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THE ENTANGLED RELATIONS OF HUMANS AND NILE CROCODILES IN AFRICA, C.1840–1992

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ABSTRACT

The nature of European explorers' and hunters' perceptions of the wildlife they encountered during their travels, and how this shaped their responses to it, has been surprisingly little studied. This may in part be because of the wealth of primary material and the dearth of secondary sources. Animal studies has come of age in recent decades, with a focus on how humans have conceptualised and related to animals, but much of this new field concerns domesticated or captive animals and has tended towards philosophical, political and theoretical approaches. Yet there is much to be gained from a historical exploration of the abundant sources on Europeans' encounter with wildlife, notably during the height of colonial exploration and adventuring in Africa. This review focuses on the Nile crocodile (*Crocodylus niloticus*) in Africa. Crocodiles had a major impact on European travellers, elicited extreme reactions and reveal an irrational difference in attitudes to large mammalian predators, as opposed to reptilian. The oft-repeated statement that Nile crocodiles kill more humans and are more hated than any other predator (or even, all other predators) in Africa is still current. The expansion of human settlement and activities into the habitats of crocodiles and increasing demands on water supplies is resulting in escalating conflicts and some experts regard crocodiles as a 'growing threat to rural livelihoods and development'. If these important apex predators of the continent's waterways are to be conserved, then a good place to start seems to be with an exploration of the long history of interactions with them that have shaped expert and public perceptions of crocodile.

KEYWORDS

Africa; wildlife; colonial exploration; hunting; natural history; human animal conflict

Until the early 1900s, for most Europeans, African crocodiles existed essentially in the realm of myth and traveller's tales. The 'science' was largely restricted to comparative anatomy, morphology and stories from Herodotus. Until the 1930s, Nile crocodiles (*Crocodylus niloticus*) were primarily regarded as vermin, a threat to human lives and a problem for expeditions because they attacked livestock. They were regarded as repulsive, frightening and useless. This contrasts strikingly with African attitudes, which varied widely from fear to veneration and, unlike Europeans, many Africans regarded crocodiles as a useful resource: medicinal, magical and dietary.

This paper explores how both major shifts and continuities in European and African attitudes to crocodiles influenced human interactions with this apex predator of the continent's waterways from the 1840s to c. 1992. It explores how crocodiles fit into larger narratives of hunting, conservation and sustainable utilisation of African wildlife, noting some significant divergences from these histories.

MYTHS AND STORIES

Crocodiles become prominent in the popular tales of exploration and hunting in Africa from the 1850s and especially the 1860s. These are the decades of Livingstone's travels in southern and eastern Africa; of the exploits of famous hunters Roualeyn Gordon Cumming and William Baldwin in southern Africa; of Paul du Chaillu's journeys through West Africa; and, of course, of explorations in search of the source of the Nile, notably those of Burton, Speke, Grant, Petherick and Samuel Baker. Before examining the attitudes of these travellers to crocodiles, and the impacts of their actual encounters with crocodiles, it is helpful to review the expert knowledge informing their perceptions.

Natural history, c. 1840s–1930s

The first mention of the scientific name *Crocodylus niloticus* is as a synonym for all crocodiles, in Linnaeus' *Systema Naturae* (10th edition: 1758). Laurenti described the genus *Crocodylus* in 1768, with four species including *C. niloticus*. A plethora of namings and renamings ensued, with no type specimen for the genus until *niloticus* was designated as the type for *Crocodylus* Laurenti by Stejneger and Barbour in 1917. The

names Nile crocodile and *Crocodylus niloticus* have been widely used for Africa's largest crocodile to the present, though the taxonomy has been challenged recently with evidence from genetic analyses.¹

Much of the natural history literature on crocodiles c. 1840–1930 consisted of reviews, usually including material from classical Greek times. These texts routinely dedicated significant space to sensational stories and even myths known to be untrue, most famously the 'crocodile bird' alleged to clean crocodiles' teeth, and the 'ichneumon' (mongoose) believed to crawl down crocodiles' throats and gnaw its way out from the inside. The major source was Herodotus, whose writings on crocodiles appear almost unchanged in Aristotle. Pliny, Plutarch, Strabo, Diodorus Siculus and others were equally fascinated by the strikingly different attitudes of 'Egyptian' societies living along the Nile River towards this major predator of their waterways. Crocodiles were variously feared, hated, venerated and hunted.²

In the period under consideration, reptiles suffered a bad reputation in Europe. According to the 1842 Edition of the *Encyclopaedia Britannica*, 'Among no animals ... do we meet with beings of more singular forms than in the class Reptilia, many of which exhibit an aspect so unusual, so grotesque, and even so formidable, that it would be difficult for the imagination of the poet or the painter to exceed the "dread realities" of nature'. We are told that 'in the popular superstitions of various countries, the reptile race have been almost always clothed in revolting attributes, and that the worship accorded them was one not of gratitude, but fear' as a result of their 'cruel and pestilential character, in opposition to the welfare of the human race'.³ The French scientist and writer Louis Figuier (1819–1894) – author of *Reptiles and Birds* (1869), with two English editions in the later 1800s, the latter revised by the hunter and explorer Parker Gillmore – relates that 'the whole class of reptiles are for the most part

¹ Charles C. and Gertrude E. Mook, 'Some Problems in Crocodylian Nomenclature', *American Museum Novitates* **1098** (1940): 1–10; Evon Hekkala, Matthew Shirley, George Amato et al., 'An ancient icon reveals new mysteries: mummy DNA resurrects a cryptic species within the Nile crocodile', *Molecular Ecology* **20** (2011): 4199–4215.

² The key reference is Herodotus, *The Histories*, Book 2:68–70 (London: Penguin, 2003), pp. 122–123; but see also, for instance, Aristotle, *The History of Animals*, Books 2, 3, 5 and 9; Strabo, *The Geography of Strabo*, Book 17:1; Pliny, *Natural History*, Book 8:25.

³ Anon, *Encyclopaedia Britannica, or Dictionary of Arts, Sciences, and General Literature*, 19 (Edinburgh: Black, 1842), pp. 126, 133.

calculated to inspire feelings of repugnance, and such has been the prevailing sentiment in all ages'.⁴

In natural history encyclopaedias and compendia on wild fauna, crocodiles are given prominence as the largest, strongest and fiercest reptiles. Accounts of crocodile behaviour drew on sensational episodes from travellers' tales, and many include tales of 'man-eating'.⁵ Dumeril and Bibron's 'Natural History of the Reptiles' – excerpts of which were published in the popular literary journals the *Edinburgh Review* and *Littell's Living Age* – informs us that the 'African species' of crocodile are man-eaters. The explorer Mungo Park's 'negro guide Isaaco' was attacked by one such 'insatiate monster', and a 'full grown case-hardened crocodile ... need fear nothing short of a rifle-bullet through the eye, or a volley of slugs in the softer part of the abdomen'.⁶ In *Reptiles and Birds*, Figuier and Gillmore include several accounts of crocodiles devouring and mutilating humans, citing Herodotus, St Hilaire, Samuel Baker and David Livingstone as authorities.⁷

Through prolonged experience of crocodiles in their colonial territories, British natural scientists accumulated some more sound natural history knowledge of crocodilians. By 1900, some less prejudicial accounts of crocodiles begin to appear. The Scottish zoologist John Anderson's (1833–1900) book *Zoology of Egypt* (1901) includes a judicious and entertaining review of the literature on crocodiles in Egypt from Herodotus until the late nineteenth century.⁸ Anderson admits that 'the Nile crocodile has always and justly been credited with much ferocity, but the degree to which it manifests this seems to depend largely on the abundance of its food supply', which he notes is 'principally fish'.⁹ Hans Gadow (1855–1928) was Strickland Curator of Birds at

⁴ Louis Figuier, *Reptiles and Birds: A Popular Account of Their Various Orders, With a Description of the Habits and Economy of the Most Interesting*, revised by Parker Gillmore (London: Cassell & Co., 1892), p. 16.

⁵ Anon, *Encyclopaedia Britannica*, pp. 133–8.

⁶ 'Natural History of the Reptiles', translated excerpts from A.M.C. Dumeril and G. Bibron, *Erpetologie Generale, ou Histoire Naturelle complete de Reptiles*, 1834–41, 'from the *Edinburgh Review*', reprinted in *Littell's Living Age* **30**(7) (1844): 323–327.

⁷ Figuier, *Reptiles and Birds*, pp.130–7.

⁸ John Anderson, *Zoology of Egypt: Volume First: Reptilia and Batrachia* (London: Bernard Quaritch, 1898), pp. 1–27.

⁹ *Ibid.*, pp. 17–18.

Cambridge University from 1880, and later also Lecturer on Advanced Morphology of Vertebrata. His *Amphibia and Reptiles* (1901) includes detailed information on the morphology, biology and behaviour of crocodylians.¹⁰ Gadow has nothing pejorative to say about crocodylians, but does observe that ‘such a conspicuous and dangerous creature has naturally always enjoyed notoriety’.¹¹

This more objective approach of Anderson and Gadow did not, however, herald a general improvement in attitudes to crocodiles. In 1915, the American zoologist Albert Reese described the Nile crocodile as ‘a much feared species’ and writes that ‘this man-eating crocodile, according to Ditmars, destroys more human lives than any other wild animal of the dark continent’.¹² Raymond Ditmars, Curator of Reptiles in the New York Zoological Park, had expressed this rather more luridly in his 373-page *Reptiles of the World* (1910):

none among the legions of wild brutes of the Dark Continent has caused greater loss of human life than the present terrible creature. And it is consequently no wonder this ponderous, vicious reptile has been notorious from ancient times down to the present.¹³

Experts and conservationists based in Africa were no less hostile. In his book *Animal Life in Africa* (1917) Col. James Stevenson-Hamilton, a passionate conservationist who in 1926 became the first warden of the Kruger National Park (South Africa’s first national park), tells us a great deal about how to kill crocodiles.¹⁴ He conjectures that ‘the number of natives who through Africa annually fall victims to these sinister brutes must be enormous’, and dedicates a third of his entry on crocodiles to stories of attacks on humans.¹⁵ He also notes crocodiles’ alleged partiality to eating dogs, lamenting that

¹⁰ Hans F. Gadow, *Amphibia and Reptiles*, The Cambridge Natural History, 8 (London: Macmillan and Co., 1901). On Gadow: D.M.S.W., ‘Hans Friedrich Gadow’, *Proceedings of the Royal Society of London*, Series B, **107**(754) (1931): i–iii.

¹¹ Gadow, *Amphibia and Reptiles*, p. 461.

¹² Albert M. Reese, *The Alligator and its Allies* (Landisville: Arment Biological Press, 2000 [1915]), p. 30.

¹³ Raymond L. Ditmars, *The Reptiles of the World* (New York: The Macmillan Co., 1922 [1910]), p. 77.

¹⁴ James Stevenson-Hamilton, *Animal Life in Africa*, Vol.3, ‘Birds, Reptiles, Fishes’ (London: William Heineman, 1917), pp. 69–72.

¹⁵ *Ibid.*, p. 78, and see pp. 76–84.

'we have lost many faithful friends through these brutes'.¹⁶ His language about crocodiles lacks the objectivity or restraint of Anderson or Gadow, and he describes them as dangerous, sinister, cunning and suspicious.¹⁷

Such assertions did not go entirely unchallenged. In an account of the herpetology of the Belgian Congo based on the American Museum of Natural History's Congo Expedition (1909–15), Herbert Lang concluded that:

The oft recurring accounts of large numbers of crocodiles in the Congo and their depredations are probably based on the information of natives, which is always exaggerated in direct proportion to the interest shown by the questioner. To this source can be traced the gruesome tales of man-eating crocodiles that terrified whole regions, which were delivered by a hero usually chosen at the narrator's fancy.¹⁸

Although a 2007 edition of Conrad's *Heart of Darkness* (1899) features a black and white image of a Nile crocodile, jaws agape, Conrad describes only one crocodile in this novella based on his experiences on the Congo River. In a book full of portentous symbolism, the reptile is described innocently sunning itself on a sandbank.¹⁹

In 1927, Wynand Davis Hubbard (an American who travelled in Africa before settling in Northern Rhodesia in the late 1920s) opined in *Copeia*, the scientific journal of the American Society of Ichthyologists and Herpetologists, that crocodiles were omnipresent in African rivers and 'undoubtedly kill more game than any other single species of predatory creature. They also kill more human beings'. The British herpetologist Arthur Loveridge responded that calling crocodiles mankillers was a sweeping generalisation that might apply in 'certain localized, crocodile-infested areas',

¹⁶ *Ibid.*, p. 85.

¹⁷ *Ibid.*, pp. 74, 78, 84.

¹⁸ Herbert Lang, 'Ecological notes on Congo crocodiles'. In Karl P. Schmidt, 'Contributions to the herpetology of the Belgian Congo based on the collection of the American Museum Congo Expedition, 1909–1915', *Bulletin of the American Museum of Natural History* **39** (1919): 385–624, 430–1.

¹⁹ Joseph Conrad, *Heart of Darkness* (London: Vintage, 2007).

but in East Africa lions killed more people and more wild animals. He disagreed that crocodiles were 'a very serious menace to game animals'.²⁰

Loveridge and Lang were in the minority. In a major article in the journal *ASIA* (1931), Charles Pitman (a herpetologist then based in Uganda and regarded as an authority on crocodiles) opined that 'it is probably true that the crocodile takes a heavier annual toll of human life in Africa than all other wild creatures put together'. This was despite the fact that in Pitman's opinion it was 'a great coward'.²¹

Responses of Europeans to crocodiles: 1840s–1930s

A survey of 75 books by 54 authors published from 1839–1931, featuring more than passing mention of crocodiles in Africa, is revealing of the attitudes of Europeans who actually encountered them. The surveyed literature is characterised by a widespread loathing for crocodiles, though there were exceptions. The explorers Richard Burton, James Augustus Grant, John Hanning Speke and Ludwig von Hohnel describe crocodiles in neutral terms, occasionally noting the danger of attack.

Only three of the surveyed authors were women, two of whom provide rare sympathetic accounts of crocodiles. The West African explorer Mary Kingsley described accidentally 'intruding' on a group of crocodiles 'having their siestas', including an 'immense old lady [with] a family of lively young crocodiles running over her, evidently playing like a lot of kittens'. The description is doubly remarkable for including a rare portrayal of maternal care, and for its positive language. Kingsley did also describe (humorously) an encounter in which a crocodile tried to climb into her canoe, and records attacks on Africans. In her account of a journey up the Nile, the writer and amateur Egyptologist Amelia Edwards lamented the 'indiscriminate slaughter at the Second Cataract', protesting that while 'a single trophy is not unreasonable', this was 'mere butchery' which 'cannot be too strongly reprehended'.²²

²⁰ Wynand D. Hubbard, 'Crocodiles', *Copeia* **165** (1927): 115–116; Arthur Loveridge, 'The Nilotic Crocodile', *Copeia* **168** (1928): 74–6.

²¹ Charles R.S. Pitman, 'The Wide-Jawed Crocodile', *Asia* (1930): 179–84, 192–5, see 184.

²² Mary Kingsley, *Travels in West Africa* (London: The Folio Society, 1976 [1897]), pp. 103–104; Amelia B. Edwards, *A Thousand Miles up the Nile*, Vol. 2 (Leipzig: Bernhard Tauchnitz, 1878), p. 141.

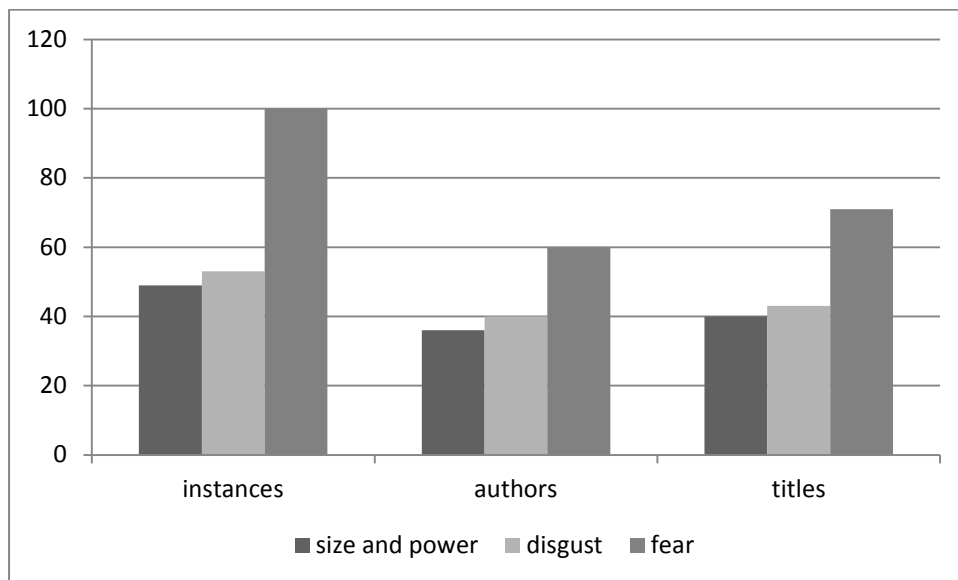
The widespread dislike and fear of crocodiles can be summarised in this table of words most commonly associated with crocodiles (in the 75 reviewed sources).

Table 1. Words most frequently used to describe crocodiles

	Instances	Authors	Titles
Monster/s	36	20	29
Huge	25	17	19
Brute/s	18	15	15
horror/horrible/horrid	14	10	10
Hideous	13	12	13
Immense	13	9	11
Loathe/some/loathing	12	8	10
danger/ous	11	8	9
power/ful	10	8	9
Ugly	10	10	10
Infest/ed	9	9	9
Terrible	10	8	9

From these words three main categories emerge, namely fear (monster/rous, brute/s, horror/horrible/horrid, terror/terrible), disgust (hideous, loathsome/loathe/loathing, ugly, infest/ed), and size/power (huge, immense, power/ful). With the addition of numerous related synonyms, this yields the following major categories of words used to describe crocodiles in the surveyed literature (see figure 1).

Figure 1. Key words plus synonyms, by category²³



Size and power are some of the most frequently remarked upon characteristics of crocodiles singled out for description in these publications, and rank surprisingly high in comparison with other African megafauna. A sample of sixteen key publications by twelve of the most prominent of the surveyed authors puts crocodiles in the top five animals typically described in this way, alongside lions, buffalo, hippo and (for obvious reasons) elephant.²⁴ Descriptions emphasising large size and power were most frequently deployed by hunters eager to dramatise their hunting exploits. Such descriptions are especially prominent in the 1860s, 1880s–90s and 1920s, though there is no clear pattern of change over time.

In the category ‘disgust’, only hippos, snakes and invertebrates (collectively), attract similar opprobrium to crocodiles. It is the only category which shows an overall rising trend in usage of related words to the 1910s, dropping off thereafter.

²³ Listing number of authors using categories of words, and texts in which they are used, provides some corrective to cases where individual authors may deploy a term very frequently (or habitually), and repeat this across several texts.

²⁴ The authors are William Cornwallis Harris, Roualeyn Gordon-Cumming, David Livingstone, Richard Burton, James Augustus Grant, John Hanning Speke, Paul du Chaillu, Frederick Selous, Clement Sykes, Harry Johnston, R.F.C. Maugham and Denis Lyell.

Lions outrank all other creatures in the category 'fear', followed by crocodiles, elephant, hippopotamus, buffalo and snakes. Lions, elephants and hippos were also regularly referred to (in certain circumstances) as brutes and monsters. The famous hunter and explorer Frederick Courteney Selous opined that the most dangerous large animals in Africa were lions, followed by elephant and buffalo, and most of the surveyed authors agreed, some adding hippo.²⁵ A search for animals (in addition to crocodiles) described as vicious, fierce or savage returns buffalo, elephant and hippo and invertebrates (notably ticks, fleas and various ants and biting flies).

The trend in usage of words related to fear of crocodiles increases until the 1870s, decreasing thereafter. This may be because the firearms most hunters were using until the 1870s made it difficult to kill crocodiles. The introduction of breech-loading express rifles and hardened, solid bullets changed the equation in the 1870s. These bullets could 'drive through a crocodile like a sheet of paper', in the memorable phrase of the Nile explorer and famed hunter Sir Samuel Baker.²⁶

The two most feared animals, lions and crocodiles, were predators which attacked humans in the course of their normal hunting behaviour. Although lions, elephants, buffalo and other mammals could be portrayed as vicious and frightening, in many cases hunters acknowledged they were behaving thus under provocation. Lions were prized trophies for hunters and many 'attacks' were in fact defensive. This was in contrast to crocodiles, which were not valued trophies and in most cases were shot 'in passing' rather than actively sought out in this period. Most crocodile attacks were regarded as 'unprovoked' (most attacks on crocodiles were similarly unprovoked).

The French hunter and explorer Adulphe Delegorgue captures the horror of the hunter hunted, describing a hypothetical scene based on his experiences in Natal, South Africa, in which 'while you were lying in wait for a hippopotamus, a crocodile was lying in wait for you'.²⁷ Equally distressingly, the mighty hunter was rendered powerless by the stealth and speed of the crocodile's attack. Maugham complained of 'the miserable feeling of utter powerlessness to help or rescue', and the elephant hunter Arthur

²⁵ Denis D. Lyell, *Wild Life in Central Africa* (London: Horace Cox Ltd, 1913), pp. 95, 159.

²⁶ Samuel W. Baker, *Wild Beasts and their Ways* (London: Macmillan & Co., 1890), p. 258.

²⁷ Adulphe Delegorgue, *Travels in Southern Africa*, Vol.1, trans. Fleur Webb (republished Pietermaritzburg: University of Natal Press, 1990 [1847]), p. 62.

Neumann was similarly distraught that ‘one could do nothing’ about such a sudden attack.²⁸ In addition to speed and power (equally the case for lions and leopards), it is the ‘unfair’ advantage the crocodile has as an amphibious reptile that renders its attack unsporting and treacherous to these authors. Major Alfred St H. Gibbons, who mapped Marotseland at the turn of the century, believed that: ‘As a general rule [crocodiles] are cowardly brutes ... but ... realise how strongly the odds are in their favour so long as they are confined to their own natural element.’ David Livingstone and Pitman both expressed similar views.²⁹

An important difference between other ‘fearsome’ animals, and crocodiles, was that the former were also described in very positive terms. Lions, elephant and buffalo were described as ‘noble’ and sometimes as brave. Lions in particular attract a remarkable range of epithets, from ‘haughty’, ‘noble’, ‘aristocratic’, ‘mighty’ and ‘monarchical’ through ‘beautiful’ and ‘dignified’ to ‘horrible monsters’, ‘brutes’ and ‘man-eaters’.³⁰ Elephants and lions in particular were credited with a wide range of behaviours and much variation in individual character. The surveyed authors did not extend such possibilities to crocodiles, which were regarded as throwbacks to a primitive ‘reptilian epoch’, with ‘dull reptilian brains’.³¹

There is species bias at play here. In introducing the chapter on crocodiles in his book of ‘wild beasts’, Samuel Baker writes apologetically that ‘this reptile is an intruder among the mammalian, and may appear out of place in a description of wild beasts and their ways, but it inhabits the same localities as the hippopotamus, and, being equally amphibious, I venture to exalt it to the society of superior animals’. For the French-American explorer of West Africa Paul du Chaillu, the British explorer and colonial administrator Sir Henry (‘Harry’) Johnston, and Stevenson-Hamilton, crocodiles – being

²⁸ Lyell, *Wild Life*, p. 133; R.F.C. Maugham, *Portuguese East Africa* (New York: E.P. Dutton and Co., 1906), pp. 52–53; Arthur E. Neumann, *Elephant Hunting in Equatorial Africa* (London: Rowland Ward, 1898), p. 310, and see H. Lincoln Tangye, *In the Torrid Sudan* (Boston: The Gorham Press, 1910), pp. 156–157.

²⁹ Maj. Alfred St Hill Gibbons, *Africa from South to North through Marotseland*, Vol. 1 (New York: John Lane, 1904), p. 64; David Livingstone, *Missionary Travels in South Africa* (New York: Harper & Brothers, 1858), p. 461; Pitman, ‘Wide-jawed crocodile’, 184.

³⁰ e.g. Frederick Courteney Selous, *A Hunter’s Wanderings in Africa* (London: Macmillan and Co., 1907 [1881]), pp. 282, 283, 269.

³¹ Baker, *Wild Beasts*, p. 177. On crocodiles’ ‘dull reptilian brains’: Harry H. Johnston, *The Uganda Protectorate*, Vol.1 (London: Hutchinson & Co., 1902), p. 82.

reptiles – were regarded as members of a lower, more primitive and less intelligent order than mammals and birds. Du Chaillu sees the reptilian nature of crocodiles as negative in itself – referring to their ‘hideous snaky eyes’. For the hunter H. Lincoln Tangye, ‘One feels virtue in the killing of the crocodile as of the snake, the enemies of all creation’.³²

Evolutionary theories provided a hierarchical framework for pegging crocodiles lower than mammals, and John Mackenzie believes hunters shot them at will in part because of this. However, those great classifiers of the natural world John Ray and Linnaeus had long before Darwin expressed disgust at the ‘loathsome’ reptiles. The very word ‘herpetology’ is derived from the Greek for ‘creeping animal’, and the Biblical books of Genesis, Leviticus and Ezekiel appear to damn reptiles and creeping things. As amphibians they are triply damned: as swimmers without fins, walkers on ‘hands’, and creepers on land. However, the reviewed literature – which includes the works of missionaries – nowhere associates crocodiles with the diabolical in the way that, for example, the wolf was. It may be that Europeans wanted to distinguish themselves from the ‘superstitious’ beliefs of Africans about crocodiles. They did struggle to understand why god had created reptiles.³³

Africans’ responses to crocodiles

Africans’ attitudes to crocodiles varied considerably from region to region and from one ethnic group to another. There are certainly numerous accounts of Africans fearing attack by crocodiles. Johnston recounts the story of a man-eater that troubled the district of Bopoto, upper Congo, until it was shot by a retired African soldier. Once

³² Baker, *Wild Beasts*, p. 254; Paul B. du Chaillu, *Explorations and Adventures in Equatorial Africa* (London: John Murray, 1861), pp. 227, 235 and *Adventures in the Great Forest of Equatorial Africa and the country of the dwarfs* (New York: Harper & Bros, 1890 [1871]), p. 169; Johnston, *Uganda Protectorate*, Vol.1, pp. 82–4; Stevenson-Hamilton, *Animal Life*, p. 68; Tangye, *Torrid Sudan*, p. 60.

³³ John M. Mackenzie, *The Empire of Nature* (Manchester: Manchester University Press, 1988), p. 301. On Ray and Linnaeus: C.J. and O.B. Goin, *Introduction to Herpetology*, 2nd ed. (San Francisco: W.H. Freeman, 1962), p. 10; and Kraig Adler (ed.), *Contributions to the History of Herpetology*, Vol.1 (Salt Lake City: Society for the Study of Amphibians and Reptiles, 1989), p. 11. Biblical references are: Genesis 3:14, Leviticus 11:10–12, 27–31, 41–42; and Ezekiel 8:10. On reasons for Biblical judgements on crocodiles, see Mary Douglas, *Purity and Danger: an Analysis of Concepts of Pollution and Taboo* (London: Routledge, 2003 [1969]), pp. 59, 70. On wolves: Jon Coleman, *Vicious: Wolves and Men in America* (New Haven: Yale University Press, 2004), pp. 71–72.

ashore, the body was beaten with sticks and admonished for killing various persons – and others give examples of such symbolic displays of anger or vengeance.³⁴

However, many Africans did not share the loathing of crocodiles expressed by most Europeans. Some believed that crocodiles should not be attacked, and three major explanations are given. First, some ethnic groups had a special relationship with crocodiles and killing or eating them was taboo. Second, some believed killing a crocodile made its deadly organs available for evil acts. Third, some associated crocodiles with ancestors, or royalty, living and or dead.³⁵

African religious beliefs about crocodiles are complicated to unravel, for reasons well explained by Evans-Pritchard in his book *Nuer Religion*. Some Nuer regarded crocodiles as Spirit, but also (separately) as physical crocodiles – while other Nuer killed and ate crocodiles. Crocodiles could be intermediaries to the spirit world. For some Africans, crocodiles represented implacable, unpredictable fate, and carried out the judicial vengeance of gods, but for others crocodiles were regarded as powerful protectors. Cunningham claims (dubiously) that Africans on Lake Victoria sacrificed hundreds of people to crocodiles regarded as priests of the brutal ‘god of Kitimba’.³⁶

A sacred crocodile named Lutembe, who lived on the shores of Lake Victoria, was believed to have assisted the Buganda in a naval battle. By the 1930s Lutembe was rumoured to be nearly 200 years old, a celebrity visited by Africans and Europeans

³⁴ On Africans fearing attack: A.B.R. Myers, *My Life with the Hamran Arabs* (London: Smith, Elder & Co., 1876), p. 215; Richard F. Burton, ‘The Lake Regions of Central Equatorial Africa’, *Journal of the Royal Geographical Society of London* **29** (1859): 69; Lord Cranworth, *A Colony in the Making, or Sport and Profit in British East Africa* (London: Macmillan and Co, 1912): p. 297; Gibbons, *Africa*, p. 44. On anger at man-eaters: Harry H. Johnston, *George Grenfell and the Congo* (New York: D. Appleton & Co., 1910), pp. 494–6; David and Charles Livingstone, *Narrative of an Expedition to the Zambezi and its Tributaries* (London: John Murray, 1865), p. 311; Tangye, *Torrid Sudan*, p. 157.

³⁵ On Africans not loathing crocodiles: du Chaillu, *Explorations and Adventures*, p. 235; Tangye, *Torrid Sudan*, p. 63; William Holman Bentley, *Pioneering on the Congo*, Vol.1 (New York: Fleming H. Revell Co., 1900), p. 391; Stevenson-Hamilton, *Animal Life*, p. 81. On taboos on killing crocodiles: Livingstone, *Missionary Travels*, p. 15; Du Chaillu, *Explorations and Adventures*, p. 308. On deadly organs: Burton, ‘Lake Regions’, 69, 356 and *Abeokuta and the Camaroons Mountains*, Vol.1 (London: Tinsley Brothers, 1863), p. 48; Selous, *Hunter’s Wanderings*, p. 462. On associations with royalty: Chauncey H. Stigand and Denis D. Lyell, *Central African Game and its Spoor*, 2nd Ed. (London: Horace Cox, 1909), pp. 38–39; L.W.G. Malcolm, ‘Notes on the Religious Beliefs of the Eghap, Central Cameroon’, *Folklore* (December 1922): 366; Theodore Besterman, ‘The belief in rebirth among the natives of Africa (including Madagascar)’, *Folklore* (March 1930): 44–45, 62.

³⁶ Edward E. Evans-Pritchard, *Nuer Religion* (Oxford: Clarendon Press, 1956), pp. 134–36. Cunningham, *Uganda*, pp. 88–89, 217–218.

alike. Lutembe was allegedly appealed to in judgements by ordeal. Uganda game warden Charles Pitman claimed that a suspected thief was presented to Lutembe, whereupon the crocodile tore the man's arm off and he died, but villagers felt justified as stolen articles were discovered among his possessions. Despite these provocative offerings, however, Lutembe never attacked other humans, and was believed to protect them through keeping hostile crocodiles at bay.³⁷ Lutembe is one prominent example of a crocodile understood to have individual agency and character, which many Europeans denied was possible for 'primitive' reptiles.

In 1922, the anthropologist James Frazer recounted that the Fan people of Gabon, and Cross River Valley people in Cameroon, believed that sorcerers had animal familiars, including crocodiles, chosen for their ferocity and stealth. It is notable that these were relationships between individual animals and humans, and did not extend to crocodiles generically. Indeed, man-killing crocodiles could be treated as criminal exceptions and punished accordingly. According to Frazer, people living near Lake Itasy in Madagascar made a 'yearly proclamation to the crocodiles, announcing that they will revenge the death of some of their friends by killing as many crocodiles in return, and warning all well-disposed crocodiles to keep out of the way, as they have no quarrel with them'.³⁸

Europeans often expressed exasperation that Africans were not more afraid of – and cautious about – the risk of crocodile attacks. Two major reasons are reported for this apparent fatalism. First, there is the idea that crocodiles only attack people who have sinned. According to Livingstone, the Bamangwato and Bakwain (presumably Bakwena) tribes of what is now Botswana expelled anyone bitten by a crocodile, or even those splashed by the reptile's tail. Second, certain peoples or individuals had special relationships with crocodiles, meaning either that favoured persons or groups were safe from attack, or that man-eating crocodiles were bewitched – and one could not avoid such a were-crocodile. Crocodile attacks could result in accusations of witchcraft and

³⁷ Pitman, *Wide-jawed crocodile*, p. 179; Anon, 'Naval battles on the Lake', *Uganda Herald*, 21 August 1949.

³⁸ On animal familiars, and Madagascar, see James G. Frazer, *The Golden Bough* (New York: The Macmillan Company, 1922), pp. 684–5, 519.

social exclusion, either of those deemed to have incited the attack (sometimes those with the victim, who escaped attack, were blamed), or of the victims if they survived.³⁹

Ritvo and Mackenzie have commented on the ways in which interactions with animals reveal social and power relations between coloniser and colonised, European travellers and indigenous peoples.⁴⁰ Certainly, crocodiles were shot in order to show off European fire-arms and ‘white man’s power’. Selous once foolishly swam to retrieve a dead hippo in a ‘river full of crocodiles’ in order to ‘show the natives that a white man will do what they dare not attempt’.⁴¹ The Human Leopard and Alligator Society Ordinance passed in Sierra Leone in 1896 expressed the colonial authorities’ fear that primitive and savage reptiles and humans lurked beyond their control or comprehension in impenetrable forests, uncharted river channels and mangrove creeks.⁴²

In a few instances, African beliefs about crocodiles inhibited Europeans from attacking them. Selous knew that in Matabeleland the killing of a crocodile could spell trouble for his African staff as the local king or chief could ‘[accuse] them of having preserved the liver for occult purposes’.⁴³ Livingstone recounted that ‘we offended the crocodile school of medicine while at Tette, by shooting one of these huge reptiles as it lay basking

³⁹ On Europeans’ frustration at African ‘fatalism’: Stevenson-Hamilton, *Animal Life*, pp. 82–3; H.L. Duff, *Nyasaland under the Foreign Office* (London: George Bell and Sons, 1903), p. 133; C.A. Sykes, *Service and Sport on the Tropical Nile* (London: John Murray, 1903), p. 41; Pitman, ‘Wide-jawed crocodile’, 184. On crocodiles attacking sinners: Frederick Elton, ‘Journal of an Exploration of the Limpopo River’, *Journal of the Royal Geographical Society of London* **42** (1872): 14; Julian Huxley, ‘Travel and politics in East Africa’, *Journal of the Royal African Society* **30** (July 1931): 248. Livingstone, *Missionary Travels*, p. 277. On privileged relations conferring safety: Stanley, *How I found Livingstone*, p. 553; Evans-Pritchard, *Nuer Religion*, pp. 65–66.

On witchcraft: Joachim J. Monteiro, *Angola and the River Congo* (New York: Macmillan and Co., 1876), p. 37; Bentley, *Life on the Congo* (Oakland: Pacific Press Publishing Company, 1891), pp. 83–84; E.J. Glave, *In Savage Africa* (New York: R.H. Russell & Son, 1892), pp. 78, 91, 164; Kingsley, *Travels*, p. 191.

⁴⁰ e.g. Mackenzie, *Empire of Nature*, p. 169; Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (Cambridge, MA: Harvard University Press, 1989), pp. 254, 275.

⁴¹ On showing off guns and power, Donaldson Smith, *Through Unknown African Countries* (London: Edward Arnold, 1897), p. 127; Ludwig von Höhnell, *Discovery of Lakes Rudolf and Stefanie* (London: Longmans, Green and Co., 1894), p. 206; on Selous, see Ritvo, *Animal Estate*, p. 262.

⁴² A.R. Wright, ‘Secret Societies and Fetishism in Sierra Leone’, *Folklore* **18** (December 1907): 426; D. Burrows, ‘The Human Leopard Society of Sierra Leone’, *Journal of the Royal African Society* (January 1914): 149–150.

⁴³ On inhibiting Europeans: Selous, *Hunter’s Wanderings*, pp. 462–3 and Burton, *Abeokuta*, p. 98.

in the sun on a sandbank; the doctors came to the Makololo in wrath, clamouring to know why the white man had shot their crocodile'.⁴⁴

ATTACKS ON HUMANS

The main reason crocodiles were disliked is because being predators, they attacked people, their dogs and livestock. In *Ismalia*, Sir Samuel Baker writes that 'our enemies were not confined to the land only: the crocodiles in the neighbourhood of Gondokoro were exceedingly ferocious'. He goes on to describe several harrowing attacks and resulting amputations. For this reason, Baker writes, 'I made a point of carrying a rifle at all times, simply to destroy these terrible reptiles'. He later boasted that he had 'slaughtered a vast number of these vermin in revenge for their misdeeds'.⁴⁵

Harry Johnston supposed crocodiles were 'continually on the look-out for a meal when there appears to be any likelihood of a boat accident'. On the Congo, such accidents included being upended by storms or angry hippos. Kingsley, exploring the lagoons of Congo Français, discovered (through anecdote, then personally) that 'crocodiles can, and often do, in such places, grab at people in small canoes'. There are three records of crocodiles attacking the propellers or paddles of boats and even a steamer (the crocodiles may have mistaken the paddles and propellers for fish).⁴⁶

Other key activities people were engaged in when attacked included bathing, swimming and drawing water. Habitual use of the same, unprotected points for domestic uses of water attracted the attention of crocodiles. The medical missionary Robert Felkin relates that a crocodile was shot at Foweira, and another at Ládó (both on the Nile), for

⁴⁴ Livingstone, *Narrative*, p. 51.

⁴⁵ Samuel Baker, *Ismalia*, Vol.1 (London: Macmillan and Co., 1874), pp. 290–1; and *Wild Beasts*, p. 261.

⁴⁶ Harry H. Johnston, *The River Congo* (London: Sampson Low, Marston & Co., 1895), p. 242; Johnston, *Grenfell*, p. 105; Kingsley, *Travels*, p. 30. On attacking boats: L.C. von Wissell, 'Von Wissell's Manuscript', Killie Campbell Library, Durban, KCM2309, p. 19; Gibbons, *Africa from south to north*, pp. 64–65; William Holman Bentley, *Pioneering on the Congo*, Vol. 2, p. 30.

waiting near places on the riverbanks at sunrise and sunset in order to catch women who came to collect water.⁴⁷

'Man-eaters'?

Surprisingly, only six authors use the term 'man-eater/s' in the literature reviewed, and Johnston cites its use (the term is applied more frequently to lions). Photographs of the corpses of three man-eating crocodiles were published.⁴⁸ Some authors viewed all crocodiles as potential man-eaters. Baker was puzzled that the deaths of two men on the Atbara River in Abyssinia were attributed to one crocodile, when there were several large crocodiles in residence nearby. When he shot two of these, he was baffled that one of them was declared the 'public enemy that had taken the men at the ferry' – 'on what evidence I cannot understand'. For other authors, there are 'black sheep' among crocodiles: the explorer and soldier Major Alfred St Hill Gibbons believed: 'as a general rule they are cowardly brutes, but there are man-eaters among them'. Colonel James Stevenson-Hamilton, first warden of South Africa's Kruger National Park, opined that 'the seizing of men' is 'largely a matter of acquired habit'.⁴⁹

Lyell claimed that 'Crocodiles probably kill more natives than do lions annually in Central Africa' and recounts that 'when I had nothing better to do when living near the Luangwa, I used to go out and put a bullet in any I saw, and that was a fair number'. He was driven to this form of collective punishment after a boy carrying his cartridge bag was taken by a crocodile.⁵⁰ Arthur Neumann describes a harrowing attack on New Years' Day of 1896. Having just bathed in the Omo River, north of Lake Rudolf

⁴⁷ Charles T. Wilson and Robert W. Felkin, *Uganda and the Egyptian Soudan*, Vol. 2 (London: Sampson Low, Marston, Searle & Rivington, 1882), pp. 52, 93; Maugham, *Portuguese East Africa*, p. 52.

⁴⁸ Authors using 'man-eater': Gibbons, *Africa from South to North*, p. 64; Maugham, *Portuguese East Africa*, p. 52; Theodore Roosevelt, *African Game Trails* (London: John Murray, 1910), p. 411; Denis D. Lyell, *Wild Life in Central Africa*, p. 133; Charles Pitman, 'About Crocodiles', *Uganda Journal* (September 1941): 113; Campbell, 'Crocodile Stories': 57; Johnston, *Grenfell*, p. 929. For photos: Bentley, *Pioneering*, Vol. 2, p. 250; Johnston, *Grenfell*, Vol. 2, p. 929; Tangye, *Torrid Sudan*, opposite p. 157.

⁴⁹ Samuel Baker, *Exploration of the Nile Tributaries of Abyssinia* (Dartford: O.D. Case & Co., 1868), p. 117; Gibbons, *Africa from South to North*, p. 64; Stevenson-Hamilton, p. 81.

⁵⁰ Denis D. Lyell, *Memories of an African Hunter* (Boston: Small Maynard and Co., 1923), p. 220; Lyell, *Wild Life*, p. 133. Lyell gives no supporting evidence for his assertion regarding lions and crocodiles.

(Turkana), he witnessed his personal attendant being carried off by a crocodile 'like a fish in the beak of a heron'.⁵¹

Captain Clement Sykes recounts that, shortly after his detachment had encamped at Entebbe on the shores of Lake Victoria, his friend C.'s cook Sadiki was taken by a crocodile. Sykes relates that C. shot 'one gigantic monster who ... had all the appearance of being gorged to repletion' which, on being cut open, revealed the missing man's arm.⁵² Not long after, a young African employee of Sykes was taken by a crocodile while crossing the Victoria Nile near Fajao in a rickety dugout. 'After this grim episode', he writes:

there was no mercy given, and even at the expense of much valuable ammunition there was a constant sound of pick-pock from various points on the Nile, where we had pitched our camp ... Each one of us, as he arrived, gave his tribute in token of man's eternal loathing. Parties went forth looking for their nasty, chalky eggs, and all did what could be done to exterminate the disgusting creatures ... One day I persuaded our marine to turn his Maxim gun on a batch of them...⁵³

Such shocking experiences and macabre finds elicited very strong reactions in some of these authors, and much ammunition was expended on crocodiles. This was even though they were not particularly valued as trophies and are very difficult to retrieve when shot. (An exception was the Egyptian Nile, where shooting a crocodile does seem to have been a desirable 'sporting' achievement, with the result that according to the Rev. Archibald Sayce, by the late 1880s 'the Egyptian Nile [north of the First Cataract] had ceased to be the home of its ancient symbol'.)⁵⁴ Usually, we are told, shot crocodiles managed to regain the water and sink, and unlike hippo, took several days after death to float to the surface. Big game hunters Chauncey Stigand and Denis Lyell wrote: '[Crocodiles] kill a number of natives annually on the big rivers, and so we would

⁵¹ Neumann, *Elephant hunting*, p. 310.

⁵² Sykes, *Service and Sport*, pp. 39–40.

⁵³ *Ibid.*, pp. 90–91

⁵⁴ Crocodiles were rare north of the First Cataract by 1867, though Henry Morcey reported shooting a large one in 1871: see 'Crocodile shooting', (Gloucester: John Bellows, 1872); Edwards saw few below the First Cataract, and bemoaned the shooting out of crocodiles above the Second Cataract as far south as Semna: *A Thousand Miles up the Nile*, pp. 78, 142. Archibald H. Sayce, *Reminiscences* (London: Macmillan, 1923), p. 240. The Aswan ('High') Dam (1960–70) on the Nile permanently cut off crocodiles from north of its sluices.

generally take a long shot at one of these animals, even if there is no chance of getting the body'.⁵⁵ Some colonial authorities offered rewards for the destruction of crocodiles as vermin, for instance in Natal rewards were offered from as early as 1866. In his 1902 portrait of Uganda, Johnston related that: 'A continual war is waged by Europeans desirous of a good kind of rifle practice on the crocodiles frequenting the vicinity of their settlements, and by constant persecution this nuisance may in time be abated.'⁵⁶

Only ten definite attacks (or 'charges') on Europeans are recorded. In two cases the victims were seriously hurt, including the fireman of a steamer swimming in Stanley's Pool and a Portuguese merchant descending the river in a large canoe, both on the Congo. There were two fatalities, both in South Africa.⁵⁷ In addition to these incidents, five authors recorded occasions when they felt personally menaced by crocodiles.⁵⁸

It is not possible to extract accurate figures of attacks on non-Europeans from this literature. There are many general statements like the explorer Richard Burton's, claiming that '[the crocodile] causes considerable loss of life'. Stevenson-Hamilton felt sure that 'enormous' numbers of Africans were killed by crocodiles annually. Without doubting that numerous attacks occurred, or the impact of such statements on European attitudes to crocodiles, we should be cautious about accepting the veracity of such guesswork. Herbert Lang led the American Museum Congo Expedition (1909–15),

⁵⁵ On retrieving crocodiles: William Baldwin, *African Hunting from Natal to the Zambesi* (London: Richard Bentley, 1862), p. 102; Baker, *Nile Tributaries*, pp. 118–19; Frederick Courteney Selous, *Travel and Adventure in South-East Africa* (London: Rowland Ward and Co., 1893), p. 17; Stigand and Lyell, *Central African Game*, p. 170.

⁵⁶ *Government Gazette*, Notice 77, Natal Colony, 7 August 1866; Johnston, *The Uganda Protectorate*, Vol. 1, p. 406.

⁵⁷ Struthers, *Hunting Journal*, p. 15; Baldwin, *African Hunting*, p. 10; Joseph Thomson, *To the Central African Lakes and Back*, Vol. 2 (London: Sampson Low, Marston, Searle & Rivington, 1881), pp. 3–4; Selous, *Travel and Adventure*, p. 18; Johnston, *River Congo*, p. 29; Kingsley, *Travels*, p. 31; Bentley, *Pioneering*, p. 84; Lyell, *Memories*, p. 90; Stevenson-Hamilton, *Animal Life*, pp. 78, 80. Stanley's Poole incident: Bentley, *Pioneering*, p. 84; Johnston, *Grenfell*, p. 115. Portuguese merchant attack: Johnston, *River Congo*, pp. 29–30. Selous, *Travel and Adventure*, p. 18. Stevenson-Hamilton, *Animal Life*, pp. 78, 80.

⁵⁸ W.H. Drummond, *The Large Game and Natural History of South and South-East Africa* (Edinburgh: Edmonston and Douglas, 1875), p. 238; Henry Morton Stanley, *How I found Livingstone* (New York: Charles Scribner's Sons, 1891), pp. 338–9; Smith, *Unknown African Countries*, pp. 112–113, 254; Gibbons, *Africa from South to North*, p. 64; R.F.C. Maugham, *Wild Game in Zambezia* (New York, Charles Scribner's Sons, 1914), pp. 269–70.

and his inquiries of European and African residents, and experience of working with 38,000 porters over six years, yielded not a single fatal crocodile attack.⁵⁹

Perhaps the safest conclusion is that the danger of crocodile attacks varied significantly from region to region. The reasons may be ecological (e.g. seasonal lack of prey, as conjectured by David Livingstone), opportunism (refugees swimming the Limpopo River to enter South Africa) or even cultural. In a survey of the interactions of mammalian carnivores and people, the zoologist Han Kruuk notes ‘the regionality of man-eating’ and speculates that ‘there are ‘cultural effects’ amongst the predators, with animals learning from each other’. George Westbeech, who travelled and traded in Barotseland (western Zambia) in the mid-1880s claimed that a Barotse king fed refugees to crocodiles, and that a King Lewanika had children thrown to crocodiles. In 1917, Stevenson-Hamilton speculated that the crocodiles of Shesheke ‘never forgot those halcyon days, and, until very recently, it was almost certain death for anyone to drink at the river, or attempt to draw water.’⁶⁰

A PATHOLOGICAL HATRED

In his 1987 review of the literature on attitudes to crocodiles in Africa, the Zambian academic Mwelma Musambachime argued that crocodiles have been feared and hated because they eat humans (predation), and for economic reasons (competition).⁶¹ As we have seen, for some Europeans a dislike of crocodiles tipped over into pathological hatred following shocking personal experiences, and crocodiles were disliked and despised because they are reptiles. This dislike of crocodiles was bound up with the threat they posed to ‘useful’ animals, associations made between crocodiles and disease and their supposed general lack of utility.

⁵⁹ Burton, ‘Lake Regions’, 69. Stevenson-Hamilton, *Animal Life*, p. 78. Lang reports his views in Schmidt, ‘Contributions to the Herpetology of the Belgian Congo’, 433, 434.

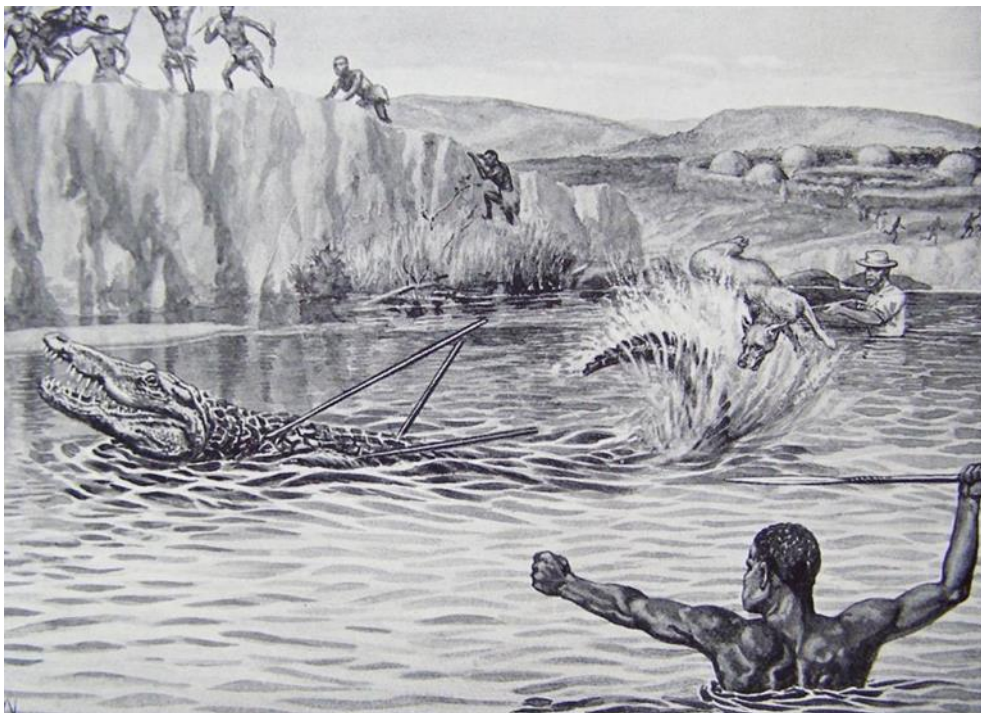
⁶⁰ Livingstone, *Narrative of an Expedition*, pp. 452–3; Anon, ‘Illegal immigrant eaten up by croc’, *The Citizen*, 19 January 1999; Hans Kruuk, *Hunter and Hunted: Relationships between Carnivores and People* (Cambridge: Cambridge University Press, 2002), p. 76; George Westbeech, *Trade and Travel in Early Barotseland* (Berkeley: University of California Press, 1963), pp. 44, 47; Stevenson-Hamilton, *Animal Life in Africa*, p. 81.

⁶¹ Mwelma C. Musambachime, ‘The fate of the Nile crocodile in African waterways’, *African Affairs* **86** (April 1987): 197–207.

In his account of the wildlife of Zambezia (now southern Mozambique), Reginald Maugham, trader and sometime British honorary consul in Portuguese East Africa, introduces reptiles as follows:

the loathsome, abhorrent, and repulsive among the inhabitants of this part of Africa – those revolting forms which nature would seem to have created in some regrettable moment of boundless vindictiveness, for the express purpose of surrounding the beautiful and useful members of the animal creation with the ever-present risk of a ghastly death by constriction, venom, or drowning.

Maugham finds no redeeming qualities: ‘Were there traceable in this incomprehensible dispensation any beneficial or indeed intelligible purpose ... the horrible mission of the reptiles might be understood and, to some slight extent perhaps, respected. But there is none whatsoever. ... one fails hopelessly to comprehend their inclusion in the scheme of Nature’. For Samuel Baker, crocodiles are a ‘useless scourge’, and for Lyell, ‘crocodiles, sharks, and snakes are three of the most obnoxious creatures in the world, and one often wonders the reason why they were created’.⁶²



⁶² Maugham, *Portuguese East Africa*, p. 50 and *Wild Game*, p. 258. Baker, *Wild Beasts*, p. 261; Lyell, *Wild Life*, p. 133.

Figure 2. African warriors, a European and his dog unite against a 'loathsome crocodile' in Edmund Caldwell's illustration for Sir Percy Fitzpatrick's book *Jock of the Bushveld* (London: Longmans, 1909).

Only Adulphe Delegorgue found a reason to value crocodiles. In an extraordinary passage he makes what is in effect an ecological argument for the importance of crocodiles in keeping rivers clean and disease-free. He notes that crocodiles are only found in the 'tropical lands ... which produce animals and men in large numbers', and relates that animals pursued by the great predators but not finished off (there is a glut of them) stagger to the rivers to quench their thirst. Many die there and are carried away by the water. The upshot is that: 'If there were no crocodiles, these putrefying remains would pile up at the mouth of rivers ... [and] the obvious result would be that pestilences would carry off infinitely more people than all the crocodiles in the world could eat in ten years.' Delegorgue speculates that this is why the ancient Egyptians and the 'Indous' of India venerated crocodiles. (Despite his enlightened reasoning, Delegorgue lost no opportunity to shoot a crocodile.)⁶³

Many Africans did see the utility of crocodiles. They hunted and trapped crocodiles, most commonly for food. They also used body parts for artefacts, for leatherwork, for medicines or magic; as aphrodisiacs and for their musk.⁶⁴ Crocodile meat was eaten across the continent. However, neighbouring African peoples might either eat crocodiles with relish, or hold strong religious objections to eating them. Adams, Baker, Speke and Grant observed that in North Eastern Africa, people they described as 'Arabs' (possibly Omanis), 'Turks' (Ottomans) and 'Mussulmen' (Muslims of all races) ate crocodiles. The latter two authors record that Africans travelling with them in this region professed disgust and identified eating crocodiles as something peculiar to

⁶³ Delegorgue, *Travels in Southern Africa*, Vol. 1, pp. 63–4.

⁶⁴ On artefacts: James Augustus Grant, *A Walk Across Africa* (London: William Blackwood and Sons, 1864), p. 342; Smith, *Unknown African Countries*, p. 443. On leatherwork: Baker, *Nile Tributaries*, p. 188 and *Ismaïia*, p. 29; Edwards, *A Thousand Miles up the Nile*, Vol. 1, p. 257. On medicines or magic: Duff, *Nyasaland*, p. 135; Cullen Gouldsbury and Hubert Sheane, *The Great Plateau of Northern Rhodesia* (London: Edward Arnold, 1911), p. 201; Schmidt, 'Contributions', 434; Rev. S.S. Dornan, 'The Crocodile in south African Religion and Folklore', *South African Journal of Science* **31** (November 1934): 497. On aphrodisiacs: Burton, 'Lake Regions', 69; Pitman, 'Wide-jawed crocodile', 284. On musk: Edward Rüppel, *Reisen in Nubien, Kordofan und den peträischen Arabien*, 1829, excerpts in *The North American Review* **40** (April 1835): 502; Baker, *Nile Tributaries*, p. 117; Frederick J.D. Lugard, *The Rise of our East African Empire* (London: William Blackwood and Sons, 1893), p. 223.

Muslims (the names used are imprecise, and within Sunni Islam, different interpretations of dietary restrictions co-existed.)⁶⁵

The missionary Rev. W. Holman Bentley reported that some Africans near Lukolela on the Congo ate the flesh of a crocodile his men had just shot for eating one of his mission's office workers. However, writing of the Basubia in what is now Zambia, J.H. Venning opined that while many ate crocodile meat, they would never eat one which had eaten a human: such crocodiles were burnt when killed. Pitman reports, but gives no specific example or reference, that in West Africa humans who eat crocodile meat are believed to become cannibals.⁶⁶

'Arabs' and Africans hunted Nile crocodiles professionally. In addition, Henry Morton Stanley reports that on the Congo in the 1880s, Africans hatched out eggs and raised the young, to sell them for meat. This is the first recorded case of commercial crocodile farming in Africa. Along the Ubangi River (a northern tributary of the Congo), the African Dwarf Crocodile (*Osteolaemus* species) was reputed to be 'kept in enclosed pools and bred for consumption'.⁶⁷ These small, timid crocodiles are still widely traded for food at markets across the Congo Basin region. Little is known about the current status of the Dwarf Crocodile, or Africa's other crocodile species, the Slender-snouted crocodile.⁶⁸

An aspect of the dislike of crocodiles linked to their being primitive reptiles, or 'saurians', was that crocodiles were associated with primordial landscapes, often in turn associated with disease. Baker described how: 'we occasionally entered upon horrible

⁶⁵ On divergent attitudes to eating crocodiles: Johnston, *Grenfell*, pp. 613, 780. On Muslims: A.L. Adams, *Notes of a Naturalist in the Nile Valley and Malta* (Edinburgh: Edmonston and Douglas, 1870), pp. 55; Baker, *Exploration*, p. 117; John Hanning Speke, *Journal of the Discovery of the Sources of the Nile* (New York: Harper and Brothers, 1868), p. 534; Grant, *A Walk*, p. 342; J.A. Grant, 'Summary of Observations on the Geography, Climate, and Natural History of the Lake Region of Equatorial Africa, made by the Speke and Grant Expedition, 1860-63', *Journal of the Royal Geographical Society of London* **42** (1872): 243-342, 314. Thanks to Scott Reese for a cautionary note on generalising about Muslim dietary restrictions.

⁶⁶ Bentley, *Pioneering*, p. 249. See J.H. Venning, 'A crocodile incident', *Northern Rhodesia Journal*, **2** (1953): 72. Pitman, 'About Crocodiles', 114.

⁶⁷ On professional crocodile hunters: Rüppel, *Reissen*, p. 506; Adams, *Notes of a Naturalist*, p. 55; Baker, *Wild Beasts*, p. 265; T.R.H. Owen, 'Harpooning Crocodiles', *The Field*, 16 October 1948. On breeding crocodiles: Henry Morton Stanley, *The Congo and the Founding of its Free State*, Vol. 2 (New York: Harper & Brothers, 1885), p. 17; Johnston, *Grenfell*, p. 614.

⁶⁸ M.J. Eaton, A. Smith, J. Thorbjarnarson and G. Amato, 'Species-level diversification of African dwarf crocodiles (Genus *Osteolaemus*): A geographic and phylogenetic perspective', *Molecular Phylogenetics and Evolution* **50** (2008): 496-506, 496. The taxonomy is currently under review.

solitudes of shallow swamp, peopled by countless snakes; the air, sultry and redolent of malaria, was humming with mosquitoes; and in this chaos, if a few square yards of sandbank appeared above the marsh, there were the belly scales of some large crocodile printed upon the surface'. Burton and Parker Gillmore likewise linked swamps, fever, miasma and disease with crocodiles.⁶⁹

Some argued that crocodiles were literally vectors for disease. Sleeping sickness was regarded as 'the most burning problem of European colonisation in Equatorial Africa', and its vector the tsetse fly (*Glossina* species) was believed to survive on the blood of game animals. In 1907, while conducting research on sleeping sickness on Lake Victoria, the famous bacteriologist Robert Koch reportedly declared that 'the blood of crocodiles forms the chief nourishment of the *Glossina*'. This statement was freely interpreted to suggest that crocodiles should be exterminated to prevent the spread of the fly. Wide dissemination of this idea prompted protozoologist Edward Minchin to point out in *Nature* that Koch had proved no link between crocodiles being infected by a species of trypanosome, and sleeping sickness. Subsequent research proved that tsetse flies could not breed successfully if solely dependent on crocodile blood. Despite this, tsetse control officials were still recommending extermination of crocodiles as the favourite sustenance of tsetse flies in the early 1950s.⁷⁰ Crocodiles were not of course unique in this: huge numbers of wild animals were slaughtered between the 1890s and the 1940s because they were regarded as vectors for diseases threatening livestock.⁷¹

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⁶⁹ Baker, *Wild Beasts*, p. 260; Burton, 'Lake Regions', 33; Parker Gillmore, *The Land of the Boer, or, Adventures in Natal and Zululand* (London: Cassell, Petter, Galpin & Co., 1880), p. 29.

⁷⁰ Koch cited in Ernest E. Austen, 'The dependence or non-dependence of tsetse-flies upon big game, with special reference to the species of tsetse known as *Glossina palpalis* and sleeping sickness', *Journal of the Society for the Preservation of the Wild Fauna of the Empire* **4** (1908): 18. On suggesting Koch implied that crocodiles be killed to stop sleeping sickness, see e.g. *The New York Times*, 'Probing the mysterious sleeping sickness', 19 April 1908. Edward Minchin, 'Crocodiles and Tsetse Flies', *Nature* **79** (18 February 1909): 458. On Kleine et al.'s research see Edward Hindle, *Flies in Relation to Disease* (Cambridge: Cambridge University Press, 1914), p. 264. On crocs and tsetse control in the 1950s, Hugh B. Cott, 'The Status of the Nile Crocodile in Uganda', *The Uganda Journal* **18** (March 1954): 6–7.

⁷¹ Karen Brown, 'From Ubombo to Mkhuzi: Disease, Colonial Science, and the Control of *Nagana* (Livestock Trypanosomosis) in Zululand, South Africa, c.1894–1953', *Journal of the History of Medicine* **63** (2008): 285–322; and 'Environmental and Veterinary History – Some Themes and Suggested Ways Forward', *Environment and History* **20** (2014): 547–559.

Mackenzie records that early European efforts at conserving wildlife focused on so-called game animals prized by hunters, and predators including crocodiles were classified as vermin and shot. By the 1880s and 1890s Africa's vast herds had been decimated, and settlement was replacing the 'wild' frontier. The Convention for the Preservation of Wild Animals, Birds and Fish in Africa' of 1900 aimed to '[save] from indiscriminate slaughter, and [insure] the preservation ... of the various forms of animal life which are either useful to man or are harmless'.⁷² Harriet Ritvo argues that by the late nineteenth century hunting had moved on from being emblematic of European conquest and dominance, and instead came to reflect the more sophisticated late Victorian era of administration. However, dangerous animals were still to be destroyed, and Carruthers argues that dangerous 'vermin' offered hunters a continued outlet for machismo in the era of penitent butchers.⁷³

Mackenzie identifies the development of a 'sporting code' among colonial hunters in the context of improved firearms, fast dwindling populations of wildlife and a transition from (uncontrolled) utility to regulated sport hunting. Indiscriminate shooting was frowned upon. Animals should be given a 'sporting chance', and should be stalked until a mortal shot was possible and the trophy could be recovered. Mackenzie records that the 1933 the Convention for the Protection of African Fauna and Flora called for bans on unsporting methods including night shooting, hunting from motor vehicles (on land, water or by air) or the use of poisons, explosives, traps or snares. The concept of vermin, and the recommendation to kill harmful or disliked animals, was excluded from the convention text.⁷⁴

The Nile crocodile, however, was excluded from these apparent progressive developments in colonial conservation, and considered exempt from the ideals of a sporting code. Shooting wildlife from steamers was outlawed in Sudan (c. 1901), with the specific exception of crocodiles, and the same applied in Uganda (c. 1926). Stigand and Lyell urged sportsmen (hunters) en route to Africa to take pot shots at crocodiles

⁷² 1900 convention cited in Ritvo, *Animal Estate*, p. 284. Mackenzie, *Empire of Nature*, pp. 208–9.

⁷³ Ritvo, *Animal Estate*, p. 287; Jane Carruthers, 'Changing perspectives on Wildlife in Southern Africa, c.1840 to c.1914', *Society & Animals* **13** (2005): 183–199.

⁷⁴ Mackenzie, *Empire of Nature*, pp. 216–217, 299.

even if their corpses could not be recovered.⁷⁵ As noted below, poison, snares and baited hooks were all judged acceptable means of killing crocodiles.

Some reasons for treating crocodiles differently have been discussed, but from the 1920s in East Africa, it was their perceived economic impact that explains this exceptional treatment. Crocodiles came to the notice of British colonial authorities when large fisheries were established on the lakes of the Uganda Protectorate in the 1920s. By 1928 there was a large fishery established on Lake Victoria, and the British freshwater biologist Edgar Barton Worthington was sent out to survey the region's fisheries. While he admitted there was no proof that crocodiles ate large quantities of commercially desirable fish, he complained about the 'inestimable damage [crocodiles cause] to fishing nets and other gear'.⁷⁶ As a result, from 1930 to 1950 the Uganda Game (and Fisheries, from 1933) Department waged a crocodile extermination campaign on Lake Victoria. They paid hunters to shoot crocodiles and others to dig up nests and destroy eggs (1,880 crocodiles were killed and 126,504 eggs were destroyed on Lake Victoria from 1938–49). Safeguarding the lives of lakeside inhabitants was another, secondary, consideration.⁷⁷ These efforts to destroy crocodiles in Uganda were led by Charles Pitman, a keen herpetologist who collected and published observations on crocodiles from the 1920s into the 1970s. In a 1931 article, he expressed doubt that crocodiles really ate significant quantities of valuable fishes. However, in an extended piece in the *Uganda Journal* ten years later, he described crocodiles as 'the most appalling menace to man and his property'.⁷⁸

The Cambridge zoologist Hugh Cott was a key figure in (eventually) changing perceptions of crocodiles, at least for some. When he began working in East Africa in the

⁷⁵ On Sudan: Edward North Buxton, *Two African Trips* (London: Edward Stanford, 1902), p. 162. For Uganda: Alistair Grahame, *The Gardeners of Eden* (London: George, Allen and Unwin, 1973), p. 111. Stigand and Lyell, *Central African Game*, p. 190.

⁷⁶ E.B. Worthington, 'A report on the fishing survey of Lakes Albert and Koga' (London: Crown Agents for the Colonies, 1929): 122 on uncertainty of crocodiles' impacts on fish stocks; and 'A report on the Fisheries of Uganda' (London: Crown Agents for the Colonies, 1932): 22, on damage to nets and equipment. The Belgians were exterminating crocodiles to protect local fisheries along the Zaire River since the 1910s: Musambachime, 'Fate of the Nile crocodile', 202.

⁷⁷ J. Stoneman, 'Crocodile Industry in Uganda', Republic of Uganda Ministry of Animal Industry, Game and Fisheries, *Occasional Papers* 2 (1969): 15, 19; Anon, 'Crocodile control campaign', *East Africa*, 21 April 1949.

⁷⁸ C.R.S. Pitman, 'Wide-jawed crocodile', 184; and 'About Crocodiles', *Uganda Journal* 9 (September 1941): 89–114, 113.

late 1940s, crocodiles were being mercilessly shot for skins. The publication *East Africa* had noted in 1939 that ‘a new trade in crocodile skins is beginning in Tanganyika Territory’ with skins worth £4,656 having been exported in 1938. The trade was ‘entirely in the hands of the Germans’, but it was recommended that British territories should ‘[learn] from an enemy’.⁷⁹ By 1950, it was estimated that East Africa was producing 2,000 crocodile skins a month, and the *Tanganyika Standard* opined that it might be necessary to revise the classification of crocodile as vermin which could be killed without a license, and instead control the major breeding grounds and establish closed seasons.⁸⁰ The Uganda Game Department discontinued their crocodile destruction policy in 1950 as no longer necessary.⁸¹

Cott, like Worthington, had come out to work on fish and fisheries, and this included research on fish-eating birds and crocodiles. Cott became increasingly fascinated with crocodiles (in 1971 he became the first chairman of the IUCN Crocodile Specialist Group), and extensive field studies convinced him that crocodiles feed relatively seldom, go for long periods without feeding and are not destructive to fisheries. He argued that crocodiles control other predators on desirable fish species, and are keystone species in aquatic ecosystems.⁸²

In addition to his work in Uganda, Cott also conducted surveys in Northern Rhodesia (Zambia) in 1957, where his work influenced Roelf Attwell, warden of Kafue National Park. Cott argued that nothing justified ‘relegating the crocodile to the status of “vermin”’, and in fact crocodiles were beneficial, with juveniles eating many predators of fish, fry and eggs, and adults eating otters, cormorants, darters and other fish-eating animals. They played the role of scavengers in the water, a role parallel to that of vultures and marabou on land (for which the latter were protected). He argued that human fatalities were relatively rare, usually the result of carelessness, and particular

⁷⁹ Anon, ‘Trade in crocodile skins’, *East Africa*, 14 September 1939.

⁸⁰ Anon, ‘Tanganyika’s crocodile industry is flourishing’, *Tanganyika Standard*, n.d., in National Archives Kew, CO 691/217/2.

⁸¹ J. Stoneman, ‘Crocodile Industry’, 15.

⁸² H.B. Cott, ‘Status of the Nile crocodile’, 1–12.

problem animals should be eliminated by the Game Department as was the case for other dangerous animals.⁸³

In 1954, Cott pointed out that the crocodile was the only large animal for which permits were issued legalising hunting by methods deemed illegal for other wildlife, notably snaring and shooting at night. The Uganda Game Department was still poisoning crocodiles in the late 1940s, and their extermination programme continued for seventeen years after the 1933 Convention. In the 1940s and 1950s a Crocodile Destruction Officer was employed to poison crocodiles on Lake Nyasa (Malawi). This post was discontinued only after crocodiles became protected – meaning reserved for commercial hunters.⁸⁴ These hunters operated without regulation outside protected areas into the early 1960s, often portraying themselves as heroic protectors of rural Africans, settlers and their livestock.⁸⁵

The history of crocodile hunting in Africa is thus an exception to Mackenzie's idea of a transition from utilisation to sport hunting dominated by European elites in colonial African territories from the 1890s-1940s. Even when other 'vermin' began to be seen as valid candidates for protection, crocodiles remained 'fair game' for all manner of inhumane methods of slaughter. By the 1950s, by which time it was less socially acceptable to kill wild animals, crocodile hunter Paul Potous justified his profession as follows:

I was becoming increasingly aware of the futility of killing a lovely animal merely to see it cut up and gorged by the natives. However, no one can be cruel to a crocodile. Repulsive and loathsome, it is held in abject fear by the natives,

⁸³ H.B. Cott, 'Expert investigations: Crocodiles, Summary and Recommendations', Report to the Director, Department of Game & Tsetse Control, Northern Rhodesia (October 1957), p. 1 (personal copy of Roelf Attwell, by courtesy of his son C.A.M. 'Basher' Attwell. Cott's major publication on crocodiles, a landmark paper on Nile crocodile ecology, is: 'Scientific results of an inquiry into the ecology and economic status of the Nile crocodile (*Crocodilus niloticus*) in Uganda and Northern Rhodesia', *Transcriptions of the Zoological Society of London* **29** (1961): 211–356.

⁸⁴ Sudan ordinance cited in Edward N. Buxton, *Two African Trips*, p. 162. Stigand & Lyell, *Central African Game*, pp. iii, 170. Cott, 'Nile crocodile in Uganda', p. 323. On crocodile poisoning in Uganda: CO 536/212/3 (The National Archives, Kew); and Malawi: Paul L. Potous, *No Tears for the Crocodile* (London: Hutchinson & Co., 1956), pp. 18, 21.

⁸⁵ See S. Pooley, 'No Tears for the Crocodiles: Representations of Nile Crocodiles and the Extermination Furore in Zululand, South Africa, from 1956–8', in William Beinart, Karen Middleton, Simon Pooley (eds), *Wild Things: Nature and the Social Imagination* (Cambridge: White Horse Press, 2013), p. 155.

for it ... is responsible for a greater number of human deaths than any wild animal in Africa ... In hunting it, I should still have the excitement of the chase, but at its death there would be no tears for the crocodile.⁸⁶

Potous's autobiography *No Tears for the Crocodiles* was reviewed with approval in newspapers in Natal Province during a controversy over crocodiles in South Africa in the mid-1950s, during which there were public calls for the extermination of all wild crocodiles in the province.⁸⁷ In fact, crocodile hunting never acquired the glamour of hunting other large 'vermin' like lions or tigers. In the era of commercial hunting it involved blinding a crocodile with a spotlight at night before blowing its brains out at point-blank range, and the use of poison and baited hooks.

CONSERVATION AND SUSTAINABLE UTILISATION, C.1960–1992

In the early 1960s, both Cott and Attwell recommended crocodiles be protected for ecological, scientific, and economic reasons. In a memorandum to Northern Rhodesia's Director of Game and Fisheries of 1960, Attwell noted that 'public sentiment [is] not keeping pace with biological understanding' – arguing that in the (arbitrary) classification of animals into those useful to or useless and destructive to man, the public had failed to realise that crocodiles had moved from the latter to the former category. He further argued that the department was 'being left behind modern attitudes to conservation: we are still, in effect permitting commercialised carnage at the expense of a valuable resource, which is being sacrificed on the altar of alleged human interests'.⁸⁸

In his broader conservation philosophy, Attwell was importantly influenced by Frank Fraser-Darling, whom he had met in Oxford and convinced to come out to Northern Rhodesia (Zambia) to undertake an in-depth survey, which Fraser-Darling duly did over three long visits in 1956 and 1957. Fraser-Darling believed that in Africa wildlife conservation was 'essentially ... a human ecological problem' and argued that 'conservation of stocks of the larger wild animals as natural resources of primary

⁸⁶ Potous, *No Tears*, pp. 22–23

⁸⁷ For a full account, see S. Pooley, 'No Tears for the Crocodiles', pp. 142–62.

⁸⁸ R.I.G. Attwell, 'Fauna Conservation Ordinance', Memorandum to the Director, Game and Fisheries Department, Northern Rhodesia (13 December 1960), pp.2, 5, courtesy of C.A.M. Attwell.

importance must form an essential part of governmental policy'. He observed that the development of the Copper Belt had resulted in a very large market for game meat and fish. This had resulted in the 'very remarkable development of freshwater fisheries in Northern Rhodesia', an industry 'prosecuted wholly by Africans for Africans'. The alleged depredation of crocodiles on fisheries was an important economic issue here too.⁸⁹

Fraser-Darling argued that 'the emerging ethic of conservation does not balk at learning how to take an optimal yield from populations of animals [while respecting] absolutely the stocks from which the yield is taken'. This move towards seeing wildlife as a natural resource was part of a wider development in British colonial Africa. As William Adams has shown, in the post-war period colonial governments undertook a wave of development initiatives informed by scientific experts. These included the application of applied ecology to fields like fisheries, livestock management, agriculture and forestry. The ideas behind what became the African Convention on the Conservation of Nature and Natural Resources were outlined at a conference at Bukava in the Belgian Congo in 1953, and would be adopted by the Organization of African Unity in Addis Ababa in 1968. The definition of conservation was broadened to include wild fauna and flora, and also water and soil – all to be managed scientifically for the benefit of people. There was concern that Africa's growing human populations faced starvation as a result of falling agricultural production. Following a visit to East and Central Africa in 1961, Barton Worthington, by then deputy director general of the UK's Nature Conservancy, reflected that: 'until recent years there has been little recognition by the governments or people of these countries that wildlife is a large natural resources in its own right, capable of development to big sustained yields by the application of appropriate technical knowledge'.⁹⁰

Conservation and sustainable utilisation were, however, at cross purposes when it came to crocodiles in Africa. Populations of large crocodiles had been decimated across the continent in the 1940s and 1950s, and by the 1960s even commercial hunters were

⁸⁹ On Attwell and Fraser-Darling: interview with C.A.M. 'Basher' Attwell, Cape Town, South Africa (12 February 2013); Frank Fraser Darling, *Wildlife in an African Territory* (London: Oxford University Press, 1960), pp. 3–4, 9, 10.

⁹⁰ Carruthers, 'Changing perspectives on Wildlife', 167; W.M. Adams, *Against Extinction: the Story of Conservation* (London: Earthscan, 2004) pp. 27–28 (including quote).

worried about their resource. East Africa had ceased to be the epicentre of crocodile hunting and trade, with the large-scale destruction of crocodiles in Uganda, to a lesser extent in Kenya (which banned crocodile hunting in 1955, and all hunting in 1977), and the British take-over of German East Africa. The British colonial authorities investigated, but never supported, a crocodile farming industry. By the 1960s, the centre of gravity for crocodile research and utilisation was shifting southward.⁹¹

In South Africa, in the 1950s the Natal Parks, Game and Fish Preservation Board (NPB) had had to contend with a major public, political and media campaign to exterminate crocodiles on Lake St Lucia.⁹² As a result of widespread poaching and persecution of crocodiles outside of protected areas in the province, and in neighbouring Swaziland and Mozambique, they initiated a crocodile research, breeding and restocking programme. This was led by Tony (A.C.) Pooley who in 1967 set up a crocodile research and captive breeding centre in the remote Ndumu Game Reserve on the border of Mozambique. Pooley was an unschooled natural history enthusiast who developed an interest in crocodiles in 1957 after a Zulu game guard colleague played a practical joke on him by presenting him with a large white egg and asking him to name the species of bird which had laid it. It was a crocodile egg, and Pooley soon discovered little was known about the reproductive behaviour and biology of Nile crocodiles. He had the right combination of great patience, powers of observation, and time in the field (on and off duty) required to study crocodile behaviour (crocodiles are relatively inactive during daylight hours for long periods of the year).⁹³

Pooley went on to make breakthrough discoveries in crocodile reproductive behaviour, helped develop protective legislation which came into force in Natal, South Africa in 1969, and became a founder member of the IUCN Crocodile Specialist Group in 1971. His presentations at his Ndumu crocodile centre became a popular tourist attraction in the late 1960s, and stimulated numerous newspaper and magazine articles on his work. Pooley was asked to set up another centre with a much larger interpretive facility at Lake St Lucia, opened in 1976. At both centres, he encountered the hostility of the public

⁹¹ Notwithstanding Modha and Alistair Grahame's work on the Lake Rudolf (Turkana) crocodiles in the 1960s.

⁹² See S. Pooley, 'No Tears for the Crocodiles'.

⁹³ On A.C. Pooley's life and discoveries: A.C. Pooley, *Discoveries of a Crocodile Man* (Johannesburg: Collins, 1982).

to crocodiles on a daily basis, and popular books, films, and print media continued to represent crocodiles primarily as bloodthirsty killers.⁹⁴ Pooley was also aware through the first counts of crocodiles in Natal that numbers of large animals were still dwindling into the early 1970s, and poaching continued from Mozambique and Swaziland. His findings on crocodile social and particularly parental behaviour (they are devoted mothers, unlike most reptiles) attracted the incredulous attention of natural history film companies locally and internationally, and he mobilised this to present a more positive image of crocodiles in a series of popular documentaries screened in South Africa, the USA and the UK.⁹⁵

It is perhaps unsurprising, therefore, that, while committed to captive breeding as a means of restocking wild populations – and open to the idea of ranching crocodiles where no alternative existed for ensuring the continued survival of wild populations – Pooley opposed the harvesting of wild crocodiles in South Africa. He similarly opposed commercial utilisation wherever else in Africa there was insufficient knowledge of the status of crocodile populations, or protective legislation and the will and means to enforce it. Pooley's views were influential within the Crocodile Specialist Group: he co-authored the first Africa-wide survey of the status of crocodilians with Hugh Cott in 1971, and wrote a follow-up review in 1980. In 1971, they wrote that 'numbers have been drastically reduced almost everywhere', and in 1980 Pooley admitted that 'our knowledge of current crocodile populations is fragmentary', concluding that recent evidence suggested 'a general decline in the overall status of the African species.' In South Africa, the wider context was that game farming was not supported until the 1980s.⁹⁶

⁹⁴ See S. Pooley 'No tears for the crocodiles' on popular representations of Nile crocodiles. See also, for example, Peter Hathaway Capstick, *Death in the Long Grass* (London: Magnum, [1977] 1980), chapter 6 'crocodile', particularly p. 192.

⁹⁵ Including: *Ndumu: the story of crocodile survival in South Africa* (SABC 1975); a *Wild, Wild World of Animals* episode screened in the USA (Time Life, 1975); *Gently Smiling Jaws* (Wildlife on One, BBC, 1980).

⁹⁶ On Pooley's career, see A.C. Pooley, *Discoveries*, and Kraig Adler (ed.), *Contributions to the history of herpetology*, Vol. 3 (Vancouver: Society for the Study of Amphibians and Reptiles, 2012), pp. 336–337. Hugh B. Cott and A.C. Pooley, 'The status of crocodiles in Africa', IUCN Publications New Series, Supplementary Paper No.33 (Morges: IUCN, 1972), p. 7; A.C. Pooley, 'The status of African crocodiles in 1980', Proceedings of the 5th Working Meeting of the Crocodile Specialist Group of the Species Survival Commission of the IUCN [henceforth CSG Working Meeting], Gainesville, Florida, USA, 12–16 August 1980 (Gland: IUCN, 1982), pp. 174–228, p.174. On why

It was to be Rhodesia (now Zimbabwe) which pioneered successful commercial crocodile farming in Africa. Crocodiles had been safeguarded in some protected areas by the Wild Life Conservation Act of 1960. Favourable opinions on game ranching were stimulated by the efforts of two American wildlife biologists, Raymond Dasmann and Archie Mossman, who had been invited to the country in 1959 to find out whether it would be possible to ranch wildlife alongside cattle.⁹⁷ The resulting ranching and sport hunting led to large areas outside protected areas being used to support wildlife. The first crocodile farms were approved in 1965, the intentions being to provide a sufficient source of high quality legal skins in order to inhibit poaching, catalyse funds for research and monitoring of wild stock through profits from the industry, and promote public appreciation and tolerance of the species as commercially valuable. Conservation authorities were also concerned about the possible impacts of the building of the Kariba Dam on crocodile populations on the Zambezi River.

The Department of National Parks and Wildlife's policy on crocodiles was drafted by its Chief Research Officer, Roelf Attwell, who had moved to Southern Rhodesia (now Zimbabwe) to join the amalgamated national department in 1968. The political isolation of Rhodesia under Ian Smith (1965–79) meant that the wildlife department did not have to concern themselves with the international conservation community's disapproval of crocodile farming in Africa in this period. When Zimbabwe did sign up to CITES (Convention on International Trade in Endangered Species) in 1981 (the year after independence), they maintained a reservation on their crocodiles (holding crocodiles exempt from CITES regulations banning trade in Appendix 1 species which at this time included the country's Nile crocodiles).⁹⁸

CITES, sustainable use and the IUCN Crocodile Specialist Group

game farming developed slowly in South Africa, see Jane Carruthers, “Wilding the farm or farming the wild?” the evolution of scientific game ranching in South Africa from the 1960s to the present’, *Transactions of the Royal Society of South Africa* **63** (2008): 161–181.

⁹⁷ On Dasmann and Mossman: Carruthers, ‘Wilding the farm’, 160, 166–7.

⁹⁸ J.P. Loveridge, ‘A review of crocodile management in Zimbabwe’, unpublished report for the IUCN CSG (Harare, 1996), p.11; letter from Department of National Parks and Wildlife Management Director Graham Childs to the Secretary General, CITES (April 2, 1982), 2–3.

At the 10th anniversary Conference of the Parties (COP) of CITES held in Botswana in 1983, some African parties voiced the opinion that many African species had been placed on CITES appendices by northern nations. This was partly a response to the rejection of several proposals by African countries to have their crocodile populations downlisted to Appendix II at this COP. (Zimbabwe was the first African country to have its Nile crocodile population downlisted to Appendix II of CITES in 1983). In a discussion of the issue at the 7th IUCN Crocodile Specialist Group (CSG) working meeting in Caracas, Venezuela (1984), the CSG argued that this allegation was based on ignorance of the long history of participation of African countries in past CITES meetings, their agreement to past decisions on listings of species, and that African countries had been given ample opportunity (a decade) to generate sufficient data on their crocodile populations to underpin any proposal to change Appendix listings. Similar had been achieved even in difficult marsh habitat in Australia, Papua New Guinea, the USA and Venezuela.⁹⁹

At the eighth CSG meeting held in Ecuador in 1986, Jon Hutton argued that crocodile populations had recovered from the over-exploitation of the 1950s (it actually continued beyond this), and that human–crocodile conflicts were escalating. Therefore, ranching (in CSG parlance: harvesting eggs or hatchlings from the wild, raising crocodiles and then slaughtering them for skins) and farming (captive breeding for slaughter) were crucial to ensuring the future of crocodiles in Africa. However, many developing countries needed help in developing and implementing the monitoring and ranching programmes required to meet the criteria for getting their crocodiles downlisted, and into commercial trade. A Cambridge-trained biologist, Hutton had completed a Ph.D. in crocodile ecology through the University of Zimbabwe in 1984. He pointed out that Zimbabwe’s industry had earned US\$1m in 1985, and the country still had a thriving population of wild crocodiles. At a meeting to discuss the challenges surrounding the implementation of CITES in Africa, it was decided to temporarily allow utilisation of wild populations while sufficient data was being gathered to meet criteria for downlisting, and a quota system was introduced, with ten African countries

⁹⁹ Anon, ‘Summary of the Meeting’, in S. Gorzula (ed.), *Crocodiles*, reprint of the proceedings of the 7th CSG Working Meeting convened at Caracas, Venezuela, 21–28 October 1984 (Lanesboro; Taxon Media, 2002), pp. IX–XXII, see XIII–XVIII.

qualifying by 1986 (quotas ranged from twenty to 8,200 crocodiles per annum, through ranching and/or wild harvest).¹⁰⁰

The cause of African countries hoping to exploit their crocodile populations commercially was greatly assisted by a change in leadership of the CSG which came about at the 9th working meeting in Papua Guinea (1988), where the Australian Prof. Harry Messel took over from Florida-based Prof. Wayne King. The structure of the group was changed to become more responsive to the interests of members and different geographic regions, with the appointment of a representative Steering Committee. The minutes of the next meeting, convened in Florida and the largest yet, noted that ‘the Working Meeting has evolved from a restricted group of specialists concerned about conservation to a comprehensive forum for the exchange of information that will make conservation and sustainable use of crocodilians a reality’.¹⁰¹

The eleventh working meeting of the Crocodile Specialist Group (CSG) was held in Victoria Falls, Zimbabwe (1992), and largely organised by the Crocodile Farmers Association of Zimbabwe (CFAZ) led by Strath Brown, with Jon Hutton serving as CSG vice-chair for Africa. The emphasis was on ranching, farming and trade, and twelve of the eighteen Africa-oriented papers focused on farming and trade. The Zimbabwe programme was going from strength to strength, with 30,000 skins produced in 1992, and 58,000 eggs collected from the wild. Importantly, this contributed ZIM\$ 60,000 to local African people on communal lands through the CAMPFIRE scheme. Internationally, estimated trade figures would later show that 1992 was the year in which number of crocodilian skins supplied to the industry by captive breeding programmes surpassed supply from wild harvest for the first time.¹⁰² Regulated sustainable use had become the central tenet of Nile crocodile conservation in Africa.

¹⁰⁰ Anon, ‘Recommendations to the CITES Secretariat’, in *Crocodiles*, reprint of the proceedings of the 8th CSG Working Meeting convened at Quito, Ecuador, 13–18 October 1986 (Lanesboro; Taxon Media, 2002), pp. vi–viii; J.M. Hutton, Appendix I, Part 1, in J.M. Hutton, I. Games (eds), *The CITES Nile Crocodile Project* (Lausanne: CITES, 1992), pp. 173–177.

¹⁰¹ Anon, ‘Summary of the Meeting’, in *Crocodiles*, reprint of the proceedings of the 9th CSG Working Meeting convened at Lae, Papua New Guinea, 19–21 October 1988 (Lanesboro; Taxon Media, 2002), pp. vi–viii, vii.

¹⁰² Strath Brown, ‘Opening comments from the Chairman of the Crocodile Farmers Association of Zimbabwe’, in *Crocodiles: Proceedings of the 11th CSG Working Meeting convened at Victoria Falls, Zimbabwe from 2–7 August 1992* (Gland: IUCN, 1992), pp. 1–2. James MacGregor, ‘The call of the

In a keynote address to the 1992 CSG meeting, Hutton spoke on ‘conservation strategy for crocodylians in Africa’ (a paper co-authored with Oliver Behra). They argued that the world’s most endangered crocodiles were in this position because of habitat loss, not trade. They argued that CITES had hampered attempts to conserve such species by deflecting attention onto the not endangered, but most traded species (including, certainly following protective legislation put in place from the 1970s, the Nile crocodile). They argued that ‘4–5m man-eating predators do not stand much chance of long term survival in modern Africa where water resources are at a premium’, and thus ‘crocodiles have to be valuable ... to survive outside protected areas’.¹⁰³

CONCLUSION

Throughout the nineteenth century, little was known about the biology and behaviour of Nile crocodiles. Natural history texts embroidered with exotic myths both informed, and were augmented by, sensational reports of the alleged loathsomeness, rapacity, dangerousness and cowardice of crocodiles from European travellers and later settlers across Africa. Crocodiles were regarded as useless, and a threat to the lives of humans and livestock. The same literature that characterises these pejorative European attitudes (with a few exceptions) also records much more varied attitudes to crocodiles among Africans. Africans did see the utility of crocodiles, and even bred them for sale. Others venerated crocodiles, and protected them, for spiritual reasons.

In the period in which game animals were shot out (by the 1880s–90s for much of Africa), crocodiles were not valued commercially or as trophies, and large populations survived on some major lake and river systems (a notable exception was the Egyptian Nile). From c. 1900, when the ‘penitent butchers’ sought to halt the extermination of Africa’s wildlife through regulation, crocodiles along with other ‘vermin’ were exempt from this newfound protectionism. Further, the ‘sporting code’ of the late Victorian era never extended to crocodiles.

wild: captive crocodylian production and the shaping of conservation incentives’, TRAFFIC online report series No.12 (Cambridge: TRAFFIC International, 2006), p. 4.

¹⁰³ J.M. Hutton and O. Behra, ‘Conservation strategy for crocodylians in Africa’, in *Crocodiles: Proceedings of the 11th working meeting*, pp. 197–200.

The development of commercial fisheries from the early 1900s brought crocodiles to the attention of the colonial authorities as an economic threat, and it became policy to exterminate them. Although fisheries researchers raised doubts about the harmfulness of crocodiles to fishing stocks, this was ignored by wildlife managers. In the period in which international legislation on African wildlife conservation (1933) dropped the exemption from protection previously allowed for 'vermin', crocodiles remained persecuted.

At the same time that game departments began poisoning and shooting crocodiles, a small industry was initiated selling skins to tanners and fashion and luxury goods manufacturers. After World War 2, in the period in which the commercial hunting of African wildlife was becoming unfashionable, crocodile hunting boomed. While sustainable utilisation of wildlife and natural resources for social and economic benefits was being urged, crocodiles were being exterminated for private commercial gain. By the 1960s, even commercial crocodile hunters feared for their resource, and the first protective legislation for crocodiles was passed.

This decimation of African crocodiles meant that when the IUCN Species Survival Commission founded the Crocodile Specialist Group in 1971, its members opposed large-scale commercial utilisation of crocodiles in Africa. In this decade, legal protection (if not enforcement) was extended to crocodiles in many African countries (notable exceptions included Nigeria), usually only within protected areas. Populations began to recover from the heavy exploitation of the 1940s–60s and, along with human population growth and increasing demands on natural water supplies, this resulted in an increase in adverse encounters between humans and crocodiles in some regions.

We should, however, be cautious about generic assertions that attacks are an ever-increasing problem: there is little long-term data available on crocodile attacks, and such conflicts are liable to vary greatly according to local social and ecological contexts. A section of the Zambezi River noted as a hotspot for attacks in recent years was first recorded as dangerous for crocodiles by David Livingstone in the 1850s. Long-term attack data for South Africa and Swaziland (1949–2014) shows a decrease in attacks since the 1970s, for reasons too complex to pursue here.¹⁰⁴

¹⁰⁴ On increasing attacks: Patrick Aust, B. Boyle, R. Fergusson, T. Coulson, 'The impact of Nile crocodiles on rural livelihoods in northeastern Namibia', *South African Journal of Wildlife Research*

While Cott and Pooley focused on the positive ecological roles played by crocodiles, advocated capture and removal of problem animals and strove to convince the public of their intrinsic right to exist, alongside their possible commercial utility, in Rhodesia (Zimbabwe) commercial crocodile farming was being developed. By the mid-1980s, sustainable use had become a core strategy of the IUCN Crocodile Specialist Group, and African countries began to agitate to have their populations of Nile crocodiles delisted to Appendix II of CITES. The economic and conservation success of Zimbabwe's crocodile farming operations resulted in the introduction of a quota system for other African countries and, by 1992, sustainable use was central to the CSG's conservation plans for the Nile crocodile. Today crocodiles are captive bred and ranched in South Africa, Zimbabwe, Madagascar and Kenya, ranched and wild harvested in Tanzania, and ranched in Botswana, Ethiopia, Malawi, Mozambique, Uganda and Zambia.¹⁰⁵

Commercial farming and ranching had offered the prospect of foreign exchange for governments and game departments, through transforming these 'ugly' monsters into sources of leather for highly desirable objects of beauty made famous by the likes of Grace Kelly and Jane Birkin (Hermès' Kelly and Birkin handbags). This has been a notable conservation success story: Nile crocodiles are still found in 41 countries across mainland Africa, and on Madagascar. However, captive breeding may sever links between the utilisation of crocodiles and conservation, through making commercial operations self-sufficient and thus independent of the survival of crocodiles in the wild. For instance, whereas Carruthers concludes that 'conceptualising game as a commodity both within the formal protected estate and on private land' has increased the overall numbers of wild animals and reduced the threat of extinction outside of national parks in South Africa, this is not the case for crocodiles. It is estimated that ninety per cent of

39 (2009): 57–69; for a cautionary note and contrasting evidence: Simon Pooley, 'Using predator attack data to save lives, human and crocodilian', *Oryx: The International Journal of Conservation* **49** (2015): 581-583; and Simon Pooley, 'Human Crocodile Conflict in South Africa and Swaziland, 1949–2014', 23rd CSG Working Meeting, convened at Lake Charles, Louisiana, USA, 25–30 May 2014 (2016): 236–245.

¹⁰⁵ Crocodile Specialist Group, 'Sustainable utilisation', available at: <http://www.iucncsg.org/pages/Sustainable-Utilization.html> Accessed 20 July 2015.

KwaZulu-Natal Province's wild crocodiles (where most of the country's wild crocodiles live) survive within protected areas run by the provincial conservation department.¹⁰⁶

Conservationists voicing concern over the status of Nile crocodiles in countries where they are raised commercially are reassured that there are thousands of crocodiles – on farms. However, these are a poor option for release as they are disease-ridden and poorly equipped for the much harsher circumstances of life in the wild. Crocodiles within and outside protected areas are also under pressure from agricultural and industrial development, notably dam building, irrigation and water pollution and competition with humans for habitat and food.¹⁰⁷

This paper outlines major shifts in European attitudes to Nile crocodiles, particularly in terms of policy and management in the twentieth century. In most cases the shift to sustainable utilisation, and protection in wildlife preserves, has been carried over into postcolonial state policies. However, in many parts of Africa humans coexist with crocodiles outside of protected areas. A more linear narrative of European and colonial and postcolonial institutional interrelations with crocodiles, should not obscure the persistence of a rich diversity of cultural beliefs about, and interrelations with, crocodiles across the continent. Conservationists cannot afford to ignore this diversity in their attempts to reduce conflicts arising from human–crocodile interactions.

In the year in which Zimbabwe got its crocodiles downlisted to Appendix II of CITES (1983), the writer V.S. Naipaul was trying to unravel the 'religious mystery' of the crocodiles kept at the presidential palace at Yamoussoukro by the then-president of Ivory Coast, Félix Houphouët-Boigny. The crocodiles are still there, making headlines when one ate their elderly keeper in 2012.¹⁰⁸ In his 1987 article, Musambachime is intriguingly ambiguous about whether he thinks 'men-crocodiles' (analogous to

¹⁰⁶ Carruthers, 'Wilding the farm', 177. On KwaZulu-Natal crocodiles, pers. comm., Xander Combrinck, Ezemvelo KZN Wildlife, by email, 24 March 2015.

¹⁰⁷ Hannes Botha, W. Van Hoven, L.J. Guillette, Jr, 'The decline of the Nile crocodile population in Loskop Dam, Olifants River, South Africa', *Water SA* **37** (2011): 103–108.

¹⁰⁸ V.S. Naipaul, 'The crocodiles of Yamoussoukro', in *Finding the Centre* (London: Penguin Books, 1985). This was an invented tradition: the president brought the crocodiles to the area. Naipaul found locals less impressed by them on a return visit in 2009, described in *The Masque of Africa* (London: Picador, 2010), pp. 202–204. John James, 'The crocodile feeder of Ivory Coast', 13 September 2012, accessed on 18 July 2015 at: <http://www.bbc.com/news/magazine-19576296>

werewolves) really exist, when he writes that ‘they have existed from time immemorial’ and refers to ‘areas where the men-crocodiles become a menace’.¹⁰⁹

There are still sacred crocodile pools at places like Paga in northern Ghana, Bazoulé in Burkina Faso, Amani in Mali and Bakau in the Gambia, where people co-exist peacefully with crocodiles. In other regions, the erosion of traditional beliefs about and taboos against the utilisation of crocodiles is putting additional pressure on crocodiles outside of protected areas.¹¹⁰ Villagers and crocodiles sharing agro-pastoral dams in northern Benin show quite distinct patterns of coexistence and conflict, reflecting a range of cultural, socio-economic and ecological circumstances.¹¹¹

In the end, no one linear narrative can capture the wealth of interactions of humans and crocodiles. This goes for individuals and for the rivers of genes we label species, across the range of social and ecological contexts they cohabit in Africa. Interdisciplinary studies of the local interactions of humans and crocodiles in cultural and ecological context could greatly benefit efforts to ensure the continued coexistence of humans and crocodiles. These should be informed by a grasp of the wider historical contexts of human—human conflicts over land, identity and natural resources, and the policies and interventions of national and international conservation and development organisations.¹¹²

¹⁰⁹ Musambachime, ‘Fate of the Nile crocodile’, 204–205.

¹¹⁰ For more on contemporary beliefs see Dan Wylie, *Crocodile* (London: Reaktion Books, 2013). In South Africa and Swaziland, crocodile meat – long taboo to local Africans – is now sold commercially: A. Viljoen, ‘Soweto next for Dan’s croc braai’, *The Witness*, 13 March 2014; J. Zulu, ‘Tail most eaten’, *Times of Swaziland*, 5 February 2015.

¹¹¹ G. Nathalie Kpéra, Noelle Aarts, Rigobert C. Tossou, et al., “‘A pond with crocodiles never dries up’: a frame analysis of human–crocodile relationships in agro-pastoral dams in Northern Benin”, *International Journal of Agricultural Sustainability* **12** (2014): 316–333.

¹¹² genetic research suggests the Nile crocodile should be split into two species, providing some credence to stories that ancient Egyptian priests kept the smaller, more amenable species for ceremonial purposes: Evon Hekkala, et al., ‘An ancient icon reveals new mysteries’, 4210.