Caprivi (Namibia) followed by Skead (1973:122), while Allen (1939:545) followed by other authors mentioned northern Bechuanaland (Botswana). Here the type locality is arbitrarily restricted to Namibia.

Sitatunga, *Tragelaphus spekii*

'*Tragelaphus selousi*' Rothschild, 1898:206, based on a pair of horns with an imperfect skin, a female living in the menagerie of the Zoological Society of London, and another male [possibly the holotype, apparently in the Rothschild collection at Tring, Hertfordshire, England]. '*Hab.* North and south banks of Zambezi extending north to Lakes Nyassa and Tanganyika' [type locality provisionally but possibly incorrectly identified as Lake Ngami, Botswana; the female paratype hailed from the Taoké swamp].

The sitatunga or nakong became known to Europeans when discovered in 1852 by Andersson (1856:449) at Lake Ngami, but material submitted by him to J. E. Gray in London was identified as *Tragelaphus eurycerus*, the bongo! Not until 1864 was the species scientifically named, on the basis of a specimen given to J. H. Speke in the neighbourhood of Lake Victoria (Lydekker & Blaine 1914b:187). Only in 1898 did the earlier-known southern African population gain a scientific appellation. There are problems in identifying the type and the type locality of *T. s. selousi*. Rothschild (1898:206) in diagnosing his new species included the following information: 'Height at shoulder 45 inches; horns up to 35 inches, in type 21 inches.' I conclude that this type is the holotype and infer it is the specimen in the Rothschild collection now numbered BM 39.4560 (G1160), one of three labelled *Limnotragus selousi* in the museum catalogue of accessions. A second specimen (BM 39.4565 or G1177, a mounted head) may be a paratype; a third (BM 39.4577 or G1177, a mounted skin of a female from the Botletle or Boteti River, Botswana) cannot be identified in the original description. Lydekker & Blaine (1914b:191) stated 'Type, none mentioned in original description' (which seems to be incorrect), but went on to identify BM 5.2.13.1, the Zoological Society's specimen, as a co-type. This animal, presumably a paratype, was obtained from the marshes north of Lake Ngami according to P. L. Sclater (1890:590), and more specifically the Taoké swamp according to the collector, J. A. Nicolls (Nicolls 1890:325). Shortridge (1934:589) said 'Type (in the Tring Museum?—formerly in the London Zoo) from Lake Ngami', apparently confusing holotype and paratype. Roberts (1951:309) restricted the type locality to the Lake Ngami swamps, probably (according to Ansell 1978:54) because of the Zoological Society female. But the presumed locality of a paratype is not necessarily the type locality of a nominal species. Rothschild's (1898) comments on the distribution of his new taxon hardly help, as the sitatunga is absent from the middle and lower Zambezi (Ansell 1978:54 and Map 127), from Malawi, probably (Ansell & Dowsett 1988:88), and from the vicinity of Lake Malawi (Lake Nyassa) in Tanzania (Kingdon 1982:88). Unless there is relevant information in the Rothschild papers, there is no certainty of confirming the identity of the holotype or of discovering its provenance and reliably determining the type locality.

Nyala, *Tragelaphus angasii*

'Tragelaphus Angasii' Gray in Angas, 1849:89, based on Angas's description of shot specimens he was unable to purchase, the male, female and juvenile he illustrated being syntypes, from 'hills ... that border upon the northern shores of

St. Lucia Bay, in the Zulu country, lat. 28° south [Natal].

Harper (1945:716) gave Angas as the author, but Angas himself stated that 'Mr Gray has named this species after my father, George Fife Angas, Esq, of South Australia.'

Kudu, *Tragelaphus strepsiceros*

'ANTILOPE *Strepsiceros*' Pallas, 1766:9, based on the strepsiceros of classical authors, on le condoma of Buffon (1764b), on the account of Houttuyn (1762), and on horns and a head [lectotype here designated as the skull with horns described by Buffon]; no locality given but mentions that the Dutch 'as Prom. B. Spei' call it '*Koedoe*' [so Cape of Good Hope may be taken to be the type locality; here restricted to southeastern Cape Province].

No type has been designated, but this must be done since the classical references involve species other than the kudu. Here the lectotype is chosen as the skull with horns on which Buffon based le condoma. According to Matschie (1914:385), 'VOSMAER nennt den Gammafluss als Heimat dieser Antilope.' Ellerman *et al.* 1953:209) and Meester *et al.* (1986:217) list this as an alternative or restricted type locality (their intentions are not made clear). Vosmaer (1783:10) mentioned that the kudu was seen on the Gamma River on 22 November 1761 (by Hop's expedition to the Orange River according to Rookmaaker 1989:36). The Gamma River is the Lowen River, Keetmanshoop, Namibia, north of the lower Orange River (Skead 1973:125). It may be the first precise locality recorded for the species. Rookmaaker (1989:302) cited other references to the kudu going back to the 1680s, suggesting that Europeans had known about this species for some time. The question arises as to whether the specimens of the kudu first made available to naturalists are likely to have come from beyond the lower Orange. This question has potential systematic implications. Skead (1987:595) has pointed out that as far back as the time of early European exploration, the kudu's natural distribution in southern Africa has been discontinuous. There is a gap between the population of southern Cape Province and the populations of Transvaal, the northern Cape, Namibia and Botswana. Shortridge (1934:595, footnote) appears to be the only authority to have compared specimens of these populations. He stated that a skin from Keiskama, eastern Cape, was considerably darker in general coloration and more saturated than skins from South West Africa (Namibia), and he referred the latter to *T. s. zambesiensis*. It is more probable that the southern Cape population of kudu, nearest of access to the European colonists, supplied the first specimens to be sent to Europe and if this is accepted, it is not necessary to select the 'Gammafluss' as the amended type locality of *Tragelaphus strepsiceros* (Pallas). The type locality is here restricted instead to southeastern Cape Province.

Alternative names have been provided for the kudu:

1) [*Damalis* (] '*Strepsiceros* [)] *Capensis*' A. Smith, 1834:223, 'Inhabitats South Africa.' This name was based on classical accounts, and on the descriptions of Pennant, Buffon, Vosmaer and Pallas.

2) '*Strepsiceros Koodoo*.—[Hamilton] SMITH' Jardine, 1836a:180, 'The Koodoo inhabits the woody parts of Caffraria and the Karoo Mountains', based on the *Antilope strepsiceros* of various authors. Hamilton Smith's earlier account (1827:361) gave the distribution as 'the woody district of the eastern part of the Cape Colony, and Caffraria, on the plains of the Karoo Mountains, and about the sources of the Gareep.'

3) 'STREPSICEROS Kudu' Gray, 1843: 155, based on accounts by Pallas, Rüppell, Buffon, Vosmaer, Harris, etc.; no locality given.

4) '*S*[*TREPSICEROS*]. *excelsus*; Ant. Strepsic. Pall. et omn.—Africa tota infra deserta (Cap-Abyssinia).' Sundevall, 1846b:196.

These names may all be regarded as subjective synonyms of *Tragelaphus strepsiceros* (Pallas), as they are likely to have been coined so as to avoid the tautonymous *Strepsiceros strepsiceros* and apply either to southern Cape populations only or to the species as a whole. They cannot be chosen as names for the more northerly populations of southern African kudu.

Strepsiceros strepsiceros zambesiensis Lorenz, 1894:Notizen, 63, based on a male, female, juvenile and foetus, numbers 324–327 in the Vienna Museum from the Leschumo Forest, south-eastern border of Marutseland and north-western Matabeleland [Lesuma Forest, on the Zimbabwe-Botswana border].

This is the first available name for kudu in the more northerly part of their distribution in southern Africa. Skead (1973:120) identified the locality.

Eland, *Taurotragus oryx*

'ANTILOPE *Oryx*' Pallas, 1766:9, based on the alce capensis of Kolb, le coudous of Buffon (1764c) and classical accounts of the oryx, as well as a skeleton in the Museum of the Prince of Orange [the latter here designated the lectotype]. No locality is mentioned, but the name given to this animal by the Dutch 'ad promontorium B. Spei' is cited [since restricted to near Cape Town].

Shortridge (1934:607) stated that the type was the skeleton to which Pallas referred, but with a query, though there is no reason to object to his choice and it is here designated the lectotype. Its locality was given as 'mountains near Cape Town' without citation of a reference. Presumably this was an allusion to the locality of *Antilope oryx* (see below). Harper (1945:722) stated that Shortridge had thereby restricted the type locality.

'ANT[ILOPE]. *Oreas*' Pallas, 1777:17, based on the alce capensis of Kolb, the mazame of Seba, the coudou of Buffon (1764c) and the antilope indica of Pennant, 'Africa meridionalis alpestribus addicta.

'Pallas (1766:9) at first associated the eland with the oryx of classical authors. Later he recognised the affinity of the gemsbok, transferred his *Antilope oryx* to include this species, and renamed the eland *A. oreas*, an action which is not now accepted (Sclater & Thomas 1900:195).

Buffalo, *Syncerus caffer*

'Bos Caffer' Sparrman, 1779b:79, based on a bull illustrated by Sparrman from between 'Seecov [sic] Rivier' and 'Akter Brunties hoogte' [now known to be Sundays River, Uitenhage district, Cape Province].

Sparrman shot two buffaloes in 1775, the second being the type and basis of his description, between the Seekoei River, Humansdorp, and Agterbruindtjieshoogte, Somerset East, near (Little) Sundays River (Rookmaaker 1989:143). Sundays River has generally been recognised as the type locality (e.g. Lydekker 1913:50).

Conclusions

In the 18th century, Europe was the main centre where a permanent record of African biota was being compiled. Naturalists attempting to extend knowledge of the South African fauna depended on slow and tenuous means of communication. Few European residents in the Cape had a scholarly interest in the fauna, yet scientists and naturalists who travelled in South Africa depended on these people as well as the indigenous inhabitants for information. Although the products of wild animals were items of trade, specimens and pictures were rare. It is not surprising that knowledge of even the large mammals developed slowly and different scholars confused one biological species with another, a problem that often had a nomenclatural origin. Dutch names for European wild mammals, the Khoikhoi vernacular, and the names applied in antiquity

and by other savants to Eurasiatic mammals were all drafted in to provide appellations. Travellers famous in their own right were in part responsible for the scientific naming of species and included Burchell, Forster, Gordon Cumming, Kirk, Lichtenstein, Livingstone, Peters, Sparrman and Thunberg. Robert Jacob Gordon published little of note but was instrumental in bringing the following species to the notice of scientists: *Equus quagga, Antidorcas marsupialis, Ourebia ourebi, Redunca fulvorufula, R. arundinum, Alcelaphus buselaphus caama, Connochaetes gnou,* and *Hippotragus equinus*. We now know that type or syntype material of these species, with the exception of the quagga, was collected by Gordon and brought to Europe (Rookmaaker 1989). Gordon also encountered Burchell's zebra and the blue wildebeest (Rookmaaker 1989:287, 293) though his observations of these species did not lead to scientific descriptions. Burchell collected types of *Ceratotherium simum, Equus montanus* (= *E. zebra*) *Damaliscus lunatus, Antilope albifrons* (= *D. pygargus*), and *Connochaetes taurinus*, naming them himself, and collected but did not name the types of *Equus burchellii* and *Antilope caerula* (= *Philantomba monticola*), although he was not the first European to see these species. J. R. Forster's specimens and descriptions contributed to the naming of *Raphicerus melanotis, R. campestris* and *Oreotragus oreotragus*, and he himself named *Pelea capreolus*. Other authors had lesser roles in naming or discovering wild ungulates.

All the ungulates of western and southern Cape Province had been identified and given vernacular names by Europeans before the end of the 18th Century and most had also acquired scientific names. The caama or red hartebeest, partly because of confusion with the North African bubal (*Alcelaphus buselaphus buselaphus*), did not obtain an acceptable scientific name until 1803. Grysbok and steenbok had to wait until 1811, and the mountain reedbuck until 1815. The hippopotamus was of course already known from elsewhere in Africa but the Cape population was not named until 1825. The bushpig was the last to be properly distinguished, as late as 1831, after Delalande had brought a specimen to Paris. Species confined to the hinterland became fully known later, mostly in the 19th Century. The roan antelope was the earliest to be scientifically named, in 1803, but it represents a special case. Other species had probably been observed earlier by Europeans but were not properly recognised. White rhinoceros, Burchell's zebra, impala, sassaby, blue wildebeest and roan antelope were seen by Truter and Somerville, Burchell and Lichtenstein and most share type localities in the vicinity of Kuruman.

Types have been specified where possible for nominal species cited in this paper. No type had been previously identified for *Equus montanus* but most type specimens may be recognised from the older literature, though lectotypes have not always been distinguished from among syntypes. More than one biological species contributed to the syntypes in the original descriptions of *Diceros bicornis, Phacochoerus aethiopicus, Damaliscus pygargus, Tragelaphus strepsiceros* and *Taurotragus oryx*, because of citation of classical literature. Lectotypes for *P. aethiopicus, D. pygargus, Tragelaphus strepsiceros* and *Taurotragus oryx* are specified to maintain stability in the nomenclature. Before the work of Rookmaaker (1989), syntypes had not been clearly identified for *Giraffa camelopardalis giraffa, Raphicerus campestris, Ourebia ourebi, Redunca fulvorufula, R. arundinum* and *Alcelaphus buselaphus caama*. Type localities for the following nominal species have been identified, clarified, corrected or restricted with respect to those cited by Meester *et al.* (1986), by reference to original descriptions, the older literature and the work of Rookmaaker (1989) and Smithers (1971): *Equus montanus* (= *Equus zebra*), *Equus burchellii antiquorum, Hippotigris isabellinus* (= *E. b. antiquorum*?), *Equus chapmanni* (= *E. b. antiquorum*?), *E. quagga, Potamochoerus larvatus koiropotamus, Phacochoerus aethiopicus, Giraffa camelopardalis giraffa, Raphicerus melanotis, R. campestris, Oreotragus oreotragus,*

Antidorcas marsupialis, Ourebia ourebi, Redunca arundinum, Kobus leche, Kobus ellipsiprymnus, Aepycerus melampus, Alcelaphus buselaphus caama, Connochaetes taurinus, C. gnou, Tragelaphus strepsiceros and *T. scriptus roualeynei*. The present whereabouts of types has been mentioned, where known but further work is needed. Types applying to about 22 names probably still survive. The fate of types of *Elephas capensis* (= *Loxodonta africana*) and *Hippopotamus amphibius capensis* (formerly present in Paris but not mentioned by De Beaufort 1964) still needs to be established. It seems likely that lectotypes or syntypes of *Phacochoerus aethiopicus* and *Alcelaphus buselaphus caama* were brought to Paris and a search could be made to find whether they still survive. The type of *Hippotragus equinus* conceivably still exists, though De Beaufort (1964) did not locate it. One of the zebra skulls in Oxford may belong to the holotype of *Equus burchellii* (Pickering 1997) and the type and type locality of *Tragelaphus spekii selousi* need to be clearly identified. No precise locality for holotype, lectotype or paralectotype is known for *Loxodonta africana, Diceros bicornis, Equus zebra, Raphicerus melanotis, R. campestris, Antidorcas marsupialis, Redunca fulvorufula, Kobus ellipsiprymnus, Damaliscus pygargus, Hippotragus leucophaeus, Oryx gazella, Tragelaphus strepsiceros*, or *Taurotragus oryx* and type localities have already been chosen from other sources or are here restricted where it is appropriate.

It is now more than ever apparent that ungulate species were scientifically named on the basis of particular specimens obtained at places that can often be identified and even on days whose dates are on record. Explorers and naturalists were aware of their discoveries and species were usually named on the basis of material evidence.

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