

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer *Hippopotamus amphibius* from CITES Appendix II to Appendix I, in accordance with:

- Article II, paragraph 1, of the Convention: "Appendix I shall include all species threatened with extinction which are or may be affected by trade;" and
- Resolution Conf. 9.24 (Rev. CoP17), Annex 1, paragraph C: "A marked decline in the population size in the wild, which has been either: i) observed as ongoing or as having occurred in the past (but with a potential to resume); or ii) inferred or projected on the basis of any one of the following: a decrease in area of habitat; a decrease in quality of habitat; levels or patterns of exploitation; a high vulnerability to either intrinsic or extrinsic factors; or a decreasing recruitment."

B. Proponents

Benin, Burkina Faso, Central African Republic, Gabon, Guinea, Liberia, Mali, Niger, Senegal, Togo*

C. Supporting statement

1. Taxonomy

- 1.1 Class: Mammalia
- 1.2 Order: Artiodactyla (Owen, 1848)
- 1.3 Family: Hippopotamidae (Gray, 1821)
- 1.4 Species: *Hippopotamus amphibius* (Linnaeus, 1758)
- 1.5 Scientific synonyms: None
- 1.6 Common names: English: Common hippopotamus
French: Hippopotame commun
Spanish: Hipopótamo anfibio
- 1.7 Code numbers: A-119.003.002.001

2. Overview

The common hippopotamus (hereafter "hippo") is threatened with extinction. The species has been listed as Vulnerable in the IUCN Red List of Threatened Species since 2006; this categorization was confirmed in 2016 under criteria A4acd (Lewison & Pluháček, 2017). Prior to 2006, the species was designated as Least Concern (1996) (Lewison & Pluháček, 2017). Categorization as Vulnerable means that the species is facing a high risk of extinction in the wild and has had a reduction in population size of $\geq 30\%$ over any 10 year or three generation period, whichever is longer (IUCN, 2001).

The criteria for listing a species on CITES Appendix I found in Resolution Conf. 9.24 (Rev. CoP17), Annex 1, paragraph C, is "A marked decline in the population size in the wild;" Annex 5 of the Resolution provides "general guidance" that a marked decline should be 50% or more over the past 10 years or over three generations. However, Annex 5 states, in bold lettering, "**NOTE: Where**

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numerical guidelines are cited in this Annex, they are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology.”

Hippos are particularly vulnerable to overexploitation due to their very low reproductive output; a $\geq 30\%$ decline is marked for the hippo because of this very low productivity. Hippos produce one offspring every other year and have a gestation period of eight months, a lactation period of 12 months (but can be 18 months or longer), and a generation length of 10 years (Eltringham, 1999; Lewison & Pluháček, 2017). Females reach sexual maturity between ages 9 and 10, and first conceive at between ages 7 and 15 (Smuts & Whyte, 1981).

The 2016 IUCN assessment estimated the continental hippo population to be approximately 115,000-130,000 and stable (Lewison & Pluháček, 2017). However, the assessment stated that hippo populations were decreasing or unknown in 25 of 38 (65%) of hippo range States: trends were decreasing in 16, unknown in nine, stable in nine and increasing in only four (Lewison & Pluháček, 2017, Supplementary Information). Population trends for some national populations that were deemed to be stable or increasing in 2016, including in those countries most involved in trade, are now better described as unknown because of outdated studies, or are declining based on more recent studies.

Hippo specimens are legally traded in large numbers. Information in the CITES Trade Database indicates that, between 2009 and 2018, 77,579 hippo specimens without a measurable unit (such as kg; hereinafter “unweighted”) were globally imported from all sources and for all purposes; 98% were of wild source, and the main purposes of trade were commercial (73%), hunting trophy (24%), and personal (3%). Carvings (made from teeth) and teeth (which includes tusks) were the most common types of specimens in trade. Hippo ivory is used for carving and is popular among consumers as it is generally cheaper (Fisher, 2016; Martin & Stiles, 2003) and more easily attainable than elephant ivory. For unweighted hippo specimens, USA (34%) and France (30%) were the largest importers and Tanzania (62%), Zambia (12%), Zimbabwe (10%), Uganda (7%), South Africa (5%) were the largest exporters. An additional 36,113 kg of “weighted” ivory (measured in kg) from wild hippos was globally imported for commercial, hunting trophy, and personal purposes over the same period. For weighted ivory, Hong Kong (72%) and China (18%) were the largest importers and Uganda (42%), Tanzania (33%), and Malawi (19%) were the largest exporters. Hong Kong is the largest re-exporter of unweighted hippo specimens, while China and Hong Kong rank first and second as re-exporters of weighted ivory.

To assess the conservation impact of legal international hippo trade, it is important to understand the number of hippos affected by trade. An estimated minimum of 13,909 hippos’ parts and products were traded 2009-2018.¹ The top countries of origin of hippos whose parts and products were in trade over the period were: Tanzania (an estimated 3,815 hippos, 28% of the estimated total number of hippos in trade over the period); Uganda (3,014, 22%); Zambia (1,897, 14%), and Zimbabwe (1,635, 12%).

The hippo was included in the Review of Significant Trade twice. Of the main exporters of hippo parts and products from 2009 – 2018, the Review resulted in only one, Tanzania, establishing an export quota of 4,800 skins and 10,598 kg, including teeth from 1,2000 animals and hunting trophies. Uganda was not included in the review. The review did not result in recommended changes to management practices for Zambia, Zimbabwe, and South Africa. Mozambique and Cameroon were subject to trade suspensions that were lifted after submission of information and establishment of annual export quotas.

For the hippo, modelling has found that even an offtake of 1% of adults can lead to a high probability of population declines over 30-40 years, when combined with other factors affecting hippos throughout their range such as rainfall variability and habitat loss (Lewison, 2007; Lewison & Pluháček, 2017). At the national level, the estimated number of hippos whose parts and products were legally traded internationally per year during 2009-2018 exceeded 1% in all top countries of origin (Tanzania, Uganda, Zimbabwe, Malawi, South Africa, and Mozambique) except one

¹ Specimens equal to one hippo: 12 teeth without a unit, 5.25 kg weighted ivory, one trophy, one skull, one body, and one live animal.

(Zambia). Furthermore, Tanzania's export quota, for parts and products of 1,200 hippos annually, is 6% of the national population estimate of 20,000, which is concerning given the results of Lewison (2007).

Illegal trade in hippo parts and products, particularly teeth, is extensive. The 2016 IUCN assessment identified "illegal and unregulated hunting for meat and ivory" as a primary threat to the hippo (Lewison & Pluháček, 2017). The proponents are concerned that small and declining populations are being negatively impacted by poaching and trafficking of illegally acquired parts and products, primarily ivory, into legal international trade. For example, there are numerous examples of hippo teeth seizures and arrests since 2016, including several cross-border incidents involving one of the top legal exporters of hippo ivory, Uganda (see Annex, Table 8).

There is strong evidence of the co-mingling of legal and illegal hippo ivory in trade. A recent paper documented major discrepancies in the quantities of hippo ivory reported as imported into Hong Kong SAR versus that reported as exported from Uganda and Tanzania over a decade; the authors expressed serious concern that these discrepancies may indicate that ivory obtained by poaching may be laundered into the legal market (Andersson & Gibson, 2018). The two countries of origin for most legal hippo ivory trade between 2009-2018, Tanzania and Uganda, were also the two countries of origin with the largest quantity of illegally traded hippo ivory (Andersson & Gibson, 2018; Moneron & Drinkwater, 2021).

Legal international trade in hippo parts and products is having a detrimental impact on hippos by providing an avenue to market illegally acquired specimens from poached hippos into trade. Hippo poaching occurs in many range States but is most impactful and noticeable when large numbers of hippos are poached during periods of unrest; militias kill hippos for meat to feed soldiers, and trade in ivory to fund their activities. For example, recent civil war in Democratic Republic of the Congo led to a 95% decline in the hippo population in Virunga National Park (Udahogora et al., 2020; Lewison & Pluháček, 2017). Hippo poaching in Democratic Republic of the Congo also negatively impacted people and their livelihoods. Hippo dung is an important source of food for other aquatic creatures including tilapia, a fish widely consumed in Africa; the hippo population of Lake Edward was severely depleted by poachers, resulting in a loss of the extensive tilapia fishery, fisher's livelihoods, and a key nutrient source for the local people (Esperance, 2018). Hippo populations in Mozambique, Côte d'Ivoire, Sudan, and Central African Republic also have been affected by poaching during civil unrest.

The 2016 IUCN Red List assessment states "[t]he conservation status of Hippos remains precarious and the need for direct conservation action to protect Hippos and Hippo habitat across their range is a priority." Today the hippo meets the biological criteria for inclusion in CITES Appendix I, pursuant to Resolution Conf. 9.24 (Rev. CoP17), Annex 1. Inclusion of the hippo in CITES Appendix I will help ensure that international trade for primarily commercial purposes will not contribute to further declines, and will help range, transit, and consumer/destination countries combat illegal trade.

3. Species characteristics

3.1 Distribution

Hippos inhabit 38 countries in Africa including Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Republic of Congo, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe (Lewison & Pluháček, 2017). The hippo inhabits most of its historic range of 1959, but population sizes have decreased (Lewison & Pluháček, 2017). The species is less widely distributed in West Africa (Lewison & Pluháček, 2017). Hippos are extinct in Algeria, Egypt, Eritrea, Liberia, and Mauritania (Lewison & Pluháček, 2017).

3.2 Habitat

Hippos require fresh water with areas shallow enough for them to stand and be completely submerged and large enough to contain the territories of several males. They live near rivers, lakes and wetlands in forest, savanna and shrubland areas where there are suitable open grasslands for grazing (Lewison & Pluháček, 2017). Habitat selection is highly dependent on season and water availability (Stears et al., 2019).

3.3 Biological characteristics

Hippos are particularly vulnerable to overexploitation due to their very low reproductive output. Compared to other large herbivores with similar breeding cycles, they have a low calf birth rate (ratio of live births to population size in a year) of about 20-36.75% (Eltringham, 1999). Birth rates are affected by environmental conditions; during periods of drought, this rate can drop to 5% (Smuts & Whyte, 1981).

Hippos produce only one offspring every other year and have a generation length of 10 years. Males are polygamous while females typically give birth to one young every other year; they can also produce twins, but this is not common (Eltringham, 1999). The gestation period is approximately eight months, while lactation typically lasts 12 months (Eltringham, 1999), but can be 18 months or longer (Lewison & Pluháček, 2017). Female hippos reach sexual maturity between ages 9 and 10 and first conceive between ages 7 and 15 (Smuts & Whyte, 1981). However, some females have been reported to reach maturity as early as five years old or have their first conception as late as 20 years old, which may be influenced by habitat quality (Sayer and Rakha, 1974; Smuts & Whyte, 1981). Males reach sexual maturity at around ages six and eight years old (Smuts & Whyte, 1981; Dittrich, 1976; Skinner et al., 1975). Although males reach sexual maturity at a relatively young age, they may not breed until they are about 20 years old (Smuts & Whyte, 1981). On average, female hippos have 10 to 12 pregnancies in their lifetime (Eltringham, 1999). Hippos can live up to 50 years (Laws and Clough, 1966; Sayer and Rakha, 1974; Eltringham, 1999).

Hippos spend the day in the water and feed exclusively at night, when they graze on land, most likely due to the ease of thermoregulation while the sun is down (Eltringham, 1999; Estes, 1991; Wright, 1987). An important characteristic of hippos is that they are highly susceptible to loss and degradation of their freshwater habitats, including droughts, which can lead to the spread of disease, low reproductive rates, and high mortality in populations (Acevedo-Whitehouse & Duffus, 2009; Kupika et al., 2017; Lewison, 2007; Stommel et al., 2016; Vuuren, 2016). Large groups of hippos, forced to congregate due to reduced freshwater availability, are thought to facilitate higher rates of disease transmission, resulting in, for example, Anthrax outbreaks (Driciru et al., 2018; Munang'andu et al., 2012; Stears et al., 2021). Below-average rainfall, especially during droughts, results in loss of freshwater habitat and limited forage availability which can lead to high mortality (Smuts & Whyte, 1981; Utete, 2020). Hippo population declines following droughts have been reported in Zimbabwe (Zisadza et al., 2010) and South Africa (Smit & Bond, 2020; Smit et al., 2020; Smuts & Whyte, 1981; Viljoen, 1995). During multiple droughts in South Africa's Kruger National Park, hippo populations decreased substantially (SANParks, 2017; Smit & Bond, 2020). In the most recent drought (2015-2016), 50% of Kruger's resident hippo population died, which was significantly higher than previous droughts, and the death rate for hippos was among the highest of any animals affected by the drought (1982-1983 and 1991-1992) (SANParks, 2017; Smit & Bond, 2020; Viljoen, 1995). Starvation is a primary reason for hippo mortality during droughts, as observed in the most recent 2015-2016 drought in Kruger National Park (Smit & Bond, 2020; Smit et al., 2020). In periods of food scarcity, hippos alter their natural grazing behavior of feeding primarily at night and on nearby open green areas by traveling further distances in search of food and feeding well into the day (Smit & Bond, 2020). Hippos are also forced to wander far from water sources in search of food, which can be futile as evidenced by high rates of mortality and emaciated hippo carcasses (Smit & Bond, 2020).

3.4 Morphological characteristics

Hippos have large barrel-shaped bodies, short legs, large heads and nearly hairless skin. They are adapted for a semi-aquatic lifestyle, as their eyes, ears and nostrils are positioned on top of the head, which allows the hippo to remain almost completely submerged in water (Eltringham, 1999). Male canines can grow up to 50 cm (1.64 ft) and their incisor teeth can grow to 40 cm (1.31 ft) (Estes, 1991). Their stomach, digestive tract and gut flora have evolved to ingest plant matter (Dudley et al., 2016). Their stomach holds two days' worth of plant matter and digestion occurs during the day (Field, 1970). They are non-ruminants but possess a complex four chamber ruminant type stomach, and a foregut fermentation digestive system (Dudley et al., 2016). This digestive system differs from other foregut fermenting ungulates

(Langer, 1988). To permit for prolonged sun exposure, hippos secrete a viscous reddish substance from the subdermal glands that lubricates the skin (Eltringham, 1993, 1999; Estes, 1991; Kingdon, 1979). This substance also blocks the effects of harmful UV rays and some bacteria (Hashimoto et al., 2007; Saikawa et al., 2004).

3.5 Role of species in ecosystem

Hippos are a keystone species that support the structure and functionality of their ecosystems (Dudley et al., 2016; Kanga et al., 2013). They serve as ecosystem engineers as they alter the geomorphology, hydrology and ecosystem connectivity between their aquatic and terrestrial habitats (Mosepele et al., 2009). Hippo grazing also increases habitat diversity, making these areas more favorable for other herbivores (Kanga et al., 2013). During the wet season, their movement between the grassland and water body creates vegetation-free channels that improve water flow and minimize flooding (Mosepele et al., 2009). These channels connect to lagoons which are created in part by the hippo (Mosepele et al., 2009). Lagoons are important for many fish species and aquatic plants because the movement of hippos prevents oxygen depletion (Wolanski & Gereta, 1999). Hippo dung is an important source of food for other aquatic creatures including tilapia, a fish widely consumed in Africa; in Democratic Republic of the Congo, the hippo population of Lake Edward was severely depleted by poachers, resulting in a loss of the extensive tilapia fishery, fisher's livelihoods, and a key nutrient source for the local people (Esperance, 2018).

4. Status and trends

4.1 Habitat trends

Habitat loss and degradation is one of the primary threats to the hippo, along with illegal and unregulated hunting for meat and ivory (canine teeth) (Lewison & Pluháček, 2017). Hippos are forced to compete with humans for freshwater resources, which are increasingly scarce in Africa, and diversion of fresh water for agricultural development and human development around water bodies pose a threat to hippo populations (Cole, 1992; Jacobsen & Kleynhaus, 1993; Viljoen, 1995; Viljoen & Biggs, 1998; Harrison et al. 2007). In West and Central Africa, habitat loss is resulting in population fragmentation, and small, isolated populations are becoming confined to protected areas (Brugière & Scholte, 2013).

4.2 Population size

The 2016 IUCN Red List Assessment estimated that there are approximately 115,000-130,000 hippos extant at that time (Lewison & Pluháček, 2017) (see Annex Table 1). Most hippos occur in Eastern and Southern African countries, with an estimated 50,000 and 60,000 individuals inhabiting each region, respectively. Tanzania and Zambia are the strongholds for hippos in Eastern and Southern Africa, respectively (Lewison & Pluháček, 2017). In West Africa, hippos are less widely distributed and occur at lower densities, with an estimated 7,500 individuals inhabiting the region (Lewison & Pluháček, 2017). National hippo census data are outdated in all the main countries of origin of hippo parts and products in trade (see Section 4.4); for example, the population size for Tanzania provided in the 2016 IUCN assessment was based on a 2001 survey and there is no information in the public domain about a more recent survey. There is a severe lack of hippo population data throughout their range.

Hippo densities are highly variable and dependent on local environmental factors, so accurately estimating populations sizes can be difficult. The IUCN assessments from 2008 and 2016 point to overestimates in previous assessments, which makes accurately tracking long-term population trends difficult. This also raises concern that accurate population estimates are lacking, and that management decisions have been based on overestimated population sizes (Lewison & Pluháček, 2017).

4.3 Population structure

Hippos are gregarious and social when resting in water during the day, gathering in large herds of up to hundreds. Klingel (1991) found that social groups are matriarchal, consisting of females

and juveniles, while males are territorial, tolerating only submissive males within their territory. Karstad & Hudson (1986) studied a hippo population on the Mara River, in southwestern Kenya, and found it was comprised of 8% adult males, 36% adult females, 27% subadults (unsexed), and 29% young. The low proportion of males may be due to voluntary emigration or rival exclusion (Karstad & Hudson, 1986). Due to the difficulty of studying hippo behavior in the wild and identifying individuals, there are very few studies that detail their social relationships.

4.4 Population trends

The 2016 IUCN assessment concluded that the hippo met Vulnerable criteria A4acd (Lewison & Pluháček, 2017) which means that there has been a population decrease of $\geq 30\%$ over any 10 year or three generation period, whichever is longer. The criteria for listing a species on CITES Appendix I found in Resolution Conf. 9.24 (Rev. CoP17), Annex 1, paragraph C, is “A marked decline in the population size in the wild;” Annex 5 of the Resolution provides “general guidance” that a marked decline should be 50% or more over the past 10 years or over three generations. However, Annex 5 states, in bold lettering, “**NOTE: Where numerical guidelines are cited in this Annex, they are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology.**” A $\geq 30\%$ decline is marked for the hippo because of its very low productivity.

The 2016 IUCN assessment estimated the population to be approximately 115,000-130,000 and stable at the continental level but, at the national level, populations were decreasing or unknown in 25 of 38 (65%) hippo range States; trends were decreasing in 16, unknown in nine, stable in nine and increasing in only four (Lewison & Pluháček, 2017, Supplementary Information) (Annex Table 1). Increasing population trends do not signify hippo abundance: one of the increasing populations is in the Democratic Republic of the Congo which is recovering from a loss of 95% of its hippo population to poaching during civil unrest (Hillman Smith et al. 2003).

Even populations in range States denoted as stable or increasing in the 2016 IUCN assessment may no longer be so today due to anthropogenic pressures (Fritsch, 2021; Prinsloo et al., 2020; Utete, 2020). For Uganda, the 2016 IUCN assessment stated that the population trend was increasing. However, the assessment also states there is a lack of hippo population information for Uganda. The assessment reported that the population of Queen Elizabeth National Park once numbered 21,000 hippos but poaching reduced the number to 2,172 in 1989, and that, as of 2016, only 5,000 to 6,000 remained. According to the Wildlife Conservation Society (2022), Lake Edward and Lake George once had 30,000 hippos but now there are only about 6,000. Drasimaku (2021) said that the hippo population of Murchison Falls National Park was 1,683 in 2016 but now is only 590. Fisher (2016) said that most hippo populations in Uganda are not monitored. Therefore, the assessment’s conclusion that Uganda’s hippo population is increasing is questionable.

For Tanzania, the 2016 IUCN assessment stated that the population trend was stable, based on the most recent countrywide population census that was conducted in 2001. The population estimate was 15 years old at the time of the assessment and is now 20 years old. As information on a more recent census could not be found in the public domain, the current population size and trend is best characterized as unknown. Similarly, for Zambia, the 2016 assessment stated that the population trend was stable based on surveys conducted between 2005 and 2008 (Chomba et al., 2013). These surveys are now at least 13 years old. As information on a more recent census could not be found in the public domain, the current population size and trend is best characterized as unknown.

For Zimbabwe, which has a small wild population of only 5,000 hippos, the 2016 IUCN assessment stated that the population trend was stable. However, according to Utete (2020), most of the studies referenced in the 2016 assessment were about hippo populations in protected areas which makes the assessment’s findings limited in scope. Utete summarized Zimbabwe recent hippo population survey results and concluded that the evidence points to “a severe decline in hippo populations.” Therefore, the current Zimbabwe population trend may be declining.

For Malawi, which has a small wild population of only 3,000 hippos, the 2016 IUCN assessment stated that the population trend was stable. Most hippo populations in Malawi are very small, each with no more than about 300 hippos; only one population, in Liwonde National Park, has a larger population of about 2,000 hippos (Lewison & Pluháček, 2017). A 2018 news article about the mass death of hippos at Liwonde provided a population estimate for the park of about 1,950 hippos (Winsor, 2018), possibly indicating a decline since the 2016 assessment. Additional information about the mass death of hippos in the park, or its impact on the population, could not be found in the public domain. The current hippo population trend in Liwonde specifically, or Malawi generally, is best characterized as unknown.

For South Africa, the 2016 IUCN assessment stated that the population trend was stable. However, South Africa's third largest hippo population, in Ndumo Game Reserve, was recently surveyed and found to have far fewer hippos than expected based on previous surveys. Fritsch et al. (2021) estimated the hippo population of Ndumo Game Reserve in 2019 to number only 80 individuals, whereas the 2016 IUCN assessment said there were 200 hippos in the reserve. There is no recent survey information in the public domain regarding the two larger South African hippo populations in Kruger National Park and iSimangaliso Wetland Park. The results of Fritsch et al. (2021) and the lack of current population trend information for other hippo populations in South Africa, mean that the hippo population trend in South Africa is best characterized as unknown.

4.5 Geographic trends

The hippo occupies much of the same range as in 1959 (except for Algeria, Egypt, Eritrea, Liberia, and Mauritania where the species is extinct), but population sizes have declined (Lewison & Pluháček, 2017).

5. Threats

The 2016 IUCN Red List Assessment identified illegal and unregulated hunting for meat and ivory (found in canine teeth) is a primary threat to the hippo (Lewison & Pluháček, 2017). Hippo poaching occurs in many range States but is most impactful and noticeable when large numbers of hippos are poached during periods of unrest; militias kill hippos for meat to feed the soldiers, and to trade in ivory as a source of funding for their activities. Hippos in the Gorongosa National Park were heavily poached (to the point of eradication) for food and ivory to finance the civil war during 1980-1992 (Hatton et al., 2001; Stalmans et al., 2019). During Democratic Republic of Congo's civil wars (1990-1994), Virunga National Park, which once held the highest concentration of hippos in Africa (estimated at 30,000 hippos in 1974), declined by more than 95% due to poaching by militia for human consumption and ivory trade (IUCN & UNEP-WCMC, 2017; IUCN National Committee of The Netherlands, 2019; Gossmann, 2009; Hillman Smith et al., 2003; Kendall, 2011; Kujirakwinja, 2010; Lewison & Pluháček, 2017; Udahogora et al., 2020; UNESCO, 2006). Large numbers of hippos were killed during times of civil unrest in Côte d'Ivoire (Lewison & Pluháček, 2017). Population of hippos have disappeared from the Dinder National Park, Sudan, due to armed commercial poachers (Van Hoven & Nimir, 2004). In southeast Central African Republic and northeast Democratic Republic of Congo, in the Garamba-Bili-Chinko landscape, which includes Garamba National Park and several reserves, there is large-scale hippo poaching and trafficking by armed groups, militia, and militarized poachers; they sell the meat locally, but transport ivory and skins to larger towns and cities (Ondoua Ondoua et al., 2017).

Other threats identified in the assessment are residential and commercial development; agriculture and aquaculture; hunting and trapping; human intrusions and disturbance through war, civil unrest and military exercise; natural system modifications such as through dams and water management and use; and climate change and severe weather including droughts. Ten hippo range States report growing numbers of hippo-human conflicts, which can result in hippo mortality, and the displacement of hippos from protected areas increases the likelihood of human-hippo interaction and therefore conflict (Lewison & Pluháček, 2017).

Hippos are highly dependent on freshwater resources which makes them especially vulnerable to climate change. Due to their dependence on aquatic refuges, they have much smaller home ranges than other African megaherbivores (Stears et al., 2018). During the dry season, hippos move from

dry riverbeds to resources with more water, resulting in larger congregations of hippos (Stommel et al., 2016). Large congregations of hippos are thought to contribute to higher disease transmission, such as large anthrax outbreaks (Driciru et al., 2018). High densities of hippos, constrained by water availability during the dry season, are also correlated with increased mortality due to higher rates of intra-specific aggression (Stommel et al., 2016).

6. Utilization and trade

6.1 National utilization

Hippos are hunted for meat, with hippo consumed as bushmeat in several African countries (Nielsen & Meilby, 2015; Goncalves et al., 2019; De Merode & Cowlshaw, 2006; Thibault & Blaney, 2003; Bitty et al., 2014).

6.2 Legal trade

Between 2009 and 2018, a total of 77,579 hippo specimens without a measurable unit (such as kg; hereinafter “unweighted”) were globally imported from all sources and for all purposes.² Of these, 76,075 specimens (98%) were wild-sourced. The main purposes of this trade were commercial (55,186 or 73%), hunting trophy (17,921 or 24%), or personal (2,290 or 3%). The most common types of unweighted specimens in international trade from 2009-2018 were ivory carvings (25,459) (made from teeth) and teeth (22,657); hippo ivory is used for carving and is popular among consumers as it is generally cheaper (Fisher, 2016; Martin & Stiles, 2003) and more easily attainable than elephant ivory. Other common specimens in trade were skins (8,146), skin pieces (7,161), small leather products (5,552), trophies (4,229), feet (724), skulls (468), large leather products (392) and garments (159). The top importers of unweighted hippo specimens over the period were: USA (25,626 specimens, 34% of the total number of specimens traded globally during the period) and France (22,732, 30%). France was the top importer of unweighted ivory carvings (21,184, 89%); and USA was the top importer of unweighted trophies (2,074, 49%), unweighted teeth (9,093, 40%), skin pieces (5,779, 81%), and small leather products (4,435, 80%). The top countries of origin for unweighted hippo specimens in trade were Tanzania (62%), Zambia (12%), Zimbabwe (10%), Uganda (7%), and South Africa (5%).

In addition to the unweighted specimens discussed in the paragraph above, 36,113 kg of “weighted” ivory from wild hippos was globally imported for commercial, hunting trophy, and personal purposes. The top importers of weighted hippo ivory in trade were Hong Kong (25,933 kg, 72% of global kg imports) and China (6,523 kg, 18%). The top countries of origin of weighted ivory were Uganda (15,285.8 kg, 42%), Tanzania (11,918.1 kg, 33%), and Malawi (6,683 kg, 19%).

A large amount of hippo ivory was re-exported over the period studied (in these cases, the country of origin is different from the country of export). The top five re-exporters of weighted ivory (total of 1230 kg) were: Hong Kong (33% of re-exported ivory), Uganda (31%), South Africa (22%), China (14%), United States (<1%). Top five importers of re-exported, weighted ivory (total of 1230 kg) were: Turkey (46% of imports of re-exported ivory), Hong Kong (31%), United States (16%), Belgium (6%), Spain (1%). Turning to unweighted ivory, the top five re-exporters (total of 30,173 specimens) were: China (53% of re-exported ivory), Hong Kong (37%), South Africa (8%), France (<1%), Zimbabwe (<1%). Top five importers of re-exported, unweighted ivory (total = 30,173 specimens) were: France (71% of imports of re-exported ivory), United States (18%), Belgium (4%), Spain (3%), Italy (2%).

To estimate the number of hippos affected by trade over the decade, this analysis relied only those specimens³ that equate to one hippo, without double counting. Combined, global imports of hippo specimens, both weighted and unweighted, represent an estimated 13,909 hippos (Annex Table 2). Of these, 97% were of wild-source and imported for commercial (T), hunting

² Source: CITES Trade Database, search completed on February 18th, 2021, using the following terms: *Hippopotamus amphibius*, year range 2009-2018.

³ Specimens equal to one hippo: 12 teeth without a unit, 5.25 kg weighted ivory, one trophy, one skull, one body, and one live animal.

trophy (H), and personal (P) purposes (Annex Table 2) and originated from Tanzania (an estimated 3,815 hippos, 28% of the estimated total number of hippos in trade over the period), Uganda (3,014, 22%), Zambia (1,897, 14%), and Zimbabwe (1,635, 12%) (Annex Table 3).

6.3 Parts and derivatives in trade

Hippos are hunted for meat but also for international commercial trade in teeth, tusks, ivory carvings, and skins, and skin products. Hippo ivory is used for carving and is popular among consumers as it is generally cheaper (Fisher, 2016; Martin & Stiles, 2003) and more easily attainable than elephant ivory. According to data from the CITES Trade Database, hippo ivory parts and products and hippo skin parts and products were the two most prominent types of specimens in global trade. Combined, these two categories made up 92% of all specimens globally imported. Ivory parts and products (carvings, ivory pieces, jewelry, and teeth) contributed to 64% of all hippo specimens in trade. Skin products (skins, skin pieces, leather products (small), leather products (large)) contributed to 28% of all hippo specimens traded.

6.4 Illegal trade

Illegal trade in hippo ivory sharply increased following the listing of African elephants on Appendix I of CITES in 1989, with 27,000 kg of hippo ivory illegally exported between 1991 and 1992, an almost 200% increase over the previous two years (Weiler et al., 1994). The 2008 IUCN assessment identified that illegal exports of hippo ivory were increasing (Lewison & Oliver, 2008). Referring to the 2008 IUCN assessment, the 2016 IUCN assessment stated, “this trend continues as hippo teeth and products from hippo teeth have been consistently found with seized ivory and ivory products from elephant tusks” (Lewison & Pluháček, 2017).

Nearly 1,000 kg of hippo specimens and over 6,000 hippo specimens, mostly teeth and ivory carvings, were seized between 2009 and 2018; hippo specimens were seized in 48 countries over the period, with Uganda being responsible for 27% of the seizures, followed by Tanzania, China and Hong Kong SAR (Moneron & Drinkwater, 2021). Seizures and arrests related to hippo ivory were reported in 20 countries between 2016 and 2021, representing the illegal killing of an estimated minimum of 6,755 hippos (Annex Table 8). The CITES Trade Database also contains data on seizures of hippo specimens, with a total of 625 specimens seized by various Parties between 2009 and 2018, the majority of which were seized by the United States.

Andersson & Gibson (2018) found major discrepancies in the quantities of hippo ivory reported as imported into Hong Kong SAR versus that reported as exported from Uganda and Tanzania over a decade. There was a total discrepancy of over 14,000 kg more hippo teeth reported as imported into Hong Kong SAR than were reportedly exported from Uganda between 1995 and 2013. They also found that Hong Kong SAR reported receiving 3,176 kg more hippo teeth (equal to nearly 605 hippos) than reported as exported by Tanzania. Despite attempts by Andersson & Gibson (2018, p. 4) said, “Several attempts were made to contact the CITES MA representatives from Hong Kong, Uganda, and Tanzania, with no response from Uganda or Tanzania (CITES).” The authors expressed serious concern that these discrepancies may indicate that ivory obtained by poaching may be laundered into the legal market (Andersson & Gibson, 2018). The two countries of origin for legal hippo ivory trade between 2009-2018, Tanzania and Uganda,⁴ were also the two countries of origin with the largest quantity of illegally traded hippo ivory (Andersson & Gibson, 2018; Moneron & Drinkwater, 2021). Given the large volume of ivory that continued to be traded after Uganda’s 2014 ban, authorities suspected permits were being falsified and hippos were being poached in Democratic Republic of the Congo before their ivory was exported out of Uganda (Fisher, 2016).

According to import records contained in the CITES Trade Database, hippo parts and products in legal international trade originated in countries where such exports are illegal under national law indicating that illegal parts and products are being laundered into the legal market (Annex, Table 4). Such countries include Burkina Faso, Cameroon, Central African Republic, Democratic Republic of the Congo and Kenya. The CITES Trade Database also revealed that

⁴ Although Uganda reportedly banned hippo ivory export in July 2014 (Moneron & Drinkwater, 2021), according to information contained in the CITES Trade Database, such exports continued thereafter.

there is considerable legal trade in hippo parts and products of “unknown” origin (see Annex Table 5). This includes one shipment of 378 kg of hippo teeth reported as having been imported from Uganda by Hong Kong SAR for commercial purposes; Uganda did not report the export and the origin was reported by Hong Kong SAR as unknown.

As noted in the 2016 IUCN assessment, illegal trade in hippo ivory parts and products is often associated with illegal trade in elephant ivory (Lewison & Pluháček, 2017), and to a lesser extent, other wildlife contraband (such as pangolin scales and leopard skins), weapons and ammunition, and counterfeit money (see Annex Table 8), indicating the involvement of organized and transnational crime syndicates.

As with the trade in elephant ivory, parallel legal and illegal markets exist. There is evidence of hippo poaching, trafficking, and related arrests and seizures, in all 15 countries of origin of hippo parts and products in legal international trade.

6.5 Actual and potential trade impacts

For the hippo, modelling has found that even an offtake of 1% of adults can lead to a high probability of population declines over 30-40 years, when combined with other factors affecting hippos throughout their range such as rainfall variability and habitat loss (Lewison, 2007; Lewison & Pluháček, 2017). However, at the national level, the estimated number of hippos whose parts and products were legally traded internationally per year during 2009-2018 exceeded 1% in all top countries of origin (Tanzania, Uganda, Zimbabwe, Malawi, South Africa, and Mozambique) except one (Zambia) (see Annex Table 4); this does not include illegal offtake which would further increase the percent offtake.

Additional factors that raise concerns about legal hippo exports:

- a) The national population trend is decreasing in five of the 15 countries of origin where hippo parts and products are in legal international trade: Mozambique, Cameroon, Ethiopia, Benin, and Central African Republic.
- b) The minimum national population size is small⁵, in 11 of the 15 countries of origin where hippo parts and products are in legal international trade: Zimbabwe, Malawi, Mozambique, Namibia, Cameroon, Ethiopia, Benin, Burkina Faso, Central African Republic, Kenya, and Democratic Republic of the Congo.
- c) The most recent IUCN assessment (Lewison & Pluháček, 2017) states that there are concerns about the conservation status of hippos in nine of the 15 countries of origin where hippo parts and products are in legal international trade: Zambia, Mozambique, Namibia, Cameroon, Ethiopia, Benin, Central African Republic, Kenya, and Democratic Republic of the Congo.
- d) Except for Cameroon, none of the countries from which legally exported hippo parts and products were exported have a national hippo management plan, which is important not only to ensure that hippo offtake is not detrimental, but also to ensure that hippo habitats are protected.
- e) Criminality Scores for Wildlife Crimes (Global Initiative Against Transnational Organized Crime, 2021) indicate that wildlife law enforcement is poor to very poor in 13 of the 15 countries of origin where hippo parts and products are in legal international trade, and this raises red flags about regulation of hippo offtake and trade in those countries.
 - Eight of the 15 countries of origin have high Criminality Scores for Fauna Crimes (scores ≥ 7.50): Tanzania, Zimbabwe, South Africa, Mozambique, Cameroon, Central African Republic, Kenya, and Democratic Republic of the Congo.
 - Another five have above average Criminality Scores (between 5.00 – 7.49): Uganda, Malawi, Ethiopia, Benin, Burkina Faso.
- f) Hippo parts and products in legal international trade 2009-2018 originated in five countries where such exports are illegal: Burkina Faso, Cameroon, Central African Republic, Democratic Republic of the Congo, and Kenya.

⁵ Resolution Conf. 9.24 (Rev. CoP17), Annex 5, p. 11: less than 5,000 individuals.

- g) There is evidence of hippo poaching, trafficking, and related arrests and seizures, in all 15 countries of origin where hippo parts and products are in legal international trade.
- h) With increasing emphasis on closing elephant ivory markets, demand for hippo ivory may increase with corresponding increases in both illegal and legal trade.

7. Legal instruments

7.1 National

Hippos are officially protected in many range States, but the level of enforcement of those regulations remains poor in many countries (Lewison & Pluháček, 2017). The hippo is totally protected from hunting for commercial or other purposes in 14 range States: Angola, Burkina Faso, Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea Bissau, Kenya, Niger, Nigeria, Rwanda, Senegal, and Somalia (Annex Table 6). The hippo is partially protected, meaning hunting for commercial or other purposes can occur under a permit, in all other range States including the top countries of origin of hippo specimens in trade, except Equatorial Guinea where, apparently, there are no specific regulations concerning the removal of hippos from the wild (Annex Table 6).

7.2 International

The only international instrument relating to the hippo is CITES. The hippo was listed on CITES Appendix II at CoP9 in 1994, based on a proposal submitted by Belgium, Benin, and France. Hippos have been the subject of CITES Animal Committee Review of Significant Trade (RST) two times: first in 1999 and second in 2008. Of the main exporters of hippo parts and products from 2009 – 2018, the Review resulted in only one, Tanzania, establishing an export quota of 4,800 skins and 10,598 kg, including teeth from 1,200 animals and hunting trophies. Uganda was not included in the review. The review did not result in recommended changes to management practices for Zambia, Zimbabwe, and South Africa. Mozambique and Cameroon were subject to trade suspensions that were lifted after submission of information and establishment of annual export quotas.

8. Species Management

8.1 Management measures

None of the range States involved in the legal hippo trade, except Cameroon, have national hippo management plans, which are important not only to ensure that hippo offtake is not detrimental, but also to ensure that hippo habitats are protected. The IUCN Hippo Specialist Group has called for regional action plans for hippo conservation including coordination across West, Central and East Africa (Lewison & Pluháček, 2020).

8.2 Population monitoring

Hippo population monitoring and censuses have been conducted sporadically, but existing data are outdated for many countries, while no formal, country-specific hippo census has been conducted recently in several range States (Lewison & Pluháček, 2017). The result is a lack of long-term hippo population monitoring data (Lewison & Pluháček, 2017; and see, for example, Eksteen et al., 2016).

8.3 Control measures

8.3.1 International

Other than CITES, and the CITES Parties' domestic implementing legislation, there are no international measures in place to control movement of hippo specimens across international borders. There are no known marking schemes for hippo specimens.

8.3.2 Domestic

Regarding controls in the range States aimed at ensuring a sustainable harvest from the wild, as CITES Parties, the countries of origin of hippo specimens in trade are required to make non-detriment findings before issuing a CITES export permits. Hippos have been the subject of CITES Animal Committee Review of Significant Trade (RST) two times: first in 1999 and second in 2008. The RST resulted in recommendations on how to ensure that hippo trade is not detrimental to wild populations to many Parties over the years. However, despite CITES' efforts, the conservation status of the hippo has continued to deteriorate as evidenced by the fact that in 1996 the species was categorized as Lower Risk / Least Concern, while the current categorization is Vulnerable (Lewison & Pluháček, 2017). Extensive legal and illegal trade, and poaching continue to threaten the survival of the species (see Section 6 of this proposal).

Several range States have established voluntary export quotas for hippo specimens (CITES, n.d.). For 2022 (as of February 24, 2022), the export quotas are: Cameroon: 10 trophies; Ethiopia: 20 kg raw ivory, 20 kg worked ivory, 6 hunting trophies of wild specimens; and Tanzania: 10,598 kg, including teeth from 1,200 animals and hunting trophies. The scientific basis of these voluntary export quotas is unknown. It is concerning that only three of the top ten countries of origin of hippo specimens in trade 2009-2018 have established voluntary export quotas. Furthermore, the Tanzania export quota amounts to 6% of the national population (1,200 of 20,000) which is far greater than the 1% adult offtake that can lead to a high probability of population declines over 30-40 years, when combined with other factors affecting hippos throughout their range such as rainfall variability and habitat loss (Lewison, 2007; Lewison & Pluháček, 2017); a 1% offtake would be 200 hippos, not 1,200.

Furthermore, except for Cameroon, no range State has a national hippo management plan in place.

In addition to over-utilization for legal trade, despite legal protection and enforcement efforts, illegal and unregulated hunting of hippos is a primary threat to the species indicating the inadequacy of these measures (Lewison & Pluháček, 2017) (see Section 6 of this proposal).

Hippo range States have various levels of criminality pertaining to fauna (Annex Table 6). Three of the top six countries of origin of hippo specimens in trade 2009-2018 have very high 2021 criminality scores for fauna: Tanzania, 8.00 (on a scale of 0 to 10); South Africa, 7.50; and Zimbabwe, 7.50. Two top countries of origin of hippo specimens in trade had higher than average criminality scores: Uganda, 6.50 and Malawi, 6.00.

According to the CITES Trade Database, wild-source hippo specimens in trade for commercial, hunting trophy, and personal purposes between 2009 and 2018 included those that originated in range States where hippos are totally protected. These countries are: Burkina Faso (one trophy which is equivalent to one hippo⁶), Cameroon (11 trophies and 199 teeth which are equivalent to 28 hippos), Central African Republic (one trophy which is equivalent to one hippo), Democratic Republic of the Congo (three kg of ivory which is equivalent to one hippo), and Kenya (12 teeth which is equivalent to one hippo).

8.4 Captive breeding

Hippos are bred in zoos. There are no known commercial breeding operations.

⁶ Specimens equal to one hippo: 12 teeth without a unit, 5.25 kg weighted ivory, one trophy, one skull, one body, and one live animal.

8.5 Habitat conservation

Throughout their range, hippos occur in protected areas including national parks and reserves (Annex Table 7). However, war and civil unrest have affected protected areas across Africa; armed conflicts occurred in 71% of all Afrotropical Protected Areas between 1946 and 2010 (Daskin & Pringle, 2018). Increased awareness raising, enforcement and other protection efforts of hippos outside protected areas is crucial for effective management and conservation of the species (Utete, 2020; Baker et al., 2020b; Adoukè, Kpéra, Djagoun, Kassa, & Mensah, 2021; Kanga et al., 2013).

8.6 Safeguards

Not relevant.

9. Information on similar species

The pygmy hippopotamus (*Choeropsis liberiensis*) is similar in overall appearance but is a fraction of the size of the common hippo. Further, pygmy hippos are very reclusive, nocturnal animals that share only a small area of overlapping range with the common hippo in West Africa (Ransom et al., 2015). Common hippo teeth are much larger than those of the pygmy hippo, and the former are more common in the ivory trade (Baker et al., 2020a). However, small common hippo teeth may appear similar to pygmy hippo teeth in trade (Baker et al., 2020a). With careful examination, hippo teeth can be easily distinguished from ivories of other species including Asian and African elephant, mammoth, walrus teeth and tusks, orca/sperm whale, narwhal, and warthog (Baker et al., 2020a).

10. Consultations

On 31st March 2022, Benin sent a range States consultation letter to all hippo range States. Written replies were received from Mali and Uganda. The proposal was discussed at the Africa Group consultation meeting held in Gaborone, Botswana from 19-21 May. It was also presented to the ECOWAS States at a coordination meeting held from 25 to 27 May 2022 where it received the support from the Member States.

11. Additional Remarks

None.

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Annex 1

Table 1. Population status of the hippo by country and regional (from Lewison & Pluháček, 2017, Supplementary Material).

West Africa	Country	Status ⁷	Trend	Estimated Population Size
	Benin	RD-LA	Decreasing	500
	Burkina Faso	RD-LD	Increasing	1,500-2,000
	Cameroon	RD-LD	Decreasing	1,500-2,000
	Central African Republic	RD-LD	Decreasing	200-500
	Chad	RD-LD	Stable	500
	Congo	RD-LD	Decreasing	50
	Equatorial Guinea	RD-LD	Unknown	50-100
	Gabon	RD-LD	Decreasing	200-300
	Gambia	RD-LD	Unknown	40
	Ghana	RD-LD	Unknown	150-200
	Guinea	RD-LA	Decreasing	500
	Guinea Bissau	RD-LD	Decreasing	200-500
	Côte d'Ivoire	RD-LD	Decreasing	500-600
	Mali	RD-LD	Unknown	100
	Niger	RD-LA	Unknown	150-200
	Nigeria	RD-LD	Decreasing	100-200
	Senegal	RD-LA	Unknown	500
	Sierra Leone	RD-LD	Unknown	100-200
	Togo	RD-LD	Unknown	250-500
TOTAL				7,090 – 9,490
East Africa	Country	Status	Trend	Estimated Population Size
	Burundi	RD-LD	Unknown	500-1,000
	Democratic Republic of Congo	RD-HD	Increasing	5,000
	Ethiopia	W-LD	Decreasing	2,500
	Kenya	W-LA	Stable	5,000-7,000
	Rwanda	RD-LA	Stable	1,000
	Somalia	RD-LD	Decreasing	50
	South Sudan	RD-LD	Decreasing	2,000-3,000
	Sudan	RD-LD	Decreasing	Unknown
	Tanzania	W-LA	Stable	20,000
	Uganda	W-LA	Increasing	7,000-10,000
TOTAL				43,050 – 49,550
Southern Africa	Country	Status	Trend	Estimated Population Size
	Angola	RD-LD	Decreasing	500
	Botswana	RD-LD	Decreasing	2,000-4,000
	Malawi	RD-LD	Stable	3,000
	Mozambique	RD-LD	Decreasing	3,000
	Namibia	RD-LA	Increasing	3,500
	South Africa	RD-LA	Stable	7,000
	Eswatini (Swaziland)	RD-LD	Stable	150
	Zambia	W-LA	Stable	40,000-45,000
	Zimbabwe	RD-LA	Stable	5,000
TOTAL				64,150 – 71,150
GRAND TOTAL				114,290-130,190

⁷ Status: W = widespread; RD = restricted distribution; LD = low density; HD = high density; LA = locally abundant

Table 2. Global imports of hippos, all sources and purposes versus select sources and purposes, 2009-2018.

Global imports of hippos, 2009-2018, all sources and all purposes						
Ivory (kg)	Teeth	Trophies	Bodies	Live	Skulls	Total Hippos
37,316 ÷ 5.25kg (average weight per hippo)	22,864 (no unit) ÷ 12 (number of teeth per hippo)	4,289 trophies	17 bodies	124 live	465 skulls	=13,909
= 7,107.8 = 7,108 hippos	= 1,905.3 = 1,906 hippos	= 4,289 hippos	= 17 hippos	= 124 hippos	= 465 hippos	=13,909 hippos
Global imports of hippos, 2009-2018, wild source and commercial, hunting trophy, and personal purposes						
Ivory (kg)	Teeth	Trophies	Bodies	Live	Skulls	Total Hippos
36,113 ÷ 5.25kg (average weight per hippo)	22,526 (no unit) ÷ 12 (number of teeth per hippo)	4,210 trophies	9 bodies	65 live	456 skulls	=13,495.9
= 6,878.7 = 6,879 hippos	= 1,877.2 =1,877 hippos	= 4,210 hippos	= 9 hippos	= 65 hippos	= 456 hippos	=13,496 hippos

Source: CITES Trade Database, search completed on February 18, 2021, using the following terms: *Hippopotamus amphibius*, year range: 2009-2018, all importing countries. Data were subset by country of origin to include only hippo range States. Top table filtered for all sources, all purposes, 'ivory (kg)' terms: "carvings," "ivory carvings," "ivory pieces," "jewelry," "jewelry—ivory," "teeth," and "tusk" with weighted units; and terms: "teeth" (terms "teeth" and "tusk"), "bodies," "live," "skulls," and "trophies" with no unit (blank value). Bottom table filtered for source: wild ("W"), and purpose: commercial ("T"), hunting trophy ("H"), and personal ("P"), 'ivory (kg)' terms: "carvings," "ivory carvings," "ivory pieces," "jewelry," "jewelry—ivory," "teeth," and "tusk" with weighted units; and terms: "teeth" (terms "teeth" and "tusk"), "bodies," "live," "skulls," and "trophies" with no unit (blank value). Totals are based on global imports.

Table 3. Global imports of individual hippos by range State country of origin, 2009-2018.

Country of Origin	Number of Hippos by Purpose			Total number of Individual Hippos Imported	% of Total Global Imports of Individual Hippos
	Commercial	Hunting Trophy	Personal		
Tanzania	2,548	1,140.8	125.8	3,814.6	28%
Uganda	2,991.7	20.5	2	3,014.2	22%
Zambia	635.2	1,203.9	57.5	1,896.6	14%
Zimbabwe	119.5	1,436.4	79.3	1,635.2	12%
Malawi	1,273	6	0	1,279	9%
South Africa	274	866.1	70.5	1,210.6	9%
Mozambique	1	310.1	1	312.1	2%
Namibia	11	269.4	10.1	290.5	2%
Cameroon	0	27.7	0	27.7	<1%
Ethiopia	0	7.5	0	7.5	<1%
Benin	0	3.1	1	4.1	<1%
Burkina Faso	0	1	0	1	<1%
Central African Republic	0	1	0	1	<1%
Kenya	0	0	1	1	<1%
Democratic Republic of the Congo	0	0	0.6	0.6	<1%
Botswana	0.5	0	0	0.5	<1%
Nigeria	0	0	0.1	0.1	<1%
TOTAL	7,853.9	5,293.5	348.9	13,496.3 = 13,496	100%

Table 4. Evidence of overutilization of hippos in countries of origin of specimens in trade for legal commercial, hunting trophy and personal purposes, 2009-2018.

Country of Origin	1% of Min. Pop. Size ⁸	No. of Hippos Exported Each Year 2009-2018 ⁹ (rounded)	Exports ≥1% of Min. Pop. Size Per Year on Average?	Exports Legal? ¹⁰	IUCN Pop. Trend ¹¹	IUCN Concern? ¹²	Criminality Score for Fauna Crimes (10 is the highest level of criminality) ¹³	Evidence of Poaching and Trafficking? ¹⁴
Tanzania	200	382	Yes	Yes	Stable	No	8.00	Yes
Uganda	70	302	Yes	Yes	Increasing	No	6.50	Yes
Zambia	400	190	No	Yes	Stable	Yes	4.50	Yes
Zimbabwe	50	164	Yes	Yes	Stable	No	7.50	Yes
Malawi	30	128	Yes	Yes	Stable	No	6.00	Yes
South Africa	70	122	Yes	Yes	Stable	No	7.50	Yes
Mozambique	30	32	Yes	Yes	Decreasing	Yes	8.00	Yes
Namibia	35	29	No	Yes	Increasing	Yes	4.50	Yes
Cameroon	15	3	No	No	Decreasing	Yes	7.50	Yes
Ethiopia	25	<1	No	Yes	Decreasing	Yes	5.50	Yes
Benin	5	<1	No	Yes	Decreasing	Yes	5.50	Yes
Burkina Faso	15	<1	No	No	Increasing	No	6.00	Yes
Central African Republic	2	<1	No	No	Decreasing	Yes	8.00	Yes
Kenya	50	<1	No	No	Stable	Yes	7.00	Yes
Democratic Republic of the Congo	50	<1	No	No	Increasing	Yes	8.00	Yes

Table 5. International trade in hippo parts and products of unknown origin, 2009-2018.

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2011	Hong Kong	Uganda	Unknown	378	0	teeth	kg	T	W
2012	United Arab Emirates	Tanzania	Unknown	13	0	trophies		P	W
2012	United Arab Emirates	South Africa	Unknown	12	0	teeth		P	W
2015	South Africa	Mexico	Unknown	12	0	teeth		H	W
2015	South Africa	United States	Unknown	12	0	teeth		H	W
2012	South Africa	Denmark	Unknown	4	0	teeth		H	W
2016	United States	Zambia	Unknown	3	0	teeth		P	W

⁸ See Annex Table 1 for population size of each country of origin per 2016 IUCN assessment.

⁹ See Annex Table 3 for estimated number of hippos in trade from each country of origin.

¹⁰ See Annex Table 6.

¹¹ See Annex Table 1 for population trend for each country of origin per 2016 IUCN assessment.

¹² See Annex Table 1 for conservation concern per 2016 IUCN assessment.

¹³ Global Initiative Against Transnational Organized Crime, 2021. Global Organized Crime Index. <https://ocindex.net/>. Globally, the highest fauna criminality scores are for China (9.0), Brazil (8.50), and Viet Nam (8.50). The following hippo range States have the next highest fauna criminality scores (8.0): Central African Republic, Democratic Republic of Congo, Mozambique, and Tanzania. Hippo range States with a fauna criminality score of 7.5 are: Botswana, Cameroon, South Africa, and Zimbabwe.

¹⁴ See Annex Table 8.

Year	Importer	Exporter	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2012	United Arab Emirates	Tanzania	Unknown	2	0	teeth		H	W
2012	South Africa	Canada	Unknown	2	0	teeth		P	W
2015	South Africa	United States	Unknown	2	0	skulls		H	W
2015	South Africa	United States	Unknown	2	0	trophies		H	W
2009	Namibia	United States	Unknown	1	0	trophies		P	W
2009	United States	South Africa	Unknown	1	0	teeth		P	W
2011	United States	Switzerland	Unknown	1	0	ivory carvings		T	W
2012	United States	Canada	Unknown	1	0	ivory carvings		P	W
2015	Panama	United States	Unknown	1	0	teeth		H	W
2015	South Africa	Mexico	Unknown	1	0	skulls		H	W
2018	Guernsey	Jersey	Unknown	1	0	carvings		T	W
2009	Germany	United States	Unknown	0	1	ivory carvings		T	W
2018	France	Guernsey	Unknown	0	1	ivory carvings		T	W
2015	New Zealand	Australia	Unknown	0	2	teeth		P	W
2012	Saudi Arabia	Nepal	Unknown	0	12	teeth		P	W

Source: CITES Trade Database, search completed on February 18, 2021, using the following terms: *Hippopotamus amphibius*, year range: 2009-2018.

Table 6. Legal protection and criminality score of hippo range States.

Range State	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes ¹⁶ (10 is highest level of criminality)
Angola	Unknown	Hunting prohibited (since 2016). ¹⁷	4.50
Benin	Unknown	Males are partially protected (since 2011); hunting and capture of males allowed by permit; females and young totally protected. ¹⁸	5.50
Botswana	Total protection	Partially protected (since 2008); hunting, capture, utilization allowed by permit; no age or sex restrictions. ¹⁹	7.50
Burkina Faso	Total protection	Totally protected (since 1996); hunting for recreational or commercial purposes prohibited. ²⁰	6.00

¹⁵ See Lewison & Pluháček (2017)

¹⁶ Global Initiative Against Transnational Organized Crime, 2021. Global Organized Crime Index. <https://ocindex.net/>. Globally, the highest fauna criminality scores are for China (9.0), Brazil (8.50), and Viet Nam (8.50). The following hippo range States have the next highest fauna criminality scores (8.0): Central African Republic, Democratic Republic of Congo, Mozambique, and Tanzania. Hippo range States with a fauna criminality score of 7.5 are: Botswana, Cameroon, South Africa, and Zimbabwe.

¹⁷ Decreto Ejecutivo Conjunto n.º 201/16 de 26 de Abril de 2016, <http://extwprlegs1.fao.org/docs/pdf/ang155323.pdf>.

¹⁸ https://www.laga-enforcement.org/media/legal_library/Benin/Legal_Benin_Book_Fr.pdf.

¹⁹ FAO, FAOLEX Database, Botswana. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC004728>.

²⁰ FAO, FAOLEX Database, Burkina Faso. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC004885>.

Range State	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes ¹⁶ (10 is highest level of criminality)
Top six hippo exporters in BOLD			
Burundi	Partial protection	Partially protected (since 1937); hunting allowed by permit; no age or sex restrictions. ²¹	4.50
Cameroon	Total protection	Totally protected (since 2006); hunting for subsistence, recreational or commercial purposes prohibited. ²²	7.50
Central African Republic	Unknown	Totally protected (since 1984); hunting or capture prohibited. ²³	8.00
Chad	Unknown	Partially protected for adult males (since 2008); only adult males may be hunted by permit; females and young totally protected. ²⁴	3.50
Congo	Unknown	Totally protected from hunting (since 2008). ²⁵	7.00
Côte d'Ivoire	Unknown	Partially protected for adult males; can be hunted or captured under a license or permit (since 1965); females and young totally protected. ²⁶	6.50
Democratic Republic of Congo	Unknown	Totally protected from capture, hunting, harassing, and deliberate killing (since 2006); illegal to detain, give, sell, exchange, transport any products announcing to contain a product derived from hippos and illegal to publicly exhibit these specimens. ²⁷ However, reportedly, a decree ²⁸ issued in July 2020 established a permit system for hunting of totally protected species including hippo.	8.00
Equatorial Guinea	Partial protection	Not protected. ²⁹	5.00
Eswatini	Total protection	Partially protected (since 1991); ³⁰ can be hunted and traded under permit; possession of trophies or raw products allowed under permit; no age or sex restrictions.	2.00

²¹ FAO, FAOLEX Database, Burundi. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC004492> .

²² FAO, FAOLEX Database, Cameroon. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC195744>.

²³ Ordonnance N° 84.045 du 27 juillet 1984 portant protection de la faune sauvage et règlementant l'exercice de la chasse en République Centrafricaine. <https://cf.chm-cbd.net/implementation/loisnation/legislation-faunique-et-cyvegetique/codefaunerca84.pdf> .

²⁴ Law n° 14/PR/2008 on forests, wildlife regime and fish resources and order n°14-63 du 23 mars 1963 regulating hunting and ensuring nature protection listing animals integrally and partially protected. <https://docplayer.fr/55783446-Loi-n-14-pr-2008-portant-regime-des-forets-de-la-faune-et-des-ressources-halieutiques.html> and <http://extwprlegs1.fao.org/docs/pdf/cha4171.pdf> .

²⁵ Law n° 37-2008 on fauna and protected areas and order n° 6075 of 9 April 2011 listing animals integrally and partially protected. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC086726> and <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC105724>.

²⁶ Law n° 65-225 related to fauna protection and hunting activities. <https://www.eagle-ivorycoast.org/wp-content/uploads/2017/07/TEXTES-REGISSANT-LA-PROTECTION-DE-LA-FAUNE-RCI.pdf> + <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC089113>

²⁷ Law n° 14/003 of 11 February 2014 related to nature conservation + order n° 020/CAB/MIN/ECN-EF/2006 listing protected species in DRC. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC140376> + <https://www.droitcongolais.info/7a-subdivision-n%C2%B0-rs-71-734.html> .

²⁸ Decree n° 006 / CAB / MIN / EDD / 2020 and n° CAB / MIN / FINANCES / 2020/069 of July 24, 2020; <https://savevirunga.com/2021/08/09/environmental-civil-society-urges-dr-congo-to-reverse-pay-to-poach-decision/>

²⁹ AC25 Doc. 9.4 Annex, <https://speciesplus.net/api/v1/documents/1698> : "The CITES MA of Equatorial Guinea (Engonga Osono pers. comm. to UNEP-WCMC, 2010) reported that there were no specific regulations concerning the extraction H. amphibius from the wild."

³⁰ Game (Amendment) Act, 1991 (Act No. 4 of 1991). <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC019265> .

Range State	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes ¹⁶ (10 is highest level of criminality)
Top six hippo exporters in BOLD			
Ethiopia	Total protection	Adult males partially protected (since 2009); hunting and export allowed under permit; females and juveniles totally protected. ³¹	5.50
Gabon	Total protection	Totally protected (since 2011); hunting, capture, possession, commercialization or transport is prohibited. ³²	7.00
Gambia	Total protection	Partially protected (since 2003); except in protected areas, male and female adult hippos can be hunted with a valid license; immature animals and females with young are totally protected; export is allowed under permit; domestic sale is not allowed. ³³	3.5
Ghana	Total protection	Totally protected from hunting, capturing or destruction (since 1971). ³⁴	6.00
Guinea	Total protection	Partially protected (since 2018); can be hunted if authorized by the authority in charge of wildlife and protected areas. ³⁵	6.00
Guinea Bissau	Total protection	Totally protected (since 2004). ³⁶	5.50
Kenya	Total protection	Totally protected (since 2013); hunting, killing, capturing, wounding with intent to hurt a hippo is forbidden; import/export of hippo prohibited. ³⁷	7.00
Malawi	Unknown	Adult males and females, partially protected (since 1994); hunting and taking are allowed under license; export allowed under permit; dependent young and females with dependent young are totally protected from hunting. ³⁸	6.00
Mali	Unknown	Partially protected from 1995 until 2019; now totally protected. ³⁹	5.50

³¹ Wildlife Development, Conservation and Utilization Council of Ministers Regulations No. 163/2008.

<http://extwprlegs1.fao.org/docs/pdf/eth136632.pdf> .

³² Decree No. 0164/PR/MEF of January 19, 2011. <http://extwprlegs1.fao.org/docs/pdf/gab143605.pdf>

³³ Biodiversity and Wildlife Act, <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC158129> .

³⁴ Wildlife Conservation Regulations, 1971 (L.I. 685) <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC158129>

³⁵ Ordinary Law N° 2018/0049/AN codifying the protection of wild fauna and regulation hunting activities.

<https://www.fao.org/faolex/results/details/en/c/LEX-FAOC202413>

³⁶ Decree-Law No. 2/2004 establishing the basic norms for protection, promotion and exploitation of Wildlife.

<http://www.fao.org/faolex/results/details/en/c/LEX-FAOC119745>

³⁷ Wildlife Conservation and Management Act, 2013 (No. 47 of 2013) + Wildlife Conservation and Management (Protection of Endangered and Threatened Ecosystems, Habitats and Species) Regulations, 2017 (L.N. No. 242 of 2017).

<http://www.fao.org/faolex/results/details/en/c/LEX-FAOC134375> and <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC170719> .

³⁸ National Parks and Wildlife (Protected Species) (Declaration) Order, 1994 (G.N. No. 89 of 1994), National Parks and Wildlife Act (Act No. 11 of 1992), and National Parks and Wildlife (Amendment) Act, 2017 (No. 11 of 2017).

<http://www.fao.org/faolex/results/details/en/c/LEX-FAOC004733>, <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC006885>, and <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC169263> .

³⁹ Since 1995, the common hippo was partially protected (<http://extwprlegs1.fao.org/docs/pdf/mli4015.pdf>), and hunting and capture allowed under license. Since 2019, the common hippo has been integrally protected (Decree n°2019-0887/P-RM of 05 November 2019, p. 1612; <https://sgg-mali.ml/JO/2019/mali-jo-2019-41.pdf>). As such, hippos cannot be hunted and trade, sale, offering for sale of hippo products is forbidden. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC180235>.

Range State	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes ¹⁶ (10 is highest level of criminality)
Top six hippo exporters in BOLD			
Mozambique	Total protection	Partially protected (since 1999); ⁴⁰ adults of either sex may be hunted, including for sport or commerce; as of 2017, young, pregnant females or females with their young are totally protected. ⁴¹	8.00
Namibia	Partial protection	Partially protected (since 1975); ⁴² can be hunted under permit; ⁴³ no age or sex restrictions.	4.50
Niger	Unknown	Totally protected (since 1998); ⁴⁴ cannot be hunted for commercial purposes; law provides for sport hunting under Ministerial decree, but there is no such decree; Niger reportedly banned hunting, including hippos, in January 2001. ⁴⁵	4.50
Nigeria	Partial protection	Totally protected (since 1991); ⁴⁶ cannot be killed, hunted or captured except under special license issued for scientific or administrative purposes in exceptional circumstances; immature or female hippos accompanied by their young cannot be killed.	6.50
Rwanda	Total protection	Totally protected (since 2008); ⁴⁷ cannot be hunted, sold, injured, or killed. ⁴⁸	5.00
Senegal	Total protection	Totally protected (since 1986); ⁴⁹ generally cannot be hunted or captured.	7.00
Sierra Leone	Unknown	Partially protected (since 1972); ⁵⁰ classified as a "game animal" which allows hunting of adults under license; no age or sex restrictions.	6.50
Somalia	Unknown	Totally protected (since 1969); ⁵¹ generally cannot be hunted, killed, or captured.	4.50

⁴⁰ Law No. 16/2014 on Protection, Conservation and Sustainable Use of Biodiversity (<http://www.fao.org/faolex/results/details/en/c/LEX-FAOC168082>) and Law No. 10/99 on Forest and Wildlife Act (<https://www.fao.org/faolex/results/details/en/c/LEX-FAOC020106>).

⁴¹ Decreto n.º 82/2017 de 29 de Dezembro approving the hunting regulation. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC196855>.

⁴² Nature Conservation General Amendment Act, 1990. <http://extwprlegs1.fao.org/docs/pdf/nam50360.pdf>

⁴³ Nature Conservation Ordinance, 1975 (No. 4 of 1975). <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC018007>

⁴⁴ Law n° 98-07 establishing hunting and wildlife protection regime. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC080736>

⁴⁵ Niger bans hunting. BBC News, 29 January 2001. <http://news.bbc.co.uk/2/hi/africa/1143545.stm>

⁴⁶ Wild Animals Preservation Law. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC194026>.

⁴⁷ Ministerial Decree n° 007/2008 establishing the list of protected animal and plant species https://www.primature.gov.rw/index.php?id=42&no_cache=1&L=152&tx_drblob_pi1%5BdownloadUid%5D=580.

⁴⁸ Law N°48/2018 of 13/08/2018 on environment. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC093799>

⁴⁹ Decree No. 86-844 on the Hunting and Wildlife Protection Code - Regulatory Part. + Law No. 86-04 on Hunting and Nature Protection Code.

⁵⁰ Wildlife Conservation Act, 1972 (No. 27 of 1972). <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC041659>

⁵¹ Law on Fauna (Hunting) and Forest Conservation (No. 15 of 1969).

Range State Top six hippo exporters in BOLD	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes¹⁶ (10 is highest level of criminality)
South Africa	Total protection	Partially protected (since: unknown); ⁵² export requires permit issued by national authority; no other national-level management or protection (Kruger National Park culls hippos); some provincial and local management plans and policies exist especially for killing hippos as damage-causing animals; ⁵³ killed for hunting trophies, population management and as damage-causing animals.	7.50
South Sudan	Partial protection	Partially protected (since 2003); ⁵⁴ can be hunted or captured with license, permit or written authorization; no restrictions based on age or sex.	7.00
Sudan	Partial protection	Partially protected (since 1986); can be hunted under license; purchase and sale of hippo parts is permissible. ⁵⁵	5.50
Tanzania	Total protection	Partially protected (since 2009); ⁵⁶ hippos may be hunted, captured, and exported under permit; killing of young animals, pregnant females, and females accompanied by young is prohibited.	8.00
Togo	Total protection	Partially protected (since 1968); ⁵⁷ hunting of adult males for recreational purposes, and capture of any aged or sex, allowed under permit.	6.00
Uganda	Total protection	Partially protected (since 1996); ⁵⁸ hunting, farming, ranching, trading, import, export, re-export allowed under permit; no hunting restrictions based on age or sex; on 15 July 2013, hippo ivory trade and export reportedly was banned. ⁵⁹	6.50

⁵² Not protected under the Threatened or Protected Species Regulations, 2015 (Notice No. 255 of 2015). <http://extwprlegs1.fao.org/docs/pdf/saf146021.pdf> ; not listed as "protected species" in terms of section 56(1)(d) of the Biodiversity Act; "hippo culling has been reinstated in the KNP, where a population of over 7,000 hippos was recently recorded.". Eksteen J, Goodman P, Whyte I, Downs C, Taylor R. 2016. A conservation assessment of Hippopotamus amphibius. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa. https://www.ewt.org.za/wp-content/uploads/2019/02/11.-Hippopotamus-Hippopotamus-amphibius_LC.pdf.

⁵³ Scientific Authority of South Africa. 2011. Non-detriment finding for *Hippopotamus amphibius* (Hippopotamus). https://www.environment.gov.za/sites/default/files/docs/nondetrimentfinding_hippopotamus_amphibius.pdf

⁵⁴ Wild Life Conservation and National Parks Act, 2003. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC152460> .

⁵⁵ The Game Regulations, 1935 (1935 L.R.O. No. 35). <http://extwprlegs1.fao.org/docs/pdf/sud10070.pdf>

⁵⁶ Wildlife Conservation Act (No. 5 of 2009). <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC097858> .

⁵⁷ Ordonnance n° 4 du 16 janvier 1968 réglementant la protection de la faune et l'exercice de la chasse au Togo, <http://extwprlegs1.fao.org/docs/pdf/Toq4270.pdf>

⁵⁸ Uganda Wildlife Act, 1996. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC009000>. Repealed and replaced by Uganda Wildlife Act, 2019. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC192396>. On July 2013, the Uganda

⁵⁹ Kazibwe, K. 2017. UWA on spot for allowing Museveni adviser export banned hippo teeth. Nile Post, 15 December 2017. <https://nilepost.co.ug/2017/12/13/uwa-on-the-spot-for-allowing-museveni-adviser-export-banned-hippo-teeth/>

Range State	Legal Protections per 2016 IUCN Assessment ¹⁵	Legal Protections Per this proposal	2021 Criminality Score for Fauna Crimes ¹⁶ (10 is highest level of criminality)
Top six hippo exporters in BOLD			
Zambia	Partial protection	Partially protected (since 2006); ⁶⁰ can be hunted, captured, purchased, sold, imported, exported under license or permit; hunting of dependent young or females accompanied by dependent young prohibited.	4.50
Zimbabwe	Partial protection	Partially protected (since 1975); ⁶¹ prohibited to hunt, take, sell, import or export except under permit; no hunting restrictions based on age or sex.	7.50

Table 7. Protected areas in which hippos reside.

Range State	Protected Area ⁶² (Size and Type ⁶³)
Angola	Bicuar National Park (7,900 km ² , TPA ⁶⁴), National Park Cameia (14,450 km ² , TPA), National Park Mupa (6,600 km ² , TPA), National Park Quiçama (9,960 km ² , TPA), Integral Nature Reserve and the Luando (8,280 km ² , TPA).
Benin	UNESCO Mono Transboundary Biosphere Reserve (with Togo) (346,286 ha), Boucle de la Pendjari (2,755 km ² , TPA), W Bénin Niger National Park (5,020 km ² , TPA), Ouémé Supérieur (1,775.42 km ² , TPA), La Sota (530 km ² , TPA).
Botswana	Chobe National Park (11,000 km ² , TPA).
Burkina Faso	Parc National d'Arly (2,179.3 km ² , TPA), Complexe W-Arly-Pendjari (with Benin and Niger) (14,948.31 km ² , TPA), Deux Balés National Park (560 km ² , TPA), La réserve de Biosphère de la Mare aux Hippopotames de Bala (163 km ² , TPA).
Burundi	Parc National de la Rusizi (106.73 km ² , TPA).
Cameroon	Bénoué National Park (1,800 km ² , TPA), Kalamaloué National Park (45 km ² , TPA), Mbam et Djerem National Park (4,165.12 km ² , TPA), Faro National Park (3,300 km ² , TPA).
Central African Republic	Chinko Protected Area (20,000 km ² , TPA), Andre Felix National Park (951.93 km ² , TPA), Bamingui-Bangoran National Park (11,191.1 km ² , TPA), and Monovo-Gounda-Saint Floris National Park (18,908.68 km ² , TPA), Yata-Ngaya Faunal Reserve (5,404.86 km ² , TPA), Gribingui-Bamingui Faunal Reserve (4,321.52 km ² , TPA), Koukourou-Bamingui Faunal Reserve (1,131.15 km ² , TPA), Dzanga-Sangha Special Reserve (6,865.54 km ² , TPA).
Chad	Mandelia Faunal Reserve (1,380 km ² , TPA), Manda National Park (1,140 km ² , TPA), Zakouma National Park (3,000 km ² , TPA), Salamat Wildlife Faunal Reserve (20,950.1 km ² , TPA), Binder-Léré Faunal Reserve (1,350 km ² , TPA).
Congo	Odzala Kokoua National Park (13,546 km ² , TPA), Conkouati-Douili National Park (5,049.5 km ² , MPA ⁶⁵), Nyanga Nord Faunal Reserve (7,000 ha, TPA), Lefini Faunal Reserve (5,010 km ² , TPA), Tsoulou Faunal Reserve (300 km ² , TPA).
Côte d'Ivoire	Nzo Reserve (950 km ² , TPA), Mont Sangbe National Park (975.54 km ² , TPA), Comoe National Park (11,491.5 km ² , TPA).

⁶⁰ National Parks and Wildlife Act (Chapter 201), 2006

<https://www.parliament.gov.zm/sites/default/files/documents/acts/National%20Parks%20and%20Wildlife%20Act.pdf>; Zambia Wildlife Act, 2015 (No. 14 of 2015). <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC163735>; Zambia Wildlife (Protected Animals) Order, 2016 (S.I. No. 42 of 2016 <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC191043>).

⁶¹ Parks and Wild Life Act [Chapter 20:14], 1975 (amended last in 1991). <https://www.law.co.zw/download/parks-and-wild-life-act-chapter-2014/>; Parks and Wild Life (General) Regulations, 1981. <http://extwprlegs1.fao.org/docs/pdf/zim17711.pdf>; Parks and Wild Life (Payment for Hunting of Animals and Fish) Notice, 1987. <http://extwprlegs1.fao.org/docs/pdf/zim17713.pdf>

⁶² Lewison & Pluháček, 2017.

⁶³ Protected Planet World Database on Protected Areas, visited February 27, 2022, <https://www.protectedplanet.net/en/about>; unless otherwise noted.

⁶⁴ Terrestrial Protected Area (TPA).

⁶⁵ Marine Protected Area (MPA).

Range State	Protected Area ⁶² (Size and Type ⁶³)
Democratic Republic of Congo	Garamba National Park (4,920 km ² , TPA), Kundelungu National Park (8,236.36 km ² , TPA), Salonga National Park (36,000 km ² , TPA), Upemba National Park (13,673.65 km ² , TPA), and Virunga National Park (7,900 km ² , TPA), Luama-Kivu Hunting Area (3,900 km ² , TPA).
Equatorial Guinea	Monte Alen National Park (2000 km ² , TPA).
Eswatini	Hlane Royal National Park (217.36 km ² , TPA), Mkhaya Game Reserve (100.5 km ² , TPA), Mlilwane Wildlife Sanctuary (45.83 km ² , TPA), Mbuluzi Conservancy (2,340 ha, private reserve), Shewula Nature Reserve (32.14 km ² , TPA), Mlawula Nature Reserve (161.52 km ² , TPA), Mhlosinga Nature Reserve (27.77 km ² , "other effective area-based conservation measures" ⁶⁶), Mantenga Nature Reserve (7.17 km ² , TPA).
Ethiopia	Dhati-Welel National Park (166 km ² , TPA).
Gabon	The Gamba Complex comprised of Loango National Park (1,510 km ² , TPA) and Moukalaba-Doudou National Park (4,458 km ² , TPA), Wonga-Wongué National Park (4,800 km ² , TPA), Sette-Cama Hunting Area (2,000 km ² , TPA), Moukalaba Hunting Reserve (217.28 km ² , TPA).
Gambia	River Gambia National Park (12.79 km ² , TPA).
Ghana	Bui National Park (1,858.53 km ² , TPA), Digya National Park (3,478.3 km ² , TPA), Mole National Park (4,575.5 km ² , TPA), Wchiau Community Hippo Sanctuary ("40km stretch of the Black Volta River in Ghana's Upper West Region", ⁶⁷ community-based hippo sanctuary).
Guinea	Badiar National Park (382 km ² , TPA), Parc National de Haut Niger (1,200 km ² , TPA).
Guinea Bissau	Rio Cacheu National Park (886.15 km ² , TPA).
Kenya	Masai Mara National Reserve (1,510 km ² , TPA), Amboseli National Park (392 km ² , TPA), Lake Nakuru (188 km ² , TPA), Meru (870 km ² , TPA), Nairobi (8.09 km ² , TPA), Tsavo East National Park (11,747 km ² , TPA), Tsavo West National Park (9,065 km ² , TPA), Buffalo Springs National Reserve (131 km ² , TPA), Kora National Park (1,787 km ² , TPA), Lake Bogoria National Reserve (107 km ² , TPA), Mwea National Reserve (68 km ² , TPA), Mwingi National Reserve (formerly North Kitui) (745 km ² , TPA), Samburu National Reserves (165 km ² , TPA).
Malawi	Liwonde National Park (505.67 km ² , TPA), Vwaza Marsh Wildlife Reserve (980.67 km ² , TPA), Majete Wildlife Reserve (704.7 km ² , TPA), Kasungu National Park (2,358.62 km ² , TPA).
Mali	Boucle du Baoule National Park (25,330 km ² , TPA).
Mozambique	Niassa Special Reserve (42,000 km ² , TPA), Maputo Special Reserve (1,040 km ² , TPA), Gorongosa National Park (3,800 km ² , TPA), Marrromeu National Reserve (6,800 km ² , TPA).
Namibia	Bwabwata National Park (6,277 km ² , TPA), Mudumu National Park (716 km ² , TPA), Nkasa Rupara National Park (338 km ² , TPA).
Niger	Parc National du W du Niger (2,200 km ² , TPA).
Nigeria	Kainji Lake National Park (5,380 km ² , TPA), Okomu National Park (1,082 km ² , TPA), Kwiambana Game Reserve (2,614 km ² , TPA) ⁶⁸ , Sambisa Game Reserve (686 km ² , TPA), Yankari Game Reserve (2,254 km ² , TPA).
Rwanda	Akagera National Park (1,121.93 km ² , TPA).
Senegal	Niokolo-Koba National Park (9,130 km ² , TPA).
Sierra Leone	Tiwai Island Wildlife Sanctuary (12 km ² , TPA), Loma Mountains Forest Reserve (332.01 km ² , TPA), Gola Rainforest National Park (710.7 km ² , TPA), Outamba National Park (738.15 km ² , TPA), Kambui Hills and Extensions Forest Reserve (143.35 km ² , TPA).
Somalia	Unknown.

⁶⁶ Protected Planet, Mhlosinga page, <https://www.protectedplanet.net/555721474> .

⁶⁷ Wechiau Community Hippo Sanctuary page, <https://www.ghanahippus.com/> .

⁶⁸ Ajayi, S. S., Afolayan, T. A., & Milligan, K. R. N. (1981). A survey of wildlife in Kwiambana Game Reserve, Nigeria. *African Journal of Ecology*, 19(3), 295-298.

Range State	Protected Area ⁶² (Size and Type ⁶³)
South Africa	Kruger National Park (19,169.15 km ² , TPA), iSimangaliso Wetland Park (3,216.51 km ² , MPA), and many private and provincial game reserves.
South Sudan	Southern National Park (22,800 km ² , TPA), Boma National Park (20,000 km ² , TPA), Nimule National Park (200 km ² , TPA), Badingilo National Park (16,000 km ² , TPA), Shambe National Park (620 km ² , TPA), Juba Game Reserve (200 km ² , TPA), Fanyikang Game Reserve (480 km ² , TPA).
Sudan	Dinder National Park (8.9 km ² , TPA).
Tanzania	Selous Game Reserve (44,800 km ² , TPA), Katavi-Rukwa Protected Area Complex comprised of Katavi National Park (4,207.57 km ² , TPA) and Lake Rukwa Game Reserve (1,988.01 km ² , TPA).
Togo	Parc national de la Keran (1,634 km ² , TPA), Reserve de Faune de Togodo (310 km ² , TPA).
Uganda	Murchison Falls National Park (3,877 km ² , TPA), Queen Elizabeth National Park (7,395 km ² , TPA), Lake Mburo National Park (370 km ² , TPA), and Kibale National Park (766 km ² , TPA), Katonga Wildlife Reserve (210 km ² , TPA), Kabwoya Wildlife Reserve (87 km ² , TPA), East Madi Wildlife Reserve (831 km ² , TPA) ⁶⁹ .
Zambia	South Luangwa National Park (8,704 km ² , TPA), Lower Zambezi National Park (4,143 km ² , TPA).
Zimbabwe	Hwange National Park (14,651 km ² , TPA), Gonarezhou National Park (5,053 km ² , TPA).

Table 8. Hippo teeth seizures and arrests, 2016-2021.

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
2021
Côte d'Ivoire: five traffickers were arrested with four hippo teeth in a hippo (10 December 2021). ⁷⁰
Netherlands: a man was found guilty of illegally purchasing a variety of wildlife parts including hippo teeth (6 December 2021). ⁷¹
China: 3.82 kg of ivory and hippo teeth were seized by Customs at an inbound travel inspection channel at an airport (24 November 2021). ⁷² (China Customs, 2021)).
South Africa: two people arrested and charged with possession and dealing in elephant tusks and ivory of other species including two hippo teeth (18 November 2021). ⁷³
Kenya: Rangers confiscated two hippo teeth, 256 kg ivory, 6 leopard skins and many other wildlife products and arrested 101 suspects in August through October 2021 (1 November 2021). ⁷⁴
Argentina: Two people were arrested, and protected wildlife parts and products were seized, including from hippo (23 September 2021). ⁷⁵
U.K.: a man from Malaysia living in the U.K. pleaded guilty of 18 counts of illegal wildlife trade linked to packages of ivory, including hippo ivory, he sent to China (25 August 2021). ⁷⁶

⁶⁹ Plumptre, A.J., Kato, S., Kityo, R., Mutungire, N., Mugabe, H. & Kyamaywa, J. (2008) *Biodiversity Surveys of East Madi Wildlife Reserve*. Wildlife Conservation Society. <https://programs.wcs.org/Resources/Publications/Publications-Search-ll/ctl/view/mid/13340/pubid/DMX3198200000.aspx>

⁷⁰ Drori, O. (2021, December 10). *EAGLE Côte d'Ivoire - 5 traffickers arrested with 2 elephant tusks and 4 hippo teeth with the hippo jaw*. <https://www.facebook.com/ofir.drori/posts/10160067128225712>

⁷¹ de Rechtspraak. (2021, December 6). *Helmonders convicted of illegal trade in tiger and lion skulls*.

<https://www.rechtspraak.nl/Organisatie-en-contact/Organisatie/Rechtbanken/Rechtbank-Oost-Brabant/Nieuws/Paginas/Helmonders-veroordeeld-voor-illegale-handel-in-tijger--en-leeuwenschedels.aspx>

⁷² China Customs [Customs release]. (2021, November 23). *Shenzhen Bao'an Airport Customs seized ivory and hippo dog teeth products*. <https://m.weibo.cn/detail/4707067670301840>

⁷³ Ngema, T. (2021, November 17). Two suspects arrested in posh Zimbali Eco Estate for dealing in elephant tusks.

Independent Online (IOL). <https://www.iol.co.za/dailynews/news/kwazulu-natal/two-suspects-arrested-in-posh-zimbali-eco-estate-for-dealing-in-ivory-tusks-aaefae9-f70e-40f0-bc84-e0e6dde1b503>

⁷⁴ Big Life Foundation. (2021, November 1). *This past quarter, Big Life rangers arrested 101 suspects for crimes involving trophy possession, bushmeat poaching, wildlife trafficking, and habitat destruction*.

<https://www.facebook.com/biglifefoundation/photos/a.178446792167011/4845727068772270>

⁷⁵ Infobae. (2021, September 23). *Wildlife products seized during raids on clandestine workshops in San Justo and Florencio Varela: two arrested*. *Infobae*. <https://www.infobae.com/sociedad/2021/09/23/incautaron-productos-de-fauna-silvestre-durante-allanamientos-en-talleres-clandestinos-de-san-justo-y-florencio-varela-dos-detenidos/>

⁷⁶ Leoi Leoi, S. (2021, August 25). *Malaysian engineer in Britain pleads guilty to illegal ivory trading*. *TheStar*.

<https://www.thestar.com.my/news/nation/2021/08/25/malaysian-engineer-in-britain-pleads-guilty-to-illegal-ivory-trading>

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
Uganda: Special Wildlife Crime Unit arrested two people and seized 34 hippo teeth and 10 kg ivory (24 July 2021). ⁷⁷
Uganda: Special Wildlife Crime Unit arrested two people for wildlife trafficking and seized 32 kg of hippo teeth (17 July 2021). ⁷⁸
China: a passenger arrived on a flight with 50 hippo tooth products weighing 775.9 g, elephant ivory products, and mammal bones (2 June 2021). ⁷⁹
Kenya: a lieutenant from the Uganda People's Defense Forces was arrested in Kenya with one hippo tooth and 9 kg of elephant tusks that he brought from Uganda to sell (7 May 2021). ⁸⁰
Uganda: a retired diplomat from Italy was arrested when he was found in possession of a carved hippo tooth and 56 cut worked elephant ivory pieces (13 April 2021). ⁸¹
Senegal: two people were arrested with 17 hippo teeth, three leopard skins and a hyena skin; the two people were sentenced to six months in prison (March 2021). ⁸²
Namibia: two Namibians were arrested for the possession of two hippo teeth and two elephant tusks (8 March 2021). ⁸³
Senegal: two people were arrested with 14 hippo teeth, a leopard skin, and an AK-47 (January 2021). ⁸⁴
2020
Namibia: a person in possession of five hippo teeth was arrested (30 September 2020). ⁸⁵
France: raw and worked hippo and elephant ivory were seized at an auction sale (11 September 2020). ⁸⁶
India: nine hippo teeth being passed off as elephant ivory to buyers on WhatsApp were seized (24 & 28 August 2020). ⁸⁷
Malawi: people in possession of four hippo teeth weighing three kg were arrested (16 August 2020). ⁸⁸
Malawi: a person in possession of hippo teeth arrested (2 August 2020). ⁸⁹
Zambia: people in possession of two hippo teeth and 25 elephant tusk sections (early August 2020). ⁹⁰
Gabon: two people caught in the act of attempting to sell 16 hippo teeth and four elephant tusks were arrested; one of the traffickers was from Benin (July 2020). ⁹¹
Malawi: a "Sino-Malawian" gang of 10 people that specialized in poaching and trafficking of hippo teeth and other wildlife were sentenced to between 18 months and 11 years in prison (end of June 2020). ⁹²

⁷⁷ Focused Conservation [@FocusedConserve]. (2021, August 9). *On Jul 24, 2021 the FCS SWCU - Uganda received intel that led to a dynamic response from SWCU and partners results in the arrest of two suspects, and recovery of 10kgs of ivory and 34 hippopotamus teeth.* <https://twitter.com/FocusedConserve/status/1424735737665269766>

⁷⁸ Focused Conservation [@FocusedConserve]. (2021, July 24). *This operation demonstrates the capability of the SWCU, even in challenging 'lockdown' times, to respond and act on intelligence and work in harmony with Law Enforcement to achieve positive results.* <https://twitter.com/FocusedConserve/status/1418977320765992964>

⁷⁹ Lingwei, D. (2021, June 2). The entry man's carry-on luggage is relatively simple, and he opens it and finds a pile of ivory and hippo tooth products. *The Paper.* https://www.thepaper.cn/newsDetail_forward_12931581

⁸⁰ Wanja, C. (2021, May 11). Ugandan official arrested with ivory worth Kshs.3M in Busia. *KBC.* <https://www.kbc.co.ke/ugandan-official-arrested-with-ivory-worth-kshs-3m-in-busia/>

⁸¹ Musaasizi, B. (2021, April 16). Italian Diplomat Arrested For Being in Possession of 5Kgs of Ivory. *Red Pepper.* <https://redpepper.co.ug/2021/04/107557/>

⁸² EAGLE Network. (2021). *1st Semester 2021 Report.* <https://www.eagle-enforcement.org/data/files/eagle-network-1st-semester-2021-report.pdf>

⁸³ Smit, E. (2021, March 8). 17 arrested for wildlife crimes last month. *The Namibian Sun.* <https://www.namibiansun.com/news/17-arrested-for-wildlife-crimes-last-month2021-03-08>

⁸⁴ EAGLE Network. (2021). *1st Semester 2021 Report.* <https://www.eagle-enforcement.org/data/files/eagle-network-1st-semester-2021-report.pdf>

⁸⁵ Robin des Bois. (2021). *On the Trail: The defaunation bulletin n°30. Events from the 1st July to the 30th September, 2020.* https://www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_30.pdf

⁸⁶ *ibid.*

⁸⁷ *ibid.*

⁸⁸ *ibid.*

⁸⁹ *ibid.*

⁹⁰ *ibid.*

⁹¹ EAGLE Network. (2020). *Annual Report 2020.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2020.pdf>

⁹² Robin des Bois. (2021). *On the Trail: The defaunation bulletin n°29. Events from the 1st April to the 30th June, 2020.* https://www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_29.pdf

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
Senegal (near border with Gambia): four people were arrested for possession and marketing of 20 kg of hippo teeth and skulls; they were carrying five packs of ammunition (March 2020). ⁹³
China : a parcel from France containing two hippo teeth weighing 1,398.3 g, was seized (26 & 30 January 2020). ⁹⁴
Namibia : two people, one Namibian and one from Angola , carrying two hippo teeth and 4 elephant tusks, were arrested (2 January 2020). ⁹⁵
Spain : an object made of hippo ivory being offered for sale on the internet without documentation attesting to their legal origin was seized, and three people were arrested (early January 2020). ⁹⁶
Spain : two sculptures made of hippo ivory offered for sale for 550 € and that lacked certificates of origin were seized (end of January 2020). ⁹⁷
2019
Tanzania : a person was sentenced to 20 years in prison for illegal possession and commercialization of two hippo teeth and four elephant tusks (13 December 2019). ⁹⁸
China (on boarder with Hong Kong): 32,690 kg of raw and semi-raw hippo ivory in postal parcels declared as containing “personal belongings” were seized (4 November 2019). ⁹⁹
Tanzania : two hippo teeth and 413 elephant tusks or parts of tusks were seized and six people were arrested (3 September 2019). ¹⁰⁰
Côte d’Ivoire : a person was sentenced to six months in prison for trafficking in wildlife products including hippo parts (July 2019). ¹⁰¹
China (on border with Macau): 1,660 kg of hippo teeth were seized from a workshop (May 2019). ¹⁰²
Malawi : seven people from China and one person from Malawi found in possession of hippo teeth, rhino horn, pangolin scales and illegal weapons were arrested (early May 2019). ¹⁰³
Spain : more than 200 wildlife specimens, including hippo, were seized from a warehouse; six people were charged with offering the specimens for sale on the internet and trading them via WhatsApp (early February 2019). ¹⁰⁴
Cameroon : five hippo teeth that originated in Chad were seized and four traffickers were arrested (January 2019). ¹⁰⁵
Uganda : a Uganda Wildlife Authority agent was sentenced to three years in prison for possessing seven hippo teeth and two elephant tusks (end of January 2019). ¹⁰⁶
2018
USA agents seized over 300 items made of elephant ivory and hippo teeth from a high-end antique shop (late November 2018). ¹⁰⁷

⁹³ EAGLE Network. (2020). *Annual Report 2020*. <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2020.pdf>

⁹⁴ Robin des Bois. (2020). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling. n°27. Events from the 1st October to the 31th December, 2019*. https://www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_27.pdf

⁹⁵ *ibid.*

⁹⁶ *ibid.*

⁹⁷ *ibid.*

⁹⁸ Robin des Bois. (2020). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°28. Events from the 1st January to the 31th March, 2020*. https://www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_28.pdf

⁹⁹ *ibid.*

¹⁰⁰ Robin des Bois. (2020). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°26. Events from the 1st July to the 30th September, 2019*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_26.pdf

¹⁰¹ *ibid.*

¹⁰² Robin des Bois. (2020). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°25. Events from the 1st April 2019 to the 30 of June 2019*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_25.pdf

¹⁰³ *ibid.*

¹⁰⁴ Robin des Bois. (2019). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°24. Events from the 1st February 2019 to the 31 of March 2019*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_24.pdf

¹⁰⁵ EAGLE Network. (2019). *Annual Report 2019*. <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2019.pdf>

¹⁰⁶ Robin des Bois. (2019). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°23. Events from the 1st October 2018 to the 31 of January 2019*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_23.pdf

¹⁰⁷ *ibid.*

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
Spain: numerous wildlife trophies, including an ashtray made from a hippo foot, were seized at a private individual's garage (August 2018). ¹⁰⁸
France: seized hippo teeth and other wildlife contraband from exhibitors at flea markets (August 2018). ¹⁰⁹
Portugal: one hippo tooth sold online was seized (July 2018). ¹¹⁰
Spain (on border with Portugal): more than 150 wildlife parts, including hippo feet, that were offered for sale on the internet, were seized from a warehouse (early July 2018). ¹¹¹
Cameroon: seven hippo teeth or sections thereof were seized, and one person was arrested (end of May 2018). ¹¹²
Congo: a trafficker was arrested with hippo teeth, elephant tusks and other contraband (May 2018). ¹¹³
USA: nearly three dozen carved ivory tusks and daggers made from hippo, elephant, and warthog were seized from a couple that arrived on a flight from the Philippines (May 2018). ¹¹⁴
France: a hippo tooth and other wildlife contraband were seized from a garage sale (28 April 2018). ¹¹⁵
Spain: 94 carvings made from hippo and elephant ivory were seized from an antique shop (23 March 2018). ¹¹⁶
Uganda: two people found with 29 kg of hippo teeth that may have come from hippos poached in nearby Queen Elizabeth National Park were arrested (March 2018). ¹¹⁷
Cameroon: a bar owner with connections to Chinese traffickers was arrested with six hippo teeth, 40 kg of pangolin scales, and two boa skins (February 2018). ¹¹⁸
Uganda: three traffickers were arrested with 100 hippo teeth weighing 50 kg, 25 kg of raw ivory and pangolin scales; the traffickers lived in Congo and obtained the contraband from Congo or nearby Murchison Falls National Park (January 2018). ¹¹⁹
Uganda: a trafficker was arrested with three tusks and 124 pieces of hippo ivory (January 2018). ¹²⁰
2017
Uganda: a Uganda Wildlife Authority ranger was arrested for trafficking hippo teeth stolen from UWA storage (October 2017). ¹²¹
Uganda: a trafficker was arrested with 102 hippo teeth (from about 10 hippos); the teeth came from hippos poached in Murchison Falls National Park (September 2017). ¹²²
Uganda: two traffickers were arrested with 127 hippo teeth, weighing 56 kg (from about 15 hippos); the teeth came from hippos poached in Queen Elizabeth National Park (September 2017). ¹²³

¹⁰⁸ Robin des Bois. (2018). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°21. Events from the 1th April to the 30 of June 2018.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_21.pdf

¹⁰⁹ ibid.

¹¹⁰ ibid.

¹¹¹ ibid.

¹¹² Robin des Bois. (2018). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°20. Events from the 1th January to the 31 of March 2018.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_20.pdf

¹¹³ EAGLE Network. (2018). *Annual Report 2018.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2018.pdf>

¹¹⁴ Robin des Bois. (2018). *On the Trail: The defaunation bulletin. Quarterly information and analysis report on animal poaching and smuggling n°20. Events from the 1th January to the 31 of March 2018.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_20.pdf

¹¹⁵ ibid.

¹¹⁶ Robin des Bois. (2018). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°19 / Events from the 1st October to the 31 of December 2017.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_19.pdf

¹¹⁷ ibid.

¹¹⁸ EAGLE Network. (2018). *Annual Report 2018.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2018.pdf>

¹¹⁹ ibid.

¹²⁰ ibid.

¹²¹ EAGLE Network. (2017). *Annual Report 2017.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2017.pdf>

¹²² ibid.

¹²³ ibid.

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
Senegal: two international traffickers were arrested, and 780 ivory carvings were seized along with hippo teeth; the traffickers were said to be active in Mali, Burkina Faso, Nigeria, and Burundi and dealt directly with nationals of China (August 2017). ¹²⁴
Uganda: 73.7 kg hippo teeth seized, and one person arrested (21 August 2017). ¹²⁵
Uganda: a trafficker was arrested with 215 hippo teeth (from at least 20 hippos) trafficked from Democratic Republic of the Congo (August 2017). ¹²⁶
Malawi: a person from the USA was fined and sentenced to 12 months in prison for unlawful possession of one kg of hippo teeth (17 August 2017). ¹²⁷
South Africa three men were arrested for offering to sell four hippo teeth to an undercover police officer (July 2017). ¹²⁸
Uganda: two traffickers were arrested while attempting to sell 140 hippo teeth weighing 56 kg they had brought across the border from Congo (July 2017). ¹²⁹
Uganda: a trafficker was arrested with 38 hippo teeth from hippos killed in Queen Elizabeth National Park (July 2017). ¹³⁰
Uganda: three traffickers were arrested with two hippo teeth, 34 kg ivory and fake money (June 2017). ¹³¹
Uganda: four people were arrested with 13 kg of hippo teeth and 8 kg ivory (end of April 2017). ¹³²
UK: a person was charged with offering to sell four hippo teeth and other wildlife contraband (5 April 2017). ¹³³
Uganda: two people were arrested, and six hippo teeth and three elephant tusks were seized (14 March 2017). ¹³⁴
Spain: 190 trophies, including hippo, were seized from a man who offered them for sale on the internet (14 March 2017). ¹³⁵
Uganda: 16 kg of elephant ivory and hippo teeth, and an AK47 were seized and four people arrested; the poachers admitted killing elephants in Murchison Falls National Park and were sentenced to 18 months to five years in prison (March 2017). ¹³⁶
Benin: 10 hippo teeth seized, and two people arrested (28 February 2017). ¹³⁷
Uganda: 183 kg of hippo teeth seized, and three people arrested (one of which was a Senior Presidential Advisor) (February 2017). ¹³⁸
Uganda: 68 hippo teeth were seized, and two people arrested (31 January 2017). ¹³⁹
Uganda: 24 hippo teeth were seized, and one person arrested (27 January 2017). ¹⁴⁰
Malawi: a man was arrested and hippo teeth he was attempting to sell to an "Asian client" were seized (15 January 2017). ¹⁴¹
2016

¹²⁴ *ibid.*

¹²⁵ Robin des Bois. (2017). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°18 / Events from the 1st July to the 30 of September 2017.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_18.pdf

¹²⁶ EAGLE Network. (2017). *Annual Report 2017.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2017.pdf>

¹²⁷ Robin des Bois. (2017). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°18 / Events from the 1st July to the 30 of September 2017.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_18.pdf

¹²⁸ *ibid.*

¹²⁹ EAGLE Network. (2017). *Annual Report 2017.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2017.pdf>

¹³⁰ *ibid.*

¹³¹ *ibid.*

¹³² Robin des Bois. (2017). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°16 / Events from the 1st January to the 31 of March 2017.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_16.pdf

¹³³ *ibid.*

¹³⁴ Robin des Bois. (2017). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°15 / 1st October - 31th December 2016.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_15.pdf

¹³⁵ *ibid.*

¹³⁶ *ibid.*

¹³⁷ *ibid.*

¹³⁸ EAGLE Network. (2017). *Annual Report 2017.* <https://www.eagle-enforcement.org/data/files/eagle-network-annual-report-2017.pdf>

¹³⁹ Robin des Bois. (2017). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°15 / 1st October - 31th December 2016.* https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_15.pdf

¹⁴⁰ *ibid.*

¹⁴¹ *ibid.*

Hippo Teeth Seizures and Arrests, 2016-2021 (Country, description, incident report date in reverse chronological order)
Uganda: 135 kg of hippo teeth and two elephant tusks were seized, and two people arrested (22 December 2016). ¹⁴²
Zambia: two hippo teeth and three kg of hippo meat, and other wildlife contraband and firearms were seized (end of November). ¹⁴³
Uganda: 15 kg of hippo teeth, said to have originated in Democratic Republic of the Congo , were seized, and one person arrested (8 November 2016). ¹⁴⁴
Uganda: two people were sentenced to two years in prison for trafficking 234 hippo teeth weighing 100 kg (8 November 2016). ¹⁴⁵
Uganda: 32 hippo teeth seized (22 October 2016). ¹⁴⁶
Portugal: two hippo teeth, 41 ivory objects and three turtles were seized in a commercial area (18 October 2016). ¹⁴⁷
Uganda: 11 kg of hippo ivory and a leopard skin were seized (28 September 2016). ¹⁴⁸
Togo: 12 teeth, four skulls and 15 bones of hippos were seized and two people arrested (23 September 2016). ¹⁴⁹
Uganda: One person, who was travelling between Uganda and Tanzania and carrying 13 kg of hippo teeth, was arrested (mid-September 2016). ¹⁵⁰
Uganda: three people with 57 hippo teeth were arrested (end of July 2016). ¹⁵¹
Uganda: three people were arrested, and 52 hippo teeth (weighing 25 kg, from at least 15 hippos), pangolin scales and two python skins were seized (8 July 2016). ¹⁵²
Uganda: 50 kg of hippo ivory was seized, and three people arrested (14 June 2016). ¹⁵³
USA: a man was convicted of wildlife trafficking including a hippo ivory carving he sold for USD 1,400 (19 May 2016). ¹⁵⁴
Uganda: 49 kg of hippo ivory was seized and one person, with known connections to wildlife traffickers in the Democratic Republic of the Congo , was arrested (4 May 2016). ¹⁵⁵
Uganda: 89 kg of hippo teeth were seized, and 1 person arrested (16 January 2016). ¹⁵⁶

¹⁴² Robin des Bois. (2017). *Information and analysis bulletin on animal poaching and smuggling n°17 / Events from the 1st April to the 30 of June 2017*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_17.pdf

¹⁴³ ibid.

¹⁴⁴ ibid.

¹⁴⁵ ibid.

¹⁴⁶ ibid.

¹⁴⁷ ibid.

¹⁴⁸ Robin des Bois. (2016). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°14 / 1st July - 30th September 2016*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_14.pdf

¹⁴⁹ ibid.

¹⁵⁰ ibid.

¹⁵¹ ibid.

¹⁵² ibid.

¹⁵³ Robin des Bois. (2016). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°13 / 1st April - 30th June 2016*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_13.pdf

¹⁵⁴ U.S. Department of Justice. (2016, May 19). *Franklinville Man Sentenced For Illegally Buying And Selling Elephant Tusks* [Press release]. <https://www.justice.gov/usao-wdny/pr/franklinville-man-sentenced-illegally-buying-and-selling-elephant-tusks>

¹⁵⁵ Robin des Bois. (2016). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°13 / 1st April - 30th June 2016*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_13.pdf

¹⁵⁶ Robin des Bois. (2016). *On the Trail: Information and analysis bulletin on animal poaching and smuggling n°12 / 1st January - 31st March 2016*. https://robindesbois.org/wp-content/uploads/ON_THE_TRAIL_12.pdf