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Lost African paradises and biodiversity conservation: do not forget history!

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ABSTRACT The lack of a historical perspective may hinder awareness of an existing bias in our knowledge of the world's mammalian diversity and conservation status. Sudan and South Sudan are here utilised as case-study of a huge region that was among the first to be explored by westerners and also saw the first steps of the international conservation movement. Post-colonialism instability exacerbated political and ethnical conflicts, slowing biodiversity research and moving Sudan away from the attention of international ecological research. Today there is a shy regrowth of interest for wildlife conservation in Sudan and South Sudan, and hidden historical data and natural history collections may furnish precious biodiversity information.

KEY WORDS Biodiversity conservation; history; Sudan; South Sudan; Africa; *Erythrocebus poliophaeus*.

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In 1903 the news that Sudan colonial authorities of the so-called Anglo-Egyptian Sudan were to dismiss the Game Reserve along the Sobat River (a tributary of the White Nile) for another reserve to be established elsewhere in Sudan led to a strong opposition among a bunch of British notables, naturalists and game hunters that on December of the same year founded the Society for the Preservation of the Wild Fauna of the Empire (today Fauna & Flora International) (Fitter & Scott, 1978). The reasons why such notable outcome born out from something occurring in what seems today one of the most 'marginal' part of the planet, concerning biodiversity research, caught immediately my attention. It was not Serengeti, it was not Umfolozi nor Kruger but the Sobat in South Sudan, a region with few studies by biologists made as of today. As a result of the controversies, then Anglo-Egyptian Sudan was one of the first African countries to establish protected areas for wild animals. In the Preservation and Wild Animals Ordinance 190311, two reserves were established between the Blue and White Niles where "*no person other than natives of the Sudan residing in the said Sanctuary, and Officers and Officials stationed in the same and having a special permit endorsed on their licence, shall hunt, capture or kill any wild animal or bird*" (Happold, 1966).

This story, which came to me as a surprise, could be of great importance to most of us who are interested in wildlife and biodiversity conservation in Africa. Political, cultural (and geographical) reference points are not forever, so we may discover that nowadays Sudan (both North and South) had a central role as the main route for the exploration – and exploitation – of Africa and his resources (men and ivory, foremost), and naturally for the research of the source of Nile, for all the 19th Century (Gray, 1961) (Fig. 1). We may then suppose that at the end of that Century, the richness and diversity of the wildlife of the Sobat Region

(and more in general of the huge region between the Nile and the Ethiopian plateau), was well appreciated by European explorers and hunters who dedicated well-known monographies to their memories, the first being that of Sir Samuel Baker (Baker, 1867). Hunters from every European country went to Sudan. This made their collections, when preserved to present day, a monument to the historical biodiversity richness of the countries. Also the history of zoological gardens and large scale trade of wild animals is closely linked to Sudan. Local tribes and several European expatriates – including many Italians such as Adolfo Antognoli, Lorenzo Casanova, Leopoldo Ori, etc. – worked for governments and subsequently for the famous German trader Carl Hagenbeck to collect live animals for the western world (Rothfels, 2002; Gippoliti, 2024). The Mahdi rebellion (around 1895–1898) closed Sudan to international trade and tourism for years and partially depleted the richness of wildlife of Sennaar (North-East Sudan). However, later, after the defeat of Mahadist forces, Anglo-Egyptian Sudan became again an Eden for hunters of all over

Figure 1. Map of the area considered in this paper.

the world (Bernatzik, 1927), and an important source of zoo animals (Tuttle, 2023). This may explain the strong response in 1903 to the news coming from Sudan, and the immediate concern of several naturalists, such as the British Museum mammalogist at the Michael Rogers Oldfield Thomas (1858-1929), who were well aware of the 'biodiversity' of the Region. Interestingly, and somewhat paradoxically, scientific collecting in the region was patchy: as I am aware of only one expedition to which a zoologist of a major scientific institution, the Museum of Comparative Zoology of Harward University, took part. This expedition took place in 1913 along the Blue Nile - Dinder Region (Allen, 1914). The discovery of the northern (or Nile) white rhinoceros *Ceratotherium cottoni* at the beginning of the 20th Century (Lydekker, 1908) led to increased exploration and hunting-parties in South-west Sudan and nearby Belgian Congo by the American and European élites, but more complete scientific surveys remained optional and often limited to large mammals (Roosevelt & Heller, 1914). After World War One, what was known as 'British East Africa' (Uganda, Kenya and the former German' Tanganika) gained world relevance first as the final 'safari' destination for hunters and later for broad tourism. Scientific research followed the same route. The biodiversity of Sudan was forgotten, even with the contribution of the over-synthetic attitude of most systematics into the second-half of the 20th Century (Gippoliti et al., 2018). Political unrest closed definitively southern Sudan to external researchers (Siddiq, 2014). While revising the taxonomy of the primate genus *Erythrocebus* in North-East Africa (Gippoliti, 2017), and rediscovering a species that had been forgotten for 155 years - for example, *Erythrocebus poliophaeus* (Reichenbach, 1862) - I became aware of the complicated scientific and political history of Sudan and South Sudan and the adjoining Ethiopia (Fig. 2). The whole area between the Nile and the Ethiopian Highlands appears as both a refugium and a cradle of evolutionary history of which the bovid genus *Alcelaphus*, with the many taxa described and later interpreted as belonging to a huge hybrid zone (Ruxton & Schwarz, 1929; Gippoliti, 2023), may represent a mostly vanished flagship for a neglected biodiversity hotspot. Long inaccessible to the scientific community, the two

Figure 2. A captive adult male of *Erythrocebus poliophaeus*, taxonomically resurrected in 2017 (photo by Jonas Livet).

now-distinct countries of Sudan and South Sudan deserved urgent conservation attention (e.g., Demaya et al., 2019) including a revival of taxonomic interest that has already produced some results (Reeder et al., 2013). Field research may also benefit from a knowledge of the rich historical bibliography, which may furnish precious ecological data at least concerning the relative abundance of large mammals, and a better study of historical natural history collections maintained outside the two countries (Jentke, 2013). Regrettably, the future of these collections is seriously threatened by a lack of awareness of their research value (Andreone et al., 2022). I have no doubts that the gaps existing with mammals is also present, perhaps even wider, in other taxonomic groups. Biodiversity research in Sudan and South Sudan is not only a scientific priority, but it is also essential to establish objective conservation priorities that help to maintain a unique natural heritage on which to base a possible sustainable development for local communities.

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