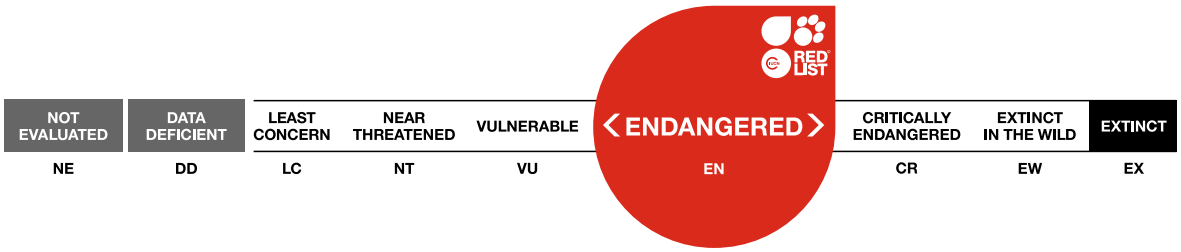
The IUCN Red List of Threatened Species™
ISSN 2307-8235 (online)
IUCN 2021: T181008073A204401095
Scope(s): Global
Language: English

Loxodonta africana, African Savanna Elephant

Amendment version

Assessment by: Gobush, K.S., Edwards, C.T.T, Balfour, D., Wittemyer, G., Maisels, F. & Taylor, R.D.



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Citation: Gobush, K.S., Edwards, C.T.T, Balfour, D., Wittemyer, G., Maisels, F. & Taylor, R.D. 2021. *Loxodonta africana* (amended version of 2021 assessment). *The IUCN Red List of Threatened Species* 2021: e.T181008073A204401095. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Proboscidea	Elephantidae

Scientific Name: *Loxodonta africana* (Blumenbach, 1797)

Synonym(s):

- *Elephas africana* Blumenbach, 1797
- *Loxodonta africana* ssp. *africana* (Blumenbach, 1797)

Common Name(s):

- English: African Savanna Elephant, African Bush Elephant, African Savannah Elephant, Savanna Elephant, Savannah Elephant
- French: Éléphant de savane
- Spanish; Castilian: Elefante de Sabana

Taxonomic Source(s):

Wilson, D.E. and Reeder, D.M. 2005. *Mammal Species of the World*. Johns Hopkins University Press, Baltimore, MD, USA.

Taxonomic Notes:

Three elephant taxa remain from the sixteen elephant-like species that are known from across the planet in the Pleistocene: Asian Elephant (*Eleph*as *maximus*), African Savanna Elephant (*Loxodonta africana*), and African Forest Elephant (*Loxodonta cyclotis*) (Faurby and Svenning 2015, Malhi *et al.* 2016). The Asian and African ancestral lineages diverged approximately seven million years ago, and the African Savanna and African Forest ancestral lineages began diverging approximately one million years later (Rohland *et al*. 2010, Brandt *et al.* 2014, Roca *et al*. 2015, Meyer *et al*. 2017, Palkopoulou *et al*. 2018). The Third Edition of 'Mammal Species of the World' (Wilson and Reeder 2005) was the first to formally designate the African elephant as these two separate species. Recent genetic findings also support this designation (Roca *et al*. 2007, Ishida *et al*. 2011, Mondol *et al*. 2015, Palkopoulou *et al*. 2018, Kim and Wasser 2019). Hybridization between the two species appears restricted and evident at only 14 of the more than 100 localities recently examined across the vast forest-savanna ecotone. In nine of these 14 localities, hybrid individuals occurred alongside non-hybrid individuals of either one species or the other and not both (i.e., three localities had hybrids and African Forest Elephants only and assigned as this species; six localities had hybrids and African Savanna Elephants only and assigned as this species). For the IUCN Red List assessments, a distribution map published in Mondol *et al*. (2015) and recent data by Kim and Wasser (2019) are used to assign localities as range of either *L. africana* or *L. cyclotis*.

Assessment Information

Red List Category & Criteria: Endangered A2abd ver 3.1

Year Published: 2021

Date Assessed: November 13, 2020

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

Justification:

The African Savanna Elephant (*Loxodonta africana*) is assessed as Endangered A2abd. Analysis of estimates from 334 localities across their global range indicates a reduction of more than 50% of the continental population in the past three generations (75 years) that is understood to be continuing and likely irreversible. The continental trend is not, however, spatially uniform; some subpopulations are increasing or stable while others are declining significantly faster than the continental rate. Many local subpopulations have been extirpated.

A generation length (GL) of 25 years is used; calculated in the standard format as the average age of mothers in the population (IUCN SPC 2019, p. 29). This figure is based on analysis of the life table of culled Savanna Elephant family groups in South Africa (Whyte 2001) and a 14-year study of Savanna Elephants in Kenya (Wittemyer *et al*. 2013) which generated a range of 24.1–25 years.

Subcriterion A2 is applied because some of the major causes for population reduction, such as habitat loss due to human population expansion, have not ceased and are projected to increase in coming decades as well as unlikely to be reversible. The population reduction assessment for subcriterion A2 (considering three generations back) is inferred from published survey data using a modelling approach described in the Supplementary Information document. Density and distribution estimates for the African Savanna Elephant vary in methodology, completeness, regularity, date of first survey and confidence limits. Few credible estimates exist prior to the 1970s, and there is no credible estimate for the continental population more than two generations back. For this Red List assessment, an attempt was made to model the data three generations back to 1940 (see the attached Supplementary Information for description of data that is current as of and up to the end of 2015); however, given the sparseness of information available to inform the model, such modelling was of limited value. Therefore, rather than projecting declines well beyond the available data, we made the assumption that the continental African Savanna Elephant population of three generations back (1940) was equal to that of two generations back (i.e., 1965). Additional assumptions, necessary to fill gaps in the dataset, are detailed in the attached Supplementary Information document.

Subcriterion A3 has not been applied, because although the major threats to the species are known, projecting the level of such threats 25 or more years into the future (i.e., three generations, up to a maximum of 100 years) would likely introduce high levels of uncertainty.

An assessment of population reduction according to subcriterion A4 considering two generations back and one forward is in progress by this team of Assessors (Edwards *et al*. in prep.). Analysis of poaching and human influence in the recent past and anticipated in the future based upon available data of two representative indices (i.e., proportion of illegal killed elephants (PIKE) and the human footprint index) are being included as covariates in the projection.

Criteria B, C and D are not relevant to the threatened status as the species currently occupies more than 20,000 km^2 and there are more than 10,000 mature individuals. No quantitative analysis of the probability of extinction in the wild was conducted, and therefore criterion E does not apply.

Previous Assessments of African Elephant:

This is the first assessment of the African Savanna Elephant (*Loxodonta africana*) as a species separate

from the African Forest Elephant (*L. cyclotis*).

The African Elephant, as a single species, was listed as Vulnerable (VU A2a) in the 2004 and 2008 updates of the IUCN Red List of Threatened Species, under the same IUCN Categories and Criteria used in this assessment (Version 3.1; IUCN 2001).

Previously the African Elephant, as a single species, was listed as Endangered (EN A1b) under the IUCN Categories and Criteria Version 2.3 (IUCN 1994), in an assessment conducted in 1996 by the IUCN SSC African Elephant Specialist Group.

For further information about this species, see Supplementary Material.

Previously Published Red List Assessments

2021 – Endangered (EN)
https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T181008073A181022663.en

Geographic Range

Range Description:

African Savanna Elephants once occurred across all of Africa (Sikes 1971) and currently are found in 24 countries (see range map). Although knowledge of African Savanna Elephant distribution varies spatially and temporally, it is evident that the species' distribution is retracting and becoming increasingly fragmented across their range in the continent. African Savanna Elephants occupy an estimated 15% of their historic pre- agricultural range (Chase *et al*. 2016). African Savanna Elephants are considered nationally extirpated in Burundi and Mauritania. In Eswatini, the once extirpated population has been re-established through reintroductions that began in the 1980s. Recent range expansion is evident in Kenya and Botswana (Douglas-Hamilton 1979; Said *et al*. 1995; Barnes *et al*. 1998; Blanc *et al*. 2003, 2007; Thouless *et al*. 2016).

The species' range map associated with this assessment is complete with the exception that some small private reserves in South Africa with less than 50 elephants each are absent as they were excluded from the African Elephant Database due to concerns about the census techniques.

Country Occurrence:

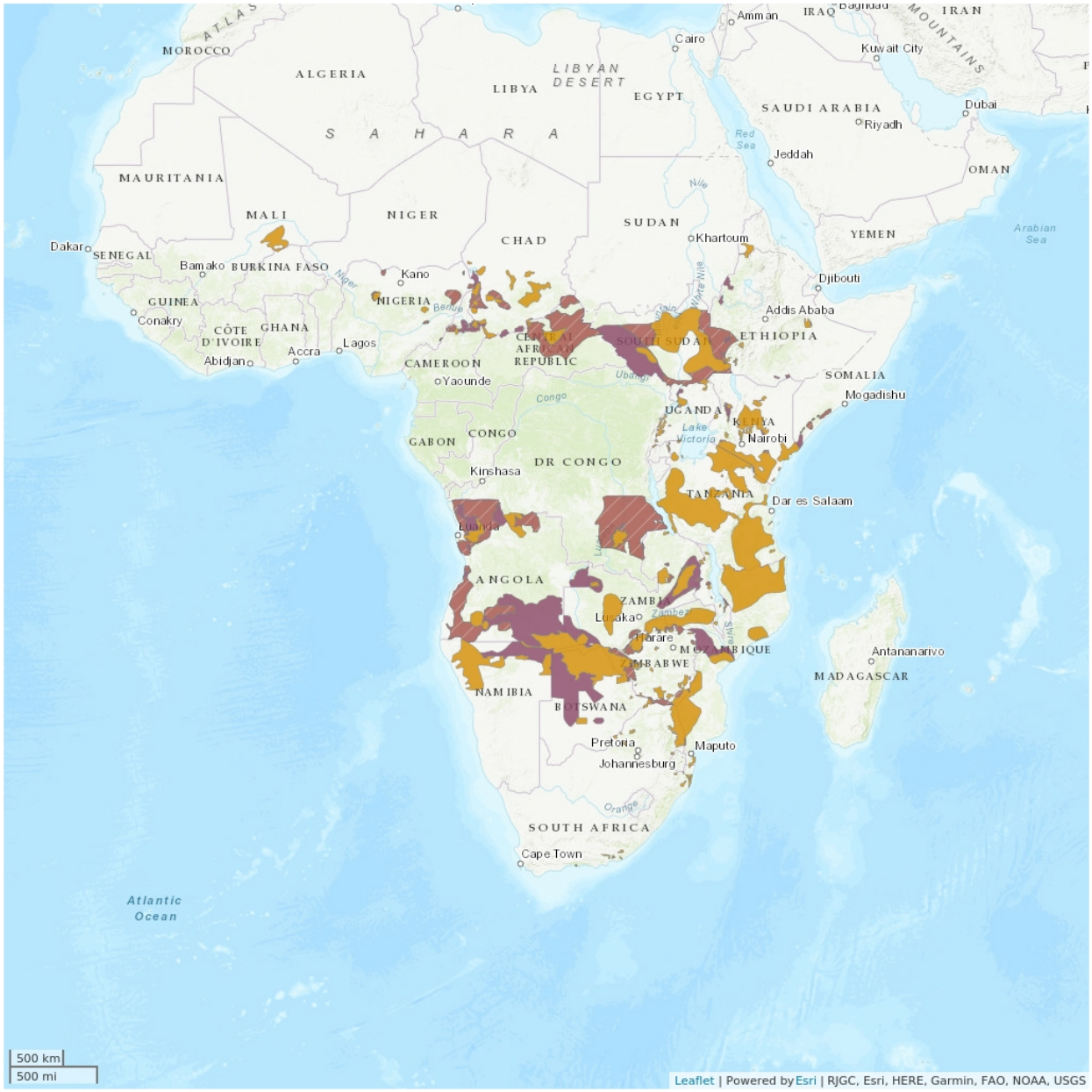
Native, Extant (resident): Angola; Botswana; Cameroon; Central African Republic; Chad; Congo, The Democratic Republic of the; Eritrea; Ethiopia; Kenya; Malawi; Mali; Mozambique; Namibia; Nigeria; Rwanda; Somalia; South Africa; South Sudan; Tanzania, United Republic of; Uganda; Zambia; Zimbabwe

Native, Extant (passage): Burkina Faso

Native, Extinct: Burundi; Mauritania

Extant & Reintroduced (resident): Eswatini

Distribution Map



Legend

- EXTANT (RESIDENT)
- POSSIBLY EXTANT (RESIDENT)
- EXTANT & REINTRODUCED (RESIDENT)
- POSSIBLY EXTINCT

Compiled by:

IUCN SSC African Elephant Specialist Group 2021

The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

Population

Over the past century, African Savanna Elephant subpopulations have declined across most of their range. The African Elephant Status Report 2016 estimated a continental population of 415,428 (+/- 95% C.I. 20,111) for both African Savanna and African Forest Elephants combined and reported a continental decline of approximately 111,000 elephants since 2006 (Thouless *et al*. 2016). For a similar time period, following a survey of approximately 90% of their range, a decline of 30% of African Savanna Elephants was reported (Chase *et al*. 2016).

For further information about this species, see the attached Supplementary Information document.

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Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

African Savanna Elephants are found over a wide latitudinal range between the northern tropics in Mali (16° North) to the southern temperate zone (34° South) in South Africa. They occupy a variety of habitats ranging from montane forest, miombo and mopane woodland, thicket, savanna and grasslands to arid deserts and a wide altitudinal range from mountain slopes to oceanic beaches.

See also the list of habitats.

African Savanna Elephants are capable of moving long distances and naturally do so in arid ecosystems and in response to climatic conditions (e.g., seasonality and drought). Depending on productivity, and water availability African Savanna Elephants demonstrate range residence, migratory, semi-migratory and near nomadic movement patterns in different regions of the continent. Home range sizes vary by several orders of magnitude primarily in relation to plant productivity and human activity in different ecosystems (Loarie *et al*. 2009, Wall *et al*. 2013). Thirty African Savanna Elephant subpopulations (eight of which number more than 1,000 individuals) span international boundaries, including the more than 200,000 elephants in the five-country Kavango-Zambezi Transfrontier Conservation Area (Lindsay *et al*. 2017, KAZA Secretariat 2018).

Ecosystem Services:

Ecosystem services provided by African Savanna Elephants vary and depend to a large extent on the ecosystem (forest, savanna, grassland or desert), specific conditions on the ground and the geographical context under consideration. In general, they play an important ecological role as bulk processors of plant material (Owen-Smith 1989). In savannas, African Savanna Elephants are manipulators of woody vegetation structure which in turn influences the tree to grass ratio with knock-on consequences for the fire regime and potentially species composition in the area (Dublin *et al*. 1990, Augustine and McNaughton 2004, Palmer *et al*. 2008, Holdo *et al*. 2009, Goheen *et al*. 2010, Pringle *et al*. 2016). Where they are associated with wetlands African Savanna Elephants can be important in maintaining channels and open water ways. Soil fertility can be maintained by the transport of nutrients by large herbivores from nutrient rich sources (e.g., eutrophic soils in flood plains and termite mounds) to dystrophic soils

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

(e.g., upland miombo woodlands) (Cumming *et al*. 1997, Doughty *et al*. 2016, Malhi *et al*. 2016).

The charismatic nature of African Savanna Elephants plays an important role in attracting tourism into national parks. They also hold important symbolic significance within the cultures of many African communities. African Savanna Elephants are one of the few iconic species that occur in the majority of African countries, and innumerable stories, songs, and cultural traditions revolve around them.

Systems: Terrestrial

Use and Trade

Ivory: Use of African Savanna Elephant ivory is entrenched in numerous cultures across the globe, primarily for ornamental and decorative items. Historically, demand for African Savanna Elephant ivory has been high in Europe, the USA and Asia. For example, beginning in the 1920s, Japanese carvers turned to African elephant ivory as Asian supplies diminished through the 1970s when Japan accounted for about 40% of the global ivory market (Martin 1986; Nishihara 2003, 2012).

In 1989, the Convention on International Trade of Endangered Species of Wild Flora and Fauna (CITES) banned the international commercial trade of ivory in response to a steep decline in African elephants across a substantial portion of their range. Thereafter, two CITES-sanctioned sales of national ivory stockpiles occurred in 2002 and 2008 with Botswana, Zimbabwe, Namibia and South Africa selling ivory to China and Japan. At the same time, a nine-year moratorium (ending in 2017) on any new ivory sale proposals from the four African countries followed (www.cites.org). In the 2000s, Chinese demand for ivory greatly surpassed that of Japan where demand for ivory appeared to substantially decline (CITES 2014). As a consequence, prices rose steeply in China and in Africa (Wittemyer *et al*. 2011, 2014). Debates about the benefits and consequences of the sale of national ivory stockpiles are highly polarized with limited consensus (Stiles 2004, 't Sas-Rolfes *et al*. 2014, Bennett 2015, Biggs *et al*. 2017).

Analysis of ivory seizure data indicates that the volume of illegally trafficked ivory has increased substantially since 2006 (Underwood *et al*. 2013; Milliken 2016; CITES 2018, 2019). Undercover investigations and DNA forensics point to the laundering of illegal ivory in legal domestic ivory markets. Seizure analyses indicate that the majority of illegally trafficked ivory is destined for Asia, especially China, Viet Nam and Thailand (CITES 2016, 2018 and 2019; Lui 2015; Krishnasamy 2016). In response to this and other concerns, China closed its legal domestic ivory market in 2017; Hong Kong SAR took steps to do the same by 2021 (https://www.info.gov.hk/gia/general/201706/02/P2017060100655.htm), and Thailand tightened its domestic Asian Elephant ivory trade regulations in 2015 (http://www.mfa.go.th/main/en/media-center/14/52929-Thailand-Submits-First-Progress-Report-on-Implemen.html). A substantial drop in ivory prices in mainland China has been associated with this action (Vigne and Martin 2017, Meijer *et al*. 2018). Significant illegal ivory markets remain in several Southeast Asian countries, such as Lao PDR and Viet Nam (www.cites.org; Vigne and Martin 2017).

Non-consumptive Tourism: African Savanna Elephants have significant tourism draw for wildlife watching and photographic tourism throughout their range substantially contributing to local economies (Naidoo *et al*. 2016). Tourism operations occur in national and local government protected areas, as well as on land under private or communal tenure.

Trophy Hunting: In some range states sport hunting of African Savanna Elephants is legally permitted and forms an integral element of those countries' wildlife management and community support programs (e.g., Naidoo *et al*. 2016). Botswana, Mozambique, Namibia, South Africa, Tanzania and Zimbabwe have trophy hunting industries and in 2020 applied to CITES for a combined quota of 2,404 tusks (https://cites.org/eng/resources/quotas/index.php Accessed 16 August 2020). Depending on the governance and management structures, government bodies, private operations and local communities derive revenue from trophy hunting.

Other Trade: A legal domestic trade in African Savanna Elephant hides is present in South Africa. There have been limited reports of African Savanna Elephant poaching for other body parts beyond ivory, such as meat, bone, skin and hair (Blignaut *et al*. 2008). International live trade in African Savanna Elephants occurs between South Africa and other countries, mainly in an effort to re-establish or fortify dwindling populations in some protected areas. Live trade in young African Savanna Elephants from Zimbabwe (Russo and Cruise 2016) and Eswatini (Madowo 2019) to Asia and elsewhere for zoological collections also occurs. Controversy surrounds these transactions as the conservation benefit to the species has been questioned. Domestic trade in African Savanna Elephants exists in South Africa at a low level for reintroduction purposes between reserves (Pretorius *et al*. 2018).

Threats (see Appendix for additional information)

Poaching of African Savanna Elephants for ivory is a major cause of individual death and population decline (Wittemyer *et al*. 2014, Thouless *et al*. 2016). After a sustained period of intense poaching between the late 1970s and 1989, many African Savanna Elephant populations (e.g., in Kenya, Tanzania, Zambia, Uganda) experienced two to three decades of recovery. Some northern African Savanna Elephant populations, however, experienced persistent poaching pressure through the last three decades (Bouche *et al*. 2011, 2012). Data collected as a part of the CITES Monitoring the Illegal Killing of Elephants programme (MIKE), indicate that poaching significantly intensified across the continent starting in 2008 and peaking in 2011 – an unsustainably high level of poaching has continued into current times in some areas of the continent (CITES 2018, 2019), and may be increasing in some of the historically less-affected southern African populations (CITES 2018, 2019). Rapid land use change by humans is driving the direct loss and fragmentation of habitat for African Savanna Elephants and is an increasing threat to populations across their range (Thouless *et al*. 2016, Mpakairi *et al*. 2019). Land conversion is a product of the ongoing expansion of the human population and associated agriculture and infrastructure development, which in turn are driven by economic and technological advances. A manifestation of this trend is the reported increase in human-elephant conflict (e.g., Pozo *et al*. 2018). Human population growth projections suggest land conversion will accelerate rapidly in the coming decades across Africa (see https://population.un.org/wpp/Publications/) which will likely increase this threat.

Conservation Actions (see Appendix for additional information)

The African Savanna Elephant was listed in CITES Appendix I in 1989 when all African elephants were considered a single species. Subsequently, the populations of Botswana (1997), Namibia (1997), South Africa (2000) and Zimbabwe (1997) were transferred to Appendix II, each with specific annotations. These annotations have been recently replaced by a single annotation for all four countries, with specific sub-annotations for the populations of Namibia and Zimbabwe. A separate CITES listing for each species has not occurred yet because a formal designation as two separate species (i.e., *Loxodonta africana* and *L. cyclotis*) is still in progress.

The African Elephant Action Plan (AEAP; developed and adopted by African elephant range countries) was adopted by CITES in March 2010 and is a statement by all range countries regarding the most important and immediate activities which require implementation and funding if Africa's elephants are to be conserved. The African Elephant Fund was established to support the implementation of the African Elephant Action Plan. It should be noted that the AEAP does not distinguish different taxa of African elephant. The African Savanna Elephants which occur in transboundary populations introduce complications (e.g., matters of sovereignty) when considering national populations for CITES purposes (Lindsay *et al*. 2017).

A number of CITES-initiated instruments were created to monitor and combat illegal trade in ivory. The CITES MIKE programme, which was established in 2002, has 66 designated sites across African elephant range and provides the most detailed and reliable data available on continental poaching pressure (CITES 2018, 2019); this includes 39 sites in 18 range countries of the African Savanna Elephant (https://cites.org/eng/prog/mike, Accessed 16 August 2020). Eswatini, South Sudan, Central African Republic, the Democratic Republic of the Congo and Somalia do not have MIKE sites for their African Savanna Elephants. The Elephant Trade Information System (ETIS), established in 1996, is managed by TRAFFIC as a comprehensive information system for tracking illegal trade in ivory and other elephant products (CITES 2016, 2019). At a national level National Ivory Action Plans (NIAPs) are a tool designed to track significant and timely action to combat the illegal trade in ivory. Currently 24 African, Middle Eastern, and Asian countries, as identified by ETIS analyses, are required to produce and implement a NIAP (https://cites.org/eng/niaps, Accessed 16 August 2020); 11 of these are range countries of the African Savanna Elephant.

At a national level the African Savanna Elephant is subject to varying degrees of legal protection in the 23 range states, with most countries granting the species the highest protection status. Providing this protection is complicated by the fact that over half of the species' range may extend beyond the boundaries of protected areas (Taylor 2009). This point is emphasized by the evidence that the degree of protection is an important predictor of African Savanna Elephant's presence and density (de Boer *et al*. 2013).

Conservation measures usually include habitat management and protection through policy, legislation and law enforcement. Successful anti-poaching and management at a site level has contributed to the re-establishment or recovery of a number of populations of African Savanna Elephants. In instances where protection efforts have failed, the African Savanna Elephant population was reduced by 70% or more in a matter of a decade (Chase *et al*. 2016).

In the context where management culling was undertaken (mainly southern Africa) up until the late 1980s or early 1990s, culling has largely ceased and population density management is being attempted through actions such as translocation, contraception and range manipulation such as closure of artificial water point (Scholes and Mennell 2008). Fire management is being attempted in some transboundary situations to mitigate further habitat and/or woodland modification as a consequence of African Savanna Elephant activity (Starfield *et al*. 1993, Mapaure 2013, Eastment 2020).

Credits

Assessor(s):	Gobush, K.S., Edwards, C.T.T, Balfour, D., Wittemyer, G., Maisels, F. & Taylor, R.D.
Reviewer(s):	Selier, J. & Sibanda, N.
Contributor(s):	Blanc, J.
Facilitator(s) and Compiler(s):	Ross, J.P.
Authority/Authorities:	IUCN SSC African Elephant Specialist Group

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

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Citation

Gobush, K.S., Edwards, C.T.T, Balfour, D., Wittemyer, G., Maisels, F. & Taylor, R.D. 2021. *Loxodonta africana* (amended version of 2021 assessment). *The IUCN Red List of Threatened Species* 2021: e.T181008073A204401095. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

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External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.5. Forest - Subtropical/Tropical Dry	-	Suitable	Yes
1. Forest -> 1.6. Forest - Subtropical/Tropical Moist Lowland	-	Suitable	No
1. Forest -> 1.7. Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level	-	Suitable	No
1. Forest -> 1.8. Forest - Subtropical/Tropical Swamp	-	Suitable	No
1. Forest -> 1.9. Forest - Subtropical/Tropical Moist Montane	-	Suitable	No
2. Savanna -> 2.1. Savanna - Dry	-	Suitable	Yes
2. Savanna -> 2.2. Savanna - Moist	-	Suitable	Yes
3. Shrubland -> 3.5. Shrubland - Subtropical/Tropical Dry	-	Suitable	Yes
3. Shrubland -> 3.6. Shrubland - Subtropical/Tropical Moist	-	Suitable	Yes
4. Grassland -> 4.5. Grassland - Subtropical/Tropical Dry	-	Suitable	Yes
4. Grassland -> 4.6. Grassland - Subtropical/Tropical Seasonally Wet/Flooded	-	Suitable	Yes
5. Wetlands (inland) -> 5.1. Wetlands (inland) - Permanent Rivers/Streams/Creeks (includes waterfalls)	-	Suitable	Yes
5. Wetlands (inland) -> 5.2. Wetlands (inland) - Seasonal/Intermittent/Irregular Rivers/Streams/Creeks	-	Suitable	Yes
5. Wetlands (inland) -> 5.3. Wetlands (inland) - Shrub Dominated Wetlands	-	Marginal	-
5. Wetlands (inland) -> 5.13. Wetlands (inland) - Permanent Inland Deltas	-	Suitable	No
8. Desert -> 8.1. Desert - Hot	-	Suitable	Yes
8. Desert -> 8.3. Desert - Cold	-	Suitable	Yes

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Sport hunting/specimen collecting	No	Yes	Yes
Pets/display animals, horticulture	No	Yes	Yes
Handicrafts, jewellery, etc.	No	Yes	Yes

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.1. Shifting agriculture	Ongoing	Majority (50-90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.2. Small-holder farming	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.1. Small-holder plantations	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.2. Wood & pulp plantations -> 2.2.2. Agro-industry plantations	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		

		2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.2. Small-holder grazing, ranching or farming	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.3. Agro-industry grazing, ranching or farming	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
3. Energy production & mining -> 3.1. Oil & gas drilling	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
3. Energy production & mining -> 3.2. Mining & quarrying	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 2. Species Stresses -> 2.2. Species disturbance		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
4. Transportation & service corridors -> 4.2. Utility & service lines	Ongoing	Minority (50%)	Causing/could cause fluctuations	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Rapid declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.2. Unintentional effects (species is not the target)	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Majority (50-90%)	Negligible declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		

5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.2. Species disturbance		
6. Human intrusions & disturbance -> 6.2. War, civil unrest & military exercises	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.1. Species mortality		
7. Natural system modifications -> 7.1. Fire & fire suppression -> 7.1.3. Trend Unknown/Unrecorded	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.2. Species disturbance		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion		
8. Invasive and other problematic species, genes & diseases -> 8.1. Invasive non-native/alien species/diseases -> 8.1.1. Unspecified species	Ongoing	-	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation		
11. Climate change & severe weather -> 11.2. Droughts	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.2. Species disturbance		
11. Climate change & severe weather -> 11.5. Other impacts	Ongoing	Whole (>90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.3. Indirect ecosystem effects 2. Species Stresses -> 2.3. Indirect species effects		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: Yes
Systematic monitoring scheme: Yes
In-place land/water protection
Conservation sites identified: Yes, over entire range
Occurs in at least one protected area: Yes

Conservation Action in Place
In-place species management
Harvest management plan: Yes
Successfully reintroduced or introduced benignly: Yes
In-place education
Subject to recent education and awareness programmes: Yes
Included in international legislation: Yes
Subject to any international management / trade controls: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.1. Site/area protection
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
3. Species management -> 3.1. Species management -> 3.1.1. Harvest management
3. Species management -> 3.1. Species management -> 3.1.2. Trade management
3. Species management -> 3.1. Species management -> 3.1.3. Limiting population growth
3. Species management -> 3.2. Species recovery
4. Education & awareness -> 4.1. Formal education
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.1. International level
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level
5. Law & policy -> 5.1. Legislation -> 5.1.3. Sub-national level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.1. International level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level
6. Livelihood, economic & other incentives -> 6.1. Linked enterprises & livelihood alternatives

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.4. Harvest, use & livelihoods
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Lower elevation limit (m): 0
Upper elevation limit (m): 2,500
Population
Continuing decline of mature individuals: Yes
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 25
Movement patterns: Full Migrant

https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T181008073A204401095.en

Amendment

Amendment reason: This amended version has been created because Burkina Faso has been added to the list of Countries of Occurrence and the supporting reference for the occurrence added to the Bibliography. Also a reference cited in the Trade and Use section of the assessment has been deleted and removed from the Bibliography. In addition an errata version of the Supplementary Material has been attached; an error in Figure 1 has been corrected and some additional text about the data in Tables 2 and 3 has been added.

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: ABQ BioPark; Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; Missouri Botanical Garden; NatureServe; Re:wild; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.