



REPORT

ZA

2019

Wildlife

# CONNECTING SOUTH AFRICA'S WILDLIFE, LANDSCAPES AND PEOPLE

Authors: Natalia Banasiak, Jo Shaw, Lara Rall, Nelisiwe Vundla

The authors acknowledge the insights and contributions from participants at the WWF South Africa Wildlife Programme Strategy workshop held in Cape Town in June 2017 and the Rhino Science and Management Meeting, held in Dinokeng Game Reserve in March 2018, which added to the content of this document and vision of the Programme overall.

The authors also thank Dianne Tipping-Wood and Yvonne Silaule for contributing the stories from the people living adjacent to the Kruger National Park.

WWF-SA communications: Sue Northam-Ras, Dimpho Lephaila

Reviewer: Theresa Frantz (WWF-SA), Julian Rademeyer (TRAFFIC)

Design, infographics and layout: GAPdesign | [www.gapdesign.co.za](http://www.gapdesign.co.za)

Front cover photo: © Natalia Banasiak / WWF-SA

Printed by Hansa Print

Printed on Galerie Art Natural

Published in June 2019 by WWF South Africa

Any reproduction in full or in part must mention the title and credit WWF-SA as the copyright owner.

Citation: Connecting South Africa's wildlife, landscapes and people.  
WWF-SA, Cape Town, South Africa.

© Text 2019 WWF-SA

All rights reserved

WWF is one of the world's largest and most experienced independent conservation organisations, with over 6 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

[wwf.org.za](http://wwf.org.za)



# CONTENTS

FOREWORD	3
STATE OF WILDLIFE	4
THREATS TO WILDLIFE	6
PEOPLE AND NATURE	8
KEY LEGISLATION & CONVENTIONS	10
WILDLIFE GOVERNANCE	11
WILDLIFE TRADE	12
ILLEGAL WILDLIFE TRADE	16
PEOPLE'S STORIES ABOUT LIVING WITH WILDLIFE	23
WWF-SA'S INVOLVEMENT IN WILDLIFE CONSERVATION	24
2003-NOW: WWF-SA Black Rhino Range Expansion Project	26
2012-2017: WWF-SA Rhino Programme	27
2017-NOW: WWF-SA Wildlife Programme	30
FUTURE THREATS TO WILDLIFE	38
CONCLUSION	39
GLOSSARY	40
REFERENCES	41







# FOREWORD

For thousands of years, our history has been woven alongside the wildlife roaming the diverse landscapes of Africa.



Jo Shaw, Senior Manager,  
WWF-SA Wildlife Programme

Wild animals shaped our history, and still form an integral part of our culture, bringing joy and reverence to many. Yet, never before have they been exposed to the extent of threats they currently face.

Global headlines highlight widespread losses of species; driven by the demand for wildlife and their parts and products, and exacerbated by habitat loss, human-wildlife conflict and climate change. Wildlife trafficking is further compounded by the growing involvement of organised criminal networks. As wildlife products become valuable and governance, in both source and consumer countries, often appears weak, corruption has become pervasive and is a key enabler of wildlife trafficking.

Countries in the global South have predominantly retained significant wildlife populations and governments face the challenge of balancing socio-economic growth with conservation, while addressing wildlife trafficking and other threats.

Wildlife conservation in South Africa has a complicated history. On one hand, we have a variety of conservation success stories and our wildlife populations, contrary to trends observed elsewhere in Africa, are growing. Conservation efforts in South Africa, across various sectors, were responsible for the recovery of the southern white rhino, black wildebeest, Cape mountain zebra and bontebok from the brink of extinction. In addition, we have a network of protected areas, representing many success stories across our diverse landscapes, which allow people from near and far to experience the thrill of hearing a lion's roar or the lulling grunts of hippos at twilight.

However, these successes had a cost. The establishment of protected areas resulted in land expropriation and the displacement of people in favour of wildlife. The process denied communities access to ancestral land and cultural sites as well as the natural resources they depended on. As a result, for many people living adjacent to wildlife areas, the legacy of conservation is negative. In addition, they bear the costs of living with wildlife while not receiving benefits derived from wildlife. Their voices have gone largely unheard and require particular attention in order to find solutions that are not mutually exclusive. Acknowledging, and where possible addressing, past injustices is becoming increasingly relevant to the continued success of conservation.



Wildlife conservation is complex, and as conservationists we find ourselves working in landscapes where the paradigm is shifting. Increasingly conservation issues are driven by challenges faced by people and require solutions that meet the needs of both people and wildlife. We can no longer just be biologists or ecologists; we must be sociologists, economists, criminologists and communicators. Our work has spread beyond the boundaries of protected areas and lies in addressing issues on both sides of the fence. Now and in the future, we must approach wildlife challenges and opportunities with a multidisciplinary mind-set.

Our report presents a snapshot of the state of wildlife in South Africa; working through some of the complexities of conservation in our country to some of the approaches we believe are required to address these issues. For our wildlife to thrive in the future, we need to recognise the role of wildlife in the lives of all South Africans.

# STATE OF WILDLIFE

---

The state and future of the Earth's wildlife and natural environments are largely dependent on us. Over the last century in particular, our impacts on the Earth have escalated to unprecedented levels.

These impacts are due to the exponential growth of the human population and per capita consumption. The global human population continues to increase by just over 1% annually – equating to 83 million people each year – and is expected to reach 10 billion by 2050. This growth will put increasing pressure on the Earth. Changes in climate, ocean acidification, and the loss of biomes and species due to land use changes can all be attributed to human activities. Changes are occurring at rates measurable over the course of a human lifetime. These changes have led scientists to suggest we have entered a new geological epoch called the 'Anthropocene' or the age of humans.

**60% ↓**  
**DECLINE  
OF VERTEBRATE  
SPECIES  
POPULATIONS  
GLOBALLY  
SINCE 1970**

## GLOBAL WILDLIFE DECLINE

Many scientists believe we are witnessing a sixth mass extinction event. The 2018 WWF Living Planet Index shows a 60% decline in the population sizes of vertebrate species between 1970 and 2014 around the world. Extinction rates of species are between 100 to 1 000 times the background rate. Degradation and loss of habitat are the most prevalent threats to terrestrial species, followed by overexploitation – which occurs when individual plants or animals are removed from a population faster than the population can naturally recover. Of all plant and animal extinctions since 1500 AD, 75% of species were negatively affected by either overexploitation or the spread of agriculture resulting in the loss of habitat, or a combination of both.

## AFRICAN WILDLIFE

Africa is home to some of the most revered animals in the world, and is unique in retaining largely intact ecosystems and megafaunal assemblages. African wildlife has been a source of inspiration for people worldwide: from indigenous totems and traditional stories to the writings of Livingstone, Roosevelt and Hemingway through to contemporary representations such as Disney's "The Lion King" or popular nature documentaries.

However, echoing global trends, Africa's species and ecosystems are under immense and increasing pressures. Across Africa, large terrestrial mammal populations have declined by 60% on average in protected areas between 1970 and 2005. The realities of conservation in Africa are complex; protected areas are often severely underfunded and conservation occurs within a dynamic interplay of growing human populations, poverty, civil unrest, and remnants of colonial and recent political injustices.



**SOUTH AFRICA HAS 95 000+ SPECIES OF PLANTS & ANIMALS**

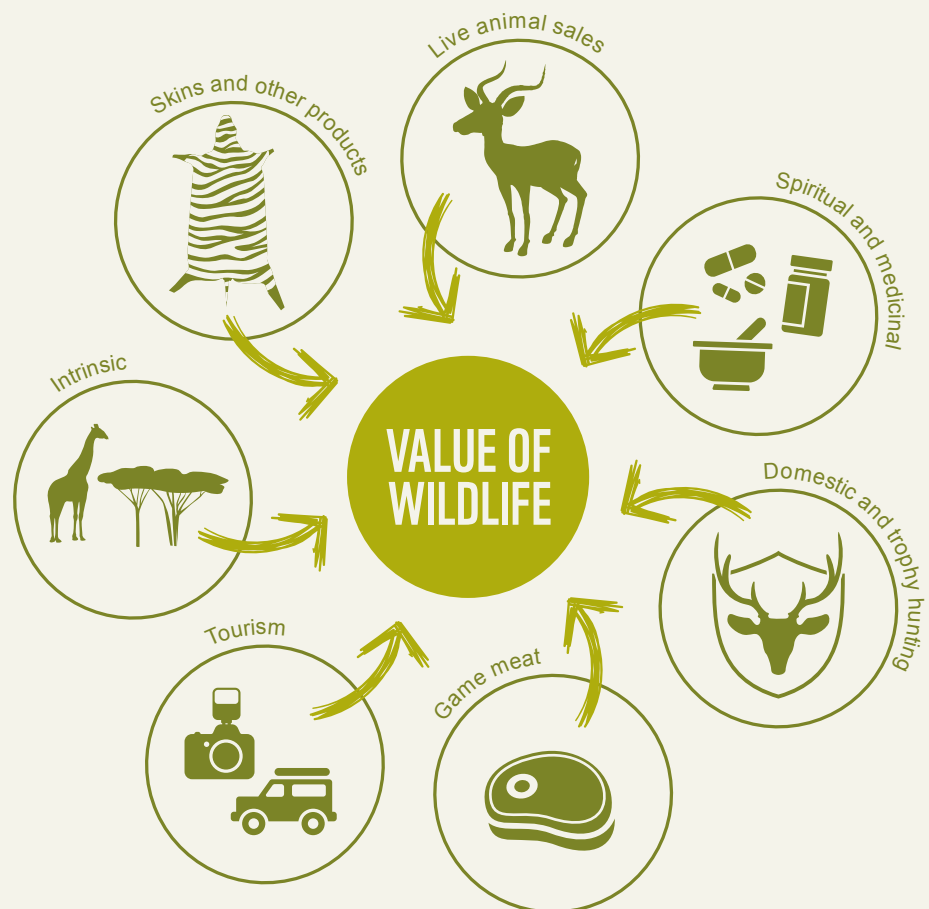


## BIODIVERSITY IN SOUTH AFRICA

South Africa has 307 inland mammal, 851 bird, 421 reptile, 118 amphibian and 2 314 fish species. It is home to the Big Five – rhino, elephant, buffalo, lion and leopard – as well as many other quintessentially African mammals such as giraffe, zebra, wildebeest, cheetah and hippo. There are, of course, many lesser known and more difficult to find mammals ranging from elephant shrew to aardvark, duiker to kudu as well as pangolin and African wild dog. Our diverse wildlife is one of the main reasons South Africa is a popular international and regional ecotourism. In 2016/2017, 6.7 million tourists visited South Africa's national parks.

As a result of its abundant biodiversity, South Africa is recognised as one of only 17 megadiverse countries globally and is the third most biodiverse after Brazil and Indonesia. Three globally recognised biodiversity hotspots are found within South Africa: the Cape Floristic Region, the Succulent Karoo, shared with Namibia, and the Maputaland-Pondoland-Albany hotspot, shared with Mozambique and Eswatini (Swaziland).

South Africa, like many other countries in southern Africa and around the globe, has to balance development with biodiversity conservation – something most developed countries have historically failed to do. Achieving this requires an understanding of the different values that wildlife can bring to people, from those living adjacent to wildlife areas to civil society as a whole.



By recognising these values historically, wildlife populations in South Africa have remained stable or increased compared to the general declines recorded elsewhere in Africa in recent decades. Despite this, many of the threats faced by wildlife globally also affect wildlife in South Africa.



# THREATS TO WILDLIFE



## SOCIO-ECONOMIC ISSUES

By 2050, Africa is predicted to have the world's fastest growing human population and will drive the world's growth. Furthermore, it is expected to be the only continent experiencing population growth beyond 2050. The UN predicts that 86% of the world's extreme poor will live in sub-Saharan Africa and there will be a growing proportion of youth seeking livelihood opportunities. South Africa has a population of 56.5 million people growing at 1.23% annually which is above the global average.

Humans and wildlife compete for food, water, space and other resources. This acts as an underlying driver of many threats to wildlife and growing human populations will put increasing pressure on limited natural resources.



## HABITAT LOSS, DEGRADATION AND FRAGMENTATION

Fragmentation and loss of habitat results in smaller, isolated wildlife populations which have a higher extinction risk. Primary causes are the conversion of natural land for agriculture, urban development, transportation, and mining. Where land use is not managed properly, it often results in degraded land, soil erosion and the loss of biodiversity. Due to legal ownership of land and wildlife, South Africa's wildlife areas are generally fenced, exacerbating fragmentation and adding to management complexity, especially for wide-ranging species such as elephants and African wild dogs.



## OVEREXPLOITATION

Hunting or harvesting of natural resources, whether done legally or illegally, at an unsustainable rate is referred to as direct overexploitation. This means that individual animals are removed faster than the population can naturally recover. If overexploitation is not addressed it can lead to population and ecosystem-level impacts. Indirect overexploitation occurs when non-target species are killed unintentionally, for example rhinos or lions can be caught in snares left out for subsistence hunting of antelope.



## HUMAN-WILDLIFE CONFLICT

Conflict between humans and wildlife is one of the main conservation challenges in Africa. Both people and animals have similar needs and are drawn to areas with sources of water, food and shelter. Conflict arises from both real and perceived threats to people, property, livestock and crops, and from direct competition for resources. Conflict has negative impacts, and represents very real threats, for both people and wildlife. As human populations expand and natural habitats shrink, human-wildlife conflict is predicted to increase.





## POISONING

The intentional poisoning of wildlife is linked with other threats such as overexploitation and human-wildlife conflict but is of particular concern due to its indiscriminate nature. Poison can be used in water sources, carcasses or other food items, resulting in the deaths of various species and of multiple individuals, including those not targeted, from a single poisoning incident. Poisoning can also affect the land and water sources, impacting people and their livelihoods.



## POLLUTION

Pollutants are varied and pervasive, ranging from chemical pollutants such as sewage effluent and agricultural runoff to plastic waste and other litter. Other forms of pollution arise from anthropogenic activities, such as electromagnetic disturbances. Noise and light may be less obvious forms of pollution as they form part of our daily life but can have unintended negative effects on various wildlife species and their interactions, many of which we may not fully comprehend.



## INVASIVE SPECIES

Invasive alien species are those not naturally occurring in a habitat but that thrive in new conditions. Most have been introduced by humans, sometimes intentionally, and have since spread in a way that threatens indigenous biodiversity resulting in environmental or economic damage. South Africa has over 700 invasive plant and animal species that are estimated to annually cost the economy R6.5 billion worth of ecosystem services, which are benefits gained from the natural environment.



## CLIMATE CHANGE

Over the last 50 years, mean annual temperatures in South Africa have increased one and a half times the global average. The effects of climate change are already becoming evident in lengthening dry seasons, more frequent droughts and increasingly variable rainfall patterns. Climate change threatens water resources, food security, ecosystem services and biodiversity as climatic regions change and an area's ability to sustain both people and animals is altered.

# PEOPLE AND NATURE

Humans and wildlife have a long, interwoven history and animals are a big part of our culture. In South Africa, our relationship with wildlife has changed over time and remains varied and dynamic.

Historically, people depended on natural resources to survive. Wild animals provided clothing, food, shelter and medicines and featured predominantly in ancient cultures and religions as evidenced by San paintings and the clan names of the Nguni people.

## CULTURAL TRADITIONS



Traditionally, natural resource use was influenced by cultural beliefs and governed by traditional leaders. Many cultures bear or consume animal parts for healing or symbolic purposes such as conferring strength. Across Africa, scarce or valuable wildlife products have been used as religious or cultural regalia denoting status or given as gifts to leaders. Many of these traditional uses still occur and many communities across South Africa depend on natural resources to sustain their livelihoods.

13% OF SOUTH AFRICA'S LAND AREA IS CURRENTLY UNDER CONSERVATION

## COLONIAL IMPACTS

With the arrival of Europeans in South Africa, land was developed for agriculture, resulting in the alteration of natural habitat and removal of wildlife that competed with or threatened livestock.

Large-scale hunting of wildlife became commonplace, first serving practical purposes such as providing meat, protecting people and settlements, and for trade. Over time African game hunting became romanticised and developed as a pastime of the wealthy who came in search of adventure and to set records and gather trophies and specimens for collections.

Early European writings featured tales of abundant wildlife, but the unregulated exploits of these hunters had severe consequences for wildlife, including the extinction of the quagga, bluebuck and Cape lion as well as local extinctions of many other species.



BOTH KRUGER NATIONAL PARK AND THE NATIONAL PARKS BOARD WERE ESTABLISHED

## ESTABLISHMENT OF PROTECTED AREAS

Extinctions and declines in wildlife populations resulted in the emergence of hunting regulations and the concept of protected areas. However, these measures were primarily created to ensure certain wildlife species would persist for sport hunting rather than the conservation of ecosystems.

Our first game reserve, in the area that is now the Hluhluwe-iMfolozi Park in KwaZulu-Natal, was proclaimed in 1895. It was followed three years later by the Sabi Reserve that would be incorporated, along with the Shingwedzi Game Reserve, into the Kruger National Park in 1926. The National Parks Board, now South African National Parks (SANParks), was established in the same year. Currently national and provincial protected areas cover around 6 million hectares and 13% of South Africa's land is formally protected through the Natural Environmental Management: Protected Areas Act (NEMPAA).



The establishment of protected areas and associated governance structures, reinforced with colonial and Apartheid policies, resulted in communities being forcibly removed from their land and denied access to natural resources and cultural sites. These factors challenged relationships between communities, conservation areas and the authorities who manage them – a legacy that persists today.

With this backdrop, there is a growing awareness of the importance of acknowledging past injustices, including through just land reform and by bringing communities into conservation decisions and initiatives to create an enabling environment for both people and wildlife to thrive.



## PRIVATE OWNERSHIP OF WILDLIFE

In 1991, the Game Theft Act was passed permitting landowners to have ownership rights over wildlife within fenced areas. The Act made South Africa one of a few countries globally where wildlife can be privately owned and was a key factor in the emergence of various forms of wildlife areas and industries. South Africa has around 9 000 privately owned game farms covering 17 to 20 million hectares (14-16.8% of the land surface) and containing between 16 and 20 million animals.

Southern Africa's private wildlife and landowners play a key role in conservation. South Africa, Namibia and Zimbabwe are the only African countries to allow private ownership and commercialisation of wildlife and have seen an increase in both biodiversity areas and wildlife numbers since the 1970s. However, several challenges are associated with the sector:

- Management of private land varies from extensive natural systems similar to those found in state protected areas to more intensive methods mirroring agricultural practices, and currently there are insufficient incentives for biodiversity-friendly, landscape management approaches;
- There are no requirements to formally protect land, so private game farms exist under varying levels of protection. As a result there may be no binding commitment to conservation practices and land may be at risk due to changes in land use profitability;
- Wildlife populations are fragmented and isolated as farms are fenced and managed as separate entities;
- There are difficulties in gathering information about land and wildlife for monitoring, making it challenging to determine ecological, economic and social benefits of private conservation areas;
- Due to the varied objectives of landowners and management approaches, there are challenges in developing appropriate policies and best management practices beyond minimum requirements.

While South Africa has diverse approaches to conservation, these approaches align to both national and international legislation.

# KEY LEGISLATION & CONVENTIONS

South Africa has a well-developed policy and legislative framework for sustainable use and conservation which requires ongoing commitment for effective implementation and enforcement.

## Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

1975

An international treaty which was opened for signature in 1973 and governs the international trade of plant and animal species sourced from the wild. Currently the Convention is made up of 182 states and the European Union. While CITES is legally binding, it does not replace national legislation but provides a framework to which legislation should be adapted for CITES to be implemented at a national level.

1991

## Game Theft Act

Where animals are fenced in an area that holds a “certificate of adequate enclosure” the Act permits the landowner to have ownership rights over those animals therefore removing the prior *res nullius* status of wild animals which meant that wild-life were considered ownerless property.

1993

## Convention on Biological Diversity (CBD)

A multilateral treaty that sets a philosophy of sustainable use of natural resources and recognises that conservation can bring environmental, economic and social benefits.

## South African Constitution Section 24

1996

As the supreme law in South Africa the Constitution states that everyone has the right to an environment that is not detrimental to their health and well-being.

It also states that people have the right to have the environment protected for the benefit of present and future generations through passing legislation and other measures to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development.

1997

## White Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity

Highlights the importance of biodiversity in providing ecosystem services and its relevance to the country’s development agenda. This White Paper drew attention to the need for managing and conserving landscapes and ecosystems outside of formal protected areas and laid the principles for the development of the Biodiversity Act in 2004.

## National Environmental Management Act (NEMA)

1998

Provides the framework within which national legislation relating to conservation is developed. NEMA defines terms, lists principles of environmental management and sets out requirements regarding environmental authorisations for certain listed activities. NEMA ensures that South Africa meets its international obligations and provides for measures to ensure effective compliance and enforcement.

2003

## NEM: Protected Areas Act (NEMPAA)

Regulates the formal protection and management of ecologically viable areas that represent South Africa’s biodiversity and natural land- and seascapes, sets the legal requirements for the management of national, provincial and local protected areas on private or communal land and balances the relationships between conservation and socio-economic development.

## NEM: Biodiversity Act (NEMBA) (with amendments in 2009 and 2013)

2004

Provides the framework for an ecosystem-orientated approach to conservation management and the sustainable use and equitable benefit-sharing of biological resources.

2005

## National Biodiversity Strategy and Action Plan (revised in 2015)

As a result of the Convention on Biological Diversity this is a comprehensive framework and long-term plan of action for the conservation and sustainable use of biodiversity in South Africa.

## National Biodiversity Framework

2008

Focuses attention on the most urgent strategies and actions that can make the greatest difference, as well as co-ordinating and aligning the efforts of the many organisations and individuals involved in conserving and managing South Africa’s biodiversity.

2015

## Biodiversity Economy Strategy

Aims to guide the sustainable growth of the wildlife and bioprospecting industries to optimise the economic potential of South Africa’s diverse genetic and biological resources.



# WILDLIFE GOVERNANCE

The Constitution provides for competence in conservation at national and provincial level, meaning that there are concurrent scales of law.

Historically, provincial authorities were responsible for conservation management. In 2004, national regulations were implemented through NEMBA but there are many role players involved in conservation. Challenges arise from the interplay of national, provincial and local conservation laws that can result in disputes over mandates and jurisdictions as well as introducing complexities relating to regulation of permits for restricted activities with wildlife.



SINCE 2004  
WILDLIFE  
MANAGEMENT  
IN SOUTH AFRICA  
IS REGULATED  
NATIONALLY  
THROUGH NEMBA

## NATIONAL AUTHORITIES

The national government is the overarching authority that develops policy and strategy and provides resources for capacity to implement policies and enforce legislation. The mandate of the Department of Environment, Forestry and Fisheries is drawn from NEMA. The Department is mandated to oversee, guide and promote national environmental interests and support global commitments. The management of biodiversity is one of many aspects of the Department's mandate, which also includes improving the quality and safety of the environment, reducing pollution and waste, and promoting sustainable development.

The Department of Agriculture, Land Reform and Rural Development is expected to be increasingly involved in matters pertaining to wildlife kept under captive and agricultural conditions and conservation more broadly.

Public Entities report into and support the mandate of the Department through specific responsibilities and report to the Minister. NEMBA established the South African National Biodiversity Institute (SANBI) which leads and co-ordinates research, monitors and reports on the state of biodiversity, and supports the Scientific Authority to advise on trade in wild-sourced plant and animal species. SANParks is responsible for managing national parks and was established in terms of NEMPAA.

## PROVINCIAL AUTHORITIES

Provincial departments strive to align their legislation to the national framework and are responsible for permitting, implementation of policies and enforcement of activities relating to wildlife within their jurisdiction. Some provincial governments have established and tasked agencies with implementing conservation, for example, CapeNature in the Western Cape and Ezemvelo KZN Wildlife in KwaZulu-Natal.

## OTHER STAKEHOLDERS

In addition, there are various civil society organisations, including Non-Government Organisations, that do not have a legal mandate but are involved in environmental management or that have specific areas of focus, such as species or ecosystems. As described, the private wildlife sector also plays a role in conservation.

# WILDLIFE TRADE

Wildlife trade can contribute to the economy and incentivise conservation. Wildlife can be used legally and sustainably – a philosophy enshrined in the South African Constitution and conservation policies.

Legal trade in wildlife and their products may help bridge the gap between conservation and development by providing a source of income and incentivising environmental protection. However, legal trade requires good governance and effective regulation.

Demand for wildlife and wildlife products is growing, both from local and international consumers. Wildlife trade exists on a continuum from household consumption and/or immediate community trade to commercial trade in urban or international markets and can be conducted in a variety of ways from traditional markets to online sales.



**65 000 JOBS  
PROVIDED BY THE  
WILDLIFE INDUSTRY  
IN SOUTH AFRICA**

## LOCAL WILDLIFE ECONOMY

South Africa is a major exporter of wildlife products. The significant and growing wildlife industry contributes approximately R3 billion to the country's Gross Domestic Product (GDP) and supports over 65 000 permanent jobs. The DEA launched the Biodiversity Economy Strategy in 2018. The strategy aims to increase the contribution of biodiversity to South Africa's GDP through sustainable utilisation of biological resources. The strategy incorporates bio-prospecting, that includes developing pharmaceutical and cosmetic products, and the wildlife industry, which comprises game ranching activities including sale, breeding and hunting as well as the services and goods required to support the value chain, e.g. butcheries, taxidermy, hunting equipment etc.

Legally traded wildlife products in South Africa include:

- Game meat;
- Live animals;
- Hunting trophies and specimens;
- Medicinal products;
- Skins and other products such as souvenirs, leather, feathers or jewellery.

## WHEN TRADE BECOMES A PROBLEM

Trade of wildlife and wildlife products can become a serious threat to wild populations due to overexploitation if source populations and trade are not monitored and regulated effectively. To prevent unsustainable use, trade in species is governed by local and international legislation. In South Africa, the Threatened and Protected Species (TOPS) Regulations of NEMBA regulate the movement, ownership and trade of certain listed species, while international trade is governed by CITES. There is a growing illegal trade in wildlife products, from subsistence through to high value products, that is a pervasive threat to species across the globe.



## FIVE AREAS OF INTERVENTION FOR TRADE CONSIDERATION

Wildlife trade, particularly of high value products, should only occur in scenarios with good governance. In 2015, the Committee of Inquiry on the trade in rhino horn identified five areas of intervention that are required before trade can be considered. While these were developed for rhino horn specifically they can be applied to all species.

### 1. **Security/ Law enforcement**

The country needs to have law enforcement capacity to counter transnational organised crime (including wildlife trafficking), including an integrated national law enforcement strategy and a review of MoUs with other countries to ensure cooperation when addressing wildlife crime.

### 2. **Community empowerment**

The socio-economic conditions of communities neighbouring protected areas and their relationship with protected area management agencies need to be improved in order to create an environment for strong partnerships around natural resource management and beneficiation.

### 3. **Biological management**

The species needs to have a low extinction probability in the country and populations need to persist in their natural habitat. This requires the development and implementation of national biodiversity management plans and the resources to implement and monitor the plans. Ideally, the country should have the potential to act as a source for reintroduction purposes which requires regional cooperation and collaboration.

### 4. **Responsive legislative provisions and effective implementation**

Governments need to review legislation and implement amendments to address gaps identified to ensure that legislative provisions are in place to successfully convict offenders both in South Africa and identified range, transit and consumer countries. Existing legislation and legislative tools should be optimised to address all aspects of illegal trade. An integrated regulatory framework needs to be developed and implemented to regulate any trade-related activities, including intensive breeding of the species.

### 5. **Demand management and reduction**

Information is required on consumers' needs, attitudes and behaviour and on the prices currently paid for the wildlife product, whether legally or illegally traded. Trade monitoring systems need to be developed and implemented to gather the information.

For full details on the interventions, visit:

[https://www.environment.gov.za/sites/default/files/reports/summaryreport\\_committeeofinquiry.pdf](https://www.environment.gov.za/sites/default/files/reports/summaryreport_committeeofinquiry.pdf)



**CERTAIN ACTIVITIES  
RELATING TO  
WILDLIFE ARE  
NATIONALLY  
REGULATED AND  
REQUIRE PERMITS**

## THREATENED OR PROTECTED SPECIES (TOPS)

The purpose of the NEMBA TOPS regulations is to regulate restricted activities through a permit system. TOPS listed species are threatened by direct use or need regulation as current utilisation may result in significant declines in wild populations. TOPS also includes species listed as Critically Endangered, Endangered, Vulnerable or Near Threatened on the IUCN Red List. TOPS restricted activities include hunting, possession, breeding, trade (including import and export) and translocation. These activities may be prohibited and may not be carried out without a permit. TOPS further provides for hunting regulations, prohibitions of specific restricted activities, protection of wild populations, registration of facilities holding wild animals, and the composition and operating procedure for the Scientific Authority.

## CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)

International trade of wildlife products has to adhere to the CITES regulations. CITES accords over 35 000 species various degrees of protection based on a licensing system for all imports, exports, re-exports and introductions of listed species from areas beyond their national jurisdiction. Listed species belong to one of three appendices reflecting the extent to which they are threatened and the level of control for trade in that species.

- Appendix I includes species threatened with extinction and trade in specimens of these species is prohibited except under exceptional circumstances.
- Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilisation incompatible with their survival.
- Appendix III includes species that are protected in at least one country, which has asked other CITES parties for assistance in controlling the trade.



**INTERNATIONAL  
TRADE IS  
REGULATED BASED  
ON THE RISK TRADE  
POSES TO A SPECIES**

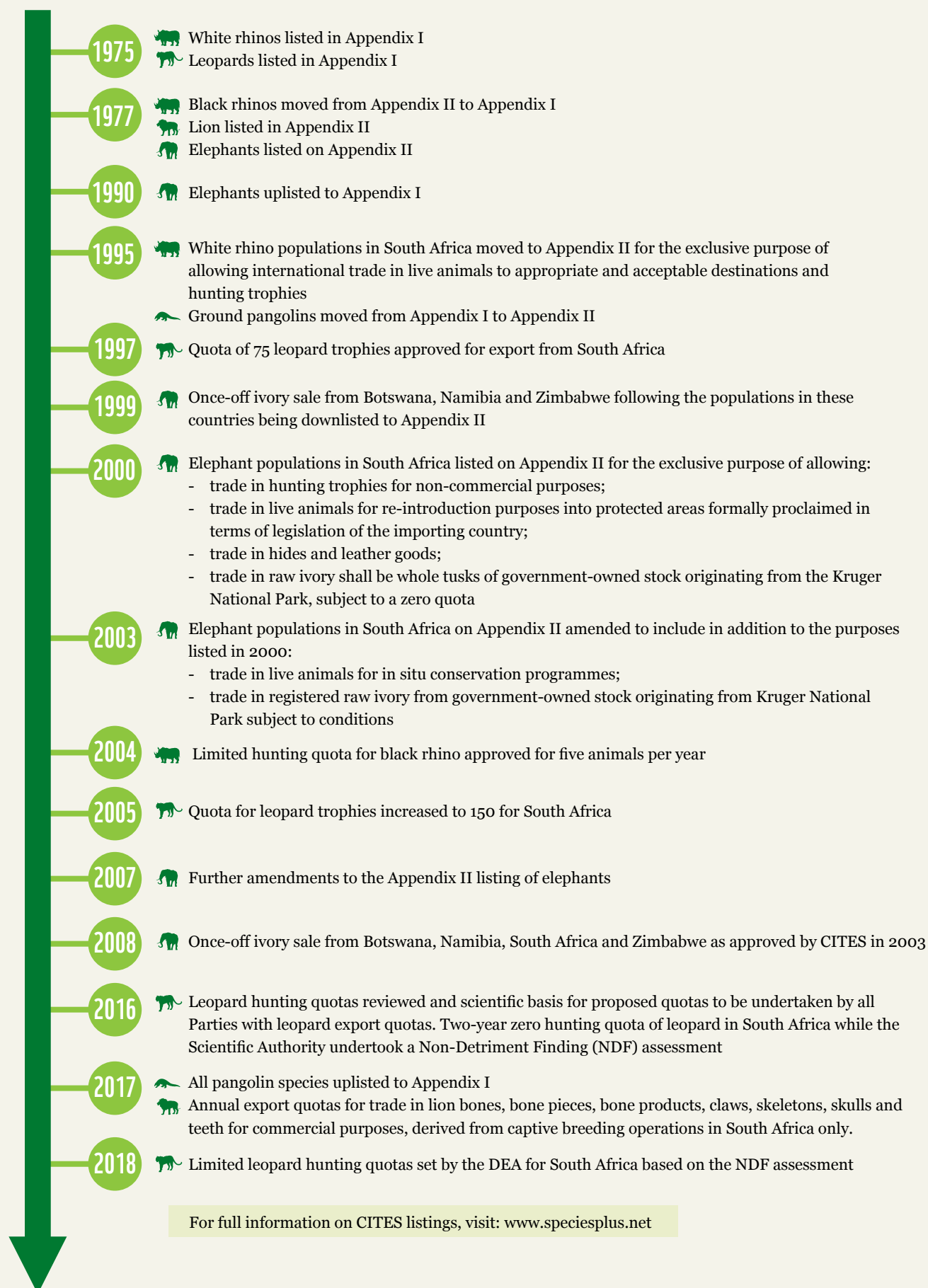


**BEFORE BUYING,  
CHECK WHICH  
WILDLIFE SPECIES  
THE PRODUCT IS  
DERIVED FROM**

## WHAT IS YOUR ROLE AS A BUYER OF WILDLIFE PRODUCTS?

Many species of animals and plants, and products derived from them – such as leather goods, clothing, curios and souvenirs, jewellery and medicines – are traded. Some products available for purchase, whether for personal or commercial purposes, may need a permit to be transported across provincial or international boundaries. Before buying, ensure that you check which species the product is derived from, if trade of the species is allowed and that you have a permit if required. Do not just rely on the word of the seller, if you do not have the required permits the product will be seized and you may be prosecuted. If you have any doubts or observe suspicious behaviour make sure to report it to the relevant authority.

# CITES DECISIONS ON SOUTH AFRICA'S PRIORITY SPECIES





# ILLEGAL WILDLIFE TRADE

Illegal wildlife trade has far-reaching impacts on both wildlife and people.

Over 7 000 species of plants and animals are illegally traded across the globe. Illegal wildlife trade is growing, especially of high-value products like rhino horn and elephant ivory. The trade is estimated to be worth \$7 to \$23 billion annually, which is comparable to the value of trafficking of narcotics, humans, weapons and counterfeit products. Current demand for high-value wildlife products is largely driven by the rising middle class in South-East Asia, although markets for illegal products and live animals exist worldwide.



\$7 - \$23 BILLION

ESTIMATED VALUE  
OF GLOBAL ILLEGAL  
WILDLIFE TRADE

Illegal wildlife trade has far reaching impacts, including:

- Declines in wildlife populations;
- Degrading natural ecosystems;
- Social disruption to communities living close to wildlife areas;
- Promoting corruption at various levels;
- Undermining state security; and
- Negatively impacting local and national economies and sustainable development.



THE INFORMAL  
ILLEGAL TRADE  
AND ITS IMPACTS  
REMAIN POORLY  
UNDERSTOOD IN  
SOUTH AFRICA

## INFORMAL ILLEGAL TRADE

Although high-value international trade receives high levels of global attention, local illegal hunting may also impact wildlife populations. Illegal hunting can be driven by the traditional and cultural importance of hunting (e.g. for achieving manhood, gaining respect or attaining skins for ceremonial dress), a need for bushmeat or for use in traditional medicine due to the medicinal or spiritual properties of animal parts.

The bushmeat and traditional medicine (muthi) trades remain poorly understood in South Africa, making their impacts on biodiversity unknown. Local trade has generally been assumed to be for subsistence level use with negligible effects on wildlife populations, however, studies investigating the scale of trade in southern Africa give cause for concern.

For example, at site level, 2 000 snares were removed in the first two years of the Makuleke concession's operation in the northern Kruger National Park, and snaring incidents are frequently reported in national parks across the region. While at market level, surveys between 2000 and 2005 indicated over half of traders in traditional medicine markets, such as Faraday Market in Johannesburg and Queen Street Market in Durban, were trading in threatened species sourced from the wild.

## CORRUPTION

Organised crime goes hand in hand with corruption, and corruption facilitates illegal wildlife trade at every point along the wildlife supply chain. Corruption is the abuse of power to gain benefits for the individual and/or associates and can take many forms, ranging from bribery, forgery and laundering of profits to coercion and intentionally overlooking crimes committed. Corruption is pervasive as it undermines the laws and systems that are in place to regulate trade and protect wildlife. In wildlife trafficking, corruption includes failure to protect trade-restricted species at site level; failure to prevent transport and trade of species due to poor regulation within or across country borders; issuance of false documentation; as well as failure to effectively prosecute cases.

- Factors facilitating corrupt actions include:
- Lack of transparency and accountability;
- Ineffective deterrents, insufficient penalties and low detection risk;
- Lack of negative social stigma around involvement in corruption;
- Lack of resources and capacity to address wildlife crimes;
- Low or irregular payment for wildlife positions, such as rangers or officials;
- Perceptions of 'victimless' crimes or those that do not have serious consequences;
- Conflicts of interest; and
- Weak judicial independence.



## ILLEGAL WILDLIFE TRADE NETWORKS

Illegal wildlife trade is difficult to address as the chain is only partly understood, particularly the intricacies of connections between source and consumer.

### FROM SOURCE...

The beginning of the trade chain, where wildlife are killed or captured illegally, is well documented. It involves poaching gangs, informants and transporters at site level. Products can also be sourced from thefts, stockpile sales, unregulated local trade, captive facilities, and from legal uses where poor regulation enables laundering of legally sourced products into illegal markets. An example is the pseudo-hunting of rhino by Vietnamese hunters in South Africa who obtained horns through legal hunting but intended to sell the horns for profit.

### ...THROUGH INTERNATIONALLY CONNECTED NETWORKS...

Networks consolidate products from various sources and move them through intermediaries within and between source, transit and consumer countries. Networks are made up of buyers, dealers, couriers, importers and exporters. Some countries may be source and transit or transit and consumer countries.

Wildlife trafficking is becoming entrenched in organised crime syndicates operating at local, national and international levels. Wildlife products offer high black market prices combined with low risks of detection and arrest, as well as minimal punishments; particularly when compared to other illicit trades. Criminal syndicates exploit institutional weaknesses in governments, civil conflicts, loopholes in legislation and the lack of information sharing and coordinated enforcement between countries. Corruption and coercion across the trade chain facilitate the movement of illegal wildlife products.

Connected transport routes, often linked to other illicit trades, facilitate the flow of products, money and information. Traffickers are adaptive and use numerous methods to smuggle wildlife products by road, air or sea. Products can be concealed in shipments, hidden in rarely searched areas of cars, concealed in luggage as toys or inside electronic products or just carried on the passenger.

Raw wildlife products often need to be processed, from preparation as traditional medicines to carving into jewellery or ornaments. Research suggests growth in the processing of some products within southern Africa, like rhino horn jewellery, making it difficult to identify the product at exit ports. Processed products go back into transit within the network or potentially move directly to consumer markets.

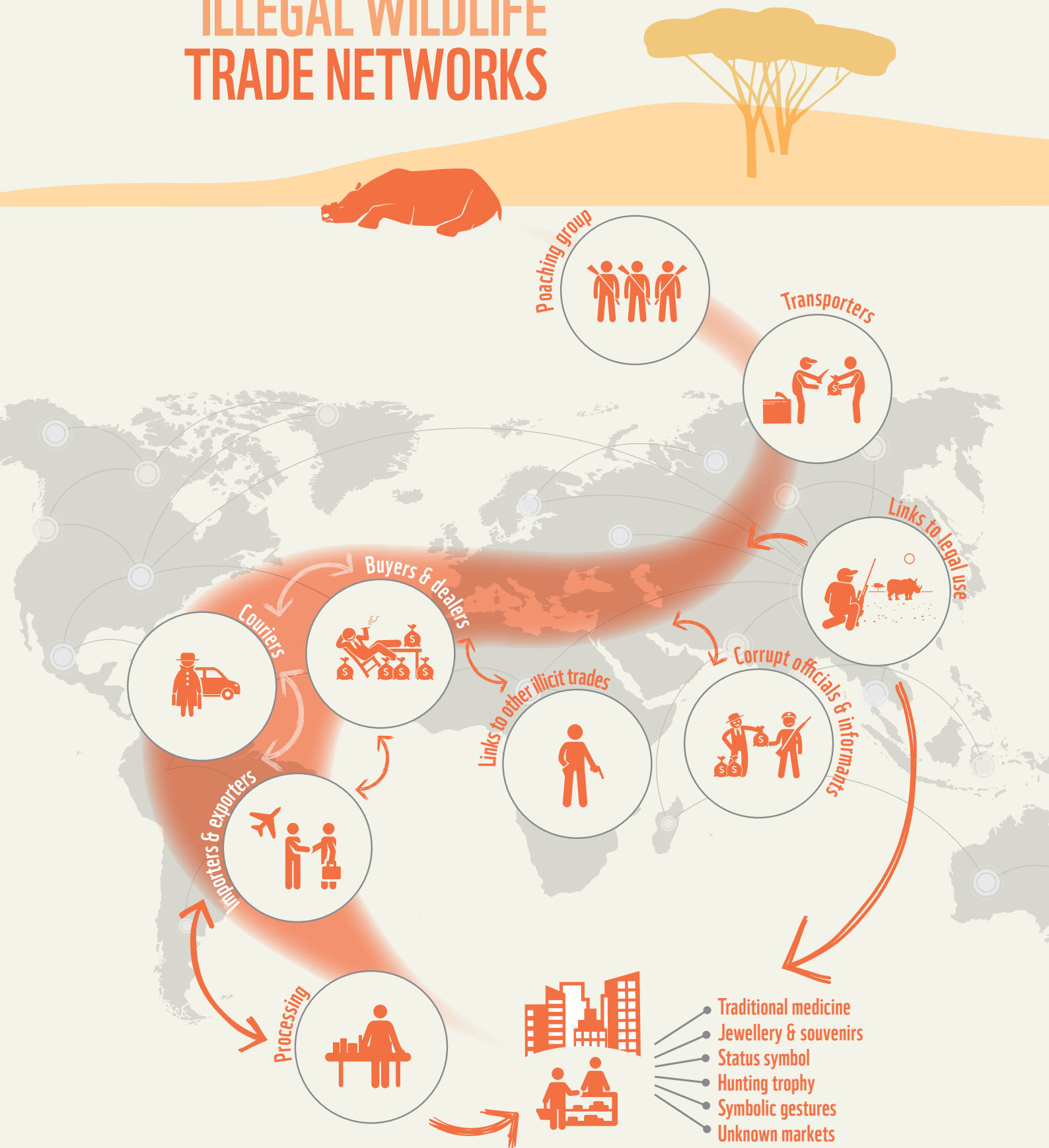
### ...TO CONSUMER MARKETS.

The end of the chain, where products reach consumer markets, is complex and requires improved understanding – with varied uses, multiple consumer countries and potentially parallel legal and illegal markets. Wildlife products can be used in traditional medicine, as ornaments or jewellery, as symbols of status or wealth or given to comfort the terminally ill. Products are sold in retail shops, markets or online platforms. Demand is influenced by tradition or culture but can stem from contemporary beliefs or even from seemingly innocuous purchases such as souvenirs.





# ILLEGAL WILDLIFE TRADE NETWORKS









## WILDLIFE TRAFFICKING AFFECTS PEOPLE TOO

When thinking about wildlife trafficking our attention usually falls on the loss of the animal, rather than the impacts on people. These impacts vary and improved understanding can help identify the best leverage points to address trafficking in a particular area. Criminal syndicates involved in wildlife trafficking become connected to communities adjacent to wildlife areas. Syndicates increase lawlessness, gangsterism and can break down social governance and cohesion in communities. As illegal behaviour proliferates, intimidation and other illegal activities, such as cattle theft, prostitution and human trafficking, increase. Anti-poaching responses by law enforcement officials targeting syndicates may also affect innocent people in the community.

Communities living adjacent to protected areas are often poor and lack access to basic services. Illegal trade in wildlife products can provide opportunities for people to earn an income, either from direct trade in the product or from providing information or other services, such as accommodation, food or alcohol to those involved in trafficking. In some instances, syndicate members may provide services in a community such as transport, building homes and sending children to school. These activities improve the syndicate's social status and influence over community leadership, creating an enabling environment for wildlife trafficking to continue.







# PEOPLES' STORIES ABOUT LIVING WITH WILDLIFE

Many people live close to protected areas and are affected by wildlife and wildlife trafficking, but their voices have gone largely unheard.



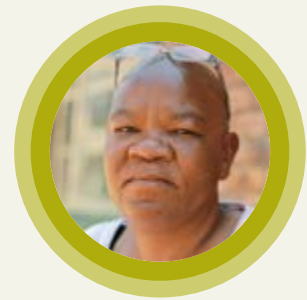
**WISDOM MATHEBULA**

In July 2018, Respect Mathebula, was the first ranger in 60 years to be killed in conflict with poachers in the Kruger National Park. Wisdom Mathebula, Respect's widow, reflects, "It had always been Respect's wish to work in the Kruger National Park. He had a passion for animals. I used to visit him sometimes when he was based at Crocodile Bridge. In the evenings he would sometimes look very quiet and then he'd tell me about encounters with poachers." She pauses, before adding, "I never thought this could happen." The community has been supportive after Respect's death but previously there were instances when the young family was threatened because of her husband's work in the park.



**LION THETE**

Lion Thete is one of many cattle farmers on the border of the Kruger National Park who often lose livestock to predators breaking through the park fence. He struggles to see any benefit of living next to a conservation area and finds it surprising that park managers and conservationists ask communities to care about rhino conservation when there is little consideration about his livelihood. "Now that they are losing rhino, they want us to care about these creatures," he says, "meanwhile, our cattle mean nothing to them." His attitude articulates the cultural disconnect between people and the park that was cemented by South Africa's exclusionary Apartheid policies, which generally kept black communities out of conservation areas, unless employed as labour. With little alternative livelihood options he is not surprised that the youth are turning to poaching. "We have young people here without jobs," he says, later adding, "They fear poverty more than they fear poaching!"



**CONSTANCE KHOZA**

Constance Khoza's parents were moved from where they had previously lived in the Kruger National Park. "They had no choice in this, but I loved listening to their stories of how they used to coexist with the animals. I still feel like these animals are my heritage," she explains. "But the youth, they interact with poachers. They drink together. Socialise. They hear how you can get rich very soon. Money can influence them, especially when they are not working," she notes. She says that poachers, employed by kingpins, infiltrate communities all the time, building relationships with young girls, who are impressed by their money, and with young men, disillusioned with unemployment and high levels of poverty. "There is no doubt that people coming from the outside to kill our heritage are aided by community members tempted by the promise of quick riches," she says, before adding, "It goes deeper though, the reserves don't like it when I tell them their rangers are involved. Even police can be recruiters. They are all part of this." She concludes, "I don't want poaching in my community. It only gets people killed."

# WWF-SA'S INVOLVEMENT IN WILDLIFE CONSERVATION

In 1968, the Southern African Wildlife Foundation was launched in South Africa, becoming WWF South Africa in later years. The initial funding raised was used to catalyse a wildlife sanctuary in neighbouring Eswatini, contributing to the expansion of the Milwane Game Reserve.

1980s

**WWF International involved in conservation of black and white rhino across Africa through the African Rhino Programme**

1997

**Southern African Wildlife College opened its doors**

Established as a learning institution for wildlife management, the college was conceptualised in 1993 and established in 1996 by WWF-SA with national and provincial government departments, other conservation agencies and the Southern African Development Community.

2003

**WWF-SA's Black Rhino Range Expansion Project created**

Far ahead of the devastating poaching crisis, WWF-SA established a project to grow the population and expand the range of the Critically Endangered black rhino.

2012

**WWF-SA Rhino Programme established**

Following an escalation in rhino poaching in 2008, WWF-SA launched a Rhino Programme that was founded on a five-point strategic framework. This framework recognised poaching as a complex issue requiring an integrated response across different agencies. Projects were developed and implemented as contributors to a systemic response to the rising poaching levels.

2015

**Rural Initiative for a Sustainable Environment (RISE) launched**

The RISE Unit was established at the Southern African Wildlife College to build human capacity to support community based natural resource management implementation, build a network and repository of information and maintain three pilot sites in the region over the long-term.

**WWF-SA started to work with the Mangalane community and Sabie Game Park in Mozambique**

The project contributed to reducing the number of illegally killed rhinos from 15 to zero by March 2018, highlighting the importance of working with communities around protected areas when addressing illegal wildlife trade.

**Chi campaign conceptualised and rolled out**

WWF-SA worked with partners on the ground in Viet Nam to develop focussed messaging for the rhino horn consumer market. The campaign reduced rhino horn use by 25% in two consumer groups in Viet Nam.

2017

**WWF-SA Wildlife Programme established**

Based on lessons learned from rhino conservation actions, the programme transitioned to take a more holistic approach to wildlife conservation as opposed to a single priority species approach.

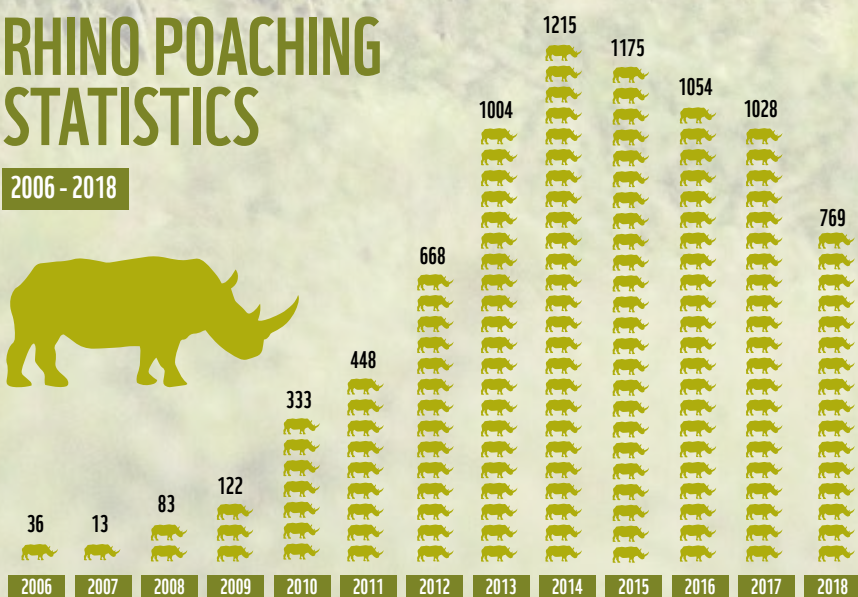
**Khetha Programme launched**

Funded by USAID, this ambitious five-year collaborative project is working with communities in the Great Limpopo Transfrontier Conservation Area to contribute to addressing wildlife trafficking.



# RHINO POACHING STATISTICS

2006 - 2018



NUMBER OF RHINOS POACHED IN SOUTH AFRICA

# 2003-NOW

## WWF-SA BLACK RHINO RANGE EXPANSION PROJECT

### BRREP MILESTONES

11

new black rhino  
populations established

240 000

more hectares now  
have black rhino on them

30%

of KwaZulu-Natal  
black rhino are on  
BRREP sites

10%

of South African rhino  
are on BRREP sites

21% INCREASE

in KwaZulu-Natal black  
rhino population since  
2003, reaching 500  
animals in the  
province in 2016

OVER 100 CALVES

have been born on the  
new sites since the  
project began

IN 2017

offspring from founding  
animals of early BRREP  
became part of a newly  
established population

### WHY DO WE MOVE BLACK RHINOS?

The Black Rhino Range Expansion Project (BRREP) started in KwaZulu-Natal and has moved 179 rhino since 2003. The project works on the principle that animal population growth is affected by their density in an area compared to the amount of resources available. If an area is close to the maximum number of animals, population growth is reduced. Rhinos are translocated in groups of about 20 animals, in order to form a healthy breeding population on a suitable new site within the historic range of the species. Creating new range areas for black rhinos, allows both for the source population to increase its growth rate and for growth within the newly established population. As black rhino require large home ranges they are considered an umbrella species, meaning that protecting black rhino protects natural habitats and other threatened species including African wild dogs and vultures.

### TRANSLOCATION FACTORS FOR A NEW BLACK RHINO RELEASE SITE:

- ✓ Does it have enough habitat for black rhino?
- ✓ Is it large enough for a population of up to 50 rhinos?
- ✓ Does it have sufficient security to contain and protect rhino?
- ✓ Is there potential for the site to expand or join up with sites that have black rhino?

### FLYING RHINOS

Minimising stress and ensuring the well-being of rhinos during translocation is a priority.

- Rhinos are sometimes airlifted for short distances from difficult terrain to the crates in which they are moved the longer distances to their release sites by truck.
- Rhinos can either be kept in a holding facility (boma) before being moved to a new site or they can be transported directly to the new site.
- Vets have agreed that transporting rhinos through the air using straps attached to the ankles is the method of choice as it is quick and harmless to rhinos and has no ill effects upon arrival. This method uses fewer personnel and requires the rhino to be unconscious for less time.
- By releasing the whole group at the same time on to the project site there is a minimal risk of fighting as none of them would have established territories which they would otherwise defend.

BRREP formed an integral part of the WWF-SA Rhino Programme from 2012 and continues into its sixth phase under the ongoing Wildlife Programme.



2012-2017

## WWF-SA RHINO PROGRAMME



### 1 BUILD RESILIENT RHINO POPULATIONS

The Programme's framework was founded on creating resilient rhino populations at a protected area level. As such, it included protection as well as ensuring good biological management to maximise population growth rates for species recovery through BRREP. The decision was made to focus on black rhino as the more endangered species and particularly on the three most significant populations found in KwaZulu-Natal, the Eastern Cape and the Kruger National Park.



### 2 DEVELOP COMMUNITY BUFFERS

Communities living adjacent to protected areas can be key role players in the persistence of rhinos and protected areas. Recognising this, the Programme included the need to work with people living next to parks with key rhino populations.



### 3 TIGHTEN THE FORENSIC AND PROSECUTORIAL CHAIN

Rhino horn trafficking requires a response from law enforcement agencies beyond traditional conservation authorities. WWF-SA and other NGOs cannot play a direct implementation role, however they can support the forensic and prosecutorial chain by empowering relevant government agencies and through the provision of training materials and support to increase the arrest and convictions rates which could serve as a greater deterrent to participation in wildlife trafficking.



### 4 IMPROVE BILATERAL CO-OPERATION

Trafficking networks operate across national boundaries so national law enforcement agencies must engage closely with their counterparts in key transit and consumer states. In particular, Mozambique was identified as a key transit country given its close proximity to the Kruger National Park as a source area and WWF-SA engaged with relevant authorities to improve capacity in the country.



### 5 UNDERSTAND TRADE AND INFLUENCE DEMAND

Ultimately, issues related to trade and demand are the key systemic driver of rhino poaching and require a high level of importance and focus. Demand from Asia was managed through targeted behaviour change campaigns and political pressure through partners working in the consumer countries. WWF-SA was actively involved in trying to find solutions to the contentious debate around the legal trade of rhino horn.



# WWF-SA RHINO PROGRAMME HIGHLIGHTS



## TAKING A SCIENCE-BASED APPROACH TO CONSERVATION

### 1 SUPPORTING RESILIENT RHINO POPULATIONS

WWF-SA has been involved in various collaborative projects to ensure rhino populations in South Africa are growing and well protected. Through the BRREP, 11 new black rhino populations have been established and 240 000 hectares of new habitat have been protected. With the success of the project, we recognised the need to improve genetic understanding of BRREP populations to inform management decisions so that translocations preserve genetic diversity and maintain heterozygosity.

Within the Kruger National Park, which contains key populations of black and white rhino, we support a specialist scientist to provide analytical support to SANParks' Black Rhino Guardian Programme. The intent of the Programme is to implement a proactive, integrated guardian approach through intense protection supported by tactical security and biological management guided by the scientist.

WWF-SA takes a science-based approach to conservation and has a long-standing relationship with the IUCN African Rhino Specialist Group and a strategic partnership with TRAFFIC, the wildlife trade monitoring network. Recognising the ongoing need for good biological management of rhino to ensure population recovery and to act as a buffer against poaching losses, WWF-SA brought together rhino scientists from around the world to share latest best practice and to develop a Handbook for rhino management.



## ENABLING COMMUNITIES TO REALISE SUSTAINABLE BENEFITS FROM WILDLIFE

### 2 DEVELOPING COMMUNITY BUFFERS

WWF-SA focuses on building relationships, developing skills and strengthening governance to enable communities to realise sustainable benefits from wildlife.

The BRREP project has had a strong community component since its inception and has introduced rhino to community-owned reserves such as Somkhanda Game Reserve. The project also provides funds for community members to be employed as rhino monitors on BRREP sites.

Our work in the Mangalane community next to Sabie Game Park in Mozambique included expanding local economies to improve livelihood options; improving leadership structures in the community so that benefits are fairly distributed; raising awareness on conservation policies; and empowering the community to protect their natural resources. The Mangalane community contributed to reducing the number of illegally killed rhinos within Sabie Game Park from 15 in 2015 to zero by March 2018.

The RISE Unit, co-created by WWF-SA and based at the Southern African Wildlife College, serves as knowledge and training hub for the SADC region to develop leadership, financial management and decision-making skills around natural resource management for government officials, private sector and communities living adjacent to wildlife areas.



### 3 TOOLS TO ADDRESS ILLEGAL WILDLIFE TRADE

WWF-SA provided initial capital and operational support to the Rhino DNA Indexing System (RhODIS), based at the Veterinary Genetics Lab of the University of Pretoria. RhODIS enables the collection and storage of genetic information from rhinos and rhino horns from poaching scenes, seizures and during routine immobilisations of rhinos for treatment or translocation. The database also holds DNA samples from other evidence, such as firearms or clothing that can be used to link suspects to poaching incidents in investigations and as evidence in court.

To support anti-poaching efforts in the Kruger National Park, a K9 Unit was created at the Southern African Wildlife College through funding from the WWF Nedbank Green Trust. Dogs trained under this project are already in the field and have improved the success of anti-poaching efforts through detecting and tracking poachers in the Greater Kruger area.



### 4 DEVELOPING BI-LATERAL PARTNERSHIPS

WWF-SA identified and engaged with partners working on addressing illegal wildlife trade in Mozambique and a Senior Policy Officer was recruited for WWF Mozambique. We engaged with the Mozambican judiciary and government institutions, culminating in a Memorandum of Understanding being signed between WWF Mozambique and the Attorney General, reflecting the commitment of the Government of Mozambique to address illegal wildlife trafficking.



### 5 ENGAGING WITH AND ADDRESSING THE DEMAND FOR RHINO HORN

The 'Chi' campaign was based in improved understanding of the demand for rhino horn in Viet Nam and how best to influence target consumer groups. The campaign message was that admirable qualities come from within and 'not from a piece of rhino horn'. The campaign was implemented by local partners in Viet Nam and resulted in a positive change in attitude in surveyed participants.

Locally, working together with the DEA, we developed materials to heighten awareness about illegal wildlife trade in South Africa. These included training materials for officials to identify and handle illicit wildlife products, informative media on the local muthi trade, and materials for the travelling public that were displayed in airports around the country.

In 2015, WWF-SA participated in the Committee of Inquiry established to advise the Minister of the DEA on proposing legal international trade in rhino horn. We engaged on discussions to understand the risks and opportunities that a legal supply of horn could offer and provided technical input and advice on this highly contentious issue.

While rhinos have borne the brunt of poaching in recent years and guided WWF-SA's work, they are not the only threatened species in South Africa which prompted the development of a broader programme.

# 2017-NOW

## WWF-SA WILDLIFE PROGRAMME



### EFFECTIVELY MANAGED AND CONSERVED KEY WILDLIFE AREAS ENABLE INDICATOR SPECIES TO THRIVE

Acknowledging the loss and fragmentation of wildlife habitat as a key threat for many species, WWF-SA aims to support the expansion of well-managed conservation areas. This includes creating a shared vision of conservation goals across various sectors to expand and connect key wildlife areas, support the development of relevant policies and build capacity in land and wildlife management.



### WILDLIFE SPECIES AND THEIR PRODUCTS ARE USED LEGALLY IN A SUSTAINABLE WAY WHICH BRINGS CONSERVATION BENEFITS

We seek to address unsustainable use of natural resources whilst identifying and supporting ways to use such resources sustainably. WWF-SA aims to develop an understanding of the long-term sustainability of wildlife products in both domestic and international markets as well as understanding the implications of different policy approaches and how best they can support conservation outcomes. Our approach is systemic, aiming to address illicit or unsustainable trade along the whole value chain, from crime prevention to conviction.



### IMPROVED WELLBEING OF PEOPLE LIVING WITHIN THE VICINITY OF KEY WILDLIFE AREAS

There is a growing awareness in the conservation community, both in South Africa and internationally, of the need to address past social injustices, lack of transformation and poverty that is interwoven with traditional conservation approaches. We work with key communities in the vicinity of protected areas to demonstrate the benefits of developing effective governance structures and including communities in conservation. Furthermore, we wish to shift the mindsets of key decision makers from a focus on militaristic responses to seeing the value of communities as a longer-term approach to wildlife conservation.





## KHETHA PROGRAMME

The Great Limpopo Transfrontier Conservation Area (GLTFCA) joins established protected areas across the borders of Mozambique, South Africa and Zimbabwe. This area is home to a variety of wildlife, including key populations of elephants and rhinos. These populations are under threat due to increased rates of poaching.

Funded by USAID, Khetha aims to contribute to increasing growth rates of black and white rhinos and maintain positive growth rates for elephants in the South African and Mozambican landscapes of the GLTFCA, by testing a community-based approach to addressing wildlife trafficking; and supporting partnerships that reduce wildlife trafficking impacts on flagship species and communities in Mozambique and South Africa.

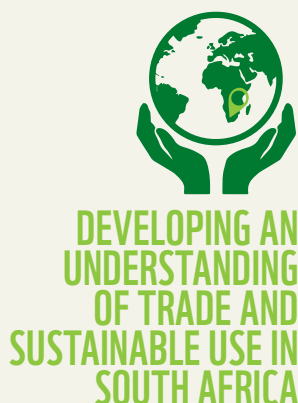
The Khetha Programme has three objectives:

- Building the relationship between communities and protected areas;
- Supporting law enforcement to stop wildlife trafficking; and
- Learning, collaborating and co-ordinating with influential institutions in the region to strengthen the collective response to wildlife trafficking.

Khetha recognises that communities living close to protected areas and key wildlife populations have a critical role to play in addressing the illegal wildlife trade. The programme is building the relationship between communities and protected areas by helping communities benefit from wildlife, including through participation in the decision-making around wildlife management.

Khetha acknowledges that in the short term, effective law enforcement and a capacitated judiciary are necessary to discourage illegal behaviour linked to wildlife trafficking. Khetha is supporting law enforcement to improve their wildlife trafficking prevention, detection, apprehension, crime scene management, and investigation and prosecution capabilities.

Khetha is also bringing people together from different sectors to collectively address wildlife trafficking and the programme provides capacity building support to influential institutions in the region. Khetha is committed to learning and adaptive management to meet the challenges of the dynamic illegal wildlife trade.



## WILDLIFE ECONOMICS AND POLICY

Sustainable use of natural resources is a key component of South Africa's Constitution but is often a misunderstood concept. With the growing wildlife industry and need to balance conservation and development, there is a need in South Africa to ensure that the use of natural resources is genuinely sustainable and brings benefits to conservation and society.

WWF-SA has recognised the need for thought leadership and communication around issues of sustainable use and to influence related policy locally and regionally. Therefore, from 2019, WWF-SA will engage in investigating important trade issues, provide objective quantitative analysis to complex conservation problems, and work in collaboration with other organisations to assist in moving the dialogue beyond divisive debates and towards a shared understanding.

# RHINOS

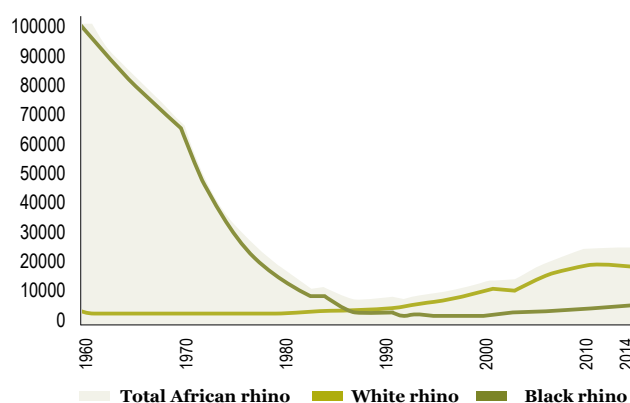
The two African rhino species have very different conservation histories despite both being affected by overexploitation. Historically, black rhinos were more numerous than the white rhino with several hundred thousand animals roaming from central-west Africa to the slopes of Table Mountain in South Africa.

Before the demand for rhino horn, particularly from the Middle East, escalated in the 1970s and 1980s, around 100 000 black rhino remained. The relentless poaching caused the black rhino population to crash by 96% by the early 1990s to a low of 2 410 animals. Conservation efforts, particularly in southern Africa, resulted in the current global population doubling to over 5 000 animals.

Southern white rhinos faced extinction at the turn of the 20th century when only 20 animals were left in Hluhluwe-iMfolozi Park in KwaZulu-Natal. The population crash was a result of colonial hunting for sport, meat and for removing rhinos from areas being transformed for agriculture. However, through concerted conservation efforts, such as Operation Rhino and the involvement of the private sector, it is the most common of all the extant rhino species.

## Estimated numbers of African rhino 1960 – 2015

(Numbers interpolated for years without estimates)



# RHINO

## FACT FILE

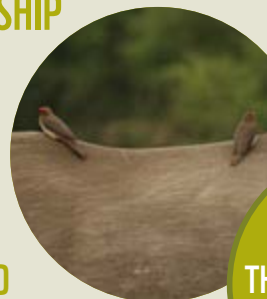


	WHITE RHINO	BLACK RHINO
SCIENTIFIC NAME	<i>Ceratotherium simum</i>	<i>Diceros bicornis</i>
GLOBAL POPULATION	18 100	5 500
SOUTH AFRICAN POPULATION	15 600 (86% of global)	2 050 (37% of global)
CITES APPENDIX	Appendix I, except for the populations of South Africa and Eswatini, which are included in Appendix II.	Appendix I
IUCN RED LIST	Near Threatened	Critically Endangered
SOUTH AFRICAN RED LIST	Near Threatened	Endangered
TOPS	Protected	Endangered
MAIN THREATS	<ul style="list-style-type: none"> <li>• Poaching</li> <li>• Corruption in enforcement agencies and anti-poaching programmes</li> <li>• Limited incentives for expanding range</li> <li>• Historical habitat loss</li> </ul>	
SUBSPECIES	There are two subspecies of white rhino, the southern and northern. The northern white rhino is functionally extinct due to rampant poaching and civil unrest in their range areas. South Africa is home to the southern white rhino.	There are three recognised subspecies: the southern-central, south-western and eastern. The most common subspecies in South Africa is the south-central subspecies <i>D.b. minor</i> .
CHARACTERISTICS	Height: 1.8m	Height: 1.6m
	Weight: 1 600–2 300kg	Weight: 800–1 000kg
	Square muzzle with a longer, lower set head suited to grazing	Pointed, prehensile muzzle and a higher set, rounded head suited to browsing
	Front horn is always longer than the back horn	Horns do not always show a clear distinction in length
	Flattened back with a hump near the middle	Concave back with no hump
LIFE SPAN	40–50 years	30–40 years
BREEDING	Sexual maturity: females 6–7 years, males 10–12 years	Sexual maturity: females 4–7 years, males 7–10 years
	Gestation: 16 months	Gestation: 15 months
	Calving: every 2 to 3 years	Calving: every 2 to 3 years



RHINOS AS A DIVERSE GROUP HAVE EXISTED ON EARTH FOR OVER 50 MILLION YEARS

AFRICAN RHINOS HAVE A SYMBIOTIC RELATIONSHIP WITH OXPECKERS



THE WORD "RHINOCEROS" COMES FROM THE GREEK WORDS: RHINO MEANING NOSE AND CEROS MEANING HORN



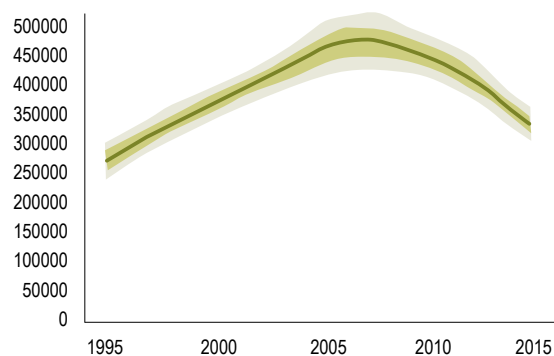
RHINO SPECIES ONCE ROAMED THROUGHOUT NORTH AMERICA, EUROPE, ASIA AND AFRICA



## ELEPHANTS

Elephants once roamed widely across Africa with the pre-colonial continental population estimated at over 20 million. The insatiable demand for ivory – for everything from jewellery to musical instruments and billiard balls to religious or artistic objects – resulted in the population plummeting to 10 million at the turn of the 20th century, 1.3 million by 1980, to 600 000 by 1990 when CITES implemented the international trade ban. A renewed elephant poaching crisis, beginning in 2005, has reduced populations by 60% in the last decade. The latest continental population is around 375 000. South Africa's elephants have largely been spared from poaching impacts to date and their numbers have been steadily rising in state and private reserves around the country. However, an increase in poaching incidents has been observed in the Kruger National Park in recent years.

**Estimated population of Elephant 1995 – 2015**  
(Numbers interpolated for years without estimates)

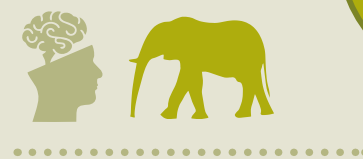


SCIENTIFIC NAME	<i>Loxodonta africana</i>
GLOBAL POPULATION	375 000
SOUTH AFRICAN POPULATION	26 900
CITES APPENDIX	Appendix I, except the populations of Botswana, Namibia, South Africa and Zimbabwe, which are included in Appendix II
IUCN RED LIST	Vulnerable
SOUTH AFRICAN RED LIST	Least Concern
TOPS	Protected
MAIN THREATS	<ul style="list-style-type: none"> <li>• Poaching for illegal trade in ivory</li> <li>• Habitat loss</li> <li>• Human-wildlife conflict</li> </ul>
CHARACTERISTICS	<p>Height: up to 3.3m</p> <p>Weight: 6 tonnes</p> <p>Prehensile trunk, tusks and big ears.</p> <p>Elephants are generalist herbivores, utilising a variety of browse and grasses. Twigs, bark and roots can also make up part of their diet, particularly in the dry season when other food sources are scarce.</p> <p>Mature males experience musth, a physical and behavioural condition characterised by elevated testosterone, aggression and sexual activity.</p>
LIFE SPAN	70 years
BREEDING	<p>Sexual maturity: 8-13 years</p> <p>Gestation: 22 months</p> <p>Interbirth intervals: between 4 to 6 years</p>

**ELEPHANTS ARE HIGHLY INTELLIGENT SOCIAL CREATURES WHOSE BRAINS HAVE SIMILAR STRUCTURES TO HUMANS**

**ELEPHANTS CAN DISTINGUISH BETWEEN DIFFERENT HUMAN LANGUAGES & DIALECTS**

**ELEPHANTS EXHIBIT A VARIETY OF BEHAVIOURS ASSOCIATED WITH GRIEF AND COMPASSION, AND ARE KNOWN TO USE TOOLS**



**ELEPHANTS HAVE A COMPLEX COMMUNICATION SYSTEM THAT INCLUDES VISUAL, TACTILE AND OLFACTORY SIGNALS AND MAINTAINS THEIR COMPLEX SOCIAL STRUCTURES**







© NATALIA BANASIAK / WWF-SA



© HOWARD BUFFETT / WWF-SA



© ISTOCKPHOTO.COM



# LION

## FACT FILE



SCIENTIFIC NAME	<i>Panthera leo</i>
GLOBAL POPULATION	23 000-39 000 mature individuals
SOUTH AFRICAN POPULATION	1 500 mature individuals
CITES APPENDIX	Appendix I or II
IUCN RED LIST	Vulnerable
SOUTH AFRICAN RED LIST	Least Concern
TOPS	Vulnerable
MAIN THREATS	<ul style="list-style-type: none"> <li>• Habitat loss</li> <li>• Human-wildlife conflict</li> <li>• Illegal killing / poaching</li> <li>• Prey-base depletion</li> <li>• Lion bone trade</li> <li>• Bovine Tuberculosis</li> </ul>

# LEOPARD

## FACT FILE



SCIENTIFIC NAME	<i>Panthera pardus</i>
GLOBAL POPULATION	None available
SOUTH AFRICAN POPULATION	1 700-7 000 mature individuals
CITES APPENDIX	Appendix I
IUCN RED LIST	Vulnerable
SOUTH AFRICAN RED LIST	Vulnerable
TOPS	Vulnerable
MAIN THREATS	<ul style="list-style-type: none"> <li>• Habitat loss</li> <li>• Human-wildlife conflict</li> <li>• Illegal trade (skins)</li> <li>• Snaring (incidental and intentional)</li> <li>• Road collisions</li> </ul>

# TEMMINCK'S GROUND PANGOLIN

## FACT FILE



SCIENTIFIC NAME	<i>Smutsia temminckii</i>
GLOBAL POPULATION	Unknown
SOUTH AFRICAN POPULATION	Estimates from 7 000 - 32 100
CITES APPENDIX	Appendix I
IUCN RED LIST	Vulnerable
SOUTH AFRICAN RED LIST	Vulnerable
TOPS	Vulnerable
MAIN THREATS	<ul style="list-style-type: none"> <li>• Illegal trade (meat and traditional medicine)</li> <li>• Electric fences</li> <li>• Road collisions</li> <li>• Incidental killing</li> </ul>

# FUTURE THREATS TO WILDLIFE

## GLOBAL WARMING

Over the next 50 years, South Africa is expected to warm between 1° and 3°C with reductions in rainfall between 5 to 10%. Changing climatic conditions will impact biodiversity, as areas climatically suitable for South Africa's terrestrial biomes are estimated to shrink by 40% by 2050. As whole biomes and areas of wildlife habitat are expected to change, there will be cascading consequences for many species. Wildlife species are at risk due to already limited capacity to shift their range to track suitable climate due to habitat fragmentation and fencing. Climate change can also have indirect effects on species such as changing temperatures sending confusing signals that trigger seasonal events such as reproduction.

## LOSS OF RANGE

The loss of species' range and habitat is a result of multiple causes including increasing human populations, changes in land use and climate change. South Africa's human population is expected to grow from 56 million to over 70 million by 2050 resulting in an increase in the demand for land and resources. Land use can also change as more profitable land uses outcompete conservation, particularly in terms of the potential for economic growth and job creation. In addition, protected areas in South Africa are also under pressure from land claims which may result in changes in land use practice.

## INCREASING INTENSIVE MANAGEMENT

With the increasing focus on the wildlife economy there is concern about the potential increase of intensification in wildlife ranching. There has been limited research on the conservation value of intensively managed populations and currently there are insufficient incentives for biodiversity-friendly, large-scale landscape management approaches. There is a risk that focus will remain solely on species considered valuable while less preferred species are either ignored or purposefully excluded from intensively managed systems. While the national wildlife economy strategy focuses on increasing socio-economic benefits of wildlife, training and capacity for implementation as well as foreign markets and consumers remain a concern.

## EMERGING MARKETS FOR WILDLIFE PRODUCTS

There is always a risk of new markets emerging for wildlife products which increase demand and fuel the illegal trade. Rhino horn, for example, has historically gone through a variety of uses since the 1980s. Prior to 1990, horn was a prized substance for the carving of djambia dagger handles in Yemen while in the current South-East Asian markets horn is used for various purposes ranging from traditional Asian medicine, jewellery, a status symbol in business relations, or more recently to being used as a way to console the terminally ill.

## LIMITED CAPACITY FOR CONSERVATION

Ultimately the success of conservation actions is dependent on both government and the global community having the will to conserve the Earth's wild places and the species living therein. Government investment is fundamental for providing policy frameworks that enable conservation while the global community supports increased financial support as well as nurturing an ethos of conservation in society.

# CONCLUSION

The accelerated global loss of biodiversity represents a real threat to people and demands a call to action.



During November 2018, biodiversity experts attending the Convention on Biological Diversity warned that the ongoing mass extinction of wildlife represents as great a danger to humanity as climate change.

Wildlife species are not just important in themselves but each species plays a vital role in holding the threads of our delicate ecosystems together. As such, we should view them as indicators of the health of the ecosystems which sustain life on Earth and support socio-economic activities and human well-being.

The scale of pressures facing nature can seem overwhelming. We stand at a pivotal point in facing the threats of overexploitation, habitat loss and climate change in order to turn the tide on the loss of our biodiversity.

South Africa is one of the few countries globally where large intact ecosystems and the riches of the animal kingdom remain and are still valued. We owe it to future generations to show that we can continue to conserve these vital systems for the benefit of all – economically and inherently – with effective and inclusive management, governance, and protection.

To achieve this we must work together. By collaborating with partners across sectors and disciplines towards our common goal, we can address the complex issues within wildlife conservation. The challenge of conserving wildlife is systemic and we need a paradigm shift in how we think about our natural resources, our protected areas, our wildlife and our people.





# GLOSSARY

<b>BIODIVERSITY HOTSPOT</b>	A biogeographic region that is both a significant reservoir of biodiversity and is threatened with destruction.
<b>BIOPROSPECTING</b>	The utilisation of indigenous biological resources for the manufacture of products such as pharmaceuticals, herbal medicines, cosmetics, food flavours and fragrances.
<b>ECOSYSTEM SERVICES</b>	Benefits people obtain from ecosystems, for example provision of food and water, control of climate, oxygen, carbon and nutrient cycles, and spiritual or recreational benefits.
<b>ENDEMIC</b>	An endemic species is native and restricted to a certain locality or region.
<b>EXTANT</b>	An extant species is one that is still alive today.
<b>IUCN RED LIST</b>	The IUCN Red List of Threatened Species™ provides taxonomic, conservation status and distribution information on plants, fungi and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction.
<b>LIVING PLANET INDEX</b>	The LPI reflects changes in the health of the planet's ecosystems by tracking trends in over 14 000 populations of vertebrate species. Much as a stock market index tracks the value of a set of shares over time as the sum of its daily change, the LPI first calculates the annual rate of change for each species' population in the dataset. The index then calculates the average change across all populations for each year from 1970, when data collection began, to the latest date for which data are available.
<b>MEGAFaUNA</b>	Carnivores weighing over 15kg and omnivores and herbivores over 100kg but these weight classes can vary.
<b>SUSTAINABLE USE</b>	The use of components of biological diversity in a way and at a rate that does not lead to long-term declines of biological diversity.
<b>VIABLE POPULATION</b>	A viable population is one that can maintain itself in the wild with no or minimal intervention from humans. The number of individuals required for a viable population varies by species.

# REFERENCES

## STATE OF WILDLIFE

- Braje, T.J. & Erlandson, J.M. 2013. Human acceleration of animal and plant extinctions: A Late Pleistocene, Holocene, and Anthropocene continuum. *Anthropocene*, 4:14-23.
- Ceballos, G., Ehrlich, P.R., Barnosky, A.D., García, A., Pringle, R.M. & Palmer, T.M. 2015. Accelerated modern human-induced species losses: Entering the sixth mass extinction. *Science Advances*, 1(5):e1400253.
- Craigie, I.D., Baillie, J.E., Balmford, A., Carbone, C., Collen, B., Green, R.E. & Hutton, J.M. 2010. Large mammal population declines in Africa's protected areas. *Biological Conservation*, 143(9):2221-2228.
- Crutzen, P.J. 2002. Geology of mankind. *Nature*, 415(6867):23.
- De Vos, J.M., Joppa, L.N., Gittleman, J.L., Stephens, P.R. & Pimm, S.L. 2015. Estimating the normal background rate of species extinction. *Conservation Biology*, 29(2):452-462.
- Driver, A., Sink, K., Nel, J., Holness, S., Van Niekerk, L., Daniels, F., Jonas, Z., Majiedt, P., Harris, L. & Maze, K. 2012. National Biodiversity Assessment 2011: An Assessment of South Africa's Biodiversity and Ecosystems. Synthesis Report. Pretoria: South African National Biodiversity Institute and Department of Environmental Affairs.
- Lindsey, P.A., Miller, J.R., Petracca, L.S., Coad, L., Dickman, A.J., Fitzgerald, K.H., Flyman, M.V., Funston, P.J., Henschel, P., Kasiki, S. & Knights, K. 2018. More than \$1 billion needed annually to secure Africa's protected areas with lions. *Proceedings of the National Academy of Sciences*, 115(45):10788-10796.
- Maxwell, S.L., Fuller, R.A., Brooks, T.M. & Watson, J.E. 2016. Biodiversity: The ravages of guns, nets and bulldozers. *Nature*, 536(7615):143-145.
- McCallum, M.L. 2015. Vertebrate biodiversity losses point to a sixth mass extinction. *Biodiversity and Conservation*, 24(10):2497-2519.
- Mittermeier, R.A., Gil, P.R. & Mittermeier, C.G. 1997. Megadiversity: Earth's biologically wealthiest nations. Washington: Conservation International.
- Mittermeier, R.A., Gil, P.R., Hoffman, M., Pilgrim, J., Brooks, T.G.M.C.J., Mittermeier, C.G., Lamoreux, J.L. & Fonseca, G.A.B. 2005. Hotspots revisited: Earth's biologically richest and most endangered terrestrial ecoregions. Washington: Conservation International.
- Muir-Leresche, K. & Nelson, R. 2000. Private property rights to wildlife: the southern African experiment. ICER Working Papers 02-2000, Torino: International Centre for Economic Research.
- Pimm, S.L., Russell, G.J., Gittleman, J.L. & T. Brooks, T.M. 1995. The future of biodiversity. *Science*, 269:347-350.
- Pimm, S.L., Jenkins, C.N., Abell, R., Brooks, T.M., Gittleman, J.L., Joppa, L., Raven, P.H., Roberts, C.M. & Sexton, J.O. 2014. The biodiversity of species, their rates of extinction, distribution, and protection. *Science* 344:987.
- Régner, C., Achaz, G., Lambert, A., Cowie, R.H., Bouchet, P. & Fontaine, B. 2015. Mass extinction in poorly known taxa. *Proceedings of the National Academy of Sciences*, 112(25):7761-7766.
- Ripple, W.J., Chapron, G., López-Bao, J.V., Durant, S.M., Macdonald, D.W., Lindsey, P.A., Bennett, E.L., Beschta, R.L., Bruskotter, J.T., Campos-Arceiz, A., Corlett, R.T., Darimont, C.T., Dickman, A.J., Dirzo, R., Dublin, H.T., Estes, J.A., Everatt, K.T., Galetti, M., Goswami, V.R., Hayward, M.W., Hedges, S., Hoffmann, M., Hunter, L.T.B., Kerley, G.I.H., Letnic, M., Levi, T., Maisels, F., Morrison, J.C., Nelson, M.P., Newsome, T.M., Painter, L., Pringle, R.M., Sandom, C.J., Terborgh, J., Treves, A., Van Valkenburgh, B., Vucetich, J.A., Wirsing, A.J., Wallach, A.D., Wolf, C., Woodroffe, R., Young, H., Zhang, L. & Corlett, R.T. 2016. Saving the world's terrestrial megafauna. *Bioscience*, 66(10):807-812.
- Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O. & Ludwig, C. 2015. The trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*, 2:81-98.
- UN. United Nations, Department of Economic and Social Affairs, Population Division. 2017. World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. ESA/P/WP/248. Available: [https://esa.un.org/unpd/wpp/Publications/Files/WPP2017\\_KeyFindings.pdf](https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf) [18 July 2018].
- Waters, C.N., Zalasiewicz, J., Summerhayes, C., Barnosky, A.D., Poirier, C., Gałuszka, A., Cearreta, A., Edgeworth, M., Ellis, E.C., Ellis, M., Jeandel, C., Leinfelder, R., McNeill, J.R., deB. Richter, D., Steffen, W., Syvitski, J., Vidas, D., Waprich, M., Williams, M., Zhisheng, A., Grinevald, J., Odada, E., Oreskes, N. & Wolfe, A.P. 2016. The Anthropocene is functionally and stratigraphically distinct from the Holocene. *Science*, 351 (6269):aad2622-1-aad2622-10.
- WWF. 2018. Living Planet Report 2018. Aiming higher. Grooten, M. & Almond, R.E.A. (eds.). Gland: WWF International.

## THREATS TO WILDLIFE

- Balmori, A. 2009. Electromagnetic pollution from phone masts. Effects on wildlife. *Pathophysiology*, 16(2-3):191-199.
- Bellard, C., Bertelsmeier, C., Leadley, P., Thuiller, W. & Courchamp, F. 2012. Impacts of climate change on the future of biodiversity. *Ecology Letters*, 15:365-377.
- Brumm, H. 2004. The impact of environmental noise on song amplitude in a territorial bird. *Journal of Animal Ecology*, 73(3):434-440.

DEAT. Department of Environmental Affairs and Tourism. 2004. A national climate change response strategy for South Africa. Available: [https://unfccc.int/files/meetings/seminar/application/pdf/sem\\_sup3\\_south\\_africa.pdf](https://unfccc.int/files/meetings/seminar/application/pdf/sem_sup3_south_africa.pdf) [17 July 2018].

Driver, A., Sink, K., Nel, J., Holness, S., Van Niekerk, L., Daniels, F., Jonas, Z., Majiedt, P., Harris, L. & Maze, K. 2012. National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. Pretoria: South African National Biodiversity Institute and Department of Environmental Affairs.

Haddad, N.M., Brudvig, L.A., Clobert, J., Davies, K.F., Gonzalez, A., Holt, R.D., Lovejoy, T.E., Sexton, J.O., Austin, M.P., Collins, C.D. & Cook, W.M. 2015. Habitat fragmentation and its lasting impact on Earth's ecosystems. *Science Advances*, 1(2):p.e1500052.

Longcore, T. & Rich, C. 2004. Ecological light pollution. *Frontiers in Ecology and the Environment*, 2(4): 191-198.

Martin, E.B. 1987. The Yemeni rhino horn trade. *Pachyderm*, 8:13-16.

Midgley, G., Rutherford, M. & Bond, W. 2001. The heat is on...: Impacts of climate change on plant diversity in South Africa. Cape Town: National Botanic Institute.

Milliken, T. & Shaw, J. 2012. The South Africa – Viet Nam Rhino Horn Trade Nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates. Johannesburg: TRAFFIC.

Persson, L.M., Breitholtz, M., Cousins, I.T., de Wit, C.A., MacLeod, M. & McLachlan, M.S. 2013. Confronting unknown planetary boundary threats from chemical pollution. *Environmental Science & Technology*, 47:12619-12622.

Spooner, F.E.B., Pearson, R.G. & Freeman, R. 2018. Rapid warming is associated with population decline among terrestrial birds and mammals globally. *Global Change Biology*, 24(10):4521-4531.

Statistics South Africa (Stats SA). 2017. Mid-year population estimates 2017. Available: <http://www.statssa.gov.za/publications/P0302/P03022017.pdf> [14 August 2018]

UN. United Nations, Department of Economic and Social Affairs, Population Division. 2017. World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. ESA/P/WP/248. Available: [https://esa.un.org/unpd/wpp/Publications/Files/WPP2017\\_KeyFindings.pdf](https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf) [18 July 2018].

Vu, H.N.D. & Nielsen, M.R. 2018. Understanding utilitarian and hedonic values determining the demand for rhino horn in Viet Nam. *Human Dimensions of Wildlife*, 1-16.

Yuan, X., Wang, L. & Wood, E.F. 2018. Anthropogenic intensification of southern African flash droughts as exemplified by the 2015/16 season. *Bulletin of the American Meteorological Society*, 99(1):S86-S90.

Ziervogel, G., New, M., Garderen, E.A. Van, Midgley, G., Taylor, A., Hamann, R. & Stuart-Hill, S. 2014. Climate change impacts and adaptation in South Africa. *Wiley Interdisciplinary Reviews: Climate Change*, 5(5):605–620.

## PEOPLE AND NATURE

Adams, W. & Mulligan, M. (eds.) 2003. Decolonizing nature: Strategies for conservation in a post-colonial era. London: Earthscan.

Brockington, D. 2002. Fortress Conservation: The preservation of the Mkomazi Game Reserve, Tanzania. Oxford: International African Institute.

Carruthers, J. 1995. The Kruger National Park: A social and political history. Pietermaritzburg: University of Natal Press.

Carruthers, J. 2005. Changing perspectives on wildlife in southern Africa, C. 1840 to C. 1914. *Society & Animals*, 13(3):183-199.

Chapman, J. 1971. Travels in the interior of South Africa 1849-1863. Hunting and trading journeys from Natal to Walvis Bay & visits to Lake Ngami & Victoria Falls. Part Two. Cape Town: A.A. Balkema.

DEA. Department of Environmental Affairs. 2018. Environmental Indicator Details: Percentage of total land area under protection. Available: <http://enviroindicator.environment.gov.za/IndicatorData.aspx>. [17 July 2018].

Dore, D. 2001. Transforming traditional institutions for sustainable natural resource management: History, narratives and evidence from Zimbabwe's communal areas. *African Studies Quarterly*, 5(3):1-18.

Langholz, J.A. & Kerley, G.I.H. 2006. Combining conservation and development on private lands: An assessment of ecotourism-based private game reserves in the Eastern Cape. Port Elizabeth: Centre for African Conservation Ecology.

Lindsey, P.A., Alexander, R., Mills, M.G.L., Romañach, S. & Woodroffe, R. 2007. Wildlife viewing preferences of visitors to protected areas in South Africa: Implications for the role of ecotourism in conservation. *Journal of Ecotourism*, 6:19-33.

Lindsey, P.A., Frank, L.G., Alexander, R., Mathieson, A. & Romanach, S.S. 2007. Trophy hunting and conservation in Africa: Problems and one potential solution. *Conservation Biology*, 21(3):880-883.

Loveridge, A.J., Packer, C. & Dutton, A. 2009. Science and the recreational hunting of lions, in Dickson, B., Hutton, J. & Adams, W.M. (eds.) *Recreational hunting, conservations and livelihoods*. Oxford: Blackwell Publishing Ltd.

Mackenzie, J.M. 1987. Chivalry, social Darwinism and ritualised killing: The hunting ethos in Central Africa up to 1914, in Anderson, D. & Grove, R. (eds.) *Conservation in Africa: People, policies and practice*. Cambridge: Cambridge University Press.

Muir-Leresche, K. & Nelson, R. 2000. Private property rights to wildlife: the southern African experiment. ICER Working Papers 02-2000. Torino: International Centre for Economic Research.

Murombedzi, J.C. 2003. Pre-colonial and colonial practices in southern Africa and their legacy today. Washington: World Conservation Union.

SANParks. South African National Parks. 2017. South African National Parks Annual Report 2016/2017. Available: <https://www.sanparks.org/assets/docs/general/annual-report-2017.pdf> [14 August 2018].

Skead, C.J., Boshoff, A., Kerley, G.I.H. & Lloyd, P. 2007. Historical incidence of the larger land mammals in the broader Eastern Cape (Vol. 13, p. 570). Port Elizabeth: Centre for African Conservation Ecology.

Skead, C.J., Boshoff, A., Kerley, G.I.H. & Lloyd, P. 2011. Historical incidence of the larger land mammals in the broader Northern



and Western Cape. Port Elizabeth: Centre for African Conservation Ecology.

Steinhart, E.I. 1989. Hunter, poachers and gamekeeper: Towards a social history of hunting in colonial Kenya. *Journal of African History*, 30:247-264.

Struben, H.W. 1920. *Recollections of adventures. Pioneering and development in South Africa 1850-1911*. Cape Town: Maskew Miller.

Taylor, W.A., Lindsey, P.A. & Davies-Mostert, H. 2015. An assessment of the economic, social and conservation value of the wildlife ranching industry and its potential to support the green economy in South Africa. Johannesburg: The Endangered Wildlife Trust.

Whiting, M.J., Williams, V.L. & Hibbitts, T.J. 2011. Animals traded for traditional medicine at the Faraday market in South Africa: Species diversity and conservation implications. *Journal of Zoology* 284:84-96

## WILDLIFE TRADE

Barnett, R. (ed.) 2000. *Food for thought: The utilisation of wild meat in eastern and southern Africa*. Nairobi: TRAFFIC East/Southern Africa.

CITES Management Authority of China. 2012. *Control of Trade in Ivory in China (report to 62nd Standing Committee meeting: SC62 Inf. 8)*. Beijing: CITES Management Authority of China.

DAFF. Department of Agriculture, Forestry and Fisheries. 2010. *Game industry market value chain profile*. Republic of South Africa: Department of Agriculture, Forestry and Fisheries. Available: <http://www.daff.gov.za/docs/AMCP/GameMVCP2009-2010.pdf> [17 July 2018].

DEA. Department of Environmental Affairs. 2015. *Biodiversity Economy Strategy For The Department Of Environmental Affairs*. Government Gazette no. 39268.

DEA. Department of Environmental Affairs. Undated. *Situation analysis of four selected sub-sectors of the biodiversity and conservation sector in South Africa*. Unpublished report.

Duffy, R., St John, F.A.V., Büscher, B. & Brockington, D. 2014. Toward a new understanding of the links between poverty and illegal wildlife hunting. *Conservation Biology*. 30(1):14-22.

Fairhead, J., Leach, M., & Scoones, I. 2012. Green grabbing: A new appropriation of nature? *The Journal of Peasant Studies*, 39(2):237-261.

Ferreira, S.M., Pfab, M. & Knight, M. 2014. Management strategies to curb rhino poaching: Alternative options using a cost-benefit approach. *South African Journal of Science*, 110(5-6):1-8.

Global Financial Integrity. 2012. *Ivory and insecurity: The global implications of poaching in Africa*. Washington: Global Financial Integrity.

Haken, J. 2011. *Transnational Crime in the Developing World*. Washington: Global Financial Integrity.

Hass, T.C. & Ferreira, S.M. 2016. Combating rhino horn trafficking: The need to disrupt criminal networks *PLoS ONE*, 11(11):e0167040.

Herbig, F.J. & Warchol, G. 2011. South African conservation crime and routine activities theory: A causal nexus? *Acta Criminologica: Southern African Journal of Criminology*, 24(2): 1-16.

Hübschle, A.M. 2016. The social economy of rhino poaching: Of economic freedom fighters, professional hunters and marginalized local people. *Current Sociology*, 65(3):427-447.

Hübschle, A.M. & Shearing, C. 2018. *Ending wildlife trafficking: Local communities as change agents*. Geneva: The Global Initiative Against Transnational Organised Crime.

Kammer, A. 2006. *Using Geographical Information Systems to investigate the bushmeat phenomenon in KwaZulu-Natal*. M.Sc. thesis. University of Pretoria, South Africa.

Lindsey, P.A., Balme, G., Becker, M., Begg, C., Bento, C., Bocchino, C., Dickman, A., Diggle, R., Eves, H., Henschel, P., Lewis, D., Marnewick, K., Mattheus, J., McNutt, J.W., McRobb, R., Midlane, N., Milanzi, J., Morley, R., Murphree, M., Nyoni, P., Opyene, V., Phadima, J., Purchase, N., Rentsch, D., Roche, C., Shaw, J., van der Westhuizen, H., van Vliet, N. & Zisadza, P. 2015. *Illegal hunting and the bush-meat trade in savanna Africa: Drivers, impacts and solutions to address the problem*. New York: Food and Agriculture Organization of the United Nations.

Milliken, T. 2014. *Illegal Trade in Ivory and Rhino Horn: An assessment to improve law enforcement under the Wildlife TRAPS project*. Cambridge: TRAFFIC International.

Milliken, T. & Shaw, J. 2012. *The South Africa – Viet Nam Rhino Horn Trade Nexus: A deadly combination of institutional lapses, corrupt wildlife industry professionals and Asian crime syndicates*. Johannesburg: TRAFFIC.

Moneron, S., Okes, N. & Rademeyer, J. 2017. *Pendants, Powder and Pathways*. Pretoria: TRAFFIC.

Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., van Tol, G. & Christophersen, T. 2008. *Conservation and use of wildlife-based resources: The bushmeat crisis*. Secretariat of the Convention on Biological Diversity, Montreal, and Center for International Forestry Research, Bogor. Technical Series no. 33, 50 pages.

National Integrated Strategy to Combat Wildlife Trafficking (NISCWT). 2017. *Securing South Africa's wildlife heritage: Breaking the illicit value chain of wildlife trafficking*. Available: <http://pmg-assets.s3-website-eu-west-1.amazonaws.com/170530NISCWT.pdf> [23 October 2018].

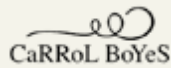
Nellemann, C., Henriksen, R., Raxter, P., Ash, N. & Mrema, E. (eds). 2014. *The environmental crime crisis: Threats to sustainable development from illegal exploitation and trade in wildlife and forest resources*. A UNEP Rapid Response Assessment. Nairobi and Arendal: United Nations Environment Programme and GRID-Arendal.

- Phelps, J., Biggs, D. & Webb, E.L. 2016. Tools and terms for understanding illegal wildlife trade. *Frontiers in Ecology and the Environment*, 14(9): 479-489.
- Rademeyer, J. 2012. *Killing for Profit: Exposing the illegal rhino horn trade*. Cape Town: Zebra Press.
- Rademeyer, J. 2016. *Tipping Point: Transnational organised crime and the 'war' on poaching*. Geneva: The Global Initiative against Transnational Organized Crime.
- Rademeyer, J. 2016. *Beyond borders: Crime, conservation and criminal networks on the illicit rhino horn trade*. Geneva: The Global Initiative against Transnational Organized Crime.
- Sinovas, P., Price, B., King, E., Davis, F., Hinsley, A. & Pavitt, A. 2016. Southern Africa's wildlife trade: an analysis of CITES trade in SADC countries. Technical report prepared for the South African National Biodiversity Institute (SANBI). Cambridge: UNEP-WCMC. Available: <https://cites.org/sites/default/files/eng/cop/17/InfDocs/E-CoP17-Inf-78.pdf> [26 October 2018].
- Taylor, W.A., Lindsey, P.A. & Davies-Mostert, H. 2015. An assessment of the economic, social and conservation value of the wildlife ranching industry and its potential to support the green economy in South Africa. Johannesburg: The Endangered Wildlife Trust.
- UNODC. United Nations Office on Drugs and Crime. 2002. Results of a pilot survey of forty selected organized criminal groups in sixteen countries. Available: [https://www.unodc.org/pdf/crime/publications/Pilot\\_survey.pdf](https://www.unodc.org/pdf/crime/publications/Pilot_survey.pdf). [18 July 2018].
- UNODC. United Nations Office on Drugs and Crime. 2016. *World wildlife crime report: Trafficking in protected species, 2016*. New York: UNODC.
- Warchol, G.L., Zupan, L.L. & Clack, W. 2003. Transnational criminality: An analysis of the illegal wildlife market in Southern Africa. *International Criminal Justice Review*, 13(1):1-27.
- Whiting, M.J., Williams, V.L. & Hibbitts, T.J. 2011. Animals traded for traditional medicine at the Faraday market in South Africa: species diversity and conservation implications. *Journal of Zoology* 284:84-96.
- WWF/Dalberg. 2012. *Fighting illicit wildlife trafficking: A consultation with governments*. Gland: WWF International.
- WWF and TRAFFIC. 2015. *Strategies for fighting corruption in wildlife conservation: A primer*. Gland: WWF International.
- Wyatt, T. & Cao, A. 2015. *Corruption and wildlife trafficking*. Bergen: A U4 Anti-Corruption Resource Centre.
- Wyatt, T., Johnson, K., Hunter, L., George, R. & Gunter, R. 2018. *Corruption and wildlife trafficking: Three case studies involving Asia*. *Asian Journal of Criminology*, 13(1): 35-55.
- Yu, X. & Jia, W. 2015. Moving targets: tracking online sales of illegal wildlife products in China. TRAFFIC, Cambridge, United Kingdom.

## SPECIES INFORMATION

- Chase, M.J., Schlossberg, S., Griffin, C.R., Bouché, P.J., Djene, S.W., Elkan, P.W., Ferreira, S., Grossman, F., Kohi, E.M., Landen, K. & Omondi, P. 2016. Continent-wide survey reveals massive decline in African savannah elephants. *PeerJ*, 4:p.e2354.
- Child, M.F., Roxburgh, L., Do Linh San, E., Raimondo, D. & Davies-Mostert, H.T. (eds). *The 2016 Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust. Available: <https://www.ewt.org.za/reddata/reddata.html> [31 July 2018].
- IUCN Red List. <https://www.iucnredlist.org/> [31 July 2018].
- McComb, K., Shannon, G., Sayialel, K.N. & Moss, C. 2014. Elephants can determine ethnicity, gender, and age from acoustic cues in human voices. *Proceedings of the National Academy of Sciences*, 111(14):5433-5438.
- Milner-Gulland, E.J. & Beddington, J.R. 1993. The exploitation of elephants for the ivory trade: A historical perspective. *Proceedings of the Royal Society of London B: Biological Sciences* 252:29-37.
- Poole, J.H. 2011. The behavioral context of African elephant acoustic communication. In Moss, C. J., Croze, H. J., & Less, P. C. (Eds.), *The Amboseli elephants: A long-term perspective on a long-lived mammal*. Chicago: University of Chicago Press.
- Species+. <https://www.speciesplus.net/> [1 October 2018].

## WWF-SA IS PROUD TO WORK WITH THE FOLLOWING ORGANISATIONS:



Empowered lives.  
Resilient nations.







# STATE OF SOUTH AFRICA'S WILDLIFE

13%

Of South Africa's land area  
is formally protected

R3 BILLION

The estimated monetary  
value contributed by  
wildlife to South Africa's  
economy (2013)



17%

The percentage of South  
Africa's terrestrial mammals  
that are threatened

75%

Of the world's rhinos  
are in South Africa



#### Why we are here

To stop the degradation of the planet's natural environment and to  
build a future in which humans live in harmony with nature.

[wwf.org.za](http://wwf.org.za)

WWF-SA is a registered Non-Profit Organisation, number 003-226 NPO. © 1986 panda symbol and ® "WWF" Registered Trademark of WWF-World Wide Fund for Nature (formerly World Wildlife Fund). 1st Floor Bridge House, Boundary Terraces, Mariendahl Lane, Newlands, Cape Town, PO Box 23273, Claremont 7735, t: 021 21 657 6600, e: [info@wwf.org.za](mailto:info@wwf.org.za), [wwf.org.za](http://wwf.org.za)